National Park Service
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Natural Resource Stewardship and Science

Channel Islands National Park
Kelp Forest Monitoring Program

Annual Report 2012

Natural Resource Data Series NPS/MEDN/NRDS—2013/479



ON THE COVER
Underside of bat star (*Patiria miniata*)
Photograph by: Channel Islands National Park

Channel Islands National Park
Kelp Forest Monitoring Program

Annual Report 2012

Natural Resource Data Series NPS/MEDN/NRDS—2013/479

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The National Park Service, Natural Resource Stewardship and Science office in Fort Collins, Colorado, publishes a range of reports that address natural resource topics. These reports are of interest and applicability to a broad audience in the National Park Service and others in natural resource management, including scientists, conservation and environmental constituencies, and the public.

The Natural Resource Data Series is intended for the timely release of basic data sets and data summaries. Care has been taken to assure accuracy of raw data values, but a thorough analysis and interpretation of the data has not been completed. Consequently, the initial analyses of data in this report are provisional and subject to change.

All manuscripts in the series receive the appropriate level of peer review to ensure that the information is scientifically credible, technically accurate, appropriately written for the intended audience, and designed and published in a professional manner.

Data in this report were collected and analyzed using methods based on established, peer-reviewed protocols and were analyzed and interpreted within the guidelines of the protocols. Views, statements, findings, conclusions, recommendations, and data in this report do not necessarily reflect views and policies of the National Park Service, U.S. Department of the Interior. Mention of trade names or commercial products does not constitute endorsement or recommendation for use by the U.S. Government.

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Executive Summary

Channel Islands National Park (CINP) has conducted long-term ecological monitoring of the kelp forests around San Miguel, Santa Rosa, Santa Cruz, Anacapa and Santa Barbara Islands since 1982. The original permanent transects were established at 16 sites between 1981 and 1986 with the first sampling beginning in 1982. An additional site, Miracle Mile, was established at San Miguel Island in 2001 by a commercial fisherman with assistance from the park and has been at least partially monitored since. In 2005, 16 additional permanent sites were established to collect baseline data from inside and adjacent to four marine reserves that were established in 2003. Sampling results from all 33 sites mentioned above are included in this report. Kelp forests are considered a "Vital Sign" of ecosystem health for CINP (Davis and Halvorson 1988). Funding for the Kelp Forest Monitoring (KFM) Program in 2012 was entirely provided by the National Park Service (NPS).

The 2012 monitoring efforts utilized 52 days of vessel time to conduct 1,006 dives for a total of 974 hours of bottom time. Population dynamics of a select list of 71 "indicator species" (consisting of taxa or categories of algae, fish, and invertebrates) were measured at the 33 permanent sites in 2012. In addition, population dynamics are measured for all additional species of fish observed at the sites. Survey techniques follow CINP's Kelp Forest Monitoring Protocol Handbook (Kushner et al. In Progress). The techniques utilize SCUBA and surface-supplied-air to perform 1 m^2 quadrats, 5 m^2 quadrats, band transects, random point contacts, fish transects, roving diver fish counts, video transects, size frequency measurements, and artificial recruitment modules. Temperature data were collected using remote temperature loggers at 32 sites, the exception being Miracle Mile where there is no temperature logger installed. This annual report contains a brief description of each site, a summary of methods used and monitoring results for 2012. All of the data collected during 2012 can be found summarized in the Appendices A-O in this report.

All 33 permanent sites were established in areas that had or were historically known to have had kelp forests in the past. In 2012, 12 of the 33 sites monitored were characterized as kelp forests. In addition, three sites were in a state of transition. The remaining 18 sites were mostly dominated by echinoderms. Of those 18 sites, seven were dominated by *Strongylocentrotus purpuratus* and *S. franciscanus*, one by *S. franciscanus*, three by *S. purpuratus*, one by *S. purpuratus*, *S. franciscanus* and *Ophiothrix spiculata*, two by *O. spiculata,* three by *S. purpuratus* and *Ophiothrix spiculata,* and one was an open area with a moderately high density of *S. franciscanus*. Overall, the number of sites characterized by kelp forests was similar to last year. The number of sites characterized as being dominated by echinoderms was also similar to last year. This year's site status in comparison with 2011 is summarized in Table 6.

The status of kelp forests was notably different among the five Islands. This is a result of a combination of factors that include but are not limited to, Oceanography, Biogeography and associated differences in species abundance and composition, as well as sport and commercial fishing pressure. Most Santa Barbara Island sites continued to be dominated by echinoderms with little algae present. Three sites that were characterized as being dominated by *Strongylocentrotus franciscanus*, *S. purpuratus*, and *Ophiothrix spiculata* are now characterized as being dominated by *S. purpuratus* and *O. spiculata*. One site, Southeast Reef, was a mature kelp forest; with an abundance of algae present. This site is one that was installed in 2005 and

has been the only SBI site to have a notable amount of algae present in recent years. The monitoring sites here appear to represent well the overall conditions of this island with most of the Island devoid of kelp and dominated by echinoderms. However, there were areas on the north side of the Island that had notably more kelp than in 2011.

Most Anacapa Island sites continue to be dominated by echinoderms. The two sites in the Anacapa State Ecological Reserve that was established in 1978 continued to be kelp forests (Landing Cove and Cathedral Cove), while the five remaining sites continued to be mostly dominated by echinoderms. The monitoring sites here appear to represent the overall conditions of this island well with echinoderms dominating most of the Island. Though there are patches of kelp surrounding the Island, there is notably more and more larger patches of kelp on the North side of East and Middle Anacapa in the MPA.

Overall, sites on Santa Cruz Island remained similar to last year. However, there were some changes. There were increases in *Strongylocentrotus franciscanus* and *Ophiothrix spiculata* at Gull Island. Also, Cavern Point has turned into a mature kelp forest with large, widely-spaced *Macrocystis pyrifera* plants. *Strongylocentrotus* spp. continues to dominate six of the 10 sites at this island, similar to past years. *Strongylocentrotus purpuratus* abundances around this island have increased compared to previous years, though similar to last year. *Strongylocentrotus purpuratus* densities increased at five sites, decreased at four sites, and remained similar at one site. *Strongylocentrotus franciscanus* densities remained similar to last year at this island. Though the Kelp Forest Monitoring Program (KFM) sites as a group appropriately represent the status of kelp forests at most of the eastern two-thirds of the Island, the sites do under-represent the western third of the island where only one site is present. At the western portion of this Island there are notably more kelp forests than at the eastern portion.

Kelp forests continued to be abundant around Santa Rosa and San Miguel Islands. Similar to last year, mature kelp forests were present at seven of the 10 sites at these two islands and *Strongylocentrotus franciscanus* was moderately abundant to abundant at the remaining three sites. Densities of *S. purpuratus* remained low on Santa Rosa Island and decreased overall. The monitoring sites here appear to represent the conditions of these islands well with kelp forests present over much of these Islands.

Temperature data are collected in the middle of summer each season; therefore we look at annual water temperatures from May 2011 to April 2012. Santa Barbara Island maximum temperatures were below average throughout 2011, never going above 18.5° C, but increased from the low of 2010 when summer temperatures were below 17° C. Santa Barbara Island usually experiences average daily temperatures above 19° C for part of the summer. Similar to Santa Barbara Island, maximum summer water temperatures at Anacapa Island in 2011 increased from the record low in 2010, but were below average at 18.3° C, making the summer of 2011 the fourth coldest since 1996. San Miguel, Santa Rosa and Santa Cruz Island temperatures annual temperatures were below average for 2011.

Information Requests

The kelp forest monitoring handbooks and annual reports are available in PDF format on the web at: http://science.nature.nps.gov/im/units/medn/monitor/kelpforest.cfm

To obtain raw data collected by the Kelp Forest Monitoring Program, please write to the address below:

Superintendent
Russell Galipeau
Channel Islands National Park
1901 Spinnaker Drive
Ventura, CA 93001

Acknowledgments

Funding for the kelp forest monitoring program in 2012 was entirely provided by the U.S. National Park Service (NPS) with most funding coming from the Stewardship of New Marine Protected Areas and some from the Inventory and Monitoring Program. The monitoring program is conducted in cooperation with the California Department of Fish and Game (CDFG) and the U.S. Department of Commerce, National Oceanographic and Atmospheric Administration (NOAA), Marine Sanctuary Program.

We are deeply indebted to the many divers who have participated in this project in 2012 (Table 7). All of our volunteer divers are trained and/or certified with other agencies such as NOAA, CDFG, Aquariums and Universities. Without this volunteer base of well-trained and qualified divers it would be impossible to conduct this program at its current funding level. We also greatly appreciate the efforts of our Captain Keith Duran and our Park Dive Officers, Dave Stoltz and Kelly Moore, for ensuring that all of our operations run safely and successfully.

List of Acronyms

ARM…….. Artificial Recruitment Module

CDFG…….. California Department of Fish and Game

CINP…….. Channel Islands National Park

CINMS…… Channel Islands National Marine Sanctuary

KFM…… Kelp Forest Monitoring

KGB…… Kelp/Gopher/Copper/Black and Yellow Rockfish Complex young of the year

NOAA……. National Oceanic and Atmospheric Administration

NPS……. National Park Service

NRPP…….. Natural Resources Preservation Program

PISCO……. Partnership for Interdisciplinary Studies of Coastal Oceans

RPC……. Random Point Contact

UCSB…….. University of California, Santa Barbara

Introduction

The waters of Channel Islands National Park (CINP) and Channel Islands National Marine Sanctuary (CINMS) contain one third of southern California's kelp forests (CDFG 2004). Giant kelp, *Macrocystis pyrifera*, is the primary constituent of the southern California kelp forest, and over 1,000 species of macro flora and fauna live in this community (Woodhouse 1981, Engle pers. comm.). The kelp forest serves as food, shelter, substrate, and nursery to resident and migratory species. Many species, while not residents of the kelp forest, also depend upon their existence and productivity, as detrital flux from kelp forests provides an important source of nutrients to nearby rocky shore, sandy beach and estuary communities. Additionally, kelp forests are essential to California's commercial and sport fisheries as well as its recreation and tourism industries.

The CINP consists of five of the eight California Channel Islands (San Miguel, Santa Rosa, Santa Cruz, Anacapa, and Santa Barbara) and the submerged lands and waters within one nautical mile of each of the islands. The CINMS overlaps the subtidal portions of the park, and its boundary extends six miles seaward from the park islands. The CINP also bears the designation of International Biosphere Reserve and that of the State of California Area of Special Biological Significance. The State of California maintains jurisdiction over the living marine resources three miles from shore and manages them through CDFG.

The KFM Program is part of the long-term ecological monitoring conducted by the Mediterranean Coast Network of the NPS Inventory and Monitoring Program (I&M), which is designed to measure the health of the Park's ecosystems (Davis and Halvorson 1988, Cameron et al. 2005). Funding for the kelp forest monitoring program in 2012 was entirely provided by the NPS with most funding coming from the Stewardship of New Marine Protected Areas and some from the Inventory and Monitoring Program. The objectives of the KFM Program are as follows:

- Identify trends in ecosystem health
- Determine limits of variability
- Diagnose abnormal conditions
- Suggest potential remedial treatments

Following a five-year design study that began in 1982, the KFM Program was fully implemented in 1987 by the park's resource management division using the protocol established during this phase (Davis and Halvorson, 1988). Preliminary results and specific design considerations can be found in reports written by Davis (1985, 1986). Richards et al. (1997) describes monitoring efforts and results for 1982-1989. Richards et al. (1993a), Richards et al. (1993b), Richards and Kushner (1994), Kushner et. al. (1995a), Kushner et al., (1995b), Kushner et al. (1997a), Kushner et al. (1997b), Kushner et al. (1998), Kushner et al. (2000), Kushner et al. (2001a), Kushner et al. (2001b), Kushner et al. (2004), Kushner et al. (2007a), Kushner et al. (2007b), Kushner et al. (2007c), Kushner et al. (2012), Kushner et al. (In review), Moore et al. (In review), Sprague et al. (In review), Kushner et al. (In review), Sprague et al. (2012), and Sprague et al. (In review) describe the 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, and 2011 monitoring efforts

and results respectively. A review of the KFM Program was conducted in 1995 (Davis et al., 1996).

Though the KFM Program was fully implemented as an Inventory & Monitoring Program prototype "Vital Sign" in 1987 (Davis and Halvorson 1988), monitoring began at 14 sites in 1982 and two additional sites in 1986. An additional site, Miracle Mile, was established in an area of high *Haliotis rufescens* abundance at San Miguel Island in 2001 by a commercial fisherman with assistance from the park and has been at least partially monitored since. In 2005, an additional 16 permanent sites were established to collect base line data from inside and adjacent to four MPAs that were established in 2003. Sampling results from all 33 sites are included in this report.

The 16 sites established in 2005 were located inside or adjacent to the following four State MPAs or State Marine Conservation Areas: Santa Barbara Island MPA, Anacapa Island MPA, Scorpion Anchorage MPA at Santa Cruz Island, and the South Point MPA at Santa Rosa Island. Only four of the 11 newly established MPAs were selected because of limited funding and the logistical constraints of conducting this type of monitoring. These four MPAs were chosen for all or some of the following reasons: accessibility, to make the best use of the KFMPs existing base line data, and fishing impact. New sites were established to complement existing sites so that three sites were inside and three sites were adjacent to each of the four MPAs.

This report summarizes the monitoring efforts and results from 2012, our 31st year of monitoring. It is anticipated that these reports will provide some insight into kelp forest dynamics and stimulate further research into the long-term trends and changes in this near-shore ecosystem. We have highlighted some of the most important observations, and tried to provide a characterization for each site. Organisms are referred to by genus and species, except when non-indicator species are mentioned, then both scientific and common names are used. Common names for the indicator species are cross-referenced to their scientific names in Table 1. Since the design of the KFM Program, several genera and species names have been changed, these new names are cross referenced in Table 2.

Table 1. Regularly monitored species and associated monitoring technique(s).

Taxa/Common Name	Scientific Name	Technique
ALGAE		
Miscellaneous green algae		R
Miscellaneous red algae		R
Articulated coralline algae		R
Encrusting coralline algae		R
Agar weed	*Gelidium* spp.	R
Sea tongue	*Gigartina* spp.	R
Miscellaneous brown algae		R
Acid weed	*Desmarestia* spp.	R
Oar weed	*Laminaria farlowii*	R,Q
Bladder chain kelp	*Cystoseira* spp.	R
Giant kelp	*Macrocystis pyrifera*	R,Q,M
California sea palm	*Pterygophora californica*	R,Q
Southern sea palm	*Eisenia arborea*	R,Q
Sargassum	*Sargassum horneri*	R,Q,M,B
Miscellaneous plants		R
INVERTEBRATES		
Miscellaneous sponges		R
Orange puffball sponge	*Tethya aurantia*	B,S
Southern staghorn bryozoan	*Diaperoecia californica*	R
Miscellaneous bryozoans		R
California hydrocoral	*Stylaster californica*	B,S
White-spotted rose anemone	*Tealia lofotensis*	B
Red gorgonian	*Lophogorgia chilensis*	B,S
Brown gorgonian	*Muricea fruticosa*	B,S
Californian golden gorgonian	*Muricea californica*	B,S
Strawberry anemone	*Corynactis californica*	R
Orange cup coral	*Balanophyllia elegans*	R
Cup coral	*Astrangia lajollaensis*	R
Ornate tube worm	*Diopatra ornata*	R
Colonial sand-tube worm	*Phragmatopoma californica*	R
Scaled-tube snail	*Serpulorbis squamigerus*	R
Chestnut cowrie	*Cypraea spadicea*	Q
Wavy turban snail	*Megastraea undosa*	Q,S
Red turban snail	*Astraea gibberosa*	Q,S
Bat star	*Patiria miniata*	Q,S
Giant-spined sea star	*Pisaster giganteus*	Q,S,M
Ochre sea star	*Pisaster ochraceus*	M
Sunflower star	*Pycnopodia helianthoides*	B,S
White sea urchin	*Lytechinus anamesus*	B,S
Red sea urchin	*Strongylocentrotus franciscanus*	Q,S
Purple sea urchin	*Strongylocentrotus purpuratus*	Q,S
Warty sea cucumber	*Parastichopus parvimensis*	Q
Aggregated red sea cucumber	*Pachythyone rubra*	R
Red abalone	*Haliotis rufescens*	B,S
Pink abalone	*Haliotis corrugata*	B,S
Green abalone	*Haliotis fulgens*	B,S
Kellett's whelk	*Kelletia kelletii*	B,S
Giant keyhole limpet	*Megathura crenulata*	B,S
California brown sea hare	*Aplysia californica*	B
Rock scallop	*Crassedoma giganteum*	B,S
California spiny lobster	*Panulirus interruptus*	B
Tunicates		R
Stalked tunicate	*Styela montereyensis*	Q
Miscellaneous invertebrates		R

Table 1. Regularly monitored species and associated monitoring technique(s), continued.

Taxa/Common Name	Scientific Name	Technique
FISH		
Bluebanded goby	*Lythrypnus dalli*	Q, F
Blackeye goby	*Coryphopterus nicholsii*	Q, F
Island kelpfish	*Alloclinus holderi*	Q, F
Blacksmith	*Chromis punctipinnis*	V, F
Señorita	*Oxyjulis californica*	V, F
Blue rockfish	*Sebastes mystinus*	V, F
Olive rockfish	*Sebastes serranoides*	V, F
Kelp rockfish	*Sebastes atrovirens*	V, F
Kelp bass	*Paralabrax clathratus*	V, F
California sheephead	*Semicossyphus pulcher*	V, F
Black surfperch	*Embiotoca jacksoni*	V, F
Striped surfperch	*Embiotoca lateralis*	V, F
Pile perch	*Damalichthys vacca*	V, F
Garibaldi	*Hypsypops rubicundus*	V, F
Opaleye	*Girella nigricans*	F
Rock Wrasse	*Halichoeres semicinctus*	V, F
SUBSTRATE		
Bare substrate		R
Substrate types: Rock		R
Cobble		R
Sand		R

*Technique codes: Q= 1 m Quadrats, M= 5 m Quadrats, B= Band Transects, R= Random Point Contacts, S= Size Frequency Measurements, F= Roving Diver Fish Count, V= Visual Fish Transect.
**Not an indicator species, but observed so frequently that we include this species on our datasheets.

Table 2. Changes in scientific nomenclature.

Current Name	Former Name
Patiria miniata	*Asterina miniata*
Megastraea undosa	*Lithopoma undosum / Astraea undosa*
Lithopoma gibberosa	*Astraea gibberosa*
Crassedoma giganteum	*Hinnites giganteum*
Stylaster californica	*Allopora californica*
Telia lofotensis	*Urticina lofotensis*
Coryphopterus nicholsii	*Rhinogobiops nicholsii*
Rhacochilus vacca	*Damalychthys vacca*

Methods

Abundances, and in some cases size structure, of 70 taxa or categories of algae, fish, and invertebrates (Table 1) were measured at 33 permanent sites (Table 3) around the five park islands (Figure 1). Sites were monitored between May 14th and October 19th 2012 using the NPS vessel "Sea Ranger". Site and species selection criteria and sampling protocol are described in the Kelp Forest Monitoring Handbook (Kushner et al., In Progress). Data management and entry procedures are also described in the Kelp Forest Monitoring Handbook Though the handbooks are in the process of being updated, an older version is available online at http://science.nature.nps.gov/im/units/medn/monitor/kelpforest.cfm.

Table 3. Site information.

Island	Site Location	Site Abbreviation	Depth Meters	Year Sampling Began
San Miguel	Wyckoff Ledge	SMWL	13-15	1982
San Miguel	Hare Rock	SMHR	6-9	1982
San Miguel	Miracle Mile	SMMM	7-10	2001
Santa Rosa	Johnson's Lee North	SRJLNO	9-11	1982
Santa Rosa	Johnson's Lee South	SRJLSO	14-16	1982
Santa Rosa	Rodes Reef	SRRR	13-15	1983
Santa Rosa	Cluster Point	SRCP	12-15	2005
Santa Rosa	Trancion Canyon	SRTC	9-15	2005
Santa Rosa	Chickasaw	SRCSAW	10-13	2005
Santa Rosa	South Point	SRSP	11-13	2005
Santa Cruz	Gull Island South	SCGI	14-16	1982
Santa Cruz	Fry's Harbor	SCFH	12-13	1982
Santa Cruz	Pelican Bay	SCPB	6-8	1982
Santa Cruz	Scorpion Anchorage	SCSA	5-6	1982
Santa Cruz	Yellowbanks	SCYB	14-15	1986
Santa Cruz	Devil's Peak Member	SCDPM	10-13	2005
Santa Cruz	Potato Pasture	SCPP	9-12	2005
Santa Cruz	Cavern Point	SCCVP	12-13	2005
Santa Cruz	Little Scorpion	SCLS	9-14	2005
Santa Cruz	Pedro Reef	SCPRF	7-10	2005
Anacapa	Admiral's Reef	ANAR	13-15	1982
Anacapa	Cathedral Cove	ANCC	6-11	1982
Anacapa	Landing Cove	ANLC	5-12	1982
Anacapa	Keyhole	ANKH	7-10	2005
Anacapa	East Fish Camp	ANEFC	9-14	2005
Anacapa	Black Sea Bass Reef	ANBSBR	15-16	2005
Anacapa	Lighthouse	ANLH	7-9	2005
Santa Barbara	Southeast Sea Lion Rookery	SBSESL	12-14	1982
Santa Barbara	Arch Point	SBAR	7-8	1982
Santa Barbara	Cat Canyon	SBCAT	7-9	1986
Santa Barbara	Webster's Arch	SBWA	14-16	2005
Santa Barbara	Graveyard Canyon	SBGC	10-12	2005
Santa Barbara	Southeast Reef	SBSER	10-15	2005



Site	Name	Site	Name
1	Wyckoff Ledge	21	Miracle Mile
2	Hare Rock	22	Cluster point
3	Johnson's Lee North	23	Trancion Canyon
4	Johnson's Lee South	24	Chickasaw
5	Rodes Reef	25	South Point
6	Gull Island	26	Devil's Peak Member
7	Fry's Harbor	27	Potato Pasture
8	Pelican Bay	28	Cavern Point
9	Scorpion Anchorage	29	Little Scorpion
10	Yellow Banks	30	Pedro Reef
11	Admiral's Reef	31	Keyhole
12	Cathedral Cove	32	East Fish Camp
13	Landing Cove	33	Black Seabass Reef
14	SouthEast Sea Lion	34	Lighthouse
15	Arch Point	35	Webster's Arch
16	Cat Canyon	36	Graveyard Canyon
		37	SouthEast Reef

Figure 1. Kelp Forest Monitoring locations at Channel Islands National Park.

Each site is marked by a 100 m long transect line permanently affixed to the seabed. The sampling techniques employed to gather patterns of abundance and age structure are summarized in Table 4. At each site, the following methods were performed to determine densities and distribution of discrete benthic organisms: 24 paired 1 m x 1 m quadrats systematically arranged along the transect with a random start, 40 continuous 1 m x 5 m quadrats directly along the transect, and 24 paired 3 m x 10 m band transects systematically arranged along the transect with a random start. To determine percent cover of encrusting invertebrates, algae, and substrate composition, 600 random non-adjacent points (random point contacts - RPCs) were performed. To determine fish density, four 2 m x 3 m x 50 m fixed transects were performed. To determine fish abundance and diversity, roving diver fish counts with a time component were performed. To estimate fish population size structure, size frequencies of all fish observed within 10 m of the transect were measured, excluding schooling baitfish and cryptic species. Videotaped transects were performed to document site appearance. Size frequency measurements were collected to determine age structure and recruitment cohorts (Table 5). All animals measured for the natural habitat size frequency distributions were located using a band transect type search method. A general species list was established for each site, noting presence/absence and relative abundance for all positively identified species. Artificial recruitment modules (ARMs) were in place at 11 of the sites to measure recruitment and population structure of indicator species within the ARMs. A description of most of the monitoring protocols, including schematics, can be found in Davis et al. (1997). Descriptions of new protocols will be included in an updated version of the handbook currently being written.

Table 4. Summary of sampling techniques.

Technique	Area or Time Sampled	# of Replicates (per site)
1 m^2 Quadrat	1 m x 2 m	12
5 m^2 Quadrat	1 m x 5 m	40
Band Transect	3 m x 20 m	12
Random Point Contact	40 points (0.5x3)	15
Visual Fish Transect	2 m (w) x 3 m (h) x 50 m (l)	4
Fish Size Frequency	30 minutes	1 (minimum)
Roving Diver Fish Count	30 minutes	4-8
Video Transect	100 m, 5 minutes	2
Video Plot	360º pan of bolt, 360º pan of water column	3 (0 m, 50 m, and 100 m marks)
Natural Habitat Size Frequency	individual	30-200 per species
Artificial Recruitment Module	module, time variable	7-20
Species Checklist	30-90 minutes	1
Temperature	hourly	all sites

Table 5. Size frequency measurement dimensions.

Scientific Name	Sample Size	Measurement
Macrocystis pyrifera	100	Stipe count (1 m above bottom), max. holdfast diameter, mm
Tethya aurantia	60	Max. diameter, mm
*Stylaster (*Allo*pora) californica*	60	Max. height and width, mm
Lophogorgia chilensis	60	Max. height and width, mm
Muricea californica	60	Max. height and width, mm
Megathura crenulata	60	Max. shell length, mm
Haliotis spp.	60	Max. shell length, mm
Megastraea (Lithopoma/Astraea) undosa	60	Max. shell diameter, mm
Astraea (Lithopoma) gibberosa	60	Max. shell diameter, mm
Kelletia kelletii	60	Max. shell length, mm
Crassedoma (Hinnites) giganteum	60	Max. shell length, mm
Tegula regina	60	Max. shell length, mm
Strongylocentrotus spp.	200	Max. shell diameter, mm
Lytechinus anamesus	200	Max. shell diameter, mm
Pycnopodia helianthoides	60	Length of longest ray, mm
Asterina (Patiria) miniata	60	Length of longest ray, mm
Pisaster giganteus	60	Length of longest ray, mm

Remote temperature loggers, TIDBIT®, made by Onset Computer Corporation, were deployed at each site. Loggers were encased in underwater housings and attached to stainless steel thread rods cemented to the bottom at each site. At most sites two temperature loggers were placed in each underwater housing. At sites where two loggers were used, a comparison of temperatures from both loggers was made to see if the loggers were recording within their specifications (± 0.2^{o} C).

When visiting KFM sites multiple times in one season, we attempt to complete all of the abundance estimate techniques (1 m^2 quadrats, 5 m^2 quadrats, band transects, random point contacts, roving diver fish counts, fish transects and fish size frequencies) during the same visit. During the remaining sampling visits we will often conduct size frequency sampling, transect line repair and fish protocol for a second time if time allows. On rare occasions the abundance techniques are not completed during our first visit and are completed at subsequent visits as soon as possible. If this happens, it is documented under the site information in the results section below. If there appears to be large changes in abundance between visits within a sampling season, an additional sampling may be conducted to document these changes, but this is a rare occurrence. Differences are reported in the results section below. In the text we report numbers to two significant digits.

Results

Sampling was completed at all 33 monitoring sites in 2012 and a summary of the status at each site is presented in Table 6. Seventeen divers (Table 7) collected data on eight five-day cruises and two four-day cruises between May and October (Table 8). The divers logged 1,016 dives with over 1,073 hours of bottom time. All prescribed monitoring data were collected in 2012.

Table 6. 2012 Kelp forest monitoring site status with 2011 status for comparison.

Island/Site	2012 Status	2011 Status
San Miguel Island		
Wyckoff Ledge	Mature kelp forest	Mature kelp forest
Hare Rock	Dominated by *S. franciscanus*	Dominated by *S. franciscanus*
Miracle Mile	Mature kelp forest	Mature kelp forest
Santa Rosa Island		
Johnson's Lee North	Mature kelp forest	Mature kelp forest
Johnson's Lee South	Mature kelp forest	Mature kelp forest
Rodes Reef	Open area with a moderately high density of *S. franciscanus*	Open area with a moderately high density of *S. franciscanus*
Cluster Point	Mature kelp forest	Mature kelp forest
Trancion Canyon	State of transition	Dominated by *Strongylocentrotus* spp.
Chickasaw	Mature kelp forest	Mature kelp forest
South Point	Mature kelp forest	Mature kelp forest
Santa Cruz Island		
Gull Island South	State of transition	Mature kelp forest
Fry's Harbor	Mature kelp forest	State of transition
Pelican Bay	Dominated by *S. purpuratus*	Dominated by *Strongylocentrotus* spp.
Scorpion Anchorage	Dominated by *Strongylocentrotus* spp.	Dominated by *Strongylocentrotus* spp.
Yellow banks	State of transition	State of transition
Devil's Peak Member	Dominated by *Strongylocentrotus* spp.	Dominated by *Strongylocentrotus* spp.
Potato Pasture	Dominated by *S. purpuratus*	Dominated by *S. purpuratus*
Cavern Point	Mature kelp forest	Kelp forest
Little Scorpion	Dominated by *Strongylocentrotus* spp.	Dominated by *Strongylocentrotus* spp.
Pedro Reef	Dominated by *Strongylocentrotus* spp.	Dominated by *Strongylocentrotus* spp.
Anacapa Island		
Admiral's Reef	Dominated by *O. spiculata*	Dominated by *O. spiculata*
Cathedral Cove	Mature kelp forest	Mature kelp forest
Landing Cove	Mature kelp forest	Mature kelp forest
Keyhole	Dominated by *Strongylocentrotus* spp.	Dominated by *Strongylocentrotus* spp.
East Fish Camp	Dominated by *Strongylocentrotus* spp. and *O. spiculata*	Dominated by *Strongylocentrotus* spp. and *O. spiculata*
Black Sea Bass Reef	Dominated by *O. spiculata*	Dominated by *O. spiculata*
Lighthouse	Dominated by *Strongylocentrotus* spp.	Dominated by *Strongylocentrotus* spp.
Santa Barbara Island		
Southeast Sea Lion Rookery	Dominated by *S. purpuratus* and *O. spiculata*	Dominated by *Strongylocentrotus* spp. and *O. spiculata*
Arch Point	Dominated by *Strongylocentrotus* spp.	Dominated by *Strongylocentrotus* spp.
Cat Canyon	Dominated by *S. purpuratus*	Dominated by *S. purpuratus*
Webster's Arch	Dominated by *S.* purpuratus and *O. spiculata*	Dominated by *Strongylocentrotus* spp. and *O. spiculata*
Graveyard Canyon	Dominated by *S. purpuratus* and *O. spiculata*	Dominated by *Strongylocentrotus* spp. and *O. spiculata*
Southeast Reef	Mature kelp forest	Mature kelp forest

Table 7. 2012 Kelp Forest Monitoring participant list.

Participants	Affiliation	Cruises Participated
Carter, Sarah	Student Conservation Association	All Cruises
Centoni, Jonathan	Channel Islands National Park	All Cruises
Civiello, Michael	Student Conservation Association	All Cruises
Collins, Clint	California State University, Moss Landing	6
Davis, Katie	University of California, Santa Barbara	2
Duran, Keith	Channel Islands National Park	All Cruises
Fastenau, Henry	Channel Islands National Park VIP	11
Fejtek, Stacie	Channel Islands National Park	1,2,3,4,5,6,7,8,9
Ibarra, Sonia	Channel Islands National Park VIP	1
Kushner, David	Channel Islands National Park	All Cruises
Macleod, Alex	University of California, Santa Cruz	5
Moore, Kelly	Channel Islands National Park	1,2,3,4,5,7,8,9,10,11
Osorio, David	California Department of Fish and Game	9
Sprague, Joshua	Channel Islands National Park	All Cruises
Taniguchi, Ian	California Department of Fish and Game	4
White, Tim	Channel Islands National Park VIP	8
Witting, David	National Oceanic and Atmospheric Administration	7

Table 8. 2012 Kelp Forest Monitoring Program cruise list.

Cruise #	Cruise Dates	KFM Sites Visited
Cruise #1	05/15 - 05/18	ANEFC, SCLS, ANLH
Cruise #2	05/29 - 06/01	SBAP, SBSER, SBCAT, SBGC, ANLH
Cruise #3	06/11 - 06/15	SCGI, SRCP, SBWA, SBSESL, ANAR
Cruise #4	06/25 - 06/29	ANCC, ANLC, SCCVP, SCDPM, ANKH
Cruise #5	07/09 - 07/13	ANCC, SRJLSO, SRCSAW, SRSP
Cruise #6	07/23 - 07/27	SCPP, SRRR, SMWL, SMMM,
Cruise #7	08/13 - 08/17	SCPRF, SCFH, ANBSBR, SCSA
Cruise #8	08/27 - 08/31	SCFH, SRJLNO, SRTC, SRJLSO, SMMM, SMHR
Cruise #9	09/10 - 09/14	ANAR, SCGI, SCYB, SCPB, ANLC
Cruise #10	10/01 - 10/05	SCLS, SCPP, SCCVP, SCDPM, SCSA, SCYB
Cruise #11	10/15 - 10/19	SBSER, SCPRF

A brief description of each site is included with the site results (Appendix A). Complete data summaries from the sampling protocol are listed in the appendices. Mean densities for $1m^2$ quadrats are in Appendix B and represent average counts obtained from 24 paired 1 m x 1 m quadrats or otherwise described as 12-2 m^2 quadrats. Mean densities for $5m^2$ quadrats in Appendix C represent average counts obtained from 40 continuous and adjacent 1 m x 5 m quadrats. Note that when adult, subadult, and juvenile densities for *Macrocystis pyrifera* are listed in the station descriptions, the adult and subadult densities are derived from the 5 m quadrats, and the juvenile densities from the 1m quadrats unless otherwise noted. Mean densities for band transects in Appendix D represent average counts obtained from 24 paired 3 m X 10 m transects or otherwise described as 12 3 m X 20 m transects. Mean percent cover for random point contacts in Appendix E represent average percent cover for a given organism, group of taxa, or substrate for the 600 points systematically taken along the transect. Percent cover for all categories combined may total more than 100% due to layering (Kushner et al., In Progress).

Mean densities for fish transects in Appendix F represent the average of four adjacent and continuous 2 m X 3 m X 50 m transects along the transect line. Fish size frequency distributions are in Appendix G.

The Roving Diver Fish Count (RDFC) data are presented Appendix H. The first page of this Appendix contains the number of observers that sampled for each site, the date that the fish count was conducted, and the total number of species observed. The following pages in Appendix H contain the average timed Score, the average Abundance score and an average Count for each sampling date and site. The score field is the average score of all observers. Score fields range between 5 and 10 for all observed fish species, but non-present indicator species receive a score of zero. As a result, it is possible for indicator species to have an average score of less than 5, but not possible for non-indicator (write-in) species. The Abundance field is the number assigned to the abundance categories: single (1 fish), few (2-10 fish), common (11-100 fish), or many (>100 fish). This field is summarized numerically where 1 = single, 2 = few, 3 = common and 4 = many. The Count field is the average number of fish counted by an observer during the 30 minute Roving Diver Fish Count and is presented as the average count for all observers for each species listed. All fish transects and Roving Diver Fish Counts were conducted between 0900 and 1500 hours unless otherwise noted.

Beginning in 2003 we began using whole counts in the site descriptions below to describe the abundance of fish since it is a more consistent and accurate method of describing fish abundance than descriptive words like common or rare, as we did prior to 2003. However, different observers count different numbers of the same species at a site for a number of reasons. We list fish counts with the highest number of fish observed at a site in the RDFC tables and figures. The table includes counts of both adult and juveniles fish separately, as well as male and female if applicable. The figure includes total number of fish counted per species to show relative abundance of fish assemblages. Only expert observer data are included in the tables. An expert observer is defined as an observer who can confidently identify and count all species of fishes that commonly occur at the Channel Islands. These tables are presented in Appendix I.

Natural habitat size frequency distributions for invertebrates other than gorgonians and *Stylaster (Allopora) californica* are in Appendix J. *Macrocystis pyrifera* size frequency distributions are in Appendix K. Gorgonian and *Stylaster (Allopora) californica* size frequency distributions are in Appendix L. Size frequency measurements taken from the Artificial Recruitment Modules were kept separate from the natural habitat measurements and their distributions are in Appendix M. Video transects were completed for all locations, and the videos are stored on the park's server in Ventura, California.

Temperature data were collected using TIDBIT® temperature loggers. The temperature loggers are retrieved and deployed during our regular sampling season of May - October. We will present 12 months of temperature data from May 1st 2011 – April 30th 2012 in Appendix N. In 2012, temperature data were collected from all 32 sites where loggers were installed.

Discussion

The purpose of the discussion below is to summarize and condense our general observations at the monitoring sites for this year. We would like to emphasize that we present only general trends and observations and these are not the results of statistical analyses. A statistical trend analysis for each of the indicator species would be required to define trends and is beyond the scope of this report. All 33 permanent monitoring sites were monitored in 2012. All proposed data collection was completed this year. Though the NPS no longer has a Cooperative Agreement with the Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO) at the University of California, they continued to monitor fish abundance and size at many of our sites since 2005.

All 33 permanent sites were established in areas that are historically known to have had or presently have kelp forests. In 2012, 12 of the 33 sites monitored were characterized as kelp forests. In addition, three sites were in a state of transition. The remaining 18 sites were mostly dominated by echinoderms. Of those 18 sites, seven were dominated by *Strongylocentrotus purpuratus* and *S. franciscanus*, one by *S. franciscanus*, three by *S. purpuratus*, one by *S. purpuratus*, *S. franciscanus* and *Ophiothrix spiculata*, two by *O. spiculata,* three by *S. purpuratus* and *Ophiothrix spiculata,* and one was an open area with a moderately high density of *S. franciscanus*. Overall, the number of sites characterized by kelp forests was similar to last year. The number of sites characterized as being dominated by echinoderms was similar to last year. This year's site status in comparison with 2011 is summarized in Table 6.

Kelp Forests

The status of kelp forests was notably different among the five Islands. This is a result of a combination of factors that include but are not limited to, Oceanography, Biogeography and associated differences in species abundance and composition, as well as sport and commercial fishing pressure. Most Santa Barbara Island sites continued to be dominated by echinoderms with little algae present. Three sites that were characterized as being dominated by *Strongylocentrotus franciscanus*, *S. purpuratus*, and *Ophiothrix spiculata* are now characterized as being dominated by *S. purpuratus* and *O. spiculata*. One site, Southeast Reef, was a mature kelp forest with an abundance of algae present. This site is one that was installed in 2005 and has been the only SBI site to have a notable amount of algae present in recent years. The monitoring sites here appear to represent well the overall conditions of this island with most of the Island devoid of kelp and dominated by echinoderms. However, there were areas on the north side of the Island that had notably more kelp than in 2011.

Most Anacapa Island sites continue to be dominated by echinoderms. The two sites in the Anacapa State Ecological Reserve that was established in 1978 continued to be kelp forests (Landing Cove and Cathedral Cove), while the five remaining sites continued to be mostly dominated by echinoderms. The monitoring sites here appear to represent the overall conditions of this island well with echinoderms dominating most of the Island. Though there are patches of kelp surrounding the Island, there is notably more and more larger patches of kelp on the North side of East and Middle Anacapa in the MPA.

Overall, sites on Santa Cruz Island remained similar to last year. However, there were some changes. There were increases in *Strongylocentrotus franciscanus* and *Ophiothrix spiculata* at

Gull Island. Also, Cavern Point has turned into a mature kelp forest with large, widely-spaced *Macrocystis pyrifera* plants. *Strongylocentrotus* spp. continues to dominate six of the 10 sites at this island, similar to past years. *Strongylocentrotus purpuratus* abundances around this island have increased compared to previous years, though similar to last year. *Strongylocentrotus purpuratus* densities increased at five sites, decreased at four sites, and remained similar at one site. *Strongylocentrotus franciscanus* densities remained similar to last year at this island. Though the KFM sites as a group appropriately represent the status of kelp forests at most of the eastern two-thirds of the Island, the sites do under-represent the western third of the island where only one site is present. At the western portion of this Island there are notably more kelp forests than at the eastern portion.

Kelp forests continued to be abundant around Santa Rosa and San Miguel Islands. Similar to last year, mature kelp forests were present at seven of the 10 sites at these two islands and *Strongylocentrotus franciscanus* was moderately abundant to abundant at the remaining three sites. Densities of *S. purpuratus* remained low on Santa Rosa Island and decreased overall. The monitoring sites here appear to represent the conditions of these islands well with kelp forests present over much of these Islands.

Invertebrates

Overall, *Strongylocentrotus franciscanus* abundance decreased at all five islands. Compared to last year, density increased at two sites, decreased at 11 sites, and remained similar at the remaining sites. Overall, *Strongylocentrotus purpuratus* densities decreased at Anacapa, Santa Barbara, and Santa Rosa Islands. There were increases at five sites, decreases at 12 sites, and little change at the remaining sites. *Lytechinus anamesus* densities remained low overall, and experienced decreases at Anacapa and Santa Barbara Islands. There were increases at two sites, decreases at seven sites, and little change at the remaining sites. *Centrostephanus coronatus* continued to be relatively common at Santa Barbara, Anacapa and the eastern half of Santa Cruz Islands. We have observed little change in the abundance of this species in the last 11 years. Overall, there has been a continuing decrease in *S. franciscanus* density for the past 12 years at Santa Barbara Island. This trend continued this year with decreases at three sites. In addition, there was an overall decrease in *S. purpuratus* densities at Santa Barbara Island sites.

Overall, *Strongylocentrotus* spp. recruitment decreased from last year. Juvenile *Strongylocentrotus* spp. are defined as having a test diameter of less than 16 mm. Juvenile *S. franciscanus* and *S. purpuratus* both were common at Santa Cruz, Anacapa, and Santa Barbara Islands, similar to past years. However, the number of juveniles relative to *Strongylocentrotus* spp. > 16 mm was similar to the prior five years. These data were from the natural habitat size frequency protocol. More data on *Strongylocentrotus* spp. recruitment can be found in the ARMs section of the discussion. The following three sites had the highest densities of *Strongylocentrotus purpuratus* recorded at those sites: Keyhole, Lighthouse, and Landing Cove. *Strongylocentrotus franciscanus* densities changed little from last year, except for at Keyhole, which had the highest density recorded this year at that site. *Ophiothrix spiculata* cover remained similar all sites.

We continued to observe sea urchin wasting disease (Lafferty and Kushner, 1999, and Richards and Kushner, 1992) at a few sites (Table 9). Sea urchin wasting disease was observed at 12 sites this year, compared to nine sites in 2011. Diseased *Lytechinus anamesus* were observed at three

sites, compared with two last years. Diseased *Strongylocentrotus franciscanus* were observed at four sites, compared with six last year. Diseased *S. purpuratus* were observed at 11 sites, compared with five sites last year. In most cases, the prevalence of the disease was less than 5%, which is an increase from the last several years but low overall, and we did not observe any areas with mass mortality. Scorpion Anchorage had the highest prevalence of disease with *S. purpuratus* estimated at 10%. Pelican Bay also had a high prevalence of wasting disease with 8% of *Lytechinus anamesus* infected.

Table 9. 2012 Echinoderm wasting disease observations.

	Sea Star Wasting Disease		Sea Urchin Wasting Disease	
Island/Site	**Species Observed**	**Date(s) of Observation**	**Species Observed**	**Date(s) of Observation**
San Miguel Island				
Wyckoff Ledge	None		None	
Hare Rock	None		None	
Miracle Mile	None		None	
Santa Rosa Island				
Johnson's Lee North	None		None	
Johnson's Lee South	None		None	
Rodes Reef	None		None	
Cluster Point	None		None	
Trancion Canyon	None		None	
Chickasaw	None		None	
South Point	None		None	
Santa Cruz Island				
Gull Island South	None		None	
Fry's Harbor	None		None	
Pelican Bay	1(10%),4(few)	09/13	3(8%)	09/13
Scorpion Anchorage	1(50%),4	08/16*, 10/03	2(10%),6(1%)	10/03
Yellow banks	1(30%),4(30%),8,10(30%)	09/12, 10/04*	2(1%),3(5%)	09/12*, 10/04
Devil's Peak Member	1(25%),4(25%),10(25%)	10/03	None	
Potato Pasture	1(25%),4(25%),7	10/02	None	
Cavern Point	1(15%),4(15%)	10/02	None	
Little Scorpion	1(25%),4(25%)	10/01	2(2%)	05/16, 10/01*
Pedro Reef	1(10%)	10/19	2(<1%),3(<1%)	08/13, 10/19
Anacapa Island				
Admiral's Reef	1(10%),4(10%),10	09/10	2(1%)	09/10
Cathedral Cove	None		None	
Landing Cove	None		None	
Keyhole	None		None	
East Fish Camp	None		2(5%),6(2%)	05/15
Black Sea Bass Reef	None		None	
Lighthouse	None		2(<1%)	05/17
Santa Barbara Island	None		2(2%),6(2%)	06/14
SE Sea Lion Rookery	None		2(<1%)	05/29
Arch Point	None		2(20%),6(23%)	05/31
Cat Canyon	None		None	
Webster's Arch	None		None	
Graveyard Canyon	None		2(<1%)	05/30
Southeast Reef				

None = Not observed at this site during our visits in 2012.
Date = Date(s) disease/syndrome was observed.
* = date of estimate (if disease was observed during more than one visit)
Note: Urchins appearing to have black spot disease were not included in table. Look in site write-up for these observations.

Species Legend

1 = *Patiria (Asterina) miniata*
2 = *Strongylocentrotus purpuratus*
3 = *Lytechinus anamesus*
4 = *Pisaster giganteus*
5 = *Astrometis sertulifera*
6 = *Strongylocentrotus franciscanus*
7 = *Parastichopus parvimensis*
8 = *Dermasterias imbricata*
9 = *Mediaster aequalis*
10 = *Pycnopodia helianthoides*
11 = *Pisaster ochraceus*

Overall, sea star densities remained relatively high and several species continued to gradually increase. This is likely due to the cold water regime that the Channel Islands have been experiencing for the last decade. *Pycnopodia helianthoides* are one of the most ecologically important invertebrate predators in the kelp forests at the Channel Islands, especially at San Miguel, Santa Rosa and Santa Cruz Islands where they are typically more abundant. Their densities decreased from last year overall, but still remained relatively high relative to the last two decades. Most of the decreases occurred at Santa Rosa and San Miguel Island sites, where *P. helianthoides* are most abundant. There were increases at four sites, decreases at five sites, and the remaining 24 sites were similar to last year.

Patiria miniata densities remained relatively high at most of the monitoring sites, and continued to gradually increase. Grouping densities by island indicated record high and near record high densities at all islands. There has not been a large, widespread die-off of *P. miniata* since the 1997/98 El Niño, which is likely the main reason why *P. miniata* densities are so high compared to years prior when we experienced several disease events (Eckert et al., 1999). However, there was a warm-water event that persisted for approximately one month from August-September. This warm-water event resulted in the highest prevalence of sea star wasting disease at eastern KFM sites that we have documented since the 1997/98 El Niño. However, the effect of this event on sea star densities did not show up in this year's data for the majority of KFM sites. Most eastern sites had already been sampled for the 2012 field season before the warm-water event occurred. It is likely that a decrease in sea star densities will show up during 2013 sampling. This year we observed increases at 11 sites, decreases at three sites, and little to no change at the remaining 19 sites. Ten of the 11 increases were the highest densities recorded for those sites.

Pisaster giganteus densities continued to gradually increase, similar to recent years. Overall, this species is experiencing some of the highest densities recorded at KFM sites. Similar to *P. miniata* there has not been a large, widespread die-off of *P. giganteus* since the 1997/98 El Niño, which is likely the main reason why *P. giganteus* densities are so high compared to years prior when we experienced several die-offs (Eckert et al., 1999). However, there was a warm-water event that persisted for approximately one month from August-September. This warm-water event resulted in the highest prevalence of sea star wasting disease at eastern KFM sites that we have documented since the 1997/98 El Niño. However, the effect of this event on sea star densities did not show up in this year's data for the majority of KFM sites. Most eastern sites had already been sampled for the 2012 field season before the warm-water event occurred. It is likely that a decrease in sea star densities will show up during next year's sampling. Based on 5 m^2 density data, *P. giganteus* increased at nine sites, decreased at six sites, and changed little at the remaining 18 sites.

This year, the KFM Program began sampling *P. ochraceus* densities on 5 m^2 quadrats. Since this is the first year of data collection, there are no past years' of data to refer to.

Overall, *Ophiothrix spiculata* abundance continued to gradually increase. Cover increased both at Santa Barbara Island and Anacapa Island. The other three islands that typically have lower abundances of *O. spiculata* experienced little change. Five sites increased in cover while the remaining 28 sites remained similar to last year. All five of the sites that experienced increases had record high cover of this species since it was added as an indicator species in 2003.

Sea star wasting disease was prevalent at several sites this year. This is the first time since 2009 that sea star wasting disease has been observed at KFM sites. There was a significant and lasting warm-water event that persisted for approximately one month from August-September. This warm-water event resulted in the highest documented prevalence of sea star wasting disease at eastern KFM sites since the 1997/98 El Niño. Almost all observations of diseased sea stars occurred at Santa Cruz Island, although this may be due to the fact that this is where the majority of sampling occurred during this period (see Table 9). Infected *Patiria miniata* were observed at nine sites. The prevalence of infected *P. miniata* ranged from 10% to 50%. Infected *Pisaster giganteus* were observed at eight sites and prevalence was 10% to 30%. One *Dermasterias imbricata* was observed with wasting disease at Yellow banks. In addition, on the Oct. 3rd visit to Scorpion Anchorage, offshore of the site *Astropecten armatus* were 100% infected. Many dead *A. armatus* were observed as well, presumably from wasting disease.

Parastichopus parvimensis densities changed little this year. Similar to recent years, it appears this species is more abundant at the sites inside the Anacapa Island and Scorpion MPAs than the sites adjacent to them. One *P. parvimensis* observed at Potato Pasture appeared to have wasting disease. This is the first time this program has documented *P. parvimensis* with wasting disease since the 1997/98 El Niño.

Pachythyone rubra cover changed little this year. Cover of *P. rubra* at Santa Cruz Island remained low compared to the 1990s and remained rare at all but one of the monitoring sites, Potato Pasture at Santa Cruz Island.

Tethya aurantia densities, when grouped by island, remained at or near all-time highs at Anacapa, Santa Cruz, and Santa Rosa Islands. San Miguel Island experienced a decrease overall, though densities remain high relative to the first two decades of sampling. *Tethya aurantia* densities increased at six sites, decreased at six sites, and remained similar at the remaining 21 sites. The abundance of *T. aurantia* has steadily increased over the last decade, possibly due to the cold water regime that the region has been experiencing. Overall, miscellaneous sponge cover was similar to last year.

Overall, tunicate cover decreased. Tunicate cover increased at one site, decreased at nine sites, and changed little at the remaining sites. Most of the decreases occurred at Santa Cruz and San Miguel Islands. *Styela montereyensis* remained common at Santa Rosa Island and San Miguel Island sites, though decreasing overall at those two islands. Densities decreased at two sites and remained similar at the remaining sites.

Diopatra ornata cover was similar to last year, with an increase at two sites, a decrease at three sites, while the remaining sites were similar to last year. *Phragmatopoma californica* was most abundant at the Santa Rosa Island sites, though it decreased in cover overall at that island. There were decreases at five sites while all other sites remained similar to previous years. *Serpulorbis squamigerus* abundance was similar to last year.

Overall, bryozoan cover decreased compared to recent years. For the miscellaneous bryozoans category, decreases were observed at five sites, increases at two sites, and the remaining sites changed little. *Diaperoecia californica* abundance changed little overall, but increased at two sites.

Urticina lofotensis density decreased at two sites and remained similar to last year at the remaining sites. The decreases occurred at Santa Rosa and San Miguel Islands, where this species is common. At some sites, there were *U. lofotensis* that appeared notably larger than have been observed in recent years. The anemone, *Sagartia* sp., while not an indicator species, was more common than in recent years at several Santa Barbara Island sites. Also, *Sagartia* sp. appeared larger than have been observed in recent years. *Corynactis californica* cover decreased overall with decreases at three sites. The remaining sites were similar to last year. *Balanophyllia elegans* cover was similar to recent years with an increase at one site, a decrease at one site, and similar cover at the remaining sites. The cover of this species has remained relatively low since 1996 compared to years prior. *Astrangia lajollaensis* cover increased at four sites, and remained similar to last year at the remaining sites.

Stylaster californica continued to be present at Gull Island, Santa Cruz Island with their density remaining relatively high, similar to last year. In addition, one small colony was observed at Webster's Arch, Santa Barbara Island, for the first time.

Overall, *Lophogorgia chilensis* density has decreased over the past five years. There was an increase at one site, a decrease at one site, and remained similar at the remaining sites. *Muricea fruticosa* and *M. californica* densities were similar to last year with no notable trends.

In recent years we have observed what appeared to be a trend toward increasing lobster abundance at the monitoring sites that are inside the MPAs that were established in 2003. Even though our monitoring sites do not encompass much optimal *P. interruptus* den habitat, we expect to see more lobsters since increasing densities elsewhere are likely to spill over into the less optimal den habitat found at many of the monitoring sites. While the KFM Program does not monitor lobster size, it is obvious to all divers that they are now notably larger inside the MPAs. This year*, Panulirus interruptus* densities increased at two sites and decreased at two sites, while they remained similar at the remaining sites. When grouping sites by reserve, inside versus adjacent for Santa Barbara, Anacapa, and Santa Cruz Island reserves, *P. interruptus* densities were greater inside each of the three reserves than outside, similar to recent years.

Megastraea undosa densities continued to decline and are at or near record low abundances at KFM sites since monitoring began. When sites are grouped by islands, Santa Cruz, Anacapa, and Santa Barbara Islands all showed decreases. There was little change at San Miguel and Santa Rosa Islands where densities have always been low since this is a warmer water species. The pattern in density changes we have observed in *M. undosa* of increasing abundance post the 1997/98 El Niño followed by a decline is similar to what was observed post the 1982/83 El Niño (Zacharias and Kushner, 2006). We have not observed a widespread significant recruitment event since 1997/1998. *Astraea gibberosa* continued to be common at only a few of the monitoring sites, and increased in density at one of those sites. We observed a large recruitment of individuals 6-18 mm at Rodes Reef on Santa Rosa Island, similar to last year. In addition, several juvenile *A. gibberosa* were recorded at Hare Rock. It is relatively rare for us to observe this many juveniles of *A. gibberosa*. There were no notable trends in *Tegula regina*.

Overall, *Megathura crenulata* densities continued to be relatively abundant compared to the past 20 years. However, overall densities decreased compared to the last five years. There were increases at two sites, decreases at 10 sites, and the remaining sites stayed about the same as last

year. Overall, *Crassedoma giganteus* decreased in abundance. *Crassedoma giganteus* densities increased at five sites, decreased at 10 sites, and remained similar at the remaining sites. Densities at Anacapa Island sites remained at near record lows compared to the first 20 years of monitoring. However, we should note that at many sites inside the MPA at Anacapa and Santa Cruz Islands where recreational divers are not allowed to take *C. giganteus* they are notably more abundant and are larger. *Kelletia kelletii* densities increased at five sites, decreased at four sites, and stayed the same at the remaining sites. *Cypraea spadicea* densities overall were similar to last year.

Overall densities of *Aplysia californica* remain low at Santa Rosa, Santa Cruz, and San Miguel Island sites, similar to past years. However, *A. californica* densities at sites inside the MPAs at Santa Barbara and Anacapa Islands have been decreasing while densities at sites adjacent to the Santa Barbara Island and Anacapa Island MPAs have been increasing. Recent studies suggest that *P. interruptus* may prey upon *A. californica* (Watkins et al., 2010). Decreasing densities of *A. californica* at sites inside the Santa Barbara Island and Anacapa Island MPAs may be due to increasing densities of *Panulirus interruptus* inside the MPAs (see *P. interruptus* paragraph above for more information on *P. interruptus* densities).

At the sites where *Haliotis rufescens* have recently been present, densities were similar to recent years. Most *H. rufescens* observations continued to be at San Miguel and Santa Rosa Islands. Miracle Mile on San Miguel Island, the site near Wyckoff Ledge that was installed in 2001 specifically to monitor *H. rufescens,* continued to have a high density. The density at this site has been relatively stable for the past five years. Though Wyckoff Ledge had lower densities relative to Miracle Mile, the density at this site remained relatively high since we began monitoring it in 1982. Densities of *H. rufescens* at Santa Rosa Island were notably lower than at San Miguel Island and overall remained similar to the past five years. On Santa Rosa Island, Chickasaw, South Point (both reserves), and Johnson's Lee North had higher *H. rufescens* densities compared to the other sites on the Island, similar to past years. At two of the new Santa Cruz Island sites *H. rufescens* were recorded on band transects for the first time (Little Scorpion and Pedro Reef). In general, we continue to see a few more *H. rufescens* on Santa Cruz Island than we have had in recent years, though they are still rare. Size frequencies at sites with a high abundance of *H. rufescens* show that mean size has steadily been increasing (Miracle Mile, Wyckoff Ledge, Chickasaw, Johnson's Lee North, and South Point). All of these sites have mean sizes for *H. rufescens* greater than 178 mm consistently for the last three years, and are at or at near record highs. This is to be expected since the harvesting of *Haliotis* spp. stopped in 1997 with a moratorium on the fishery. These data do not necessarily indicate poor recruitment as we do not monitor recruitment outside the ARMs. A better way to analyze the data would be to examine the modal distribution of sizes. However, that is currently beyond the scope of this report. See the ARMs section for more information on the recruitment of *H. rufescens.*

Haliotis corrugata continued to be rare or nonexistent at all monitoring sites. We observed *H. corrugata* on band transects at four sites (Landing Cove, Cathedral Cove, Yellow Banks, and Southeast Reef), which is an increase from recent years. However, the counts were low at these sites. For size frequencies, a total of 12 *H. corrugata* were found at the sites mentioned above. In addition to the live *H. corrugata* observed at the above sites, we also found a total of 10 fresh *H. corrugata* shells at Admiral's Reef, Southeast Reef, Webster's Arch, Cavern Point, Devil's Peak Member, Little Scorpion, Pedro Reef, Scorpion Anchorage, and Yellow Banks, nine of which

were < 50 mm. These observations imply a low level of *H. corrugata* recruitment occurred, similar to recent years. During a survey dive inshore of the Yellow Banks site on 10/1, one dive team observed seven *H. corrugata* (120-140 mm) in one group of three and one group of four. Another dive team observed eight additional *H. corrugata* (125-150 mm) in one group of three, one group of four, and one solitary individual. A third dive team observed a single individual that measured approximately 150 mm. On 10/4 another survey dive was conducted inshore of the Yellow Banks sites for abalone. Four *H. corrugata* were found. See the ARMs section for more information on the recruitment of *H. corrugata*.

One *Haliotis fulgens* was observed on band transects at Cat Canyon. This is the first time since 1991 that this species was observed on band transects. In addition, two *H. fulgens* were found for size frequency measurements; one at Cat Canyon and one at Southeast Reef. On 10/4 a survey dive was conducted inshore of the Yellow Banks sites for abalone. One *H. fulgens* was found. No live *H. sorenseni* were observed this year. We observed one live *H. assimilis* on band transects at Rodes Reef, same as last year. Two *H. assimilis* were found for size frequencies; one at Rodes Reef and one at Hare Rock. Two fresh *H. assimilis* shells were found; one at Hare Rock and one at Rodes Reef. See the ARMs section for more information on the recruitment of *Haliotis* spp.

Since at least 1990, we have conducted very thorough searches for abalone in an effort to find all that may be present at each site for size frequency measurements. The exception is Miracle Mile on SMI where they are too abundant to measure all. This year, as with the past several years, we performed our searches for abalone at the sites where they are common while conducting band transects. As part of the band transect protocol we search for abalone, but we also search between each band transect using the transect tape for reference, covering the entire length of the permanent transect and out ten meters on either side. This thorough search allows us to locate all or nearly all abalone present at a site with a consistent search effort. This year, we measured a large number of abalone for size frequencies, though similar to recent years. Because we are relatively consistent in our search effort, we believe that the sample size for size frequencies is an additional proxy of density for the sites represented as the number per 2000 m^2.

Fish

Most of the comments below and in the site descriptions are based on observations made during the roving diver fish counts. The fish species mean number per site was calculated using the maximum number observed at each site summed and divided by the total number of sites that species was observed at. Density observations are based on data collected from 1 m^2 quadrats for the following three fish species we monitor with this protocol: *Coryphopterus nicholsii*, *Alloclinus holderi* and *Lythrypnus dalli*.

Coryphopterus nicholsii densities remained similar to last year, but did experience an overall increase at Anacapa Island. There were increases in density at five sites while the remaining sites were similar to last year. A wide range of sizes of this species were present at the eastern islands, but small individuals were rare at western islands. Some notably large individuals were observed at nearly all sites. In addition, there was a high abundance of *C. nicholsii* recruits at Lighthouse, East Fish Camp, and Little Scorpion. *Alloclinus holderi* densities remained relatively low, continuing a trend of decreasing density since 2003. This is a warmer water species and what we would expect from the past ten years of relatively cooler water temperatures. All sites had little

to no change in *A. holderi* density this year. *Lythrypnus dalli* abundance remained low at all sites, similar to last year. None were observed in quadrats at any sites for the first time since 2004. This is a warm water species and experiences increases in abundance during warm water events, such as an El Niño. Proceeding El Niño events, their abundance typically tapers off over the next year or two. The last El Niño occurred in 2009 and was a weak one. This El Niño was likely responsible for creating only some patchy localized recruitment.

We observed a high abundance of painted greenling recruits at Lighthouse, East Fish Camp, and Little Scorpion.

Male *Semicossyphus pulcher* abundance was similar to past years with observations at 20 sites with a mean of 3/site, similar to the last four years. Female abundance decreased from recent years with observations at 31 sites and a mean of 10/site. Juvenile *S. pulcher* continued to be rare, and were only observed at four sites with 3/site. Adult *Oxyjulis californica* decreased in abundance for the fourth consecutive year. They were observed at 27 sites with a mean of 72/site. Observations of juvenile *O. californica* increased to nine sites at an average of 25/site this year from five sites with a mean of 10/site in 2010. Male and female *Halichoeres semicinctus* abundances remained low, similar to last year, and were observed at 14 sites with 2/site and 10 sites with 3/site, respectively. Juvenile *H. semicinctus* continued to be rare, similar to recent years. This is another warm water species that tends to recruit more during warmer years.

Adult *Chromis punctipinnis* abundance and distribution changed little from last year with observations made at 28 sites and a mean of 236/site. Juvenile *Chromis punctipinnis* were observed at 14 sites this year with a mean of 163/site. *Hypsypops rubicundus* abundance was similar to past years. Juvenile *H. rubicundus* continued to be rare, with observations at three sites with a mean of 1/site. Adult *H. rubicundus* were observed at 21 sites with a mean of 15/sites, similar to recent years. *Girella nigricans* were observed at 22 sites with a mean of 16/site, similar to recent years. Adult *Paralabrax clathratus* were observed at 27 sites and their abundance was similar to recent years at 12/site. Juvenile *P. clathratus* were observed at six sites with a mean of 3/site, an increase from the last two years. It should be noted that our fish counts are often completed at many sites before juvenile *P. clathratus* recruit, which typically happens in late Summer or early Fall. There were no large changes in overall abundance of Embiotocidae this year. Adult *Embiotoca jacksoni* remained similar to recent years and were observed at 28 sites with 13/site. Juvenile *E. jacksoni* have been increasing in abundance in recent years. This year, juvenile *E. jacksoni* were observed at 19 sites with a mean of 11/site. Adult *Embiotoca lateralis* were observed at 18 sites with a mean of 13/site, similar to the last two years. Juvenile *E. lateralis* were observed at 14 sites and remained relatively abundant with 10/site. Little change was observed in adult and juvenile *Rhacochilus vacca* which were observed at 26 sites with a mean of 6/site and nine sites with a mean of 8/site, respectively.

Sebastes spp. remained relatively abundant and diverse this year, similar to the last two years. Overall, there continued to be relatively high recruitment of most species common to KFM sites, though recruits/juveniles were not as high as last year. Adult *S. mystinus* were observed at 25 sites with a mean of 32/site, similar to last year. Juvenile *S. mystinus* increased from last year, with observations at 32 sites and a mean of 87/site. Adult *S. serranoides* were observed at 22 sites, similar to last year, with a mean of 9/site. Juvenile *S. serranoides* were observed at 19 sites

with a mean of 17/site, an increase from last year. Adult *S. serriceps* were observed at 22 sites with a mean of 4/site, similar to the past five years. Juvenile *S. serriceps* were observed at seven sites with a mean of 2/site. Juvenile *S. serriceps* have been gradually decreasing in abundance for the past three years. Adult *S. atrovirens* were observed at 26 sites with an average of 22/site, similar to last year. Juvenile *S. atrovirens* were observed at nine sites with a mean of 12/site, similar to last year. The KGB juvenile complex have been decreasing in abundance for the past three years. This year, KGB were observed at 12 sites with a mean of 16/site.

Adult *S. paucispinis,* bocaccio, were not observed this year, similar to recent years but this is typical since adults tend to move offshore into deeper water. Juvenile *S. paucispinis* observations decreased for the second year in a row from the high in 2010. Observations were recorded at three sites with a mean of 9/site. Juvenile *S. caurinus,* copper rockfish, were observed at eight sites with a mean of 3/site, a decrease from the last two years. Adults of this species were observed at nine sites with a mean of 4/site, similar to recent years. Adult *S. miniatus,* vermillion rockfish, remained similar to previous years with observations at four sites with 1/site. Juvenile *S. miniatus* increased in abundance from recent years with observations at nine sites with a mean of 6/site. Adult *S. chrysomelas*, black and yellow rockfish, abundance was similar to past years, and was observed at 26 sites with a mean of 5/site. Adult *S. carnatus*, gopher rockfish, were observed at 16 sites with a mean of 3/site, similar to recent years. Juveniles increased in abundance from recent years with observations at six sites and a mean of 5/site. Black and yellow/gopher rockfish juvenile were recorded separately from the KGB juvenile complex category, when discernible, during fish counts. This is due in part to the expert fish identification skills of this year's staff, which in past years may have included these juveniles in the KGB juvenile complex category. These juveniles were observed at six sites with a mean of 2/site, a decrease from the last two years. Adult *S. auriculatus*, brown rockfish, were observed at four sites with a mean of 1/site, similar to last year. Juvenile *S. auriculatus* were not observed this year. Adult *S. melanops*, black rockfish, were observed at seven sites with a mean of 7/site, an increase from recent years. One adult *S. rastrelliger,* grass rockfish, was observed at one site. One adult *S. semicinctus*, halfbanded rockfish, was observed at one site. This species is rarely seen at KFM sites. Another rare species observed this year was *S. pinniger*, canary rockfish. Juveniles were observed at three sites with a mean of 1/site.

Adult *Ophiodon elongatus,* lingcod, were observed at 13 sites with a mean of 2/site, similar to recent years. Adult *Scorpaenichthys marmoratus*, cabezon, were observed at 23 sites with a mean of 2/site. Juveniles were observed at three sites with a mean of 1/site. Adult *Caulolatilus princeps*, ocean whitefish, were observed at eight sites with 4/site, similar to last year. Adult *Stereolepis gigas,* giant black sea bass, were observed at two sites, similar to past years, with a mean of 2/site. However, we observed *S. gigas* at several other sites after the fish counts were conducted. One *Squatina californica*, Pacific angel shark, was observed this year during the fish counts, similar to past years, and these continue to be more common in recent years.

Artificial Recruitment Modules (ARMs)

ARMs were monitored at all 11 sites where they are present. The ARMs were in good condition this year.

Haliotis spp. continued to be in low abundance in the ARMs. For the purpose of this report, we consider abalone < 50 mm to be juveniles. Juvenile *Haliotis rufescens* continued to be in low

abundance with 18 observed. However, this is the most observed in the ARMs since 2005 when 21 were observed. Twelve were in the ARMs at Yellow Banks, and the others were found at Scorpion Anchorage, Fry's Harbor, and Miracle Mile. This high number of juvenile *H. rufescens* recorded in the Yellow Banks ARMs is similar to past years at this site. It is interesting to note that we do not know of any group of H. rufescens capable of having significant spawning until you reach the western tip of Santa Cruz Island. Due to the very low densities of *H. rufescens* at Santa Cruz Island it is likely that these recruits are coming from a relatively far distance away, such as western Santa Cruz Island, Santa Rosa Island, or San Miguel Island. There were six adult *H. rufescens* in the ARMs at Miracle Mile. The other *Haliotis* spp. continued to be rare in the ARMs. One *H. corrugata* juvenile was observed in the ARMs at Cathedral Cove. One small adult *H. corrugata* was observed in the ARMs at Landing Cove. No *Haliotis fulgens* or *H. assimilis* were observed in the ARMs. No *H. sorenseni* were observed in the ARMs this year, similar to past years.

Cypraea spadicea abundance in the ARMs was similar to last year. A total of 21 small *Kelletia kelletii,* less than 50 mm, were in the ARMs this year, seventeen of which were from Landing Cove. This is the only site where we consistently see juveniles of this species, but this is more than usual for this site. *Megathura crenulata* density in the ARMs was similar to recent years. We continued to see regular recruitment of juveniles in them. *Crassedoma giganteum* juvenile (< 50 mm) abundance in the ARMs increased at one site, decreased at three sites, and the remaining sites were similar to last year.

Overall, *Patiria miniata* densities in the ARMs remained at near record-high, similar to last year. Overall *Pisaster giganteus* juvenile (< 40 mm) densities in the ARMs were similar to last year, but increased at one site and decreased at three sites. There was little change in *Pycnopodia helianthoides* abundances in the ARMs. Overall, adult *Strongylocentrotus franciscanus* densities in the ARMs were similar to last year with increases at three sites, decreases at three sites and little change at the remaining sites. Juvenile *S. franciscanus* (< 16 mm) abundance increased at three sites, decreased at two sites and remained about the same at the remaining sites. Overall, densities of adult *Strongylocentrotus purpuratus* in the ARMs decreased, with increases at two sites, decreases at four sites and little change at the remaining sites. Juvenile *S. purpuratus* (< 16 mm) increased at one site, decreased at three sites and remained about the same at the remaining sites. There was notably more recruitment of *Strongylocentrotus* spp. at Santa Cruz Island compared to the other Islands. *Centrostephanus coronatus* remained in low abundance in the ARMs this year, with observations made at two sites. However, Yellow Banks had a total of five juvenile *C. coronatus* (8 mm, 8 mm, 9 mm, 14 mm, 15 mm) which is the most found in the ARMs at any site since 1999. These typically recruit during warm water events. It may be possible that these recruited during the warm-water event that occurred from August-September.

Unusual Species / Non-Indicator Species

We did not observe *Pteria sterna*, pearl oyster, at any of our sites this year. Sightings of this species have been tapering off during the last decade. We believe this species most recently recruited primarily during the 1997/1998 El Niño, have been senescing since, and now are very rare.

Loxorhynchus grandis was moderately abundant at several Anacapa and eastern Santa Cruz Island sites, as well as at several survey dive sites.

Similar to the last two years, there continued to be high recruitment of barnacles at many sites. Barnacles in general have been very abundant the past several years.

Sardinops sagax, Pacific Sardine, and other baitfish species were uncommon for most of the summer. Later in the summer, more observations of baitfish were made. *Sardinops sagax* observations were notably more common during the 2011 summer.

Similar to recent years, there has been an abundance of salps, cyclosalps, and siphonophores at many of the dive sites and in the Santa Barbara Channel this year.

On 5/31/2013 in Landing Cove at Santa Barbara Island, two divers observed a green sea turtle, *Chelonia mydas*. The sea turtle had large gooseneck barnacles growing on it.

Invasive Species

In 2009, the first observation of the non-native invasive alga, *Sargassum horneri* in CINP was detected. *Sargassum horneri* is native to Asia (Japan, Korea, China and Viet Nam) was first observed in California at Long Beach Harbor in October 2003. It has rapidly spread in southern California and in Baja, where it occupies rocky habitat from 3 - 18 m. At the California Channel Islands, it was first observed at Catalina Island in April of 2006, then San Clemente Island in May of 2007 (Jack Engle and Kathy Ann Miller, personal communication). In April of 2009, it was first observed within Channel Islands National Park at Anacapa Island. Small plants were observed around Rat Rock at the west end of Anacapa Island and by October, it was well established with a notably higher density of both small and large plants, some at or near maturity. We conducted additional surveys in October 2009 and *S. horneri* was observed at six out of nine survey locations at Anacapa Island (Kushner et. al, 2009). At that time, there appeared to be a higher prevalence and abundance on the north side of the Island which has fewer *Strongylocentrotus* spp. (sea urchins) than on the south side and this area is within the State MPA or Conservation Area.

In 2010, the KFM Program added *Sargassum horneri* to our four core density sampling methods to begin collecting information on this new invasive alga. In the station results section of this report, we state the density data for 1 m^2 quadrats, 5 m^2 quadrats, band transects and random point contacts. Because we are still unsure of how successful this species will be, it is still unclear which of these methods is the most effective for monitoring *S. horneri,* so we will likely continue to collect density data from all four methods during the 2013 sampling season.

Sargassum horneri was observed at a total of four KFM sites at the Channel Islands this year, a decrease from five sites last year, and seven sites in 2010. Observations were made at Southeast Reef at Santa Barbara Island, Cathedral Cove and Admiral's Reef at Anacapa Island and Cavern Point at Santa Cruz Island. Last year, Southeast Sea Lion had *S. horneri* present, though it was rare and none were observed this year. Overall, *S. horneri* abundance decreased for the second year, which is the opposite of what was expected from our observations in 2009 and 2010. This is believed to be due to the colder water temperatures that the Channel Islands have been experiencing in recent years. For density data from these sites, please refer to the station results section.

Sargassum horneri is an annual species. The alga appears to rapidly grow in October, when the KFM Program completes its monitoring, and continues to grow in fall and winter. This apparent rapid growth in fall with mature plants developing in winter and spring will mostly be missed by the monitoring program. In the summer, when most of the monitoring is conducted, the alga has already begun senescing.

The non-native bryozoan *Watersipora subtorquata* was observed last year for the first time at KFM sites. No notes were taken this year on this species.

Temperature

Two Tidbit® temperature loggers were deployed at every site except for Miracle Mile, which has no temperature logger stake. All temperature data were collected this year. Temperature data are collected in the middle of summer each season; therefore we look at annual water temperatures from May 2011 to April 2012. Hourly temperature data were averaged by day and the sites were grouped by island. Only the original 16 KFM sites were used to calculate mean temperatures. Santa Barbara Island maximum temperatures were below average throughout 2011, never going above 18.5° C, but increased from the low of 2010 when summer temperatures were below 17° C. Santa Barbara Island usually experiences average daily temperatures above 19° C for part of the summer. Similar to Santa Barbara Island, maximum summer water temperatures at Anacapa Island in 2011 increased from the record low in 2010, but were below average at 18.3° C, making the summer of 2011 the fourth coldest since 1996. San Miguel, Santa Rosa and Santa Cruz Island temperatures annual temperatures were below average for 2011. There was a warm water event that occurred in September 2012. Though temperature loggers are installed at all KFM sites, most of the loggers were retrieved before the warm water event occurred. Therefore, temperature graphs showing this event will be included in the annual report next year.

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Appendix A. Results by Individual Site.

Location: Wyckoff Ledge, San Miguel Island
Site #1, SMWL
Year sampling began: 1982
2012 sampling dates: 7/25
2012 status: Mature kelp forest

This site continued to be a mature kelp forest with large, widely-spaced *Macrocystis pyrifera* plants and a thick canopy. Canopy cover was estimated at 80%. *Macrocystis pyrifera* adult density was 0.11/m², the lowest recorded since 2001. Juvenile density was similar to recent years at 0.75/m². Subadult density increased to 0.13/m². Cover of *M. pyrifera* decreased to 11%. *Eisenia arborea* had adult and juvenile densities of 0.0/m^2 and 0.042/m^2, respectively. No *E. arborea* cover was observed on RPCs. *Pterygophora californica* was very abundant for this site, and consisted mostly of large individuals. Adult and juvenile *P. californica* densities were 0.71/m^2 and 0.79/m^2, respectively. Cover of *P. californica* was 14%, similar to recent years. No *Laminaria farlowii* were observed on quadrats, and had a cover of 0.17%, similar to previous years. *Sargassum horneri* was not observed at the site. *Dictyoneuropsis reticulata* appeared more abundant than had been observed at this site before. Adult and juvenile densities were 2.0/m^2 and 1.0/m^2, respectively. Miscellaneous brown algae cover was 12%, and much of the cover was *D. reticulata. Laminaria setchellii* was also observed at this site. *Desmarestia* spp. cover remains low at 7.5%. *Cystoseira* spp. were rare at 1.3% cover, similar to the past 10 years. Miscellaneous red algae cover was 47%, an increase from last year. *Gelidium* spp. had a cover of 1.7%, which is the first time since 2003 this species had been observed on RPCs. *Gigartina* spp. had a cover of 0.17%. Green algae were not observed at the site. Articulated coralline algae cover was 12%, similar to recent years. Encrusting coralline algae cover increased to 22%. Bare substrate cover increased to 40%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover decreased from last year's high to 3.5%. The most abundant species in this category was *Urticina lofotensis*, followed by *Epiactis* sp., and hydroids. Tunicates cover decreased to 1.3%. *Styela montereyensis* had a density of 0.13/m², similar to last year. Sponge cover was 2.2%, an increase from last year. *Tethya aurantia* remained moderately abundant at 0.16/m². *Phragmatopoma californica* cover decreased to 0%. *Diopatra ornata* was common at 11% cover. Miscellaneous bryozoans cover decreased to 11%, which consisted mostly of *Membranipora* sp. *Diaperoecia californica* was not observed on RPCs, though it was present at the site. *Urticina lofotensis* density remained high at 0.35/m², similar to recent years. *Corynactis californica* was present on top of high relief areas around the site, but had a recorded cover of 0%. *Balanophyllia elegans* was rare at 0.50% cover, similar to recent years. *Astrangia lajollaensis* was rare with a density of 0.33%. No gorgonians were observed at the site, similar to past years.

Strongylocentrotus franciscanus had a density of 1.4/m², similar to last year. Mean size of *S. franciscanus* was 69 mm, an increase from last year's low. *Strongylocentrotus purpuratus* was rare with a density of 0.33/m², similar to recent years. Mean size for *S. purpuratus* was 36 mm, similar to last year. No *Lytechinus anamesus* or *Centrostephanus coronatus* were observed, similar to past years. No sea urchin wasting disease was observed.

Pisaster giganteus had a density of 0.13/m², the highest recorded at this site. Mean size of *P. giganteus* remained high at 90 mm. *Patiria miniata* was abundant with a density of 3.1/m², the highest recorded at this site. Mean size for P. miniata was 72 mm, the highest recorded at this site. *Pycnopodia helianthoides* was rare with a density of 0.0056/m^2, a decrease from last year. *Ophiothrix spiculata* was rare and not observed on RPCs. *Pachythyone rubra* was not observed at the site, similar to past years. *Parastichopus parvimensis* had a density of 0.21/m², the highest recorded since 1999, and was made up mostly of large individuals. No sea star wasting disease was observed.

Haliotis rufescens remained relatively abundant with a density of 0.075/m², a decrease from last year's record high. A total of 173 *H. rufescens* were located for size frequency measurements with mean size of 182 mm, similar to the last few years. The mean size of *H. rufescens* has gradually been increasing for over a decade at this site. Since 1990, we conduct a very thorough search of the entire transect for abalone. Similar to past years, we conducted this search during band transects and also searched for abalone between the band transects. This was one of the highest sample size of abalone we have measured for size frequencies, though similar to last year. Because we are relatively consistent in our search effort, we believe that the sample size for size frequencies is an additional proxy of density for the site. *Cypraea spadicea* was present but not observed on 1 m^2 quadrats. *Astraea gibberosa* had a density of 0.21/m^2, similar to past years. No *Megastraea undosa* or *Tegula regina* were observed at the site. *Kelletia kelletii* continued to be abundant with a density of 0.28/m^2, a decrease from last year's high. *Megathura crenulata* was rare with a density of 0.0028/m^2, and consisted mostly of large individuals. *Crassedoma giganteum* was rare and had a density of 0.014/m^2. *Aplysia californica* was rare and had a density 0%. At least five *Cryptochiton stelleri* were found at the site. Four of those were on band transects for a density of 0.0056/m^2, which is likely a high estimate due to sampling artifact. *Panulirus interruptus* was not observed at the site. Cancer crabs were noted as being moderately abundant, more so than in recent years.

Coryphopterus nicholsii had a density of 0.042/m^2. *Lythrypnus dalli* and *Alloclinus holderi* were not observed at the site. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

The temperature loggers were retrieved and deployed and all data were successfully downloaded.

Location: Hare Rock, San Miguel Island
Site #2, SMHR
Year sampling began: 1982
2012 sampling dates: 8/30
2012 status: Dominated by *Strongylocentrotus franciscanus*

This site continued to be dominated by *Strongylocentrotus franciscanus* and is almost devoid of macroalgae, although there continued to be a dense patch of *Macrocystis pyrifera* just off the site on the inshore side of Hare Rock, as well as a few scattered patches around the site. Adult, subadult and juvenile *M. pyrifera* densities were 0.02/m², 0.025/m^2, and 0.0/m², respectively, and similar to recent years. Cover of *M. pyrifera* was 0%, similar to recent years. No *Pterygophora californica, Laminaria farlowii, Sargassum horneri* or *Cystoseira* spp., *Gigartina* spp., *Gelidium* spp. were observed at the site. *Eisenia arborea juvenile* had a density of 0.042/m². *Desmarestia* spp. had 0.0% cover, though there were several small, dense patches present. Green algae had a

cover of 11% and consisted almost entirely of *Ulva* spp. which were in several small dense patches. Other brown algae had a cover of 0.17/m^2, and consisted of *Costaria costata*. Articulated coralline algae had a cover of 0.2%. Encrusting coralline algae was similar to past year with a cover of 71%. Other red algae had zero cover, though present at the site. Bare substrate cover was similar to last year at 22%.

Overall, this site had few encrusting invertebrates, similar to recent years. Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 1.3%, and consisted entirely of barnacles. Tunicates, *Phragmatopoma californica, Diopatra ornata, Serpulorbis squamigerus*, *Diaperoecia californica* and Sponges were not observed during RPCs, though present at the site. although *Tethya aurantia* had a density of 0.031/m², similar to past years. *Styela montereyensis* was not observed on quadrats, though present at the site. Miscellaneous bryozoans cover was 1.3%, the same as last year. *Urticina lofotensis* had a density at 0.022/m², similar to past years. *Corynactis californica, Astrangia lajollaensis* and *Balanophyllia elegans* had covers of 1.3%, 0.67% and 3.3%, respectively. No gorgonians were observed at the site, similar to past years.

Overall, there was little change in *Strongylocentrotus* spp. densities from recent years. *Strongylocentrotus franciscanus* remained evenly distributed and out in the open over most of the transect. Density of *S. franciscanus* was 13/m² and had a mean size of 59 mm, both similar to recent years. Density of *S. purpuratus* was 0.63/m², and had a mean size of 24 mm, both similar to the last two years, though the mean size is the lowest recorded since 2004. No *Lytechinus anamesus* or *Centrostephanus coronatus* were observed. No sea urchin wasting disease was observed. *Patiria miniata* density was 5.8/m². For the past five years, the density of *P. miniata* has been higher than has been recorded at this site since 1983. Mean size of *P. miniata* was 54 mm. *Pisaster giganteus* density was 0.36/m², the highest recorded since 2002. The mean size of *P. giganteus* was similar to last year at 98.8 mm. *Pycnopodia helianthoides* had a density of 0.065/m². *Ophiothrix spiculata* and *Pachythyone rubra* were not observed during RPCs, similar to past years, though *O. spiculata* were observed at the site. *Parastichopus parvimensis* had a density of 0.083/m², and consisted of large individuals. *Orthasterias koehleri* was noted as being common. *Pisaster brevispinus* was noted as being present. No sea star wasting disease was observed.

No *Haliotis* spp. were observed on band transects. One juvenile 22 mm *Haliotis rufescens* was observed under *S. franciscanus* spine canopy, and nine small fresh shells were observed with a mean size of 47mm. One fresh *Haliotis assimilis*, threaded abalone, shell was observed and measured at 88 mm. *Cypraea spadicea* had a density of 0.67/m². *Kelletia kelletii* and *Astraea gibberosa* had densities of 0.0042/m² and 0.96/m², respectively. Juvenile *A. gibberosa* were common. *Megastraea undosa, Megathura crenulata* and *Tegula regina* were not observed during sampling, but were observed at the site. *Panulirus interruptus* were not observed at the site. Similar to previous years, *Crassedoma giganteum* and *Aplysia californica* had densities of 0.015/m² and 0.0028/m², respectively. No *Cryptochiton stelleri* were observed at the site. *Melibe leonina* was common in patches of *Ulva* spp. A school of approximately 300 *Loligo opalescens*, market squid, was observed at the site.

Fish abundance and diversity were moderate, similar to recent years. *Coryphopterus nicholsii* had a density of 0.83/m². No *Lythrypnus dalli* or *Alloclinus holderi* were observed at the site. Two notably large resident *Scorpaenichthys marmoratus*, cabezon, were observed at the site.

They have been observed at this site for several years in a row, though they appeared much larger this year than in past years. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

The temperature loggers were retrieved and deployed and all data were successfully downloaded.

Location: Johnson's Lee North, Santa Rosa Island
Site #3, SRJLNO
Year sampling began: 1982
2012 sampling dates: 8/28
2012 status: Mature kelp forest

This site continued to be a mature kelp forest with many widely-spaced adult *Macrocystis pyrifera* and a dense understory of red and brown algae. Canopy cover was estimated at 25%, less than previous years, and appeared thin. There were few epiphytes growing Macrocystis pyrifera blades. The *M. pyrifera* blades appeared to be senescing a little from the warm water temperature. On the day this site was sampled the water temperature was 20°C. Understory algae was moderately abundant, though the bottom looked more scoured than in recent years. There also appeared to be fewer encrusting invertebrates. Other than that, the site appeared similar to past years. *Macrocystis pyrifera* adult, subadult, and juvenile densities were 0.49/m^2, 0.44/m^2, and 3.6/m^2, respectively, and all similar to recent years. Cover of *M. pyrifera* was 12%, a decrease from the last five years. *Eisenia arborea* was not observed during sampling. Adult and juvenile *Pterygophora californica* densities were 0.58/m^2 and 0.21/m^2, respectively. Cover of *P. californica* was 5.5%. Adult and juvenile *Laminaria farlowii* densities were 0.50/m^2 and .63/m^2, respectively. Cover of *L. farlowii* was 6%, a decrease from last year's record high, but still high compared to the first 25 years of monitoring. *Cystoseira* spp. had a cover of 0.17%. *Desmarestia* spp. had a cover of 0.0%, though present at the site. Miscellaneous red algae had a cover of 54%, a decrease from last year but similar to recent years. *Gelidium* spp. were not observed at the site. *Gigartina* spp. cover was 11%. Miscellaneous plant (i.e. diatom film) and miscellaneous green algae had 0% cover though present at the site. Articulated coralline algae had a cover of 2.5% and encrusting coralline algae had the lowest recorded cover ever of 3%. Bare substrate cover increased from last year's 1.5% to 29%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 5.8%, the lowest recorded cover for this category. The most common invertebrates in this category were hydroids. Tunicates had a cover of 2.5%, a decrease from recent years, and the lowest recorded since 2001. *Polyclinum planum* was notably abundant but appeared smaller than in recent years. *Styela montereyensis* was similar to last year with a density of 3.0/m^2. Sponges had a cover of 1.7%, a decrease from recent years. *Tethya aurantia* had a density of 0.12/m^2, similar to last year. *Phragmatopoma californica* cover decreased from last year to 5.3%. *Diopatra ornata* had a cover of 1.0%. There was no *Serpulorbis squamigerus* cover recorded during sampling, though present at the site. Miscellaneous bryozoans cover was similar to recent year at 33%. *Diaperoecia californica* cover was 0.0%, though present at the site. *Urticina lofotensis* had a density of 0.024/m^2, similar to last year. *Corynactis californica* cover was 0.17%. *Balanophyllia elegans* and *Astrangia lajollaensis* both had covers of 0.0%, though both were observed at the site. *Lophogorgia chilensis*, *Muricea californica* and *Muricea fruticosa* were not observed at the site.

Strongylocentrotus purpuratus was patchy and there was notable predation by *Pycnopodia helianthoides.* The density of *S. purpuratus* was 0.33/m² and mean size was 38 mm, similar to last year. *Strongylocentrotus franciscanus* was mostly found in crevice habitat, and had a density of 0.33/m². Mean size of *S. franciscanus* was 59 mm, a decrease from recent years. No *Lytechinus anamesus* or *Centrostephanus coronatus* were observed at the site, similar to past years. No sea urchin wasting disease was observed.

Pisaster giganteus had a density of 0.15/m², similar to the last ten years. Mean size was 88 mm. No *P. ochraceus* were observed at the site. *Patiria miniata* had a density of 3.0/m², the highest density recorded at this site. The next year with a density similar to this year's was 1982 at 2.6/m^2. Following the 1982/83 El Niño, densities dropped to nearly zero. Densities remained low up until 2008. Mean size *of P. miniata* was 64 mm. *Pycnopodia helianthoides* had a density of 0.069/m². There were many small *P. helianthoides* present. Mean size was 128 mm. *Ophiothrix spiculata and Pachythyone rubra* were not observed during sampling. *Parastichopus parvimensis* was present but not observed during sampling. The leather star *Dermasterias imbricata* was noted as being moderately abundant and mostly large in size. No sea star wasting disease was observed.

Density of *Haliotis rufescens* was 0.018/m². Thirty-four *H. rufescens* were measured during size frequencies for a mean size of 184 mm, similar to the last three years. *Cypraea spadicea* had a density of 0.33/m². *Megastraea undosa* was not observed during sampling, though several very large individuals and one smaller individual were observed at the site. *Astraea gibberosa* and *Tegula regina* were absent from the site. *Kelletia kelletii* had a density of 0.0014/m² and most were notably large. *Megathura crenulata* had a density of 0.0097/m². *Crassedoma giganteum* had a density of 0.017/m². *Aplysia californica* had a density of 0.0056/m², and consisted mostly of large individuals. *Panulirus interruptus* was not observed at the site.

Fish at this site were abundant and diverse, similar to past years. *Coryphopterus nicholsii* density was 0.58/m², the highest density recorded. *Alloclinus holderi* was not observed at the site. One *Stereolepis gigas* was observed after roving diver fish counts. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

All nine ARMs were intact and monitored for all indicator species. One cage was replaced in the middle group. ARM # 2411 from the south group appeared to have been partially crushed, but was still sampled. Four bricks were replaced in that ARM, but eight bricks still need to be replaced. ARM #2394 in the south has two layers of bricks that need to be replaced. Three bricks were replaced in ARM #2398 of the middle group. Heart crabs *Phyllolithodes papillosus* were documented for the first time at this site in a total of three ARMs. Heart crabs have also become more abundant in recent years at Johnson's Lee South. No *Haliotis* spp. were observed in the ARMs this season. *Cypraea spadicea* had a density of 6.56/ARM and a mean size of 47 mm, similar to last year. No *Megastraea undosa* or *Kelletia kelletii* were observed. *Megathura crenulata* was present at 0.78/ARM with a mean size of 38 mm. *Crassedoma giganteum* density was 1.2/ARM and a mean of 75mm. *Patiria miniata* density was 3.7/ARM with a mean of 34 mm. *Pisaster giganteus* had a density of 3.0/ARM with a mean of 42 mm. *Pycnopodia helianthoides* density was 1.1/ARM with a mean of 93 mm, similar to recent years. *Strongylocentrotus franciscanus* density was the highest recorded for this site at 42/ARM with a mean of 49 mm. *Strongylocentrotus purpuratus* density was 25/ARM, an increase from recent

years, with a mean size of 28 mm. *Parastichopus parvimensis* density <10 cm was 0/ARM and density >10 cm was 0.89/ARM.

The temperature loggers were retrieved and deployed, and all data were successfully downloaded.

Location: Johnson's Lee South, Santa Rosa Island
Site #4, SRJLSO
Year sampling began: 1982
2012 sampling dates: 7/10, 8/29
2012 status: Mature kelp forest

Overall, this site continued to be a mature kelp forest with large, widely spaced *Macrocystis pyrifera* plants. Canopy cover increased to 50% from 24% last year, though it appeared thin. Most blades of kelp were covered with bryozoans. Inshore there appeared to be less bryozoans. Understory algae were abundant and diverse, with most indicator species present. Overall cover of *M. pyrifera* was 8%, similar to the last two years, and adult density was 0.14/m². Subadult density was 0.26/m², an increase from last year. Juvenile *M. pyrifera* density was 0.50/m². Adult and juvenile densities of *Eisenia arborea* were 0.21/m² and 0.17/m², respectively, and similar to recent years. Cover of *E. arborea* was 3.0%. *Pterygophora californica* cover was 0.83%, similar to past years. Adult and juvenile densities were 0.042/m^2 and 0.083/m^2, respectively. Adult and juvenile *Laminaria farlowii* densities were 0.79/m² and 0.58/m^2, respectively. Cover was 5.7%, and decrease from last year. *Desmarestia* spp. and *Cystoseira* spp. had zero cover, though present at the site. *Sargassum horneri* was not observed at the site. Miscellaneous brown algae cover was 0.67%, similar to recent years, and consisted only of *Dictyoneuropsis reticulata.* Adult and juvenile densities of *Dictyoneuropsis reticulata* were 0.25/m^2 and 0/m^2, respectively. *Gigartina* spp. had 7.5% cover. *Gelidium* spp. was not observed at the site. Miscellaneous red algae had 56% cover. Other green algae were not observed during RPCs. Articulated coralline algae cover was 4.0%, similar to recent years. Encrusting coralline algae cover was 7.0%, a decrease from recent years, and the lowest recorded since 1999. Bare substrate cover was 27%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 11% and mainly consisted of hydroids. Most of the hydroids were *Aglaophenia* sp. Tunicates had a cover of 3.2%. *Styela montereyensis* had a density of 1.4/m², and several small individuals wee noted. Sponges had a cover of 1.2%. *Tethya aurantia* had a density of 0.34/m², and consisted mostly of large individuals. *Diopatra ornata* was common with a cover of 13%. *Phragmatopoma californica* was not observed. Miscellaneous bryozoans had a cover of 20.5%, and were mostly found epiphytically growing on plants. *Diaperoecia californica* was observed at 1.2% cover. *Corynactis californica* cover was 1.3%. *Urticina lofotensis* density was 0.15/m², a decrease from last year's record high. *Astrangia lajollaensis* cover was 0.67%. *Balanophyllia elegans* had a cover of 1.8%, similar to recent years. *Lophogorgia chilensis* had a density of 0.018/m², to the lowest recorded since 1984. *Muricea californica* had a density of 0.0028/m². No *Muricea fruticosa* were observed during band transect, though one individual was observed at the site.

Strongylocentrotus franciscanus had a density of 1.4 /m^2, similar to past years. *Strongylocentrotus purpuratus* had a density of 1.3/m^2, a decrease from recent years. The mean sizes of *S. franciscanus* and *S. purpuratus* were 60 mm and 38 mm, respectively. Juvenile *Strongylocentrotus* spp. were rare. No *Lytechinus anamesus* or *Centrostephanus coronatus* were

observed. No sea urchin wasting disease was observed. On 7/11 and on 7/12, an urchin diver was observed fishing directly on the site.

Pisaster giganteus had a density of 0.090/m², a decrease from last year. *Patiria miniata* remained at near record high density at 4.8/m². *Pycnopodia helianthoides* had a density of 0.061/m², a decrease from recent years. *Ophiothrix spiculata* was not observed on RPCs and was rare at the site. *Pachythyone rubra* was not observed at the site, similar to past years. *Parastichopus parvimensis* had a density of 0.04/m², and all individuals observed were large. Several *P. californicus* were observed at the site. No sea star wasting disease was observed.

Haliotis rufescens had a density of 0.0042/m², similar to past years. A total of 9 were measured for a mean size of 196 mm. There was one very large individual, 270 mm, present in the same location that it has been observed in for several years. No *H. corrugata* or *H. fulgens* were observed. *Cypraea spadicea* had a density of 0.63/m². *Megastraea undosa* had a density of 0/m^2, similar to past years, though one large individual was observed at the site. *Asterina gibberosa* and *Tegula regina* were not observed at the site. *Kelletia kelletii* had a density of 0.018/m², an increase from last year. *Megathura crenulata* had a density of 0.011/m², similar to past years. *Crassedoma giganteum* had a density of 0.038/m², the highest recorded since 1994. Most *C. giganteus* individuals observed were small, though large ones were present. High predation of *C. giganteus* was evident by many empty shells. *Aplysia californica* had a density of 0.014/m², an increase from recent years, and the highest recorded since 1998. Large barnacles, *Balanus nubilus*, were moderately abundant, but appeared less abundant that in past years.

Fish were abundant and diverse, similar to past years. *Coryphopterus nicholsii* had a density of 0.46/m². *Alloclinus holderi* and *Lythrypnus dalli* were not observed. There were notably more *Sebastes mystinus* and *S. chrysomelas* observed during our visit than were observed here last year. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

All seven ARMs were monitored for all indicator species. One ARM was replaced. We continued to observe *Phyllolithodes papillosus*, heart crabs, in the ARMs at this site, which is a range extension for this northern species. We have observed this species consistently in the ARMs since 1997. All seven of the ARMs had an abundance of barnacles on the bricks. We also noticed an abundance of *Ceratostoma foliatum*, leafy hornmouth, with between 10 and 40 per ARM.

Haliotis rufescens were not observed in the ARMs. *Cypraea spadicea* density was 3.4/ARM, a decrease from recent years. *Megathura crenulata* density was 0.29/ARM, an increase from previous years. *Crassedoma giganteus* density was 1.0/ARM. Three *Kelletia kelletii* were observed in the ARMs for a density of 0.43/ARM. *Patiria miniata* density was 7.6/ARM, a decrease from last, with a mean size of 40 mm. *Pisaster giganteus* density was 4.43/ARM, and had a mean size of 59 mm. *Pycnopodia helianthoides* density was 1.0/ARM, with a mean size of 109 mm. *Strongylocentrotus franciscanus* density was 37/ARM, with a mean size of 56 mm. *Strongylocentrotus purpuratus* density was 8.7/ARM, with a mean size of 45 mm, a decrease from past years. *Parastichopus parvimensis* density <10 cm was 0/ARM and density >10 cm was 0.43/ARM. Three *P. californicus* were also observed in the ARMs.

The temperature loggers were retrieved and deployed, and all data were successfully downloaded.

Location: Rodes Reef, Santa Rosa Island
Site #5, SRRR
Year sampling began: 1983
2012 sampling dates: 7/24
2012 status: Open area with moderately high density of *Strongylocentrotus franciscanus*

This site remained an open area with a moderate abundance of *Strongylocentrotus franciscanus*. The entire transect was nearly devoid of all macroalgae. One small *Macrocystis* pyrifera plant (<1m) was observed on the site, but did not look healthy. The absence of *M. pyrifera* adult and subadults is similar to last year. Percent cover of *M. pyrifera* remained at 0.0%. *Desmarestia* spp. had several dense patches on the north end of the transect. No *Eisenia arborea, Laminaria farlowii, Pterygophora californica, Cystoseira* spp., or *Sargassum horneri* were observed at the site, similar to previous years. Miscellaneous green algae were absent and other brown algae were present, but neither were observed during RPCs. Miscellaneous red algae cover declined from 8.0% last year to 2.5% cover. No *Gigartina* spp., *Gelidium* spp., or articulated coralline algae were observed during RPC's, although articulated coralline was present at the site. Encrusting coralline cover increased to 81%, the highest recorded cover since 1999. Miscellaneous plants, consisting of filamentous diatoms, were observed on the site, but not in RPC. Bare substrate cover declined to 2% after staying around 10% for several years.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover decreased from last year to 0.33%. The most abundant miscellaneous invertebrates for 2012 composed of very few anemones. Tunicates were not observed during RPC sampling but the bright fluorescent orange encrusting species was abundant throughout the sight. *Styela montereyensis* were not observed during sampling. Sponges had a cover of 1.5%, an increase from past years. *Tethya aurantia* was common at 0.30/m², the same as last year. *Diopatra ornate* was not observed during sampling, it was rare throughout the site and the lowest ever observed. *Phragmatopoma californica, Serpulorbis squamigerus* and miscellaneous bryozoans were not observed during sampling. *Diaperoecia californica* was not observed during RPCs, same as last year. *Urticina lofotensis* had a density of 0.054/m^2. *Corynactis californica* had a cover of 0.17%, an increase from last year. *Balanophyllia elegans* had a cover of 7%, the highest since 1990. *Astrangia lajollaensis* had a cover of 8%, an increase from previous years. Only one individual of *Lophogorgia chilensis* was observed with a density of 0.0014/m^2. No *Muricea californica* or *M. fruticosa* were observed at the site.

Similar to last year, large to medium size *Strongylocentrotus franciscanus* were present at 8/m^2, with small fronts around the *Desmarestia* patches. Juveniles were rare. Mean size of *S. franciscanus* was 61mm, similar to previous years. *Strongylocentrotus purpuratus* were notably rare with zero in quadrates. A record low six *S. purpuratus* were found for size frequencies with an average size of 22mm. This low abundance of *S. purpuratus* is likely due to the high density of *Pycnopodia helianthoides* the last two years. *Lytechinus anamesus* and *Centrostephanus coronatus* were not observed at the site. No sea urchin wasting disease was observed.

Pisaster giganteus were recorded on both 5m and 1m quadrats at a density of 1.2/m² and 0.80/m², respectively. This is the highest density recorded for this species since 2002. *P. giganteus* had a mean size of 101mm, with many medium to small individuals. *Patiria miniata* observed at 5.5/m², similar to past years. Density of *P. helianthoides* decreased to 0.25/m^2 a high abundance of small individuals. No *Ophiothrix spiculata* were observed during sampling, although they were present at the site. *Pachythyone rubra* was not observed at the site, as in past years. *Parastichopus parvimensis* were not observed during quadrats, though notably large individuals were present. No sea star wasting disease was observed.

Haliotis rufescens shells were less common at the site than last year with only one small shell found. Two live *H. rufescens* were observed as well as one live *H. assimilis.* One small, fresh *H. assimilis* shell was also found. *Cypraea spadicea* was observed at 0.33/m², and most individuals were large. No *Megastraea undosa* were observed during sampling. *Astraea gibberosa* had an overall density of 0.29/m^2, the highest ever observed at this site with juveniles abundant. *Tegula regina* was not observed. *Kelletia kelletii* individuals were relatively small at a density of 0.04/m², similar to previous years. *Megathura crenulata* were mostly large individuals at a density of 0.019/m². *Crassedoma giganteus* was at a density of 0.015/m², a large decline from last year's record high. *Aplysia californica* was observed on bands for the first time since 2008 with a density of 0.0042/m^2. No *Panulirus interruptus* were observed during sampling.

No *Lythrypnus dalli* or *Alloclinus holderi* were observed during sampling, similar to previous years. *Coryphopterus nicholsii* was rare enough, with of 0.17/m^2, that only one quadrat set was used during sampling. Fewer *Semicossyphus pulcher*, California sheephead, were observed than typically found at this site. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

Temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Gull Island, Santa Cruz Island
Site #6, SCGI
Year sampling began: 1982
2012 sampling dates: 6/11, 9/11
2012 status: State of transition

This site was half dominated by *S. purpuratus* and *O. spiculata* and half a mature kelp forest with a moderate amount of understory algae. *Macrocystis pyrifera* canopy cover was estimated at 5%. Adult and subadult *M. pyrifera* densities were 0.18/m^2 and 0.030/m^2, respectively. Juvenile *M. pyrifera* density was 0.63/m^2, similar to recent years. Cover of *M. pyrifera* remained low at 5.7%, similar to the last two years. *Eisenia arborea* adult and juvenile densities were 0.17/m² and 0.25/m², respectively, similar to past years. Cover was 4.0%, similar to recent years. *Pterygophora californica* was rare overall, with none observed on RPCs and no adults observed on 1 m^2 quadrats, similar to past years. Juvenile density was 0.042/m². *Laminaria farlowii* was rare with adult and juvenile densities of 0.0/m² and 0.083/m², respectively. No *L. farlowii* cover was observed on RPCs. No *Desmarestia* spp. were observed on RPCs, though present at the site. No *Sargassum horneri* was observed at the site. *Cystoseira* spp. cover was 0.16%, similar to past years. *Dictyoneuropsis/Agarum* had adult and juvenile densities of 0.13/m^2 and 0/m^2, respectively. Miscellaneous brown algae cover was 3.5%, an increase from the last 10 years, and

consisted mostly of *Agarum fimbriatum*, which was common in low lying areas throughout the site. Miscellaneous red algae, consisting primarily of *Rhodymenia* spp., had a cover of 29%, the lowest recorded since 2005. *Gigartina* spp. were rare with cover of 0.0%. *Gelidium* spp. were not observed at the site. Green algae had a cover of 0.17%. Articulated coralline algae had 0.50% cover, a decrease from recent years. Encrusting coralline algae had 30% cover. Miscellaneous plants cover was recorded at 0.50%. Bare substrate cover increased to 26%, the highest recorded at this site.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover remained low at 5.3%. The most abundant invertebrates in this category were hydroids. Tunicates cover also remained low at 0.50%. *Styela montereyensis* was rare and not observed on 1 m^2 quadrats. Sponge cover was 2.3%, similar to the last two years. *Tethya aurantia* of all sizes were abundant and had a density of 0.55/m², the highest recorded at this site and steadily increasing for the past four years. *Diopatra ornata* had a cover of 3.7%, and appeared notably large, dense, and abundant in low-lying areas. *Phragmatopoma californica* was not observed. Miscellaneous bryozoan cover decreased to 7.6%, the lowest recorded at this site since 2001. *Diaperoecia californica* cover was 2.5%, similar to recent years. *Urticina lofotensis* had a density of 0.0028/m². *Corynactis californica* had a cover of 4.2%. *Balanophyllia elegans* and *Astrangia lajollaensis* covers were 2.2% and 1.3%, respectively, similar to recent years. The density of *Stylaster californica* increased from the last two years to 0.18/m². *Lophogorgia chilensis* density was 0.047/m^2, similar to past years. No *Muricea californica* or *Muricea fruticosa* were observed at the site.

The first 30 meters along the transect was mostly devoid of *Macrocystis pyrifera* and was more dominated by echinoderms compared to past years. Overall, adult *Strongylocentrotus* spp. were moderately abundant and juveniles were common. *Strongylocentrotus franciscanus* density increased to 6.3/m², while *S. purpuratus* density decreased to 23/m². Their mean sizes were similar to last year at 56 mm and 31 mm, respectively. *Lytechinus anamesus* was not observed at the site. A single *Centrostephanus coronatus* was observed at the site, but was not recorded on quadrats. No sea urchin wasting disease was observed.

Pisaster giganteus had a density of 0.27/m², an increase from recent years. Mean size was 106 mm, similar to recent years. *Patiria miniata* density remained high at 3.6/m². Mean size was 60 mm, similar to last year. *Pycnopodia helianthoides* density increased to 0.060/m², the highest recorded since 2002. *Ophiothrix spiculata* was more abundant than in recent years, specifically from the 0-40 m section of the transect. Cover was recorded at 5.8%, the highest recorded for this site. *Pachythyone rubra* was rare with none observed during RPCs. *Parastichopus parvimensis* had a density of 0.50/m² consisting of all very large individuals. No sea star wasting disease was observed.

No live *Haliotis spp.* or fresh shells were observed during sampling. *Cypraea spadicea* had a density of 0.67/m². *Megastraea undosa* was rare and not observed in 1 m^2 quadrats. *Astraea gibberosa* and *Tegula regina* were not observed at the site. *Kelletia kelletii* density was similar to recent years at 0.0069/m². *Megathura crenulata* had a density of 0.022/m², an increase from recent years. *Aplysia californica* had a density of 0.0083/m^2, similar to recent years. *Crassedoma giganteum* had a density of 0.047/m², similar to recent years. *Panulirus interruptus* was not observed at the site.

Fish were moderately abundant and diverse, similar to past years. Density of *Coryphopterus nicholsii* was 0.21/m², similar to recent years. *Alloclinus holderi* and *Lythrypnus dalli* were not observed at the site. Juvenile *Sebastes mystinus* were very abundant. *Oxyjulis californica* were common in upper canopy, but were not present when several observers counted fish. Juvenile *Embiotoca jacksoni* were observed after the Roving diver fish counts. One juvenile *Anarrhichthys ocellatus*, wolf eel, with orange morphology was observed before RDFC. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

All 14 ARMs were intact and monitored, 12 for all indicator species and two for all indicator species except for *Strongylocentrotus* spp. ARM #2493's cage was replaced and ARM #2331's cage will need to be replaced next year, both ARMs are in the south group. *Strongylocentrotus* spp. was most abundant in the ARMs, followed by *Cypraea spadicea* and *Patiria miniata*. *Strongylocentrotus franciscanus* density was 62/ARM, the highest density observed since 2002, with a mean size of 25 mm. *Strongylocentrotus purpuratus* density increased from past years to 66/ARM, with a mean size greater than recent years at 35 mm. *Pisaster giganteus* density increased to the highest observed at this site at 4.1/ARM. Mean size remained similar to past years at 42 mm. *Pycnopodia helianthoides* was not observed. The density of *Cypraea spadicea* was 6.9/ARM, the lowest density since 2001. *Kelletia kelletii, Astraea gibberosa,* and *Megastraea undosa* were not observed. *Megathura crenulata* had a density of 1.1/ARM, the highest observed in the ARMs at this site, and a mean size of 24 mm. *Crassedoma giganteum* had a density of 0.43/ARM, the lowest recorded since 2003, and a mean size of 62 mm, an increase from recent years. *Parastichopus parvimensis* density <10 cm was 0.57/ARM and density >10 cm was 0.86/ARM. In addition, one *P. californicus* <10 cm and one *P. californicus* >10 cm was found in the ARMs for a density of 0.07/ARM each.

Location: Fry's Harbor, Santa Cruz Island
Site #7, SCFH
Year sampling began: 1982
2012 sampling dates: 8/14, 8/27
2012 status: Mature kelp forest

This site was a mature kelp forest. *Macrocystis pyrifera* was mostly inshore, and most of the plants looked healthy and had new growth. Most of the understory algae consisted of *Eisenia arborea,* though it appeared less abundant than in past years. Other understory algae growth was sparse. Canopy cover was estimated at 35%, an increase from 20% last year. *Macrocystis pyrifera* adult density was 0.13/m^2, similar to recent years. Subadult density was 0.17/m², also similar to recent years. Juvenile *M. pyrifera* had a density of 0.54/m^2. Cover of *M. pyrifera* decreased from recent years to 4.0%. *Eisenia arborea* density increased from last year. Adult and juvenile densities were 1.33/m² and 0.88/m², respectively. *Eisenia arborea* cover was 23%, similar to the past three years. No *Pterygophora californica, Laminaria farlowii, Desmarestia* spp*., Cystoseira* spp., or *Sargassum horneri* were observed at the site. Miscellaneous green algae were not observed during RPCs. Miscellaneous red algae had a cover of 33%. *Gigartina* spp. had a cover of 1.5%. *Gelidium* spp. had a cover of 0.83%. Encrusting coralline algae cover was 15%, a record low for this site. Articulated coralline algae cover was 0.17%. Bare substrate cover was 17.3%, the highest since 2003.

Encrusting invertebrates, mostly bryozoans were abundant. Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 13.5%, similar to last year. The dominant

invertebrates in this category were barnacles. Most of the barnacles present were small, similar to Pedro Reef. Tunicates had a cover of 0.5%, a decrease from recent years. *Styela montereyensis* had a density of 0.083/m^2, several small individuals were observed, which is unusual for this site. Sponges had a cover of 0.33%. *Tethya aurantia* density continued to increase for the seventh consecutive year. Density was observed at 0.30/m², the highest recorded at this site. Many small, hard to see *T. aurantia* were present. During the first three years of monitoring at this site (1983-1985), *T. aurantia* was abundant. Densities then declined and it was common until around 2000. Between 2000 and 2006, it was rare at the site and for some of those years it was difficult to find more than several for size frequency measurements. *Diopatra ornata* had a cover of 4.3%, similar to recent years. *Serpulorbis squamigerus* and *Phragmatopoma californica* were not cover recorded on RPCs. Miscellaneous bryozoans had a cover of 27%. *Diaperoecia californica* had a cover of 0.17%. *Urticina lofotensis* was not observed at the site. *Balanophyllia elegans* had a cover of 33%. *Astrangia lajollaensis* had a cover of 12.8%, similar to last year. *Corynactis californica* had a cover of 0.5%. *Lophogorgia chilensis* had a density of 0.2/m², similar to recent years. *Muricea californica* and *M. fruticosa* were not observed at the site.

Strongylocentrotus purpuratus had a density of 2.1/m^2, similar to the past ten years. *Strongylocentrotus franciscanus* had a density of 0.7/m², also similar to the past ten years. *Centrostephanus coronatus* was not observed at the site. Only several *Lytechinus anamesus* were observed on the offshore side of the transect, and were not observed on band transects. No sea urchin wasting disease was observed.

Pisaster giganteus had a density of 0.69/m², the highest recorded since 2002. No *P. ochraceus* were observed at the site. *Patiria miniata* had a density of 4.0/m², similar to last year's record high. *Pycnopodia helianthoides* had a density of 0.049/m². Many *P. helianthoides* less than 10 cm were present. *Parastichopus parvimensis* remained at a near record low density of 0.083/m², similar to recent years. *Ophiothrix spiculata* and *Pachythyone rubra* were not recorded on RPCs, though present at the site. No sea star wasting disease was observed.

Haliotis rufescens had a density of 0.0014/m^2. Three fresh *H. rufescens* shells were observed with a mean size of 84mm. *Cypraea spadicea* had a density of 0.79/m^2. *Astraea gibberosa* was not observed at the site. *Megastraea undosa* had a density of 0.042/m^2. *Tegula regina* was not observed on 1 m^2 quadrats. *Kelletia kelletii* had a density of 0.018/m², an increase from last year. *Megathura crenulata* had a density of 0.032/m², a decrease from recent years. *Crassedoma giganteus* had a density of 0.028/m², an increase from recent years. *Aplysia californica* had a density of 0.0014/m^2. *Panulirus interruptus* had a density of 0.0014/m^2. Cancer crab shells (both *C. antennarius* and *C. productus*) appeared more common than in past year, indicating recent predation.

Fish were very abundant during the first visit to the site. It was impossible to count all fish at the site during the 30 minute fish counts. *Coryphopterus nicholsii* had a density of 2.9/m², similar to last year. Only one or two *Alloclinus holderi* were seen at the site but not during 1m quadrats. *Lythrypnus dalli* was not observed during 1 m quadrats, though present at the site. An unidentified surfperch species was observed at the site. Since it could not be positively identified as a sharpnose surfperch, *Phanerodon atripes,* or a white surfperch, *Phanerodon furcatus*, it was recorded as *Phanerodon* spp. in the database. During the second visit to the site, there were noticeably fewer fish. Specifically, there fewer *Chromis punctipinnis* and fewer *Sebastes* spp.

adults. However, there were more juvenile *Sebastes* spp. observed during the second visit. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

All five ARMs were intact and monitored for all indicator species. One *Haliotis rufescens* was present at 19mm. No other *Haliotis* spp. was found in the ARMs this year, similar to recent years. *Cypraea spadicea* increased to a density of 8.2/ARM. *Megathura crenulata* had a density of 0.2/ARM. *Crassedoma giganteum* had a density of 3.6/ARM, similar to past years. *Patiria miniata* density was similar to previous years at 12/ARM. *Pisaster giganteus* density remained high, similar to recent years, at 11/ARM. *Strongylocentrotus franciscanus* density was 44/ARM, the highest recorded at this site since 1999. *Strongylocentrotus purpuratus* density was 36/ARM, the highest since 2001. *Parastichopus parvimensis* density <10 cm was 0.20/ARM and density >10 cm was 1.40/ARM.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Pelican Bay, Santa Cruz Island
Site #8, SCPB
Year sampling began: 1982
2012 sampling dates: 9/13
2012 status: Dominated by *Strongylocentrotus purpuratus*.

This site was nearly devoid of all macroalgae, and dominated by *Strongylocentrotus purpuratus.* The substrate was covered with encrusting coralline algae and barnacles. The site didn't change much from last year. Canopy cover was 0%. No *Macrocystis pyrifera, Eisenia arborea, Pterygophora californica*, *Laminaria farlowii*, *Cystoseira* spp., *Sargassum horneri, Desmarestia* spp., *Gelidium* spp., or *Gigartina* spp. were observed at the site. Green algae and miscellaneous brown algae were not observed during sampling, though present at the site. *Colpomenia* spp. was noted at the site. Miscellaneous red algae cover was 0.50%, similar to last year, and consisted mostly of *Laurencia pacifica*. Miscellaneous plants, consisting of filamentous diatoms, and articulated coralline algae were not observed during sampling. Encrusting coralline algae cover was 23%, an increase from recent years. Bare substrate cover was 49%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 10%. The most abundant invertebrates in this category were barnacles, which covered much of the site. Tunicates and Sponges were not observed on RPCs, though present. *Styela montereyensis* was not observed at the site. *Tethya aurantia* density remains near a record high at 0.040/m², similar to the last two years. Most were covered with diatom film, making them hard to see. *Diopatra ornata* had a cover of 0.50%, a decrease from recent years. *Phragmatopoma californica* was not observed at the site. Miscellaneous bryozoans cover was 0.17%. *Diaperoecia californica* was not observed on RPCs, though present. *Urticina lofotensis* was not observed at the site. *Corynactis californica* had 0.33% cover. *Balanophyllia elegans* was not observed on RPCs though present. *Astrangia lajollaensis* had a cover of 16%, the highest recorded at this site. *Lophogorgia chilensis* had a density of 0.12/m², similar to last year. *Muricea californica* and *M. fruticosa* were not observed at the site.

Strongylocentrotus purpuratus density was 33/m², an increase from last year and the highest recorded since 2002. *Strongylocentrotus franciscanus* had a density of 4.7/m^2, the highest

recorded since 1999. *Lytechinus anamesus* had a density of 0.10/m^2. *Centrostephanus coronatus* was not observed. Approximately 10% of *L. anamesus* were observed with wasting disease.

Patiria miniata had a density of 0.63/m², similar to recent years. *Pisaster giganteus* density remained high, similar to last year, at 0.21/m². *Pycnopodia helianthoides* had a density of 0.0042/m², similar to recent years. *Ophiothrix spiculata* was not observed on RPCs, though present. *Parastichopus parvimensis* density remained low at 0.042/m². *Pachythyone rubra* was not observed on RPCs though present. Sea star wasting disease was observed at a notably high rate. Approximately 10% of *P. miniata* and 2% of *P. giganteus* were estimated to have wasting disease.

No live *Haliotis* spp. were observed at the site, though one fresh *H. rufescens* shells measuring 12 mm was observed. *Cypraea spadicea* had a density of 0.083/m^2. *Kelletia kelletii* was not observed on band transects, though present at the site. *Megathura crenulata* density was 0.013/m², similar to last year. *Crassedoma giganteum* density remained low at 0.014/m². *Megastraea undosa*, and *Tegula regina* were not observed during sampling though present at the site. *Astraea gibberosa* was not observed at the site. *Aplysia californica* had a density of 0.0083/m². Many *A. californica* eggs were present, and sea urchins were observed actively feeding on them. *Panulirus interruptus* was no observed on band transects, though present at the site.

Fish remained moderately abundant and diverse. *Coryphopterus nicholsii* density increased to 4.3/m². *Lythrypnus dalli* was not observed on 1 m^2 quadrats. *Alloclinus holderi* was not observed at the site. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

All six ARMs were sampled for all indicator species. Barnacles were abundant and covered much of the ARMs. *Haliotis* spp. were not observed in the ARMs. *Cypraea spadicea* density was 4.7/ARM, similar to last year. *Megathura crenulata* density was 0.33/ARM, similar to past years. *Crassedoma giganteum* density was 3.33/ARM, similar to last year. *Patiria miniata* density remained near record high at 32/ARM. *Pisaster giganteus* remained relatively abundant at 7.0/ARM, similar to last year. Some ARMs had no sea star wasting disease while other ARMs had a high percent of advanced stages of sea star wasting disease. *Strongylocentrotus franciscanus* density was 15/ARM, a decrease from last year, with mean size 35 mm. *Strongylocentrotus purpuratus* density was 34/ARM with mean size 30 mm. There were notably few small *Strongylocentrotus* spp**.** Juvenile *Strongylocentrotus* spp. were not present. *Parastichopus parvimensis* density <10 cm was 0.83/ARM and density >10 cm was 1.33/ARM.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Scorpion Anchorage, Santa Cruz Island
Site #9, SCSA
Year sampling began: 1982
2012 sampling dates: 8/16, 10/3
2012 status: Dominated by *Strongylocentrotus* spp.

This site was similar to past years, nearly devoid of macroalgae and dominated by *Strongylocentrotus* spp. No *Macrocystis pyrifera, Eisenia arborea, Pterygophora californica, Laminaria farlowii, Cystoseira* spp., *Sargassum horneri Gelidium* spp. or *Gigartina* spp. were observed at the site. Last year, *Sargassum horneri* had been observed here. *Desmarestia* spp. had no recorded cover, but was present at the site. Miscellaneous brown algae were not observed during RPCs. Green algae had a cover of 0.33%. Miscellaneous red algae had a cover of 0.83% and consisted of *Laurencia pacifica*. Miscellaneous plants, consisting mostly of filamentous diatoms, had a cover of 2.8%. Articulated coralline algae were not observed during RPCs though present. Encrusting coralline algae cover remained high at 58.3%. Bare substrate cover was 30%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover decreased from previous years to 7.7%. The dominant species in this category was *Spirobranchus spinosus*. Barnacles appeared less abundant at this site than at sites nearby. Tunicates were not observed during RPCs, same as last year. *Styela montereyensis* was not observed at the site, similar to past years. Sponges were not observed during RPCs. *Tethya aurantia* had a density of 0.063/m^2, the highest recorded at this site. *Phragmatopoma californica* was not observed at the site. *Serpulorbis squamigerus* was not observed during RPCs, though present at the site. *Diopatra ornata* was not observed on RPCs, same as last year. Miscellaneous bryozoans had a cover of 0.33%. *Diaperoecia californica* was not observed during RPCs, though present at the site. *Urticina lofotensis* was not observed at the site. *Corynactis californica* had a cover of 2.2%, a record high for this site. *Astrangia lajollaensis* had a cover of 0.67%, similar to past years. *Balanophyllia elegans* had a cover of 0.17%, similar to past years. *Lophogorgia chilensis* had a density of 0.0014/m². *Muricea californica* and *M. fruticosa* were not observed at the site.

The site was dominated by *Strongylocentrotus* spp. *Strongylocentrotus franciscanus* remained near record high at 5.7/m² and *S. purpuratus* had a density of 82.2/m², the highest recorded since 2002. *Centrostephanus coronatus* were not observed on 1 m^2 quadrats, though present. *Lytechinus anamesus* had density of 0.0014/m^2. On August 16th we observed sea urchin wasting disease in 5% of *S. franciscanus* and *S. purpuratus.* On October 3rd we observed sea urchin wasting disease in 1% of *S. franciscanus* and 10% in *S. purpuratus*. During the August 16th visit it appeared that there was a recent mortality event because sea urchin tests were found in patches throughout the site. This may have been from wasting disease.

Pisaster giganteus density decreased from last year's record high but remained relatively abundant at 0.18/m^2. *Patiria miniata* had a density of 0.88/m², the second highest density recorded at this site. *Ophiothrix spiculata* was not observed during RPCs, though present at the site. *Pycnopodia helianthoides* was not observed on band transects, and only one individual was observed on the site. *Parastichopus parvimensis* had a density of 0.67/m^2, similar to the last two years. They were patchy in distribution and appeared more abundant overall than they were right along the transects, where they are counted in 1m^2 quadrats. *Pachythyone rubra* was not observed at the site. *Pisaster ochraceus* had a density of 0.015/m^2. No sea star wasting disease was observed during the first visit on Aug. 16th but on the second visit on the Oct. 3rd visit 50%

of *P. miniata* and *P. giganteus* appeared to have sea star wasting disease. There also appeared to be less *P. miniata* and *P. giganteus* on the Oct. 3rd visit. Offshore of the site, *Astropecten armatus* were 100% infected. Many dead *A. armatus* were observed, presumably from wasting disease.

No *Haliotis* spp. were observed on band transect. However, at least eight *H. rufescens* juveniles (<31 mm) were observed. Most were found under rocks or under the spine canopy of urchins. Also, one fresh *H. corrugata* shell (19 mm) was found. *Cypraea spadicea* was not observed on quadrats, though present at the site. *Megastraea undosa* had a density of 0.042/m², the lowest recorded at this site. *Astraea gibberosa* and *Tegula regina* were not observed at the site. *Kelletia kelletii* had a density of 0.0014/m^2, similar to past years. *Megathura crenulata* had a density of 0.17/m^2, a decrease from last year's record high, and a wide range of sizes were present. *Crassedoma giganteum* density decreased to 0.011/m², the lowest recorded at this site since 1991, and a wide range of sizes was present. *Aplysia californica* had a density of 0.033/m², an increase from last year, and consisted mostly of medium to large sized individuals. *Panulirus interruptus* had a density of 0.028/m^2, a record high for this site, and most were of legal size.

Fish were moderately abundant and diverse, similar to past years. *Coryphopterus nicholsii* had a density of 2.5/m^2, an increase from last year. *Alloclinus holderi* and *Lythrypnus dalli* were not observed at the site. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

Five out of the six ARMs were sampled for all indicator species. One ARM was not sampled because it was almost completely buried in sand. Two of the ARMs were moved to more rocky locations to hopefully avoid becoming buried. Two *Haliotis rufescens* with a mean size of 21 mm were observed. *Cypraea spadicea* was less abundant than in recent years at 11/ARM. No *Megastraea undosa* were observed. *Megathura crenulata* had a density of 0.17/ARM. *Crassedoma giganteum* density increased to 2.67/ARM, with a mean size of 40 mm, the lowest recorded at this site. *Patiria miniata* had a density of 3.5/ARM, the highest recorded at this site. *Pisaster giganteus* had a density of 1.5/ARM. No *Pycnopodia helianthoides* were observed in the ARMs. *Strongylocentrotus franciscanus* density decreased to 8.8/ARM, with a mean size of 32 mm. *Strongylocentrotus purpuratus* density was 32/ARM, similar to last year. Mean size for *S. purpuratus* was 22 mm, similar to recent years. *Parastichopus parvimensis* density <10 cm was 0.60/ARM and density >10 cm was 7.40/ARM.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Yellow Banks, Santa Cruz Island
Site #10, SCYB
Year sampling began: 1986
2012 sampling dates: 9/12, 10/4
2012 status: State of transition

This site was similar to last year. Most *Macrocystis pyrifera* plants were small, and the site had no canopy cover. Some understory algae were present. Much of the cobble areas were barren. There was a high number of very large *Pycnopodia helianthoides*. Piles of urchin tests from *Strongylocentrotus purpuratus* and *Lytechinus anamesus* were present. Adult and subadult *M.*

pyrifera densities were 0.005/m² and 0.65/m², respectively, an increase in sub-adult density from last year. Juvenile *M. pyrifera* density was 3.2/m². Overall *M. pyrifera* cover was 11%. *Eisenia arborea* was not observed on 1 m^2 quadrats though present. Adult and juvenile *Pterygophora californica* densities were 3.2/m² and 0.0/m², respectively. Cover of *P. californica* was 1.2%. *Laminaria farlowii* adult and juvenile densities were 0.0/m² and 0.25/m², respectively, similar to past years. Cover of *L. farlowii* was 0.84%. *Cystoseira* spp. had a cover of 2.5%, similar to recent years. *Desmarestia* spp. was not observed on RPCs. *Sargassum horneri* was not observed at the site. Miscellaneous brown algae, consisting mostly of *Dictyota*/*Pachydictyon* spp. had a record high cover of 18%. *Gigartina* spp. and *Gelidium* spp. were absent from the site. Miscellaneous red algae had a cover of 5.0%. Green algae had a cover of 0.33%, similar to past years. Miscellaneous plants, consisting mostly of filamentous diatoms, had a cover of 6.4%. Encrusting coralline algae had a cover of 64%. Articulated coralline algae cover increased to 5.2%, similar to the past 15 years. Bare substrate cover decreased from last year to 19%.

Miscellaneous invertebrates cover, excluding *Ophiothrix spiculata,* was 10%, and consisted mostly of barnacles. The barnacles were abundant in patches, similar to what we have observed at other nearby sites. Tunicates cover was 0.17%. *Styela montereyensis* was not observed at the site. Sponge cover decreased from 1.3% to 0.5%. *Tethya aurantia* density remained high at 0.22/m², similar to the last four years. *Diopatra ornata* and *Serpulorbis squamigerus* were not observed on RPCs, though present. *Phragmatopoma californica* was not observed at the site. Miscellaneous bryozoans had a cover of 0.84%. *Diaperoecia californica* had a cover of 0.17%. No *Urticina lofotensis* were observed at the site. *Corynactis californica* had a cover of 0.17%, same as last year. *Balanophyllia elegans* and *Astrangia lajollaensis* were common with covers of 0.17% and 3.7%, respectively. *Lophogorgia chilensis* had a density of 0.032/m², similar to recent years. *Muricea fruticosa* was not observed and *Muricea californica* had a density of 0.019/m², similar to past years.

Strongylocentrotus purpuratus were confined to crevice habitat and had a density of 1.5/m², the lowest recorded density since 2003. *Strongylocentrotus franciscanus* were out in the open and patch, and had a density of 2.7/m². Many of the *S. franciscanus* were notably large. *Lytechinus anamesus* had a density of 1.3/m². *Centrostephanus coronatus* was absent from the site. During the 9/12 visit approximately 5% of *L. anamesus* and <1% of *S. purpuratus* had wasting disease, and during the 10/4 visit approximately 1% of *S. purpuratus* had wasting disease.

Pisaster giganteus had a density of 0.035/m², a decrease from last year. *Patiria miniata* had a record high density of 3.0/m². *Pycnopodia helianthoides* density remained high at 0.031/m². *Ophiothrix spiculata* had a cover of 0.34%. *Pachythyone rubra* or *Pisaster ochraceus* were not observed at the site. *Parastichopus parvimensis* had a density of 0.0/m², though present at the site. Approximately 10% of *P. miniata* had wasting disease during the 9/12 visit. During the 10/4 visit approximately 30% of *P. miniata* and one *Dermasterias imbricata* was observed with wasting disease. However, we estimate that 50-75% of *P. giganteus* and *P. miniata* had died due to wasting disease since there were numerous carcasses. The second visit was three weeks in to a warm water event. Also, the bottom was covered in filamentous diatoms on the second visit.

One fresh *Haliotis rufescens* shell was found. *Haliotis corrugata* had a density of 0.0014/m². One *H. assimilis* at 71 mm was found. All sizes of *Megastraea undosa* were present with a density of 0.083/m^2. *Cypraea spadicea, Astraea gibberosa* and *Tegula regina* had a densities of

0.0/m^2. *Kelletia kelletii* had a density of 0.028/m², a decrease from recent years. *Megathura crenulata* had a density of 0.011/m², similar to past years. *Crassedoma giganteum* had a density of 0.0014/m², similar to past years. *Aplysia californica* had a density of 0.0028/m², similar to past years. *Panulirus interruptus* had a density of 0.0028/m², similar to past years, and most observed at the site were less than legal size.

Fish abundance and diversity were moderate, similar to last year. *Coryphopterus nicholsii* was common at a density of 2.7/m², the highest recorded since 2002. *Alloclinus holderi* and *Lythrypnus dalli* were not observed on 1 m^2 quadrats. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

This year, all 15 ARMS at this site were sampled for all indicator species. Similar to last year, there was abalone recruitment. Twelve *Haliotis rufescens* were observed with a density was 0.80/ARM and a mean size of 56mm. All *H. rufescens* were less than 31 mm. This is most that have been observed in the ARMs at this site. *Haliotis rufescens* densities have been the steadily increasing at this site for the past four years. *Haliotis corrugata* was not observed in the ARMs. *Cypraea spadicea* density was 2.3/ARM, with a mean size of 42 mm. *Tegula regina* density was 0.4/ARM, with a mean size of 45 mm. *Kelletia kelletii* density was 0.07/ARM with a mean of 122 mm. No *Astraea gibberosa* were observed. *Megastraea undosa* density was 0.0/ARM. *Megathura crenulata* density was 0.73/ARM, with a mean size of 25 mm. *Crassedoma giganteum* density was 0.93/ARM, similar to last year. *Strongylocentrotus franciscanus* density were 102/ARM, considerably more than last year, with a mean size of 18 mm. *Strongylocentrotus purpuratus* density dropped from last year to 50/ARM, with a mean of 32 mm. *Centrostephanus coronatus* was observed for the first time since 2009 and had a density of 0.33/ARM with a mean size of 11mm. *Patiria miniata* density was 8.7/ARM with a mean size of 33 mm. *Pisaster giganteus* density was 3.6/ARM with a mean size of 40 mm. The carcasses of several *P. miniata, P. giganteus*, and *Pycnopodia helianthoides* were found in several ARMs, presumably killed by wasting disease. Two *Octopus* spp. were observed in the ARMs. Five juvenile *Aplysia* sp. were found in one of the ARMs. *Parastichopus parvimensis* density <10 cm was 0.0/ARM and density >10 cm was 0.0/ARM.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Admiral's Reef, Anacapa Island
Site #11, ANAR
Year sampling began: 1982
2012 sampling dates: 6/15, 9/10
2012 status: Dominated by *Ophiothrix spiculata*

Overall, there was little change as this site remained dominated by *Ophiothrix spiculata*. Most of the transect directly along the line was devoid of macroalgae. *Macrocystis pyrifera* was rare with no adults, subadults, or juveniles recorded during sampling. Cover of *M. pyrifera* was 0%. The only *M. pyrifera* observed were growing epiphytically on gorgonians. *Eisenia arborea* was not observed during sampling, though present at the site on tops of large rocks or growing epiphytically on gorgonians. *Pterygophora californica*, *Laminaria farlowii*, *Cystoseira* spp. and *Desmarestia* spp. were absent from the site, similar to recent years. Miscellaneous brown algae had a cover of 0.17%. No *Sargassum horneri* was observed at the site or inshore of the site.

Miscellaneous red algae had a cover of 3.8%, the lowest recorded at this site. *Gigartina* spp. and *Gelidium* spp. were not observed at the site. Green algae were not observed during RPCs, though present. Miscellaneous plant cover, consisting of filamentous diatoms, had a cover of 1.5%, a decrease from recent years. Encrusting coralline algae cover remained high at 60%, similar to recent years. Articulated coralline algae cover remained similar to recent years at 0.5%. Bare substrate cover was 27%, the highest observed since 2004.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover decreased from previous years to 11%, the lowest recorded for this category. The most common invertebrates in this category were *Eugorgia rubens,* followed by barnacles. *Diopatra ornata* was not observed on RPCs. *Phragmatopoma californica* and *Styela montereyensis* were not observed at the site. *Serpulorbis squamigerus* had a cover of 0.33%. Tunicates were rare at a cover of 0.33%. Sponges had a cover of 0.5%, similar to previous years. *Tethya aurantia* density remained high at 0.058/m², similar to the previous five years. Miscellaneous bryozoans and *Diaperoecia californica* were not observed during RPCs, though present. *Urticina lofotensis* was not observed on band transect, although one unhealthy-looking individual was observed at the site. *Corynactis californica* cover decreased from last year's record high to 4.5%. *Astrangia lajollaensis* had a cover of 0.33%, similar to recent years. *Balanophyllia elegans* were not observed on RPCs, though present. Most of the gorgonians at this site did not appear healthy. *Eugorgia rubens* was moderately abundant, but appeared less abundant than in past years. *Lophogorgia chilensis* density decreased to 0.0097/m², the lowest recorded at this site. *Muricea fruticosa* and *Muricea californica* densities were 0.0042/m² and 0.024/m², respectively, and both similar to recent years.

Overall, *Strongylocentrotus* spp. appeared less abundant than in recent years. *Strongylocentrotus* spp. juveniles were present and had patchy distribution. *Strongylocentrotus franciscanus* had a density of 7.0/m², similar to past years. *Strongylocentrotus purpuratus* had a density of 5.1/m², similar to the past decade. *Lytechinus anamesus* was not observed at the site. *Centrostephanus coronatus* had a density of 0.92/m², similar to recent years. During the September 10th we observed sea urchin wasting disease in less than 1% of *S. purpuratus*, although more appeared on the verge of having wasting disease.

Echinoderm densities remained high with *Ophiothrix spiculata* being most abundant and covering 72% of the bottom, the highest cover recorded for this site. *Pisaster giganteus* had a density of 0.07/m², similar to the past three years. *Pisaster ochraceus* was not observed at this site. *Patiria miniata* had a density of 1.8/m², similar to the past eight years. No live *Pycnopodia helianthoides* were observed at the site, although one dead one was found, likely from wasting disease. *Pachythyone rubra* was not observed at the site. *Parastichopus parvimensis* had a density of 0.29/m², similar to recent years, and all were small to medium in size. Sea star wasting disease was observed on September 10th in 10% of *P. giganteus* and *P. miniata*.

No live *Haliotis* spp. were observed at the site but one fresh *Haliotis corrugata* was observed at 45 mm. *Cypraea spadicea* was observed at a density of 0.25/m^2, similar to recent years. Several crushed *C. spadicea* shells were found. *Megastraea undosa* was not observed on 1 m^2 quadrats, though present. *Astraea gibberosa* was not observed at the site. *Tegula regina* had a density of 0.13/m^2, similar to past years. *Kelletia kelletii* had a density of 0.032/m², an increase from last year. *Megathura crenulata* had a density of 0.51/m², the highest recorded at this site, and all sizes were present. *Crassedoma giganteum* was common at a density of 0.019/m². *Aplysia*

californica was not observed during band transects, though small individuals were observed at the site. *Panulirus interruptus* was not observed on band transects, though several sub-legal sized lobster were present.

Coryphopterus nicholsii increased to a density of 2.4/m². *Lythrypnus dalli* and *Alloclinus holderi* were not observed on quadrats, though present at the site. During the sampling of the ARMs on June 15th there were two medium giant black sea bass observed. At least 40 female *Semicossyphus pulcher* were present, and about half were estimated to be of legal size. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

All six ARMs were monitored for all indicator species. *Strongylocentrotus franciscanus* had a density of 23/ARM, similar to last year. *Strongylocentrotus purpuratus* had a density of 11/ARM, the lowest recorded since 2005. *Cypraea spadicea* had a density of 1.3/ARM, the highest record since 1998. *Megathura crenulata* had the same density as last year at 0.50/ARM. *Crassedoma giganteum* was present at 1.67/ARM, the highest record since 2004. *Tegula regina* was present at 2.0/ARM. *Patiria miniata* density was 19/ARM, the highest recorded since 2006. *Pisaster giganteus* was not observed in the ARMs. *Parastichopus parvimensis* <10 cm had a density of 0.33/ARM and *P. parvimensis* >10 cm had a density of 0.17/ARM.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Cathedral Cove, Anacapa Island
Site #12, ANCC
Year sampling began: 1982
2012 sampling dates: 6/25, 7/9
2012 status: Mature kelp forest

This site continued to be a mature kelp forest with a canopy cover of approximately 85%. *Macrocystis pyrifera* was abundant over most of the transect and consisted of mostly smaller plants. Adult *M. pyrifera* density was at 0.28/m². Juvenile *M. pyrifera* increased from 16/m² to 23/m². Subadult density was 0.43/m², a decrease from last year's record high of 0.98/m². Cover of *M. pyrifera* was 29%, a decrease from 49% last year. Adult and juvenile *Eisenia arborea* were mostly on the tops of rocks, with densities of 0.25/m² and 0.13/m², respectively, and both similar to the past nine years. Cover of *E. arborea* was 3.9%, similar to the last three years. *Pterygophora californica* was not observed at the site. Adult and juvenile *Laminaria farlowii* were both at record high density, with 10/m² and 44/m², respectively. Cover of *L. farlowii* also increased to a record high of 50%. *Sargassum horneri,* which was observed here last year, was absent from the site this year. *Cystoseira* spp. had a cover of 15%, similar to previous years. *Desmarestia* spp. had a cover of 0.17%, similar to past years. Miscellaneous brown algae were at 2.2% cover, similar to the last four years. Miscellaneous red algae declined from a record high of 31% to 10% cover. No *Gelidium* spp. were observed on RPCs, although species were present at the site. *Gigartina* spp. were observed on RPC this year at a cover of 0.17%. Green algae were had a cover of 1.2%, the highest observed since 2003. Miscellaneous plant cover, consisting of filamentous diatoms, was rare and not observed on RPCs. Articulated coralline algae cover was 15%. Encrusting coralline algae cover increased from a record low of 6.0% to 32%, the highest observed since 2006. Bare substrate cover was 29%, the highest observed since 1991.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover decreased to 5%, the lowest recorded at this site for this category. The most abundant invertebrates in this category were hydroids. Tunicates declined from 16% cover, the highest recorded at the site, to 2.5%. *Styela montereyensis* was not observed at the site. Sponges were observed at 1.8% cover, similar to past years. *Tethya aurantia* density was 0.0056/m², similar to past years. *Diopatra ornata* increased to 9.5% cover, the highest observed at this site. *Serpulorbis squamigerus* was observed during RPCs this year at 0.7% cover. *Phragmatopoma californica* was not observed at the site. Miscellaneous bryozoans declined from 25% cover, to 6.7%, the lowest observed since 2002. *Diaperoecia californica* had a cover of 1.3%, similar to past years. *Urticina lofotensis* was not observed at the site. *Astrangia lajollaensis* had a cover of 0.17%. *Balanophyllia elegans* were rare and not observed during RPCs, though present. *Corynactis californica* had 0.17% cover. One small *Lophogorgia chilensis* was found on the site. No other gorgonians were observed.

Overall, *Strongylocentrotus* spp. were mostly confined to crevice habitat. *Strongylocentrotus franciscanus* had a density of 4.3/m², similar to previous years. *Strongylocentrotus purpuratus* had a density of 1.7/m², similar to previous years. Juvenile *S. franciscanus* and *S. purpuratus* were both rare. *Centrostephanus coronatus* was not observed on quadrats, though common along the shallow side of the transect among rocks. *Lytechinus anamesus* was not observed at the site. No sea urchin wasting disease was observed.

Pisaster giganteus had a density of 0.010/m^2, similar to past years. No *P. ochraceus* were observed at the site. *Patiria miniata* was not observed on 1m^2 quadrats, though a few were observed at the site. *Pycnopodia helianthoides* was not observed at the site. *Ophiothrix spiculata* was rare and none were observed during RPCs, similar to recent years. *Pachythyone rubra* was not observed at the site. *Parastichopus parvimensis* had a density of 1.5/m², similar to past years, with a wide range of sizes present. No sea star wasting disease was observed.

Four *Haliotis corrugata* were found at the site, more than in recent years, with a density of 0.0028/m^2 on band transects. *Cypraea spadicea* had a density of 0.083/m², similar to previous years. *Megastraea undosa* density was 0.38/m², similar to recent years. *Astraea gibberosa* was not observed at the site. *Tegula regina* was present, but none were observed during sampling. *Kelletia kelletii* was not observed at the site. *Megathura crenulata* had a density of 0.013/m^2, similar to recent years. *Crassedoma giganteum* increased from 0.0097/m² to 0.033/m^2 with many small individuals present. One *Aplysia californica* was observed on the site, as well as one *A. vaccaria*. *Panulirus interruptus* density decreased from 0.058/m^2 to 0.018/m^2, with notably large individuals present.

Similar to past years, fish were abundant and diverse. *Coryphopterus nicholsii* was present at a density of 0.88/m², an increase from 0.13/m^2 last year. For the second year in a row, *Alloclinus holderi* was not observed on 1 m^2 quadrats. *Lythrypnus dalli* was not observed at the site. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

All seven ARMs were sampled for all indicator species and all were in good condition. The arms were covered in algae and encrusting invertebrates. *Cypraea spadicea* were recorded at a density of 12.9/ARM, similar to the last three years. One juvenile *Haliotis corrugata* was observed for a density of 0.14/ARM. No *Megastraea undosa* were observed in the ARMs, same as last year. For the first time since 2008, one *Megathura crenulata* was observed in an ARM, for a density

of 0.14/ARM. Three *Kelletia kelletii* were observed, for a density of 0.43/m^2. *Crassedoma giganteum* density was 0.57/ARM, continuing a decrease the last two years. *Patiria miniata* density was 6.9/ARM, a slight increase from last year, but relatively low compared to previous years. *Pisaster giganteus* density was 8.6/ARM, similar to last year. *Strongylocentrotus franciscanus* density decreased from 100/ARM to 71/ARM. *Strongylocentrotus purpuratus* density decreased to 121/ARM. One *Centrostephanus coronatus* was observed for a density of 0.14/ARM. *Parastichopus parvimensis* densities remained similar to last year with individuals <10 cm and >10 cm observed at 2.3/ARM and 2.4/ARM, respectively.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Landing Cove, Anacapa Island
Site #13, ANLC
Year sampling began: 1982
2012 sampling dates: 6/26, 9/14
2012 status: Mature kelp forest

The site remains a mature kelp forest with a thick understory of brown and red algae. Canopy cover was estimated at 25%. *Macrocystis pyrifera* adults were observed at a density of 0.015/m². Subadult density increased from last year's 0.050/m² to 0.36/m². Juveniles decreased from last year's 22/m² to this year's 6.0/m². Although the density of juveniles drastically decreased the increase in subadults suggests that many of last year's juveniles successfully reached subadult status. Cover of *M. pyrifera* was 15%, similar to last year. Adult *Eisenia arborea* was observed at a density of 1.4/m², similar to past years. Juvenile *E. arborea* had a density of 1.6/m². Cover of *E. arborea* was 37%, the highest recorded at this site. Adult *Pterygophora californica* was observed at density of 2.4/m², the highest recorded at this site. *Pterygophora californica* juveniles had a density of 13/m². *Pterygophora californica* cover was observed at 27%, similar to last year's record high of 28%. *Laminaria farlowii* had adult and juvenile densities of 6.8/m² and 24/m², respectively; both similar to last year. *Sargassum horneri* was not observed at the site. *Laminaria farlowii* cover was observed at 36%, a similar percent cover observed since 2008. *Cystoseira* spp. had a cover of 1.7%, similar to the last four years. *Desmarestia* spp. were relatively common in the low-lying areas although *Desmarestia* was not observed on RPCs. Miscellaneous brown algae cover was 1.2% and consisted of mostly *Dictyota*/*Pachydictyon* spp. Miscellaneous red algae cover dropped from last year's record high of 53% to 39%. *Gelidium* spp. had a cover of 18%, and occurred on top of the reef at the eastern end of the transect. *Gigartina* spp. had a cover of 0.67%. Green algae were not observed on RPCs, though present at the site. Articulated coralline algae cover was 13%, similar to the last four years. Encrusting coralline algae cover increased from the low observed for the past four years to 27%. Bare substrate cover remained similar to last year at 17%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 5.8%, a decrease from the last four years. The most common invertebrates in this category were hydroids. Tunicates had a cover of 6.5%, similar to last year. Sponges were abundant and diverse and had 7.2% cover, the highest observed since 2006. *Tethya aurantia* density was 0.017/m², similar to past years. *Diopatra ornata* had a cover of 1.2%, similar to past years. *Phragmatopoma californica* was not observed on RPCs, though present at the site. *Serpulorbis squamigerus* had 0.17% cover. Miscellaneous bryozoans had a cover of 27%, with high density patches occurring throughout the site. *Diaperoecia*

californica had a cover of 8.2%, the highest recorded at this site, and occurred mostly on top of the eastern reef. *Urticina lofotensis* was not observed on band transects, though one was observed on the site. *Corynactis californica* was moderately abundant in high density patches throughout the site, and had an overall cover of 4.7%, the highest recorded since 2001. *Astrangia lajollaensis* had a cover of 0.67%. *Balanophyllia elegans* was not observed on RPCs, though present at the site. *Lophogorgia chilensis* and *Muricea californica* were rare with densities of .0042/m² and 0.0014/m², respectively, which is similar to previous years. No *Muricea fruticosa* was observed at the site.

Strongylocentrotus franciscanus had a density of 2.1/m², similar to previous year. Mean size of *S. franciscanus slightly* was relatively low at 67 mm. *Strongylocentrotus purpuratus* had a density of 2.67/m², a decrease from last year's record high of 8.0/m², and was found mostly in crevice habitat. Mean sizes of *S. purpuratus* increased to 33 mm. *Centrostephanus coronatus* was not observed on 1 m^2 quadrats, though present at the site. *Lytechinus anamesus* was not observed at the site. No sea urchin wasting disease was observed, but black spot disease was observed in 2% of *S. purpuratus* in the ARMs during the 9/14 visit.

Pisaster giganteus had a density of 0.010/m^2, similar to past years. Mean size was 115 mm. *Pisaster ochraceus* was not observed at the site. *Patiria miniata* was rare and not observed on 1 m^2 quadrats this year. *Patiria miniata* has only been observed twice in 1 m² since 1997. However, *P. miniata* are present in the ARMs at this site. *Pycnopodia helianthoides* was not observed at the site and has not been observed on band transects at this site since 1993. *Ophiothrix spiculata* was not observed on RPCs, though present at the site mostly in kelp holdfasts. *Pachythyone rubra* was not observed at the site. *Parastichopus parvimensis* had a density of 0.25/m². All sizes of *P. parvimensis* were present including noticeably small, emergent individuals in rocky areas. No sea star wasting disease was observed.

A total of six *Haliotis corrugata* were observed at the site, and had a mean size of 136 mm. Mean density of *H. corrugata* was .0042/m². One fresh *H. cracherodii* shell measuring 118 mm was found. *Cypraea spadicea* was found in high density patches throughout the site. However, no *C. spadicea* were observed in 1 m² quadrats. *Megastraea undosa* density remained low compared to the early 2000s with a density of 0.042/m². *Astraea gibberosa* and *Tegula regina* were not observed within 1 m² quadrats but were present at the site. *Kelletia kelletii* had a density of 0.0083/m². *Megathura crenulata* had a density of 0.011/m², similar to recent years. *Crassedoma giganteus* density increased from last year's low of 0.046/m^2 to 0.11/m², which is still relatively low compared to years prior to 2007. Juvenile *C. giganteus* were moderately abundant. *Aplysia californica* was not observed at the site. *Panulirus interruptus* had a density of 0.0097/m². While this is a decrease in *P. interruptus* density from last year, those individuals observed seemed notably large. Several *Navanax inermis* and *Tylodina fungina* were noted at the site as well.

Similar to past years, fish were abundant and diverse. *Coryphopterus nicholsii* had a density of 0.21/m², similar to past years. *Alloclinus holderi*, and *Lythrypnus dalli* were not observed during 1 m^2 quadrats but were present at the site. The *A.holderi* observed were notably large. *Scorpaenichthys marmoratus*, cabezon, were common on the shallow reef at the site, with at least six observed. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

Five of the six ARMs were sampled for all indicator species and cage number 2410 was replaced. ARM # 2371 was forgotten about and not sampled. No search was made to look for it. One *Haliotis corrugata* was observed in the ARMs for a density of 0.20/ARM and it measured 64 mm. Density of *C. spadicea* in the ARMs was 9.6/ARM. *Kelletia kelletii* were observed in the ARMs with a density of 3.6/ARM, the highest recorded at this site, and many were juveniles. *Megastraea undosa* density was 0.20/ARM. *Megathura crenulata* density remained low at 0.40/ARM, similar to past years. *Crassedoma giganteum* density was 3.0/ARM, the lowest recorded since 2004. *Tegula regina* was not observed. *Patiria miniata* density was similar to the past three years at 7.2/ARM. *Pisaster giganteus* density was 8.8/ARM, a decrease from last year's record high. *Strongylocentrotus franciscanus* density was similar to last year at 105/ARM. *Strongylocentrotus purpuratus* density was 225/ARM, similar to recent years. *Parastichopus parvimensis* density was 3.2ARM <10 cm and 3.4/ARM >10 cm, both similar to last year. *Octopus* spp. were common with four observed in the ARMs.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Southeast Sea Lion Rookery, Santa Barbara Island
Site #14, SBSESL
Year sampling began: 1982
2012 sampling dates: 6/14
2012 status: Dominated by *Ophiothrix spiculata* and *Strongylocentrotus purpuratus*

This site was similar to past years, remaining dominated by *Ophiothrix spiculata* and *Strongylocentrotus purpuratus* and was devoid of macroalgae except for what was growing epiphytically on gorgonians. *Macrocystis pyrifera* was not recorded during sampling. No adults were observed at the site, but a few juveniles were observed growing epiphytically on gorgonians. No *Laminaria farlowii*, *Pterygophora californica, Cystoseira* spp. or *Sargassum horneri* were observed at the site. No *Eisenia arborea* were recorded during sampling, but juveniles were present at the site. *Desmarestia* spp. were not recorded during RPCs, although small patches of *Desmarestia* spp. were observed at the site. Other brown algae had a cover of 0.0%. Miscellaneous red algae cover decreased to 0.17%, the lowest recorded at this site. This category consisted mostly of *Laurencia pacifica* and other filamentous red algae. *Gelidium* spp. were not observed at the site. *Gigartina* spp. were observed growing epiphytically on gorgonians, similar to past years, but were not observed during RPCs. Green algae were not observed on RPCs, similar to past years, though present at the site. Miscellaneous plant cover was 0.0%. Encrusting coralline algae cover increased to 83%, the highest recorded for this site. Articulated coralline cover was 0.0% similar to past years. Bare substrate cover was 14%, similar to past years.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover decreased to 2.7%, at the lowest recorded for this site. Gorgonians and anemones were the most abundant taxa in this category, similar to last year. Tunicates had a cover of 0.33%, similar to the last two years. *Styela montereyensis* was not observed at the site. Sponges had a cover of 0.67%, similar to past years. *Tethya aurantia* had a density of 0.16/m², similar to recent years. Miscellaneous bryozoans had a cover of 0.50%. *Diaperoecia californica* was not observed on RPCs though present at the site. *Urticina lofotensis* was not observed at the site. *Urticina coriacea* was noted as being abundant

at the site. *Corynactis californica* had a cover of 1.0%, similar to past years. *Astrangia lajollaensis* was not observed during RPCs though present at the site. *Balanophyllia elegans* had 0.17% cover, similar to past years. *Lophogorgia chilensis* had a density of 0.11/m², similar to recent years, and most appeared unhealthy. *Muricea californica* had a density of 0.018/m², a decreased from recent years. *Muricea fruticosa* was not observed on band transects, though present at the site. *Sagartia* sp. was noted as being common at the site and notably large.

Strongylocentrotus spp. were notably less abundant than in recent years. Density of *S. purpuratus* decreased to 28/m^2. Mean size for *S. purpuratus* increased to 25 mm. Juvenile *S. purpuratus* were rare. *Strongylocentrotus franciscanus* density decreased to 0.71/m², the lowest recorded at this site. The mean size of *S. franciscanus* was 31 mm. It took a moderate amount of search effort to locate 200 *S. franciscanus* for size frequencies. Juvenile *S. franciscanus* were not observed at the site. *Lytechinus anamesus* was not observed at the site. *Centrostephanus coronatus* had a density of 0.13/m², similar to the past nine years. Sea urchin wasting disease was observed in approximately 2% of *S. purpuratus* and *S. franciscanus*.

Pisaster giganteus had a density of 0.040/m², similar to the past five years. *Pisaster ochraceus* were not observed at the site. *Patiria miniata* had a density of 1.2/m², similar to last year but high relative to earlier years. Mean size of *P. miniata* was 70 mm. *Pycnopodia helianthoides* was not observed during sampling, but one large individual was noted at the site. *Ophiothrix spiculata* covered most of the transect, but fewer were present on the rocky area towards the 100 m end. Percent cover of *O. spiculata* remained high, similar to last year, at 86%, the highest cover recorded for this site. *Pachythyone rubra* was not observed at the site. *Parastichopus parvimensis* had a density of 0.17/m² and appeared larger and more abundant than at the KFM Webster's Arch site. No sea star wasting disease was observed.

No live *Haliotis* spp. or fresh shells were observed. *Cypraea spadicea* was not observed on 1m quadrats, though present at the site. *Megastraea undosa* had a density of 0.042/m², similar to past years. *Astraea gibberosa* density was 0.042/m², similar to past years. *Tegula regina* was not observed on 1m quadrats, though it was common at the rocky area near the 100 m. *Kelletia kelletii* was not observed at the site. *Megathura crenulata* had a density of 0.0014/m². *Crassedoma giganteum* had a density of 0.0014/m², same as last year. *Aplysia californica* density remained low at 0.0014/m². *Panulirus interruptus* had a density of 0.0014/m², similar to recent years. All the ones observed were less than the legal harvest size.

Overall, there was relatively low fish diversity and abundance at this site. *Coryphopterus nicholsii* had a density of 0.83/m². *Alloclinus holderi* was not observed on 1m quadrats, though present at the site. *Lythrypnus dalli* was not observed at the site. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Arch Point, Santa Barbara Island
Site #15, SBAP
Year sampling began: 1982
2012 sampling dates: 5/29
2012 status: Dominated by *Strongylocentrotus* spp.

Similar to previous years, macroalgae were rare and what little were present were located primarily on the tops of large rocks. *Macrocystis pyrifera* adults were not observed during any sampling method or at the site. However, *M. pyrifera* juveniles were present at the site. A few *Eisenia arborea* adults and juveniles were observed within the site, but were not captured in any sampling. No *Laminaria farlowii, Pterygophora californica, Cystoseira* spp*., Sargassum horneri, Gigartina* spp., or *Gelidium* spp. were observed at the site. Juvenile *Desmarestia* spp. were rare and not observed on RPCs with no adults were observed at the site. Miscellaneous brown algae were not observed on RPCs, though present at the site. Miscellaneous brown algae consisted of *Dictyota/Pachydictyon* sp., and *Colpomenia sinuosa.* Miscellaneous red algae cover decreased to 3.2%, the lowest observed cover since 1998. This category consisted mostly of *Laurencia pacifica*. Articulated coralline algae during random point contact surveys, though present at the site. Encrusting coralline algae had a cover of 53%, an increase from last year's observed percent cover of 43.2%. Green algae had a cover of 0.17%. Bare substrate cover was 26%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 11%, similar to past years. The most common invertebrate in this category was barnacle species, which comprised at least 50% of the category. *Dodecaceria* sp. was noted as being common at the site as well. Tunicates were not observed during RPCs, though present at the site. *Styela montereyensis* was not observed at the site. *Serpulorbis squamigerus* was not observed during RPCs, though present at the site. Sponges were not observed during RPCs, though present at the site. *Tethya aurantia* had a density of 0.0014/m², similar to past years. Miscellaneous bryozoans had a cover of 0.5%, similar to past years. *Diaperoecia californica* was not observed on RPCs, though present at the site. *Urticina lofotensis* was not observed at the site. *Corynactis californica* had a cover of 8.7%. In the past 28 years, *C. californica* has gone through three distinct cycles of high and low percent cover and this year's observations representing yet another high percent cover. *Astrangia lajollaensis* was not observed on RPCs, though present at the site. *Balanophyllia elegans* was not observed on RPCs, though present at the site. *Phragmatopoma californica* was not observed on RPCs, though present at the site. *Lophogorgia chilensis* and *Muricea californica* had densities of 0.0028/m² and 0.0014/m², respectively, similar to past years. *Muricea fruticosa* was not observed on band transects, though present at the site.

Strongylocentrotus purpuratus density decreased to 88.2/m², the lowest density since 2007. The mean size of *S. purpuratus* increased (this year only slightly) for the fourth consecutive year to 17 mm. *Strongylocentrotus franciscanus* had a density of 7.3/m², similar to last year. *Strongylocentrotus franciscanus* mean size was 30 mm, a decrease from the last two years. Juvenile *Strongylocentrotus* spp. were notably rare. *Lytechinus anamesus* had a density of 0.11/m², and many small individuals were observed. *Centrostephanus coronatus* had a density of 0.04/m², similar to recent years. Sea urchin wasting disease was observed in less than 1% of *S. purpuratus*.

Pisaster giganteus had a density of.23/m^2, the highest recorded at this site. Mean size of P. giganteus was 109 mm, similar to past years. *Pisaster ochraceus* had a density of .020/m². Approximately 2-3 *P. ochraceus* were observed on the offshore side of the transect and 12 on the inshore side. Additionally, at least two *Pisaster brevispinus* were observed at the site. *Patiria miniata* was abundant, with many size classes present, at a density of 3.9/m². Densities of P. miniata have been increasing since 2007. Mean size of *P. miniata* increased to 56 mm, the highest recorded at this site. *Pycnopodia helianthoides* had a density of 0.0014/m². *Ophiothrix spiculata* was not observed on RPCs, but was present at the site, similar to recent years. *Parastichopus parvimensis* was not observed on 1 m² quadrats, though at least 20 were observed at the site. *Pachythyone rubra* was not observed at the site. No sea star wasting disease was observed.

No *Haliotis* spp. were observed at the site. *Cypraea spadicea* had a density of 0.083/m². *Megastraea undosa* had a density of 0.21/m^2. Mean size was 68 mm, a decrease from the record high means of the last two years. Size frequency of *M. undosa* revealed a bimodal distribution. *Astraea gibberosa* was not observed at the site. *Tegula regina* had a density of 0.33/m². Mean size of *T. regina* was 37 mm, the lowest recorded at this site. Most of *T. regina* were < 40mm, though all sizes were present. *Kelletia kelletii* was not observed at the site. *Megathura crenulata* had a density of 0.0056/m², similar to past years. *Crassedoma giganteum* had a density of 0.014/m², similar to past years. *Aplysia californica* had a density of 0.14/m², similar to previous years, and consisted mostly of small individuals though all sizes were present. *Panulirus interruptus* had a density of 0.0056/m², similar to past years. Of the *P. interruptus* observed, all were of legal size. Similar to last year, large *Octopus* sp. were observed being active and out in the open.

Fish abundance and diversity was lower than in previous years. *Coryphopterus nicholsii* individuals were small with few large individuals observed. Density of *C. nicholsii* was 0.21/m², similar to past years. Many of the C. nicholsii were small, though a few very large ones were observed. *Alloclinus holderi* was not observed on 1m quadrats, though present at the site. *Lythrypnus dalli* was not observed at the site. At least two *Gymnothorax mordax*, moray eels, were observed after the RDFC See Appendix H for a complete list of fish species observed during the roving diver fish counts.

The temperature loggers were deployed and retrieved and all temperature data were downloaded successfully.

Location: Cat Canyon, Santa Barbara Island
Site #16, SBCAT
Year sampling began: 1986
2012 sampling dates: 5/31
2012 status: Dominated by *Strongylocentrotus purpuratus.*

Similar to last year, this site was nearly devoid of macroalgae. Adult *Macrocystis pyrifera* were absent from the site, but two small sub-adults were observed. Juvenile *M. pyrifera* had a density of 0.083/m². Cover for *M. pyrifera* was 0%. Adult *Eisenia arborea* were not observed, but juveniles had a density of 0.042/m². *No Pterygophora californica*, *Laminaria farlowii* or *Cystoseira* spp. were observed at the site. *Desmarestia* spp. were not observed during sampling but were noted at the site. *Sargassum horneri* was not observed at the site. Miscellaneous brown

algae appeared more abundant throughout the site. Cover was 1.2%, and consisted mostly of *Dictyota/Pachydictyon.* No *Gelidium* spp. or *Gigartina* spp. were observed at the site, similar to past years. Miscellaneous red algae had 2.2% cover, similar to last year. Miscellaneous plant cover, consisting mainly of filamentous diatoms, was 0.67%. Articulated coralline algae cover was 0.17%, similar to recent years. Encrusting coralline algae cover was low at 35%. Bare substrate cover was 25%, same as last year.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 11% and consisted mostly of *Balanus* spp., anemones, and *Dodecaceria* spp. Similar to last year, the non-indicator species *Spirobranchus spiculata*, was common but not as abundant as in recent years. *Serpulorbis squamigerus* cover increased to 3.5%, the highest percent cover since 1989. *Diopatra ornata* was not observed on RPCs though it was present at the site. Tunicates had a cover of 1.5%, similar to recent years. Sponges had a cover of 0.17%, same as last year. *Tethya aurantia* was rare with a density of 0.0069/m² and only three were observed at the site. *Styela montereyensis* was not observed at the site. *Phragmatopoma californica* cover notably increased from last year to 14%, the highest percent cover observed since 1995. This is the second consecutive year that *Phragmatopoma californica* has been common at many of our Santa Barbara Island sites in higher than normal densities. Miscellaneous bryozoan cover was 1.8%. *Diaperoecia californica* was not observed on RPCs, though it was present at the site. *Urticina lofotensis* was not observed at the site. *Corynactis californica* had a cover of 3.8%, the highest recorded at this site. *Astrangia lajollaensis* had a cover of 1.0%, similar to recent years. *Balanophyllia elegans* had a cover of 0.50%, similar to past years. *Lophogorgia chilensis* was not observed at the site. *Muricea californica* and *M. fruticosa* had densities of 0.0028/m² and 0.0014/m², respectively. In addition, mysids were abundant at the site.

Strongylocentrotus spp. continued to dominate the site; however, notable decreases in sea urchin densities were observed. This is likely due to the high prevalence of sea urchin wasting disease observed throughout the site. High mortality in both *S. franciscanus* and *S. purpuratus* was observed and whole sea urchin tests of both species were abundant. In some patches of *S. franciscanus*, up to 50-70% of the individuals appeared diseased with recent mortality. An estimated 30% of *S. purpuratus* were also diseased. *Strongylocentrotus franciscanus* were still abundant though density decreased to 3.5/m². Mean size of *S. franciscanus* was 35 mm, similar to recent years. *Strongylocentrotus purpuratus* density also decreased to 64/m² and mean size remained low at 21 mm. *Strongylocentrotus franciscanus* and *S. purpuratus* juveniles were both rare to the site. *Lytechinus anamesus* was not observed at the site. C*entrostephanus coronatus* was not observed during sampling, but present at the site.

Pisaster giganteus had a density of 0.18/m², the highest recorded at this site. Mean size of *P. giganteus* decreased to 77 mm, the lowest recorded at this site. Small individuals were common in crevices. *Pisaster ochraceus* had a density of 0.0050/m². Only one was observed on the site. *Patiria miniata* was found in small patches, and had an overall density of 0.083/m². Mean size was 51 mm, a decrease from the last four years. *Pycnopodia helianthoides* was not observed on band transects, though one was observed at the site. *Ophiothrix spiculata* was not observed on RPCs, though present at the site. *Pachythyone rubra* was not observed at the site. *Parastichopus parvimensis* had a density of 0.13/m², similar to past years. Few large *P. parvimensis* were observed. Most were notably small, similar to our Southeast Reef site. No sea star wasting disease was observed.

No *Haliotis rufescens* or *H. corrugata* were observed. One live *H. fulgens* measuring 25 mm was observed during band transects for a density of 0.0014/m². This is the first time this species has been observed on band transects at this site since 1991. No fresh *Haliotis* spp. shells were observed. *Cypraea spadicea* had a density of 0.13/m². *Megastraea undosa* had a density of 0.25/m², similar to the last two years. *Astraea gibberosa* was not observed at the site. *Tegula regina* had a density of 0.083/m², similar to past years. *Kelletia kelletii* was not observed at the site. *Megathura crenulata* had a density of 0.0097/m². Only six were located during size frequencies for a mean of 59 mm. *Crassedoma giganteum* had a density of 0.028/m², the highest recorded at this site. *Aplysia californica* had a density of 0.68/m², the highest recorded at this site since 1998. *Panulirus interruptus* was not observed at the site.

Overall, fish diversity and abundance remained low. *Coryphopterus nicholsii* density was 0.17/m², similar to past years. *Alloclinus holderi* had a density of 0.0/m², though present at the site. *Lythrypnus dalli* was not observed at the site. One *Squatina californica*, angel shark approximately 110 cm was observed after the RDFC was performed. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Miracle Mile, San Miguel Island
Site #21, SMMM
Year sampling began: 2001
2012 sampling dates: 7/26
2012 status: Mature kelp forest

Miracle Mile was initially established in 2001 specifically to monitor *Haliotis rufescens*. Originally, three sites were proposed to better monitor the abalone population at San Miguel Island, but Miracle Mile was the only site that was funded. This site was established by Jim Marshall, a commercial abalone and sea urchin fisherman, in conjunction with the County of Santa Barbara, and with the assistance of the Channel Islands National Park. The KFM program has continued to monitor this site annually because we think more than two sites are needed to adequately monitor the kelp forests at San Miguel Island.

This site continued to be a healthy and mature kelp forest with a dense and diverse understory of algae. *Macrocystis pyrifera* formed a thick canopy covering 100% of the site. Adult *M. pyrifera* had a density of 0.26/m² and most adults were large and widely spaced. In areas where adult plants had been torn out there were subadults growing and filling in the patches. Subadult and juvenile *M. pyrifera* densities were 0.19/m² and 1.4/m², respectively, both similar to last year. Cover of *M. pyrifera* was 16%, similar to recent years. *Eisenia arborea* adult and juvenile densities were 0.29/m² and 0.083/m², respectively. *Eisenia arborea* cover remained low at 5.5%. Densities of adult and juvenile *Pterygophora californica* both decreased slightly to 0.29/m² and 0.67/m², respectively. Cover of *P. californica* remained low at 3.0%, similar to recent years. *Laminaria farlowii* was not observed at the site. *Cystoseira* spp. cover was 2.2%, an increase from last year but similar to years past. *Desmarestia* spp. were present at the site but not observed during RPCs. *Sargassum horneri* was not observed at the site. Miscellaneous green algae and miscellaneous brown algae covers were both 0.0%, although both were observed at the site. Miscellaneous red algae cover increased to 72%. *Gigartina* spp. cover remained low at

0.5%. *Gelidium* spp. cover was 2.5%, the highest recorded at this site. Miscellaneous plants, consisting of filamentous diatoms, had a cover of 0.0%. Articulated coralline cover increased to 38% and encrusting coralline cover also increased to 51%. Bare substrate cover was 16%, similar to past years.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 24%. The most common invertebrates in this category were hydroids, followed by anemones. Tunicates were diverse although decreased in cover to 3.8%, the lowest recorded at this site. *Styela montereyensis* was not observed on 1 m² quadrats, but was present at the site. Sponge cover was 8.8%, similar to recent years. *Tethya aurantia* density was 0.19/m², also similar to recent years. *Phragmatopoma californica* was notably less abundant than in recent years with a cover of 0.0%. *Serpulorbis squamigerus* cover was 0.0%. *Diopatra ornata* cover was similar to recent years at 0.33%. Miscellaneous bryozoans cover increased to 18%. *Diaperoecia californica* was not observed on RPCs, but was present at the site. *Urticina lofotensis* had a cover of 0.14/m². *Corynactis californica* cover increased to 1.7%. *Balanophyllia elegans* cover also increased to 4.3%, a record high for this site. *Astrangia lajollaensis* cover was 0.5%. No gorgonians were observed at the site.

Strongylocentrotus spp. abundance remained relatively low. *Strongylocentrotus franciscanus* was present in small patches deep in cracks and crevices. The density of *S. franciscanus* was 2.6/m². The density of *S. purpuratus* was 0.25/m², similar to the last ten years. *Centrostephanus coronatus* and *Lytechinus anamesus* were not observed. No sea urchin wasting disease was observed.

Pycnopodia helianthoides had a density of 0.028/m². Most were small to medium in size with a mean of 93 mm. *Patiria miniata* had a density of 4.1/m², the highest recorded at this site. *Pisaster giganteus* had a density of 0.24/m², similar to recent years. *Pisaster ochraceus* was not observed at the site. *Ophiothrix spiculata* was not observed during sampling. *Pachythyone rubra* was not observed at the site. *Parastichopus parvimensis* had a density of 0.17/m², similar to past years, and consisted mostly of large individuals. No sea star wasting disease was observed.

Haliotis rufescens was abundant at the site and all appeared healthy. Density of *H. rufescens* was 0.63/m^2, similar to recent years. *Haliotis rufescens* individuals around 120 mm were common, but smaller ones were also observed. A total of 135 *H. rufescens* were measured for size frequencies with a mean of 179 mm, similar to past years. *Cryptochiton stelleri* were sampled on band transects at a density of 0.0014/m^2. *Astraea gibberosa* had a density of 0.29/m², the highest density observed at this site. No *Megastraea undosa, Tegula regina* or *Cypraea spadicea* were observed on 1 m^2 quadrats, similar to past years. *Kelletia kelletii* had a density of 0.0056/m², similar to years past. *Megathura crenulata* density was 0.0083/m², the lowest recorded at this site. *Crassedoma giganteum* and *Aplysia californica* were not observed on band transects though present at the site. *Panulirus interruptus* was not observed at the site.

Fish were moderately abundant and diverse, similar to past years. *Coryphopterus nicholsii* was rare and not observed on quadrats. No *Lythrypnus dalli* or *Alloclinus holderi* were observed at the site. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

Six of the seven ARMs were monitored for all indicator species. A total of seven *Haliotis rufescens* were observed in the ARMs for a density of 1.2/ARM, similar to past years. *Astraea gibberosa* had a density of 0.33/ARM. *Crassedoma giganteum* had a density of 0.17/ARM, similar to past years. *Patiria miniata* density was 8.3/ARM, similar to last year. *Pisaster giganteus* density was 0.50/ARM similar to past years. Four *Pycnopodia helianthoides* were observed for a density of 0.67/ARM. *Strongylocentrotus franciscanus* density was 2.2/ARM, similar to recent years. A single *Strongylocentrotus purpuratus* was observed in the ARMs for a density of 0.17/ARM. *Parastichopus parvimensis* was not observed in the ARMs.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Cluster Point, Santa Rosa Island
Site #22, SRCP
Year sampling began: 2005
2012 sampling dates: 6/12
2012 status: Mature kelp forest

Little has changed at this site. Similar to last year, macroalgae abundance remains low compared to earlier years. This site remains a mature kelp forest with large, widely-spaced adult *Macrocystis pyrifera* plants and a low density of subadults. Canopy cover was estimated at 20%, a decrease from last year. Density of adult *M. pyrifera* remained low, similar to last year, at 0.025/m², the lowest recorded at this site. Subadult density remained similar to last year at 0.050/m². Juvenile *M. pyrifera* density was 0.29/m², similar to recent years. Cover decreased for the fourth consecutive year to 1.2%, the lowest recorded at this site. *Eisenia arborea* had adult and juvenile densities of 0.33/m² and 0.083/m², respectively, similar to last year. Cover was similar to last year at 5.0%. *Pterygophora californica* adult and juvenile densities were recorded at 0.33/m² and 0.25/m², respectively, similar to recent years. Cover of P. californica remained low at 12%. *Laminaria farlowii* was not observed at the site. *Laminaria setchellii* was relatively common at the site with approximately 12 observed. *Desmarestia* spp. were common and had a cover of 2.3%. *Cystoseira* spp. had a cover of 0.0%. *Sargassum horneri* was not observed at the site. Miscellaneous brown algae cover was 3.2%, similar to past years. Green algae were rare, and were not observed on RPCs. Miscellaneous red algae covered the entire site except for sandy areas and had a cover of 59%, similar to recent years. This category consisted mostly of *Callophycus* sp. *Gigartina* spp. had a cover of 0.5%, similar to recent years. Articulated coralline algae cover remained low at 3.2%. Encrusting coralline algae had a cover of 28%, a decrease from last year. Bare substrate cover was 24%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover decreased to 2.5%, the lowest cover recorded at this site. The most dominant taxa in this category were hydroids. Sponges were moderately abundant at 6.0% cover, similar to past years. *Tethya aurantia* density was 0.38/m², a decrease from the last two years. Tunicates were moderately abundant at 5.3% cover, similar to last year. *Styela montereyensis* density was 0.66/m², similar to recent years, with many sizes present. *Serpulorbis squamigerus* was not observed on RPCs. *Phragmatopoma californica* had a cover of 0.33%, a decrease from last year. *Diopatra ornata* decreased in cover to 6.5%. Miscellaneous bryozoans decreased to a cover of 0.83%, the lowest recorded at this site. *Diaperoecia californica* was not observed on RPCs. *Urticina lofotensis* density increased to 0.097/m², the highest density recorded at this site. *Corynactis californica* had a cover of 1.0%,

similar to past years. *Balanophyllia elegans* and *Astrangia lajollaensis* covers were low at 2.2% and 0.33%, respectively, similar to past years. *Lophogorgia chilensis*, *Muricea californica* and *Muricea fruticosa* were not observed at the site.

Strongylocentrotus spp. were common at the site, similar to last year. *Strongylocentrotus franciscanus* density was 4.3/m². Mean size of *S. franciscanus* has been decreasing since monitoring began at this site, and was measured at 56 mm this year, the lowest recorded at this site. *Strongylocentrotus purpuratus* density was 2.3/m², a decrease from last year. Mean size of *S. purpuratus* was 40 mm, similar to recent years. No *Centrostephanus coronatus* were observed, similar to previous years. No sea urchin wasting disease was observed.

Pisaster giganteus density remained similar to last year at 0.14/m², with a mean size of 66 mm, the lowest recorded at this site. *Patiria miniata* had a density of 3.8/m², similar to recent years. Mean size of *P. miniata* decreased to 37 mm, the lowest recorded at this site. *Pycnopodia helianthoides* density increased to 0.040/m², and had a mean size of 170 mm with all sizes present. *Parastichopus parvimensis* was common and had a density of 0.17/m², and consisted mostly of large individuals. *Ophiothrix spiculata* was rare and was not recorded on RPCs. *Pachythyone rubra* was not observed at the site. No sea star wasting disease was observed.

Haliotis rufescens had a density of 0.0014/m^2. A total of two *H. rufescens* were observed at the site, which were measured at 57 mm and 207 mm. *Cypraea spadicea* had a density of 0.29/m². *Megastraea undosa* and *Astraea gibberosa* both had densities of 0.0/m^2. *Kelletia kelletii* density decreased to 0.0083/m², the lowest recorded at this site. *Megathura crenulata* density increased to 0.046/m², the highest recorded at this site, and consisted mostly of large individuals. *Crassedoma giganteum* was common and had a density of 0.031/m². *Tegula regina*, *Aplysia californica*, and *Panulirus interruptus* were not observed, similar to past years.

Fish were moderately diverse and abundant. There was an abundance of mysids in the water column near the bottom, inhibiting visibility during fish counts. A school of approximately 2000 market squid, *Loligo opalescens*, was observed feeding on the mysids. *Coryphopterus nicholsii* had a density of 0.042/m², similar to past years. *Alloclinus holderi* and *Lythrypnus dalli* were not observed. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Trancion Canyon, Santa Rosa Island
Site #23, SRTC
Year sampling began: 2005
2012 sampling dates: 8/29
2012 status: State of transition

This site has changed from last year with a continued decrease in all macroalgae. The most abundant algae were *Desmarestia* sp., which was found in dense patches on the tops of reefs. There were also a few *Pterygophora californica*, and some *Macrocystis pyrifera* scattered around Other than that, the site was mostly devoid of macroalgae. *Macrocystis pyrifera* density remained low with adult, subadult, and juvenile densities of 0.0050/m^2, 0.0100/m^2, and 1.6/m^2,

respectively. Cover of M. pyrifera was 0.67%, similar to the last two years. *Eisenia arborea* was not observed during sampling, though present at the site. *Pterygophora californica* adult and juvenile densities were 0.0/m^2 and 0.67/m², respectively, and similar to the last three years. Cover of *P. californica* remained low at 0.17%. *Laminaria farlowii*, *Cystoseira* spp., and *Gelidium* spp. were not observed at the site. *Desmarestia* spp. had a cover of 2.3%, an increase from recent years. *Sargassum horneri* was not observed at the site. Miscellaneous brown algae and miscellaneous green algae had covers of 1.5% and 0.33%, respectively. Miscellaneous red algae cover remained low at 16%, similar to last year's record low. *Gigartina* spp. cover remained low at 0.5%. Articulated coralline algae cover remained low at 3.5%, similar to the last two years. Encrusting coralline algae cover increased to 64%, the highest recorded at this site. Bare substrate cover decreased from last year's high to 13%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover decreased to 5.5%, the lowest recorded at this site. Barnacles were the most common invertebrates in this category. Tunicates cover remained low at 1.0%. *Styela montereyensis* was not observed during sampling, though present. Sponges cover was 0.5%, the lowest recorded at this site. *Tethya aurantia* density remained high though it decreased from last year to 0.22/m². *Diopatra ornata* cover decreased to 0.67%. *Phragmatopoma californica* was not observed during sampling, though present at the site. Miscellaneous bryozoans cover remained low at 1.8%. *Diaperoecia californica* had a cover of 0.17%. *Urticina lofotensis* had a density of 0.17/m². *Corynactis californica* had a cover of 1.2%, similar to past years. *Balanophyllia elegans* cover decreased to 2.5%. *Astrangia lajollaensis* had a cover of 1.7%, similar to past years. *Lophogorgia chilensis* had a density of 0.0028/m^2. Only two small *L. chilensis* were observed on the entire site. No *Muricea* spp. were observed at the site.

Strongylocentrotus franciscanus and *Strongylocentrotus purpuratus* were out in the open. *Strongylocentrotus franciscanus* had a density of 8.0/m², a decrease from last year's record high. *Strongylocentrotus purpuratus* had a density of 2.7/m^2, a decrease from the last four years. No *Lytechinus anamesus* or *Centrostephanus coronatus* were observed. No sea urchin wasting disease was observed.

Pisaster giganteus had a density of 0.37/m², similar to the past two years. No *Pisaster ochraceus* were observed at the site. *Patiria miniata* density continued to increase to 3.5/m², the highest recorded at this site. *Pycnopodia helianthoides* density decreased to 0.22/m², and most individuals were medium to large in size. *Parastichopus parvimensis* density was 0.029/m², similar to past years. *Pachythyone rubra* was not observed during sampling, though present at the site in one small group at the zero end of the transect. *Ophiothrix spiculata* not observed during sampling, though present at the site. No sea star wasting disease was observed.

No live *Haliotis* spp. were observed at the site. Six fresh *H. rufescens* shells were found and had a mean size of 42 mm. *Cypraea spadicea* had a density of 0.17/m², similar to past years. No *Megastraea undosa, Tegula regina, Kelletia kelletii, Aplysia californica, Panulirus interruptus*, or *Astraea gibberosa* were observed at the site. *Megathura crenulata* had a density of 0.029/m², the lowest recorded since 2006. *Crassedoma giganteum* had a density of 0.014/m², a decrease from last year. No *Cryptochiton stelleri,* gumboot chiton, were observed at the site, although we have observed this species in previous years and have recorded those observations.

Fish were moderately abundant and diverse, similar to past years. *Coryphopterus nicholsii* had a density of 0.42/m^2, similar to past years. *Alloclinus holderi* and *Lythrypnus dalli* were not observed at the site. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Chickasaw, Santa Rosa Island
Site #24, SRCSAW
Year sampling began: 2005
2012 sampling dates: 7/11
2012 status: Mature kelp forest

This site remained a mature kelp forest consisting of large adult *Macrocystis pyrifera* plants and several dense patches of subadults, with a canopy cover estimated at 80%. The tops of reefs had notably dense and diverse red algae communities, including *Callophyllis* sp., *Rhodymenia* sp., and *Gigartina* sp. Adult *M. pyrifera* had a density of 0.11/m², the lowest density since 2006. Subadult density was 0.45/m^2 the highest recorded at this site, and a large increase from last year's 0.045/m^2. Density of juvenile *M. pyrifera* was similar to past years at 0.67/m². Cover of *M. pyrifera* increased from previous years to 20%. *Eisenia arborea* adults had a density of 0.042/m^2, similar to last year. Juvenile *E. arborea* were observed for the first time during sampling, with 0.042/m^2. Cover of *E. arborea* was 0.17%. Adult *Pterygophora californica* decreased from a density of 0.33/m² to 0.083/m^2. Juvenile *P. californica* were increased from 0.083/m^2 last year to 0.017/m^2, with overall increase in cover from 3.5% to 7.8%. *Laminaria farlowii* was present at the site, though none was observed during sampling. *Cystoseira* spp. had 2.6% cover, similar to previous years. Mostly small *Desmarestia* spp. were observed at the site, but not on RPC. *Sargassum horneri* was not observed at the site. Miscellaneous brown algae cover was 2.3%, with several *Laminaria setchellii* observed. Miscellaneous red algae covered 61% of the bottom, absent only from areas with abundant urchins. Miscellaneous plants, consisting of filamentous diatoms, had 0.67% cover. *Gigartina* spp. were observed at 1.8% cover, similar to years past. Miscellaneous green algae were not observed on RPCs. Articulated coralline algae cover remained similar to the last five years at 7.5%. Encrusting coralline algae cover increased from 7.8%, the lowest recorded cover since 2006 to 21%, similar to 2010. Bare substrate cover was 18%, similar to past years.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 8.5%, similar to the last two years. The most common invertebrates in this category were *Cucumaria* spp., followed by anemones, mostly of the genus *Epiactis*. Tunicates cover increased from 3.0%, the lowest recorded cover at this site, to 13%, similar to years past. *Styela montereyensis* was present at the site, but absent from 1m^2 quadrats. Sponges declined from 3.5% cover to 0.83%, the lowest recorded at this site. *Tethya aurantia* had a density of 0.11/m², the lowest recorded since 2007. *Phragmatopoma californica* cover was 8.5%, similar to the past two years. *Diopatra ornata* increased from a record low of 7.7%, to 15%, the highest since 2008. *Serpulorbis squamigerus* was observed at 0.67% cover. Miscellaneous bryozoans cover increased from a record low of 7.8% to 18.8%. *Diaperoecia californica* was observed with a cover of 0.67%, similar to previous years. *Urticina lofotensis* density was 0.11/m², a decrease from last year's record high of 0.16/m^2. *Corynactis californica* appeared notably smaller than at the nearby site Johnson's Lee

South. Cover of *C. californica* increased from 0.33% to 2.0%, the highest recorded at this site. *Balanophyllia elegans* had a cover of 0.83%. A*strangia lajollaensis* cover was 0.33%, similar to past years. No *Lophogorgia chilensis*, *Muricea californica* or *Muricea fruticosa* were observed at the site, similar to past years.

Densities of *Strongylocentrotus* spp. have gradually increased at this site since monitoring began in 2005 and continued this trend in 2012. *Strongylocentrotus purpuratus* were patchy and had a density of 4.6/m², the highest recorded at this site. *Strongylocentrotus franciscanus* was more common in the available crevice habitat that abalone once occupied. Density of *S. franciscanus* increased to the highest density recorded at 4.2/m². *Strongylocentrotus* spp. juveniles. No *Lytechinus anamesus* or *Centrostephanus coronatus* were observed. No sea urchin wasting disease was observed.

Only 12 *Pycnopodia helianthoides* were found on the entire site, and most were medium in size. Density was recorded at 0.0069/m². *Patiria miniata* density was 1.8/m², similar to past years. *Pisaster giganteus* had a density of 0.060/m², the lowest recorded at this site. *Pisaster ochraceus* was not observed at the site. *Ophiothrix spiculata* had a cover of 0.17%, similar to past years. *Pachythyone rubra* was not observed at the site. *Parastichopus parvimensis* were notably large and had a density of 0.17/m². No sea star wasting disease was observed.

Haliotis rufescens had a density of 0.014/m², similar to past years. Size frequency measurements for *H. rufescens* were conducted during band transects and covered the area between each transect, ensuring that most *H. rufescens* present at the site were measured. A total of 35 *H. rufescens* were found and measured for size frequencies. Most *H. rufescens* were notably large with a mean size of 189 mm. However, several smaller, 100-140mm individuals were observed deep in crevices where they are difficult to see and measure. Many of the crevices that used to have abalone are now filled with large red urchins. *Cypraea spadicea* were present at 0.042/m². No *Megastraea undosa*, *Lithopoma gibberosa, Tegula regina* or *Kelletia kelletii* were observed at the site. *Megathura crenulata* had a density of 0.011/m^2, and consisted of mostly large individuals. *Crassedoma giganteum* had a density of 0.0083/m², the lowest recorded density at this site. *Aplysia californica* was not observed on band transects. However, there were some large individuals present at the site. No *Panulirus interruptus* were observed during sampling at the site.

Coryphopterus nicholsii had a density of 0.21/m², the highest since 2007, and consisted mostly of large individuals. *Alloclinus holderi* and *Lythrypnus dalli* were not observed at the site. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: South Point, Santa Rosa Island
Site #25, SRSP
Year sampling began: 2005
2012 sampling dates: 7/12
2012 status: Mature kelp forest

This site is a mature kelp forest with a mix of large, widely-spaced adult *Macrocystis pyrifera* and small patches of subadults. The bottom had a moderate understory of *Eisenia arborea, Pterygophora californica, Laminaria farlowii*, *Callophyllis* sp. and other red algae. *Macrocystis pyrifera* canopy cover was estimated to be 25%. Adult *M. pyrifera* had a density of 0.18/m^2. Juvenile *M. pyrifera* had a density of 1.8/m^2. Subadults had a density of 0.49/m^2. Cover of *M. pyrifera* increased from last year to 21%. Adult and juvenile *E. arborea* densities were 0.042/m^2 and 0.042/m^2, respectively. *Eisenia arborea* had a cover of 0.17%. *Pterygophora californica* adult and juvenile densities were 0.88/m^2 and 0.92/m^2, respectively, and overall cover was 37%. Adult and juvenile *L. farlowii* had densities of 0.42/m² and 1.5/m², respectively. *Laminaria farlowii* cover was 16%. *Desmarestia* spp. had a cover of 2.2%, the highest recorded at this site. *Sargassum horneri* was not observed at the site. *Cystoseira* spp. had a cover of 4.7%. Miscellaneous brown algae had a cover of 0.67%. Several *Laminaria setchellii* were observed at the site and composed some of the miscellaneous brown algae category. Miscellaneous red algae were moderately abundant with a cover of 72%. *Gigartina* spp. had a cover of 2.8%. *Gelidium* spp. had a cover of 0.17%. Articulated coralline algae had a cover of 12%, similar to recent years. Encrusting coralline algae cover increased to 26.3%, the highest recorded at this site. Green algae were not observed during RPCs, though present at the site. Bare substrate cover increased to 22%, the highest recorded at this site.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 12.2%, a decrease from the last three years. This category consisted mainly of *Cucumaria* spp., followed by hydroids, both of which carpeted much of the site. Tunicates were common and diverse and had a cover of 6.8%, similar to past years. *Styela montereyensis* density was 0.21/m², a decrease from the last two years. Large individuals of *S. montereyensis* were common. Sponges had a cover of 17%, the highest recorded at this site. *Tethya aurantia* had a density of 0.10/m², similar to past years, and were notably large. Mean size of *T. aurantia* was 87 mm. *Phragmatopoma californica* was observed at 1.2% cover. *Serpulorbis squamigerus* was present, but not observed during RPCs. *Diopatra ornata* was moderately abundant, mostly in sandy areas, with a cover of 7.8%. Miscellaneous bryozoan cover increased to 7.7%. *Diaperoecia californica* had a cover of 0.5%. *Urticina lofotensis* had a density of 0.068/m², similar to last year. *Balanophyllia elegans* had a cover of 0.33%. *Corynactis californica* and *Astrangia lajollaensis* were not observed on RPCs, but were observed at the site. *Lophogorgia chilensis*, *Muricea californica* or *Muricea fruticosa* were not observed at the site.

Strongylocentrotus spp. adults were moderately abundant and juveniles were rare throughout the site. *Strongylocentrotus franciscanus* individuals were mostly large. There were small patches of urchin barrens around the transect. *Strongylocentrotus franciscanus* had a density of 0.42/m², a decrease from the last two years. Mean size of S. franciscanus remained low, similar to last year, at 62 mm. *Strongylocentrotus purpuratus* density remained relatively high at 7.8/m², similar to the last two years. Mean size of S. purpuratus was 39 mm, the highest recorded at this site. No *Lytechinus anamesus* or *Centrostephanus coronatus* were observed at the site. No sea urchin wasting disease was observed.

Pycnopodia helianthoides had a density of 0.015/m², similar to recent years. Mean size of P. helianthoides was 177 mm, with all sizes present. *Patiria miniata* density increased to 3.5/m², the highest recorded at this site. Mean size of *P. miniata* decreased to 57 mm, the lowest recorded at this site. *Pisaster giganteus* density remained relatively low at 0.040/m², similar to last year. *Pisaster giganteus* individuals were mostly small, and mean size decreased to 91 mm. *Pisaster ochraceus* was not observed at the site. *Parastichopus parvimensis* density remained low at 0.042/m^2, and consisted only of large individuals. *Ophiothrix spiculata* had a cover of 0.33%, and was only found in *Macrocystis pyrifera* holdfasts. *Pachythyone rubra* was common, mostly in patches, mixed in with *Cucumaria* spp., but was not observed during RPCs. No sea star wasting disease was observed.

Haliotis rufescens adults were moderately abundant and juveniles were rare with an overall density of 0.078/m², similar to past years. A total of 147 individuals were measured for a mean size of 181 mm, similar to the last three years. An additional six individuals were found and could not be reached for measurement, but ranged in size from 160-210 mm. The entire site was thoroughly searched *for H. rufescens*, and all individuals found were measured. Therefore, we believe the number of individuals measured serves as a proxy for the density within the entire site. *Cypraea spadicea* had a density of 0.17/m², similar to past years. *Megastraea undosa* had a density of 0.042/m², and only two individuals were observed at the site. *Astraea gibberosa* was not observed at the site. *Tegula regina* was not observed at the site. *Kelletia kelletii* had a density of 0.0014/m², with only several observed at the site. *Megathura crenulata* was not observed on band transect, though present at the site. Most of the *M. crenulata* observed were large. *Crassedoma giganteum* had a density of 0.0069/m², similar to past years, and consisted mostly of small individuals. *Aplysia californica* had a density of 0.0083/m^2, similar to past years. No *Panulirus interruptus* were observed at the site.

Fish were moderately abundant and diverse, similar to previous years. *Coryphopterus nicholsii* density was 0.042/m², similar to past years. *Alloclinus holderi* and *Lythrypnus dalli* were not observed at the site. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Devil's Peak Member, Santa Cruz Island
Site #26, SCDPM
Year sampling began: 2005
2012 sampling dates: 6/28, 10/3
2012 status: Dominated by *Strongylocentrotus* spp.

Overall this site changed little from last year and continued to be dominated by *Strongylocentrotus* spp. The site was devoid of macroalgae except on the tops of large rocks. No *Macrocystis pyrifera* was recorded during sampling, though some juveniles were observed at the site. *Eisenia arborea* was not recorded during sampling, though present at the site on the tops of large rocks. No *Pterygophora californica, Laminaria farlowii*, *Sargassum horneri, Desmarestia* spp., *Cystoseira* spp., or *Gigartina* spp. were observed at the site. Miscellaneous brown algae were not observed on RPCs, but were present at the site. Miscellaneous red algae cover was 4.7%. Gelidium spp. were not observed on RPCs, but were present at the site. Miscellaneous

green algae were not observed on RPCs, similar to past years, but were present at the site. Miscellaneous plant cover, mostly consisting of filamentous diatoms, had 0.33%. Encrusting coralline algae had a cover of 58%, similar to past years. Articulated coralline algae cover was 0.33%. Bare substrate cover increased to 19%, the highest recorded at this site.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover decreased from last year to 12%, the lowest recorded at this site. The most common invertebrates in this category were hydroids. Tunicate cover decreased to 0.50%, the lowest recorded at this site. *Styela montereyensis* was not observed at the site. Sponges had a cover of 0.33%. *Tethya aurantia* density remained high at 0.15/m², similar to last year. *Serpulorbis squamigerus* was present, but not observed on RPCs. *Diopatra ornata* was present in the low lying sandy areas with a cover of 0.50%, similar to past years. *Phragmatopoma californica* was not observed at the site. Miscellaneous bryozoans cover decreased for the third consecutive year to 3%. *Diaperoecia californica* was common on the sides of rocks with a cover of 1.3%. *Urticina lofotensis* was not observed at the site. *Corynactis californica* had a cover of 0.67%. *Astrangia lajollaensis* had a cover of 7%, the highest in recent years. *Balanophyllia elegans* was not observed on RPCs, though present at the site. *Lophogorgia chilensis* had a density of 0.17/m², an increase from last year. *Muricea californica* had a density of 0.0069/m², similar to past years. *Muricea fruticosa* was not observed at the site.

Strongylocentrotus purpuratus increased in density to 21.1/m². *Strongylocentrotus franciscanus* had a density of 6.5/m², an increase from last year. Juvenile *S. purpuratus* and *S. franciscanus* were both rare. Mean sizes for *S. purpuratus* and *S. franciscanus* were 28 mm and 44 mm, respectively. *Centrostephanus coronatus* was present at the site but not observed during 1 m^2 quadrats. *Lytechinus anamesus* was not observed at the site. No sea urchin wasting disease was observed.

Pisaster giganteus had a density of 0.25/m², a decrease from the last two years, but still high for this site. Mean size of *P. giganteus* was 130 mm. *Patiria miniata* density increased to 1.7/m², the highest recorded at this site. Mean size for *P. miniata* was 59 mm, similar to past years. *Pycnopodia helianthoides* had a density of 0.022/m², the highest recorded at this site, and consisted mostly of large individuals. Mean size of *P. helianthoides* was 261 mm, the highest recorded at this site. *Pisaster ochraceus* had a density of 0.045/m^2. *Pachythyone rubra* was less abundant than in past years, and was not observed on RPCs. *Parastichopus parvimensis* had a density of 0.21/m². *Ophiothrix spiculata* cover was 0.17%. No sea star wasting disease was observed on June 28th. During the October 3rd visit, 25% of all *P. miniata* and *P. giganteus* had signs of wasting disease. Many dead *P. miniata* and *P. giganteus* were scattered around the site, likely due to wasting disease.

No live *Haliotis* spp. or fresh shells were observed. *Cypraea spadicea* had a density of 0.083/m². *Megastraea undosa* had a density of 0.083/m², similar to past years. *Astraea gibberosa* was not observed at the site. *Tegula regina* density was 0.042/m², same as the last four years. *Kelletia kelletii* was not observed on band transects, though present at the site. *Megathura crenulata* density decreased to 0.33/m². Mean size for *M. crenulata* was 79 mm, similar to past years. *Crassedoma giganteum* had a density of 0.044/m², similar to the past three years. *Aplysia californica* had a density of 0.013/m². *Panulirus interruptus* was not observed at the site.

Similar to past years, this site had a moderate diversity and abundance of fish. *Coryphopterus nicholsii* had a density of 0.88/m². *Alloclinus holderi* had a density of 0.042/m². During the second visit to this site on October 3rd, *A. holderi* appeared more abundant. Most were juveniles (5-7 cm), but larger individuals seemed more abundant as well. *Lythrypnus dalli* was not observed on quadrats, though several were observed at the site. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Potato Pasture, Santa Cruz Island
Site #27, SCPP
Year sampling began: 2005
2012 sampling dates: 7/23, 10/2
2012 status: Dominated by *Strongylocentrotus purpuratus*

This site continued to gradually change. There were high density patches of *Eisenia arborea* and some small patches of adult *Macrocystis pyrifera* scattered around the site. There was no kelp canopy present. The site remained dominated by *Strongylocentrotus purpuratus,* with most macroalgae and encrusting invertebrates present in the high relief areas. *Macrocystis pyrifera* was present in patches along the transect. Densities of adult, subadult, and juvenile *M. pyrifera* were 0.020/m², 0.0050/m², and 0.0/m^2, respectively. Cover of *M. pyrifera* was 0.67% as observed on RPCs. *Eisenia arborea* was present in small patches on the high relief areas. Adult and juvenile *E. arborea* densities were both 0.16/m². Cover of *E. arborea* was 4.7%. No *Pterygophora californica*, *Laminaria farlowii*, *Cystoseira* spp., *Gelidium* spp., or *Gigartina* spp. were observed at the site. *Sargassum horneri* was not observed during sampling, but one plant was found at the site. *Desmarestia spp.* and miscellaneous brown algae were not observed during sampling but were present at the site. Miscellaneous red algae had a cover of 12%, similar to previous years. Green algae were rare with a cover of 0.33%. Miscellaneous plants cover, consisting of filamentous diatoms, was 1.0%. Encrusting coralline algae had a cover of 56%, an increase from last year. Articulated coralline algae were rare with a cover of 0.33%. Bare substrate cover was a record low of 11%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 12%, similar to last year's record low. The most dominant invertebrates in this category were hydroids and barnacles. Tunicates had a cover of 1.8%. *Styela montereyensis* was not observed at the site. Sponges had a cover of 0.67%, similar to past years. *Tethya aurantia* density was 0.18/m² a record high for the site. *Diopatra ornata* was common with a cover of 0.50%, similar to past years. *Phragmatopoma californica* was not observed at the site. Miscellaneous bryozoans had a cover of 4.5%. *Diaperoecia californica* had a cover of 4.8%, similar to last year's high, and completely covered high relief areas. *Urticina lofotensis* was not observed at the site. *Corynactis californica* cover was 2.3%, a decrease from last year's high. *Astrangia lajollaensis* had a cover of 4.3%, the same as last year. *Balanophyllia elegans* had a cover of 1.7%, an increase from last year. *Lophogorgia chilensis* density decreased to 0.14/m², the lowest recorded at this site. *Muricea californica* was rare with a density of 0.0028/m². No *Muricea fruticosa* was observed at the site.

Adult and juvenile *Strongylocentrotus purpuratus* were moderately abundant throughout much of the site. Density of *S. purpuratus* was 22/m² a decrease from last year's record high of 40/m². Density of *S. franciscanus* was 3.1/m², similar to recent years. *Lytechinus anamesus* density remained low at 0.05/m², a decrease from last year. *Centrostephanus coronatus* density was 0.13/m², similar to previous years. No sea star wasting disease was observed.

Pisaster giganteus was common and notably large (mean size 167 mm) with a density of 0.16/m². *Patiria miniata* density remained high at 1.8/m² with all sizes present. *Pisaster ochraceus* had a density of 0.020/m², and at least ten were observed at the site. *Pachythyone rubra* appeared notably more abundant than in past years, mostly from 0-20 m, and had a cover of 3.7%. Most were notably large. *Pycnopodia helianthoides* was not observed at the site. *Ophiothrix spiculata* was not observed during sampling, though present at the site. *Parastichopus parvimensis* had a density of 0.79/m², similar to recent years, and many different size classes were present. No sea star wasting disease was observed on the July 23rd visit. However, on the October 2nd visit, 25% of *Patiria miniata and Pisaster giganteus* had signs of wasting disease.

No live *Haliotis* spp. were observed at the site. *Crassedoma giganteum* has been declining in abundance at this site since it was established in 2005. The density of *C. giganteus* was 0.04/m², the lowest observed at the site. Many large individuals were noted at the site. *Megathura crenulata* had a density of 0.037/m², the lowest recorded since 2005. *Megastraea undosa* was not observed during sampling, though present at the site. *Astraea gibberosa* had a density of .042/m². Several juveniles (<15 mm) were noted. *Tegula regina* had a density of 0.083/m². All sizes of *T. regina* were present. *Kelletia kelletii* was common with few notably small individuals (~70 mm) Density was 0.022/m², an increase from recent years. *Aplysia californica* had a density of 0.014/m², a decrease from last year's record high. Many size classes were present, including several notably large individuals. *Panulirus interruptus* had a density of 0.0097/m², similar to past years. Many were notably large. During the second visit on 10/12, P. interruptus appeared more abundant than when the sampling was conducted on 7/23. Most were above legal size and many were very large. These observations are similar to what was observed at the Cavern Point site.

Similar to recent years, fish at this site were moderately abundant and diverse. *Coryphopterus nicholsii* had a density of 1.4/m², similar to past years. *Alloclinus holderi* and *Lythrypnus dalli* were not observed at the site. Though not recorded during roving diver fish counts, one *Squatina californica*, angel shark, was observed at the site. During the 10/2 visit, two juvenile *Hypsypops rubicundus* were observed inshore of the transect. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Cavern Point, Santa Cruz Island
Site #28, ANCVP
Year sampling began: 2005
2012 sampling dates: 6/27, 10/2
2012 status: Mature kelp forest

This site continued to change and appeared to have matured into an established kelp forest. *Macrocystis pyrifera* was present over the entire transect creating low light conditions on the bottom. Algae appeared more abundant and diverse. Canopy cover was estimated at 70% during the 6/27 visit and 35% during the 10/2 visit. There was an abundance of encrusting invertebrates on the bottom. Adult *M. pyrifera* density was 0.17/m^2, a decrease from last year's record high. Subadult and juvenile *M. pyrifera* densities were 0.21/m^2 and 2.0/m^2, respectively, and both similar to last year. Cover of *M. pyrifera* was 13%, a decrease from last year's record high of 76%. *Eisenia arborea* had a cover of 15% the highest recorded at this site. Density of adult and juvenile *E. arborea* was 1.0/m^2 and 0.75/m^2, respectively, and both similar to last year. No *Pterygophora californica* or *Laminaria farlowii* were observed at the site. *Cystoseira* spp., *Desmarestia* spp., *Gelidium* spp., and *Gigartina* spp. were not observed on RPCs, though present at the site. *Sargassum horneri* was present over the entire site, although it decreased in abundance from last year, and appeared more abundant inshore of the site. Most individuals were less than 50 cm tall. All individual 10 cm or taller were reproductive. The adult and juvenile *S. horneri* densities, respectively and per method are as follows, 1 m quadrats: 0.75/m^2 and 2.4/m^2, 5 m quadrats: 0.26/m^2 and 1.7/m^2, band transects: 1.5/m^2 and 3.2/m^2. All of these values decreased from last year's record highs. *Sargassum horneri* cover on RPCs was 9.3%, a decrease from last year. Miscellaneous brown algae decreased from last year's record high cover of 9.2% to 0%. However, brown algae were present at the site, and consisted mostly of *Dictyota/Pachydictyon* sp. Miscellaneous red algae cover increased to 30%. Miscellaneous green algae had a cover of 0.67%, similar to last year. Encrusting coralline algae cover was 43%, n increase from last year's low. Articulated coralline algae had a cover of 2.7%, the highest recorded at this site. Bare substrate cover was 11%, similar to past years. One *Pelagophycus porra* was observed at the site.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover decreased from recent years to 19%. Encrusting invertebrates were highly diverse in high relief areas, similar to Landing Cove on Anacapa Island. The most common invertebrates were hydroids, followed by *Cucumaria* sp. *Pista* sp. was common as well. Tunicates had a cover of 3.8%, a decrease from last year's record high of 20%. *Styela montereyensis* was not observed at the site. Encrusting tunicates *Pycnoclavella* sp. and *Aplidium* sp. were notably abundant. Sponges had a cover of 0.83%. *Tethya aurantia* had a density of 0.14/m², an increase over last year's record high. Miscellaneous bryozoans were diverse and had a cover of 20%, similar to last year's record high. Some of the more abundant species in this category were *Bugula* sp., *Thalamoporella* sp., and *Hippodiplosia insculpta. Diaperoecia californica* had a cover of 13%, the highest recorded at this site. *Serpulorbis squamigerus* was not observed during sampling, though present at the site. *Phragmatopoma californica* was not observed at the site. *Diopatra ornata* had a cover of 13%, the highest recorded at this site. *Urticina lofotensis* was not observed at the site. *Corynactis californica* was rare and not observed while sampling. *Balanophyllia elegans* cover increased to 3.0%, the highest recorded at this site. *Astrangia lajollaensis* had a cover of 1.8%, the lowest recorded at this site. *Lophogorgia chilensis* density continued to decrease for the third consecutive year to 0.22/m^2, the lowest recorded at this site. *Muricea californica* remained rare

with a density of 0.0042/m². *Muricea fruticosa* was present, though not observed during sampling.

Strongylocentrotus purpuratus had a density of 27/m², an increase from recent years. Juvenile *S. purpuratus* were common in some cobble patches. *Strongylocentrotus franciscanus* had a density of 3.4/m^2, the highest recorded at this site since 2006. *Centrostephanus coronatus* was present at the site, although none were observed during sampling. Only a few *Lytechinus anamesus* were observed at the site, and had an overall density of 0.0014/m^2, similar to recent years. No sea urchin wasting disease was observed.

Pisaster giganteus density remained high, relative to the last three years, at 0.12/m^2. *Pisaster ochraceus* was observed at the site, though not during sampling, a decrease from last year. *Patiria miniata* had a density of 0.75/m², similar to past years, and many size classes were present. *Pycnopodia helianthoides* was not observed at the site. *Ophiothrix spiculata* was not observed during sampling, though present at the site. *Linckia columbiae* was abundant. *Pachythyone rubra* was not observed at the site. *Cucumaria* sp. was abundant, similar to recent years. *Parastichopus parvimensis* had a density of 1.4/m^2, similar to recent years. During the 10/2 visit sea star wasting disease was observed in 15% of *P. giganteus* and *P. miniata.*

No live *Haliotis* spp. were observed at the site. However, one fresh *H. corrugata* shell measuring 64 mm and one fresh *H. rufescens* measuring 22 mm were found. *Cypraea spadicea* had a density of 0.042/m^2, similar to past years. *Megastraea undosa* had a density of 0.21/m^2. *Astraea gibberosa* was not observed. *Tegula regina* was not observed during sampling, though present at the site. *Kelletia kelletii* had a density of 0.0083/m^2, the highest recorded at this site. *Megathura crenulata* had a density of 0.049/m², similar to the last two years. Juvenile *M. crenulata* were noted as being rare. *Crassedoma giganteum* abundance remained low relative to when this site was established. Density was 0.13/m², similar to last year. Despite the decrease in *C. giganteus*, large individuals are more common at this site than any other KFM site. *Aplysia californica* was not observed at this site for the first time since this site was established in 2005. *Panulirus interruptus* density was 0.015/m^2, the highest recorded at this site. Many large *P. interruptus* individuals were observed. During the later visit on 10/2 *P. interruptus* appeared notably more abundant than during the first visit on 6/27, and most appeared to be of legal size. This is similar to observations made at the Potato Pasture KFM site. Mysids were abundant during the 6/27 visit.

Fish were abundant and diverse at this site. *Coryphopterus nicholsii* density increased to 1.2/m². *Lythrypnus dalli* and *Alloclinus holderi* were not observed on 1 m^2 quadrats. Juvenile *Paralabrax clathratus* were common during the 10/2 visit. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Little Scorpion, Santa Cruz Island
Site #29, SCLS
Year sampling began: 2005
2012 sampling dates: 5/16, 10/1

2012 status: Dominated by *Strongylocentrotus* spp.

This site continued to be dominated by *Strongylocentrotus* spp. and was almost entirely devoid of brown macroalgae. Similar to last year, *Macrocystis pyrifera, Pterygophora californica*, *Laminaria farlowii*, *Cystoseira* spp., *Desmarestia* spp., *Eisenia arborea*, *Gigartina* spp. and *Gelidium* spp. were not recorded on any of the sampling protocols. However, a couple juvenile *M. pyrifera* and *E. arborea,* one *Cystoseira* spp., and one *Gigartina* spp. were observed at the site. Green algae were present but not observed on RPCs. Miscellaneous red algae cover was 6.3%, and consisted mostly of *Laurencia pacifica*. *Sargassum horneri* was not observed at the site. Encrusting coralline algae had a cover of 39%, similar to last year. Articulated coralline algae had 0.0% cover. Miscellaneous plants, consisting of filamentous diatoms, were rare and not observed on RPCs. Bare substrate cover was 23%, similar to past years.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 21%, an increase from last year. The most dominant miscellaneous invertebrates in this category were *Spirobranchus spinosus* and barnacles. Tunicates were rare with a cover of 0.67%, similar to last year. *Styela montereyensis* was not observed at the site. Sponges had a cover of 0.17%. *Tethya aurantia* density remained relatively high at 0.046/m², similar to the past two years. *Diopatra ornata* had 0.17% cover, similar to past years. *Phragmatopoma californica* was not observed at the site. *Dodecaceria* sp. was noted as being common. *Serpulorbis squamigerus* had 0.83% cover, similar to past years. Miscellaneous bryozoan cover decreased to 0.5%, the lowest recorded at this site. *Diaperoecia californica* had a cover of 0.67%, similar to past years. *Urticina lofotensis* was not observed at the site. *Corynactis californica* cover increased to 2.2%, the highest on record for this site. *Balanophyllia elegans* was observed at the site, but had 0.0% cover recorded on RPCs. *Astrangia lajollaensis* had a cover of 11%, the highest recorded at this site. *Lophogorgia chilensis* had a density of 0.089/m², the lowest recorded at this site although similar to last year. *Muricea fruticosa* and *M. californica* were not observed at the site.

Strongylocentrotus franciscanus and *S. purpuratus* densities both increased to 15/m² and 35/m², respectively, both the highest recorded for this site. *Strongylocentrotus franciscanus* and *S. purpuratus* mean sizes were lower than past years at 33 mm and 28 mm, respectively. *Strongylocentrotus purpuratus* juveniles were rare. *Lytechinus anamesus* density remained high 0.93/m², similar to last year. *Lytechinus anamesus* were mostly large in size with a mean of 25 mm. *Centrostephanus coronatus was present*, though not observed in 1 m^2 quadrats. On 5/16, sea urchin wasting disease was observed in less than 1% of *S. purpuratus.* On 10/1, sea urchin wasting disease was observed in 2% of *S. purpuratus*.

Patiria miniata had a density of 3.0/m², the highest recorded at this site. Mean size for *P. miniata* was 52 mm, similar to last year but low compared to 2010 and earlier. *Pisaster giganteus* had a density of 0.46/m², an increase from last year. *Pycnopodia helianthoides* was not observed at the site. *Pisaster ochraceus* had a density of 0.0050/m^2. *Ophiothrix spiculata* was present but not observed on RPCs. *Pachythyone rubra* was not observed at the site. *Parastichopus parvimensis* had a density of 0.50/m², similar to past years. Several small ones were observed. On 10/1, sea star wasting disease was observed in 25% of *P. miniata* and *P. giganteus,* as well as in one *P. helianthoides*. Many dead *P. miniata* were present, likely the result of wasting disease.

One live *Haliotis* rufescens was observed on a band transect for a density of 0.0014/m^2, and measured 35 mm. One fresh *H. rufescens* shell (34 mm) and one fresh *H. corrugata* shell (42

mm) were found. *Cypraea spadicea* had a density of 0.46/m^2, the highest recorded at this site. *Megastraea undosa* had a density of 0.21/m^2 with a mean size of 28 mm, the lowest mean recorded for this site, indicative of recent recruitment. *Astraea gibberosa* was not observed during quadrats though it was observed at the site. *Tegula regina* had a density of 0.17/m^2. Density of Kelletia kelletii has slowly been decreasing since 2006. This decrease continued this year with a record low density of 0.0028/m². *Megathura crenulata* had a density of 0.47/m², with all sizes present, including many small ones. *Crassedoma giganteum* had a density of 0.015/m², the lowest recorded at this site. No *Aplysia californica* were observed on band transects for the first time since 2006, nor were any observed at the site. Two small *Panulirus interruptus* were observed at the site, but none were observed on band transects.

This site continued to have high fish abundance and diversity. *Coryphopterus nicholsii* density was 2.9/m², similar to recent years. *Lythrypnus dalli* was present but not observed on quadrats. *Alloclinus holderi* was not observed at the site. There was notably high recruitment of *Coryphopterus nicholsii* and *Oxylebius pictus*. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Pedro Reef, Santa Cruz Island
Site #30, SCPRF
Year sampling began: 2005
2012 sampling dates: 8/13, 10/19
2012 status: Dominated by *Strongylocentrotus* spp.

This site continued to be dominated by *Strongylocentrotus* spp. and mostly devoid of macroalgae as it has been since monitoring began. No canopy cover was present. Several adult and juvenile *Macrocystis pyrifera*, as well as several adult *Eisenia arborea* were observed during the 10/19 visit. Adult and subadult *M. pyrifera* were not observed during sampling, though present at the site. Juvenile *M. pyrifera* had a density of 0.042/m^2. No *M. pyrifera* cover was observed during sampling, similar to past years. *Eisenia arborea* adult and juvenile densities were 0.17/m^2 and 0.083/m^2, respectively. Juveniles were scattered throughout the site. Cover of *E. arborea* was 0.33%. No *Pterygophora californica*, *Laminaria farlowii*, *Cystoseira* spp., *Gelidium, Gigartina* spp., or *Sargassum horneri* were observed at the site, similar to past years. *Desmarestia* spp. had a cover of 0.17%. Miscellaneous red algae cover decreased for the second consecutive year to 3.8%. *Laurencia pacifica* was the most common algae in this category. Miscellaneous green algae had a cover of 0.50%. Miscellaneous brown algae had a cover of 1.3% with *Colpomenia* sp. being common in this category. Miscellaneous plants (i.e. filamentous diatoms) had a cover of 10%. Articulated coralline algae cover was 1.5%, similar to recent years. Encrusting coralline algae cover decreased for the third consecutive year to 25%. Bare substrate cover decreased from last year to 30%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover continued to decrease from last year's low to 3.7%. The most common taxa in this category were barnacles. Most of the barnacles were very small. Tunicates remained rare at 0.0% cover. *Styela montereyensis* was not observed at the site. Sponges were common but not observed during sampling. *Tethya aurantia* had a density of 0.042/m², the lowest recorded at this site. *Diopatra ornata* had a cover of 0.5%,

a decrease from last year's record high of 4.7%. *Phragmatopoma californica* was not observed at the site. *Serpulorbis squamigerus* was not observed during sampling. Miscellaneous bryozoans were rare at 0.17% cover. *Diaperoecia californica* was not observed during sampling, though present at the site. *Urticina lofotensis* was not observed at the site. *Corynactis californica* had a cover of 26%, similar to last year's record high for all KFM sites. This year's cover is the second highest recorded for all KFM sites. *Astrangia lajollaensis* cover was 2.3%, similar to past years. *Balanophyllia elegans* cover increased to 2.2%, the highest recorded at this site. *Lophogorgia chilensis* density decreased to 0.24/m², the lowest recorded at this site. *Muricea californica* density was 0.0056/m², similar to past years, while *M. fruticosa* was not observed at the site.

Strongylocentrotus purpuratus density was 104/m², similar to last year's record high. *Strongylocentrotus franciscanus* density was 18/m², also similar to last year's record high. *Strongylocentrotus* spp. juveniles were common. *Centrostephanus coronatus* had a density of 0.084/m^2, similar to past years. *Lytechinus anamesus* density decreased from last year's record high to 0.88/m². There were a moderate number of *L. anamesus* tests present that had been crushed, presumably due to predation. During the 8/13 visit, less than 1% of *L. anamesus* and *S. purpuratus* were observed with wasting disease. During the 10/19 visit, 2% of *S. purpuratus* were observed with wasting disease.

Pisaster giganteus density increased to 0.32/m², the highest recorded at this site. All *P. giganteus* observed were small to medium in size. *Pisaster ochraceus* was not observed during sampling, but one yellow individual was observed on the transect. *Patiria miniata* had a density of 1.5/m², the highest recorded for this site. However, during the second visit on 10/19 *P. miniata* appeared much less abundant, likely due to mortality caused by wasting disease. Many sizes classes were present. *Pycnopodia helianthoides* had a density of 0.0028/m², with a wide range of size classes present. *Ophiothrix spiculata* had a cover of 0.17%. Offshore of the 100 m end *O. spiculata* was moderately abundant. A total of 30 *Parastichopus parvimensis* were observed at the site. Most consisted of large individual, although a few small ones were observed. *Pachythyone rubra* was not observed at the site. Density of *P. parvimensis* was recorded at 0.13/m². No sea star wasting disease was observed on August 13th but, on October 19th 10% of *Patiria miniata* observed had wasting disease. Also, *P. miniata* and *P. giganteus* appeared much less abundant than during the 8/13 visit when density sampling was performed. The decrease was presumably due to wasting disease mortality.

Two *Haliotis rufescens* were observed at the site (18 mm & 20 mm). Both were recorded on band transects for an overall density of 0.0028/m². *Cypraea spadicea* had a density of 1.3/m², the highest recorded at this site. *Megastraea undosa, Astraea gibberosa*, and *Tegula regina* were not observed during sampling, though present at the site. *Kelletia kelletii* density was 0.0028/m², similar to past years. *Megathura crenulata* had a density of 0.036/m², a decrease from previous years. Many size classes were present, although the larger individuals did not appear healthy. *Crassedoma giganteum* had a density of 0.0083/m², a decrease from recent years. *Aplysia californica* density decreased to 0.028/m², the lowest recorded at this site. Most were large, but several small individuals were present as well. No *Panulirus interruptus* were observed at the site, though two legal-sized molts were present. *Bursa californica* appeared notably less abundant than in recent years. *Loxorhynchus grandis* was common at the site, and at least three dead individuals were observed. Several *Cancer* spp. were observed at the site as well. Two

abandoned lobster traps were found: one 13 m inshore and one 13 m offshore. The offshore trap had bird bones around it, possibly from a bird becoming trapped inside.

Fish were moderately diverse and abundant, similar to last year. *Coryphopterus nicholsii* density remained high at 3.0/m^2; all sizes were present including very large individuals. No *Lythrypnus dalli* or *Alloclinus holderi* were observed on 1 m^2 quadrats though one *L. dalli* was observed at the site. Five YOY *Chromis punctipinnis* were observed; this was the first sighting of *C. punctipinnis* YOY for the KFM program this year. One juvenile *Hexagrammos decagrammus*, kelp greening, was observed, which is very rare for a site this far south. During the 10/19 visit, two juvenile *Hypsypops rubicundus* and one juvenile *Paralabrax clathratus* were observed. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Keyhole, Anacapa Island
Site #31, ANKH
Year sampling began: 2005
2012 sampling dates: 6/29
2012 status: Dominated by *Strongylocentrotus* spp.

Overall, this site was similar to last year but appeared more barren with less algae. No *Macrocystis pyrifera*, *Pterygophora californica, Laminaria farlowii*, or *Cystoseira* spp. were observed at the site. No *Eisenia arborea* or *Desmarestia* spp. were recorded during sampling, though present at the site. Miscellaneous brown algae and green algae were not recorded during sampling, though present at the site. No *Sargassum horneri* was observed at the site. This is the third year we have actively monitored for *S. horneri* at all KFM sites and we made subsequent dives to search for *S. horneri* inshore of the site, but none was located. We will continue to monitor the invasion of this non-native species. Miscellaneous red algae cover continued to decrease to 0.33%, and consisted of mostly *Laurencia pacifica*. Miscellaneous red algae cover was the lowest on record for this site. No *Gelidium* spp. or *Gigartina* spp. were observed at the site. Articulated coralline algae were not recorded during sampling, though present at the site. Encrusting coralline algae cover decreased to 42%, the lowest recorded at this site. Miscellaneous plants, consisting mostly of filamentous diatoms had a cover of 0.17%. Bare substrate had a cover of 31%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* had a cover of 22%. The most common taxa in this category were barnacles, *Spirobranchus spinosus,* and gorgonians. Tunicates were not recorded during sampling, though present at the site. *Styela montereyensis* was not observed at the site. Sponges were not recorded during sampling, though present at the site. *Tethya aurantia* had a density of 0.0042/m², similar to past years. *Serpulorbis squamigerus* had a cover of 0.17%, similar to past years. *Diopatra ornata* had a cover of 1.7%, similar to the last three years. *Phragmatopoma californica* was not observed at the site. Miscellaneous bryozoan cover was 1.7%, similar to last year's record low. *Diaperoecia californica* was not recorded during sampling, though present at the site. *Urticina lofotensis* was not observed at the site. *Corynactis californica* cover increased to 1.5%. *Astrangia lajollaensis* had a cover of 6.2%, the highest recorded at this site. *Balanophyllia elegans* had a cover of 0.83%, similar to past years. All three gorgonian species were present at densities similar to past years. *Lophogorgia*

chilensis had a density of 0.20/m², similar to last year's record low. *Muricea californica* had a density of 0.025/m². *Muricea fruticosa* had a density of 0.0028/m². At meter 21 on the offshore side of the transect, the colony of *Parazoanthus lucificum* that has been present for several years was still there and appeared healthy.

Strongylocentrotus spp. were abundant and juveniles of both species were present. *Strongylocentrotus purpuratus* density increased to 75/m², the highest recorded at this site. *Strongylocentrotus franciscanus* densities increased to 13/m², the highest recorded for this site. *Lytechinus anamesus* density decreased but remained abundant at 1.1/m^2. *Centrostephanus coronatus* had a density of 0.38/m². No sea urchin wasting disease was observed.

Pisaster giganteus had a density of 0.060/m², similar to the past two years. *Patiria miniata* had a density of 4.8/m², the highest recorded at this site. *Pisaster ochraceus* had a density of 0.005/m^2. *Ophiothrix spiculata* had a cover of 0.33%, similar to past years. *Pycnopodia helianthoides* and *Pachythyone rubra* were not observed at the site. *Parastichopus parvimensis* had a density of 1.0/m², similar to past years. No sea star wasting disease was observed.

No live *Haliotis* spp. were observed at the site. *Cypraea spadicea* was not recorded during sampling, though present at the site. *Megastraea undosa* density decreased 0.042/m², the lowest recorded at this site. *Astraea gibberosa* was not observed at the site. *Tegula regina* had a density of 0.17/m², similar to past years. *Kelletia kelletii* had a density of 0.0042/m². *Megathura crenulata* had a density of 0.0040/m², similar to last year's record high. All individuals were small to medium in size. *Crassedoma giganteum* had a density of 0.016/m, and many sizes classes were present. *Aplysia californica* density remained low at 0.0028/m². *Panulirus interruptus* had a density of 0.0014/m², similar to past years. A total of three were observed at the site.

Coryphopterus nicholsii density increased for the fifth consecutive year to 8.0/m². This is the highest density recorded at this site and the second highest density ever recorded during the KFM program. The highest density was recorded at Pelican Bay in 2003 with 8.8/m^2. *Alloclinus holderi* had a density of 0.125/m², similar to recent years. *Lythrypnus dalli* was not recorded during sampling, but three were observed at the site. Three California moray eels were observed at the site. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: East Fish Camp, Anacapa Island

Site #32, ANEFC
Year sampling began: 2005
2012 sampling dates: 5/15, 6/1
2012 status: Dominated by *Strongylocentrotus* spp. and *Ophiothrix spiculata*

The site was mostly devoid of large macroalgae. However, there were notably more algae than last year. Adult *Macrocystis pyrifera* density was 0/m^2, although approximately 8-10 were present at the site with several just reaching the surface of the water. Subadult *M. pyrifera* was not observed. Juvenile *M. pyrifera* had a density of 0.46/m^2. Cover of *M. pyrifera* was recorded

on RPCs, for the first time at this site, at 0.50%. Adult *Eisenia arborea* were present, but not observed on quadrats. Juvenile *E. arborea* were observed at a density of 0.17/m^2. Cover of *E. arborea* was recorded on RPCs for the first time at this site, and had a cover of 0.17%. *Desmarestia* spp. were observed on RPCs, for the first time at this site, with 0.17% cover. One *Sargassum horneri* juvenile was observed for the first time at this site on band transects with a density of 0.0014/m^2. No adult *S. horneri* were observed at the site. No *Cystoseira* spp., were observed on RPCs, though present at the site. Cover of *S. horneri* was 0%. No *Pterygophora californica*, *Laminaria farlowii*, *Gigartina* spp., or *Gelidium* spp. were observed at the site. Miscellaneous brown algae cover was 0.17%. Miscellaneous green algae cover was 0.17%. Miscellaneous red algae cover increased from last year to 4.7%, and consisted mostly of *Laurencia pacifica*. No articulated coralline algae were observed on RPCs, similar to past years. Encrusting coralline algae cover was 36.8%, similar to the last two years. Bare substrate cover increased to 43.7%, which is the highest recorded at this site.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 2.3%. The most abundant taxa in this category were hydroids, followed by *Spirobranchus spinosus*. Tunicates had a cover of 0.33%. *Styela montereyensis* was not observed. Sponges were not observed on RPCs. *Tethya aurantia* had a density of 0.060/m^2, the highest recorded at this site. Most were covered with sediment and filamentous diatoms, making them difficult to see. *Diopatra ornata* was not observed on RPCs, though present at the site. *Phragmatopoma californica* was not observed at the site. Miscellaneous bryozoans and *Diaperoecia californica* were not observed on RPCs, similar to past years, but were present. *Urticina lofotensis* was not observed at the site. *Corynactis californica* cover decreased but remained high at 16%. Many of the *C. californica* did not appear healthy. *Balanophyllia elegans* was not observed on RPCs. *Astrangia lajollaensis* had a cover of 0.17%. *Lophogorgia chilensis, Muricea californica* and *Muricea fruticosa* were observed with densities of 0.013/m^2, 0.011/m^2 and 0.007/m^2, respectively.

Strongylocentrotus purpuratus had a density of 60.3/m^2, a decrease from the record high density of 2010 (116.4/m^2). Juvenile *S. purpuratus* were not observed at the site. Mean size of *S. purpuratus* was 20 mm. *Strongylocentrotus franciscanus* density decreased to 9.8/m^2, the lowest recorded at this site. Juvenile *S. franciscanus* were not observed at the site. Mean size of *S. franciscanus* was 29 mm. *Centrostephanus coronatus* had a density of 0.96/m^2, similar to recent years. Only large *C. coronatus* individuals were observed. *Lytechinus anamesus* density continued to decline for the fifth consecutive year to 0.11/m^2, the lowest density recorded at this site. Sea urchin wasting disease was observed in 2% of *S. franciscanus*, and 5% of *S. purpuratus.*

Pycnopodia helianthoides had a density of 0.0056/m^2, similar to recent years. *Patiria miniata* had a density of 0.88/m^2, similar to past years. Mean size of *P. miniata* decreased from last year to 56 mm. *Pisaster giganteus* had a density of 1.0/m^2, and consisted mostly of large individuals. Mean size of *P. giganteus* was 148 mm, similar to last year, but lower than previous years. *Pisaster ochraceus* was not observed on 5 m quadrats, though at least four were observed at the site. *Parastichopus parvimensis* had a density of 0.17/m^2. *Pachythyone rubra* was not observed at the site. *Ophiothrix spiculata* was moderately abundant with a cover of 24%, the highest recorded at this site. No sea star wasting disease was observed.

Similar to previous years, *Haliotis* spp. were not observed at the site. *Cypraea spadicea* had a density of 0.13/m^2. *Megastraea undosa* had a density of 0.13/m^2, similar to recent years, and

consisted mostly of small individuals. *Astraea gibberosa* had a density of 0.042/m^2. *Tegula regina* had a density of 0.042/m^2, similar to previous years. *Kelletia kelletii* had a density of 0.011/m², similar to last year. *Megathura crenulata* had a density of 0.081/m², a decrease from previous years. Mean size of *M. crenulata* was 48 mm, a decrease from previous years. *Crassedoma giganteum* had a density of 0.040/m². *Aplysia californica* had a density of 0.18/m², the highest recorded at this site. *Panulirus interruptus* was not observed at the site.

Fish abundance and diversity appeared higher than last year. *Coryphopterus nicholsii* had a density of 5.2/m², the highest recorded at this site, with both very small and very large individuals present. *Alloclinus holderi* had a density of 0.042/m^2. *Lythrypnus dalli* was not observed at the site. There were several groups of juvenile Sebastes spp. present. Most were placed in the *Sebastes mystinus* category or the KGB category, but other species may have been present. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Black Sea Bass Reef, Anacapa Island
Site #33, ANBSBR
Year sampling began: 2005
2012 sampling dates: 8/15
2012 status: Dominated by *Ophiothrix spiculata*

This site continued to be dominated by *Ophiothrix spiculata*. Adult, subadult, and juvenile *M. pyrifera* densities were 0.0/m^2, 0.010/m^2, and 0.33/m^2, respectively. Cover of *M. pyrifera* was 0.50%. *Eisenia arborea* adults were not present at this site but juveniles were present at a density of 0.12/m^2. No *E. arborea* cover was recorded during sampling. No *Laminaria farlowii* adults were observed during sampling, and juveniles were present at 0.04/m^2. No *L. farlowii* cover was recorded during sampling. No *Pterygophora californica* or *Cystoseira* spp. were observed at the site. *Sargassum horneri* was observed at this site for the first time. The adult and juvenile *S. horneri* densities, respectively and per method are as follows, 1 m quadrats: 0.0/m^2 and 1.2/m^2, 5 m quadrats: 0.0/m^2 and 0.24/m^2, band transects: 0.0/m^2 and 0.038/m^2. No S. horneri cover was recorded on RPCs. Miscellaneous brown algae had 0.33% cover. Miscellaneous red algae had 7% cover, an increase from last year, and consisted mostly of *Laurencia pacifica*. and filamentous red algae. No *Gelidium* spp. were observed at the site. *Gigartina* spp. were not observed during sampling, though present at the site. Green algae were rare with a cover of 0.17%, similar to previous years. Miscellaneous plants cover, consisting of filamentous diatoms, was 3.8%, similar to previous years. Encrusting coralline algae had cover of 72%, an increase from the last two years. Articulated coralline algae cover was 0%, though present at the site. Bare substrate cover was 9.1%, a decrease from the last two years.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 0.17%, the lowest recorded at this site. The most common miscellaneous invertebrates in this category were anemones, though few were present. Tunicates were present at 0.17% cover, a decrease from recent years. *Styela montereyensis* was not observed at the site. Sponges had a cover of 0.83%. *Tethya aurantia* was present with a density of 0.035/m², a decrease from last year's record high. Miscellaneous bryozoans had 2.8% cover, a decrease from the last three years. *Diaperoecia*

californica had a cover of 0.17%, similar to past years. *Diopatra ornata* was present at the site but not recorded during sampling. *Serpulorbis squamigerus* was not observed at the site. *Phragmatopoma californica* was not observed at the site. *Urticina lofotensis* was not observed at the site. *Corynactis californica* was observed at 6.3%, similar to last year's record high. *Astrangia lajollaensis* and *Balanophyllia elegans* were present at the site, but neither was recorded during sampling. *Lophogorgia chilensis*, was present with a density of 0.0097/m², with several small ones observed. Unlike last year *Muricea fruticosa* and *M. californica* were not observed during sampling, though *M. fruticosa* was present at the site. Most of the gorgonians appeared unhealthy, which was likely due to *Ophiothrix spiculata* covering many of them.

Strongylocentrotus franciscanus decreased from 2.1/m² to a record low of 0.29/m^2. *Strongylocentrotus purpuratus* decreased from 23/m² to 4.8/m^2, the lowest recorded since 2007. *Centrostephanus coronatus* had a density of 0.46/m², similar to previous years. *Lytechinus anamesus* was not observed at the site. No sea urchin wasting disease was observed.

Pisaster giganteus had a density of 0.05/m^2, an increase from last year. *Pisaster ochraceus* was not observed at the site. *Patiria miniata* had a density 0.042/m², similar to past years. *Ophiothrix spiculata* cover increased from 84% to 86% cover. This is the highest cover recorded for this species, which tied with *O. spiculata* cover at Southeast Sea Lion this year as well. *Pycnopodia helianthoides* was not observed at the site. *Pachythyone rubra* was not observed at the site. *Parastichopus parvimensis* had a density of 1.5/m², similar to the last three years. No sea star wasting disease was observed.

No *Haliotis* spp. or fresh shells were observed at the site. *Cypraea spadicea* was present at the site, but not recorded during sampling. *Megastraea undosa* had a density of 0.042/m^2, similar to past years. *Astraea gibberosa* was not observed at the site, similar to past years. *Tegula regina* had a density of 0.13/m², similar to past years. *Kelletia kelletii* had a density of 0.0014/m^2. *Megathura crenulata* was at a density of 0.0042/m², the lowest recorded at this site, with only small individuals present. *Crassedoma giganteum* had a density of 0.0097/m², similar to past years. *Aplysia californica* was not observed during sampling, though present at the site. *Panulirus interruptus* increased from 0.014/m² to 0.11/m^2, the highest recorded at this site. Most were of legal harvest size.

Coryphopterus nicholsii had a density of 2.6/m², a decrease from last year's record high of 3.1/m^2. *Alloclinus holderi* density was 0.042/m^2, the lowest recorded at this site. *Lythrypnus dalli* was recorded during sampling, though approximately 11 individuals were observed at the site. Three *Stereolepis gigas,* giant black sea bass, were observed at the site. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Lighthouse, Anacapa Island
Site #34, ANLH
Year Sampling Began: 2005
2012 sampling dates: 5/17, 6/1
2012 status: Dominated by *Strongylocentrotus* spp.

This site was similar to last year and was mostly devoid of brown macroalgae except for two adult *Eisenia arborea*; one growing epiphytically on a gorgonian and one on top of a rock. No *Macrocystis pyrifera* adults or subadults were observed at the site. Juvenile *M. pyrifera* had a density of 0.08/m². No *M. pyrifera* cover was recorded on RPCs. *Eisenia arborea* was also rare with no adults observed during sampling and juvenile density at 0.042/m². No *E. arborea* cover was recorded on RPCs. No *Cystoseira* spp. were recorded during sampling, although some were observed at the site. No *Laminaria farlowii, Pterygophora californica*, *Sargassum horneri,* or *Gelidium* spp. were observed at the site. *Desmarestia* spp. were not observed on RPCs, though present at the site. Miscellaneous brown algae were not observed on RPCs, same as last year, but were present at the site. Miscellaneous green algae had a cover of 0.17%. *Gigartina* spp. were not observed on RPCs, though present at the site. Miscellaneous red algae were rare with a cover of 2.7%, similar to recent years. Miscellaneous plants, mostly consisting of filamentous diatoms, had 0.50% cover. Articulated coralline algae cover was 0.50%. Encrusting coralline algae cover decreased to 39% from a high of 61% in 2011. Bare substrate increased from 19% in 2011 to 34% this year.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover increased from last year's record low of 10% to 15% cover. The dominant invertebrates in this category were gorgonians, specifically *Muricea californica*, and some barnacles. Tunicates had 0.50% cover. *Styela montereyensis* was not observed at the site. Sponges had 0.83% cover. *Tethya aurantia* had a density of 0.13/m², the highest recorded at this site. *Phragmatopoma californica* cover remained low at 0.17%. *Diopatra ornata* cover remained low at 0.17%, the lowest recorded at this site. Miscellaneous bryozoans had 1% cover, similar to recent years. Similar to 2011, *Diaperoecia californica* was observed on RPCs at 0.17% cover. There seemed to be a considerable amount of appropriate habitat, vertical side portions of rocks, for this species. *Urticina lofotensis* was not observed at the site. *Corynactis californica* had a cover of 8.5%, similar to last year. *Serpulorbis squamigerus* was not observed during RPCs, though present at the site. *Astrangia lajollaensis* had a cover of 4.2%, the highest observed at this site. *Balanophyllia elegans* had 0.17% cover. *Muricea californica* remained the most common of the gorgonians at a density of 0.31/m², similar to recent years. *Lophogorgia chilensis* was common with a density 0.088/m², also similar to recent years. *Muricea fruticosa* declined in density to 0.0042/m², the lowest recorded at this site.

Strongylocentrotus spp. dominated the site, similar to last year. *Strongylocentrotus franciscanus* and *S. purpuratus* had densities of 9.3/m² and 82/m², respectively. Mean size for *S. franciscanus* was 29 mm, the lowest recorded at this site. Mean size for *S. purpuratus* was 24 mm, similar to recent years. That is the highest density of *S. purpuratus* recorded at this site. Juvenile *S. franciscanus* and *S. purpuratus* were not observed at the site. *Centrostephanus coronatus* had a density of 0.38/m². *Lytechinus anamesus* had a density of 0.17/m², the highest recorded at this site. Sea urchin wasting disease was observed in approximately 1% of *S. purpuratus* during the visit.

Pycnopodia helianthoides was observed on band transects, for the first time at this site, at a density of 0.0042/m^2. A total of three were observed at the site. *Pisaster giganteus* had a density of 0.14/m^2, the highest density recorded at this site. Mean size for *P. giganteus* decreased to 106 mm, the lowest recorded at this site. *Pisaster ochraceus* had a density of 0.045/m^2. *Patiria miniata* had a density of 2.4/m^2, the highest recorded at this site. Mean size for *P. miniata* was 52, the lowest recorded at this site. Small individuals were common. *Ophiothrix spiculata* was observed on RPCs, for the first time at this site, with 3.2% cover, and was scattered around the site. *Pachythyone rubra* was not observed at the site. *Parastichopus parvimensis* density was 0.33/m^2, similar to past years. No sea star wasting disease was observed.

No live *Haliotis* spp. or fresh shells were observed at the site. *Cypraea spadicea* had a density of 0.13/m^2. *Megastraea undosa* had a density of 0.083/m^2, similar to recent years. *Astraea gibberosa* was not observed at the site. *Tegula regina* was present, but not observed during 1m^2 quadrats. *Kelletia kelletii* was not observed at the site, similar to the last two years, but the density is low compared to earlier years. *Megathura crenulata* density was 0.044/m^2, a decrease from previous years. A few juveniles were observed at the site. *Crassedoma giganteum* density increased from the last several years to 0.024/m^2. There were some notably large *C. giganteum* individuals observed. *Aplysia californica* density decreased from the last two years to 0.035/m^2, and consisted mostly of small individuals. A single, very large *Panulirus interruptus* was observed during band transects, for a density of 0.0014/m^2. This was the only *P. interruptus* observed at the site.

Fish abundance and diversity were relatively low. *Coryphopterus nicholsii* had a density of 2.0/m^2, the highest density for this site since 2007, with many small individuals observed. *Alloclinus holderi* and *Lythrypnus dalli* were not observed during 1 m^2 quadrats, though one large *A. holderi* was observed at the site. Very small *Oxylebius pictus* were moderately abundant. Three *Ophiodon elongatus,* lingcod, and two *Scorpaena guttata*, California scorpionfish, were also observed at the site after RDFCs were performed. Several juvenile rockfish, possibly *Sebastes entomelas*, widow rockfish, similar in appearance to juvenile *Sebastes mystinus* but more elongate, were observed at the sight. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Webster's Arch, Santa Barbara Island
Site #35, SBWA
Year sampling began: 2005
2012 sampling dates: 6/13
2012 status: Dominated by *Strongylocentrotus purpuratus* and *Ophiothrix spiculata*.

This site was dominated by *Strongylocentrotus purpuratus* and *Ophiothrix spiculata*. *Strongylocentrotus* spp. and *Ophiothrix spiculata* appeared less abundant than in past years, especially from the 0-60 m section of the transect. No *Macrocystis pyrifera* adults, subadults, or percent cover were recorded. Juvenile *M. pyrifera* had a density of 0.13/m^2. *Eisenia arborea* was not recorded during sampling, but both adults and juveniles were observed at the site on top of rocks. No *Pterygophora californica*, *Laminaria farlowii, Cystoseira* spp., *Sargassum horneri, or*

Gigartina spp. were observed at the site. *Desmarestia* spp. had no recorded cover on RPCs, a decrease from last year's high, though present at the site. Miscellaneous brown algae cover was 2.7%, the highest recorded at this site. No Gelidium spp. were recorded on RPCs though some were present on top of rocks. Green algae cover was 5.8%, an increase from last year but similar to past years. Most of the green algae consisted of *Codium* sp. Miscellaneous red algae cover was 23%, the same as last year. Miscellaneous plant cover, consisting mainly of filamentous diatoms, was 8.5%, a record high at this site. Articulated coralline algae cover was 0.50%, similar to past years. Encrusting coralline algae cover was 63%, similar to past years. Bare substrate cover decreased to7.5%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was observed at 6.0%. This category consisted mostly of *Spirobranchus spinosus*, followed by *Myxicola infundibulum*. *Myxicola infundibulum* appeared less abundant than in the last two years. Tunicates had a cover of 1.3%, similar to recent years. *Styela montereyensis* was not observed at the site. Sponges had a cover of 2.5%, an increase from the last three years. For a Santa Barbara Island site, tunicates and sponges were diverse. *Tethya aurantia* had a density of 0.0069/m², similar to past years. *Phragmatopoma californica*, *Serpulorbis squamigerus,* and *Diopatra ornata* were not observed on RPCs though present at the site. *Diaperoecia californica* had a cover of 0.50%m, similar to recent years. Miscellaneous bryozoans had a cover of 4.0%, similar to recent years. One small (>10 cm wide) colony of *Allopora californica* was observed, which is the first time this species had been documented at this site. *Urticina lofotensis* was not observed at the site. *Corynactis californica* had 4.5% cover, similar to last year. *Balanophyllia elegans* and *Astrangia lajollaensis* had covers of 0.33% and 0.17%, respectively, and both similar to recent years. *Lophogorgia chilensis* and *Muricea californica* had densities of 0.0083/m² and 0.0056/m², respectively, similar to past years. *Muricea fruticosa* had a density of 0.0042/m².

Strongylocentrotus spp. were less abundant than in past years, especially at the 60-100 m end of the transect. *Strongylocentrotus purpuratus* density decreased to 22.4/m^2 the lowest recorded at this site. Mean size of *S. purpuratus* was 20 mm, similar to past years. *Strongylocentrotus franciscanus* decreased to 4.7/m², the lowest recorded at this site. The mean size of *S. franciscanus* was 32 mm. *Lytechinus anamesus* was not observed at the site. *Centrostephanus coronatus* was not recorded on 1m quadrats, though it was present. No sea urchin wasting disease was observed.

Pisaster giganteus had a density of 0.11/m², and a mean size of 126 mm, both similar to recent years. *Patiria miniata* had a density of 2.8/m², the highest recorded at this site. Mean size of P. miniata was 65 mm, and consisted mostly of large individuals. *Pisaster ochraceus* was not observed at the site. *Pycnopodia helianthoides* increased in density to 0.026/m², the highest recorded at this site. All *P. helianthoides* observed were large in size. Mean size of *P. helianthoides* was 245 mm, a decrease from the last two years. *Ophiothrix spiculata* appeared abundant than in recent years, but the recorded cover remained similar to last year at 13%. *Pachythyone rubra* was not observed at the site. *Parastichopus parvimensis* had a density of 0/m^2. However, approximately 10 individuals were observed, and all appeared small in size. No sea star wasting disease was observed.

No *Haliotis* spp. were observed at the site. Two fresh *H. corrugata* shells were found and measured 37mm and 32 mm. *Cypraea spadicea* had a density of 0.33/m². Most of the *C.*

spadicea observed were large, and some of those observed were on top of egg masses. *Megastraea undosa* had a density of 0.25/m², similar to recent years. Mean size of *M. undosa* increased to a record high of 87 mm, which consisted mostly of large individuals. *Astraea gibberosa* had a density of 0/m^2, though it was present at the site. *Tegula regina* had a density of 0.25/m² and both large and small individuals were observed. *Kelletia kelletii* was not observed at the site. *Megathura crenulata* had a density of 0.068/m², a decrease from the past six years. Most of the *M. crenulata* observed were large individuals, and had an overall mean size of 97 mm, the highest recorded at this site. *Crassedoma giganteum* continued to be rare with a density of 0.0056/m². *Aplysia californica* had a density of 0.050/m², a decrease from recent years. *Panulirus interruptus* was not recorded on band transects, though one individual was observed at the site. Although not quantified, we noted a high number of hermit crabs.

Similar to last year, fish were low in abundance and diversity. *Coryphopterus nicholsii* and *Alloclinus holderi,* were not observed on quadrats, though present at the site *Lythrynpnus dalli* was not observed at the site. Small male sheephead were abundant. Most of the female sheephead were also notably small. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Graveyard Canyon, Santa Barbara Island
Site #36, SBGC
Year sampling began: 2005
2012 sampling dates: 5/31
2012 status: Dominated by *Strongylocentrotus purpuratus* and *Ophiothrix spiculata*

This site continued to be dominated by echinoderms. No adult *Macrocystis pyrifera* were observed during sampling, but several subadults and juveniles were observed. Subadult density was 0.0050/m² and juvenile density was 0.042/m², Adult and juvenile *Eisenia arborea* were not observed during sampling, but one juvenile was observed at the east end of the transect. No *Pterygophora californica, Cystoseira* spp., or *Laminaria farlowii* were observed at the site, similar to past years. *Desmarestia* spp. had a cover of 3.3%. Miscellaneous brown algae had a record high cover of 10%. Similar to last year, the invasive brown alga *Sargassum horneri* was not observed at the site, which had been present in 2010. Several large *Sargassum muticum* were present. Miscellaneous red algae had a cover of 6.8%, and consisted mostly of filamentous red algae. No *Gelidium* spp. or *Gigartina* spp. were observed at the site. Miscellaneous plants, consisting of filamentous diatoms, had a cover of 3.7%. Encrusting coralline algae cover decreased to 24%, the lowest recorded at this site. Articulated coralline algae were not observed on RPCs, though present at the site. Bare substrate cover increased to 56%, the highest recorded at this site.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 4.0%, a decrease from last year's high of 15%. The most common taxa in this category were an anemone believed to be *Sagartia* sp., followed by gorgonians**.** Tunicates were not observed on RPCs, though present at the site. Sponges had a cover of 0.67%. T*ethya aurantia* was moderately abundant at 0.064/ m². Many were covered with diatoms and difficult to see. *Diopatra ornata, Phragmatopoma*

californica, Serpulorbis squamigerus, Miscellaneous bryozoans, and *Diaperoecia californica* not observed on RPCs, though present at the site. *Urticina lofotensis* was not observed at the site. *Corynactis californica* and *Balanophyllia elegans* were not observed on RPCs, though present at the site. *Astrangia lajollaensis* had a record high cover of 3.7%. Similar to last year, *Lophogorgia chilensis* and *Muricea californica* had densities of 0.032/m² and 0.014/m², respectively. *Muricea fruticosa* was not observed during sampling, though present at the site. Man of the *L. chilensis* and *A. lajollaensis* were covered with diatoms and filamentous red algae.

Strongylocentrotus franciscanus density was 1.3/m², similar to last year. *Strongylocentrotus purpuratus* had a density of 35/m², a decrease from last year's high, but still high compared to five years ago. Mean sizes of *S. franciscanus* and *S. purpuratus* were 51 mm and 23 mm, both are record high means for this site. *Strongylocentrotus franciscanus* juveniles were rare and *S. purpuratus* juveniles were common. *Centrostephanus coronatus* was not observed during sampling, though present at the site. *Lytechinus anamesus* was not observed at the site. No sea urchin wasting disease was observed at the site.

Pisaster giganteus had a density of 0.045/m², the highest recorded at this site. *Patiria miniata* had a density of 0.46/m², similar to past years, and was patchy around the site. Mean size of *P. miniata* decreased to 56 mm, the lowest recorded at this site. No *Pycnopodia helianthoides* were observed on band transects, though present at the site. *Ophiothrix spiculata* dominated the first 20 m of the transect. Cover for *O. spiculata* increased to a record high cover of 48%. *Pachythyone rubra* was not observed at the site. *Parastichopus parvimensis* density was 0.13/m², same as last year, and appeared much larger than the ones observed at the Cat Canyon or Southeast Reef KFM sites. No sea star wasting disease was observed.

No live *Haliotis* spp. or fresh shells were observed at the site. *Cypraea spadicea* had a density of 0.17/m^2. *Megastraea undosa* was not observed on 1 m^2 quadrats, though present at the site. *Astraea gibberosa* was not observed at the site. Neither *Tegula regina* nor *Kelletia kelletii* were observed at the site. *Megathura crenulata* was not observed on band transects, though present at the site. *Crassedoma giganteum* had a density of 0.0014/m^2, similar to past years. *Aplysia californica* density decreased to 0.032/m², the lowest recorded at this site. *Panulirus interruptus* was not observed at the site.

Overall, this site had very few fish and low diversity. *Coryphopterus nicholsii* density was 0.42/m². *Lythrypnus dalli* or *Alloclinus holderi* were not observed at the site. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Location: Southeast Reef, Santa Barbara Island
Site #37, SBSER
Year sampling began: 2005
2012 sampling dates: 5/30
2012 status: Mature kelp forest

Up until 2010, the kelp forest at this site was limited to the eastern half of the transect, with the western half dominated by *Strongylocentrotus* spp. In 2011, the site had a more uniform density

of mature, widely-spaced *Macrocystis pyrifera* over the entire length of the transect and the western half was no longer dominated by *Strongylocentrotus* spp. This year, this site continued to develop into a uniformly-covered mature kelp forest. Canopy cover was estimated at 100%. *Macrocystis pyrifera* adult density increased to 0.32/m², the highest recorded at this site. Subadult and juvenile densities decreased to 0.28/m², and 0.50/m², respectively. Cover for *M. pyrifera* was 13%, a decrease from the last two years. *Eisenia arborea* were present at the site, and were scattered around most of the transect. Most were large individuals. Adult and juvenile *E. arborea* were recorded at densities of 0.46/m² and 0.17/m², respectively. Cover of *E. arborea* was 2.3%, a decrease from recent years. *Pterygophora californica* was not observed at the site. *Laminaria farlowii* had adult and juvenile densities of 0.0/m^2 and 0.29/m^2, respectively. Cover of *L. farlowii* was 0.0%. *Desmarestia* spp. were scattered around the site and had 0.0% cover, a decrease from last year. *Cystoseira* spp. were present mostly on the first half of the transect and had a cover of 0.83%, a decrease from last year. Miscellaneous brown algae had a cover of 0.0%, a decrease from the last two years. *Sargassum horneri* was not observed at the site, though it was present last year. Miscellaneous red algae decreased from last year's high cover to 13%, the lowest recorded at this site. Several rhodoliths were noted at the site. *Gelidium* spp. had a cover of 0.0%, and was present mostly on the tops of rocks. *Gigartina* spp. were present at the site, consisting of small individuals, and had a cover of 0.0%. Other green algae had a cover of 0.33%. Miscellaneous plants, consisting of filamentous diatoms, were common with a cover of 0.50%. Encrusting coralline algae cover was 19%, the lowest recorded at this site. Articulated coralline algae cover was 6.8%. Bare substrate cover was 9.7%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 15%, similar to past years. This category consisted mostly of anemones, amphipod tube mats, and hydroids. Tunicates were abundant and diverse with 21% cover, the highest cover recorded, and included the encrusting tunicate *Aplidium* spp. *Styela montereyensis* was not observed. Sponges were diverse, with at least eight species observed. Cover was recorded at 6.5%. *Tethya aurantia* density remained low at 0.0083/m², similar to previous years. *Phragmatopoma californica* cover was 1.3%, a decrease from last year. *Serpulorbis squamigerus* had a cover of 0.83%, similar to past years. *Diopatra ornata* remained common in low lying areas with a cover of 2.5%. Miscellaneous bryozoans cover was recorded at 21%, similar to recent years. *Diaperoecia californica* had a cover of 1.2%. *Urticina lofotensis* was not observed. *Corynactis californica* cover increased from last year to 2.2%. *Astrangia lajollaensis* and *Balanophyllia elegans* had covers of 0.17% and 0.0%, respectively. Gorgonians were common with *Lophogorgia chilensis*, *Muricea californica* and *M. fruticosa* densities at 0.0069/m², 0.0056/m² and 0.0014/m², respectively.

Though this site was a lush kelp forest with a moderate understory of algae, there were still moderately high density patches of *Strongylocentrotus* spp. *Strongylocentrotus franciscanus* was moderately abundant with a density of 7.3/m², similar to recent years. The *S. franciscanus* at this site appeared larger and healthier than at the other KFM sites around Santa Barbara Island. There also was an abundance of large, fresh, cracked urchin tests, indicative of recent predation. The predation likely was from sheephead or lobster, both of which were relatively abundant at this site. *Strongylocentrotus purpuratus* had a density of 5.8/m^2, similar to the past three years. Juveniles of both *S. franciscanus* and *S. purpuratus* were present in lower numbers than last year. *Centrostephanus coronatus* had a density of 0.46/m². *Lytechinus anamesus* was present at a density of 0.0111/m^2, with many small individuals present at the deeper end of the transect (west

end). Sea urchin wasting disease was observed in one *S. purpuratus*. In addition, black spot disease was observed in several *Strongylocentrotus* spp.

Pisaster giganteus had a density of 0.12/m², the highest recorded at this site. Mean size for *P. giganteus* was 114 mm, the lowest recorded at this site. One *P. ochraceus* was observed at the site, but had a recorded density of 0.0/m^2. *Patiria miniata* density remained low at 0.083/m^2, and consisted mostly of small individuals. *Pycnopodia helianthoides* was not observed at the site, similar to previous years. *Ophiothrix spiculata* was present, mostly located in *Macrocystis pyrifera* holdfasts, but was not observed on RPCs. *Pachythyone rubra* was not observed at the site. Density of *Parastichopus parvimensis* was 1.0/m², and consisted mostly of small individuals. No sea star wasting disease was observed.

One juvenile *Haliotis corrugata* (35 mm), was observed on band transects for the first time at this site, for a density of 0.0014/m^2. *Haliotis fulgens* had a density of 0.0/m^2, but one was observed at the site (15 mm). Two fresh *H. corrugata* shells were found which measured 21 mm and 30 mm. *Cypraea spadicea* was present at the site but had a recorded density of 0.0/m². *Megastraea undosa* had a density of 0.13/m², with many size classes present. *Astraea gibberosa* had a recorded density of 0.0/m², though one or two juveniles were observed at the site. *Tegula regina* had a density of 0.042/m², similar to past years, though it appeared more abundant on rocky ridges. *Kelletia kelletii* was not observed. *Megathura crenulata* had a density of 0.0069/m². *Crassedoma giganteum* had a density of 0.040/m², similar to last year. Mean size for *C. giganteum* was 57 mm, the lowest recorded for this site. *Aplysia californica* had a density of 0.0/m², a decrease from last year. *Panulirus interruptus* had a density of 0.0028/m².

Fish diversity and abundance were similar to last year and notably higher than at our other Santa Barbara Island sites. *Coryphopterus nicholsii* had a density of 0.38/m², similar to recent years. *Alloclinus holderi* density was 0.0/m^2. *Lythrypnus dalli* were not observed. See Appendix H for a complete list of fish species observed during the roving diver fish counts.

The temperature loggers were retrieved and deployed and all temperature data were downloaded successfully.

Appendix B. 1 Meter Quadrat Data

2012 1-M QUADRAT DATA: MEAN NUMBER PER M_2

Species	Mean	Std. Dev.	n
San Miguel Island - Wyckoff Ledge			
Macrocystis pyrifera, adult	0.2500	0.3371	12
Macrocystis pyrifera, juvenile, juvenile	0.7500	0.6908	12
Macrocystis pyrifera stipes for plants >1m	1.5833	3.8544	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.0417	0.1443	12
Pterygophora californica, adult	0.7083	0.7821	12
Pterygophora californica, juvenile	0.7917	1.2515	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Dictyoneuropsis reticulata/Agarum fimbriatum, adult	1.9583	3.3266	12
Dictyoneuropsis reticulata/Agarum fimbriatum, juvenile	1.0417	2.2508	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.0000	0.0000	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.2083	0.4981	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	3.0833	2.1409	12
Pisaster giganteus	0.2917	0.3343	12
Strongylocentrotus franciscanus	1.3750	4.1513	12
Strongylocentrotus purpuratus	0.3750	0.7424	12
Parastichopus parvimensis	0.2083	0.3343	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.1250	0.3108	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.0417	0.1443	12
Alloclinus holderi	0.0000	0.0000	12
San Miguel Island - Hare Rock			
Macrocystis pyrifera, adult	0.0833	0.2887	12
Macrocystis pyrifera, juvenile, juvenile	0.0000	0.0000	12
Macrocystis pyrifera stipes for plants >1m	0.3750	1.2990	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.0417	0.1443	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.6667	0.9374	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.9583	1.5588	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	5.7917	3.8166	12
Pisaster giganteus	0.3750	0.5276	12
Strongylocentrotus franciscanus	13.2500	9.6778	12
Strongylocentrotus purpuratus	0.6250	1.3505	12
Parastichopus parvimensis	0.0833	0.1946	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.8333	0.9129	12
Alloclinus holderi	0.0000	0.0000	12

2012 1-M QUADRAT DATA: MEAN NUMBER PER M_2

Species	Mean	Std. Dev.	n
Santa Rosa Island - Johnson's Lee North			
Macrocystis pyrifera, adult	1.0000	0.7071	12
Macrocystis pyrifera, juvenile, juvenile	3.5833	4.2203	12
Macrocystis pyrifera stipes for plants >1m	8.2917	6.1698	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.0000	0.0000	12
Pterygophora californica, adult	0.5833	0.6337	12
Pterygophora californica, juvenile	0.2083	0.4502	12
Laminaria farlowii, adult	0.5000	0.5641	12
Laminaria farlowii, juvenile	0.6250	0.6784	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.3333	0.3892	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	2.9583	1.6020	12
Pisaster giganteus	0.1667	0.3257	12
Strongylocentrotus franciscanus	0.3333	1.0075	12
Strongylocentrotus purpuratus	0.3333	0.4438	12
Parastichopus parvimensis	0.0000	0.0000	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	3.0417	2.3975	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.5833	0.8483	12
Alloclinus holderi	0.0000	0.0000	12
Santa Rosa Island - Johnson's Lee South			
Macrocystis pyrifera, adult	0.5833	0.9003	12
Macrocystis pyrifera, juvenile, juvenile	0.5000	1.0000	12
Macrocystis pyrifera stipes for plants >1m	2.8333	4.5092	12
Eisenia arborea, adult	0.2083	0.3343	12
Eisenia arborea, juvenile	0.1667	0.2462	12
Pterygophora californica, adult	0.0417	0.1443	12
Pterygophora californica, juvenile	0.0833	0.1946	12
Laminaria farlowii, adult	0.7917	0.8649	12
Laminaria farlowii, juvenile	0.5833	0.6686	12
Dictyoneuropsis reticulata/Agarum fimbriatum, adult	0.2500	0.6216	12
Dictyoneuropsis reticulata/Agarum fimbriatum, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.6250	2.0127	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	4.7917	2.6838	12
Pisaster giganteus	0.2083	0.3343	12
Strongylocentrotus franciscanus	1.3750	4.1403	12
Strongylocentrotus purpuratus	1.2500	1.6167	12
Parastichopus parvimensis	0.0417	0.1443	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	1.4167	1.0188	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.4583	0.6557	12
Alloclinus holderi	0.0000	0.0000	12

2012 1-M QUADRAT DATA: MEAN NUMBER PER M_2

Species	Mean	Std. Dev.	n
Santa Rosa Island - Rodes Reef			
Macrocystis pyrifera, adult	0.0000	0.0000	12
Macrocystis pyrifera, juvenile, juvenile	0.0000	0.0000	12
Macrocystis pyrifera stipes for plants >1m	0.0000	0.0000	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.0000	0.0000	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.3333	0.7487	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.2917	0.5823	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	5.4583	4.1035	12
Pisaster giganteus	1.2083	1.3728	12
Strongylocentrotus franciscanus	8.0000	4.9635	12
Strongylocentrotus purpuratus	0.0000	0.0000	12
Parastichopus parvimensis	0.0000	0.0000	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.1667	0.2462	12
Alloclinus holderi	0.0000	0.0000	12
Santa Cruz Island - Gull Island South			
Macrocystis pyrifera, adult	0.1667	0.3892	12
Macrocystis pyrifera, juvenile, juvenile	0.6250	1.1702	12
Macrocystis pyrifera stipes for plants >1m	2.3750	5.8353	12
Eisenia arborea, adult	0.1667	0.3892	12
Eisenia arborea, juvenile	0.2500	0.5839	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0417	0.1443	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0833	0.1946	12
Dictyoneuropsis reticulata/Agarum fimbriatum, adult	0.1250	0.3108	12
Dictyoneuropsis reticulata/Agarum fimbriatum, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.6667	0.8616	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	3.6250	1.4162	12
Pisaster giganteus	0.3750	0.7424	12
Strongylocentrotus franciscanus	7.0417	6.0957	12
Strongylocentrotus purpuratus	23.4167	31.6313	12
Parastichopus parvimensis	0.5000	0.5641	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.2083	0.3343	12
Alloclinus holderi	0.0000	0.0000	12

2012 1-M QUADRAT DATA: MEAN NUMBER PER M_2

Species	Mean	Std. Dev.	n
Santa Cruz Island - Fry's Harbor			
Macrocystis pyrifera, adult	0.1667	0.2462	12
Macrocystis pyrifera, juvenile, juvenile	0.5417	0.8107	12
Macrocystis pyrifera stipes for plants >1m	1.8333	3.9562	12
Eisenia arborea, adult	1.3333	0.9129	12
Eisenia arborea, juvenile	0.8750	1.1307	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.7917	0.7525	12
Megastraea undosa	0.0417	0.1443	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	4.0417	1.4994	12
Pisaster giganteus	0.8750	1.0252	12
Strongylocentrotus franciscanus	0.7083	0.8908	12
Strongylocentrotus purpuratus	2.0833	2.9452	12
Parastichopus parvimensis	0.0833	0.1946	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0833	0.2887	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	2.8750	2.3172	12
Alloclinus holderi	0.0000	0.0000	12
Santa Cruz Island - Pelican Bay			
Macrocystis pyrifera, adult	0.0000	0.0000	12
Macrocystis pyrifera, juvenile, juvenile	0.0000	0.0000	12
Macrocystis pyrifera stipes for plants >1m	0.0000	0.0000	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.0000	0.0000	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.0833	0.2887	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	0.6250	0.9077	12
Pisaster giganteus	0.2917	0.4981	12
Strongylocentrotus franciscanus	4.6667	2.7661	12
Strongylocentrotus purpuratus	33.4167	26.6107	12
Parastichopus parvimensis	0.0417	0.1443	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	4.3333	2.5346	12
Alloclinus holderi	0.0000	0.0000	12

2012 1-M QUADRAT DATA: MEAN NUMBER PER M_2

Species	Mean	Std. Dev.	n
Santa Cruz Island - Scorpion Anchorage			
Macrocystis pyrifera, adult	0.0000	0.0000	12
Macrocystis pyrifera, juvenile, juvenile	0.0000	0.0000	12
Macrocystis pyrifera stipes for plants >1m	0.0000	0.0000	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.0000	0.0000	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.0000	0.0000	12
Megastraea undosa	0.0417	0.1443	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	0.8750	1.1104	12
Pisaster giganteus	0.1250	0.3108	12
Strongylocentrotus franciscanus	5.7083	4.5948	12
Strongylocentrotus purpuratus	82.2083	50.0225	12
Parastichopus parvimensis	0.6667	0.8616	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	2.4583	1.3892	12
Alloclinus holderi	0.0000	0.0000	12
Santa Cruz Island - Yellow Banks			
Macrocystis pyrifera, adult	0.0833	0.1946	12
Macrocystis pyrifera, juvenile, juvenile	3.2083	3.2366	12
Macrocystis pyrifera stipes for plants >1m	0.1667	0.3892	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.0000	0.0000	12
Pterygophora californica, adult	0.0417	0.1443	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.2500	0.3989	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.0000	0.0000	12
Megastraea undosa	0.0833	0.1946	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	3.0417	0.9876	12
Pisaster giganteus	0.1250	0.2261	12
Strongylocentrotus franciscanus	2.6667	3.4333	12
Strongylocentrotus purpuratus	1.4583	1.2515	12
Parastichopus parvimensis	0.0000	0.0000	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	2.6667	0.5365	12
Alloclinus holderi	0.0000	0.0000	12

2012 1-M QUADRAT DATA: MEAN NUMBER PER M_2

Species	Mean	Std. Dev.	n
Anacapa Island - Admiral's Reef			
Macrocystis pyrifera, adult	0.0000	0.0000	12
Macrocystis pyrifera, juvenile, juvenile	0.0000	0.0000	12
Macrocystis pyrifera stipes for plants >1m	0.0000	0.0000	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.0000	0.0000	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.2500	0.3371	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.1250	0.3108	12
Patiria miniata	1.7917	1.0967	12
Pisaster giganteus	0.1250	0.3108	12
Strongylocentrotus franciscanus	7.0000	5.2440	12
Strongylocentrotus purpuratus	5.1250	3.5041	12
Parastichopus parvimensis	0.2917	0.3965	12
Centrostephanus coronatus	0.9167	0.8483	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	2.3750	1.3672	12
Alloclinus holderi	0.0000	0.0000	12
Anacapa Island - Cathedral Cove			
Macrocystis pyrifera, adult	0.5417	0.6201	12
Macrocystis pyrifera, juvenile, juvenile	23.4583	30.5149	12
Macrocystis pyrifera stipes for plants >1m	4.0000	5.5759	12
Eisenia arborea, adult	0.2500	0.5000	12
Eisenia arborea, juvenile	0.1250	0.2261	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	10.2500	4.2507	12
Laminaria farlowii, juvenile	43.9583	31.9207	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.0833	0.1946	12
Megastraea undosa	0.3750	0.3769	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	0.0000	0.0000	12
Pisaster giganteus	0.0417	0.1443	12
Strongylocentrotus franciscanus	4.2917	4.1912	12
Strongylocentrotus purpuratus	1.6667	1.8870	12
Parastichopus parvimensis	1.5000	1.0660	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.8750	0.6440	12
Alloclinus holderi	0.0000	0.0000	12

2012 1-M QUADRAT DATA: MEAN NUMBER PER M_2

Species	Mean	Std. Dev.	n
Anacapa Island - Landing Cove			
Macrocystis pyrifera, adult	0.4583	0.7525	12
Macrocystis pyrifera, juvenile, juvenile	7.6250	9.5706	12
Macrocystis pyrifera stipes for plants >1m	2.4583	5.5287	12
Eisenia arborea, adult	1.4167	1.7299	12
Eisenia arborea, juvenile	1.5833	1.4275	12
Pterygophora californica, adult	2.3750	2.0463	12
Pterygophora californica, juvenile	13.0417	16.5096	12
Laminaria farlowii, adult	6.7500	7.8494	12
Laminaria farlowii, juvenile	24.3333	17.0432	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.0000	0.0000	12
Megastraea undosa	0.0417	0.1443	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	0.0000	0.0000	12
Pisaster giganteus	0.0000	0.0000	12
Strongylocentrotus franciscanus	2.0833	2.5301	12
Strongylocentrotus purpuratus	2.6667	3.2004	12
Parastichopus parvimensis	0.2500	0.3989	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.2083	0.3343	12
Alloclinus holderi	0.0000	0.0000	12
Santa Barbara Island - SE Sea Lion Rookery			
Macrocystis pyrifera, adult	0.0000	0.0000	12
Macrocystis pyrifera, juvenile, juvenile	0.0000	0.0000	12
Macrocystis pyrifera stipes for plants >1m	0.0000	0.0000	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.0000	0.0000	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.0000	0.0000	12
Megastraea undosa	0.0417	0.1443	12
Lithopoma gibberosa	0.0417	0.1443	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	1.1667	0.9614	12
Pisaster giganteus	0.0833	0.1946	12
Strongylocentrotus franciscanus	0.7083	0.8107	12
Strongylocentrotus purpuratus	27.6250	12.8277	12
Parastichopus parvimensis	0.1667	0.3257	12
Centrostephanus coronatus	0.1250	0.2261	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.8333	0.7487	12
Alloclinus holderi	0.0000	0.0000	12

2012 1-M QUADRAT DATA: MEAN NUMBER PER M_2

Species	Mean	Std. Dev.	n
Santa Barbara Island - Arch Point			
Macrocystis pyrifera, adult	0.0000	0.0000	12
Macrocystis pyrifera, juvenile, juvenile	0.0000	0.0000	12
Macrocystis pyrifera stipes for plants >1m	0.0000	0.0000	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.0000	0.0000	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.0833	0.2887	12
Megastraea undosa	0.2083	0.3343	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.3333	0.5774	12
Patiria miniata	3.8750	2.4506	12
Pisaster giganteus	0.2083	0.2575	12
Strongylocentrotus franciscanus	7.3333	2.5614	12
Strongylocentrotus purpuratus	88.1667	32.9720	12
Parastichopus parvimensis	0.0000	0.0000	12
Centrostephanus coronatus	0.0417	0.1443	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.2083	0.3343	12
Alloclinus holderi	0.0000	0.0000	12
Santa Barbara Island - Cat Canyon			
Macrocystis pyrifera, adult	0.0000	0.0000	12
Macrocystis pyrifera, juvenile, juvenile	0.0833	0.1946	12
Macrocystis pyrifera stipes for plants >1m	0.0000	0.0000	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.0417	0.1443	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.1250	0.3108	12
Megastraea undosa	0.2500	0.5000	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0833	0.1946	12
Patiria miniata	0.0833	0.1946	12
Pisaster giganteus	0.2083	0.3965	12
Strongylocentrotus franciscanus	3.5417	1.7381	12
Strongylocentrotus purpuratus	63.9167	18.8074	12
Parastichopus parvimensis	0.1250	0.3108	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.1667	0.3257	12
Alloclinus holderi	0.0000	0.0000	12

2012 1-M QUADRAT DATA: MEAN NUMBER PER M_2

Species	Mean	Std. Dev.	n
San Miguel Island - Miracle Mile			
Macrocystis pyrifera, adult	0.2917	0.4981	12
Macrocystis pyrifera, juvenile, juvenile	1.3750	1.6532	12
Macrocystis pyrifera stipes for plants >1m	4.0000	7.2174	12
Eisenia arborea, adult	0.2917	0.4981	12
Eisenia arborea, juvenile	0.0833	0.1946	12
Pterygophora californica, adult	0.2917	0.4502	12
Pterygophora californica, juvenile	0.6667	0.6513	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.0000	0.0000	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.2917	0.4502	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	4.0833	2.0652	12
Pisaster giganteus	0.2083	0.3343	12
Strongylocentrotus franciscanus	2.5833	4.7234	12
Strongylocentrotus purpuratus	0.2500	0.4523	12
Parastichopus parvimensis	0.1667	0.3257	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.0000	0.0000	12
Alloclinus holderi	0.0000	0.0000	12
Santa Rosa Island - Cluster Point			
Macrocystis pyrifera, adult	0.0000	0.0000	12
Macrocystis pyrifera, juvenile, juvenile	0.2917	0.4981	12
Macrocystis pyrifera stipes for plants >1m	0.0000	0.0000	12
Eisenia arborea, adult	0.3333	0.6155	12
Eisenia arborea, juvenile	0.0833	0.1946	12
Pterygophora californica, adult	0.3333	0.4438	12
Pterygophora californica, juvenile	0.2500	0.5000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.2917	0.5823	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	3.8333	2.3192	12
Pisaster giganteus	0.1667	0.3257	12
Strongylocentrotus franciscanus	4.2917	5.0787	12
Strongylocentrotus purpuratus	2.3333	2.3677	12
Parastichopus parvimensis	0.1667	0.2462	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.6667	1.1348	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.0417	0.1443	12
Alloclinus holderi	0.0000	0.0000	12

2012 1-M QUADRAT DATA: MEAN NUMBER PER M_2

Species	Mean	Std. Dev.	n
Santa Rosa Island - Trancion Canyon			
Macrocystis pyrifera, adult	0.0000	0.0000	12
Macrocystis pyrifera, juvenile, juvenile	1.5833	3.2392	12
Macrocystis pyrifera stipes for plants >1m	0.0000	0.0000	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.0000	0.0000	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.6667	1.7753	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.1667	0.3257	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	3.5000	2.2259	12
Pisaster giganteus	0.3750	0.5691	12
Strongylocentrotus franciscanus	8.0417	5.4708	12
Strongylocentrotus purpuratus	2.7083	4.2718	12
Parastichopus parvimensis	0.2917	0.3965	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.4167	0.5573	12
Alloclinus holderi	0.0000	0.0000	12
Santa Rosa Island - Chickasaw			
Macrocystis pyrifera, adult	0.5000	0.8528	12
Macrocystis pyrifera, juvenile, juvenile	0.6667	1.0731	12
Macrocystis pyrifera stipes for plants >1m	3.7500	9.1986	12
Eisenia arborea, adult	0.0417	0.1443	12
Eisenia arborea, juvenile	0.0417	0.1443	12
Pterygophora californica, adult	0.0833	0.1946	12
Pterygophora californica, juvenile	0.1667	0.3257	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.0417	0.1443	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	1.7500	0.8919	12
Pisaster giganteus	0.3750	0.7724	12
Strongylocentrotus franciscanus	4.2083	6.0131	12
Strongylocentrotus purpuratus	4.6250	6.8062	12
Parastichopus parvimensis	0.1667	0.3257	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.2083	0.3343	12
Alloclinus holderi	0.0000	0.0000	12

2012 1-M QUADRAT DATA: MEAN NUMBER PER M_2

Species	Mean	Std. Dev.	n
Santa Rosa Island - South Point			
Macrocystis pyrifera, adult	0.6667	0.4438	12
Macrocystis pyrifera, juvenile, juvenile	1.7917	1.4687	12
Macrocystis pyrifera stipes for plants >1m	5.0000	5.9122	12
Eisenia arborea, adult	0.0417	0.1443	12
Eisenia arborea, juvenile	0.0417	0.1443	12
Pterygophora californica, adult	0.8750	0.7111	12
Pterygophora californica, juvenile	0.9167	0.9252	12
Laminaria farlowii, adult	0.4167	0.5573	12
Laminaria farlowii, juvenile	1.5000	2.2259	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.1667	0.5774	12
Megastraea undosa	0.0417	0.1443	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	3.5417	2.7754	12
Pisaster giganteus	0.0000	0.0000	12
Strongylocentrotus franciscanus	0.4167	0.5149	12
Strongylocentrotus purpuratus	7.7917	10.9117	12
Parastichopus parvimensis	0.0417	0.1443	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.2083	0.3343	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.0417	0.1443	12
Alloclinus holderi	0.0000	0.0000	12
Santa Cruz Island - Devil's Peak Member			
Macrocystis pyrifera, adult	0.0000	0.0000	12
Macrocystis pyrifera, juvenile, juvenile	0.0000	0.0000	12
Macrocystis pyrifera stipes for plants >1m	0.0000	0.0000	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.0000	0.0000	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.0833	0.2887	12
Megastraea undosa	0.0833	0.1946	12
Lithopoma gibberosa	0.0833	0.1946	12
Tegula regina	0.0417	0.1443	12
Patiria miniata	1.6667	0.9614	12
Pisaster giganteus	0.0833	0.1946	12
Strongylocentrotus franciscanus	6.5000	2.8123	12
Strongylocentrotus purpuratus	21.1250	10.7177	12
Parastichopus parvimensis	0.2083	0.2575	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.8750	0.6077	12
Alloclinus holderi	0.0417	0.1443	12

2012 1-M QUADRAT DATA: MEAN NUMBER PER M_2

Species	Mean	Std. Dev.	n
Santa Cruz Island - Potato Pasture			
Macrocystis pyrifera, adult	0.0000	0.0000	12
Macrocystis pyrifera, juvenile, juvenile	0.0000	0.0000	12
Macrocystis pyrifera stipes for plants >1m	0.0000	0.0000	12
Eisenia arborea, adult	0.1667	0.5774	12
Eisenia arborea, juvenile	0.1667	0.4438	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.0417	0.1443	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.0417	0.1443	12
Tegula regina	0.0833	0.1946	12
Patiria miniata	1.7917	1.5733	12
Pisaster giganteus	0.1250	0.2261	12
Strongylocentrotus franciscanus	3.0833	1.8688	12
Strongylocentrotus purpuratus	22.4167	12.7026	12
Parastichopus parvimensis	0.7917	0.5823	12
Centrostephanus coronatus	0.1250	0.4330	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	1.3750	1.1506	12
Alloclinus holderi	0.0000	0.0000	12
Santa Cruz Island - Cavern Point			
Macrocystis pyrifera, adult	0.5000	0.4767	12
Macrocystis pyrifera, juvenile, juvenile	2.0417	2.5802	12
Macrocystis pyrifera stipes for plants >1m	7.2917	6.7906	12
Eisenia arborea, adult	1.0417	1.0544	12
Eisenia arborea, juvenile	0.7500	1.1382	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.7500	1.3399	12
Sargassum horneri, juvenile	2.4167	2.9142	12
Cypraea spadicea	0.0417	0.1443	12
Megastraea undosa	0.2083	0.3343	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	0.7500	0.6216	12
Pisaster giganteus	0.1667	0.3257	12
Strongylocentrotus franciscanus	3.3750	4.8530	12
Strongylocentrotus purpuratus	26.6250	15.4289	12
Parastichopus parvimensis	1.4167	1.2401	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	1.2083	1.2873	12
Alloclinus holderi	0.0000	0.0000	12

2012 1-M QUADRAT DATA: MEAN NUMBER PER M_2

Species	Mean	Std. Dev.	n
Santa Cruz Island - Little Scorpion			
Macrocystis pyrifera, adult	0.0000	0.0000	12
Macrocystis pyrifera, juvenile, juvenile	0.0000	0.0000	12
Macrocystis pyrifera stipes for plants >1m	0.0000	0.0000	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.0417	0.1443	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.4583	0.6895	12
Megastraea undosa	0.2083	0.5823	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.1667	0.2462	12
Patiria miniata	2.9583	0.9405	12
Pisaster giganteus	0.4583	0.8382	12
Strongylocentrotus franciscanus	15.1667	4.0245	12
Strongylocentrotus purpuratus	34.5417	23.5502	12
Parastichopus parvimensis	0.5000	0.4767	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	2.9167	1.4590	12
Alloclinus holderi	0.0000	0.0000	12
Santa Cruz Island - Pedro Reef			
Macrocystis pyrifera, adult	0.0000	0.0000	12
Macrocystis pyrifera, juvenile, juvenile	0.0417	0.1443	12
Macrocystis pyrifera stipes for plants >1m	0.0000	0.0000	12
Eisenia arborea, adult	0.1667	0.3892	12
Eisenia arborea, juvenile	0.0833	0.1946	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	1.2917	2.1998	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	1.5000	1.4142	12
Pisaster giganteus	0.3750	0.4330	12
Strongylocentrotus franciscanus	18.3333	16.7187	12
Strongylocentrotus purpuratus	104.4167	83.3764	12
Parastichopus parvimensis	0.1667	0.3257	12
Centrostephanus coronatus	0.0833	0.1946	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	3.0000	2.1638	12
Alloclinus holderi	0.0000	0.0000	12

2012 1-M QUADRAT DATA: MEAN NUMBER PER M_2

Species	Mean	Std. Dev.	n
Anacapa Island - Keyhole			
Macrocystis pyrifera, adult	0.0000	0.0000	12
Macrocystis pyrifera, juvenile, juvenile	0.0000	0.0000	12
Macrocystis pyrifera stipes for plants >1m	0.0000	0.0000	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.0000	0.0000	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.0000	0.0000	12
Megastraea undosa	0.0417	0.1443	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.1667	0.3257	12
Patiria miniata	4.7917	1.8397	12
Pisaster giganteus	0.2083	0.3343	12
Strongylocentrotus franciscanus	12.5417	7.0242	12
Strongylocentrotus purpuratus	75.0000	27.4127	12
Parastichopus parvimensis	1.0417	1.0104	12
Centrostephanus coronatus	0.3750	0.4330	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	7.9167	3.3496	12
Alloclinus holderi	0.1250	0.3108	12
Anacapa Island - East Fish Camp			
Macrocystis pyrifera, adult	0.0000	0.0000	12
Macrocystis pyrifera, juvenile, juvenile	0.4583	1.3049	12
Macrocystis pyrifera stipes for plants >1m	0.0000	0.0000	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.1667	0.3257	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.1250	0.4330	12
Megastraea undosa	0.1250	0.3108	12
Lithopoma gibberosa	0.0417	0.1443	12
Tegula regina	0.0417	0.1443	12
Patiria miniata	0.8750	0.7724	12
Pisaster giganteus	0.0000	0.0000	12
Strongylocentrotus franciscanus	9.8333	5.2929	12
Strongylocentrotus purpuratus	60.3333	33.4123	12
Parastichopus parvimensis	0.1667	0.3892	12
Centrostephanus coronatus	0.9583	1.2873	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	5.2083	5.5615	12
Alloclinus holderi	0.0417	0.1443	12

2012 1-M QUADRAT DATA: MEAN NUMBER PER M_2

Species	Mean	Std. Dev.	n
Anacapa Island - Black Sea Bass Reef			
Macrocystis pyrifera, adult	0.0000	0.0000	12
Macrocystis pyrifera, juvenile, juvenile	0.3333	1.1547	12
Macrocystis pyrifera stipes for plants >1m	0.0000	0.0000	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.1250	0.4330	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0417	0.1443	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	1.2083	4.1858	12
Cypraea spadicea	0.0000	0.0000	12
Megastraea undosa	0.0417	0.1443	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.1250	0.2261	12
Patiria miniata	0.0417	0.1443	12
Pisaster giganteus	0.0417	0.1443	12
Strongylocentrotus franciscanus	0.2917	0.7217	12
Strongylocentrotus purpuratus	4.7500	2.9194	12
Parastichopus parvimensis	1.4583	1.0967	12
Centrostephanus coronatus	0.3333	0.4438	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	2.5833	1.6765	12
Alloclinus holderi	0.0417	0.1443	12
Anacapa Island - Lighthouse			
Macrocystis pyrifera, adult	0.0000	0.0000	12
Macrocystis pyrifera, juvenile, juvenile	0.0833	0.1946	12
Macrocystis pyrifera stipes for plants >1m	0.0000	0.0000	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.0417	0.1443	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.1250	0.2261	12
Megastraea undosa	0.0833	0.1946	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	2.3750	1.7854	12
Pisaster giganteus	0.2083	0.3965	12
Strongylocentrotus franciscanus	9.2917	3.4408	12
Strongylocentrotus purpuratus	81.5833	34.9479	12
Parastichopus parvimensis	0.3333	0.3892	12
Centrostephanus coronatus	0.3750	0.6077	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	2.0000	1.0660	12
Alloclinus holderi	0.0000	0.0000	12

2012 1-M QUADRAT DATA: MEAN NUMBER PER M_2

Species	Mean	Std. Dev.	n
Santa Barbara Island - Webster's Arch			
Macrocystis pyrifera, adult	0.0000	0.0000	12
Macrocystis pyrifera, juvenile, juvenile	0.1250	0.2261	12
Macrocystis pyrifera stipes for plants >1m	0.0000	0.0000	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.0000	0.0000	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.3333	0.4924	12
Megastraea undosa	0.2500	0.5839	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.2500	0.3989	12
Patiria miniata	2.7500	1.3229	12
Pisaster giganteus	0.2917	0.3343	12
Strongylocentrotus franciscanus	4.6667	5.4993	12
Strongylocentrotus purpuratus	22.4167	26.4324	12
Parastichopus parvimensis	0.0000	0.0000	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.0000	0.0000	12
Alloclinus holderi	0.0000	0.0000	12
Santa Barbara Island - Graveyard Canyon			
Macrocystis pyrifera, adult	0.0000	0.0000	12
Macrocystis pyrifera, juvenile, juvenile	0.0417	0.1443	12
Macrocystis pyrifera stipes for plants >1m	0.0000	0.0000	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.0000	0.0000	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.1667	0.5774	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	0.4583	0.7821	12
Pisaster giganteus	0.0417	0.1443	12
Strongylocentrotus franciscanus	1.2917	1.7381	12
Strongylocentrotus purpuratus	34.5833	40.3332	12
Parastichopus parvimensis	0.1250	0.3108	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.4167	0.2887	12
Alloclinus holderi	0.0000	0.0000	12

2012 1-M QUADRAT DATA: MEAN NUMBER PER M_2

Species	Mean	Std. Dev.	n
Santa Barbara Island - Southeast Reef			
Macrocystis pyrifera, adult	0.6667	0.7785	12
Macrocystis pyrifera, juvenile, juvenile	0.5000	0.7071	12
Macrocystis pyrifera stipes for plants >1m	7.5417	10.4912	12
Eisenia arborea, adult	0.4583	0.7821	12
Eisenia arborea, juvenile	0.1667	0.3257	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0000	0.0000	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.2917	0.7217	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.0000	0.0000	12
Megastraea undosa	0.1250	0.3108	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0417	0.1443	12
Patiria miniata	0.0833	0.1946	12
Pisaster giganteus	0.1667	0.3257	12
Strongylocentrotus franciscanus	7.3333	5.5814	12
Strongylocentrotus purpuratus	5.8333	5.3186	12
Parastichopus parvimensis	1.0417	0.9160	12
Centrostephanus coronatus	0.4583	0.8649	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.3750	0.5691	12
Alloclinus holderi	0.0000	0.0000	12

Appendix C. 5 Meter Quadrat Data

2012 5-M QUADRAT DATA: MEAN NUMBER PER M^2

NOTE: *Macrocystis* Adult = >1m and haptera above the primary
***Macrocystis* Subadult = >1m and NO haptera above the primary dichotomy**

Species	Mean	Std. Dev.	n
San Miguel Island - Wyckoff Ledge			
Macrocystis pyrifera, adult	0.1050	0.1568	40
Macrocystis pyrifera, subadult	0.1250	0.2010	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.1250	0.1613	40
Pisaster ochraceus	0.0000	0.0000	40
San Miguel Island - Hare Rock			
Macrocystis pyrifera, adult	0.0200	0.0608	40
Macrocystis pyrifera, subadult	0.0250	0.0927	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.3700	0.4762	40
Pisaster ochraceus	0.0000	0.0000	40
Santa Rosa Island - Johnson's Lee North			
Macrocystis pyrifera, adult	0.4900	0.3507	40
Macrocystis pyrifera, subadult	0.4400	0.3901	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.1450	0.2935	40
Pisaster ochraceus	0.0000	0.0000	40
Santa Rosa Island - Johnson's Lee South			
Macrocystis pyrifera, adult	0.1350	0.1889	40
Macrocystis pyrifera, subadult	0.2600	0.2799	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.0900	0.1499	40
Pisaster ochraceus	0.0000	0.0000	40
Santa Rosa Island - Rodes Reef			
Macrocystis pyrifera, adult	0.0000	0.0000	40
Macrocystis pyrifera, subadult	0.0000	0.0000	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.8000	0.7633	40
Pisaster ochraceus	0.0000	0.0000	40
Santa Cruz Island - Gull Island South			
Macrocystis pyrifera, adult	0.1800	0.2163	40
Macrocystis pyrifera, subadult	0.0300	0.0853	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.2700	0.2775	40
Pisaster ochraceus	0.0000	0.0000	40

2012 5-M QUADRAT DATA: MEAN NUMBER PER M_2

NOTE: *Macrocystis* Adult = >1m and haptera above the primary
***Macrocystis* Subadult = >1m and NO haptera above the primary dichotomy**

Species	Mean	Std. Dev.	n
Santa Cruz Island - Fry's Harbor			
Macrocystis pyrifera, adult	0.1250	0.2010	40
Macrocystis pyrifera, subadult	0.1650	0.2304	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.6900	0.8164	40
Pisaster ochraceus	0.0000	0.0000	40
Santa Cruz Island - Pelican Bay			
Macrocystis pyrifera, adult	0.0000	0.0000	40
Macrocystis pyrifera, subadult	0.0000	0.0000	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.2100	0.3388	40
Pisaster ochraceus	0.0000	0.0000	40
Santa Cruz Island - Scorpion Anchorage			
Macrocystis pyrifera, adult	0.0000	0.0000	40
Macrocystis pyrifera, subadult	0.0000	0.0000	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.1800	0.2015	40
Pisaster ochraceus	0.0150	0.0700	40
Santa Cruz Island - Yellow Banks			
Macrocystis pyrifera, adult	0.0050	0.0316	40
Macrocystis pyrifera, subadult	0.6500	1.2360	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.0350	0.0770	40
Pisaster ochraceus	0.0000	0.0000	40
Anacapa Island - Admiral's Reef			
Macrocystis pyrifera, adult	0.0000	0.0000	40
Macrocystis pyrifera, subadult	0.0000	0.0000	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.0700	0.1324	40
Pisaster ochraceus	0.0000	0.0000	40
Anacapa Island - Cathedral Cove			
Macrocystis pyrifera, adult	0.1800	0.2345	40
Macrocystis pyrifera, subadult	0.4250	0.3953	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.0100	0.0441	40
Pisaster ochraceus	0.0000	0.0000	40

2012 5-M QUADRAT DATA: MEAN NUMBER PER M^2

NOTE: *Macrocystis* Adult = >1m and haptera above the primary
***Macrocystis* Subadult = >1m and NO haptera above the primary dichotomy**

Species	Mean	Std. Dev.	n
Anacapa Island - Landing Cove			
Macrocystis pyrifera, adult	0.0150	0.0533	40
Macrocystis pyrifera, subadult	0.3550	0.4038	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.0100	0.0441	40
Pisaster ochraceus	0.0000	0.0000	40
Santa Barbara Island - SE Sea Lion Rookery			
Macrocystis pyrifera, adult	0.0000	0.0000	40
Macrocystis pyrifera, subadult	0.0000	0.0000	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.0400	0.1033	40
Pisaster ochraceus	0.0000	0.0000	40
Santa Barbara Island - Arch Point			
Macrocystis pyrifera, adult	0.0000	0.0000	40
Macrocystis pyrifera, subadult	0.0000	0.0000	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.2250	0.2447	40
Pisaster ochraceus	0.0200	0.0608	40
Santa Barbara Island - Cat Canyon			
Macrocystis pyrifera, adult	0.0000	0.0000	40
Macrocystis pyrifera, subadult	0.0000	0.0000	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.1800	0.1556	40
Pisaster ochraceus	0.0050	0.0316	40
San Miguel Island - Miracle Mile			
Macrocystis pyrifera, adult	0.2600	0.2872	40
Macrocystis pyrifera, subadult	0.1900	0.2560	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.2350	0.2896	40
Pisaster ochraceus	0.0000	0.0000	40
Santa Rosa Island - Cluster Point			
Macrocystis pyrifera, adult	0.0250	0.0927	40
Macrocystis pyrifera, subadult	0.0500	0.1177	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.1350	0.2282	40
Pisaster ochraceus	0.0000	0.0000	40

2012 5-M QUADRAT DATA: MEAN NUMBER PER M_2

NOTE: *Macrocystis* Adult = >1m and haptera above the primary
***Macrocystis* Subadult = >1m and NO haptera above the primary dichotomy**

Species	Mean	Std. Dev.	n
Santa Rosa Island - Trancion Canyon			
Macrocystis pyrifera, adult	0.0050	0.0316	40
Macrocystis pyrifera, subadult	0.0100	0.0632	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.3700	0.3831	40
Pisaster ochraceus	0.0000	0.0000	40
Santa Rosa Island - Chickasaw			
Macrocystis pyrifera, adult	0.1100	0.1865	40
Macrocystis pyrifera, subadult	0.4450	0.8869	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.0600	0.1582	40
Pisaster ochraceus	0.0000	0.0000	40
Santa Rosa Island - South Point			
Macrocystis pyrifera, adult	0.1750	0.1765	40
Macrocystis pyrifera, subadult	0.4850	0.5489	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.0400	0.1033	40
Pisaster ochraceus	0.0000	0.0000	40
Santa Cruz Island - Devil's Peak Member			
Macrocystis pyrifera, adult	0.0000	0.0000	40
Macrocystis pyrifera, subadult	0.0000	0.0000	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.2450	0.1999	40
Pisaster ochraceus	0.0450	0.0959	40
Santa Cruz Island - Potato Pasture			
Macrocystis pyrifera, adult	0.0200	0.0758	40
Macrocystis pyrifera, subadult	0.0050	0.0316	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.1550	0.1894	40
Pisaster ochraceus	0.0200	0.0608	40
Santa Cruz Island - Cavern Point			
Macrocystis pyrifera, adult	0.1650	0.1805	40
Macrocystis pyrifera, subadult	0.2100	0.2933	40
Sargassum horneri, adult	0.2550	0.4707	40
Sargassum horneri, juvenile	1.7150	2.0626	40
Pisaster giganteus	0.1200	0.1682	40
Pisaster ochraceus	0.0000	0.0000	40

2012 5-M QUADRAT DATA: MEAN NUMBER PER M_2

NOTE: *Macrocystis* Adult = >1m and haptera above the primary
***Macrocystis* Subadult = >1m and NO haptera above the primary dichotomy**

Species	Mean	Std. Dev.	n
Santa Cruz Island - Little Scorpion			
Macrocystis pyrifera, adult	0.0000	0.0000	40
Macrocystis pyrifera, subadult	0.0000	0.0000	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.2450	0.2148	40
Pisaster ochraceus	0.0050	0.0316	40
Santa Cruz Island - Pedro Reef			
Macrocystis pyrifera, adult	0.0000	0.0000	40
Macrocystis pyrifera, subadult	0.0000	0.0000	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.3150	0.3167	40
Pisaster ochraceus	0.0000	0.0000	40
Anacapa Island - Keyhole			
Macrocystis pyrifera, adult	0.0000	0.0000	40
Macrocystis pyrifera, subadult	0.0000	0.0000	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.0600	0.1128	40
Pisaster ochraceus	0.0050	0.0316	40
Anacapa Island - East Fish Camp			
Macrocystis pyrifera, adult	0.0000	0.0000	40
Macrocystis pyrifera, subadult	0.0000	0.0000	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.0250	0.0809	40
Pisaster ochraceus	0.0000	0.0000	40
Anacapa Island - Black Sea Bass Reef			
Macrocystis pyrifera, adult	0.0000	0.0000	40
Macrocystis pyrifera, subadult	0.0100	0.0441	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.2350	0.9434	40
Pisaster giganteus	0.0500	0.0987	40
Pisaster ochraceus	0.0000	0.0000	40
Anacapa Island - Lighthouse			
Macrocystis pyrifera, adult	0.0000	0.0000	40
Macrocystis pyrifera, subadult	0.0000	0.0000	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.1350	0.1460	40
Pisaster ochraceus	0.0450	0.1061	40

2012 5-M QUADRAT DATA: MEAN NUMBER PER M^2

NOTE: *Macrocystis* Adult = >1m and haptera above the primary
***Macrocystis* Subadult = >1m and NO haptera above the primary dichotomy**

Species	Mean	Std. Dev.	n
Santa Barbara Island - Webster's Arch			
Macrocystis pyrifera, adult	0.0000	0.0000	40
Macrocystis pyrifera, subadult	0.0000	0.0000	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.1050	0.1974	40
Pisaster ochraceus	0.0000	0.0000	40
Santa Barbara Island - Graveyard Canyon			
Macrocystis pyrifera, adult	0.0000	0.0000	40
Macrocystis pyrifera, subadult	0.0050	0.0316	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.0450	0.0959	40
Pisaster ochraceus	0.0000	0.0000	40
Santa Barbara Island - Southeast Reef			
Macrocystis pyrifera, adult	0.3200	0.3560	40
Macrocystis pyrifera, subadult	0.2800	0.3646	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.1200	0.2210	40
Pisaster ochraceus	0.0000	0.0000	40

Appendix D. Band Transect Data

2012 BAND TRANSECT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
San Miguel Island - Wyckoff Ledge			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.1639	0.1128	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.3542	0.2180	12
Lophogorgia chilensis	0.0000	0.0000	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0750	0.0683	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.2792	0.0959	12
Megathura crenulata	0.0028	0.0065	12
Crassedoma giganteum	0.0139	0.0156	12
Aplysia californica	0.0000	0.0000	12
Cryptochiton stelleri	0.0056	0.0109	12
Pycnopodia helianthoides	0.0056	0.0109	12
Lytechinus anamesus	0.0000	0.0000	12
San Miguel Island - Hare Rock			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.0306	0.0471	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0222	0.0239	12
Lophogorgia chilensis	0.0000	0.0000	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0042	0.0104	12
Megathura crenulata	0.0000	0.0000	12
Crassedoma giganteum	0.0153	0.0181	12
Aplysia californica	0.0028	0.0096	12
Pycnopodia helianthoides	0.0653	0.0562	12
Lytechinus anamesus	0.0000	0.0000	12

2012 BAND TRANSECT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
Santa Rosa Island - Johnson's Lee North			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.1153	0.0553	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0236	0.0297	12
Lophogorgia chilensis	0.0000	0.0000	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0181	0.0251	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0014	0.0048	12
Megathura crenulata	0.0097	0.0111	12
Crassedoma giganteum	0.0167	0.0213	12
Aplysia californica	0.0056	0.0109	12
Pycnopodia helianthoides	0.0694	0.0559	12
Lytechinus anamesus	0.0000	0.0000	12
Santa Rosa Island - Johnson's Lee South			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.3431	0.0709	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.1528	0.1263	12
Lophogorgia chilensis	0.0181	0.0150	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0028	0.0065	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0042	0.0075	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0181	0.0181	12
Megathura crenulata	0.0111	0.0148	12
Crassedoma giganteum	0.0375	0.0532	12
Aplysia californica	0.0139	0.0234	12
Pycnopodia helianthoides	0.0611	0.0304	12
Lytechinus anamesus	0.0000	0.0000	12

2012 BAND TRANSECT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
Santa Rosa Island - Rodes Reef			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.3014	0.1292	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0542	0.0311	12
Lophogorgia chilensis	0.0014	0.0048	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0014	0.0048	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0472	0.0292	12
Megathura crenulata	0.0194	0.0300	12
Crassedoma giganteum	0.0153	0.0207	12
Aplysia californica	0.0042	0.0104	12
Haliotis assimilis	0.0014	0.0048	12
Pycnopodia helianthoides	0.2472	0.1339	12
Lytechinus anamesus	0.0000	0.0000	12
Santa Cruz Island - Gull Island South			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.5500	0.2281	12
Stylaster californicus	0.1819	0.2096	12
Urticina lofotensis	0.0028	0.0065	12
Lophogorgia chilensis	0.0472	0.0340	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0069	0.0132	12
Megathura crenulata	0.0222	0.0269	12
Crassedoma giganteum	0.0472	0.0437	12
Aplysia californica	0.0083	0.0207	12
Pycnopodia helianthoides	0.0597	0.0313	12
Lytechinus anamesus	0.0000	0.0000	12

2012 BAND TRANSECT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
Santa Cruz Island - Fry's Harbor			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.3042	0.1547	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.2042	0.1866	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0014	0.0048	12
Haliotis rufescens	0.0014	0.0048	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0181	0.0251	12
Megathura crenulata	0.0319	0.0329	12
Crassedoma giganteum	0.0278	0.0250	12
Aplysia californica	0.0014	0.0048	12
Pycnopodia helianthoides	0.0486	0.0372	12
Lytechinus anamesus	0.0000	0.0000	12
Santa Cruz Island - Pelican Bay			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.0403	0.0305	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.1181	0.1390	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.0125	0.0203	12
Crassedoma giganteum	0.0139	0.0234	12
Aplysia californica	0.0083	0.0167	12
Pycnopodia helianthoides	0.0042	0.0075	12
Lytechinus anamesus	0.1000	0.0879	12

2012 BAND TRANSECT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
Santa Cruz Island - Scorpion Anchorage			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.0625	0.0853	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0014	0.0048	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0278	0.0312	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0014	0.0048	12
Megathura crenulata	0.1653	0.0698	12
Crassedoma giganteum	0.0111	0.0148	12
Aplysia californica	0.0333	0.0275	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0028	0.0065	12
Santa Cruz Island - Yellow Banks			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.2167	0.1159	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0319	0.0321	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0194	0.0199	12
Panulirus interruptus	0.0028	0.0065	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0014	0.0048	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0278	0.0404	12
Megathura crenulata	0.0111	0.0130	12
Crassedoma giganteum	0.0014	0.0048	12
Aplysia californica	0.0028	0.0065	12
Pycnopodia helianthoides	0.0306	0.0274	12
Lytechinus anamesus	1.3472	1.1443	12

2012 BAND TRANSECT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
Anacapa Island - Admiral's Reef			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.0583	0.0469	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0139	0.0172	12
Lophogorgia chilensis	0.0097	0.0194	12
Muricea fruticosa	0.0042	0.0075	12
Muricea californica	0.0236	0.0288	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0319	0.0392	12
Megathura crenulata	0.5056	0.3247	12
Crassedoma giganteum	0.0194	0.0244	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0000	0.0000	12
Anacapa Island - Cathedral Cove			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.0056	0.0109	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0014	0.0048	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0181	0.0351	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0028	0.0065	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.0125	0.0247	12
Crassedoma giganteum	0.0333	0.0326	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0000	0.0000	12

2012 BAND TRANSECT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
Anacapa Island - Landing Cove			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.0167	0.0188	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0042	0.0075	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0014	0.0048	12
Panulirus interruptus	0.0097	0.0166	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0042	0.0075	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0083	0.0151	12
Megathura crenulata	0.0111	0.0164	12
Crassedoma giganteum	0.1083	0.0702	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0000	0.0000	12
Santa Barbara Island - SE Sea Lion Rookery			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.1569	0.0827	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.1097	0.0733	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0181	0.0132	12
Panulirus interruptus	0.0014	0.0048	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.0014	0.0048	12
Crassedoma giganteum	0.0014	0.0048	12
Aplysia californica	0.0014	0.0048	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0000	0.0000	12

2012 BAND TRANSECT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
Santa Barbara Island - Arch Point			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.0014	0.0048	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0028	0.0065	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0014	0.0048	12
Panulirus interruptus	0.0056	0.0109	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.0056	0.0109	12
Crassedoma giganteum	0.0139	0.0139	12
Aplysia californica	0.1417	0.0657	12
Pycnopodia helianthoides	0.0014	0.0048	12
Lytechinus anamesus	0.1069	0.1060	12
Santa Barbara Island - Cat Canyon			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.0069	0.0111	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0000	0.0000	12
Muricea fruticosa	0.0014	0.0048	12
Muricea californica	0.0028	0.0065	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0014	0.0048	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.0097	0.0132	12
Crassedoma giganteum	0.0278	0.0192	12
Aplysia californica	0.6819	0.2638	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0000	0.0000	12

2012 BAND TRANSECT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
San Miguel Island - Miracle Mile			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.1889	0.0880	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.1389	0.0760	12
Lophogorgia chilensis	0.0000	0.0000	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.6319	0.3547	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0056	0.0109	12
Megathura crenulata	0.0083	0.0087	12
Crassedoma giganteum	0.0000	0.0000	12
Aplysia californica	0.0000	0.0000	12
Cryptochiton stelleri	0.0014	0.0048	12
Pycnopodia helianthoides	0.0278	0.0148	12
Lytechinus anamesus	0.0000	0.0000	12
Santa Rosa Island - Cluster Point			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.3764	0.1488	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0972	0.0864	12
Lophogorgia chilensis	0.0000	0.0000	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0014	0.0048	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0083	0.0241	12
Megathura crenulata	0.0458	0.0493	12
Crassedoma giganteum	0.0306	0.0274	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0403	0.0321	12
Lytechinus anamesus	0.0000	0.0000	12

2012 BAND TRANSECT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
Santa Rosa Island - Trancion Canyon			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.2139	0.1105	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.1708	0.0913	12
Lophogorgia chilensis	0.0028	0.0065	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.0292	0.0257	12
Crassedoma giganteum	0.0139	0.0156	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0222	0.0269	12
Lytechinus anamesus	0.0000	0.0000	12
Santa Rosa Island - Chickasaw			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.1083	0.0441	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.1069	0.0557	12
Lophogorgia chilensis	0.0000	0.0000	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0139	0.0172	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.0111	0.0192	12
Crassedoma giganteum	0.0083	0.0151	12
Aplysia californica	0.0042	0.0144	12
Pycnopodia helianthoides	0.0069	0.0111	12
Lytechinus anamesus	0.0000	0.0000	12

2012 BAND TRANSECT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
Santa Rosa Island - South Point			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.1028	0.0721	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0681	0.0617	12
Lophogorgia chilensis	0.0000	0.0000	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0778	0.0649	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0014	0.0048	12
Megathura crenulata	0.0000	0.0000	12
Crassedoma giganteum	0.0069	0.0111	12
Aplysia californica	0.0083	0.0133	12
Pycnopodia helianthoides	0.0153	0.0230	12
Lytechinus anamesus	0.0000	0.0000	12
Santa Cruz Island - Devil's Peak Member			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.1458	0.0686	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.1736	0.3444	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0069	0.0086	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.3278	0.1783	12
Crassedoma giganteum	0.0444	0.0574	12
Aplysia californica	0.0125	0.0203	12
Pycnopodia helianthoides	0.0222	0.0217	12
Lytechinus anamesus	0.0000	0.0000	12

2012 BAND TRANSECT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
Santa Cruz Island - Potato Pasture			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.1847	0.1276	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.1361	0.0969	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0028	0.0065	12
Panulirus interruptus	0.0097	0.0166	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0222	0.0410	12
Megathura crenulata	0.0375	0.0403	12
Crassedoma giganteum	0.0403	0.0637	12
Aplysia californica	0.0139	0.0172	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0514	0.0802	12
Santa Cruz Island - Cavern Point			
Sargassum horneri, adult	1.4528	1.6200	12
Sargassum horneri, juvenile	3.2167	2.9868	12
Tethya aurantia	0.1417	0.0886	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.1847	0.1205	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0042	0.0104	12
Panulirus interruptus	0.0153	0.0207	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0083	0.0167	12
Megathura crenulata	0.0486	0.0411	12
Crassedoma giganteum	0.1264	0.1224	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0014	0.0048	12

2012 BAND TRANSECT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
Santa Cruz Island - Little Scorpion			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.0458	0.0327	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0889	0.1028	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0014	0.0048	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0028	0.0096	12
Megathura crenulata	0.4694	0.1620	12
Crassedoma giganteum	0.0153	0.0241	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.9292	0.7607	12
Santa Cruz Island - Pedro Reef			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.0417	0.0289	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.2347	0.1490	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0056	0.0109	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0028	0.0096	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0028	0.0096	12
Megathura crenulata	0.0375	0.0276	12
Crassedoma giganteum	0.0083	0.0151	12
Aplysia californica	0.0278	0.0410	12
Pycnopodia helianthoides	0.0028	0.0065	12
Lytechinus anamesus	0.8750	0.9073	12

2012 BAND TRANSECT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
Anacapa Island - Keyhole			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.0042	0.0075	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.2042	0.0546	12
Muricea fruticosa	0.0028	0.0096	12
Muricea californica	0.0250	0.0195	12
Panulirus interruptus	0.0014	0.0048	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0042	0.0075	12
Megathura crenulata	0.0403	0.0392	12
Crassedoma giganteum	0.0153	0.0166	12
Aplysia californica	0.0028	0.0065	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	1.1361	0.6698	12
Anacapa Island - East Fish Camp			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0014	0.0048	12
Tethya aurantia	0.0597	0.0641	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0125	0.0215	12
Muricea fruticosa	0.0069	0.0086	12
Muricea californica	0.0111	0.0192	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0111	0.0148	12
Megathura crenulata	0.0806	0.0619	12
Crassedoma giganteum	0.0403	0.0207	12
Aplysia californica	0.1792	0.0746	12
Pycnopodia helianthoides	0.0056	0.0109	12
Lytechinus anamesus	0.1056	0.1500	12

2012 BAND TRANSECT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
Anacapa Island - Black Sea Bass Reef			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0375	0.0990	12
Tethya aurantia	0.0347	0.0251	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0097	0.0230	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.1056	0.1090	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0014	0.0048	12
Megathura crenulata	0.0042	0.0075	12
Crassedoma giganteum	0.0097	0.0111	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0000	0.0000	12
Anacapa Island - Lighthouse			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.1292	0.0445	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0875	0.0656	12
Muricea fruticosa	0.0042	0.0075	12
Muricea californica	0.3111	0.0729	12
Panulirus interruptus	0.0014	0.0048	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.0444	0.0372	12
Crassedoma giganteum	0.0236	0.0305	12
Aplysia californica	0.0347	0.0207	12
Pycnopodia helianthoides	0.0042	0.0144	12
Lytechinus anamesus	0.1653	0.1797	12

2012 BAND TRANSECT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
Santa Barbara Island - Webster's Arch			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.0069	0.0086	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0083	0.0167	12
Muricea fruticosa	0.0042	0.0075	12
Muricea californica	0.0056	0.0148	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.0681	0.0740	12
Crassedoma giganteum	0.0056	0.0109	12
Aplysia californica	0.0500	0.0326	12
Pycnopodia helianthoides	0.0264	0.0270	12
Lytechinus anamesus	0.0000	0.0000	12
Santa Barbara Island - Graveyard Canyon			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.0639	0.0536	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0319	0.0344	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0139	0.0172	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.0000	0.0000	12
Crassedoma giganteum	0.0014	0.0048	12
Aplysia californica	0.0319	0.0297	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0000	0.0000	12

Species	Mean	Std. Dev.	n
Santa Barbara Island - Southeast Reef			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.0083	0.0151	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0069	0.0086	12
Muricea fruticosa	0.0014	0.0048	12
Muricea californica	0.0056	0.0082	12
Panulirus interruptus	0.0028	0.0096	12
Haliotis rufescens	0.0000	0.0000	12
Haliotis corrugata	0.0014	0.0048	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.0069	0.0111	12
Crassedoma giganteum	0.0403	0.0329	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0111	0.0385	12

Appendix E. Random Point Contact Data

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
San Miguel Island - Wyckoff Ledge			
Green Algae	0.0000	0.0000	15
Other Brown Algae	12.3333	10.7099	15
Desmarestia spp.	7.5000	14.8805	15
Cystoseira spp.	1.3333	2.9681	15
Macrocystis pyrifera	11.1667	9.1059	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	14.3333	15.6258	15
Laminaria farlowii	0.1667	0.6455	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	47.0000	21.7576	15
Articulated Coralline	12.1667	11.2942	15
Encrusting Coralline	22.0000	12.5783	15
Gelidium spp.	1.6667	3.3630	15
Gigartina spp.	0.1667	0.6455	15
Misc. Plant (i.e. diatom film)	1.1667	1.5999	15
Sponges	2.1667	3.2550	15
Corynactis californica	0.0000	0.0000	15
Balanophyllia elegans	0.5000	1.0351	15
Astrangia lajollaensis	0.0000	0.0000	15
Diopatra ornata	11.0000	8.0623	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	10.5000	7.3921	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	1.3333	1.8581	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	3.5000	4.0970	15
Bare	39.5000	26.2236	15
Rock	61.5000	30.8192	15
Cobble	13.0000	19.3234	15
Sand	25.5000	21.4059	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
San Miguel Island - Hare Rock			
Green Algae	10.8333	23.4457	15
Other Brown Algae	0.1667	0.6455	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	0.0000	0.0000	15
Articulated Coralline	0.1667	0.6455	15
Encrusting Coralline	70.5000	28.3820	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	0.0000	0.0000	15
Corynactis californica	1.3333	2.0845	15
Balanophyllia elegans	3.3333	4.0825	15
Astrangia lajollaensis	0.6667	1.4840	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	1.3333	5.1640	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	0.0000	0.0000	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	1.3333	2.4761	15
Bare	21.8333	29.8578	15
Rock	80.6667	32.5476	15
Cobble	8.1667	15.0139	15
Sand	11.1667	23.9953	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Rosa Island - Johnson's Lee North			
Green Algae	0.0000	0.0000	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.1667	0.6455	15
Macrocystis pyrifera	12.0000	8.6706	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	5.5000	7.1464	15
Laminaria farlowii	6.0000	7.4881	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	53.5000	6.9949	15
Articulated Coralline	2.5000	2.9881	15
Encrusting Coralline	3.0000	2.3528	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	10.6667	5.1293	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	1.6667	2.4398	15
Corynactis californica	0.1667	0.6455	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.0000	0.0000	15
Diopatra ornata	1.0000	1.8420	15
Phragmatopoma	5.3333	5.4171	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	32.8333	11.9099	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	2.5000	2.3146	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	5.8333	4.5968	15
Bare	28.8333	11.3730	15
Rock	96.3333	4.8058	15
Cobble	1.6667	2.9378	15
Sand	2.0000	3.6839	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Rosa Island - Johnson's Lee South			
Green Algae	0.0000	0.0000	15
Other Brown Algae	0.6667	1.9970	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	8.0000	6.9565	15
Eisenia arborea	3.0000	3.8032	15
Pterygophora	0.8333	1.8094	15
Laminaria farlowii	5.6667	7.1005	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	55.5000	12.6491	15
Articulated Coralline	4.0000	7.1838	15
Encrusting Coralline	7.0000	5.8401	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	7.5000	7.1339	15
Misc. Plant (i.e. diatom film)	0.3333	1.2910	15
Sponges	1.1667	2.0845	15
Corynactis californica	1.3333	3.2550	15
Balanophyllia elegans	1.8333	2.9073	15
Astrangia lajollaensis	0.6667	1.4840	15
Diopatra ornata	12.6667	10.5841	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	20.5000	10.0977	15
Diaperoecia californica	1.1667	1.2910	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	3.1667	3.0570	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	11.0000	7.1214	15
Bare	27.1667	14.0429	15
Rock	78.6667	18.6812	15
Cobble	0.8333	1.5430	15
Sand	20.5000	19.1377	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Rosa Island - Rodes Reef			
Green Algae	0.0000	0.0000	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	2.0000	2.5355	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	81.0000	8.7014	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	1.5000	1.5811	15
Corynactis californica	0.1667	0.6455	15
Balanophyllia elegans	7.0000	4.4521	15
Astrangia lajollaensis	8.0000	8.3023	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	0.0000	0.0000	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	0.0000	0.0000	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	0.3333	0.8797	15
Bare	2.0000	2.7058	15
Rock	88.1667	14.5917	15
Cobble	10.3333	13.7538	15
Sand	1.5000	2.0702	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Cruz Island - Gull Island South			
Green Algae	0.1667	0.6455	15
Other Brown Algae	3.5000	8.3345	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.1667	0.6455	15
Macrocystis pyrifera	5.6667	7.4082	15
Eisenia arborea	4.0000	6.6682	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	29.1667	17.9201	15
Articulated Coralline	0.5000	1.9365	15
Encrusting Coralline	29.5000	11.3861	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	0.5000	1.4015	15
Sponges	2.3333	2.2093	15
Corynactis californica	4.1667	6.2440	15
Balanophyllia elegans	2.1667	2.2887	15
Astrangia lajollaensis	1.3333	1.5999	15
Diopatra ornata	3.6667	8.4972	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	7.6667	10.7930	15
Diaperoecia californica	2.5000	3.4069	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	5.8333	5.9512	15
Tunicates	0.5000	1.0351	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	5.3333	5.8146	15
Bare	25.8333	14.9603	15
Rock	96.1667	9.7223	15
Cobble	0.5000	1.9365	15
Sand	3.3333	9.1450	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Santa Cruz Island - Fry's Harbor

Species	Mean	Std. Dev.	n
Green Algae	0.0000	0.0000	15
Other Brown Algae	2.8333	3.1149	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	4.0000	5.6537	15
Eisenia arborea	22.5000	22.1198	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	33.3333	17.7700	15
Articulated Coralline	0.1667	0.6455	15
Encrusting Coralline	15.3333	6.1866	15
Gelidium spp.	0.8333	2.0412	15
Gigartina spp.	1.5000	3.3806	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	0.3333	0.8797	15
Corynactis californica	0.5000	1.4015	15
Balanophyllia elegans	0.3333	1.2910	15
Astrangia lajollaensis	12.8333	5.7373	15
Diopatra ornata	4.3333	6.3714	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	27.0000	13.6996	15
Diaperoecia californica	0.1667	0.6455	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	0.5000	1.0351	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	13.5000	8.2808	15
Bare	17.3333	13.4452	15
Rock	89.0000	10.8891	15
Cobble	3.6667	5.1640	15
Sand	7.3333	8.5287	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Cruz Island - Pelican Bay			
Green Algae	0.0000	0.0000	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	0.5000	1.4015	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	23.1667	11.5522	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	0.0000	0.0000	15
Corynactis californica	0.3333	0.8797	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	15.8333	7.7152	15
Diopatra ornata	0.5000	1.4015	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	0.1667	0.6455	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	0.0000	0.0000	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	10.1667	6.3010	15
Bare	48.8333	17.4711	15
Rock	49.5000	21.3433	15
Cobble	28.6667	17.2396	15
Sand	21.8333	13.9983	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Cruz Island - Scorpion Anchorage			
Green Algae	0.3333	0.8797	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	0.8333	1.5430	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	58.3333	13.8444	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	2.8333	3.1149	15
Sponges	0.0000	0.0000	15
Corynactis californica	2.1667	4.5185	15
Balanophyllia elegans	0.1667	0.6455	15
Astrangia lajollaensis	0.6667	1.4840	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	0.3333	1.2910	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	0.0000	0.0000	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	7.6667	4.4788	15
Bare	30.1667	14.7438	15
Rock	92.0000	11.4252	15
Cobble	1.6667	2.4398	15
Sand	6.3333	11.6061	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Santa Cruz Island - Yellow Banks

Species	Mean	Std. Dev.	n
Green Algae	0.3333	1.2910	15
Other Brown Algae	17.5000	10.7736	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	2.5000	4.7246	15
Macrocystis pyrifera	10.6667	12.4809	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	1.1667	2.0845	15
Laminaria farlowii	0.8333	1.8094	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	5.0000	4.6291	15
Articulated Coralline	5.1667	5.3005	15
Encrusting Coralline	63.5000	8.0623	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	6.3333	6.3994	15
Sponges	0.5000	1.0351	15
Corynactis californica	0.1667	0.6455	15
Balanophyllia elegans	0.1667	0.6455	15
Astrangia lajollaensis	3.6667	2.6502	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	0.8333	1.5430	15
Diaperoecia californica	0.1667	0.6455	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.3333	0.8797	15
Tunicates	0.1667	0.6455	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	10.0000	9.0633	15
Bare	18.8333	10.5588	15
Rock	80.0000	21.6094	15
Cobble	17.5000	19.2029	15
Sand	2.5000	4.4320	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Anacapa Island - Admiral's Reef			
Green Algae	0.0000	0.0000	15
Other Brown Algae	0.1667	0.6455	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	3.8333	4.8058	15
Articulated Coralline	0.5000	1.0351	15
Encrusting Coralline	60.1667	15.4245	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	1.5000	5.8095	15
Sponges	0.5000	1.0351	15
Corynactis californica	4.5000	5.9911	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.3333	0.8797	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.3333	0.8797	15
Bryozoans, other	0.0000	0.0000	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	72.0000	37.0714	15
Tunicates	0.3333	0.8797	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	11.3333	7.8982	15
Bare	27.0000	17.9583	15
Rock	86.5000	21.5639	15
Cobble	2.6667	6.3714	15
Sand	10.8333	16.0820	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Anacapa Island - Cathedral Cove			
Green Algae	1.1667	3.2550	15
Other Brown Algae	2.1667	2.4761	15
Desmarestia spp.	0.1667	0.6455	15
Cystoseira spp.	14.6667	12.6020	15
Macrocystis pyrifera	29.0000	21.6259	15
Eisenia arborea	3.8333	6.5374	15
Pterygophora	0.1667	0.6455	15
Laminaria farlowii	50.3333	26.4384	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	10.1667	10.0208	15
Articulated Coralline	14.8333	8.3166	15
Encrusting Coralline	32.0000	12.7546	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.1667	0.6455	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	1.8333	3.9491	15
Corynactis californica	0.1667	0.6455	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.1667	0.6455	15
Diopatra ornata	9.5000	12.6844	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.6667	1.1443	15
Bryozoans, other	6.6667	5.4006	15
Diaperoecia californica	1.3333	2.2887	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	2.5000	5.3452	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	5.0000	5.0000	15
Bare	29.3333	13.3117	15
Rock	79.0000	16.3609	15
Cobble	5.6667	6.5101	15
Sand	15.3333	17.3171	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Anacapa Island - Landing Cove			
Green Algae	0.1667	0.6455	15
Other Brown Algae	1.1667	3.3894	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	1.6667	3.6187	15
Macrocystis pyrifera	15.3333	14.4502	15
Eisenia arborea	36.5000	24.7632	15
Pterygophora	27.0000	27.7939	15
Laminaria farlowii	36.0000	26.7562	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	38.8333	22.3780	15
Articulated Coralline	13.0000	6.6279	15
Encrusting Coralline	27.1667	19.7047	15
Gelidium spp.	18.0000	26.3933	15
Gigartina spp.	0.6667	1.7593	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	7.1667	11.3730	15
Corynactis californica	4.6667	7.6687	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.6667	1.4840	15
Diopatra ornata	1.1667	2.8137	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.1667	0.6455	15
Bryozoans, other	27.0000	13.0316	15
Diaperoecia californica	8.1667	10.5841	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	6.5000	7.1214	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	5.8333	7.5986	15
Bare	16.5000	21.9537	15
Rock	80.1667	24.0436	15
Cobble	8.5000	10.5982	15
Sand	11.3333	17.2654	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Barbara Island - SE Sea Lion Rookery			
Green Algae	0.0000	0.0000	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	0.1667	0.6455	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	83.0000	18.2542	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	0.6667	1.1443	15
Corynactis californica	1.0000	2.0702	15
Balanophyllia elegans	0.1667	0.6455	15
Astrangia lajollaensis	0.0000	0.0000	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	0.5000	1.0351	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	86.1667	8.8573	15
Tunicates	0.3333	0.8797	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	2.6667	2.9073	15
Bare	13.5000	20.2396	15
Rock	88.3333	17.1825	15
Cobble	7.8333	10.6849	15
Sand	3.8333	12.8128	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Barbara Island - Arch Point			
Green Algae	0.1667	0.6455	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	3.1667	2.2093	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	52.5000	15.5552	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	0.0000	0.0000	15
Corynactis californica	8.6667	8.0659	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.0000	0.0000	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	0.5000	1.0351	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	0.0000	0.0000	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	10.8333	7.4801	15
Bare	25.6667	10.9163	15
Rock	91.6667	10.7183	15
Cobble	8.1667	10.5419	15
Sand	0.1667	0.6455	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Santa Barbara Island - Cat Canyon

Species	Mean	Std. Dev.	n
Green Algae	0.0000	0.0000	15
Other Brown Algae	1.1667	3.2550	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	2.1667	1.8581	15
Articulated Coralline	0.1667	0.6455	15
Encrusting Coralline	35.3333	13.1566	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	0.6667	1.9970	15
Sponges	0.1667	0.6455	15
Corynactis californica	3.8333	6.8704	15
Balanophyllia elegans	0.5000	1.4015	15
Astrangia lajollaensis	1.0000	1.5811	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	14.0000	21.5017	15
Serpulorbis	3.5000	3.5102	15
Bryozoans, other	1.8333	2.7495	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	1.5000	1.8420	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	10.8333	5.9512	15
Bare	25.1667	11.2784	15
Rock	96.8333	6.0109	15
Cobble	1.3333	2.8137	15
Sand	1.8333	4.4788	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

San Miguel Island - Miracle Mile

Species	Mean	Std. Dev.	n
Green Algae	0.0000	0.0000	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	2.1667	4.4186	15
Macrocystis pyrifera	15.8333	13.5181	15
Eisenia arborea	5.5000	8.6706	15
Pterygophora	3.0000	3.3004	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	71.5000	19.8836	15
Articulated Coralline	37.5000	17.3205	15
Encrusting Coralline	51.0000	9.9911	15
Gelidium spp.	2.5000	6.4087	15
Gigartina spp.	0.5000	1.0351	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	8.8333	7.0626	15
Corynactis californica	1.6667	2.7817	15
Balanophyllia elegans	4.3333	4.7684	15
Astrangia lajollaensis	0.5000	1.0351	15
Diopatra ornata	0.3333	0.8797	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	18.1667	7.7036	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	3.8333	4.4186	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	24.0000	14.3241	15
Bare	16.0000	10.9707	15
Rock	88.6667	20.6775	15
Cobble	7.8333	19.6820	15
Sand	3.5000	5.3285	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Rosa Island - Cluster Point			
Green Algae	0.0000	0.0000	15
Other Brown Algae	3.1667	4.3780	15
Desmarestia spp.	2.3333	3.4675	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	1.1667	2.2887	15
Eisenia arborea	5.0000	10.7321	15
Pterygophora	11.8333	10.6262	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	58.6667	19.8401	15
Articulated Coralline	3.1667	3.3363	15
Encrusting Coralline	27.6667	17.7399	15
Gelidium spp.	0.1667	0.6455	15
Gigartina spp.	0.5000	1.4015	15
Misc. Plant (i.e. diatom film)	0.3333	1.2910	15
Sponges	6.0000	4.8917	15
Corynactis californica	1.0000	2.0702	15
Balanophyllia elegans	2.1667	2.9681	15
Astrangia lajollaensis	0.3333	0.8797	15
Diopatra ornata	6.5000	9.9911	15
Phragmatopoma	0.3333	1.2910	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	0.8333	1.8094	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	3.6667	3.7639	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	2.5000	2.9881	15
Bare	23.6667	20.5258	15
Rock	77.6667	32.2444	15
Cobble	10.1667	17.6895	15
Sand	12.1667	17.8252	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Rosa Island - Trancion Canyon			
Green Algae	0.3333	0.8797	15
Other Brown Algae	1.5000	2.8031	15
Desmarestia spp.	2.3333	9.0370	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.6667	1.4840	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.1667	0.6455	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	16.1667	7.3111	15
Articulated Coralline	3.5000	5.2440	15
Encrusting Coralline	64.3333	15.4535	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.5000	1.4015	15
Misc. Plant (i.e. diatom film)	4.0000	3.3806	15
Sponges	0.5000	1.0351	15
Corynactis californica	1.1667	2.2887	15
Balanophyllia elegans	2.5000	2.5000	15
Astrangia lajollaensis	1.6667	2.2493	15
Diopatra ornata	0.6667	1.9970	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	1.8333	2.2093	15
Diaperoecia californica	0.1667	0.6455	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	1.0000	1.5811	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	5.5000	5.0178	15
Bare	13.1667	16.6494	15
Rock	90.6667	15.3083	15
Cobble	4.5000	7.1464	15
Sand	4.8333	13.1430	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Rosa Island - Chickasaw			
Green Algae	0.0000	0.0000	15
Other Brown Algae	2.3333	5.3841	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	2.6667	4.1690	15
Macrocystis pyrifera	20.6667	20.6473	15
Eisenia arborea	0.1667	0.6455	15
Pterygophora	7.8333	18.1725	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	61.1667	20.1527	15
Articulated Coralline	7.5000	7.1962	15
Encrusting Coralline	21.1667	12.8475	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	1.8333	3.0570	15
Misc. Plant (i.e. diatom film)	0.6667	1.9970	15
Sponges	0.8333	1.5430	15
Corynactis californica	2.0000	7.0837	15
Balanophyllia elegans	0.8333	1.2199	15
Astrangia lajollaensis	0.3333	0.8797	15
Diopatra ornata	15.1667	17.4096	15
Phragmatopoma	8.5000	7.6649	15
Serpulorbis	0.6667	1.4840	15
Bryozoans, other	15.8333	9.1937	15
Diaperoecia californica	0.6667	1.4840	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.1667	0.6455	15
Tunicates	13.0000	10.0089	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	8.5000	5.0709	15
Bare	18.3333	16.4117	15
Rock	76.3333	23.1815	15
Cobble	0.0000	0.0000	15
Sand	23.6667	23.1815	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Rosa Island - South Point			
Green Algae	0.0000	0.0000	15
Other Brown Algae	0.6667	1.4840	15
Desmarestia spp.	2.1667	2.2887	15
Cystoseira spp.	4.6667	6.2583	15
Macrocystis pyrifera	20.6667	20.4954	15
Eisenia arborea	0.1667	0.6455	15
Pterygophora	37.0000	24.1313	15
Laminaria farlowii	15.6667	12.9720	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	71.6667	12.4881	15
Articulated Coralline	11.6667	7.4202	15
Encrusting Coralline	26.3333	9.1548	15
Gelidium spp.	0.1667	0.6455	15
Gigartina spp.	2.8333	3.6433	15
Misc. Plant (i.e. diatom film)	0.8333	2.0412	15
Sponges	17.3333	10.2411	15
Corynactis californica	0.0000	0.0000	15
Balanophyllia elegans	0.3333	0.8797	15
Astrangia lajollaensis	0.0000	0.0000	15
Diopatra ornata	7.8333	10.5164	15
Phragmatopoma	1.1667	4.5185	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	7.6667	5.0415	15
Diaperoecia californica	0.5000	1.0351	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.3333	0.8797	15
Tunicates	6.8333	7.1631	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	12.1667	6.3293	15
Bare	22.0000	15.7605	15
Rock	78.5000	16.8184	15
Cobble	1.5000	3.9866	15
Sand	20.0000	16.9558	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Cruz Island - Devil's Peak Member			
Green Algae	0.0000	0.0000	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	4.6667	3.6433	15
Articulated Coralline	0.3333	0.8797	15
Encrusting Coralline	58.0000	12.1450	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	0.3333	0.8797	15
Sponges	0.3333	0.8797	15
Corynactis californica	0.6667	1.4840	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	7.0000	6.2821	15
Diopatra ornata	0.5000	1.0351	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	3.0000	2.8661	15
Diaperoecia californica	1.3333	1.5999	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.1667	0.6455	15
Tunicates	0.5000	1.4015	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	12.1667	5.8909	15
Bare	19.1667	6.5918	15
Rock	92.1667	6.7392	15
Cobble	3.1667	4.5774	15
Sand	4.6667	4.8058	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Santa Cruz Island - Potato Pasture

Species	Mean	Std. Dev.	n
Green Algae	0.3333	0.8797	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.6667	2.5820	15
Eisenia arborea	4.6667	13.1226	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	12.0000	6.8269	15
Articulated Coralline	0.3333	0.8797	15
Encrusting Coralline	56.0000	18.4633	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	1.0000	1.5811	15
Sponges	0.6667	1.1443	15
Corynactis californica	2.3333	4.4788	15
Balanophyllia elegans	1.6667	2.4398	15
Astrangia lajollaensis	4.3333	4.0606	15
Diopatra ornata	0.5000	1.0351	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.3333	1.2910	15
Bryozoans, other	4.5000	5.1060	15
Diaperoecia californica	4.8333	7.2251	15
Pachythyone rubra	3.6667	9.6763	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	1.8333	2.7495	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	11.8333	8.1540	15
Bare	11.1667	10.6849	15
Rock	85.3333	21.2734	15
Cobble	14.0000	20.3935	15
Sand	0.6667	2.5820	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Cruz Island - Cavern Point			
Green Algae	0.6667	1.9970	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	13.0000	12.6844	15
Eisenia arborea	14.5000	13.4364	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	9.3333	11.3965	15
Other Reds	29.8333	11.1189	15
Articulated Coralline	2.6667	4.0606	15
Encrusting Coralline	43.0000	16.8290	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	0.8333	1.2199	15
Corynactis californica	0.0000	0.0000	15
Balanophyllia elegans	3.1667	3.8344	15
Astrangia lajollaensis	1.8333	3.1997	15
Diopatra ornata	5.0000	7.4402	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	20.3333	13.8186	15
Diaperoecia californica	13.3333	11.4434	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	3.8333	5.2497	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	18.8333	11.5289	15
Bare	11.1667	11.7969	15
Rock	86.8333	13.1430	15
Cobble	5.0000	9.4962	15
Sand	8.1667	10.4140	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Santa Cruz Island - Little Scorpion

Species	Mean	Std. Dev.	n
Green Algae	0.0000	0.0000	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	6.3333	4.6162	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	39.0000	7.2457	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	0.1667	0.6455	15
Corynactis californica	2.1667	3.8807	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	11.3333	8.1759	15
Diopatra ornata	0.1667	0.6455	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.8333	1.5430	15
Bryozoans, other	0.5000	1.0351	15
Diaperoecia californica	0.6667	1.1443	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	0.6667	1.4840	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	21.0000	9.3922	15
Bare	22.6667	13.5115	15
Rock	85.0000	9.8652	15
Cobble	13.8333	9.7681	15
Sand	1.1667	2.6502	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Santa Cruz Island - Pedro Reef

Species	Mean	Std. Dev.	n
Green Algae	0.5000	1.4015	15
Other Brown Algae	1.3333	2.6502	15
Desmarestia spp.	0.1667	0.6455	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.3333	1.2910	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	3.8333	4.1043	15
Articulated Coralline	1.5000	2.4640	15
Encrusting Coralline	24.6667	11.2942	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	10.0000	6.8139	15
Sponges	0.0000	0.0000	15
Corynactis californica	26.3333	20.0861	15
Balanophyllia elegans	2.1667	2.8137	15
Astrangia lajollaensis	2.3333	4.7684	15
Diopatra ornata	0.5000	1.0351	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	0.1667	0.6455	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.1667	0.6455	15
Tunicates	0.0000	0.0000	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	3.6667	4.2117	15
Bare	29.8333	14.1253	15
Rock	95.0000	8.6603	15
Cobble	1.5000	3.3806	15
Sand	3.5000	6.8661	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Anacapa Island - Keyhole			
Green Algae	0.0000	0.0000	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	0.3333	0.8797	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	41.6667	10.4654	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	0.1667	0.6455	15
Sponges	0.0000	0.0000	15
Corynactis californica	1.5000	2.0702	15
Balanophyllia elegans	0.8333	1.2199	15
Astrangia lajollaensis	6.1667	4.4186	15
Diopatra ornata	1.6667	3.9716	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.1667	0.6455	15
Bryozoans, other	1.6667	2.2493	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.3333	0.8797	15
Tunicates	0.0000	0.0000	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	22.1667	10.3452	15
Bare	30.8333	14.1316	15
Rock	75.0000	20.3540	15
Cobble	11.8333	10.5841	15
Sand	13.1667	13.9983	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Anacapa Island - East Fish Camp			
Green Algae	0.1667	0.6455	15
Other Brown Algae	0.1667	0.6455	15
Desmarestia spp.	0.1667	0.6455	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.5000	1.4015	15
Eisenia arborea	0.1667	0.6455	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	4.6667	6.9991	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	36.8333	11.3573	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	0.0000	0.0000	15
Corynactis californica	15.5000	13.5357	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.1667	0.6455	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	0.0000	0.0000	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	24.0000	23.6568	15
Tunicates	0.3333	1.2910	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	2.3333	3.0570	15
Bare	43.6667	15.8076	15
Rock	82.6667	15.7680	15
Cobble	2.8333	3.3894	15
Sand	14.5000	15.7888	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Anacapa Island - Black Sea Bass Reef

Species	Mean	Std. Dev.	n
Green Algae	0.1667	0.6455	15
Other Brown Algae	0.3333	0.8797	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.5000	1.4015	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	7.0000	6.7612	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	72.1667	10.4739	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	2.8333	4.8058	15
Sponges	0.8333	1.5430	15
Corynactis californica	6.3333	6.1140	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.0000	0.0000	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	2.8333	3.8807	15
Diaperoecia californica	0.1667	0.6455	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	86.1667	17.5984	15
Tunicates	0.1667	0.6455	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	0.1667	0.6455	15
Bare	9.1667	10.4654	15
Rock	82.8333	15.4361	15
Cobble	12.3333	12.6585	15
Sand	4.8333	6.8444	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Anacapa Island - Lighthouse			
Green Algae	0.1667	0.6455	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	2.6667	5.7061	15
Articulated Coralline	0.5000	1.0351	15
Encrusting Coralline	38.6667	10.9735	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	0.5000	1.4015	15
Sponges	0.8333	1.2199	15
Corynactis californica	8.5000	12.2766	15
Balanophyllia elegans	0.1667	0.6455	15
Astrangia lajollaensis	4.1667	5.1467	15
Diopatra ornata	0.1667	0.6455	15
Phragmatopoma	0.1667	0.6455	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	1.0000	2.8031	15
Diaperoecia californica	0.1667	0.6455	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	3.1667	2.7495	15
Tunicates	0.5000	1.0351	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	15.0000	10.3510	15
Bare	34.3333	16.2971	15
Rock	73.1667	14.1569	15
Cobble	14.6667	8.8068	15
Sand	12.1667	10.7681	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Barbara Island - Webster's Arch			
Green Algae	5.8333	8.1101	15
Other Brown Algae	2.6667	3.3363	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	22.8333	8.9576	15
Articulated Coralline	0.5000	1.0351	15
Encrusting Coralline	62.6667	15.2206	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	8.5000	5.8095	15
Sponges	2.5000	5.3452	15
Corynactis californica	4.5000	6.2106	15
Balanophyllia elegans	0.3333	0.8797	15
Astrangia lajollaensis	0.1667	0.6455	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	4.0000	3.5102	15
Diaperoecia californica	0.5000	1.0351	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	12.6667	13.9344	15
Tunicates	1.3333	2.0845	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	6.0000	4.7056	15
Bare	7.5000	7.0076	15
Rock	97.6667	4.9522	15
Cobble	2.3333	4.9522	15
Sand	0.0000	0.0000	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Barbara Island - Graveyard Canyon			
Green Algae	0.1667	0.6455	15
Other Brown Algae	10.0000	12.8869	15
Desmarestia spp.	3.3333	6.4550	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	6.8333	8.5808	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	24.1667	17.2085	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	3.6667	10.3883	15
Sponges	0.6667	1.1443	15
Corynactis californica	0.0000	0.0000	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	3.6667	6.6726	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	0.0000	0.0000	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	48.1667	38.3646	15
Tunicates	0.0000	0.0000	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	4.0000	6.5329	15
Bare	56.3333	20.9563	15
Rock	48.8333	25.1223	15
Cobble	3.6667	8.9576	15
Sand	47.5000	24.5495	15

2012 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Santa Barbara Island - Southeast Reef

Species	Mean	Std. Dev.	n
Green Algae	0.3333	0.8797	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.8333	1.8094	15
Macrocystis pyrifera	13.3333	15.7170	15
Eisenia arborea	2.3333	4.0606	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	12.6667	8.7865	15
Articulated Coralline	6.8333	6.2297	15
Encrusting Coralline	19.1667	10.6765	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	0.5000	1.0351	15
Sponges	6.5000	5.2440	15
Corynactis californica	2.1667	2.0845	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.1667	0.6455	15
Diopatra ornata	2.5000	5.0000	15
Phragmatopoma	1.3333	2.0845	15
Serpulorbis	0.8333	1.2199	15
Bryozoans, other	21.0000	10.3854	15
Diaperoecia californica	1.1667	1.8581	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	20.6667	11.1990	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	15.8333	8.2736	15
Bare	9.6667	6.9351	15
Rock	85.6667	11.8949	15
Cobble	4.3333	4.2748	15
Sand	10.0000	9.7285	15

Appendix F. Fish Transect Data

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
San Miguel Island - Wyckoff Ledge				
Chromis punctipinnis, adult	7/25/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	7/25/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	7/25/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	7/25/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	7/25/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	7/25/2012	0.0000	0.0000	4
Girella nigricans, adult	7/25/2012	0.0000	0.0000	4
Girella nigricans, juvenile	7/25/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	7/25/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	7/25/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	7/25/2012	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	7/25/2012	0.0000	0.0000	4
Oxyjulis californica, adult	7/25/2012	6.5000	13.0000	4
Oxyjulis californica, juvenile	7/25/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	7/25/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	7/25/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	7/25/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	7/25/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	7/25/2012	0.5000	1.0000	4
Sebastes atrovirens, juvenile	7/25/2012	0.0000	0.0000	4
Sebastes mystinus, adult	7/25/2012	0.5000	1.0000	4
Sebastes mystinus, juvenile	7/25/2012	0.0000	0.0000	4
Sebastes serranoides, adult	7/25/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	7/25/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	7/25/2012	0.5000	0.5774	4
Semicossyphus pulcher, juvenile	7/25/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	7/25/2012	0.0000	0.0000	4
San Miguel Island - Hare Rock				
Chromis punctipinnis, adult	8/30/2012	2.2500	2.6300	4
Chromis punctipinnis, juvenile	8/30/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	8/30/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	8/30/2012	0.2500	0.5000	4
Embiotoca lateralis, adult	8/30/2012	0.5000	0.5774	4
Embiotoca lateralis, juvenile	8/30/2012	0.2500	0.5000	4
Girella nigricans, adult	8/30/2012	0.0000	0.0000	4
Girella nigricans, juvenile	8/30/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	8/30/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	8/30/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	8/30/2012	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	8/30/2012	0.0000	0.0000	4
Oxyjulis californica, adult	8/30/2012	2.2500	2.8723	4
Oxyjulis californica, juvenile	8/30/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	8/30/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	8/30/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	8/30/2012	0.7500	0.9574	4
Rhacochilus vacca, juvenile	8/30/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	8/30/2012	1.0000	0.8165	4
Sebastes atrovirens, juvenile	8/30/2012	0.0000	0.0000	4
Sebastes mystinus, adult	8/30/2012	4.0000	2.5820	4
Sebastes mystinus, juvenile	8/30/2012	0.7500	0.9574	4
Sebastes serranoides, adult	8/30/2012	1.2500	1.5000	4
Sebastes serranoides, juvenile	8/30/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	8/30/2012	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	8/30/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	8/30/2012	0.0000	0.0000	4

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Rosa Island - Johnson's Lee North				
Chromis punctipinnis, adult	8/28/2012	0.7500	1.5000	4
Chromis punctipinnis, juvenile	8/28/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	8/28/2012	0.2500	0.5000	4
Embiotoca jacksoni, juvenile	8/28/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	8/28/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	8/28/2012	0.2500	0.5000	4
Girella nigricans, adult	8/28/2012	0.0000	0.0000	4
Girella nigricans, juvenile	8/28/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	8/28/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	8/28/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	8/28/2012	0.5000	0.5774	4
Hypsypops rubicundus, juvenile	8/28/2012	0.0000	0.0000	4
Oxyjulis californica, adult	8/28/2012	1.7500	2.0616	4
Oxyjulis californica, juvenile	8/28/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	8/28/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	8/28/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	8/28/2012	0.2500	0.5000	4
Rhacochilus vacca, juvenile	8/28/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	8/28/2012	0.5000	1.0000	4
Sebastes atrovirens, juvenile	8/28/2012	0.0000	0.0000	4
Sebastes mystinus, adult	8/28/2012	0.0000	0.0000	4
Sebastes mystinus, juvenile	8/28/2012	4.7500	6.6018	4
Sebastes serranoides, adult	8/28/2012	0.2500	0.5000	4
Sebastes serranoides, juvenile	8/28/2012	2.0000	2.3094	4
Semicossyphus pulcher, female	8/28/2012	1.2500	1.2583	4
Semicossyphus pulcher, juvenile	8/28/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	8/28/2012	0.0000	0.0000	4
Santa Rosa Island - Johnson's Lee South				
Chromis punctipinnis, adult	7/10/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	7/10/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	7/10/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	7/10/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	7/10/2012	0.7500	0.9574	4
Embiotoca lateralis, juvenile	7/10/2012	0.0000	0.0000	4
Girella nigricans, adult	7/10/2012	0.0000	0.0000	4
Girella nigricans, juvenile	7/10/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	7/10/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	7/10/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	7/10/2012	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	7/10/2012	0.0000	0.0000	4
Oxyjulis californica, adult	7/10/2012	1.2500	2.5000	4
Oxyjulis californica, juvenile	7/10/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	7/10/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	7/10/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	7/10/2012	2.0000	0.0000	4
Rhacochilus vacca, juvenile	7/10/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	7/10/2012	0.5000	1.0000	4
Sebastes atrovirens, juvenile	7/10/2012	0.0000	0.0000	4
Sebastes mystinus, adult	7/10/2012	0.7500	0.9574	4
Sebastes mystinus, juvenile	7/10/2012	2.7500	2.6300	4
Sebastes serranoides, adult	7/10/2012	0.2500	0.5000	4
Sebastes serranoides, juvenile	7/10/2012	0.2500	0.5000	4
Semicossyphus pulcher, female	7/10/2012	1.2500	0.9574	4
Semicossyphus pulcher, juvenile	7/10/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	7/10/2012	0.0000	0.0000	4

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Rosa Island - Rodes Reef				
Chromis punctipinnis, adult	7/24/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	7/24/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	7/24/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	7/24/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	7/24/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	7/24/2012	0.5000	1.0000	4
Girella nigricans, adult	7/24/2012	0.0000	0.0000	4
Girella nigricans, juvenile	7/24/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	7/24/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	7/24/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	7/24/2012	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	7/24/2012	0.0000	0.0000	4
Oxyjulis californica, adult	7/24/2012	0.2500	0.5000	4
Oxyjulis californica, juvenile	7/24/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	7/24/2012	0.2500	0.5000	4
Paralabrax clathratus, juvenile	7/24/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	7/24/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	7/24/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	7/24/2012	0.2500	0.5000	4
Sebastes atrovirens, juvenile	7/24/2012	0.0000	0.0000	4
Sebastes mystinus, adult	7/24/2012	0.7500	0.9574	4
Sebastes mystinus, juvenile	7/24/2012	1.7500	1.5000	4
Sebastes serranoides, adult	7/24/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	7/24/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	7/24/2012	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	7/24/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	7/24/2012	0.0000	0.0000	4
Santa Cruz Island - Gull Island South				
Chromis punctipinnis, adult	6/11/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	6/11/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	6/11/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	6/11/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	6/11/2012	0.2500	0.5000	4
Embiotoca lateralis, juvenile	6/11/2012	0.0000	0.0000	4
Girella nigricans, adult	6/11/2012	0.0000	0.0000	4
Girella nigricans, juvenile	6/11/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	6/11/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	6/11/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	6/11/2012	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	6/11/2012	0.0000	0.0000	4
Oxyjulis californica, adult	6/11/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	6/11/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	6/11/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	6/11/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	6/11/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	6/11/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	6/11/2012	1.5000	1.0000	4
Sebastes atrovirens, juvenile	6/11/2012	0.0000	0.0000	4
Sebastes mystinus, adult	6/11/2012	0.5000	0.5774	4
Sebastes mystinus, juvenile	6/11/2012	42.2500	38.7933	4
Sebastes serranoides, adult	6/11/2012	0.2500	0.5000	4
Sebastes serranoides, juvenile	6/11/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	6/11/2012	1.7500	1.2583	4
Semicossyphus pulcher, juvenile	6/11/2012	0.2500	0.5000	4
Semicossyphus pulcher, male	6/11/2012	0.0000	0.0000	4

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Cruz Island - Fry's Harbor				
Chromis punctipinnis, adult	8/14/2012	11.7500	3.3040	4
Chromis punctipinnis, adult	8/27/2012	30.0000	4.5461	4
Chromis punctipinnis, juvenile	8/14/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	8/27/2012	1.0000	2.0000	4
Embiotoca jacksoni, adult	8/14/2012	0.7500	1.5000	4
Embiotoca jacksoni, adult	8/27/2012	6.2500	3.9476	4
Embiotoca jacksoni, juvenile	8/14/2012	2.5000	3.0000	4
Embiotoca jacksoni, juvenile	8/27/2012	7.5000	9.0370	4
Embiotoca lateralis, adult	8/14/2012	0.2500	0.5000	4
Embiotoca lateralis, adult	8/27/2012	1.0000	0.8165	4
Embiotoca lateralis, juvenile	8/14/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	8/27/2012	0.7500	1.5000	4
Girella nigricans, adult	8/14/2012	1.2500	2.5000	4
Girella nigricans, adult	8/27/2012	0.0000	0.0000	4
Girella nigricans, juvenile	8/14/2012	0.0000	0.0000	4
Girella nigricans, juvenile	8/27/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	8/14/2012	0.5000	1.0000	4
Halichoeres semicinctus, female	8/27/2012	0.7500	0.9574	4
Halichoeres semicinctus, male	8/14/2012	0.2500	0.5000	4
Halichoeres semicinctus, male	8/27/2012	0.2500	0.5000	4
Hypsypops rubicundus, adult	8/14/2012	1.0000	0.8165	4
Hypsypops rubicundus, adult	8/27/2012	0.7500	0.9574	4
Hypsypops rubicundus, juvenile	8/14/2012	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	8/27/2012	0.0000	0.0000	4
Oxyjulis californica, adult	8/14/2012	2.7500	2.3629	4
Oxyjulis californica, adult	8/27/2012	8.0000	3.2660	4
Oxyjulis californica, juvenile	8/14/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	8/27/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	8/14/2012	0.7500	0.5000	4
Paralabrax clathratus, adult	8/27/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	8/14/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	8/27/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	8/14/2012	3.2500	4.0311	4
Rhacochilus vacca, adult	8/27/2012	3.2500	2.2174	4
Rhacochilus vacca, juvenile	8/14/2012	5.5000	6.0277	4
Rhacochilus vacca, juvenile	8/27/2012	3.5000	2.0817	4
Sebastes atrovirens, adult	8/14/2012	0.5000	0.5774	4
Sebastes atrovirens, adult	8/27/2012	0.7500	0.5000	4
Sebastes atrovirens, juvenile	8/14/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	8/27/2012	0.0000	0.0000	4
Sebastes mystinus, adult	8/14/2012	0.0000	0.0000	4
Sebastes mystinus, adult	8/27/2012	1.0000	1.1547	4
Sebastes mystinus, juvenile	8/14/2012	8.0000	7.8316	4
Sebastes mystinus, juvenile	8/27/2012	4.5000	5.1962	4
Sebastes serranoides, adult	8/14/2012	0.2500	0.5000	4
Sebastes serranoides, adult	8/27/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	8/14/2012	1.0000	0.8165	4
Sebastes serranoides, juvenile	8/27/2012	7.0000	8.1240	4
Semicossyphus pulcher, female	8/14/2012	2.5000	2.0817	4
Semicossyphus pulcher, female	8/27/2012	0.7500	0.9574	4
Semicossyphus pulcher, juvenile	8/14/2012	0.2500	0.5000	4
Semicossyphus pulcher, juvenile	8/27/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	8/14/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	8/27/2012	0.0000	0.0000	4

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Cruz Island - Pelican Bay				
Chromis punctipinnis, adult	9/13/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	9/13/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	9/13/2012	4.5000	2.8868	4
Embiotoca jacksoni, juvenile	9/13/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	9/13/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	9/13/2012	0.0000	0.0000	4
Girella nigricans, adult	9/13/2012	0.0000	0.0000	4
Girella nigricans, juvenile	9/13/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	9/13/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	9/13/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	9/13/2012	0.2500	0.5000	4
Hypsypops rubicundus, juvenile	9/13/2012	0.0000	0.0000	4
Oxyjulis californica, adult	9/13/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	9/13/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	9/13/2012	0.5000	0.5774	4
Paralabrax clathratus, juvenile	9/13/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	9/13/2012	0.5000	0.5774	4
Rhacochilus vacca, juvenile	9/13/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	9/13/2012	0.7500	0.5000	4
Sebastes atrovirens, juvenile	9/13/2012	0.0000	0.0000	4
Sebastes mystinus, adult	9/13/2012	0.0000	0.0000	4
Sebastes mystinus, juvenile	9/13/2012	0.0000	0.0000	4
Sebastes serranoides, adult	9/13/2012	0.2500	0.5000	4
Sebastes serranoides, juvenile	9/13/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	9/13/2012	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	9/13/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	9/13/2012	0.0000	0.0000	4

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M ^{3}

Species	Date	Mean	Std. Dev.	n
Santa Cruz Island - Scorpion Anchorage				
Chromis punctipinnis, adult	8/16/2012	1.5000	3.0000	4
Chromis punctipinnis, adult	10/3/2012	2.5000	2.0817	4
Chromis punctipinnis, juvenile	8/16/2012	0.5000	1.0000	4
Chromis punctipinnis, juvenile	10/3/2012	8.2500	15.8403	4
Embiotoca jacksoni, adult	8/16/2012	0.2500	0.5000	4
Embiotoca jacksoni, adult	10/3/2012	4.7500	0.9574	4
Embiotoca jacksoni, juvenile	8/16/2012	0.2500	0.5000	4
Embiotoca jacksoni, juvenile	10/3/2012	2.5000	1.2910	4
Embiotoca lateralis, adult	8/16/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	10/3/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	8/16/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	10/3/2012	0.0000	0.0000	4
Girella nigricans, adult	8/16/2012	0.0000	0.0000	4
Girella nigricans, adult	10/3/2012	1.0000	1.4142	4
Girella nigricans, juvenile	8/16/2012	0.0000	0.0000	4
Girella nigricans, juvenile	10/3/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	8/16/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	10/3/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	8/16/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	10/3/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	8/16/2012	1.0000	0.8165	4
Hypsypops rubicundus, adult	10/3/2012	1.2500	0.9574	4
Hypsypops rubicundus, juvenile	8/16/2012	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	10/3/2012	0.0000	0.0000	4
Oxyjulis californica, adult	8/16/2012	0.5000	1.0000	4
Oxyjulis californica, adult	10/3/2012	0.5000	1.0000	4
Oxyjulis californica, juvenile	8/16/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	10/3/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	8/16/2012	0.5000	0.5774	4
Paralabrax clathratus, adult	10/3/2012	0.5000	1.0000	4
Paralabrax clathratus, juvenile	8/16/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	10/3/2012	0.2500	0.5000	4
Rhacochilus vacca, adult	8/16/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	10/3/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	8/16/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	10/3/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	8/16/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	10/3/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	8/16/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	10/3/2012	0.0000	0.0000	4
Sebastes mystinus, adult	8/16/2012	0.0000	0.0000	4
Sebastes mystinus, adult	10/3/2012	0.0000	0.0000	4
Sebastes mystinus, juvenile	8/16/2012	0.5000	1.0000	4
Sebastes mystinus, juvenile	10/3/2012	0.0000	0.0000	4
Sebastes serranoides, adult	8/16/2012	0.0000	0.0000	4
Sebastes serranoides, adult	10/3/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	8/16/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	10/3/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	8/16/2012	0.5000	0.5774	4
Semicossyphus pulcher, female	10/3/2012	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	8/16/2012	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	10/3/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	8/16/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	10/3/2012	0.0000	0.0000	4

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Cruz Island - Yellow Banks				
Chromis punctipinnis, adult	9/12/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	9/12/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	9/12/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	9/12/2012	0.5000	1.0000	4
Embiotoca lateralis, adult	9/12/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	9/12/2012	0.0000	0.0000	4
Girella nigricans, adult	9/12/2012	0.0000	0.0000	4
Girella nigricans, juvenile	9/12/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	9/12/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	9/12/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	9/12/2012	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	9/12/2012	0.0000	0.0000	4
Oxyjulis californica, adult	9/12/2012	0.5000	1.0000	4
Oxyjulis californica, juvenile	9/12/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	9/12/2012	0.2500	0.5000	4
Paralabrax clathratus, juvenile	9/12/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	9/12/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	9/12/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	9/12/2012	0.5000	0.5774	4
Sebastes atrovirens, juvenile	9/12/2012	0.0000	0.0000	4
Sebastes mystinus, adult	9/12/2012	0.0000	0.0000	4
Sebastes mystinus, juvenile	9/12/2012	0.2500	0.5000	4
Sebastes serranoides, adult	9/12/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	9/12/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	9/12/2012	1.2500	0.5000	4
Semicossyphus pulcher, juvenile	9/12/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	9/12/2012	0.0000	0.0000	4
Anacapa Island - Admiral's Reef				
Chromis punctipinnis, adult	9/10/2012	8.0000	7.6158	4
Chromis punctipinnis, juvenile	9/10/2012	12.5000	18.9297	4
Embiotoca jacksoni, adult	9/10/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	9/10/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	9/10/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	9/10/2012	0.0000	0.0000	4
Girella nigricans, adult	9/10/2012	0.7500	0.9574	4
Girella nigricans, juvenile	9/10/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	9/10/2012	0.2500	0.5000	4
Halichoeres semicinctus, male	9/10/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	9/10/2012	0.2500	0.5000	4
Hypsypops rubicundus, juvenile	9/10/2012	0.0000	0.0000	4
Oxyjulis californica, adult	9/10/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	9/10/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	9/10/2012	0.5000	0.5774	4
Paralabrax clathratus, juvenile	9/10/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	9/10/2012	0.2500	0.5000	4
Rhacochilus vacca, juvenile	9/10/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	9/10/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	9/10/2012	0.0000	0.0000	4
Sebastes mystinus, adult	9/10/2012	3.2500	3.9476	4
Sebastes mystinus, juvenile	9/10/2012	8.0000	4.5461	4
Sebastes serranoides, adult	9/10/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	9/10/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	9/10/2012	0.5000	1.0000	4
Semicossyphus pulcher, juvenile	9/10/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	9/10/2012	0.0000	0.0000	4

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Anacapa Island - Cathedral Cove				
Chromis punctipinnis, adult	6/25/2012	2.0000	1.8257	4
Chromis punctipinnis, juvenile	6/25/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	6/25/2012	0.7500	0.9574	4
Embiotoca jacksoni, juvenile	6/25/2012	0.5000	1.0000	4
Embiotoca lateralis, adult	6/25/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	6/25/2012	0.0000	0.0000	4
Girella nigricans, adult	6/25/2012	0.2500	0.5000	4
Girella nigricans, juvenile	6/25/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	6/25/2012	0.7500	0.5000	4
Halichoeres semicinctus, male	6/25/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	6/25/2012	1.0000	0.0000	4
Hypsypops rubicundus, juvenile	6/25/2012	0.0000	0.0000	4
Oxyjulis californica, adult	6/25/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	6/25/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	6/25/2012	0.2500	0.5000	4
Paralabrax clathratus, juvenile	6/25/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	6/25/2012	0.2500	0.5000	4
Rhacochilus vacca, juvenile	6/25/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	6/25/2012	0.2500	0.5000	4
Sebastes atrovirens, juvenile	6/25/2012	0.2500	0.5000	4
Sebastes mystinus, adult	6/25/2012	0.0000	0.0000	4
Sebastes mystinus, juvenile	6/25/2012	4.0000	1.4142	4
Sebastes serranoides, adult	6/25/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	6/25/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	6/25/2012	1.2500	0.5000	4
Semicossyphus pulcher, juvenile	6/25/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	6/25/2012	0.0000	0.0000	4
Anacapa Island - Landing Cove				
Chromis punctipinnis, adult	6/26/2012	11.7500	16.3783	4
Chromis punctipinnis, juvenile	6/26/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	6/26/2012	0.5000	0.5774	4
Embiotoca jacksoni, juvenile	6/26/2012	0.7500	0.5000	4
Embiotoca lateralis, adult	6/26/2012	0.7500	1.5000	4
Embiotoca lateralis, juvenile	6/26/2012	0.0000	0.0000	4
Girella nigricans, adult	6/26/2012	0.5000	1.0000	4
Girella nigricans, juvenile	6/26/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	6/26/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	6/26/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	6/26/2012	1.5000	1.9149	4
Hypsypops rubicundus, juvenile	6/26/2012	0.0000	0.0000	4
Oxyjulis californica, adult	6/26/2012	3.2500	3.9476	4
Oxyjulis californica, juvenile	6/26/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	6/26/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	6/26/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	6/26/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	6/26/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	6/26/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	6/26/2012	0.0000	0.0000	4
Sebastes mystinus, adult	6/26/2012	0.0000	0.0000	4
Sebastes mystinus, juvenile	6/26/2012	0.0000	0.0000	4
Sebastes serranoides, adult	6/26/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	6/26/2012	0.5000	1.0000	4
Semicossyphus pulcher, female	6/26/2012	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	6/26/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	6/26/2012	0.0000	0.0000	4

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M ^{3}

Species	Date	Mean	Std. Dev.	n
Santa Barbara Island - SE Sea Lion Rookery				
Chromis punctipinnis, adult	6/14/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	6/14/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	6/14/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	6/14/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	6/14/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	6/14/2012	0.0000	0.0000	4
Girella nigricans, adult	6/14/2012	0.0000	0.0000	4
Girella nigricans, juvenile	6/14/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	6/14/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	6/14/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	6/14/2012	0.5000	0.5774	4
Hypsypops rubicundus, juvenile	6/14/2012	0.0000	0.0000	4
Oxyjulis californica, adult	6/14/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	6/14/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	6/14/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	6/14/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	6/14/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	6/14/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	6/14/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	6/14/2012	0.0000	0.0000	4
Sebastes mystinus, adult	6/14/2012	0.0000	0.0000	4
Sebastes mystinus, juvenile	6/14/2012	1.0000	1.1547	4
Sebastes serranoides, adult	6/14/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	6/14/2012	0.7500	0.9574	4
Semicossyphus pulcher, female	6/14/2012	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	6/14/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	6/14/2012	0.0000	0.0000	4
Santa Barbara Island - Arch Point				
Chromis punctipinnis, adult	5/29/2012	0.2500	0.5000	4
Chromis punctipinnis, juvenile	5/29/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	5/29/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	5/29/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	5/29/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	5/29/2012	0.0000	0.0000	4
Girella nigricans, adult	5/29/2012	0.0000	0.0000	4
Girella nigricans, juvenile	5/29/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	5/29/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	5/29/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	5/29/2012	0.5000	0.5774	4
Hypsypops rubicundus, juvenile	5/29/2012	0.0000	0.0000	4
Oxyjulis californica, adult	5/29/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	5/29/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	5/29/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	5/29/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	5/29/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	5/29/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	5/29/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	5/29/2012	0.0000	0.0000	4
Sebastes mystinus, adult	5/29/2012	0.0000	0.0000	4
Sebastes mystinus, juvenile	5/29/2012	0.2500	0.5000	4
Sebastes serranoides, adult	5/29/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	5/29/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	5/29/2012	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	5/29/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	5/29/2012	0.0000	0.0000	4

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Barbara Island - Cat Canyon				
Chromis punctipinnis, adult	5/31/2012	2.2500	2.8723	4
Chromis punctipinnis, juvenile	5/31/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	5/31/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	5/31/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	5/31/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	5/31/2012	0.0000	0.0000	4
Girella nigricans, adult	5/31/2012	0.0000	0.0000	4
Girella nigricans, juvenile	5/31/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	5/31/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	5/31/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	5/31/2012	0.2500	0.5000	4
Hypsypops rubicundus, juvenile	5/31/2012	0.0000	0.0000	4
Oxyjulis californica, adult	5/31/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	5/31/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	5/31/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	5/31/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	5/31/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	5/31/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	5/31/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	5/31/2012	0.0000	0.0000	4
Sebastes mystinus, adult	5/31/2012	0.0000	0.0000	4
Sebastes mystinus, juvenile	5/31/2012	0.0000	0.0000	4
Sebastes serranoides, adult	5/31/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	5/31/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	5/31/2012	0.2500	0.5000	4
Semicossyphus pulcher, juvenile	5/31/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	5/31/2012	0.0000	0.0000	4
San Miguel Island - Miracle Mile				
Chromis punctipinnis, adult	7/26/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	7/26/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	7/26/2012	0.5000	1.0000	4
Embiotoca jacksoni, juvenile	7/26/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	7/26/2012	1.0000	1.1547	4
Embiotoca lateralis, juvenile	7/26/2012	0.0000	0.0000	4
Girella nigricans, adult	7/26/2012	0.0000	0.0000	4
Girella nigricans, juvenile	7/26/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	7/26/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	7/26/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	7/26/2012	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	7/26/2012	0.0000	0.0000	4
Oxyjulis californica, adult	7/26/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	7/26/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	7/26/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	7/26/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	7/26/2012	0.5000	0.5774	4
Rhacochilus vacca, juvenile	7/26/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	7/26/2012	1.0000	0.8165	4
Sebastes atrovirens, juvenile	7/26/2012	0.0000	0.0000	4
Sebastes mystinus, adult	7/26/2012	1.0000	2.0000	4
Sebastes mystinus, juvenile	7/26/2012	0.0000	0.0000	4
Sebastes serranoides, adult	7/26/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	7/26/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	7/26/2012	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	7/26/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	7/26/2012	0.0000	0.0000	4

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Rosa Island - Cluster Point				
Chromis punctipinnis, adult	6/12/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	6/12/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	6/12/2012	1.0000	1.4142	4
Embiotoca jacksoni, juvenile	6/12/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	6/12/2012	0.5000	0.5774	4
Embiotoca lateralis, juvenile	6/12/2012	0.0000	0.0000	4
Girella nigricans, adult	6/12/2012	0.0000	0.0000	4
Girella nigricans, juvenile	6/12/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	6/12/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	6/12/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	6/12/2012	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	6/12/2012	0.0000	0.0000	4
Oxyjulis californica, adult	6/12/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	6/12/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	6/12/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	6/12/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	6/12/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	6/12/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	6/12/2012	0.7500	1.5000	4
Sebastes atrovirens, juvenile	6/12/2012	0.0000	0.0000	4
Sebastes mystinus, adult	6/12/2012	10.5000	12.2338	4
Sebastes mystinus, juvenile	6/12/2012	0.0000	0.0000	4
Sebastes serranoides, adult	6/12/2012	0.2500	0.5000	4
Sebastes serranoides, juvenile	6/12/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	6/12/2012	1.0000	0.8165	4
Semicossyphus pulcher, juvenile	6/12/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	6/12/2012	0.0000	0.0000	4
Santa Rosa Island - Trancion Canyon				
Chromis punctipinnis, adult	8/29/2012	43.2500	29.2731	4
Chromis punctipinnis, juvenile	8/29/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	8/29/2012	1.0000	1.1547	4
Embiotoca jacksoni, juvenile	8/29/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	8/29/2012	1.2500	0.5000	4
Embiotoca lateralis, juvenile	8/29/2012	2.2500	1.7078	4
Girella nigricans, adult	8/29/2012	1.0000	0.8165	4
Girella nigricans, juvenile	8/29/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	8/29/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	8/29/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	8/29/2012	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	8/29/2012	0.0000	0.0000	4
Oxyjulis californica, adult	8/29/2012	5.0000	8.1240	4
Oxyjulis californica, juvenile	8/29/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	8/29/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	8/29/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	8/29/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	8/29/2012	0.2500	0.5000	4
Sebastes atrovirens, adult	8/29/2012	6.2500	3.8622	4
Sebastes atrovirens, juvenile	8/29/2012	0.0000	0.0000	4
Sebastes mystinus, adult	8/29/2012	4.0000	2.5820	4
Sebastes mystinus, juvenile	8/29/2012	5.2500	2.6300	4
Sebastes serranoides, adult	8/29/2012	1.2500	1.2583	4
Sebastes serranoides, juvenile	8/29/2012	1.0000	2.0000	4
Semicossyphus pulcher, female	8/29/2012	0.5000	0.5774	4
Semicossyphus pulcher, juvenile	8/29/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	8/29/2012	0.0000	0.0000	4

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M ^{3}

Species	Date	Mean	Std. Dev.	n
Santa Rosa Island - Chickasaw				
Chromis punctipinnis, adult	7/11/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	7/11/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	7/11/2012	0.2500	0.5000	4
Embiotoca jacksoni, juvenile	7/11/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	7/11/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	7/11/2012	0.0000	0.0000	4
Girella nigricans, adult	7/11/2012	0.0000	0.0000	4
Girella nigricans, juvenile	7/11/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	7/11/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	7/11/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	7/11/2012	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	7/11/2012	0.0000	0.0000	4
Oxyjulis californica, adult	7/11/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	7/11/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	7/11/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	7/11/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	7/11/2012	0.2500	0.5000	4
Rhacochilus vacca, juvenile	7/11/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	7/11/2012	3.0000	2.5820	4
Sebastes atrovirens, juvenile	7/11/2012	0.0000	0.0000	4
Sebastes mystinus, adult	7/11/2012	6.5000	7.5056	4
Sebastes mystinus, juvenile	7/11/2012	1.5000	3.0000	4
Sebastes serranoides, adult	7/11/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	7/11/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	7/11/2012	0.5000	1.0000	4
Semicossyphus pulcher, juvenile	7/11/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	7/11/2012	0.5000	0.5774	4
Santa Rosa Island - South Point				
Chromis punctipinnis, adult	7/12/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	7/12/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	7/12/2012	0.2500	0.5000	4
Embiotoca jacksoni, juvenile	7/12/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	7/12/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	7/12/2012	0.2500	0.5000	4
Girella nigricans, adult	7/12/2012	0.0000	0.0000	4
Girella nigricans, juvenile	7/12/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	7/12/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	7/12/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	7/12/2012	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	7/12/2012	0.0000	0.0000	4
Oxyjulis californica, adult	7/12/2012	0.5000	1.0000	4
Oxyjulis californica, juvenile	7/12/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	7/12/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	7/12/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	7/12/2012	0.5000	1.0000	4
Rhacochilus vacca, juvenile	7/12/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	7/12/2012	0.5000	1.0000	4
Sebastes atrovirens, juvenile	7/12/2012	0.0000	0.0000	4
Sebastes mystinus, adult	7/12/2012	0.2500	0.5000	4
Sebastes mystinus, juvenile	7/12/2012	0.2500	0.5000	4
Sebastes serranoides, adult	7/12/2012	0.2500	0.5000	4
Sebastes serranoides, juvenile	7/12/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	7/12/2012	0.2500	0.5000	4
Semicossyphus pulcher, juvenile	7/12/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	7/12/2012	0.2500	0.5000	4

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Cruz Island - Devil's Peak Member				
Chromis punctipinnis, adult	6/28/2012	0.0000	0.0000	4
Chromis punctipinnis, adult	10/3/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	6/28/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	10/3/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	6/28/2012	0.7500	0.9574	4
Embiotoca jacksoni, adult	10/3/2012	1.7500	1.7078	4
Embiotoca jacksoni, juvenile	6/28/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	10/3/2012	0.5000	1.0000	4
Embiotoca lateralis, adult	6/28/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	10/3/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	6/28/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	10/3/2012	0.0000	0.0000	4
Girella nigricans, adult	6/28/2012	0.0000	0.0000	4
Girella nigricans, adult	10/3/2012	0.0000	0.0000	4
Girella nigricans, juvenile	6/28/2012	0.0000	0.0000	4
Girella nigricans, juvenile	10/3/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	6/28/2012	0.2500	0.5000	4
Halichoeres semicinctus, female	10/3/2012	0.7500	0.9574	4
Halichoeres semicinctus, male	6/28/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	10/3/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	6/28/2012	0.5000	1.0000	4
Hypsypops rubicundus, adult	10/3/2012	2.2500	0.9574	4
Hypsypops rubicundus, juvenile	6/28/2012	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	10/3/2012	0.0000	0.0000	4
Oxyjulis californica, adult	6/28/2012	1.0000	2.0000	4
Oxyjulis californica, adult	10/3/2012	13.0000	10.8012	4
Oxyjulis californica, juvenile	6/28/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	10/3/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	6/28/2012	0.2500	0.5000	4
Paralabrax clathratus, adult	10/3/2012	0.2500	0.5000	4
Paralabrax clathratus, juvenile	6/28/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	10/3/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	6/28/2012	0.2500	0.5000	4
Rhacochilus vacca, adult	10/3/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	6/28/2012	0.2500	0.5000	4
Rhacochilus vacca, juvenile	10/3/2012	1.7500	1.2583	4
Sebastes atrovirens, adult	6/28/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	10/3/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	6/28/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	10/3/2012	0.0000	0.0000	4
Sebastes mystinus, adult	6/28/2012	0.0000	0.0000	4
Sebastes mystinus, adult	10/3/2012	1.7500	0.9574	4
Sebastes mystinus, juvenile	6/28/2012	0.5000	1.0000	4
Sebastes mystinus, juvenile	10/3/2012	0.0000	0.0000	4
Sebastes serranoides, adult	6/28/2012	0.0000	0.0000	4
Sebastes serranoides, adult	10/3/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	6/28/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	10/3/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	6/28/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	10/3/2012	0.5000	0.5774	4
Semicossyphus pulcher, juvenile	6/28/2012	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	10/3/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	6/28/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	10/3/2012	0.0000	0.0000	4

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M ^{3}

Species	Date	Mean	Std. Dev.	n
Santa Cruz Island - Potato Pasture				
Chromis punctipinnis, adult	7/23/2012	8.0000	8.3666	4
Chromis punctipinnis, adult	10/2/2012	9.7500	11.4419	4
Chromis punctipinnis, juvenile	7/23/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	10/2/2012	60.0000	70.3562	4
Embiotoca jacksoni, adult	7/23/2012	4.0000	7.3485	4
Embiotoca jacksoni, adult	10/2/2012	6.5000	5.2599	4
Embiotoca jacksoni, juvenile	7/23/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	10/2/2012	0.5000	0.5774	4
Embiotoca lateralis, adult	7/23/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	10/2/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	7/23/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	10/2/2012	0.0000	0.0000	4
Girella nigricans, adult	7/23/2012	0.0000	0.0000	4
Girella nigricans, adult	10/2/2012	1.2500	1.2583	4
Girella nigricans, juvenile	7/23/2012	0.0000	0.0000	4
Girella nigricans, juvenile	10/2/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	7/23/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	10/2/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	7/23/2012	0.2500	0.5000	4
Halichoeres semicinctus, male	10/2/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	7/23/2012	1.5000	1.0000	4
Hypsypops rubicundus, adult	10/2/2012	3.7500	2.2174	4
Hypsypops rubicundus, juvenile	7/23/2012	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	10/2/2012	0.0000	0.0000	4
Oxyjulis californica, adult	7/23/2012	0.0000	0.0000	4
Oxyjulis californica, adult	10/2/2012	16.0000	9.3452	4
Oxyjulis californica, juvenile	7/23/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	10/2/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	7/23/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	10/2/2012	2.5000	3.0000	4
Paralabrax clathratus, juvenile	7/23/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	10/2/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	7/23/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	10/2/2012	0.2500	0.5000	4
Rhacochilus vacca, juvenile	7/23/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	10/2/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	7/23/2012	1.0000	0.0000	4
Sebastes atrovirens, adult	10/2/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	7/23/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	10/2/2012	0.0000	0.0000	4
Sebastes mystinus, adult	7/23/2012	2.7500	3.7749	4
Sebastes mystinus, adult	10/2/2012	3.0000	3.5590	4
Sebastes mystinus, juvenile	7/23/2012	1.5000	1.2910	4
Sebastes mystinus, juvenile	10/2/2012	12.0000	14.6969	4
Sebastes serranoides, adult	7/23/2012	0.0000	0.0000	4
Sebastes serranoides, adult	10/2/2012	0.2500	0.5000	4
Sebastes serranoides, juvenile	7/23/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	10/2/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	7/23/2012	0.2500	0.5000	4
Semicossyphus pulcher, female	10/2/2012	2.5000	2.3805	4
Semicossyphus pulcher, juvenile	7/23/2012	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	10/2/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	7/23/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	10/2/2012	0.5000	1.0000	4

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Cruz Island - Cavern Point				
Chromis punctipinnis, adult	6/28/2012	1.2500	1.5000	4
Chromis punctipinnis, adult	10/2/2012	2.5000	5.0000	4
Chromis punctipinnis, juvenile	6/28/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	10/2/2012	10.0000	18.6905	4
Embiotoca jacksoni, adult	6/28/2012	2.7500	1.8930	4
Embiotoca jacksoni, adult	10/2/2012	3.5000	1.2910	4
Embiotoca jacksoni, juvenile	6/28/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	10/2/2012	0.7500	0.9574	4
Embiotoca lateralis, adult	6/28/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	10/2/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	6/28/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	10/2/2012	0.0000	0.0000	4
Girella nigricans, adult	6/28/2012	0.0000	0.0000	4
Girella nigricans, adult	10/2/2012	0.0000	0.0000	4
Girella nigricans, juvenile	6/28/2012	0.0000	0.0000	4
Girella nigricans, juvenile	10/2/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	6/28/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	10/2/2012	0.5000	1.0000	4
Halichoeres semicinctus, male	6/28/2012	0.5000	1.0000	4
Halichoeres semicinctus, male	10/2/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	6/28/2012	0.5000	1.0000	4
Hypsypops rubicundus, adult	10/2/2012	0.5000	0.5774	4
Hypsypops rubicundus, juvenile	6/28/2012	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	10/2/2012	0.0000	0.0000	4
Oxyjulis californica, adult	6/28/2012	0.2500	0.5000	4
Oxyjulis californica, adult	10/2/2012	3.7500	2.5000	4
Oxyjulis californica, juvenile	6/28/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	10/2/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	6/28/2012	2.5000	2.5166	4
Paralabrax clathratus, adult	10/2/2012	1.7500	1.2583	4
Paralabrax clathratus, juvenile	6/28/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	10/2/2012	0.2500	0.5000	4
Rhacochilus vacca, adult	6/28/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	10/2/2012	1.0000	1.1547	4
Rhacochilus vacca, juvenile	6/28/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	10/2/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	6/28/2012	0.2500	0.5000	4
Sebastes atrovirens, adult	10/2/2012	0.5000	1.0000	4
Sebastes atrovirens, juvenile	6/28/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	10/2/2012	0.0000	0.0000	4
Sebastes mystinus, adult	6/28/2012	0.7500	0.9574	4
Sebastes mystinus, adult	10/2/2012	7.5000	15.0000	4
Sebastes mystinus, juvenile	6/28/2012	8.2500	6.8496	4
Sebastes mystinus, juvenile	10/2/2012	1.0000	1.4142	4
Sebastes serranoides, adult	6/28/2012	0.0000	0.0000	4
Sebastes serranoides, adult	10/2/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	6/28/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	10/2/2012	0.2500	0.5000	4
Semicossyphus pulcher, female	6/28/2012	0.7500	1.5000	4
Semicossyphus pulcher, female	10/2/2012	1.2500	1.8930	4
Semicossyphus pulcher, juvenile	6/28/2012	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	10/2/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	6/28/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	10/2/2012	0.0000	0.0000	4

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Cruz Island - Little Scorpion				
Chromis punctipinnis, adult	5/16/2012	39.2500	70.1017	4
Chromis punctipinnis, adult	10/1/2012	38.7500	22.7797	4
Chromis punctipinnis, juvenile	5/16/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	10/1/2012	24.0000	47.3357	4
Embiotoca jacksoni, adult	5/16/2012	0.7500	0.5000	4
Embiotoca jacksoni, adult	10/1/2012	1.7500	1.2583	4
Embiotoca jacksoni, juvenile	5/16/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	10/1/2012	0.2500	0.5000	4
Embiotoca lateralis, adult	5/16/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	10/1/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	5/16/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	10/1/2012	0.0000	0.0000	4
Girella nigricans, adult	5/16/2012	0.0000	0.0000	4
Girella nigricans, adult	10/1/2012	0.5000	0.5774	4
Girella nigricans, juvenile	5/16/2012	0.0000	0.0000	4
Girella nigricans, juvenile	10/1/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	5/16/2012	0.5000	0.5774	4
Halichoeres semicinctus, female	10/1/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	5/16/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	10/1/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	5/16/2012	0.5000	1.0000	4
Hypsypops rubicundus, adult	10/1/2012	1.5000	1.0000	4
Hypsypops rubicundus, juvenile	5/16/2012	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	10/1/2012	0.0000	0.0000	4
Oxyjulis californica, adult	5/16/2012	0.0000	0.0000	4
Oxyjulis californica, adult	10/1/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	5/16/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	10/1/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	5/16/2012	0.5000	0.5774	4
Paralabrax clathratus, adult	10/1/2012	0.2500	0.5000	4
Paralabrax clathratus, juvenile	5/16/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	10/1/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	5/16/2012	0.2500	0.5000	4
Rhacochilus vacca, adult	10/1/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	5/16/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	10/1/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	5/16/2012	2.0000	1.8257	4
Sebastes atrovirens, adult	10/1/2012	0.7500	0.9574	4
Sebastes atrovirens, juvenile	5/16/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	10/1/2012	0.0000	0.0000	4
Sebastes mystinus, adult	5/16/2012	0.0000	0.0000	4
Sebastes mystinus, adult	10/1/2012	0.5000	1.0000	4
Sebastes mystinus, juvenile	5/16/2012	3.5000	1.0000	4
Sebastes mystinus, juvenile	10/1/2012	0.5000	1.0000	4
Sebastes serranoides, adult	5/16/2012	0.0000	0.0000	4
Sebastes serranoides, adult	10/1/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	5/16/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	10/1/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	5/16/2012	1.0000	1.1547	4
Semicossyphus pulcher, female	10/1/2012	0.2500	0.5000	4
Semicossyphus pulcher, juvenile	5/16/2012	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	10/1/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	5/16/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	10/1/2012	0.0000	0.0000	4

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Cruz Island - Pedro Reef				
Chromis punctipinnis, adult	8/13/2012	0.0000	0.0000	4
Chromis punctipinnis, adult	10/19/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	8/13/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	10/19/2012	1.0000	2.0000	4
Embiotoca jacksoni, adult	8/13/2012	0.2500	0.5000	4
Embiotoca jacksoni, adult	10/19/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	8/13/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	10/19/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	8/13/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	10/19/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	8/13/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	10/19/2012	0.0000	0.0000	4
Girella nigricans, adult	8/13/2012	0.0000	0.0000	4
Girella nigricans, adult	10/19/2012	0.0000	0.0000	4
Girella nigricans, juvenile	8/13/2012	0.0000	0.0000	4
Girella nigricans, juvenile	10/19/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	8/13/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	10/19/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	8/13/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	10/19/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	8/13/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	10/19/2012	0.2500	0.5000	4
Hypsypops rubicundus, juvenile	8/13/2012	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	10/19/2012	0.0000	0.0000	4
Oxyjulis californica, adult	8/13/2012	0.0000	0.0000	4
Oxyjulis californica, adult	10/19/2012	2.0000	3.3665	4
Oxyjulis californica, juvenile	8/13/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	10/19/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	8/13/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	10/19/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	8/13/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	10/19/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	8/13/2012	0.2500	0.5000	4
Rhacochilus vacca, adult	10/19/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	8/13/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	10/19/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	8/13/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	10/19/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	8/13/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	10/19/2012	0.0000	0.0000	4
Sebastes mystinus, adult	8/13/2012	0.0000	0.0000	4
Sebastes mystinus, adult	10/19/2012	0.0000	0.0000	4
Sebastes mystinus, juvenile	8/13/2012	0.0000	0.0000	4
Sebastes mystinus, juvenile	10/19/2012	0.0000	0.0000	4
Sebastes serranoides, adult	8/13/2012	0.0000	0.0000	4
Sebastes serranoides, adult	10/19/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	8/13/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	10/19/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	8/13/2012	0.2500	0.5000	4
Semicossyphus pulcher, female	10/19/2012	3.5000	2.3805	4
Semicossyphus pulcher, juvenile	8/13/2012	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	10/19/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	8/13/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	10/19/2012	0.0000	0.0000	4

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Anacapa Island - Keyhole				
Chromis punctipinnis, adult	6/29/2012	9.0000	16.0624	4
Chromis punctipinnis, juvenile	6/29/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	6/29/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	6/29/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	6/29/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	6/29/2012	0.0000	0.0000	4
Girella nigricans, adult	6/29/2012	0.0000	0.0000	4
Girella nigricans, juvenile	6/29/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	6/29/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	6/29/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	6/29/2012	0.2500	0.5000	4
Hypsypops rubicundus, juvenile	6/29/2012	0.0000	0.0000	4
Oxyjulis californica, adult	6/29/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	6/29/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	6/29/2012	0.5000	0.5774	4
Paralabrax clathratus, juvenile	6/29/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	6/29/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	6/29/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	6/29/2012	0.2500	0.5000	4
Sebastes atrovirens, juvenile	6/29/2012	0.0000	0.0000	4
Sebastes mystinus, adult	6/29/2012	0.0000	0.0000	4
Sebastes mystinus, juvenile	6/29/2012	0.0000	0.0000	4
Sebastes serranoides, adult	6/29/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	6/29/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	6/29/2012	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	6/29/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	6/29/2012	0.2500	0.5000	4
Anacapa Island - East Fish Camp				
Chromis punctipinnis, adult	5/15/2012	1.0000	0.8165	4
Chromis punctipinnis, juvenile	5/15/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	5/15/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	5/15/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	5/15/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	5/15/2012	0.0000	0.0000	4
Girella nigricans, adult	5/15/2012	0.0000	0.0000	4
Girella nigricans, juvenile	5/15/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	5/15/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	5/15/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	5/15/2012	0.5000	0.5774	4
Hypsypops rubicundus, juvenile	5/15/2012	0.0000	0.0000	4
Oxyjulis californica, adult	5/15/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	5/15/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	5/15/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	5/15/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	5/15/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	5/15/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	5/15/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	5/15/2012	0.0000	0.0000	4
Sebastes mystinus, adult	5/15/2012	0.0000	0.0000	4
Sebastes mystinus, juvenile	5/15/2012	1.5000	3.0000	4
Sebastes serranoides, adult	5/15/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	5/15/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	5/15/2012	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	5/15/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	5/15/2012	0.0000	0.0000	4

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Anacapa Island - Black Sea Bass Reef				
Chromis punctipinnis, adult	8/15/2012	7.0000	7.6158	4
Chromis punctipinnis, juvenile	8/15/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	8/15/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	8/15/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	8/15/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	8/15/2012	0.0000	0.0000	4
Girella nigricans, adult	8/15/2012	0.0000	0.0000	4
Girella nigricans, juvenile	8/15/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	8/15/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	8/15/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	8/15/2012	0.5000	1.0000	4
Hypsypops rubicundus, juvenile	8/15/2012	0.0000	0.0000	4
Oxyjulis californica, adult	8/15/2012	2.5000	5.0000	4
Oxyjulis californica, juvenile	8/15/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	8/15/2012	0.5000	0.5774	4
Paralabrax clathratus, juvenile	8/15/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	8/15/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	8/15/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	8/15/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	8/15/2012	0.0000	0.0000	4
Sebastes mystinus, adult	8/15/2012	0.0000	0.0000	4
Sebastes mystinus, juvenile	8/15/2012	6.7500	0.9574	4
Sebastes serranoides, adult	8/15/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	8/15/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	8/15/2012	0.2500	0.5000	4
Semicossyphus pulcher, juvenile	8/15/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	8/15/2012	0.0000	0.0000	4

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M ^{3}

Species	Date	Mean	Std. Dev.	n
Anacapa Island - Lighthouse				
Chromis punctipinnis, adult	5/17/2012	3.2500	3.5940	4
Chromis punctipinnis, adult	6/1/2012	3.0000	3.3665	4
Chromis punctipinnis, juvenile	5/17/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	6/1/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	5/17/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	6/1/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	5/17/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	6/1/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	5/17/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	6/1/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	5/17/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	6/1/2012	0.0000	0.0000	4
Girella nigricans, adult	5/17/2012	0.0000	0.0000	4
Girella nigricans, adult	6/1/2012	1.0000	1.4142	4
Girella nigricans, juvenile	5/17/2012	0.0000	0.0000	4
Girella nigricans, juvenile	6/1/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	5/17/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	6/1/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	5/17/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	6/1/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	5/17/2012	1.0000	0.8165	4
Hypsypops rubicundus, adult	6/1/2012	0.7500	0.5000	4
Hypsypops rubicundus, juvenile	5/17/2012	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	6/1/2012	0.0000	0.0000	4
Oxyjulis californica, adult	5/17/2012	0.0000	0.0000	4
Oxyjulis californica, adult	6/1/2012	0.2500	0.5000	4
Oxyjulis californica, juvenile	5/17/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	6/1/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	5/17/2012	0.2500	0.5000	4
Paralabrax clathratus, adult	6/1/2012	0.2500	0.5000	4
Paralabrax clathratus, juvenile	5/17/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	6/1/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	5/17/2012	0.2500	0.5000	4
Rhacochilus vacca, adult	6/1/2012	0.5000	1.0000	4
Rhacochilus vacca, juvenile	5/17/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	6/1/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	5/17/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	6/1/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	5/17/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	6/1/2012	0.0000	0.0000	4
Sebastes mystinus, adult	5/17/2012	0.5000	0.5774	4
Sebastes mystinus, adult	6/1/2012	1.0000	1.4142	4
Sebastes mystinus, juvenile	5/17/2012	3.0000	3.4641	4
Sebastes mystinus, juvenile	6/1/2012	4.7500	5.8523	4
Sebastes serranoides, adult	5/17/2012	0.0000	0.0000	4
Sebastes serranoides, adult	6/1/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	5/17/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	6/1/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	5/17/2012	0.2500	0.5000	4
Semicossyphus pulcher, female	6/1/2012	0.2500	0.5000	4
Semicossyphus pulcher, juvenile	5/17/2012	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	6/1/2012	0.2500	0.5000	4
Semicossyphus pulcher, male	5/17/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	6/1/2012	0.0000	0.0000	4

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Barbara Island - Webster's Arch				
Chromis punctipinnis, adult	6/13/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	6/13/2012	3.2500	6.5000	4
Embiotoca jacksoni, adult	6/13/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	6/13/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	6/13/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	6/13/2012	0.0000	0.0000	4
Girella nigricans, adult	6/13/2012	0.0000	0.0000	4
Girella nigricans, juvenile	6/13/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	6/13/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	6/13/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	6/13/2012	0.5000	0.5774	4
Hypsypops rubicundus, juvenile	6/13/2012	0.0000	0.0000	4
Oxyjulis californica, adult	6/13/2012	0.2500	0.5000	4
Oxyjulis californica, juvenile	6/13/2012	4.7500	5.8523	4
Paralabrax clathratus, adult	6/13/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	6/13/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	6/13/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	6/13/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	6/13/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	6/13/2012	0.0000	0.0000	4
Sebastes mystinus, adult	6/13/2012	0.0000	0.0000	4
Sebastes mystinus, juvenile	6/13/2012	0.0000	0.0000	4
Sebastes serranoides, adult	6/13/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	6/13/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	6/13/2012	1.7500	0.5000	4
Semicossyphus pulcher, juvenile	6/13/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	6/13/2012	0.2500	0.5000	4
Santa Barbara Island - Graveyard Canyon				
Chromis punctipinnis, adult	5/31/2012	0.0000	0.0000	4
Chromis punctipinnis, juvenile	5/31/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	5/31/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	5/31/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	5/31/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	5/31/2012	0.0000	0.0000	4
Girella nigricans, adult	5/31/2012	0.0000	0.0000	4
Girella nigricans, juvenile	5/31/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	5/31/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	5/31/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	5/31/2012	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	5/31/2012	0.0000	0.0000	4
Oxyjulis californica, adult	5/31/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	5/31/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	5/31/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	5/31/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	5/31/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	5/31/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	5/31/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	5/31/2012	0.0000	0.0000	4
Sebastes mystinus, adult	5/31/2012	0.0000	0.0000	4
Sebastes mystinus, juvenile	5/31/2012	0.0000	0.0000	4
Sebastes serranoides, adult	5/31/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	5/31/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	5/31/2012	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	5/31/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	5/31/2012	0.0000	0.0000	4

2012 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Barbara Island - Southeast Reef				
Chromis punctipinnis, adult	5/30/2012	7.5000	7.5498	4
Chromis punctipinnis, juvenile	5/30/2012	0.0000	0.0000	4
Embiotoca jacksoni, adult	5/30/2012	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	5/30/2012	0.0000	0.0000	4
Embiotoca lateralis, adult	5/30/2012	0.0000	0.0000	4
Embiotoca lateralis, juvenile	5/30/2012	0.0000	0.0000	4
Girella nigricans, adult	5/30/2012	0.2500	0.5000	4
Girella nigricans, juvenile	5/30/2012	0.0000	0.0000	4
Halichoeres semicinctus, female	5/30/2012	0.0000	0.0000	4
Halichoeres semicinctus, male	5/30/2012	0.0000	0.0000	4
Hypsypops rubicundus, adult	5/30/2012	2.2500	1.2583	4
Hypsypops rubicundus, juvenile	5/30/2012	0.0000	0.0000	4
Oxyjulis californica, adult	5/30/2012	0.0000	0.0000	4
Oxyjulis californica, juvenile	5/30/2012	0.0000	0.0000	4
Paralabrax clathratus, adult	5/30/2012	0.0000	0.0000	4
Paralabrax clathratus, juvenile	5/30/2012	0.0000	0.0000	4
Rhacochilus vacca, adult	5/30/2012	0.0000	0.0000	4
Rhacochilus vacca, juvenile	5/30/2012	0.0000	0.0000	4
Sebastes atrovirens, adult	5/30/2012	0.0000	0.0000	4
Sebastes atrovirens, juvenile	5/30/2012	0.0000	0.0000	4
Sebastes mystinus, adult	5/30/2012	0.0000	0.0000	4
Sebastes mystinus, juvenile	5/30/2012	0.0000	0.0000	4
Sebastes serranoides, adult	5/30/2012	0.0000	0.0000	4
Sebastes serranoides, juvenile	5/30/2012	0.0000	0.0000	4
Semicossyphus pulcher, female	5/30/2012	0.2500	0.5000	4
Semicossyphus pulcher, juvenile	5/30/2012	0.0000	0.0000	4
Semicossyphus pulcher, male	5/30/2012	0.0000	0.0000	4

Appendix G. Fish Size Frequency Data

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Wyckoff Ledge

Embiotoca lateralis, all

< 5	0.0 %
5 - 9	89.5 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	5.3 %
35 - 39	5.3 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	19
mean	24
min size (mm)	8
max size (mm)	35

Hexagrammos decagrammus

< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	9
min size (mm)	9
max size (mm)	9

Ophiodon elongatus

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	100.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	2
mean	65
min size (mm)	65
max size (mm)	65

Oxyjulis californica, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	100.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	11
mean	18
min size (mm)	16
max size (mm)	19

Rhacochilus vacca, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	50.0 %
30 - 34	0.0 %
35 - 39	50.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	32
min size (mm)	27
max size (mm)	37

Sebastes atrovirens, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	16.7 %
30 - 34	41.7 %
35 - 39	41.7 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	12
mean	31
min size (mm)	25
max size (mm)	37

Sebastes atrovirens/carnatus/caurinus/chrysomelas, juvenile

< 2	0.0 %
2	0.0 %
3	0.0 %
4	0.0 %
5	20.0 %
6	0.0 %
7	60.0 %
8	20.0 %
9	0.0 %
10	0.0 %
11	0.0 %
12	0.0 %
13	0.0 %
14	0.0 %
15	0.0 %
>15	0.0 %
(Cases) N =	5
mean	7
min size (mm)	5
max size (mm)	8

Sebastes mystinus, all

< 5	0.0 %
5 - 9	57.1 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	14.3 %
40 - 44	28.6 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	14
mean	34
min size (mm)	8
max size (mm)	44

Sebastes serranoides, all

< 5	0.0 %
5 - 9	50.0 %
10 - 14	0.0 %
15 - 19	50.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	13
min size (mm)	9
max size (mm)	17

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Wyckoff Ledge

Semicossyphus pulcher, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	20.0 %
45 - 49	40.0 %
> 49	40.0 %
(Cases) N =	5
mean	51
min size (mm)	42
max size (mm)	60

Sebastes miniatus, all

<10	50.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	50.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	2
mean	27
min size (mm)	3
max size (mm)	50

Scorpaenichthys marmoratus, all

< 5	0.0 %
5 - 9	16.7 %
10 - 14	33.3 %
15 - 19	0.0 %
20 - 24	16.7 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	16.7 %
40 - 44	0.0 %
45 - 49	16.7 %
> 49	0.0 %
(Cases) N =	6
mean	22
min size (mm)	8
max size (mm)	46

Sebastes serriceps, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	50.0 %
35 - 39	50.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	35
min size (mm)	33
max size (mm)	37

Sebastes caurinus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	11.1 %
20 - 24	11.1 %
25 - 29	0.0 %
30 - 34	11.1 %
35 - 39	22.2 %
40 - 44	33.3 %
45 - 49	11.1 %
> 49	0.0 %
(Cases) N =	9
mean	35
min size (mm)	17
max size (mm)	45

Sebastes chrysomelas, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	72.7 %
30 - 34	27.3 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	11
mean	27
min size (mm)	25
max size (mm)	30

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Hare Rock

Chromis punctipinnis, all

< 5	5.9 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	19.6 %
20 - 24	39.2 %
25 - 29	17.6 %
30 - 34	17.6 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	51
mean	20
min size (mm)	3
max size (mm)	32

Embiotoca jacksoni, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	100.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	40
min size (mm)	40
max size (mm)	40

Embiotoca lateralis, all

< 5	0.0 %
5 - 9	21.1 %
10 - 14	36.8 %
15 - 19	0.0 %
20 - 24	5.3 %
25 - 29	10.5 %
30 - 34	5.3 %
35 - 39	21.1 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	19
mean	22
min size (mm)	8
max size (mm)	39

Hexagrammos decagrammus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	100.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	15
min size (mm)	15
max size (mm)	15

Ophiodon elongatus

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	50.0 %
60 - 69	0.0 %
70 - 79	50.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	2
mean	60
min size (mm)	50
max size (mm)	70

Oxyjulis californica, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	100.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	12
mean	16
min size (mm)	16
max size (mm)	16

Rhacochilus vacca, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	20.0 %
30 - 34	0.0 %
35 - 39	80.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	10
mean	32
min size (mm)	27
max size (mm)	35

Sebastes atrovirens, all

< 5	0.0 %
5 - 9	27.3 %
10 - 14	6.1 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	6.1 %
30 - 34	24.2 %
35 - 39	36.4 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	33
mean	29
min size (mm)	5
max size (mm)	39

Sebastes atrovirens/carnatus/caurinus/chrysomelas, juvenile

< 2	0.0 %
2	0.0 %
3	0.0 %
4	0.0 %
5	100.0 %
6	0.0 %
7	0.0 %
8	0.0 %
9	0.0 %
10	0.0 %
11	0.0 %
12	0.0 %
13	0.0 %
14	0.0 %
15	0.0 %
>15	0.0 %
(Cases) N =	4
mean	5
min size (mm)	5
max size (mm)	5

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Hare Rock

Sebastes mystinus, all	
< 5	0.0 %
5 - 9	54.1 %
10 - 14	1.3 %
15 - 19	5.7 %
20 - 24	0.0 %
25 - 29	35.0 %
30 - 34	0.0 %
35 - 39	1.9 %
40 - 44	1.9 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	157
mean	25
min size (mm)	8
max size (mm)	42

Semicossyphus pulcher, female	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	100.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	40
min size (mm)	40
max size (mm)	40

Sebastes miniatus, all	
<10	100.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	2
mean	7
min size (mm)	7
max size (mm)	7

Sebastes serranoides, all	
< 5	0.0 %
5 - 9	20.0 %
10 - 14	0.0 %
15 - 19	13.3 %
20 - 24	6.7 %
25 - 29	13.3 %
30 - 34	0.0 %
35 - 39	20.0 %
40 - 44	6.7 %
45 - 49	6.7 %
> 49	13.3 %
(Cases) N =	15
mean	34
min size (mm)	8
max size (mm)	55

Scorpaenichthys marmoratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	33.3 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	66.7 %
(Cases) N =	3
mean	43
min size (mm)	25
max size (mm)	54

Sebastes serriceps, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	50.0 %
25 - 29	25.0 %
30 - 34	25.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	4
mean	24
min size (mm)	20
max size (mm)	30

Semicossyphus pulcher, male	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	100.0 %
(Cases) N =	2
mean	73
min size (mm)	70
max size (mm)	75

Sebastes caurinus, all	
< 5	0.0 %
5 - 9	12.5 %
10 - 14	0.0 %
15 - 19	12.5 %
20 - 24	12.5 %
25 - 29	12.5 %
30 - 34	37.5 %
35 - 39	0.0 %
40 - 44	12.5 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	8
mean	25
min size (mm)	7
max size (mm)	41

Sebastes chrysomelas, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	30.0 %
25 - 29	60.0 %
30 - 34	10.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	10
mean	26
min size (mm)	23
max size (mm)	30

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee North

Chromis punctipinnis, all

< 5	0.0 %
5 - 9	16.7 %
10 - 14	33.3 %
15 - 19	0.0 %
20 - 24	50.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	6
mean	13
min size (mm)	6
max size (mm)	22

Embiotoca jacksoni, all

< 5	0.0 %
5 - 9	55.6 %
10 - 14	0.0 %
15 - 19	5.6 %
20 - 24	0.0 %
25 - 29	11.1 %
30 - 34	5.6 %
35 - 39	22.2 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	18
mean	24
min size (mm)	7
max size (mm)	39

Embiotoca lateralis, all

< 5	0.0 %
5 - 9	26.9 %
10 - 14	26.9 %
15 - 19	3.8 %
20 - 24	11.5 %
25 - 29	15.4 %
30 - 34	3.8 %
35 - 39	11.5 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	26
mean	20
min size (mm)	7
max size (mm)	37

Oxyjulis californica, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	21.4 %
15 - 19	35.7 %
20 - 24	42.9 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	28
mean	18
min size (mm)	12
max size (mm)	23

Paralabrax clathratus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	27
min size (mm)	27
max size (mm)	27

Pleuronichthys coenosus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	100.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	24
min size (mm)	24
max size (mm)	24

Rhacochilus vacca, all

< 5	0.0 %
5 - 9	42.9 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	14.3 %
25 - 29	14.3 %
30 - 34	14.3 %
35 - 39	14.3 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	7
mean	20
min size (mm)	7
max size (mm)	37

Sebastes atrovirens, all

< 5	0.0 %
5 - 9	5.7 %
10 - 14	2.9 %
15 - 19	8.6 %
20 - 24	28.6 %
25 - 29	14.3 %
30 - 34	40.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	35
mean	24
min size (mm)	5
max size (mm)	34

Sebastes atrovirens/carnatus/caurinus/chrysomelas, juvenile

< 2	0.0 %
2	0.0 %
3	0.0 %
4	0.0 %
5	0.0 %
6	0.0 %
7	0.0 %
8	100.0 %
9	0.0 %
10	0.0 %
11	0.0 %
12	0.0 %
13	0.0 %
14	0.0 %
15	0.0 %
>15	0.0 %
(Cases) N =	1
mean	8
min size (mm)	8
max size (mm)	8

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee North

Sebastes mystinus, all

< 5	0.0 %
5 - 9	83.8 %
10 - 14	0.6 %
15 - 19	0.6 %
20 - 24	14.4 %
25 - 29	0.6 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	167
mean	18
min size (mm)	7
max size (mm)	25

Sebastes serranoides, all

< 5	0.0 %
5 - 9	41.1 %
10 - 14	12.2 %
15 - 19	1.1 %
20 - 24	34.4 %
25 - 29	6.7 %
30 - 34	0.0 %
35 - 39	2.2 %
40 - 44	2.2 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	90
mean	21
min size (mm)	9
max size (mm)	40

Stereolepis gigas, adult

< 50	0.0 %
50 - 99	0.0 %
100 - 149	0.0 %
150 - 199	100.0 %
200 - 249	0.0 %
250 - 299	0.0 %
>299	0.0 %
(Cases) N =	1
mean	150
min size (mm)	150
max size (mm)	150

Semicossyphus pulcher, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	12.5 %
25 - 29	37.5 %
30 - 34	12.5 %
35 - 39	12.5 %
40 - 44	12.5 %
45 - 49	12.5 %
> 49	0.0 %
(Cases) N =	8
mean	33
min size (mm)	24
max size (mm)	47

Halichoeres semicinctus, male

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	27
min size (mm)	27
max size (mm)	27

Heterostichus rostratus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	100.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	12
min size (mm)	12
max size (mm)	12

Hypsypops rubicundus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	28
min size (mm)	28
max size (mm)	28

Medialuna californiensis, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	100.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	18
min size (mm)	18
max size (mm)	18

Sebastes carnatus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	100.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	21
min size (mm)	21
max size (mm)	21

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee North

Sebastes serriceps, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	66.7 %
25 - 29	16.7 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	16.7 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	6
mean	28
min size (mm)	20
max size (mm)	40

Sebastes chrysomelas, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	37.5 %
25 - 29	50.0 %
30 - 34	12.5 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	8
mean	26
min size (mm)	23
max size (mm)	30

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee South

Chromis punctipinnis, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	20.0 %
15 - 19	5.0 %
20 - 24	75.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	20
mean	17
min size (mm)	12
max size (mm)	22

Ophiodon elongatus	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	50.0 %
70 - 79	50.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	2
mean	69
min size (mm)	62
max size (mm)	75

Pleuronichthys coenosus	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	100.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	24
min size (mm)	24
max size (mm)	24

Embiotoca jacksoni, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	16.7 %
35 - 39	83.3 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	6
mean	35
min size (mm)	30
max size (mm)	39

Oxyjulis californica, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	100.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	77
mean	22
min size (mm)	20
max size (mm)	23

Rhacochilus toxotes	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	40.0 %
35 - 39	0.0 %
40 - 44	60.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	36
min size (mm)	30
max size (mm)	41

Embiotoca lateralis, all	
< 5	0.0 %
5 - 9	14.3 %
10 - 14	0.0 %
15 - 19	9.5 %
20 - 24	47.6 %
25 - 29	9.5 %
30 - 34	9.5 %
35 - 39	9.5 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	21
mean	26
min size (mm)	9
max size (mm)	37

Paralabrax clathratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	16.7 %
40 - 44	50.0 %
45 - 49	16.7 %
> 49	16.7 %
(Cases) N =	6
mean	44
min size (mm)	37
max size (mm)	56

Rhacochilus vacca, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	30.8 %
25 - 29	30.8 %
30 - 34	38.5 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	13
mean	26
min size (mm)	20
max size (mm)	34

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee South

Sebastes atrovirens, all

< 5	0.0 %
5 - 9	4.0 %
10 - 14	0.0 %
15 - 19	12.0 %
20 - 24	8.0 %
25 - 29	12.0 %
30 - 34	56.0 %
35 - 39	8.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	25
mean	26
min size (mm)	7
max size (mm)	35

Sebastes atrovirens/carnatus/caurinus/chrysomelas, juvenile

< 2	0.0 %
20.0	%15 - 19
30.0	%20 - 24
40.0	%25 - 29
533.3	%30 - 34
60.0	%35 - 39
766.7	%40 - 44
80.0	%45 - 49
90.0	%> 49
10	0.0 %
11	0.0 %
12	0.0 %
13	0.0 %
14	0.0 %
15	0.0 %
>15	0.0 %
(Cases) N =	3
mean	6
min size (mm)	5
max size (mm)	7

Sebastes mystinus, all

< 5	0.0 %
5 - 9	80.3 %
10 - 14	0.0 %
15 - 19	2.6 %
20 - 24	2.6 %
25 - 29	0.0 %
30 - 34	2.1 %
35 - 39	10.4 %
40 - 44	2.1 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	193
mean	28
min size (mm)	7
max size (mm)	40

Sebastes serranoides, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	12.5 %
20 - 24	12.5 %
25 - 29	12.5 %
30 - 34	12.5 %
35 - 39	12.5 %
40 - 44	12.5 %
45 - 49	12.5 %
> 49	12.5 %
(Cases) N =	8
mean	35
min size (mm)	17
max size (mm)	55

Semicossyphus pulcher, male

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	12.5 %
> 49	87.5 %
(Cases) N =	8
mean	64
min size (mm)	48
max size (mm)	80

Semicossyphus pulcher, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	16.7 %
30 - 34	16.7 %
35 - 39	0.0 %
40 - 44	50.0 %
45 - 49	0.0 %
> 49	16.7 %
(Cases) N =	6
mean	40
min size (mm)	25
max size (mm)	54

Scorpaenichthys marmoratus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	66.7 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	33.3 %
> 49	0.0 %
(Cases) N =	3
mean	38
min size (mm)	33
max size (mm)	47

Sebastes caurinus, all

< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
0.0	%
0.0	%
0.0	%
0.0	%
0.0	%
0.0	%
0.0	%
(Cases) N =	1
mean	7
min size (mm)	7
max size (mm)	7

Sebastes chrysomelas, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	20.0 %
25 - 29	80.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	24
min size (mm)	23
max size (mm)	25

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Rodes Reef

Chromis punctipinnis, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	100.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	30
mean	19
min size (mm)	19
max size (mm)	19

Embiotoca lateralis, all	
< 5	0.0 %
5 - 9	39.3 %
10 - 14	35.7 %
15 - 19	0.0 %
20 - 24	10.7 %
25 - 29	10.7 %
30 - 34	3.6 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	28
mean	18
min size (mm)	8
max size (mm)	33

Paralabrax clathratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	100.0 %
> 49	0.0 %
(Cases) N =	1
mean	47
min size (mm)	47
max size (mm)	47

Citharichthys spp.	
< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	7
min size (mm)	7
max size (mm)	7

Ophiodon elongatus	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	100.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	1
mean	46
min size (mm)	46
max size (mm)	46

Rhacochilus toxotes	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	100.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	40
min size (mm)	40
max size (mm)	40

Embiotoca jacksoni, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	66.7 %
20 - 24	33.3 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	18
min size (mm)	16
max size (mm)	20

Oxyjulis californica, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	66.7 %
20 - 24	33.3 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	45
mean	20
min size (mm)	18
max size (mm)	21

Rhacochilus vacca, all	
< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	9
min size (mm)	9
max size (mm)	9

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Rodes Reef

Sebastes atrovirens, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	7.7 %
25 - 29	46.2 %
30 - 34	38.5 %
35 - 39	7.7 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	13
mean	29
min size (mm)	21
max size (mm)	35

Sebastes mystinus, all

< 5	0.0 %
5 - 9	51.9 %
10 - 14	1.3 %
15 - 19	19.5 %
20 - 24	11.7 %
25 - 29	6.5 %
30 - 34	6.5 %
35 - 39	1.9 %
40 - 44	0.6 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	154
mean	24
min size (mm)	7
max size (mm)	40

Sebastes serranoides, all

< 5	0.0 %
5 - 9	50.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	50.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	19
min size (mm)	9
max size (mm)	29

Semicossyphus pulcher, male

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	100.0 %
(Cases) N =	2
mean	70
min size (mm)	65
max size (mm)	74

Semicossyphus pulcher, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	100.0 %
(Cases) N =	2
mean	50
min size (mm)	50
max size (mm)	50

Caulolatilus princeps, all

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	11.1 %
60 - 69	55.6 %
70 - 79	33.3 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	9
mean	65
min size (mm)	57
max size (mm)	75

Scorpaenichthys marmoratus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	50.0 %
35 - 39	0.0 %
40 - 44	50.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	37
min size (mm)	33
max size (mm)	40

Sebastes caurinus, all

< 5	0.0 %
5 - 9	20.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	20.0 %
35 - 39	20.0 %
40 - 44	40.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	32
min size (mm)	8
max size (mm)	43

Sebastes melanops, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	100.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	35
min size (mm)	35
max size (mm)	35

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Rodes Reef

Sebastes miniatus, all	
<10	87.5 %
10 - 19	0.0 %
20 - 29	12.5 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	8
mean	11
min size (mm)	6
max size (mm)	27

Sebastes pinniger, all	
< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	8
min size (mm)	8
max size (mm)	8

Sebastes chrysomelas, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	33.3 %
15 - 19	0.0 %
20 - 24	66.7 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	20
min size (mm)	12
max size (mm)	24

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

Chromis punctipinnis, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	100.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	30
mean	19
min size (mm)	19
max size (mm)	19

Ophiodon elongatus	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	40.0 %
50 - 59	20.0 %
60 - 69	20.0 %
70 - 79	20.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	5
mean	57
min size (mm)	45
max size (mm)	70

Rhacochilus toxotes	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	100.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	30
min size (mm)	30
max size (mm)	30

Embiotoca jacksoni, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	100.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	33
min size (mm)	33
max size (mm)	33

Oxyjulis californica, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	100.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	100
mean	21
min size (mm)	21
max size (mm)	21

Rhacochilus vacca, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	27
min size (mm)	27
max size (mm)	27

Embiotoca lateralis, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	100.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	21
min size (mm)	20
max size (mm)	22

Paralabrax clathratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	100.0 %
> 49	0.0 %
(Cases) N =	1
mean	49
min size (mm)	49
max size (mm)	49

Sebastes atrovirens, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	8.3 %
25 - 29	33.3 %
30 - 34	25.0 %
35 - 39	33.3 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	12
mean	31
min size (mm)	20
max size (mm)	37

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

Sebastes mystinus, all

< 5	0.0 %
5 - 9	97.8 %
10 - 14	0.2 %
15 - 19	0.8 %
20 - 24	0.6 %
25 - 29	0.2 %
30 - 34	0.0 %
35 - 39	0.4 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	491
mean	21
min size (mm)	6
max size (mm)	37

Sebastes serranoides, all

< 5	0.0 %
5 - 9	54.8 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	3.2 %
25 - 29	9.7 %
30 - 34	3.2 %
35 - 39	19.4 %
40 - 44	9.7 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	31
mean	31
min size (mm)	6
max size (mm)	43

Semicossyphus pulcher, male

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	100.0 %
(Cases) N =	3
mean	60
min size (mm)	50
max size (mm)	75

Semicossyphus pulcher, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	41.2 %
25 - 29	29.4 %
30 - 34	11.8 %
35 - 39	5.9 %
40 - 44	11.8 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	17
mean	30
min size (mm)	20
max size (mm)	44

Semicossyphus pulcher, juvenile

< 2	0.0 %
2	0.0 %
3	0.0 %
4	0.0 %
5	0.0 %
6	0.0 %
7	0.0 %
8	100.0 %
9	0.0 %
10	0.0 %
11	0.0 %
12	0.0 %
13	0.0 %
14	0.0 %
15	0.0 %
>15	0.0 %
(Cases) N =	1
mean	8
min size (mm)	8
max size (mm)	8

Anarrhichthys ocellatus

	0.0 %
(Cases) N =	1
mean	20
min size (mm)	20
max size (mm)	20

Sebastes carnatus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	33.3 %
25 - 29	66.7 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	24
min size (mm)	22
max size (mm)	26

Sebastes caurinus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	100.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	35
min size (mm)	35
max size (mm)	35

Sebastes chrysomelas, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	25
min size (mm)	25
max size (mm)	25

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Fry's Harbor

Chromis punctipinnis, all	
< 5	4.1 %
5 - 9	0.0 %
10 - 14	59.5 %
15 - 19	28.8 %
20 - 24	6.8 %
25 - 29	0.8 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	781
mean	16
min size (mm)	3
max size (mm)	26

Embiotoca jacksoni, all	
< 5	0.0 %
5 - 9	70.4 %
10 - 14	14.8 %
15 - 19	7.4 %
20 - 24	3.7 %
25 - 29	1.2 %
30 - 34	1.2 %
35 - 39	0.0 %
40 - 44	1.2 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	81
mean	15
min size (mm)	5
max size (mm)	40

Embiotoca lateralis, all	
< 5	0.0 %
5 - 9	7.7 %
10 - 14	38.5 %
15 - 19	7.7 %
20 - 24	15.4 %
25 - 29	23.1 %
30 - 34	7.7 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	13
mean	20
min size (mm)	9
max size (mm)	34

Ophiodon elongatus	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	100.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	1
mean	60
min size (mm)	60
max size (mm)	60

Oxyjulis californica, all	
< 5	0.0 %
5 - 9	0.4 %
10 - 14	5.3 %
15 - 19	36.9 %
20 - 24	57.4 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	474
mean	16
min size (mm)	8
max size (mm)	24

Paralabrax clathratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	7.1 %
30 - 34	14.3 %
35 - 39	42.9 %
40 - 44	28.6 %
45 - 49	7.1 %
> 49	0.0 %
(Cases) N =	14
mean	37
min size (mm)	27
max size (mm)	48

Rhacochilus toxotes	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	8.3 %
35 - 39	50.0 %
40 - 44	41.7 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	12
mean	38
min size (mm)	30
max size (mm)	43

Rhacochilus vacca, all	
< 5	0.0 %
5 - 9	48.8 %
10 - 14	25.6 %
15 - 19	9.3 %
20 - 24	0.0 %
25 - 29	7.0 %
30 - 34	4.7 %
35 - 39	4.7 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	43
mean	16
min size (mm)	6
max size (mm)	37

Sebastes atrovirens, all	
< 5	2.7 %
5 - 9	50.3 %
10 - 14	8.1 %
15 - 19	12.8 %
20 - 24	16.8 %
25 - 29	8.7 %
30 - 34	0.7 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	149
mean	17
min size (mm)	4
max size (mm)	30

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Fry's Harbor

Sebastes atrovirens/carnatus/caurinus/chrysomelas, juvenile

< 2	0.0 %
20.0	%15 - 19
30.0	%20 - 24
40.0	%25 - 29
5100.0	%30 - 34
60.0	%35 - 39
70.0	%40 - 44
80.0	%45 - 49
90.0	%> 49
10	0.0 %
11	0.0 %
12	0.0 %
13	0.0 %
14	0.0 %
15	0.0 %
>15	0.0 %
(Cases) N =	17
mean	5
min size (mm)	5
max size (mm)	5

Sebastes mystinus, all

< 5	0.0 %
5 - 9	99.6 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.4 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	246
mean	13
min size (mm)	8
max size (mm)	22

Sebastes serranoides, all

< 5	0.0 %
5 - 9	9.7 %
10 - 14	72.6 %
15 - 19	8.1 %
20 - 24	6.5 %
25 - 29	3.2 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	62
mean	16
min size (mm)	8
max size (mm)	26

Semicossyphus pulcher, male

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
0.0	%15 - 19
0.0	%20 - 24
0.0	%25 - 29
0.0	%30 - 34
0.0	%35 - 39
0.0	%40 - 44
0.0	%45 - 49
100.0	%> 49
(Cases) N =	3
mean	63
min size (mm)	55
max size (mm)	70

Semicossyphus pulcher, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	7.7 %
25 - 29	38.5 %
30 - 34	38.5 %
35 - 39	15.4 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	13
mean	30
min size (mm)	20
max size (mm)	37

Halichoeres semicinctus, male

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	50.0 %
25 - 29	25.0 %
30 - 34	25.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	8
mean	25
min size (mm)	20
max size (mm)	30

Halichoeres semicinctus, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
0.0	%
0.0	%
100.0	%
0.0	%
0.0	%
0.0	%
0.0	%
0.0	%
(Cases) N =	2
mean	26
min size (mm)	25
max size (mm)	27

Hypsypops rubicundus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	11
mean	27
min size (mm)	25
max size (mm)	28

Medialuna californiensis, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	100.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	17
min size (mm)	17
max size (mm)	17

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Fry's Harbor

Scorpaena guttata, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	100.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	20
min size (mm)	20
max size (mm)	20

Sebastes caurinus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	100.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	12
min size (mm)	12
max size (mm)	12

Scorpaenichthys marmoratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	33.3 %
35 - 39	0.0 %
40 - 44	66.7 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	39
min size (mm)	32
max size (mm)	44

Sebastes serriceps, all	
< 5	0.0 %
5 - 9	11.1 %
10 - 14	22.2 %
15 - 19	11.1 %
20 - 24	0.0 %
25 - 29	11.1 %
30 - 34	22.2 %
35 - 39	11.1 %
40 - 44	11.1 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	9
mean	24
min size (mm)	8
max size (mm)	40

Sebastes carnatus, all	
< 5	0.0 %
5 - 9	25.0 %
10 - 14	33.3 %
15 - 19	8.3 %
20 - 24	16.7 %
25 - 29	16.7 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	12
mean	15
min size (mm)	6
max size (mm)	26

Sebastes chrysomelas, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	50.0 %
15 - 19	12.5 %
20 - 24	25.0 %
25 - 29	12.5 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	8
mean	17
min size (mm)	10
max size (mm)	25

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pelican Bay

Chromis punctipinnis, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	90.6 %
15 - 19	9.4 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	138
mean	16
min size (mm)	14
max size (mm)	18

Paralabrax clathratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	7.1 %
15 - 19	7.1 %
20 - 24	42.9 %
25 - 29	14.3 %
30 - 34	21.4 %
35 - 39	0.0 %
40 - 44	7.1 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	14
mean	25
min size (mm)	14
max size (mm)	40

Sebastes atrovirens, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	11.8 %
20 - 24	23.5 %
25 - 29	35.3 %
30 - 34	29.4 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	17
mean	25
min size (mm)	15
max size (mm)	33

Embiotoca jacksoni, all	
< 5	0.0 %
5 - 9	21.7 %
10 - 14	30.4 %
15 - 19	17.4 %
20 - 24	15.2 %
25 - 29	10.9 %
30 - 34	4.3 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	46
mean	20
min size (mm)	9
max size (mm)	33

Rhacochilus toxotes	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	100.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	35
min size (mm)	35
max size (mm)	35

Sebastes serranoides, all	
< 5	13.3 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	46.7 %
20 - 24	40.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	15
mean	17
min size (mm)	4
max size (mm)	23

Oxyjulis californica, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	100.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	18
min size (mm)	16
max size (mm)	19

Rhacochilus vacca, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	71.4 %
20 - 24	14.3 %
25 - 29	14.3 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	7
mean	19
min size (mm)	15
max size (mm)	28

Semicossyphus pulcher, male	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	100.0 %
(Cases) N =	1
mean	50
min size (mm)	50
max size (mm)	50

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pelican Bay

Semicossyphus pulcher, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	72.7 %
30 - 34	27.3 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	11
mean	30
min size (mm)	26
max size (mm)	34

Halichoeres semicinctus, male

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	33.3 %
25 - 29	66.7 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	24
min size (mm)	22
max size (mm)	26

Halichoeres semicinctus, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	16.7 %
20 - 24	16.7 %
25 - 29	16.7 %
30 - 34	33.3 %
35 - 39	16.7 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	6
mean	26
min size (mm)	15
max size (mm)	35

Hypsypops rubicundus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	17
mean	28
min size (mm)	28
max size (mm)	28

Scorpaenichthys marmoratus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	100.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	32
min size (mm)	32
max size (mm)	32

Sebastes caurinus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	100.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	16
min size (mm)	15
max size (mm)	16

Sebastes serriceps, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	100.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	30
min size (mm)	30
max size (mm)	30

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Scorpion Anchorage

Chromis punctipinnis, all	
< 5	15.6 %
5 - 9	24.6 %
10 - 14	30.8 %
15 - 19	26.1 %
20 - 24	3.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	468
mean	13
min size (mm)	3
max size (mm)	24

Paralabrax clathratus, all	
< 5	0.0 %
5 - 9	3.1 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	6.3 %
25 - 29	31.3 %
30 - 34	25.0 %
35 - 39	15.6 %
40 - 44	15.6 %
45 - 49	3.1 %
> 49	0.0 %
(Cases) N =	32
mean	32
min size (mm)	7
max size (mm)	45

Sebastes atrovirens, all	
< 5	0.0 %
5 - 9	6.3 %
10 - 14	0.0 %
15 - 19	12.5 %
20 - 24	43.8 %
25 - 29	37.5 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	16
mean	22
min size (mm)	5
max size (mm)	28

Embiotoca jacksoni, all	
< 5	0.0 %
5 - 9	12.3 %
10 - 14	24.6 %
15 - 19	41.5 %
20 - 24	6.2 %
25 - 29	13.8 %
30 - 34	1.5 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	65
mean	18
min size (mm)	8
max size (mm)	32

Rhacochilus toxotes	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	50.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	50.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	34
min size (mm)	28
max size (mm)	40

Sebastes mystinus, all	
< 5	0.0 %
5 - 9	74.1 %
10 - 14	0.0 %
15 - 19	7.4 %
20 - 24	14.8 %
25 - 29	3.7 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	27
mean	18
min size (mm)	8
max size (mm)	25

Oxyjulis californica, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	42.3 %
20 - 24	57.7 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	26
mean	19
min size (mm)	16
max size (mm)	23

Rhacochilus vacca, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	33.3 %
20 - 24	0.0 %
25 - 29	33.3 %
30 - 34	33.3 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	24
min size (mm)	18
max size (mm)	30

Sebastes serranoides, all	
< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	9
min size (mm)	9
max size (mm)	9

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Scorpion Anchorage

Sebastes auriculatus, adult	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	100.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	11
min size (mm)	11
max size (mm)	11

Halichoeres semicinctus, male	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	25
min size (mm)	25
max size (mm)	25

Sebastes serriceps, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	66.7 %
20 - 24	0.0 %
25 - 29	33.3 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	21
min size (mm)	17
max size (mm)	26

Semicossyphus pulcher, male	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	100.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	35
min size (mm)	35
max size (mm)	35

Hypsypops rubicundus, all	
< 5	0.0 %
5 - 9	4.5 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	95.5 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	22
mean	20
min size (mm)	5
max size (mm)	28

Sebastes chrysomelas, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	14.3 %
15 - 19	0.0 %
20 - 24	57.1 %
25 - 29	28.6 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	7
mean	22
min size (mm)	13
max size (mm)	26

Semicossyphus pulcher, female	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	37.5 %
30 - 34	50.0 %
35 - 39	0.0 %
40 - 44	12.5 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	8
mean	32
min size (mm)	27
max size (mm)	42

Medialuna californiensis, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	50.0 %
25 - 29	0.0 %
30 - 34	50.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	26
min size (mm)	21
max size (mm)	30

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

Chromis punctipinnis, all	
< 5	5.1 %
5 - 9	0.0 %
10 - 14	94.9 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	79
mean	9
min size (mm)	4
max size (mm)	12

Oxyjulis californica, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	9.1 %
15 - 19	90.9 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	44
mean	16
min size (mm)	12
max size (mm)	19

Sebastes atrovirens, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	33.3 %
20 - 24	0.0 %
25 - 29	66.7 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	22
min size (mm)	16
max size (mm)	26

Embiotoca jacksoni, all	
< 5	0.0 %
5 - 9	14.3 %
10 - 14	71.4 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	14.3 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	7
mean	14
min size (mm)	9
max size (mm)	25

Paralabrax clathratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	16.7 %
25 - 29	66.7 %
30 - 34	16.7 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	6
mean	27
min size (mm)	23
max size (mm)	32

Sebastes mystinus, all	
< 5	0.0 %
5 - 9	83.3 %
10 - 14	0.0 %
15 - 19	16.7 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	18
mean	13
min size (mm)	8
max size (mm)	16

Hypsurus caryi	
< 5	0.0 %
5 - 9	66.7 %
10 - 14	33.3 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	9
min size (mm)	8
max size (mm)	10

Pleuronichthys coenosus	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	100.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	21
min size (mm)	21
max size (mm)	21

Sebastes serranoides, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	50.0 %
20 - 24	50.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	18
min size (mm)	15
max size (mm)	20

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

Semicossyphus pulcher, male	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	100.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	42
min size (mm)	42
max size (mm)	42

Sebastes miniatus, all	
<10	92.3 %
10 - 19	7.7 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	13
mean	9
min size (mm)	7
max size (mm)	10

Semicossyphus pulcher, female	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	35.7 %
25 - 29	42.9 %
30 - 34	21.4 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	14
mean	27
min size (mm)	21
max size (mm)	33

Sebastes serriceps, all	
< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	7
min size (mm)	6
max size (mm)	7

Sebastes caurinus, all	
< 5	0.0 %
5 - 9	62.5 %
10 - 14	12.5 %
15 - 19	12.5 %
20 - 24	0.0 %
25 - 29	12.5 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	8
mean	13
min size (mm)	6
max size (mm)	27

Sebastes chrysomelas, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	33.3 %
15 - 19	0.0 %
20 - 24	66.7 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	18
min size (mm)	12
max size (mm)	22

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Admiral's Reef

Chromis punctipinnis, all

< 5	38.5 %
5 - 9	5.9 %
10 - 14	53.9 %
15 - 19	1.2 %
20 - 24	0.5 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1103
mean	12
min size (mm)	4
max size (mm)	22

Embiotoca jacksoni, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	100.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	12
min size (mm)	10
max size (mm)	14

Paralabrax clathratus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	40.0 %
30 - 34	20.0 %
35 - 39	20.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	20.0 %
(Cases) N =	5
mean	34
min size (mm)	25
max size (mm)	50

Rhacochilus vacca, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	25
min size (mm)	25
max size (mm)	25

Sebastes atrovirens, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	75.0 %
30 - 34	25.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	4
mean	27
min size (mm)	25
max size (mm)	30

Sebastes mystinus, all

< 5	0.0 %
5 - 9	89.4 %
10 - 14	0.7 %
15 - 19	4.6 %
20 - 24	4.6 %
25 - 29	0.7 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	151
mean	18
min size (mm)	8
max size (mm)	25

Sebastes serranoides, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	25
min size (mm)	25
max size (mm)	25

Seriola lalandi

	0.0 %
(Cases) N =	2
mean	70
min size (mm)	70
max size (mm)	70

Stereolepis gigas, adult

< 50	0.0 %
50 - 99	0.0 %
100 - 149	0.0 %
150 - 199	100.0 %
200 - 249	0.0 %
250 - 299	0.0 %
>299	0.0 %
(Cases) N =	1
mean	180
min size (mm)	180
max size (mm)	180

Semicossyphus pulcher, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	15.8 %
25 - 29	47.4 %
30 - 34	36.8 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	19
mean	28
min size (mm)	20
max size (mm)	33

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Admiral's Reef

Halichoeres semicinctus, male

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	50.0 %
30 - 34	50.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	28
min size (mm)	25
max size (mm)	31

Halichoeres semicinctus, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	28
min size (mm)	27
max size (mm)	29

Caulolatilus princeps, all

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	100.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	1
mean	50
min size (mm)	50
max size (mm)	50

Hypsypops rubicundus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	12
mean	27
min size (mm)	27
max size (mm)	27

Scorpaena guttata, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	100.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	30
min size (mm)	30
max size (mm)	30

Scorpaenichthys marmoratus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	25
min size (mm)	25
max size (mm)	25

Sebastes serriceps, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	14.3 %
25 - 29	57.1 %
30 - 34	28.6 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	7
mean	27
min size (mm)	20
max size (mm)	33

Sebastes chrysomelas, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	33.3 %
20 - 24	33.3 %
25 - 29	33.3 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	22
min size (mm)	17
max size (mm)	25

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Cathedral Cove

Chromis punctipinnis, all

< 5	0.0 %
5 - 9	35.7 %
10 - 14	46.3 %
15 - 19	1.7 %
20 - 24	15.7 %
25 - 29	0.6 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	350
mean	16
min size (mm)	8
max size (mm)	25

Embiotoca jacksoni, all

< 5	0.0 %
5 - 9	45.5 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	45.5 %
35 - 39	9.1 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	11
mean	25
min size (mm)	8
max size (mm)	35

Embiotoca lateralis, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	100.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	22
min size (mm)	22
max size (mm)	22

Oxyjulis californica, all

< 5	71.4 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	20.4 %
20 - 24	8.2 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	245
mean	15
min size (mm)	2
max size (mm)	22

Paralabrax clathratus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	25.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	50.0 %
40 - 44	0.0 %
45 - 49	8.3 %
> 49	16.7 %
(Cases) N =	12
mean	36
min size (mm)	12
max size (mm)	53

Rhacochilus toxotes

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	100.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	40
min size (mm)	40
max size (mm)	40

Rhacochilus vacca, all

< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	8
min size (mm)	7
max size (mm)	8

Sebastes atrovirens, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	12.5 %
15 - 19	12.5 %
20 - 24	0.0 %
25 - 29	37.5 %
30 - 34	25.0 %
35 - 39	12.5 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	8
mean	26
min size (mm)	12
max size (mm)	35

Sebastes atrovirens/carnatus/caurinus/chrysomelas, juvenile

< 2	0.0 %
2	0.0 %
3	0.0 %
4	0.0 %
5	0.0 %
6	0.0 %
7	0.0 %
8	100.0 %
9	0.0 %
10	0.0 %
11	0.0 %
12	0.0 %
13	0.0 %
14	0.0 %
15	0.0 %
>15	0.0 %
(Cases) N =	1
mean	8
min size (mm)	8
max size (mm)	8

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Cathedral Cove

Sebastes mystinus, all

< 5	0.0 %
5 - 9	92.5 %
10 - 14	0.0 %
15 - 19	7.5 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	40
mean	15
min size (mm)	6
max size (mm)	19

Sebastes serranoides, all

< 5	0.0 %
5 - 9	88.9 %
10 - 14	11.1 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	9
mean	9
min size (mm)	7
max size (mm)	10

Semicossyphus pulcher, male

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	100.0 %
(Cases) N =	2
mean	67
min size (mm)	57
max size (mm)	77

Semicossyphus pulcher, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	16.7 %
25 - 29	0.0 %
30 - 34	16.7 %
35 - 39	33.3 %
40 - 44	16.7 %
45 - 49	16.7 %
> 49	0.0 %
(Cases) N =	6
mean	36
min size (mm)	23
max size (mm)	48

Halichoeres semicinctus, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	50.0 %
30 - 34	0.0 %
35 - 39	50.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	30
min size (mm)	25
max size (mm)	35

Caulolatilus princeps, all

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	100.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	1
mean	58
min size (mm)	58
max size (mm)	58

Heterostichus rostratus, all

< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	6
min size (mm)	6
max size (mm)	6

Hypsypops rubicundus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	14.3 %
25 - 29	85.7 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	7
mean	24
min size (mm)	22
max size (mm)	26

Scorpaena guttata, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	100.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	18
min size (mm)	17
max size (mm)	19

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Cathedral Cove

Sebastes auriculatus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	100.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	14
min size (mm)	14
max size (mm)	14

Sebastes carnatus, all

< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	8
min size (mm)	8
max size (mm)	8

Sebastes serriceps, all

< 5	0.0 %
5 - 9	50.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	25.0 %
30 - 34	0.0 %
35 - 39	25.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	4
mean	24
min size (mm)	9
max size (mm)	35

Sebastes chrysomelas, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	100.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	12
min size (mm)	11
max size (mm)	13

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove

Chromis punctipinnis, all	
< 5	0.0 %
5 - 9	29.8 %
10 - 14	68.3 %
15 - 19	1.9 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	319
mean	12
min size (mm)	8
max size (mm)	18

Oxyjulis californica, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	38.7 %
20 - 24	61.3 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	31
mean	20
min size (mm)	16
max size (mm)	23

Sebastes atrovirens, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	20.0 %
20 - 24	0.0 %
25 - 29	40.0 %
30 - 34	40.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	28
min size (mm)	19
max size (mm)	32

Embiotoca jacksoni, all	
< 5	0.0 %
5 - 9	72.7 %
10 - 14	0.0 %
15 - 19	9.1 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	18.2 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	11
mean	17
min size (mm)	7
max size (mm)	33

Paralabrax clathratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	20.0 %
30 - 34	20.0 %
35 - 39	20.0 %
40 - 44	20.0 %
45 - 49	20.0 %
> 49	0.0 %
(Cases) N =	5
mean	38
min size (mm)	27
max size (mm)	49

Sebastes mystinus, all	
< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	18
mean	7
min size (mm)	7
max size (mm)	7

Embiotoca lateralis, all	
< 5	0.0 %
5 - 9	40.0 %
10 - 14	20.0 %
15 - 19	0.0 %
20 - 24	20.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	20.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	20
min size (mm)	8
max size (mm)	38

Rhacochilus vacca, all	
< 5	0.0 %
5 - 9	33.3 %
10 - 14	33.3 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	33.3 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	17
min size (mm)	7
max size (mm)	29

Sebastes serranoides, all	
< 5	0.0 %
5 - 9	92.3 %
10 - 14	3.8 %
15 - 19	0.0 %
20 - 24	3.8 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	26
mean	11
min size (mm)	8
max size (mm)	20

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove

Semicossyphus pulcher, male

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	100.0 %
(Cases) N =	1
mean	67
min size (mm)	67
max size (mm)	67

Semicossyphus pulcher, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	50.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	50.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	30
min size (mm)	24
max size (mm)	36

Halichoeres semicinctus, male

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	25
min size (mm)	25
max size (mm)	25

Hypsypops rubicundus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	11
mean	27
min size (mm)	27
max size (mm)	27

Scorpaena guttata, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	50.0 %
30 - 34	0.0 %
35 - 39	50.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	31
min size (mm)	26
max size (mm)	35

Scorpaenichthys marmoratus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	20.0 %
25 - 29	20.0 %
30 - 34	20.0 %
35 - 39	40.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	30
min size (mm)	22
max size (mm)	36

Sebastes paucispinis, all

< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	9
min size (mm)	8
max size (mm)	9

Sebastes rastrelliger, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	100.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	37
min size (mm)	37
max size (mm)	37

Sebastes serriceps, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	25
min size (mm)	25
max size (mm)	25

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove

Sebastes chrysomelas, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	33.3 %
25 - 29	66.7 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	24
min size (mm)	20
max size (mm)	26

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - SE Sea Lion Rookery

Chromis punctipinnis, all

< 5	0.0 %
5 - 9	20.0 %
10 - 14	0.0 %
15 - 19	80.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	12
min size (mm)	7
max size (mm)	16

Sebastes mystinus, all

< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	55
mean	8
min size (mm)	8
max size (mm)	8

Sebastes serranoides, all

< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	14
mean	9
min size (mm)	8
max size (mm)	9

Squatina californica

< 50	0.0 %
50 - 99	0.0 %
100 - 149	0.0 %
150 - 199	100.0 %
200 - 249	0.0 %
250 - 299	0.0 %
>299	0.0 %
(Cases) N =	1
mean	160
min size (mm)	160
max size (mm)	160

Semicossyphus pulcher, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	100.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	40
min size (mm)	40
max size (mm)	40

Caulolatilus princeps, all

<10	0.0 %
10 - 19	0.0 %
20 - 29	100.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	1
mean	26
min size (mm)	26
max size (mm)	26

Hypsypops rubicundus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	28
min size (mm)	27
max size (mm)	29

Sebastes caurinus, all

< 5	0.0 %
5 - 9	50.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	50.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	14
min size (mm)	8
max size (mm)	20

Sebastes miniatus, all

<10	100.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	5
mean	8
min size (mm)	7
max size (mm)	9

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - SE Sea Lion Rookery

	Sebastes serriceps, all
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	100.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	15
min size (mm)	15
max size (mm)	15

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Arch Point

Chromis punctipinnis, all	
< 5	0.0 %
5 - 9	3.6 %
10 - 14	47.7 %
15 - 19	47.7 %
20 - 24	0.9 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	111
mean	12
min size (mm)	6
max size (mm)	20

Paralabrax clathratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	33.3 %
20 - 24	66.7 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	6
mean	19
min size (mm)	16
max size (mm)	22

Heterostichus rostratus, all	
< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	9
mean	7
min size (mm)	7
max size (mm)	7

Girella nigricans, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	20.0 %
25 - 29	40.0 %
30 - 34	40.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	28
min size (mm)	24
max size (mm)	32

Sebastes mystinus, all	
< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	34
mean	7
min size (mm)	5
max size (mm)	9

Hypsypops rubicundus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	2.5 %
25 - 29	97.5 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	79
mean	27
min size (mm)	24
max size (mm)	29

Oxyjulis californica, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	100.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	14
min size (mm)	14
max size (mm)	14

Semicossyphus pulcher, female	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	25.0 %
35 - 39	75.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	4
mean	35
min size (mm)	32
max size (mm)	38

Medialuna californiensis, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	100.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	32
min size (mm)	32
max size (mm)	32

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Arch Point

Scorpaena guttata, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	100.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	32
min size (mm)	32
max size (mm)	32

Scorpaenichthys marmoratus, all	
< 5	0.0 %
5 - 9	33.3 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	66.7 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	6
mean	26
min size (mm)	7
max size (mm)	33

Sebastes miniatus, all	
<10	100.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	2
mean	7
min size (mm)	6
max size (mm)	7

Sebastes rastrelliger, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	33.3 %
35 - 39	66.7 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	35
min size (mm)	30
max size (mm)	38

Sebastes serriceps, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	66.7 %
30 - 34	33.3 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	29
min size (mm)	27
max size (mm)	31

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Cat Canyon

Chromis punctipinnis, all	
< 5	0.0 %
5 - 9	20.1 %
10 - 14	55.9 %
15 - 19	20.7 %
20 - 24	3.3 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	304
mean	13
min size (mm)	6
max size (mm)	20

Oxyjulis californica, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	23.1 %
20 - 24	76.9 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	13
mean	19
min size (mm)	16
max size (mm)	20

Semicossyphus pulcher, female	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	22.2 %
25 - 29	38.9 %
30 - 34	11.1 %
35 - 39	22.2 %
40 - 44	5.6 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	18
mean	30
min size (mm)	22
max size (mm)	42

Embiotoca jacksoni, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	75.0 %
30 - 34	25.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	4
mean	29
min size (mm)	28
max size (mm)	30

Paralabrax clathratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	57.1 %
20 - 24	28.6 %
25 - 29	0.0 %
30 - 34	14.3 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	7
mean	21
min size (mm)	15
max size (mm)	32

Hypsypops rubicundus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	15.8 %
25 - 29	84.2 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	19
mean	26
min size (mm)	24
max size (mm)	27

Girella nigricans, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	50.0 %
30 - 34	50.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	29
min size (mm)	27
max size (mm)	30

Paralichthys californicus	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	100.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	1
mean	70
min size (mm)	70
max size (mm)	70

Medialuna californiensis, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	28
min size (mm)	28
max size (mm)	28

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Cat Canyon

Scorpaenichthys marmoratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	50.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	50.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	19
min size (mm)	10
max size (mm)	28

Stereolepis gigas, all	
< 50	0.0 %
50 - 99	0.0 %
100 - 149	0.0 %
150 - 199	100.0 %
200 - 249	0.0 %
250 - 299	0.0 %
>299	0.0 %
(Cases) N =	1
mean	160
min size (mm)	160
max size (mm)	160

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Miracle Mile

Embiotoca jacksoni, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	9.1 %
25 - 29	45.5 %
30 - 34	0.0 %
35 - 39	45.5 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	11
mean	29
min size (mm)	24
max size (mm)	37

Embiotoca lateralis, all	
< 5	0.0 %
5 - 9	7.1 %
10 - 14	0.0 %
15 - 19	42.9 %
20 - 24	0.0 %
25 - 29	28.6 %
30 - 34	7.1 %
35 - 39	7.1 %
40 - 44	7.1 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	14
mean	25
min size (mm)	9
max size (mm)	40

Ophiodon elongatus	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	40.0 %
70 - 79	20.0 %
80 - 89	20.0 %
90 - 99	0.0 %
> 99	20.0 %
(Cases) N =	5
mean	85
min size (mm)	60
max size (mm)	120

Oxyjulis californica, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	52.9 %
20 - 24	47.1 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	17
mean	19
min size (mm)	16
max size (mm)	22

Rhacochilus vacca, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	100.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	39
min size (mm)	39
max size (mm)	39

Sebastes atrovirens, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	9.5 %
30 - 34	81.0 %
35 - 39	9.5 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	21
mean	32
min size (mm)	28
max size (mm)	35

Sebastes mystinus, all	
< 5	0.0 %
5 - 9	34.6 %
10 - 14	0.0 %
15 - 19	11.5 %
20 - 24	15.4 %
25 - 29	15.4 %
30 - 34	3.8 %
35 - 39	19.2 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	26
mean	27
min size (mm)	8
max size (mm)	39

Sebastes serranoides, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	25
min size (mm)	25
max size (mm)	25

Semicossyphus pulcher, male	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	100.0 %
(Cases) N =	1
mean	55
min size (mm)	55
max size (mm)	55

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Miracle Mile

Semicossyphus pulcher, female	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	100.0 %
> 49	0.0 %
(Cases) N =	1
mean	45
min size (mm)	45
max size (mm)	45

Sebastes miniatus, all	
<10	0.0 %
10 - 19	0.0 %
20 - 29	50.0 %
30 - 39	50.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	2
mean	29
min size (mm)	23
max size (mm)	35

Scorpaenichthys marmoratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	100.0 %
> 49	0.0 %
(Cases) N =	1
mean	48
min size (mm)	48
max size (mm)	48

Sebastes pinniger, all	
< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	7
min size (mm)	7
max size (mm)	7

Sebastes melanops, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	20.0 %
25 - 29	40.0 %
30 - 34	0.0 %
35 - 39	20.0 %
40 - 44	20.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	31
min size (mm)	22
max size (mm)	40

Sebastes chrysomelas, all	
< 5	0.0 %
5 - 9	37.5 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	62.5 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	8
mean	17
min size (mm)	7
max size (mm)	24

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Cluster Point

Chromis punctipinnis, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	100.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	18
min size (mm)	18
max size (mm)	18

Ophiodon elongatus	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	50.0 %
70 - 79	0.0 %
80 - 89	50.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	2
mean	74
min size (mm)	67
max size (mm)	80

Sebastes mystinus, all	
< 5	0.0 %
5 - 9	18.5 %
10 - 14	19.4 %
15 - 19	27.4 %
20 - 24	32.3 %
25 - 29	1.6 %
30 - 34	0.8 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	124
mean	21
min size (mm)	7
max size (mm)	33

Embiotoca jacksoni, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	25.0 %
25 - 29	25.0 %
30 - 34	25.0 %
35 - 39	25.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	4
mean	29
min size (mm)	23
max size (mm)	35

Rhacochilus vacca, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	25
min size (mm)	25
max size (mm)	25

Sebastes serranoides, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	50.0 %
20 - 24	30.0 %
25 - 29	20.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	10
mean	21
min size (mm)	15
max size (mm)	27

Embiotoca lateralis, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	7.1 %
20 - 24	14.3 %
25 - 29	14.3 %
30 - 34	42.9 %
35 - 39	21.4 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	14
mean	29
min size (mm)	17
max size (mm)	38

Sebastes atrovirens, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	7.1 %
15 - 19	0.0 %
20 - 24	7.1 %
25 - 29	0.0 %
30 - 34	42.9 %
35 - 39	42.9 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	14
mean	29
min size (mm)	12
max size (mm)	36

Semicossyphus pulcher, male	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	100.0 %
(Cases) N =	4
mean	72
min size (mm)	65
max size (mm)	80

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Cluster Point

Semicossyphus pulcher, female	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	33.3 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	66.7 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	35
min size (mm)	22
max size (mm)	43

Sebastes melanops, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	10.0 %
25 - 29	70.0 %
30 - 34	10.0 %
35 - 39	10.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	10
mean	28
min size (mm)	22
max size (mm)	35

Sebastes chrysomelas, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	25.0 %
15 - 19	0.0 %
20 - 24	62.5 %
25 - 29	12.5 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	8
mean	20
min size (mm)	12
max size (mm)	26

Scorpaenichthys marmoratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	50.0 %
40 - 44	50.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	38
min size (mm)	35
max size (mm)	40

Sebastes miniatus, all	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	100.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	1
mean	55
min size (mm)	55
max size (mm)	55

Sebastes carnatus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	100.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	22
min size (mm)	22
max size (mm)	22

Sebastes serriceps, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	50.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	50.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	23
min size (mm)	12
max size (mm)	33

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Trancion Canyon

Chromis punctipinnis, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	14.5 %
15 - 19	32.9 %
20 - 24	31.9 %
25 - 29	20.7 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	517
mean	22
min size (mm)	14
max size (mm)	29

Ophiodon elongatus	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	50.0 %
60 - 69	0.0 %
70 - 79	50.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	2
mean	62
min size (mm)	52
max size (mm)	72

Rhacochilus vacca, all	
< 5	0.0 %
5 - 9	33.3 %
10 - 14	16.7 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	50.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	6
mean	20
min size (mm)	9
max size (mm)	29

Embiotoca jacksoni, all	
< 5	0.0 %
5 - 9	30.8 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	46.2 %
30 - 34	7.7 %
35 - 39	15.4 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	13
mean	26
min size (mm)	9
max size (mm)	35

Oxyjulis californica, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	2.2 %
15 - 19	76.9 %
20 - 24	20.9 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	91
mean	16
min size (mm)	12
max size (mm)	20

Sebastes atrovirens, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	1.6 %
15 - 19	1.6 %
20 - 24	4.8 %
25 - 29	45.2 %
30 - 34	37.1 %
35 - 39	9.7 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	62
mean	28
min size (mm)	12
max size (mm)	37

Embiotoca lateralis, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	11.8 %
20 - 24	23.5 %
25 - 29	58.8 %
30 - 34	5.9 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	17
mean	24
min size (mm)	17
max size (mm)	30

Rhacochilus toxotes	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	50.0 %
40 - 44	50.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	40
min size (mm)	38
max size (mm)	42

Sebastes mystinus, all	
< 5	0.0 %
5 - 9	61.6 %
10 - 14	18.7 %
15 - 19	10.5 %
20 - 24	7.3 %
25 - 29	1.4 %
30 - 34	0.5 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	219
mean	19
min size (mm)	8
max size (mm)	33

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Trancion Canyon

Sebastes serranoides, all	
< 5	0.0 %
5 - 9	37.0 %
10 - 14	0.0 %
15 - 19	3.7 %
20 - 24	29.6 %
25 - 29	3.7 %
30 - 34	7.4 %
35 - 39	14.8 %
40 - 44	3.7 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	27
mean	26
min size (mm)	8
max size (mm)	40

Scorpaenichthys marmoratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	33.3 %
35 - 39	0.0 %
40 - 44	33.3 %
45 - 49	0.0 %
> 49	33.3 %
(Cases) N =	3
mean	44
min size (mm)	32
max size (mm)	57

Sebastes chrysomelas, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	83.3 %
25 - 29	16.7 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	12
mean	23
min size (mm)	20
max size (mm)	25

Semicossyphus pulcher, male	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	25.0 %
45 - 49	0.0 %
> 49	75.0 %
(Cases) N =	4
mean	55
min size (mm)	40
max size (mm)	70

Sebastes melanops, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	5.9 %
25 - 29	47.1 %
30 - 34	23.5 %
35 - 39	11.8 %
40 - 44	11.8 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	17
mean	32
min size (mm)	23
max size (mm)	41

Semicossyphus pulcher, female	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	14.3 %
25 - 29	0.0 %
30 - 34	14.3 %
35 - 39	14.3 %
40 - 44	42.9 %
45 - 49	0.0 %
> 49	14.3 %
(Cases) N =	7
mean	39
min size (mm)	22
max size (mm)	55

Sebastes serriceps, all	
< 5	0.0 %
5 - 9	66.7 %
10 - 14	33.3 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	9
min size (mm)	7
max size (mm)	12

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Chickasaw

Chromis punctipinnis, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	100.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	16
min size (mm)	16
max size (mm)	16

Ophiodon elongatus	
<10	0.0 %
10 - 19	0.0 %
20 - 29	16.7 %
30 - 39	0.0 %
40 - 49	33.3 %
50 - 59	0.0 %
60 - 69	33.3 %
70 - 79	16.7 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	6
mean	52
min size (mm)	28
max size (mm)	73

Rhacochilus vacca, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	50.0 %
30 - 34	50.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	31
min size (mm)	29
max size (mm)	32

Embiotoca jacksoni, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	25.0 %
30 - 34	50.0 %
35 - 39	0.0 %
40 - 44	25.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	4
mean	33
min size (mm)	29
max size (mm)	40

Oxyjulis californica, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	100.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	20
min size (mm)	20
max size (mm)	20

Sebastes atrovirens, all	
< 5	0.0 %
5 - 9	3.3 %
10 - 14	3.3 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	13.3 %
30 - 34	73.3 %
35 - 39	6.7 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	30
mean	28
min size (mm)	6
max size (mm)	36

Embiotoca lateralis, all	
< 5	0.0 %
5 - 9	53.8 %
10 - 14	0.0 %
15 - 19	7.7 %
20 - 24	0.0 %
25 - 29	23.1 %
30 - 34	7.7 %
35 - 39	7.7 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	13
mean	20
min size (mm)	7
max size (mm)	36

Paralabrax clathratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	100.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	24
min size (mm)	24
max size (mm)	24

Sebastes mystinus, all	
< 5	0.0 %
5 - 9	31.4 %
10 - 14	1.3 %
15 - 19	32.1 %
20 - 24	24.5 %
25 - 29	8.2 %
30 - 34	0.0 %
35 - 39	1.9 %
40 - 44	0.6 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	159
mean	24
min size (mm)	8
max size (mm)	40

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Chickasaw

Sebastes serranoides, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	25.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	25.0 %
35 - 39	50.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	4
mean	27
min size (mm)	10
max size (mm)	37

Semicossyphus pulcher, male

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	100.0 %
(Cases) N =	3
mean	67
min size (mm)	60
max size (mm)	75

Semicossyphus pulcher, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	20.0 %
35 - 39	20.0 %
40 - 44	0.0 %
45 - 49	60.0 %
> 49	0.0 %
(Cases) N =	5
mean	41
min size (mm)	30
max size (mm)	48

Scorpaenichthys marmoratus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	33.3 %
35 - 39	33.3 %
40 - 44	0.0 %
45 - 49	33.3 %
> 49	0.0 %
(Cases) N =	3
mean	39
min size (mm)	32
max size (mm)	47

Sebastes pinniger, all

< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	8
min size (mm)	7
max size (mm)	8

Sebastes serriceps, all

< 5	0.0 %
5 - 9	25.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	75.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	4
mean	19
min size (mm)	7
max size (mm)	26

Sebastes chrysomelas, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	87.5 %
25 - 29	12.5 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	8
mean	23
min size (mm)	20
max size (mm)	25

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - South Point

Chromis punctipinnis, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	33.3 %
20 - 24	33.3 %
25 - 29	33.3 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	21
min size (mm)	18
max size (mm)	25

Embiotoca jacksoni, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	33.3 %
30 - 34	66.7 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	29
min size (mm)	27
max size (mm)	30

Embiotoca lateralis, all	
< 5	0.0 %
5 - 9	11.8 %
10 - 14	0.0 %
15 - 19	5.9 %
20 - 24	5.9 %
25 - 29	23.5 %
30 - 34	17.6 %
35 - 39	29.4 %
40 - 44	5.9 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	17
mean	29
min size (mm)	9
max size (mm)	40

Hexagrammos decagrammus	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	100.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	33
min size (mm)	33
max size (mm)	33

Hypsurus caryi	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	100.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	17
min size (mm)	15
max size (mm)	18

Ophiodon elongatus	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	100.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	1
mean	45
min size (mm)	45
max size (mm)	45

Oxyjulis californica, all	
< 5	0.0 %
5 - 9	10.1 %
10 - 14	29.4 %
15 - 19	31.9 %
20 - 24	28.6 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	119
mean	14
min size (mm)	9
max size (mm)	20

Paralabrax clathratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	100.0 %
> 49	0.0 %
(Cases) N =	1
mean	45
min size (mm)	45
max size (mm)	45

Rhacochilus toxotes	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	33.3 %
40 - 44	66.7 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	41
min size (mm)	39
max size (mm)	43

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - South Point

Sebastes atrovirens, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	4.2 %
15 - 19	0.0 %
20 - 24	8.3 %
25 - 29	25.0 %
30 - 34	62.5 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	24
mean	27
min size (mm)	12
max size (mm)	34

Sebastes mystinus, all	
< 5	0.0 %
5 - 9	65.2 %
10 - 14	0.0 %
15 - 19	3.0 %
20 - 24	4.5 %
25 - 29	19.7 %
30 - 34	1.5 %
35 - 39	6.1 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	66
mean	26
min size (mm)	8
max size (mm)	37

Sebastes serranoides, all	
< 5	0.0 %
5 - 9	60.4 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	2.1 %
25 - 29	6.3 %
30 - 34	4.2 %
35 - 39	2.1 %
40 - 44	10.4 %
45 - 49	10.4 %
> 49	4.2 %
(Cases) N =	48
mean	36
min size (mm)	8
max size (mm)	52

Semicossyphus pulcher, male	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	100.0 %
(Cases) N =	4
mean	65
min size (mm)	60
max size (mm)	72

Semicossyphus pulcher, female	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	14.3 %
25 - 29	14.3 %
30 - 34	0.0 %
35 - 39	14.3 %
40 - 44	28.6 %
45 - 49	28.6 %
> 49	0.0 %
(Cases) N =	7
mean	38
min size (mm)	24
max size (mm)	47

Scorpaenichthys marmoratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	33.3 %
25 - 29	0.0 %
30 - 34	33.3 %
35 - 39	33.3 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	29
min size (mm)	20
max size (mm)	35

Sebastes paucispinis, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	100.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	7
mean	10
min size (mm)	10
max size (mm)	10

Sebastes chrysomelas, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	75.0 %
25 - 29	25.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	4
mean	23
min size (mm)	20
max size (mm)	26

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Devil's Peak Member

Chromis punctipinnis, all	
< 5	3.8 %
5 - 9	3.0 %
10 - 14	52.6 %
15 - 19	40.4 %
20 - 24	0.3 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	399
mean	14
min size (mm)	3
max size (mm)	22

Oxyjulis californica, all	
< 5	34.2 %
5 - 9	0.0 %
10 - 14	2.1 %
15 - 19	52.7 %
20 - 24	11.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	146
mean	16
min size (mm)	3
max size (mm)	24

Rhacochilus vacca, all	
< 5	0.0 %
5 - 9	10.5 %
10 - 14	21.1 %
15 - 19	15.8 %
20 - 24	10.5 %
25 - 29	31.6 %
30 - 34	5.3 %
35 - 39	5.3 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	19
mean	20
min size (mm)	9
max size (mm)	35

Embiotoca jacksoni, all	
< 5	0.0 %
5 - 9	7.5 %
10 - 14	28.3 %
15 - 19	22.6 %
20 - 24	18.9 %
25 - 29	15.1 %
30 - 34	3.8 %
35 - 39	3.8 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	53
mean	20
min size (mm)	7
max size (mm)	39

Paralabrax clathratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	8.7 %
20 - 24	21.7 %
25 - 29	39.1 %
30 - 34	21.7 %
35 - 39	4.3 %
40 - 44	4.3 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	23
mean	27
min size (mm)	15
max size (mm)	40

Sebastes atrovirens, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	11.1 %
20 - 24	11.1 %
25 - 29	66.7 %
30 - 34	11.1 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	9
mean	25
min size (mm)	15
max size (mm)	30

Ophiodon elongatus	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	100.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	1
mean	72
min size (mm)	72
max size (mm)	72

Rhacochilus toxotes	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	40.0 %
35 - 39	40.0 %
40 - 44	20.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	37
min size (mm)	33
max size (mm)	43

Sebastes mystinus, all	
< 5	0.0 %
5 - 9	27.6 %
10 - 14	1.0 %
15 - 19	3.8 %
20 - 24	33.3 %
25 - 29	1.0 %
30 - 34	33.3 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	105
mean	21
min size (mm)	6
max size (mm)	32

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Devil's Peak Member

Sebastes serranoides, all	
< 5	0.0 %
5 - 9	6.3 %
10 - 14	0.0 %
15 - 19	25.0 %
20 - 24	12.5 %
25 - 29	50.0 %
30 - 34	6.3 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	16
mean	23
min size (mm)	9
max size (mm)	30

Halichoeres semicinctus, female	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	40.0 %
25 - 29	60.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	25
min size (mm)	22
max size (mm)	27

Scorpaena guttata, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	100.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	24
min size (mm)	24
max size (mm)	24

Semicossyphus pulcher, female	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	42.9 %
30 - 34	57.1 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	7
mean	30
min size (mm)	26
max size (mm)	33

Hypsypops rubicundus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	33
mean	28
min size (mm)	27
max size (mm)	28

Sebastes carnatus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	100.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	17
min size (mm)	17
max size (mm)	17

Halichoeres semicinctus, male	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	100.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	30
min size (mm)	30
max size (mm)	30

Medialuna californiensis, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	33.3 %
25 - 29	66.7 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	25
min size (mm)	23
max size (mm)	26

Sebastes serriceps, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	14.3 %
20 - 24	14.3 %
25 - 29	71.4 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	7
mean	25
min size (mm)	19
max size (mm)	28

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Devil's Peak Member

	Sebastes chrysomelas, all
< 5	0.0 %
5 - 9	0.0 %
10 - 14	20.0 %
15 - 19	20.0 %
20 - 24	40.0 %
25 - 29	20.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	20
min size (mm)	13
max size (mm)	25

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Potato Pasture

Chromis punctipinnis, all	
< 5	22.1 %
5 - 9	6.3 %
10 - 14	39.4 %
15 - 19	12.8 %
20 - 24	17.2 %
25 - 29	2.2 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1357
mean	13
min size (mm)	3
max size (mm)	26

Oxyjulis californica, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	34.4 %
20 - 24	65.6 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	61
mean	19
min size (mm)	16
max size (mm)	24

Rhacochilus vacca, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	20.0 %
20 - 24	0.0 %
25 - 29	80.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	24
min size (mm)	15
max size (mm)	28

Embiotoca jacksoni, all	
< 5	0.0 %
5 - 9	12.5 %
10 - 14	26.6 %
15 - 19	20.3 %
20 - 24	18.8 %
25 - 29	15.6 %
30 - 34	1.6 %
35 - 39	4.7 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	64
mean	20
min size (mm)	8
max size (mm)	35

Paralabrax clathratus, all	
< 5	0.0 %
5 - 9	1.9 %
10 - 14	1.9 %
15 - 19	0.0 %
20 - 24	23.1 %
25 - 29	13.5 %
30 - 34	15.4 %
35 - 39	19.2 %
40 - 44	15.4 %
45 - 49	5.8 %
> 49	3.8 %
(Cases) N =	52
mean	33
min size (mm)	5
max size (mm)	55

Sebastes atrovirens, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	100.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	31
min size (mm)	30
max size (mm)	32

Ophiodon elongatus	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	100.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	1
mean	35
min size (mm)	35
max size (mm)	35

Rhacochilus toxotes	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	14.3 %
35 - 39	42.9 %
40 - 44	42.9 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	7
mean	38
min size (mm)	34
max size (mm)	40

Sebastes mystinus, all	
< 5	0.0 %
5 - 9	74.0 %
10 - 14	1.0 %
15 - 19	4.8 %
20 - 24	8.7 %
25 - 29	11.5 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	104
mean	21
min size (mm)	8
max size (mm)	29

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Potato Pasture

Sebastes serranoides, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	37.5 %
20 - 24	12.5 %
25 - 29	50.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	8
mean	23
min size (mm)	15
max size (mm)	28

Halichoeres semicinctus, juvenile

< 2	0.0 %
20.0	%5 - 9
350.0	%10 - 14
450.0	%15 - 19
50.0	%20 - 24
60.0	%25 - 29
70.0	%30 - 34
80.0	%35 - 39
90.0	%40 - 44
10	0.0 %
11	0.0 %
12	0.0 %
13	0.0 %
14	0.0 %
15	0.0 %
>15	0.0 %
(Cases) N =	2
mean	4
min size (mm)	3
max size (mm)	4

Semicossyphus pulcher, male

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	100.0 %
(Cases) N =	3
mean	73
min size (mm)	65
max size (mm)	80

Semicossyphus pulcher, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	13.6 %
25 - 29	22.7 %
30 - 34	31.8 %
35 - 39	13.6 %
40 - 44	9.1 %
45 - 49	4.5 %
> 49	4.5 %
(Cases) N =	22
mean	33
min size (mm)	22
max size (mm)	50

Halichoeres semicinctus, male

< 5	0.0 %
0.0	%5 - 9
0.0	%10 - 14
0.0	%15 - 19
0.0	%20 - 24
100.0	%25 - 29
0.0	%30 - 34
0.0	%35 - 39
0.0	%40 - 44
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	26
min size (mm)	25
max size (mm)	27

Halichoeres semicinctus, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	50.0 %
25 - 29	50.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	23
min size (mm)	20
max size (mm)	25

Caulolatilus princeps, all

<10	0.0 %
10 - 19	0.0 %
20 - 29	33.3 %
30 - 39	33.3 %
40 - 49	16.7 %
50 - 59	0.0 %
60 - 69	16.7 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	6
mean	38
min size (mm)	27
max size (mm)	65

Hypsypops rubicundus, all

< 5	0.0 %
0.0	%
0.0	%
0.0	%
0.0	%
100.0	%
0.0	%
0.0	%
0.0	%
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	34
mean	28
min size (mm)	27
max size (mm)	28

Medialuna californiensis, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	20.0 %
20 - 24	20.0 %
25 - 29	40.0 %
30 - 34	20.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	24
min size (mm)	18
max size (mm)	30

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Potato Pasture

Scorpaenichthys marmoratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	33.3 %
35 - 39	66.7 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	35
min size (mm)	32
max size (mm)	36

Sebastes caurinus, all	
< 5	0.0 %
5 - 9	33.3 %
10 - 14	33.3 %
15 - 19	33.3 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	12
min size (mm)	7
max size (mm)	16

Sebastes chrysomelas, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	33.3 %
20 - 24	0.0 %
25 - 29	50.0 %
30 - 34	16.7 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	6
mean	22
min size (mm)	15
max size (mm)	30

Sebastes auriculatus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	33.3 %
35 - 39	33.3 %
40 - 44	33.3 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	36
min size (mm)	30
max size (mm)	40

Sebastes melanops, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	100.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	30
min size (mm)	30
max size (mm)	30

Sebastes carnatus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	33.3 %
20 - 24	0.0 %
25 - 29	33.3 %
30 - 34	33.3 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	26
min size (mm)	17
max size (mm)	32

Sebastes serriceps, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	14.3 %
15 - 19	0.0 %
20 - 24	28.6 %
25 - 29	14.3 %
30 - 34	42.9 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	7
mean	25
min size (mm)	12
max size (mm)	32

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Cavern Point

Chromis punctipinnis, all	
< 5	24.8 %
5 - 9	42.9 %
10 - 14	15.5 %
15 - 19	15.2 %
20 - 24	1.7 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	303
mean	14
min size (mm)	3
max size (mm)	22

Heterodontus francisci	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	100.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	1
mean	37
min size (mm)	37
max size (mm)	37

Paralabrax clathratus, all	
< 5	0.0 %
5 - 9	35.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	2.5 %
30 - 34	25.0 %
35 - 39	25.0 %
40 - 44	5.0 %
45 - 49	7.5 %
> 49	0.0 %
(Cases) N =	40
mean	34
min size (mm)	6
max size (mm)	49

Embiotoca jacksoni, all	
< 5	0.0 %
5 - 9	7.1 %
10 - 14	16.1 %
15 - 19	25.0 %
20 - 24	21.4 %
25 - 29	19.6 %
30 - 34	5.4 %
35 - 39	5.4 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	56
mean	24
min size (mm)	9
max size (mm)	39

Ophiodon elongatus	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	50.0 %
60 - 69	50.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	2
mean	62
min size (mm)	58
max size (mm)	65

Rhacochilus toxotes	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	25.0 %
30 - 34	41.7 %
35 - 39	16.7 %
40 - 44	16.7 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	12
mean	33
min size (mm)	25
max size (mm)	43

Embiotoca lateralis, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	100.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	11
min size (mm)	10
max size (mm)	12

Oxyjulis californica, all	
< 5	0.0 %
5 - 9	15.2 %
10 - 14	1.6 %
15 - 19	5.2 %
20 - 24	78.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	191
mean	16
min size (mm)	5
max size (mm)	23

Rhacochilus vacca, all	
< 5	0.0 %
5 - 9	15.4 %
10 - 14	3.8 %
15 - 19	19.2 %
20 - 24	30.8 %
25 - 29	19.2 %
30 - 34	7.7 %
35 - 39	3.8 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	26
mean	21
min size (mm)	8
max size (mm)	37

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Cavern Point

Sebastes atrovirens, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	22.2 %
15 - 19	27.8 %
20 - 24	33.3 %
25 - 29	5.6 %
30 - 34	11.1 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	18
mean	21
min size (mm)	14
max size (mm)	32

Sebastes atrovirens/carnatus/caurinus/chrysomelas, juvenile

< 2	0.0 %
20.0	%15 - 19
30.0	%20 - 24
40.0	%25 - 29
5100.0	%30 - 34
60.0	%35 - 39
70.0	%40 - 44
80.0	%45 - 49
90.0	%> 49
10	0.0 %
11	0.0 %
12	0.0 %
13	0.0 %
14	0.0 %
15	0.0 %
>15	0.0 %
(Cases) N =	2
mean	5
min size (mm)	5
max size (mm)	5

Sebastes mystinus, all

< 5	0.0 %
5 - 9	34.6 %
10 - 14	0.0 %
15 - 19	35.6 %
20 - 24	29.8 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	104
mean	14
min size (mm)	6
max size (mm)	22

Sebastes serranoides, all

< 5	0.0 %
5 - 9	16.7 %
10 - 14	66.7 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	16.7 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	6
mean	17
min size (mm)	8
max size (mm)	43

Semicossyphus pulcher, male

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
0.0	%max size (mm)
0.0	%***Caulolatilus princeps, all***
0.0	%<10
0.0	%10 - 19
0.0	%20 - 29
0.0	%30 - 39
0.0	%40 - 49
100.0	%50 - 59
(Cases) N =	2
mean	75
min size (mm)	60
max size (mm)	90

Semicossyphus pulcher, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	33.3 %
30 - 34	26.7 %
35 - 39	13.3 %
40 - 44	13.3 %
45 - 49	6.7 %
> 49	6.7 %
(Cases) N =	15
mean	36
min size (mm)	25
max size (mm)	52

Semicossyphus pulcher, juvenile

< 2	0.0 %
2	0.0 %
3	0.0 %
4	0.0 %
5	0.0 %
6	0.0 %
7	0.0 %
8	0.0 %
9	100.0 %
10	0.0 %
11	0.0 %
12	0.0 %
13	0.0 %
14	0.0 %
15	0.0 %
>15	0.0 %
(Cases) N =	1
mean	9
mean	9
min size (mm)	9
	9

0.0	%
0.0	%
0.0	%
0.0	%
0.0	%
25.0	%
60 - 69	50.0 %
70 - 79	25.0 %
80 - 89	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	4
mean	63
min size (mm)	55
max size (mm)	70

Hypsypops rubicundus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	21
mean	27
min size (mm)	27
max size (mm)	27

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Cavern Point

Medialuna californiensis, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	50.0 %
25 - 29	50.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	25
min size (mm)	22
max size (mm)	28

Scorpaena guttata, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	25
min size (mm)	25
max size (mm)	25

Sebastes carnatus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	33.3 %
25 - 29	66.7 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	25
min size (mm)	24
max size (mm)	26

Sebastes serriceps, all	
< 5	0.0 %
5 - 9	40.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	40.0 %
25 - 29	0.0 %
30 - 34	20.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	18
min size (mm)	7
max size (mm)	30

Sebastes chrysomelas, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	100.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	13
min size (mm)	13
max size (mm)	13

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Little Scorpion

Chromis punctipinnis, all	
< 5	2.0 %
5 - 9	46.4 %
10 - 14	25.0 %
15 - 19	17.9 %
20 - 24	8.5 %
25 - 29	0.1 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1480
mean	14
min size (mm)	3
max size (mm)	26

Ophiodon elongatus	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	100.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	1
mean	65
min size (mm)	65
max size (mm)	65

Rhacochilus toxotes	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	50.0 %
40 - 44	0.0 %
45 - 49	50.0 %
> 49	0.0 %
(Cases) N =	2
mean	42
min size (mm)	39
max size (mm)	45

Embiotoca jacksoni, all	
< 5	0.0 %
5 - 9	9.1 %
10 - 14	27.3 %
15 - 19	24.2 %
20 - 24	30.3 %
25 - 29	9.1 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	33
mean	18
min size (mm)	9
max size (mm)	26

Oxyjulis californica, all	
< 5	0.0 %
5 - 9	27.3 %
10 - 14	0.0 %
15 - 19	72.7 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	11
mean	10
min size (mm)	6
max size (mm)	16

Sebastes atrovirens, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	46.7 %
25 - 29	46.7 %
30 - 34	6.7 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	15
mean	25
min size (mm)	20
max size (mm)	30

Heterodontus francisci	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	100.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	1
mean	35
min size (mm)	35
max size (mm)	35

Paralabrax clathratus, all	
< 5	0.0 %
5 - 9	5.6 %
10 - 14	0.0 %
15 - 19	5.6 %
20 - 24	22.2 %
25 - 29	27.8 %
30 - 34	22.2 %
35 - 39	11.1 %
40 - 44	5.6 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	18
mean	26
min size (mm)	5
max size (mm)	40

Sebastes mystinus, all	
< 5	0.0 %
5 - 9	60.9 %
10 - 14	8.7 %
15 - 19	21.7 %
20 - 24	8.7 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	23
mean	14
min size (mm)	6
max size (mm)	22

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Little Scorpion

Sebastes serranoides, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	33.3 %
15 - 19	0.0 %
20 - 24	66.7 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	18
min size (mm)	12
max size (mm)	23

Caulolatilus princeps, all	
<10	0.0 %
10 - 19	0.0 %
20 - 29	25.0 %
30 - 39	75.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	4
mean	30
min size (mm)	22
max size (mm)	37

Scorpaena guttata, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	100.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	15
min size (mm)	15
max size (mm)	15

Semicossyphus pulcher, female	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	15.4 %
25 - 29	46.2 %
30 - 34	30.8 %
35 - 39	0.0 %
40 - 44	7.7 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	13
mean	28
min size (mm)	22
max size (mm)	42

Hypsypops rubicundus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	31
mean	28
min size (mm)	27
max size (mm)	28

Scorpaenichthys marmoratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	50.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	50.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	23
min size (mm)	12
max size (mm)	33

Halichoeres semicinctus, female	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	50.0 %
25 - 29	50.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	24
min size (mm)	22
max size (mm)	25

Medialuna californiensis, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	16.7 %
20 - 24	50.0 %
25 - 29	33.3 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	6
mean	23
min size (mm)	18
max size (mm)	27

Sebastes caurinus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	50.0 %
15 - 19	0.0 %
20 - 24	50.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	17
min size (mm)	12
max size (mm)	21

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Little Scorpion

Sebastes serriceps, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	10.0 %
20 - 24	10.0 %
25 - 29	50.0 %
30 - 34	30.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	10
mean	27
min size (mm)	16
max size (mm)	32

Sebastes chrysomelas, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	33.3 %
20 - 24	33.3 %
25 - 29	33.3 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	6
mean	21
min size (mm)	15
max size (mm)	27

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pedro Reef

Chromis punctipinnis, all

< 5	5.6 %
5 - 9	3.9 %
10 - 14	23.6 %
15 - 19	54.5 %
20 - 24	12.4 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1165
mean	13
min size (mm)	2
max size (mm)	23

Oxyjulis californica, all

< 5	0.0 %
5 - 9	2.1 %
10 - 14	10.6 %
15 - 19	77.7 %
20 - 24	9.6 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	94
mean	16
min size (mm)	6
max size (mm)	22

Sebastes mystinus, all

< 5	0.0 %
5 - 9	40.0 %
10 - 14	5.0 %
15 - 19	45.0 %
20 - 24	10.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	20
mean	14
min size (mm)	8
max size (mm)	22

Embiotoca jacksoni, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	80.0 %
30 - 34	20.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	28
min size (mm)	25
max size (mm)	33

Paralabrax clathratus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	11.8 %
25 - 29	41.2 %
30 - 34	35.3 %
35 - 39	5.9 %
40 - 44	5.9 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	17
mean	29
min size (mm)	22
max size (mm)	40

Semicossyphus pulcher, male

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	100.0 %
(Cases) N =	1
mean	53
min size (mm)	53
max size (mm)	53

Hexagrammos decagrammus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	100.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	10
min size (mm)	10
max size (mm)	10

Rhacochilus vacca, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	44.4 %
25 - 29	11.1 %
30 - 34	0.0 %
35 - 39	44.4 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	9
mean	29
min size (mm)	21
max size (mm)	37

Semicossyphus pulcher, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	2.9 %
20 - 24	17.6 %
25 - 29	52.9 %
30 - 34	14.7 %
35 - 39	8.8 %
40 - 44	2.9 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	34
mean	29
min size (mm)	15
max size (mm)	40

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pedro Reef

Caulolatilus princeps, all

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	100.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	6
mean	35
min size (mm)	32
max size (mm)	37

Hypsypops rubicundus, all

< 5	10.0 %
5 - 9	10.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	80.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	10
mean	16
min size (mm)	4
max size (mm)	27

Medialuna californiensis, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	42.9 %
25 - 29	57.1 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	7
mean	24
min size (mm)	20
max size (mm)	27

Scorpaena guttata, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	100.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	33
min size (mm)	33
max size (mm)	33

Scorpaenichthys marmoratus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	100.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	34
min size (mm)	34
max size (mm)	34

Sebastes miniatus, all

<10	100.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	1
mean	7
min size (mm)	7
max size (mm)	7

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Keyhole

Chromis punctipinnis, all	
< 5	0.0 %
5 - 9	3.5 %
10 - 14	29.4 %
15 - 19	41.2 %
20 - 24	25.9 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	340
mean	16
min size (mm)	8
max size (mm)	24

Rhacochilus vacca, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	100.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	35
min size (mm)	35
max size (mm)	35

Sebastes serranoides, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	100.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	17
min size (mm)	17
max size (mm)	17

Embiotoca jacksoni, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	100.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	35
min size (mm)	35
max size (mm)	35

Sebastes atrovirens, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	50.0 %
30 - 34	50.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	29
min size (mm)	27
max size (mm)	31

Semicossyphus pulcher, male	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	100.0 %
(Cases) N =	4
mean	63
min size (mm)	52
max size (mm)	80

Paralabrax clathratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	11.1 %
25 - 29	0.0 %
30 - 34	33.3 %
35 - 39	33.3 %
40 - 44	22.2 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	9
mean	34
min size (mm)	20
max size (mm)	42

Sebastes mystinus, all	
< 5	0.0 %
5 - 9	86.7 %
10 - 14	0.0 %
15 - 19	13.3 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	15
mean	13
min size (mm)	8
max size (mm)	18

Semicossyphus pulcher, female	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	16.7 %
30 - 34	33.3 %
35 - 39	16.7 %
40 - 44	0.0 %
45 - 49	16.7 %
> 49	16.7 %
(Cases) N =	6
mean	38
min size (mm)	27
max size (mm)	50

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Keyhole

Halichoeres semicinctus, male	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	100.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	23
min size (mm)	23
max size (mm)	23
Scorpaenichthys marmoratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	100.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	30
min size (mm)	30
max size (mm)	30
Sebastes serriceps, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	66.7 %
30 - 34	33.3 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	28
min size (mm)	26
max size (mm)	30

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - East Fish Camp

Chromis punctipinnis, all

< 5	0.0 %
5 - 9	4.0 %
10 - 14	17.3 %
15 - 19	33.3 %
20 - 24	45.3 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	75
mean	15
min size (mm)	6
max size (mm)	24

Oxyjulis californica, all

< 5	0.0 %
5 - 9	50.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	50.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	16
min size (mm)	8
max size (mm)	23

Paralabrax clathratus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	50.0 %
30 - 34	0.0 %
35 - 39	50.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	32
min size (mm)	28
max size (mm)	35

Sebastes atrovirens/carnatus/caurinus/chrysomelas, juvenile

< 2	0.0 %
2	0.0 %
3	0.0 %
4	100.0 %
5	0.0 %
6	0.0 %
7	0.0 %
8	0.0 %
9	0.0 %
10	0.0 %
11	0.0 %
12	0.0 %
13	0.0 %
14	0.0 %
15	0.0 %
>15	0.0 %
(Cases) N =	127
mean	4
min size (mm)	4
max size (mm)	4

Sebastes mystinus, all

< 5	0.0 %
5 - 9	98.1 %
10 - 14	1.9 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	162
mean	9
min size (mm)	6
max size (mm)	14

Sebastes serranoides, all

< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	9
mean	7
min size (mm)	7
max size (mm)	7

Semicossyphus pulcher, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	20.0 %
25 - 29	20.0 %
30 - 34	60.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	28
min size (mm)	21
max size (mm)	34

Heterostichus rostratus, all

< 5	0.0 %
5 - 9	75.0 %
10 - 14	25.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	4
mean	10
min size (mm)	7
max size (mm)	12

Hypsypops rubicundus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	12
mean	28
min size (mm)	28
max size (mm)	28

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - East Fish Camp

Scorpaenichthys marmoratus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	50.0 %
30 - 34	50.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	30
min size (mm)	28
max size (mm)	32

Sebastes miniatus, all

<10	100.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	2
mean	5
min size (mm)	5
max size (mm)	5

Sebastes chrysomelas, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	100.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	23
min size (mm)	23
max size (mm)	23

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Black Sea Bass Reef

Chromis punctipinnis, all

< 5	0.0 %
5 - 9	6.2 %
10 - 14	70.5 %
15 - 19	11.6 %
20 - 24	5.4 %
25 - 29	6.2 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	129
mean	16
min size (mm)	6
max size (mm)	26

Embiotoca jacksoni, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	100.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	24
min size (mm)	24
max size (mm)	24

Oxyjulis californica, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	10.0 %
15 - 19	75.0 %
20 - 24	15.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	60
mean	16
min size (mm)	12
max size (mm)	20

Paralabrax clathratus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	2.1 %
15 - 19	2.1 %
20 - 24	8.3 %
25 - 29	39.6 %
30 - 34	31.3 %
35 - 39	16.7 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	48
mean	27
min size (mm)	12
max size (mm)	37

Sebastes atrovirens, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	25.0 %
25 - 29	50.0 %
30 - 34	25.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	8
mean	28
min size (mm)	23
max size (mm)	32

Sebastes mystinus, all

< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	66
mean	8
min size (mm)	8
max size (mm)	8

Stereolepis gigas, adult

< 50	0.0 %
50 - 99	0.0 %
100 - 149	0.0 %
150 - 199	100.0 %
200 - 249	0.0 %
250 - 299	0.0 %
>299	0.0 %
(Cases) N =	2
mean	170
min size (mm)	150
max size (mm)	190

Semicossyphus pulcher, male

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	100.0 %
(Cases) N =	1
mean	65
min size (mm)	65
max size (mm)	65

Semicossyphus pulcher, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	25.0 %
30 - 34	25.0 %
35 - 39	25.0 %
40 - 44	0.0 %
45 - 49	12.5 %
> 49	12.5 %
(Cases) N =	8
mean	37
min size (mm)	28
max size (mm)	50

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Black Sea Bass Reef

Caulolatilus princeps, all

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	100.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	1
mean	60
min size (mm)	60
max size (mm)	60

Hypsypops rubicundus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	6
mean	28
min size (mm)	28
max size (mm)	28

Medialuna californiensis, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	81.8 %
30 - 34	9.1 %
35 - 39	9.1 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	11
mean	31
min size (mm)	28
max size (mm)	37

Sebastes caurinus, all

< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	9
min size (mm)	9
max size (mm)	9

Sebastes serriceps, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	33.3 %
20 - 24	33.3 %
25 - 29	33.3 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	22
min size (mm)	16
max size (mm)	25

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Lighthouse

Chromis punctipinnis, all

< 5	0.0 %
5 - 9	39.1 %
10 - 14	20.3 %
15 - 19	19.5 %
20 - 24	21.1 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	261
mean	14
min size (mm)	6
max size (mm)	24

Embiotoca jacksoni, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	25.0 %
25 - 29	50.0 %
30 - 34	25.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	4
mean	26
min size (mm)	20
max size (mm)	33

Ophiodon elongatus

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	33.3 %
50 - 59	33.3 %
60 - 69	33.3 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	3
mean	53
min size (mm)	42
max size (mm)	63

Paralabrax clathratus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	20.0 %
30 - 34	46.7 %
35 - 39	26.7 %
40 - 44	6.7 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	15
mean	33
min size (mm)	26
max size (mm)	40

Pleuronichthys coenosus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	100.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	24
min size (mm)	24
max size (mm)	24

Rhacochilus vacca, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	50.0 %
30 - 34	0.0 %
35 - 39	50.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	31
min size (mm)	27
max size (mm)	35

Sebastes mystinus, all

< 5	0.0 %
5 - 9	85.0 %
10 - 14	0.0 %
15 - 19	12.0 %
20 - 24	3.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	133
mean	17
min size (mm)	6
max size (mm)	23

Semicossyphus pulcher, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	30.0 %
30 - 34	50.0 %
35 - 39	0.0 %
40 - 44	20.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	10
mean	32
min size (mm)	27
max size (mm)	40

Semicossyphus pulcher, juvenile

< 2	0.0 %
2	0.0 %
3	0.0 %
4	0.0 %
5	0.0 %
6	0.0 %
7	0.0 %
8	0.0 %
9	0.0 %
10	0.0 %
11	0.0 %
12	100.0 %
13	0.0 %
14	0.0 %
15	0.0 %
>15	0.0 %
(Cases) N =	1
mean	12
min size (mm)	12
max size (mm)	12

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Lighthouse

Halichoeres semicinctus, male

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	50.0 %
25 - 29	50.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	25
min size (mm)	22
max size (mm)	27

Sebastes spp.

	0.0 %
(Cases) N =	2
mean	6
min size (mm)	6
max size (mm)	6

Caulolatilus princeps, all

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	100.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	3
mean	36
min size (mm)	35
max size (mm)	37

Hypsypops rubicundus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	21
mean	27
min size (mm)	26
max size (mm)	27

Medialuna californiensis, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	93.3 %
35 - 39	6.7 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	30
mean	33
min size (mm)	30
max size (mm)	37

Scorpaenichthys marmoratus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	100.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	23
min size (mm)	22
max size (mm)	23

Sebastes serriceps, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	50.0 %
30 - 34	50.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	30
min size (mm)	29
max size (mm)	31

Sebastes chrysomelas, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	16.7 %
20 - 24	33.3 %
25 - 29	50.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	6
mean	23
min size (mm)	17
max size (mm)	26

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Webster's Arch

Chromis punctipinnis, all	
< 5	0.0 %
5 - 9	84.0 %
10 - 14	16.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	119
mean	8
min size (mm)	6
max size (mm)	10

Oxyjulis californica, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	100.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	13
mean	16
min size (mm)	15
max size (mm)	17

Rhacochilus toxotes	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	7
mean	28
min size (mm)	28
max size (mm)	28

Embiotoca jacksoni, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	50.0 %
30 - 34	50.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	30
min size (mm)	29
max size (mm)	30

Paralabrax clathratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	100.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	35
min size (mm)	35
max size (mm)	35

Rhacochilus vacca, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	100.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	22
min size (mm)	21
max size (mm)	23

Embiotoca lateralis, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	100.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	18
min size (mm)	18
max size (mm)	18

Pleuronichthys coenosus	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	27
min size (mm)	27
max size (mm)	27

Sebastes mystinus, all	
< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	125
mean	6
min size (mm)	6
max size (mm)	6

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Webster's Arch

Semicossyphus pulcher, male

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	25.0 %
35 - 39	50.0 %
40 - 44	25.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	4
mean	38
min size (mm)	32
max size (mm)	43

Scorpaena guttata, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	100.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	44
min size (mm)	44
max size (mm)	44

Semicossyphus pulcher, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	33.3 %
25 - 29	33.3 %
30 - 34	16.7 %
35 - 39	16.7 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	18
mean	30
min size (mm)	22
max size (mm)	38

Scorpaenichthys marmoratus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	100.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	32
min size (mm)	30
max size (mm)	33

Hypsypops rubicundus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	9
mean	27
min size (mm)	25
max size (mm)	28

Sebastes chrysomelas, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	50.0 %
20 - 24	0.0 %
25 - 29	50.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	23
min size (mm)	19
max size (mm)	27

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Graveyard Canyon

Paralichthys californicus

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	100.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	2
mean	85
min size (mm)	85
max size (mm)	85

Sebastes atrovirens, all

< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	23
mean	7
min size (mm)	6
max size (mm)	8

Sebastes mystinus, all

< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	6
min size (mm)	5
max size (mm)	7

Sebastes serranoides, all

< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	6
min size (mm)	6
max size (mm)	6

Squatina californica

< 50	0.0 %
50 - 99	0.0 %
100 - 149	100.0 %
150 - 199	0.0 %
200 - 249	0.0 %
250 - 299	0.0 %
>299	0.0 %
(Cases) N =	1
mean	125
min size (mm)	125
max size (mm)	125

Scorpaenichthys marmoratus, all

< 5	25.0 %
5 - 9	25.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	25.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	25.0 %
> 49	0.0 %
(Cases) N =	4
mean	22
min size (mm)	4
max size (mm)	45

Sebastes miniatus, all

<10	94.1 %
10 - 19	5.9 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	17
mean	7
min size (mm)	5
max size (mm)	10

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Southeast Reef

Brachyistius frenatus	
< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	6
min size (mm)	6
max size (mm)	6

Girella nigricans, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	8
mean	28
min size (mm)	28
max size (mm)	28

Paralabrax clathratus, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	66.7 %
40 - 44	33.3 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	39
min size (mm)	37
max size (mm)	42

Chromis punctipinnis, all	
< 5	0.0 %
5 - 9	8.8 %
10 - 14	22.6 %
15 - 19	63.6 %
20 - 24	5.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	442
mean	14
min size (mm)	6
max size (mm)	22

Ophiodon elongatus	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	100.0 %
> 99	0.0 %
(Cases) N =	1
mean	90
min size (mm)	90
max size (mm)	90

Pleuronichthys coenosus	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	100.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	26
min size (mm)	26
max size (mm)	26

Embiotoca jacksoni, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	16.7 %
20 - 24	0.0 %
25 - 29	50.0 %
30 - 34	33.3 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	6
mean	27
min size (mm)	15
max size (mm)	33

Oxyjulis californica, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	64.9 %
20 - 24	35.1 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	57
mean	19
min size (mm)	17
max size (mm)	21

Sebastes atrovirens, all	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	27.3 %
20 - 24	18.2 %
25 - 29	18.2 %
30 - 34	36.4 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	11
mean	24
min size (mm)	15
max size (mm)	32

2012 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Southeast Reef

Sebastes atrovirens/carnatus/caurinus/chrysomelas, juvenile

< 2	0.0 %
20.0	%15 - 19
30.0	%20 - 24
40.0	%25 - 29
514.3	%30 - 34
685.7	%35 - 39
70.0	%40 - 44
80.0	%45 - 49
90.0	%> 49
10	0.0 %
11	0.0 %
12	0.0 %
13	0.0 %
14	0.0 %
15	0.0 %
>15	0.0 %
(Cases) N =	7
mean	6
min size (mm)	5
max size (mm)	6

Sebastes mystinus, all

< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	6
min size (mm)	6
max size (mm)	6

Sebastes serranoides, all

< 5	0.0 %
5 - 9	100.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	26
mean	8
min size (mm)	7
max size (mm)	8

Semicossyphus pulcher, male

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	12.5 %
45 - 49	12.5 %
> 49	75.0 %
(Cases) N =	8
mean	54
min size (mm)	44
max size (mm)	62

Semicossyphus pulcher, female

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	15.0 %
25 - 29	50.0 %
30 - 34	10.0 %
35 - 39	5.0 %
40 - 44	10.0 %
45 - 49	10.0 %
> 49	0.0 %
(Cases) N =	20
mean	31
min size (mm)	20
max size (mm)	46

Hypsypops rubicundus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	25.5 %
25 - 29	74.5 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	47
mean	25
min size (mm)	23
max size (mm)	27

Scorpaenichthys marmoratus, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	50.0 %
35 - 39	0.0 %
40 - 44	50.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	37
min size (mm)	34
max size (mm)	40

Sebastes serriceps, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	80.0 %
30 - 34	20.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	28
min size (mm)	27
max size (mm)	31

Sebastes chrysomelas, all

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	66.7 %
20 - 24	33.3 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	19
min size (mm)	16
max size (mm)	23

Appendix H. Roving Diver Fish Count Data

2012 ROVING DIVER FISH COUNT

Island	Site Name	Date	# of Observer	# of Species Observed
San Miguel Island	Wyckoff Ledge	7/25/2012	4	19
San Miguel Island	Hare Rock	8/30/2012	5	33
Santa Rosa Island	Johnson's Lee North	8/28/2012	5	30
Santa Rosa Island	Johnson's Lee South	7/10/2012	6	25
Santa Rosa Island	Rodes Reef	7/24/2012	5	29
Santa Cruz Island	Gull Island South	6/11/2012	5	23
Santa Cruz Island	Fry's Harbor	8/14/2012	6	37
Santa Cruz Island	Fry's Harbor	8/27/2012	7	33
Santa Cruz Island	Pelican Bay	9/13/2012	6	24
Santa Cruz Island	Scorpion Anchorage	8/16/2012	5	23
Santa Cruz Island	Scorpion Anchorage	10/3/2012	4	18
Santa Cruz Island	Yellow Banks	9/12/2012	6	21
Anacapa Island	Admiral's Reef	9/10/2012	4	23
Anacapa Island	Cathedral Cove	6/25/2012	7	33
Anacapa Island	Landing Cove	6/26/2012	5	33
Santa Barbara Island	SE Sea Lion Rookery	6/14/2012	6	15
Santa Barbara Island	Arch Point	5/29/2012	5	21
Santa Barbara Island	Cat Canyon	5/31/2012	6	19
San Miguel Island	Miracle Mile	7/26/2012	4	21
Santa Rosa Island	Cluster Point	6/12/2012	4	23
Santa Rosa Island	Trancion Canyon	8/29/2012	4	29
Santa Rosa Island	Chickasaw	7/11/2012	7	24
Santa Rosa Island	South Point	7/12/2012	5	26
Santa Cruz Island	Devil's Peak Member	6/28/2012	6	29
Santa Cruz Island	Devil's Peak Member	10/3/2012	4	25
Santa Cruz Island	Potato Pasture	7/23/2012	6	27
Santa Cruz Island	Potato Pasture	10/2/2012	4	29
Santa Cruz Island	Cavern Point	6/28/2012	6	34
Santa Cruz Island	Cavern Point	10/2/2012	4	30
Santa Cruz Island	Little Scorpion	5/16/2012	6	24
Santa Cruz Island	Little Scorpion	10/1/2012	4	23
Santa Cruz Island	Pedro Reef	8/13/2012	5	19
Santa Cruz Island	Pedro Reef	10/19/201	3	21
Anacapa Island	Keyhole	6/29/2012	7	21
Anacapa Island	East Fish Camp	5/15/2012	3	17
Anacapa Island	Black Sea Bass Reef	8/15/2012	7	21

2012 ROVING DIVER FISH COUNT

Island	Site Name	Date	# of Observer	# of Species Observed
Anacapa Island	Lighthouse	5/17/2012	7	23
Anacapa Island	Lighthouse	6/1/2012	3	24
Santa Barbara Island	Webster's Arch	6/13/2012	4	18
Santa Barbara Island	Graveyard Canyon	5/31/2012	6	16
Santa Barbara Island	Southeast Reef	5/30/2012	6	22

2012 ROVING DIVER FISH COUNT

San Miguel Island - Wyckoff Ledge

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	7/25/2012	4	4	9.25	0.96	2.25	0.50	6.00	3.83
black rockfish, adult	7/25/2012	4	1	7.00		1.00		1.00	
blackeye goby	7/25/2012	4	3	9.33	1.15	1.75	1.26	7.25	5.12
blue rockfish, adult	7/25/2012	4	4	8.00	0.00	1.75	0.50	4.25	2.36
blue rockfish, all	7/25/2012	4	4	8.00	0.00	2.00	0.82	7.50	5.69
blue rockfish, juvenile	7/25/2012	4	3	7.00	1.00	1.25	0.96	3.25	3.59
cabezon, adult	7/25/2012	4	2	6.00	0.00	1.00	0.00	1.00	0.00
cabezon, juvenile	7/25/2012	4	1	5.00		1.00		1.00	
California sheephead, female	7/25/2012	4	3	8.00	0.00	0.75	0.50	0.75	0.50
California sheephead, male	7/25/2012	4	1	8.00		0.25	0.50	0.25	0.50
copper rockfish, adult	7/25/2012	4	4	7.50	1.29	1.75	0.50	4.50	3.32
coralline sculpin	7/25/2012	4	1	7.00		2.00		2.00	
gopher rockfish, adult	7/25/2012	4	1	9.00		1.00		1.00	
kelp greenling	7/25/2012	4	1	6.00		1.00		1.00	
kelp rockfish, adult	7/25/2012	4	4	8.75	0.50	2.50	0.58	9.50	3.70
kelp rockfish, all	7/25/2012	4	4	8.75	0.50	2.50	0.58	9.50	3.70
kelpfish spp.	7/25/2012	4	1	10.00		2.00		2.00	
painted greenling	7/25/2012	4	3	8.00	2.65	1.00	0.82	2.00	2.71
pile perch, adult	7/25/2012	4	2	7.50	2.12	0.75	0.96	0.75	0.96
pile perch, all	7/25/2012	4	2	7.50	2.12	0.75	0.96	0.75	0.96
seporita, adult	7/25/2012	4	4	6.25	0.96	2.50	1.00	10.25	6.50
seporita, all	7/25/2012	4	4	6.25	0.96	2.50	1.00	10.25	6.50
striped surfperch, adult	7/25/2012	4	4	7.75	0.50	1.75	0.50	2.50	1.73
striped surfperch, all	7/25/2012	4	4	8.00	0.82	2.00	0.82	9.50	7.37
striped surfperch, juvenile	7/25/2012	4	3	7.67	1.53	1.75	1.26	7.00	7.26
treefish, adult	7/25/2012	4	1	8.00		0.25	0.50	0.25	0.50
tubesnout, adult	7/25/2012	4	4	8.25	2.06	4.00	0.00	426.25	99.61
vermillion rockfish, juvenile	7/25/2012	4	1	7.00		1.00		1.00	

2012 ROVING DIVER FISH COUNT

San Miguel Island - Hare Rock

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	8/30/2012	5	3	8.67	1.15	2.00	0.00	7.67	2.08
black rockfish, adult	8/30/2012	5	1	8.00		1.00		1.00	
black surfperch, adult	8/30/2012	5	2	8.00	1.41	0.40	0.55	0.40	0.55
black surfperch, all	8/30/2012	5	3	7.00	2.00	0.60	0.55	0.60	0.55
black surfperch, juvenile	8/30/2012	5	1	5.00		0.20	0.45	0.20	0.45
blackeye goby	8/30/2012	5	5	10.00	0.00	3.40	0.55	129.60	64.72
blacksmith, adult	8/30/2012	5	5	9.40	1.34	2.80	0.45	32.80	17.11
blacksmith, all	8/30/2012	5	5	9.40	1.34	2.80	0.45	34.00	18.14
blacksmith, juvenile	8/30/2012	5	2	8.50	2.12	0.80	1.10	1.20	1.64
blue rockfish, adult	8/30/2012	5	5	9.60	0.55	3.00	0.00	50.80	18.32
blue rockfish, all	8/30/2012	5	5	10.00	0.00	4.00	0.00	174.00	12.63
blue rockfish, juvenile	8/30/2012	5	5	10.00	0.00	3.80	0.45	125.20	26.96
cabezon, adult	8/30/2012	5	5	8.60	1.14	2.00	0.00	2.20	0.45
California sheephead, female	8/30/2012	5	2	10.00	0.00	0.60	0.89	1.00	1.73
California sheephead, male	8/30/2012	5	3	6.67	2.89	0.60	0.55	0.60	0.55
copper rockfish, adult	8/30/2012	5	5	8.40	0.89	2.00	0.00	5.80	1.64
copper rockfish, juvenile	8/30/2012	5	4	7.75	2.06	1.50	0.58	1.50	0.58
coralline sculpin	8/30/2012	5	2	9.00	1.41	1.00	0.00	1.00	0.00
fringehead spp.	8/30/2012	5	2	8.00	0.00	1.50	0.71	1.50	0.71
giant kelpfish, juvenile	8/30/2012	5	1	6.00		1.00		1.00	
gopher rockfish, adult	8/30/2012	5	3	8.00	2.00	1.33	0.58	2.67	2.89
gunnel spp.	8/30/2012	5	2	8.50	0.71	1.00	0.00	1.00	0.00
kelp greenling	8/30/2012	5	5	7.20	1.30	1.20	0.45	1.40	0.89
kelp rockfish, adult	8/30/2012	5	5	9.60	0.89	3.00	0.00	19.60	4.22
kelp rockfish, all	8/30/2012	5	5	9.80	0.45	3.00	0.00	26.00	10.37
kelp rockfish, juvenile	8/30/2012	5	3	8.33	1.15	1.40	1.34	6.40	7.96
kelpfish spp.	8/30/2012	5	3	7.67	2.08	1.67	0.58	1.67	0.58
KGB	8/30/2012	5	5	9.20	0.84	2.60	0.55	10.60	5.50
lingcod, adult	8/30/2012	5	2	9.00	1.41	1.50	0.71	1.50	0.71
olive rockfish, adult	8/30/2012	5	5	9.20	0.45	3.00	0.00	18.20	5.59
olive rockfish, all	8/30/2012	5	5	9.20	0.45	3.00	0.00	22.20	7.56
olive/yellowtail rockfish, juvenile	8/30/2012	5	5	8.20	1.64	2.00	0.00	4.00	2.00
painted greenling	8/30/2012	5	5	10.00	0.00	3.00	0.00	20.60	4.10
pile perch, adult	8/30/2012	5	5	8.60	2.07	2.40	0.55	8.40	4.83
pile perch, all	8/30/2012	5	5	8.60	2.07	2.40	0.55	8.40	4.83
rockfish spp., juvenile	8/30/2012	5	1	8.00		1.00		1.00	
ronquil spp.	8/30/2012	5	3	6.67	0.58	1.67	0.58	1.67	0.58
señorita, adult	8/30/2012	5	4	9.25	1.50	2.00	1.22	10.20	13.01
señorita, all	8/30/2012	5	4	9.25	1.50	2.00	1.22	10.20	13.01
sharpnose/white surfperch	8/30/2012	5	1	10.00		2.00		3.00	
snubnose sculpin	8/30/2012	5	4	8.50	1.29	1.75	0.96	4.00	4.76
speckled sanddab	8/30/2012	5	1	7.00		1.00		1.00	
striped surfperch, adult	8/30/2012	5	5	10.00	0.00	2.60	0.55	14.60	8.79
striped surfperch, all	8/30/2012	5	5	10.00	0.00	3.00	0.00	25.00	12.02
striped surfperch, juvenile	8/30/2012	5	4	9.25	1.50	2.00	1.22	10.40	7.44
treefish, adult	8/30/2012	5	5	8.40	1.52	1.80	0.45	2.40	1.14
tubesnout, adult	8/30/2012	5	3	6.67	1.53	3.00	0.00	36.67	15.28
vermillion rockfish, juvenile	8/30/2012	5	2	6.50	0.71	1.50	0.71	1.50	0.71

2012 ROVING DIVER FISH COUNT

Santa Rosa Island - Johnson's Lee North

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	8/28/2012	5	5	7.80	1.64	1.80	0.45	3.60	2.88
black surfperch, adult	8/28/2012	5	5	9.60	0.55	2.00	0.00	6.80	1.64
black surfperch, all	8/28/2012	5	5	9.60	0.55	2.40	0.55	12.20	3.77
black surfperch, juvenile	8/28/2012	5	4	9.75	0.50	1.60	0.89	5.40	3.85
blackeye goby	8/28/2012	5	5	9.60	0.89	3.20	0.45	42.60	35.10
blacksmith, adult	8/28/2012	5	5	10.00	0.00	2.80	0.45	20.20	10.28
blacksmith, all	8/28/2012	5	5	10.00	0.00	2.80	0.45	20.40	10.26
blacksmith, juvenile	8/28/2012	5	1	8.00		0.20	0.45	0.20	0.45
blue rockfish, adult	8/28/2012	5	5	8.20	1.48	2.60	0.89	15.60	9.50
blue rockfish, all	8/28/2012	5	5	9.60	0.55	3.60	0.55	108.60	29.10
blue rockfish, juvenile	8/28/2012	5	5	9.40	0.55	3.40	0.55	93.00	33.05
brown rockfish, adult	8/28/2012	5	1	10.00		1.00		1.00	
California sheephead, female	8/28/2012	5	5	9.80	0.45	2.00	0.00	7.20	1.92
c-o turbot	8/28/2012	5	1	8.00		1.00		1.00	
garibaldi, adult	8/28/2012	5	5	9.80	0.45	2.00	0.00	4.60	1.52
giant kelpfish, adult	8/28/2012	5	1	10.00		1.00		1.00	
giant kelpfish, juvenile	8/28/2012	5	2	8.00	2.83	1.50	0.71	1.50	0.71
gopher rockfish, adult	8/28/2012	5	4	7.00	0.82	2.00	0.00	3.25	1.26
gopher rockfish, juvenile	8/28/2012	5	1	6.00		1.00		1.00	
halfmoon, adult	8/28/2012	5	1	9.00		1.00		1.00	
kelp bass, adult	8/28/2012	5	3	7.33	0.58	0.80	0.84	0.80	0.84
kelp bass, all	8/28/2012	5	3	7.33	0.58	0.80	0.84	0.80	0.84
kelp rockfish, adult	8/28/2012	5	5	9.40	0.89	3.00	0.00	30.60	7.16
kelp rockfish, all	8/28/2012	5	5	9.40	0.89	3.00	0.00	31.80	12.32
kelp rockfish, juvenile	8/28/2012	5	3	9.00	1.00	1.00	1.00	2.60	4.22
kelp surfperch	8/28/2012	5	4	10.00	0.00	2.75	0.50	14.75	8.42
kelpfish spp.	8/28/2012	5	4	10.00	0.00	1.25	0.50	2.25	2.50
KGB	8/28/2012	5	3	8.33	1.15	2.00	1.00	5.00	6.08
olive rockfish, adult	8/28/2012	5	5	10.00	0.00	2.00	0.00	6.60	2.51
olive rockfish, all	8/28/2012	5	5	10.00	0.00	3.00	0.00	31.20	9.01
olive/yellowtail rockfish, juvenile	8/28/2012	5	5	10.00	0.00	3.00	0.00	24.60	10.57
opaleye, adult	8/28/2012	5	4	8.50	1.73	1.40	1.14	3.80	6.30
painted greenling	8/28/2012	5	5	9.60	0.55	3.00	0.00	27.40	6.91
pile perch, adult	8/28/2012	5	5	9.00	1.22	2.00	0.00	3.40	0.55
pile perch, all	8/28/2012	5	5	9.20	0.84	2.00	0.00	5.40	1.14
pile perch, juvenile	8/28/2012	5	5	8.40	1.52	1.60	0.55	2.00	1.00
rock wrasse, male	8/28/2012	5	2	5.50	0.71	0.40	0.55	0.40	0.55
rubberlip surfperch	8/28/2012	5	1	8.00		2.00		2.00	
seporita, adult	8/28/2012	5	5	10.00	0.00	3.00	0.00	32.40	10.57
seporita, all	8/28/2012	5	5	10.00	0.00	3.00	0.00	33.00	10.12
seporita, juvenile	8/28/2012	5	1	8.00		0.40	0.89	0.60	1.34
snubnose sculpin	8/28/2012	5	2	8.00	0.00	2.00	0.00	3.50	0.71
striped surfperch, adult	8/28/2012	5	5	8.60	1.95	2.40	0.55	7.60	4.22
striped surfperch, all	8/28/2012	5	5	9.40	1.34	2.60	0.55	12.20	8.90
striped surfperch, juvenile	8/28/2012	5	3	8.67	2.31	1.20	1.30	4.60	6.02
top smelt	8/28/2012	5	3	8.00	2.00	3.00	0.00	77.00	3.46
treefish, adult	8/28/2012	5	5	7.20	1.10	1.60	0.55	3.60	2.61
tubesnout, adult	8/28/2012	5	1	7.00		2.00		3.00	

2012 ROVING DIVER FISH COUNT

Santa Rosa Island - Johnson's Lee South

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	7/10/2012	6	4	8.25	1.26	1.75	0.50	3.00	1.83
black surfperch, adult	7/10/2012	6	4	9.75	0.50	1.50	1.22	5.00	5.29
black surfperch, all	7/10/2012	6	4	9.75	0.50	1.67	1.37	6.17	6.15
black surfperch, juvenile	7/10/2012	6	2	8.00	2.83	0.50	0.84	1.17	2.40
blackeye goby	7/10/2012	6	6	9.33	1.63	2.83	0.41	22.50	6.80
blacksmith, adult	7/10/2012	6	6	7.67	2.16	2.50	0.84	15.83	10.19
blacksmith, all	7/10/2012	6	6	7.67	2.16	2.50	0.84	15.83	10.19
blue rockfish, adult	7/10/2012	6	6	9.83	0.41	3.00	0.00	30.50	12.79
blue rockfish, all	7/10/2012	6	6	10.00	0.00	3.67	0.52	148.50	69.46
blue rockfish, juvenile	7/10/2012	6	6	10.00	0.00	3.67	0.52	118.00	67.04
cabezon, adult	7/10/2012	6	5	7.80	1.79	1.20	0.45	1.20	0.45
California sheephead, female	7/10/2012	6	6	9.33	0.82	2.17	0.41	8.50	2.17
California sheephead, male	7/10/2012	6	6	10.00	0.00	2.33	0.52	8.17	3.54
c-o turbot	7/10/2012	6	1	6.00		1.00		1.00	
copper rockfish, juvenile	7/10/2012	6	1	5.00		1.00		1.00	
halfmoon, adult	7/10/2012	6	1	5.00		1.00		1.00	
kelp bass, adult	7/10/2012	6	6	9.17	0.75	1.67	0.52	4.00	3.03
kelp bass, all	7/10/2012	6	6	9.17	0.75	1.67	0.52	4.00	3.03
kelp rockfish, adult	7/10/2012	6	6	10.00	0.00	3.00	0.00	19.33	6.41
kelp rockfish, all	7/10/2012	6	6	10.00	0.00	3.00	0.00	19.50	6.75
kelp rockfish, juvenile	7/10/2012	6	1	10.00		0.17	0.41	0.17	0.41
kelp surfperch	7/10/2012	6	1	6.00		1.00		1.00	
kelpfish spp.	7/10/2012	6	1	8.00		1.00		1.00	
KGB	7/10/2012	6	4	7.25	2.06	1.75	0.50	3.50	3.11
lingcod, adult	7/10/2012	6	4	7.25	0.50	1.25	0.50	1.25	0.50
olive rockfish, adult	7/10/2012	6	6	7.50	2.17	1.33	0.52	1.83	1.60
olive rockfish, all	7/10/2012	6	6	8.17	2.23	1.67	0.82	4.00	5.51
olive/yellowtail rockfish, juvenile	7/10/2012	6	3	9.67	0.58	0.83	0.98	2.17	3.92
opaleye, adult	7/10/2012	6	5	8.60	1.52	1.67	1.03	5.83	5.27
painted greenling	7/10/2012	6	6	9.83	0.41	2.83	0.41	19.83	9.24
pile perch, adult	7/10/2012	6	6	9.67	0.52	2.83	0.41	15.83	6.49
pile perch, all	7/10/2012	6	6	9.67	0.52	2.83	0.41	16.00	6.72
pile perch, juvenile	7/10/2012	6	1	8.00		0.17	0.41	0.17	0.41
rubberlip surfperch	7/10/2012	6	6	9.33	1.03	2.17	0.41	6.33	3.20
seporita, adult	7/10/2012	6	3	8.00	1.73	1.33	1.75	26.00	42.57
seporita, all	7/10/2012	6	3	8.00	1.73	1.33	1.75	26.00	42.57
striped surfperch, adult	7/10/2012	6	6	10.00	0.00	3.00	0.00	22.67	11.41
striped surfperch, all	7/10/2012	6	6	10.00	0.00	3.00	0.00	24.67	11.04
striped surfperch, juvenile	7/10/2012	6	3	8.00	2.00	0.83	0.98	2.00	3.16
tubesnout, adult	7/10/2012	6	1	9.00		3.00		30.00	

2012 ROVING DIVER FISH COUNT

Santa Rosa Island - Rodes Reef

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	7/24/2012	5	2	8.00	1.41	1.50	0.71	1.50	0.71
black and yellow/gopher rockfish, juvenile	7/24/2012	5	1	6.00		1.00		1.00	
black rockfish, adult	7/24/2012	5	3	7.00	1.73	1.00	0.00	1.00	0.00
black surfperch, adult	7/24/2012	5	3	7.33	2.08	0.80	0.84	1.00	1.22
black surfperch, all	7/24/2012	5	3	7.33	2.08	0.80	0.84	1.00	1.22
blackeye goby	7/24/2012	5	5	8.80	0.84	2.00	0.71	6.60	4.04
blue rockfish, adult	7/24/2012	5	5	10.00	0.00	2.80	0.45	15.20	5.45
blue rockfish, all	7/24/2012	5	5	10.00	0.00	3.20	0.45	92.40	25.84
blue rockfish, juvenile	7/24/2012	5	5	10.00	0.00	3.20	0.45	77.20	29.49
cabezon, adult	7/24/2012	5	1	7.00		1.00		1.00	
California sheephead, female	7/24/2012	5	1	7.00		0.40	0.89	0.40	0.89
California sheephead, male	7/24/2012	5	1	8.00		0.20	0.45	0.20	0.45
canary rockfish, juvenile	7/24/2012	5	2	7.50	0.71	1.00	0.00	1.00	0.00
copper rockfish, adult	7/24/2012	5	3	7.67	1.53	1.67	0.58	2.33	1.53
coralline sculpin	7/24/2012	5	3	9.00	0.00	2.00	0.00	2.33	0.58
fringehead spp.	7/24/2012	5	1	6.00		2.00		2.00	
gopher rockfish, adult	7/24/2012	5	3	8.67	2.31	1.33	0.58	1.33	0.58
gopher rockfish, juvenile	7/24/2012	5	2	7.50	0.71	1.00	0.00	1.00	0.00
kelp bass, adult	7/24/2012	5	3	8.33	2.08	0.80	0.84	0.80	0.84
kelp bass, all	7/24/2012	5	3	8.33	2.08	0.80	0.84	0.80	0.84
kelp greenling	7/24/2012	5	1	7.00		1.00		1.00	
kelp rockfish, adult	7/24/2012	5	5	9.20	0.45	2.20	0.45	7.00	4.53
kelp rockfish, all	7/24/2012	5	5	9.20	0.45	2.20	0.45	7.00	4.53
KGB	7/24/2012	5	2	7.50	2.12	1.50	0.71	2.00	1.41
lingcod, adult	7/24/2012	5	1	5.00		1.00		1.00	
ocean whitefish, adult	7/24/2012	5	2	6.50	2.12	1.50	0.71	1.50	0.71
olive rockfish, adult	7/24/2012	5	4	7.50	1.00	1.00	0.71	1.20	1.10
olive rockfish, all	7/24/2012	5	4	8.00	1.15	1.40	0.89	2.20	1.92
olive/yellowtail rockfish, juvenile	7/24/2012	5	2	8.00	1.41	0.60	0.89	1.00	1.73
painted greenling	7/24/2012	5	5	10.00	0.00	3.00	0.00	24.60	7.02
ronquil spp.	7/24/2012	5	4	8.00	2.00	1.75	0.50	2.50	1.29
rubberlip surfperch	7/24/2012	5	1	9.00		1.00		1.00	
sanddab spp.	7/24/2012	5	1	6.00		1.00		1.00	
señorita, adult	7/24/2012	5	4	7.25	1.50	2.00	1.41	12.20	15.35
señorita, all	7/24/2012	5	4	7.25	1.50	2.00	1.41	12.20	15.35
snubnose sculpin	7/24/2012	5	1	7.00		2.00		2.00	
striped surfperch, adult	7/24/2012	5	5	8.80	2.17	2.20	0.45	9.60	6.11
striped surfperch, all	7/24/2012	5	5	9.60	0.55	3.00	0.00	22.20	5.67
striped surfperch, juvenile	7/24/2012	5	4	9.50	0.58	2.40	1.34	12.60	8.50
vermillion rockfish, adult	7/24/2012	5	3	7.33	1.53	1.33	0.58	1.33	0.58
vermillion rockfish, juvenile	7/24/2012	5	4	7.25	0.96	1.75	0.50	3.00	1.83

2012 ROVING DIVER FISH COUNT

Santa Cruz Island - Gull Island South

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	6/11/2012	5	3	7.33	1.15	1.00	0.00	1.00	0.00
black surfperch, adult	6/11/2012	5	4	8.00	0.00	1.00	0.71	1.00	0.71
black surfperch, all	6/11/2012	5	4	8.00	0.00	1.00	0.71	1.00	0.71
blackeye goby	6/11/2012	5	5	10.00	0.00	3.00	0.00	26.60	12.50
blue rockfish, adult	6/11/2012	5	5	9.00	1.22	2.20	0.45	7.20	2.59
blue rockfish, all	6/11/2012	5	5	10.00	0.00	4.00	0.00	405.40	62.92
blue rockfish, juvenile	6/11/2012	5	5	10.00	0.00	4.00	0.00	398.20	60.38
California sheephead, female	6/11/2012	5	5	9.60	0.55	2.40	0.55	9.60	4.62
California sheephead, male	6/11/2012	5	3	9.00	0.00	1.20	1.10	1.40	1.34
copper rockfish, adult	6/11/2012	5	2	8.50	0.71	1.00	0.00	1.00	0.00
coralline sculpin	6/11/2012	5	2	7.50	3.54	1.00	0.00	1.00	0.00
gopher rockfish, adult	6/11/2012	5	5	9.40	1.34	2.00	0.00	3.00	0.71
gopher rockfish, juvenile	6/11/2012	5	1	5.00		1.00		1.00	
horn shark	6/11/2012	5	1	9.00		2.00		2.00	
kelp bass, adult	6/11/2012	5	5	8.60	0.89	1.80	0.45	3.20	2.39
kelp bass, all	6/11/2012	5	5	8.60	0.89	1.80	0.45	3.20	2.39
kelp rockfish, adult	6/11/2012	5	5	10.00	0.00	2.20	0.45	7.40	3.44
kelp rockfish, all	6/11/2012	5	5	10.00	0.00	2.20	0.45	7.40	3.44
KGB	6/11/2012	5	1	8.00		1.00		1.00	
lingcod, adult	6/11/2012	5	5	7.80	0.45	2.00	0.00	5.00	0.71
olive rockfish, adult	6/11/2012	5	5	9.40	0.89	2.40	0.55	9.80	3.70
olive rockfish, all	6/11/2012	5	5	9.40	0.89	2.60	0.55	14.20	10.47
olive/yellowtail rockfish, juvenile	6/11/2012	5	3	7.33	1.53	1.20	1.30	4.40	7.23
painted greenling	6/11/2012	5	5	10.00	0.00	3.00	0.00	19.80	5.85
pile perch, adult	6/11/2012	5	3	7.33	0.58	0.80	0.84	0.80	0.84
pile perch, all	6/11/2012	5	3	7.33	0.58	0.80	0.84	0.80	0.84
rubberlip surfperch	6/11/2012	5	1	7.00		1.00		1.00	
seporita, adult	6/11/2012	5	2	5.00	0.00	1.40	1.95	50.00	71.08
seporita, all	6/11/2012	5	2	5.00	0.00	1.40	1.95	50.00	71.08
striped surfperch, adult	6/11/2012	5	2	9.00	1.41	0.60	0.89	0.60	0.89
striped surfperch, all	6/11/2012	5	2	9.00	1.41	0.60	0.89	0.60	0.89
swell shark	6/11/2012	5	1	8.00		1.00		1.00	
top smelt	6/11/2012	5	1	10.00		3.00		25.00	
tubesnout, adult	6/11/2012	5	1	10.00		2.00		8.00	

2012 ROVING DIVER FISH COUNT

Santa Cruz Island - Fry's Harbor

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	8/14/2012	6	2	8.00	0.00	2.00	0.00	3.50	0.71
black and yellow rockfish, adult	8/27/2012	7	3	7.67	0.58	1.67	0.58	2.00	1.00
black surfperch, adult	8/14/2012	6	6	9.00	0.89	2.33	0.52	11.67	7.71
black surfperch, adult	8/27/2012	7	7	9.86	0.38	2.29	0.49	10.00	8.41
black surfperch, all	8/14/2012	6	6	9.50	0.84	3.00	0.00	47.33	17.67
black surfperch, all	8/27/2012	7	7	10.00	0.00	3.00	0.00	35.00	7.35
black surfperch, juvenile	8/27/2012	7	7	10.00	0.00	2.86	0.38	25.00	11.73
black surfperch, juvenile	8/14/2012	6	6	9.17	0.98	3.00	0.00	35.67	12.47
blackeye goby	8/27/2012	7	7	10.00	0.00	4.00	0.00	244.00	100.93
blackeye goby	8/14/2012	6	6	9.83	0.41	3.83	0.41	208.17	102.81
blacksmith, adult	8/14/2012	6	6	10.00	0.00	4.00	0.00	450.50	104.84
blacksmith, adult	8/27/2012	7	7	10.00	0.00	3.86	0.38	222.57	82.72
blacksmith, all	8/27/2012	7	7	10.00	0.00	4.00	0.00	234.43	75.30
blacksmith, all	8/14/2012	6	6	10.00	0.00	4.00	0.00	450.67	104.84
blacksmith, juvenile	8/27/2012	7	6	7.50	1.52	2.14	1.21	11.86	12.48
blacksmith, juvenile	8/14/2012	6	1	6.00		0.17	0.41	0.17	0.41
blue rockfish, adult	8/14/2012	6	1	10.00		0.50	1.22	4.83	11.84
blue rockfish, adult	8/27/2012	7	4	8.25	1.71	0.86	0.90	0.86	0.90
blue rockfish, all	8/27/2012	7	7	9.86	0.38	3.14	0.38	68.57	21.82
blue rockfish, all	8/14/2012	6	6	10.00	0.00	4.00	0.00	152.17	14.58
blue rockfish, juvenile	8/14/2012	6	6	9.67	0.82	4.00	0.00	147.33	17.22
blue rockfish, juvenile	8/27/2012	7	7	9.86	0.38	3.14	0.38	67.71	22.21
blue-banded goby	8/14/2012	6	3	7.67	0.58	1.00	1.10	2.33	2.88
blue-banded goby	8/27/2012	7	4	8.00	0.82	1.00	1.00	2.29	2.81
cabezon, adult	8/27/2012	7	1	6.00		1.00		1.00	
cabezon, adult	8/14/2012	6	1	7.00		1.00		1.00	
California moray eel	8/27/2012	7	2	6.00	1.41	1.00	0.00	1.00	0.00
California moray eel	8/14/2012	6	2	5.50	0.71	1.00	0.00	1.00	0.00
California scorpionfish, adult	8/14/2012	6	2	7.50	2.12	1.00	0.00	1.00	0.00
California sheephead, female	8/14/2012	6	6	8.83	1.17	2.17	0.41	5.83	2.93
California sheephead, female	8/27/2012	7	7	9.71	0.49	2.00	0.00	6.43	2.37
California sheephead, juvenile	8/14/2012	6	2	7.00	0.00	0.33	0.52	0.33	0.52
California sheephead, male	8/27/2012	7	1	6.00		0.14	0.38	0.14	0.38
copper rockfish, adult	8/27/2012	7	2	6.50	2.12	1.00	0.00	1.00	0.00
copper rockfish, juvenile	8/14/2012	6	2	9.00	0.00	1.00	0.00	1.00	0.00
copper rockfish, juvenile	8/27/2012	7	4	8.75	0.96	1.50	0.58	2.00	1.15
coralline sculpin	8/14/2012	6	1	10.00		1.00		1.00	
garibaldi, adult	8/27/2012	7	7	8.29	1.11	2.14	0.38	5.43	2.76
garibaldi, adult	8/14/2012	6	6	7.50	0.84	2.00	0.00	5.33	1.51
giant kelpfish, adult	8/14/2012	6	1	8.00		1.00		1.00	
giant kelpfish, adult	8/27/2012	7	5	9.20	1.30	1.40	0.55	1.40	0.55
giant kelpfish, juvenile	8/14/2012	6	3	6.33	1.15	1.33	0.58	1.33	0.58
gopher rockfish, adult	8/14/2012	6	4	7.75	0.50	2.00	0.00	5.25	3.59
gopher rockfish, adult	8/27/2012	7	7	7.71	1.60	1.71	0.49	2.86	2.79
gopher rockfish, juvenile	8/14/2012	6	1	7.00		2.00		3.00	
gopher rockfish, juvenile	8/27/2012	7	2	8.50	0.71	1.00	0.00	1.00	0.00
halfmoon, adult	8/14/2012	6	2	7.00	1.41	1.50	0.71	1.50	0.71
island kelpfish	8/27/2012	7	3	8.00	1.73	0.43	0.53	0.43	0.53
kelp bass, adult	8/14/2012	6	5	8.20	1.79	1.67	0.82	3.67	2.88
kelp bass, adult	8/27/2012	7	7	8.29	1.38	2.00	0.00	2.43	0.53
kelp bass, all	8/27/2012	7	7	8.29	1.38	2.00	0.00	2.43	0.53
kelp bass, all	8/14/2012	6	5	8.20	1.79	1.67	0.82	3.67	2.88
kelp rockfish, adult	8/27/2012	7	7	9.43	0.79	2.86	0.38	19.57	9.36
kelp rockfish, adult	8/14/2012	6	6	9.50	1.22	3.00	0.00	42.00	30.78
kelp rockfish, all	8/27/2012	7	7	9.57	0.79	2.86	0.38	29.14	20.16
kelp rockfish, all	8/14/2012	6	6	9.50	1.22	3.17	0.41	58.83	51.89
kelp rockfish, juvenile	8/27/2012	7	4	9.25	1.50	1.57	1.51	9.57	12.65
kelp rockfish, juvenile	8/14/2012	6	5	7.80	2.28	2.00	1.10	16.83	21.97
kelp surfperch	8/14/2012	6	4	10.00	0.00	3.25	0.50	62.75	51.17
kelp surfperch	8/27/2012	7	7	8.71	1.89	2.57	0.53	21.71	25.30
kelpfish spp.	8/14/2012	6	2	7.00	0.00	1.00	0.00	1.00	0.00
KGB	8/14/2012	6	5	7.80	1.10	2.60	0.55	9.00	6.36
KGB	8/27/2012	7	5	8.40	1.52	2.20	0.84	6.40	5.27
lingcod, adult	8/14/2012	6	2	7.50	0.71	1.00	0.00	1.00	0.00
olive rockfish, adult	8/27/2012	7	6	9.00	2.00	1.43	0.79	2.29	1.70

2012 ROVING DIVER FISH COUNT

olive rockfish, adult	8/14/2012	6	6	8.83	1.17	2.17	0.41	7.83	2.32
olive rockfish, all	8/27/2012	7	7	10.00	0.00	3.00	0.00	29.43	21.05
olive rockfish, all	8/14/2012	6	6	9.33	1.21	3.00	0.00	22.33	9.09
olive/yellowtail rockfish, juvenile	8/27/2012	7	7	10.00	0.00	2.86	0.38	27.14	20.59
olive/yellowtail rockfish, juvenile	8/14/2012	6	5	9.80	0.45	2.33	1.21	14.50	9.87
opaleye, adult	8/14/2012	6	5	8.00	2.00	1.50	0.84	3.33	3.20
opaleye, adult	8/27/2012	7	3	7.00	1.73	0.71	0.95	1.00	1.41
Pacific mackerel	8/27/2012	7	3	6.67	0.58	4.00	0.00	8666.67	2309.40
painted greenling	8/14/2012	6	6	9.67	0.52	3.00	0.00	33.83	22.28
painted greenling	8/27/2012	7	7	10.00	0.00	3.00	0.00	36.43	17.98
pile perch, adult	8/27/2012	7	7	9.43	0.79	2.29	0.49	7.00	5.29
pile perch, adult	8/14/2012	6	6	9.83	0.41	2.33	0.52	10.83	5.91
pile perch, all	8/14/2012	6	6	9.83	0.41	3.00	0.00	35.33	12.29
pile perch, all	8/27/2012	7	7	10.00	0.00	3.00	0.00	24.57	13.99
pile perch, juvenile	8/27/2012	7	7	10.00	0.00	2.86	0.38	17.57	10.83
pile perch, juvenile	8/14/2012	6	6	9.67	0.52	3.00	0.00	24.50	7.64
rainbow surfperch	8/27/2012	7	1	10.00		1.00		1.00	
rock wrasse, female	8/27/2012	7	6	8.50	1.52	1.00	0.58	1.14	0.90
rock wrasse, female	8/14/2012	6	5	8.40	1.34	1.17	0.75	1.67	1.51
rock wrasse, male	8/27/2012	7	7	9.71	0.49	2.00	0.00	4.00	1.00
rock wrasse, male	8/14/2012	6	6	8.33	1.37	1.83	0.41	2.33	1.03
ronquil spp.	8/27/2012	7	1	8.00		1.00		1.00	
rubberlip surfperch	8/27/2012	7	7	8.57	1.27	2.29	0.49	6.43	3.82
rubberlip surfperch	8/14/2012	6	5	8.40	1.52	2.00	0.00	4.40	3.05
señorita, adult	8/14/2012	6	6	9.83	0.41	3.50	0.55	114.00	48.16
señorita, adult	8/27/2012	7	7	10.00	0.00	3.71	0.49	170.29	104.39
señorita, all	8/14/2012	6	6	9.83	0.41	3.50	0.55	114.33	47.98
señorita, all	8/27/2012	7	7	10.00	0.00	3.71	0.49	170.29	104.39
señorita, juvenile	8/14/2012	6	1	9.00		0.33	0.82	0.33	0.82
striped surfperch, adult	8/27/2012	7	7	9.43	0.79	2.00	0.58	5.71	8.99
striped surfperch, adult	8/14/2012	6	6	9.33	1.21	2.00	0.00	5.17	2.93
striped surfperch, all	8/14/2012	6	6	9.33	1.21	2.33	0.52	10.00	8.67
striped surfperch, all	8/27/2012	7	7	9.57	0.79	2.14	0.38	7.00	8.47
striped surfperch, juvenile	8/27/2012	7	5	9.20	0.84	1.00	0.82	1.29	1.25
striped surfperch, juvenile	8/14/2012	6	3	9.33	1.15	1.17	1.33	4.83	7.76
surfperch spp.	8/27/2012	7	5	9.40	0.89	3.00	0.00	35.00	22.90
surfperch spp.	8/14/2012	6	4	8.00	0.82	3.25	0.50	79.25	46.36
swell shark	8/14/2012	6	1	8.00		1.00		1.00	
top smelt	8/14/2012	6	2	7.50	3.54	3.00	0.00	32.50	17.68
treefish, adult	8/14/2012	6	5	7.80	0.84	1.50	0.84	3.17	3.54
treefish, adult	8/27/2012	7	6	8.50	0.84	1.71	0.76	2.86	1.86
treefish, juvenile	8/27/2012	7	4	8.75	1.89	0.71	0.76	0.71	0.76
treefish, juvenile	8/14/2012	6	3	7.33	2.31	0.67	0.82	0.67	0.82
white surfperch	8/14/2012	6	2	8.00	1.41	3.00	0.00	51.00	33.94
zebra goby	8/14/2012	6	3	7.33	1.53	1.00	0.00	1.00	0.00
zebra goby	8/27/2012	7	1	7.00		1.00		1.00	

2012 ROVING DIVER FISH COUNT

Santa Cruz Island - Pelican Bay

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	9/13/2012	6	1	7.00		1.00		1.00	
black surfperch, adult	9/13/2012	6	6	10.00	0.00	3.00	0.00	37.33	11.47
black surfperch, all	9/13/2012	6	6	10.00	0.00	3.00	0.00	48.83	9.41
black surfperch, juvenile	9/13/2012	6	5	8.80	1.10	2.00	1.10	11.50	11.20
blackeye goby	9/13/2012	6	6	10.00	0.00	4.00	0.00	470.17	176.57
blacksmith, adult	9/13/2012	6	6	8.83	1.33	3.67	0.52	189.33	107.25
blacksmith, all	9/13/2012	6	6	8.83	1.33	3.67	0.52	191.17	109.79
blacksmith, juvenile	9/13/2012	6	2	7.00	1.41	0.67	1.03	1.83	3.25
blue-banded goby	9/13/2012	6	2	9.00	0.00	0.50	0.84	1.00	2.00
brown rockfish, adult	9/13/2012	6	2	8.50	0.71	1.00	0.00	1.00	0.00
cabezon, adult	9/13/2012	6	3	7.67	1.15	1.00	0.00	1.00	0.00
California moray eel	9/13/2012	6	1	8.00		1.00		1.00	
California sheephead, female	9/13/2012	6	5	9.80	0.45	1.83	0.98	4.00	4.15
copper rockfish, adult	9/13/2012	6	4	9.25	1.50	1.75	0.50	2.00	0.82
fringehead spp.	9/13/2012	6	3	8.33	1.53	1.67	0.58	3.67	3.06
garibaldi, adult	9/13/2012	6	6	10.00	0.00	3.00	0.00	19.00	4.43
halfmoon, adult	9/13/2012	6	4	7.50	1.29	1.75	0.50	1.75	0.50
kelp bass, adult	9/13/2012	6	6	10.00	0.00	3.00	0.00	19.83	7.31
kelp bass, all	9/13/2012	6	6	10.00	0.00	3.00	0.00	19.83	7.31
kelp rockfish, adult	9/13/2012	6	6	9.83	0.41	3.00	0.00	22.50	6.35
kelp rockfish, all	9/13/2012	6	6	9.83	0.41	3.00	0.00	22.50	6.35
olive rockfish, adult	9/13/2012	6	6	9.50	0.84	2.67	0.52	13.83	6.05
olive rockfish, all	9/13/2012	6	6	9.50	0.84	2.67	0.52	13.83	6.05
Pacific sardine	9/13/2012	6	1	6.00		4.00		2000.00	
painted greenling	9/13/2012	6	6	10.00	0.00	3.00	0.00	21.00	4.15
pile perch, adult	9/13/2012	6	6	9.50	0.84	2.17	0.75	7.00	4.94
pile perch, all	9/13/2012	6	6	9.50	0.84	2.17	0.75	7.00	4.94
rock wrasse, female	9/13/2012	6	5	9.20	0.45	1.50	0.84	2.83	2.32
rock wrasse, male	9/13/2012	6	6	10.00	0.00	2.00	0.00	3.00	0.63
rubberlip surfperch	9/13/2012	6	1	8.00		1.00		1.00	
seporita, adult	9/13/2012	6	6	8.83	2.04	1.83	0.41	6.00	3.90
seporita, all	9/13/2012	6	6	8.83	2.04	1.83	0.41	6.00	3.90
treefish, adult	9/13/2012	6	3	7.33	0.58	0.50	0.55	0.50	0.55
zebra goby	9/13/2012	6	3	8.00	1.00	1.67	0.58	2.00	1.00

2012 ROVING DIVER FISH COUNT

Santa Cruz Island - Scorpion Anchorage

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	10/3/2012	4	4	7.75	1.50	1.50	0.58	2.00	1.41
black and yellow rockfish, adult	8/16/2012	5	5	8.80	1.64	1.80	0.45	2.60	1.52
black surfperch, adult	10/3/2012	4	4	10.00	0.00	3.00	0.00	24.00	1.63
black surfperch, adult	8/16/2012	5	5	10.00	0.00	3.00	0.00	16.00	2.74
black surfperch, all	8/16/2012	5	5	10.00	0.00	3.00	0.00	20.80	5.45
black surfperch, all	10/3/2012	4	4	10.00	0.00	3.00	0.00	32.00	4.08
black surfperch, juvenile	8/16/2012	5	4	9.50	1.00	1.60	0.89	4.80	3.42
black surfperch, juvenile	10/3/2012	4	4	8.75	1.26	2.25	0.50	8.00	2.94
blackeye goby	8/16/2012	5	5	10.00	0.00	4.00	0.00	339.00	40.99
blackeye goby	10/3/2012	4	4	10.00	0.00	4.00	0.00	305.00	28.87
blacksmith, adult	10/3/2012	4	4	10.00	0.00	2.75	0.50	33.75	28.55
blacksmith, adult	8/16/2012	5	5	10.00	0.00	3.80	0.45	120.80	59.11
blacksmith, all	8/16/2012	5	5	10.00	0.00	3.80	0.45	122.20	60.22
blacksmith, all	10/3/2012	4	4	10.00	0.00	3.50	0.58	110.50	32.63
blacksmith, juvenile	10/3/2012	4	4	9.75	0.50	3.25	0.50	101.75	52.40
blacksmith, juvenile	8/16/2012	5	3	9.67	0.58	1.20	1.10	1.40	1.34
blue rockfish, adult	10/3/2012	4	2	7.00	1.41	0.50	0.58	0.50	0.58
blue rockfish, adult	8/16/2012	5	5	8.60	1.95	2.00	0.00	5.80	2.68
blue rockfish, all	10/3/2012	4	3	8.67	1.15	1.50	1.00	3.00	2.16
blue rockfish, all	8/16/2012	5	5	10.00	0.00	2.80	0.45	18.40	7.23
blue rockfish, juvenile	10/3/2012	4	3	8.67	1.15	1.50	1.00	2.50	1.73
blue rockfish, juvenile	8/16/2012	5	4	10.00	0.00	2.40	1.34	12.60	7.57
brown rockfish, adult	8/16/2012	5	2	7.00	2.83	1.00	0.00	1.00	0.00
California sheephead, female	8/16/2012	5	5	8.60	1.52	2.00	0.00	3.20	1.10
California sheephead, female	10/3/2012	4	4	9.25	0.96	2.00	0.00	4.00	1.41
California sheephead, male	8/16/2012	5	1	5.00		0.20	0.45	0.20	0.45
fringehead spp.	8/16/2012	5	3	6.67	1.53	1.33	0.58	1.33	0.58
garibaldi, adult	10/3/2012	4	4	10.00	0.00	2.00	0.00	6.75	3.20
garibaldi, adult	8/16/2012	5	5	9.60	0.89	2.20	0.45	8.60	2.70
garibaldi, juvenile	10/3/2012	4	1	6.00		0.25	0.50	0.25	0.50
halfmoon, adult	8/16/2012	5	1	5.00		1.00		1.00	
halfmoon, adult	10/3/2012	4	4	8.75	1.26	1.75	0.50	2.50	1.29
horn shark	8/16/2012	5	2	7.50	0.71	1.00	0.00	1.00	0.00
horn shark	10/3/2012	4	1	8.00		2.00		2.00	
kelp bass, adult	10/3/2012	4	4	10.00	0.00	3.00	0.00	19.00	4.24
kelp bass, adult	8/16/2012	5	5	10.00	0.00	2.20	0.45	4.80	3.56
kelp bass, all	10/3/2012	4	4	10.00	0.00	3.00	0.00	19.50	4.65
kelp bass, all	8/16/2012	5	5	10.00	0.00	2.20	0.45	4.80	3.56
kelp bass, juvenile	10/3/2012	4	2	10.00	0.00	0.50	0.58	0.50	0.58
kelp rockfish, adult	10/3/2012	4	4	7.25	1.71	1.50	0.58	2.25	1.89
kelp rockfish, adult	8/16/2012	5	5	9.00	1.00	2.00	0.00	7.00	3.08
kelp rockfish, all	10/3/2012	4	4	7.25	1.71	1.50	0.58	2.50	2.38
kelp rockfish, all	8/16/2012	5	5	9.00	1.00	2.00	0.00	7.00	3.08
kelp rockfish, juvenile	10/3/2012	4	1	8.00		0.25	0.50	0.25	0.50
olive rockfish, adult	8/16/2012	5	4	8.50	1.73	1.80	1.10	4.60	6.99
olive rockfish, adult	10/3/2012	4	1	8.00		0.25	0.50	0.25	0.50
olive rockfish, all	8/16/2012	5	5	8.60	1.34	2.00	0.71	5.80	6.53
olive rockfish, all	10/3/2012	4	1	8.00		0.25	0.50	0.25	0.50
olive/yellowtail rockfish, juvenile	8/16/2012	5	3	8.67	1.15	0.80	0.84	1.20	1.64
opaleye, adult	10/3/2012	4	4	10.00	0.00	2.00	0.00	2.50	0.58
opaleye, adult	8/16/2012	5	4	8.00	1.41	1.40	0.89	1.40	0.89
painted greenling	8/16/2012	5	5	10.00	0.00	3.00	0.00	28.80	8.61
painted greenling	10/3/2012	4	4	10.00	0.00	2.75	0.50	14.75	5.56
pile perch, adult	8/16/2012	5	4	9.75	0.50	1.40	0.89	1.80	1.30
pile perch, all	8/16/2012	5	4	9.75	0.50	1.40	0.89	1.80	1.30
rock wrasse, female	8/16/2012	5	1	10.00		0.20	0.45	0.20	0.45
rock wrasse, male	8/16/2012	5	1	5.00		0.20	0.45	0.20	0.45
rubberlip surfperch	10/3/2012	4	1	10.00		1.00		1.00	
rubberlip surfperch	8/16/2012	5	3	5.00	0.00	1.00	0.00	1.00	0.00
seporita, adult	8/16/2012	5	5	9.00	1.73	2.20	0.45	7.20	3.56
seporita, adult	10/3/2012	4	4	10.00	0.00	2.75	0.50	25.00	23.57
seporita, all	10/3/2012	4	4	10.00	0.00	2.75	0.50	25.00	23.57
seporita, all	8/16/2012	5	5	9.00	1.73	2.20	0.45	7.20	3.56
treefish, adult	8/16/2012	5	2	7.50	0.71	0.60	0.89	0.60	0.89
treefish, adult	10/3/2012	4	2	5.50	0.71	0.50	0.58	0.50	0.58
treefish, juvenile	8/16/2012	5	1	9.00		0.20	0.45	0.20	0.45
zebra goby	10/3/2012	4	1	9.00		1.00		1.00	
zebra goby	8/16/2012	5	1	9.00		1.00		1.00	

2012 ROVING DIVER FISH COUNT

Santa Cruz Island - Yellow Banks

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
bat ray	9/12/2012	6	3	6.00	1.73	2.00	0.00	2.00	0.00
black and yellow rockfish, adult	9/12/2012	6	3	7.33	1.53	2.00	0.00	2.67	0.58
black surfperch, adult	9/12/2012	6	3	6.67	2.89	0.67	0.82	0.67	0.82
black surfperch, all	9/12/2012	6	4	9.00	2.00	1.17	0.98	2.83	3.31
black surfperch, juvenile	9/12/2012	6	3	8.67	2.31	0.83	0.98	2.17	2.99
blackeye goby	9/12/2012	6	6	10.00	0.00	4.00	0.00	252.50	110.89
blacksmith, adult	9/12/2012	6	4	8.25	1.26	1.67	1.51	25.17	33.62
blacksmith, all	9/12/2012	6	5	8.40	1.14	2.00	1.26	26.83	34.01
blacksmith, juvenile	9/12/2012	6	2	9.50	0.71	0.67	1.03	1.67	2.66
blue rockfish, adult	9/12/2012	6	6	7.33	1.21	1.67	0.52	2.00	0.89
blue rockfish, all	9/12/2012	6	6	9.17	0.75	2.83	0.41	15.83	4.71
blue rockfish, juvenile	9/12/2012	6	6	9.17	0.75	2.67	0.52	13.83	4.07
California sheephead, female	9/12/2012	6	6	10.00	0.00	2.83	0.41	13.33	2.42
California sheephead, male	9/12/2012	6	2	7.00	0.00	0.33	0.52	0.33	0.52
copper rockfish, adult	9/12/2012	6	4	8.25	1.50	1.25	0.50	1.25	0.50
copper rockfish, juvenile	9/12/2012	6	5	8.20	0.84	1.80	0.45	3.80	3.27
gopher rockfish, adult	9/12/2012	6	1	9.00		2.00		3.00	
gopher rockfish, juvenile	9/12/2012	6	1	8.00		1.00		1.00	
kelp bass, adult	9/12/2012	6	6	8.17	0.75	1.67	0.52	2.67	1.86
kelp bass, all	9/12/2012	6	6	8.17	0.75	1.67	0.52	2.67	1.86
kelp rockfish, adult	9/12/2012	6	6	7.33	0.52	1.67	0.52	2.00	0.89
kelp rockfish, all	9/12/2012	6	6	7.33	0.52	1.67	0.52	2.00	0.89
olive rockfish, adult	9/12/2012	6	5	8.80	0.45	1.50	0.84	1.50	0.84
olive rockfish, all	9/12/2012	6	5	8.80	0.45	1.50	0.84	1.50	0.84
opaleye, adult	9/12/2012	6	1	7.00		0.17	0.41	0.17	0.41
painted greenling	9/12/2012	6	6	9.83	0.41	3.00	0.00	27.50	7.29
pile perch, adult	9/12/2012	6	3	9.67	0.58	1.00	1.10	1.33	1.51
pile perch, all	9/12/2012	6	4	9.75	0.50	1.33	1.03	1.67	1.37
pile perch, juvenile	9/12/2012	6	1	10.00		0.33	0.82	0.33	0.82
rainbow surfperch	9/12/2012	6	1	9.00		2.00		3.00	
seporita, adult	9/12/2012	6	6	10.00	0.00	3.00	0.00	37.83	12.16
seporita, all	9/12/2012	6	6	10.00	0.00	3.00	0.00	37.83	12.16
snubnose sculpin	9/12/2012	6	2	9.00	1.41	1.00	0.00	1.00	0.00
striped surfperch, adult	9/12/2012	6	1	10.00		0.17	0.41	0.17	0.41
striped surfperch, all	9/12/2012	6	2	8.50	2.12	0.50	0.84	0.50	0.84
striped surfperch, juvenile	9/12/2012	6	1	7.00		0.33	0.82	0.33	0.82
treefish, juvenile	9/12/2012	6	3	7.67	1.15	0.67	0.82	0.67	0.82
vermillion rockfish, juvenile	9/12/2012	6	6	8.83	0.98	2.00	0.89	5.67	5.28

2012 ROVING DIVER FISH COUNT

Anacapa Island - Admiral's Reef

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	9/10/2012	4	4	7.75	1.71	2.00	0.00	2.50	0.58
black surfperch, adult	9/10/2012	4	3	7.67	1.53	1.00	0.82	1.00	0.82
black surfperch, all	9/10/2012	4	4	7.75	1.89	1.75	0.50	4.00	4.08
black surfperch, juvenile	9/10/2012	4	3	7.67	2.31	1.25	0.96	3.00	4.08
blackeye goby	9/10/2012	4	4	10.00	0.00	4.00	0.00	643.75	155.53
blacksmith, adult	9/10/2012	4	4	10.00	0.00	4.00	0.00	659.75	50.86
blacksmith, all	9/10/2012	4	4	10.00	0.00	4.00	0.00	951.25	152.96
blacksmith, juvenile	9/10/2012	4	4	9.00	1.15	4.00	0.00	291.50	112.87
blue rockfish, adult	9/10/2012	4	4	8.75	0.96	3.00	0.00	32.75	20.60
blue rockfish, all	9/10/2012	4	4	10.00	0.00	4.00	0.00	151.00	18.38
blue rockfish, juvenile	9/10/2012	4	4	10.00	0.00	3.75	0.50	118.25	19.79
cabezon, adult	9/10/2012	4	1	7.00		1.00		1.00	
California moray eel	9/10/2012	4	2	7.50	0.71	1.50	0.71	1.50	0.71
California scorpionfish, adult	9/10/2012	4	1	6.00		1.00		1.00	
California sheephead, female	9/10/2012	4	4	10.00	0.00	2.75	0.50	13.25	5.85
garibaldi, adult	9/10/2012	4	4	10.00	0.00	2.50	0.58	10.50	2.65
gopher rockfish, adult	9/10/2012	4	1	10.00		2.00		6.00	
island kelpfish	9/10/2012	4	2	7.50	0.71	0.50	0.58	0.50	0.58
kelp bass, adult	9/10/2012	4	4	8.75	1.26	2.00	0.00	4.25	0.50
kelp bass, all	9/10/2012	4	4	8.75	1.26	2.00	0.00	4.25	0.50
kelp rockfish, adult	9/10/2012	4	4	8.25	0.50	2.00	0.00	3.00	1.15
kelp rockfish, all	9/10/2012	4	4	8.25	0.50	2.00	0.00	3.00	1.15
ocean whitefish, adult	9/10/2012	4	1	7.00		1.00		1.00	
olive rockfish, adult	9/10/2012	4	4	8.50	1.73	1.50	0.58	1.50	0.58
olive rockfish, all	9/10/2012	4	4	8.50	1.73	1.50	0.58	1.75	0.96
olive/yellowtail rockfish, juvenile	9/10/2012	4	1	7.00		0.25	0.50	0.25	0.50
opaleye, adult	9/10/2012	4	4	9.50	0.58	3.00	0.00	34.75	9.64
painted greenling	9/10/2012	4	4	10.00	0.00	3.00	0.00	24.25	3.59
pile perch, adult	9/10/2012	4	2	7.50	0.71	0.50	0.58	0.50	0.58
pile perch, all	9/10/2012	4	2	7.50	0.71	0.50	0.58	0.50	0.58
rock wrasse, female	9/10/2012	4	4	7.50	1.00	1.75	0.50	2.50	1.29
rock wrasse, male	9/10/2012	4	3	9.33	0.58	1.00	0.82	1.50	1.73
treefish, adult	9/10/2012	4	4	10.00	0.00	2.00	0.00	7.00	2.31
zebra goby	9/10/2012	4	1	7.00		1.00		1.00	

2012 ROVING DIVER FISH COUNT

Anacapa Island - Cathedral Cove

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	6/25/2012	7	2	7.50	2.12	1.00	0.00	1.00	0.00
black surfperch, adult	6/25/2012	7	7	8.86	1.21	2.00	0.58	4.71	3.90
black surfperch, all	6/25/2012	7	7	9.43	0.79	2.29	0.49	8.57	4.12
black surfperch, juvenile	6/25/2012	7	7	8.43	1.51	2.00	0.00	3.86	0.90
blackeye goby	6/25/2012	7	7	9.57	0.53	2.86	0.38	37.43	29.51
blacksmith, adult	6/25/2012	7	7	9.71	0.49	4.00	0.00	271.00	77.62
blacksmith, all	6/25/2012	7	7	9.71	0.49	4.00	0.00	271.00	77.62
blue rockfish, adult	6/25/2012	7	6	9.50	1.22	1.57	0.79	1.86	1.07
blue rockfish, all	6/25/2012	7	7	10.00	0.00	3.00	0.00	22.71	9.50
blue rockfish, juvenile	6/25/2012	7	7	9.71	0.49	3.00	0.00	21.00	8.85
California moray eel	6/25/2012	7	1	8.00		1.00		1.00	
California scorpionfish, adult	6/25/2012	7	1	6.00		1.00		1.00	
California sheephead, female	6/25/2012	7	7	9.43	1.13	2.14	0.38	5.29	2.98
California sheephead, male	6/25/2012	7	5	7.80	1.92	1.29	0.95	1.43	1.13
coralline sculpin	6/25/2012	7	1	7.00		1.00		1.00	
garibaldi, adult	6/25/2012	7	7	9.57	0.79	2.00	0.00	5.29	1.50
giant kelpfish, adult	6/25/2012	7	2	10.00	0.00	1.00	0.00	1.00	0.00
giant kelpfish, juvenile	6/25/2012	7	3	8.00	1.00	1.67	0.58	3.33	3.21
gopher rockfish, juvenile	6/25/2012	7	2	9.00	0.00	2.00	1.41	12.50	16.26
halfbanded rockfish, adult	6/25/2012	7	1	9.00		1.00		1.00	
halfmoon, adult	6/25/2012	7	1	7.00		1.00		1.00	
horn shark	6/25/2012	7	1	8.00		1.00		1.00	
island kelpfish	6/25/2012	7	1	8.00		0.14	0.38	0.14	0.38
kelp bass, adult	6/25/2012	7	7	9.43	0.79	2.14	0.38	6.14	2.73
kelp bass, all	6/25/2012	7	7	9.43	0.79	2.14	0.38	6.29	2.81
kelp bass, juvenile	6/25/2012	7	1	7.00		0.14	0.38	0.14	0.38
kelp rockfish, adult	6/25/2012	7	7	9.14	1.46	1.86	0.38	5.14	2.41
kelp rockfish, all	6/25/2012	7	7	9.14	1.46	1.86	0.38	5.14	2.41
kelp surfperch	6/25/2012	7	7	9.43	0.98	1.86	0.69	5.14	5.01
kelpfish spp.	6/25/2012	7	2	8.00	1.41	2.00	0.00	3.00	1.41
KGB	6/25/2012	7	3	7.67	2.08	1.00	0.00	1.00	0.00
olive rockfish, adult	6/25/2012	7	5	8.60	1.14	1.14	0.90	1.43	1.40
olive rockfish, all	6/25/2012	7	7	9.00	1.15	2.00	0.00	5.57	2.76
olive/yellowtail rockfish, juvenile	6/25/2012	7	6	8.00	1.67	1.71	0.76	4.14	3.24
opaleye, adult	6/25/2012	7	7	9.43	1.13	3.00	0.00	44.00	20.23
painted greenling	6/25/2012	7	7	9.29	0.76	2.29	0.49	10.43	6.70
pile perch, adult	6/25/2012	7	3	10.00	0.00	0.71	0.95	0.71	0.95
pile perch, all	6/25/2012	7	6	9.67	0.82	1.43	0.79	2.29	1.80
pile perch, juvenile	6/25/2012	7	4	8.75	1.50	1.00	1.00	1.57	1.90
rock wrasse, female	6/25/2012	7	5	8.60	1.34	0.86	0.69	0.86	0.69
rock wrasse, male	6/25/2012	7	1	10.00		0.14	0.38	0.14	0.38
rubberlip surfperch	6/25/2012	7	2	10.00	0.00	1.00	0.00	1.00	0.00
seporita, adult	6/25/2012	7	7	10.00	0.00	3.14	0.38	44.14	39.44
seporita, all	6/25/2012	7	7	10.00	0.00	3.29	0.49	54.86	54.82
seporita, juvenile	6/25/2012	7	1	10.00		0.43	1.13	10.71	28.35
striped surfperch, adult	6/25/2012	7	1	8.00		0.14	0.38	0.14	0.38
striped surfperch, all	6/25/2012	7	1	8.00		0.29	0.76	0.29	0.76
striped surfperch, juvenile	6/25/2012	7	1	8.00		0.14	0.38	0.14	0.38
surfperch spp., juvenile	6/25/2012	7	1	10.00		2.00		2.00	
treefish, adult	6/25/2012	7	1	7.00		0.14	0.38	0.14	0.38
treefish, juvenile	6/25/2012	7	3	9.00	1.00	0.43	0.53	0.43	0.53
tubesnout, adult	6/25/2012	7	2	8.50	0.71	1.50	0.71	3.00	2.83

2012 ROVING DIVER FISH COUNT

Anacapa Island - Landing Cove

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	6/26/2012	5	2	6.50	2.12	1.50	0.71	1.50	0.71
black surfperch, adult	6/26/2012	5	5	8.20	1.64	1.80	0.45	3.60	2.19
black surfperch, all	6/26/2012	5	5	9.00	1.22	2.40	0.55	9.00	6.04
black surfperch, juvenile	6/26/2012	5	4	8.25	1.50	1.80	1.10	5.40	4.28
blackeye goby	6/26/2012	5	5	8.40	1.52	3.00	0.00	53.40	37.28
blacksmith, adult	6/26/2012	5	5	9.80	0.45	4.00	0.00	201.60	66.32
blacksmith, all	6/26/2012	5	5	9.80	0.45	4.00	0.00	201.60	66.32
blue rockfish, all	6/26/2012	5	4	9.50	1.00	2.00	1.22	9.60	7.77
blue rockfish, juvenile	6/26/2012	5	4	9.50	1.00	2.00	1.22	9.60	7.77
blue-banded goby	6/26/2012	5	2	8.50	2.12	0.80	1.10	1.60	2.19
bocaccio, juvenile	6/26/2012	5	1	7.00		1.00		1.00	
cabezon, adult	6/26/2012	5	2	9.00	0.00	2.00	0.00	2.00	0.00
California sheephead, female	6/26/2012	5	4	8.25	1.50	1.40	0.89	1.60	1.14
California sheephead, male	6/26/2012	5	1	5.00		0.20	0.45	0.20	0.45
c-o turbot	6/26/2012	5	1	5.00		1.00		1.00	
garibaldi, adult	6/26/2012	5	5	9.40	0.55	2.40	0.55	11.40	3.85
giant kelpfish, adult	6/26/2012	5	2	7.50	0.71	1.00	0.00	1.00	0.00
giant kelpfish, juvenile	6/26/2012	5	1	10.00		1.00		1.00	
gopher rockfish, adult	6/26/2012	5	2	5.00	0.00	1.00	0.00	1.00	0.00
halfmoon, adult	6/26/2012	5	2	7.50	0.71	1.50	0.71	3.50	3.54
island kelpfish	6/26/2012	5	2	7.50	0.71	0.60	0.89	0.80	1.30
kelp bass, adult	6/26/2012	5	4	9.25	0.96	1.60	0.89	3.60	2.51
kelp bass, all	6/26/2012	5	5	9.00	1.00	1.80	0.45	4.00	2.12
kelp bass, juvenile	6/26/2012	5	2	8.00	0.00	0.40	0.55	0.40	0.55
kelp rockfish, adult	6/26/2012	5	4	8.00	1.83	1.40	0.89	2.00	1.87
kelp rockfish, all	6/26/2012	5	4	8.00	1.83	1.40	0.89	2.00	1.87
kelp surfperch	6/26/2012	5	5	8.00	1.00	2.00	0.00	3.20	2.68
kelpfish spp.	6/26/2012	5	3	7.67	1.53	1.00	0.00	1.00	0.00
larval fish spp.	6/26/2012	5	1	10.00		4.00		1500.00	
olive rockfish, adult	6/26/2012	5	4	7.50	2.08	1.40	0.89	1.80	1.30
olive rockfish, all	6/26/2012	5	5	8.40	1.52	2.20	0.45	9.80	9.42
olive/yellowtail rockfish, juvenile	6/26/2012	5	4	8.00	1.41	1.80	1.10	8.00	9.77
opaleye, adult	6/26/2012	5	5	9.40	0.55	2.80	0.45	19.60	10.26
painted greenling	6/26/2012	5	5	9.80	0.45	2.20	0.45	7.60	3.13
pile perch, adult	6/26/2012	5	2	9.00	1.41	0.60	0.89	0.60	0.89
pile perch, all	6/26/2012	5	4	8.50	1.00	1.40	0.89	2.20	1.92
pile perch, juvenile	6/26/2012	5	4	8.50	1.00	1.20	0.84	1.60	1.52
rock wrasse, female	6/26/2012	5	3	8.00	1.00	1.20	1.10	1.40	1.34
rock wrasse, male	6/26/2012	5	3	8.33	2.08	0.80	0.84	0.80	0.84
seporita, adult	6/26/2012	5	5	10.00	0.00	2.80	0.45	26.00	14.80
seporita, all	6/26/2012	5	5	10.00	0.00	2.80	0.45	26.00	14.80
shiner surfperch	6/26/2012	5	2	9.00	1.41	3.00	0.00	17.50	0.71
striped surfperch, adult	6/26/2012	5	5	8.60	1.67	1.80	0.45	2.80	1.30
striped surfperch, all	6/26/2012	5	5	8.80	1.30	1.80	0.45	4.00	2.12
striped surfperch, juvenile	6/26/2012	5	4	8.00	1.83	1.20	0.84	1.20	0.84
swell shark	6/26/2012	5	1	8.00		2.00		2.00	
top smelt	6/26/2012	5	1	10.00		3.00		14.00	
treefish, adult	6/26/2012	5	4	7.25	1.50	1.00	0.71	1.00	0.71
treefish, juvenile	6/26/2012	5	2	9.00	1.41	0.40	0.55	0.40	0.55
zebra goby	6/26/2012	5	1	6.00		2.00		5.00	

2012 ROVING DIVER FISH COUNT

Santa Barbara Island - SE Sea Lion Rookery

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
blackeye goby	6/14/2012	6	6	10.00	0.00	4.00	0.00	333.67	76.88
blacksmith, adult	6/14/2012	6	2	8.50	0.71	0.67	1.03	1.17	1.83
blacksmith, all	6/14/2012	6	2	8.50	0.71	0.67	1.03	1.33	2.16
blacksmith, juvenile	6/14/2012	6	1	8.00		0.17	0.41	0.17	0.41
blue rockfish, all	6/14/2012	6	6	9.50	0.84	3.00	0.00	45.33	9.52
blue rockfish, juvenile	6/14/2012	6	6	9.50	0.84	3.00	0.00	45.33	9.52
cabezon, juvenile	6/14/2012	6	1	6.00		1.00		1.00	
California sheephead, female	6/14/2012	6	2	7.00	0.00	0.50	0.84	1.00	2.00
copper rockfish, juvenile	6/14/2012	6	3	7.67	0.58	1.33	0.58	1.33	0.58
garibaldi, adult	6/14/2012	6	6	8.50	0.55	1.67	0.52	1.67	0.52
island kelpfish	6/14/2012	6	1	8.00		0.17	0.41	0.17	0.41
olive rockfish, all	6/14/2012	6	6	8.67	0.82	2.50	0.55	9.83	4.58
olive/yellowtail rockfish, juvenile	6/14/2012	6	6	8.67	0.82	2.50	0.55	9.83	4.58
painted greenling	6/14/2012	6	6	9.33	1.03	2.17	0.41	8.00	2.28
ronquil spp.	6/14/2012	6	1	10.00		1.00		1.00	
treefish, adult	6/14/2012	6	1	8.00		0.17	0.41	0.17	0.41
tubesnout, adult	6/14/2012	6	2	7.50	0.71	2.00	1.41	40.50	55.86
vermillion rockfish, juvenile	6/14/2012	6	5	9.80	0.45	2.20	0.45	9.20	3.42

2012 ROVING DIVER FISH COUNT

Santa Barbara Island - Arch Point

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
blackeye goby	5/29/2012	5	5	9.60	0.89	3.20	0.45	68.20	43.59
blacksmith, adult	5/29/2012	5	5	9.20	1.30	2.80	0.45	31.60	20.62
blacksmith, all	5/29/2012	5	5	9.20	1.30	2.80	0.45	31.60	20.62
blue rockfish, all	5/29/2012	5	5	9.60	0.55	2.60	0.55	10.40	5.55
blue rockfish, juvenile	5/29/2012	5	5	9.60	0.55	2.60	0.55	10.40	5.55
cabezon, adult	5/29/2012	5	2	8.00	1.41	1.00	0.00	1.00	0.00
cabezon, juvenile	5/29/2012	5	2	7.00	1.41	1.50	0.71	1.50	0.71
California scorpionfish, adult	5/29/2012	5	1	7.00		1.00		1.00	
California sheephead, female	5/29/2012	5	5	8.60	1.14	1.40	0.55	1.40	0.55
coralline sculpin	5/29/2012	5	2	6.00	1.41	1.00	0.00	1.00	0.00
garibaldi, adult	5/29/2012	5	5	10.00	0.00	3.00	0.00	25.80	1.79
giant kelpfish, juvenile	5/29/2012	5	2	6.00	1.41	2.50	0.71	14.50	7.78
grass rockfish, adult	5/29/2012	5	4	8.50	1.91	1.00	0.00	1.00	0.00
halfmoon, adult	5/29/2012	5	2	6.50	2.12	1.50	0.71	1.50	0.71
kelp bass, adult	5/29/2012	5	5	7.80	2.17	1.60	0.55	1.80	0.84
kelp bass, all	5/29/2012	5	5	7.80	2.17	1.60	0.55	1.80	0.84
kelpfish spp.	5/29/2012	5	1	5.00		1.00		1.00	
KGB	5/29/2012	5	1	9.00		1.00		1.00	
opaleye, adult	5/29/2012	5	5	7.20	1.92	1.40	0.55	1.60	0.89
painted greenling	5/29/2012	5	5	10.00	0.00	3.00	0.00	26.00	11.29
señorita, adult	5/29/2012	5	2	8.00	1.41	0.80	1.30	5.20	11.08
señorita, all	5/29/2012	5	2	8.00	1.41	0.80	1.30	5.20	11.08
snubnose sculpin	5/29/2012	5	2	8.50	2.12	1.00	0.00	1.00	0.00
speckled sanddab	5/29/2012	5	1	8.00		2.00		3.00	
treefish, adult	5/29/2012	5	3	6.67	2.08	0.80	0.84	0.80	0.84
vermillion rockfish, juvenile	5/29/2012	5	3	5.67	0.58	1.33	0.58	1.33	0.58

2012 ROVING DIVER FISH COUNT

Santa Barbara Island - Cat Canyon

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black surfperch, adult	5/31/2012	6	5	8.60	2.07	1.33	0.82	2.00	1.55
black surfperch, all	5/31/2012	6	5	8.60	2.07	1.33	0.82	2.00	1.55
blackeye goby	5/31/2012	6	6	10.00	0.00	3.17	0.41	66.00	23.82
blacksmith, adult	5/31/2012	6	6	10.00	0.00	3.33	0.52	89.33	59.67
blacksmith, all	5/31/2012	6	6	10.00	0.00	3.33	0.52	89.33	59.67
blue rockfish, all	5/31/2012	6	1	10.00		0.17	0.41	0.17	0.41
blue rockfish, juvenile	5/31/2012	6	1	10.00		0.17	0.41	0.17	0.41
cabezon, adult	5/31/2012	6	3	8.00	1.73	1.00	0.00	1.00	0.00
California halibut	5/31/2012	6	1	5.00		1.00		1.00	
California sheephead, female	5/31/2012	6	6	10.00	0.00	2.17	0.41	7.00	2.28
California sheephead, male	5/31/2012	6	1	10.00		0.17	0.41	0.17	0.41
coralline sculpin	5/31/2012	6	2	6.50	0.71	1.00	0.00	1.00	0.00
fringehead spp.	5/31/2012	6	1	10.00		1.00		1.00	
garibaldi, adult	5/31/2012	6	6	10.00	0.00	2.33	0.52	9.67	1.51
garibaldi, juvenile	5/31/2012	6	1	8.00		0.17	0.41	0.17	0.41
giant black sea bass, adult	5/31/2012	6	2	6.50	0.71	1.00	0.00	1.00	0.00
halfmoon, adult	5/31/2012	6	3	7.00	2.65	1.67	0.58	1.67	0.58
island kelpfish	5/31/2012	6	3	9.00	1.73	0.67	0.82	0.67	0.82
kelp bass, adult	5/31/2012	6	6	8.67	1.03	2.00	0.00	3.50	1.05
kelp bass, all	5/31/2012	6	6	8.67	1.03	2.00	0.00	3.50	1.05
opaleye, adult	5/31/2012	6	3	8.67	1.53	1.00	1.10	1.00	1.10
painted greenling	5/31/2012	6	6	10.00	0.00	2.67	0.52	14.50	6.28
seporita, adult	5/31/2012	6	5	7.40	1.52	1.67	0.82	4.83	2.93
seporita, all	5/31/2012	6	5	7.40	1.52	1.67	0.82	4.83	2.93
snubnose sculpin	5/31/2012	6	1	9.00		2.00		2.00	
vermillion rockfish, juvenile	5/31/2012	6	1	8.00		1.00		1.00	

2012 ROVING DIVER FISH COUNT

San Miguel Island - Miracle Mile

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	7/26/2012	4	4	9.25	0.50	1.75	0.50	3.25	2.06
black and yellow/gopher rockfish, juvenile	7/26/2012	4	1	9.00		2.00		3.00	
black rockfish, adult	7/26/2012	4	3	9.00	1.73	2.00	0.00	4.33	2.08
black surfperch, adult	7/26/2012	4	4	9.25	0.96	2.00	0.82	5.75	4.99
black surfperch, all	7/26/2012	4	4	9.25	0.96	2.00	0.82	5.75	4.99
blackeye goby	7/26/2012	4	1	9.00		0.25	0.50	0.25	0.50
blue rockfish, adult	7/26/2012	4	4	9.25	1.50	2.50	0.58	10.75	3.40
blue rockfish, all	7/26/2012	4	4	9.75	0.50	2.75	0.50	14.75	6.40
blue rockfish, juvenile	7/26/2012	4	4	8.75	0.96	2.00	0.00	4.00	3.37
cabezon, adult	7/26/2012	4	2	8.50	0.71	1.00	0.00	1.00	0.00
California sheephead, female	7/26/2012	4	1	5.00		0.25	0.50	0.25	0.50
canary rockfish, juvenile	7/26/2012	4	1	6.00		1.00		1.00	
kelp greenling	7/26/2012	4	1	8.00		1.00		1.00	
kelp rockfish, adult	7/26/2012	4	4	10.00	0.00	3.00	0.00	15.00	2.16
kelp rockfish, all	7/26/2012	4	4	10.00	0.00	3.00	0.00	15.00	2.16
lingcod, adult	7/26/2012	4	3	8.00	1.73	1.33	0.58	1.33	0.58
ocean whitefish, adult	7/26/2012	4	1	6.00		1.00		1.00	
olive rockfish, adult	7/26/2012	4	2	8.50	2.12	0.75	0.96	0.75	0.96
olive rockfish, all	7/26/2012	4	2	8.50	2.12	0.75	0.96	0.75	0.96
painted greenling	7/26/2012	4	4	9.25	0.50	1.75	0.50	4.50	4.04
pile perch, adult	7/26/2012	4	3	7.33	1.53	1.25	0.96	1.25	0.96
pile perch, all	7/26/2012	4	3	7.33	1.53	1.25	0.96	1.25	0.96
seporita, adult	7/26/2012	4	2	10.00	0.00	1.25	1.50	6.25	8.10
seporita, all	7/26/2012	4	2	10.00	0.00	1.25	1.50	6.25	8.10
snubnose sculpin	7/26/2012	4	1	7.00		1.00		1.00	
striped surfperch, adult	7/26/2012	4	4	9.75	0.50	3.00	0.00	13.00	2.83
striped surfperch, all	7/26/2012	4	4	9.75	0.50	3.00	0.00	14.75	2.87
striped surfperch, juvenile	7/26/2012	4	4	8.00	1.41	1.75	0.50	1.75	0.50
tubesnout, adult	7/26/2012	4	2	7.50	0.71	3.00	1.41	183.50	245.37
vermillion rockfish, adult	7/26/2012	4	2	8.50	0.71	1.50	0.71	1.50	0.71

2012 ROVING DIVER FISH COUNT

Santa Rosa Island - Cluster Point

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	6/12/2012	4	4	9.50	0.58	2.00	0.00	6.50	2.38
black and yellow/gopher rockfish, juvenile	6/12/2012	4	1	10.00		1.00		1.00	
black rockfish, adult	6/12/2012	4	3	8.67	1.53	2.67	0.58	15.33	6.81
black surfperch, adult	6/12/2012	4	3	9.00	1.00	1.50	1.00	3.75	3.86
black surfperch, all	6/12/2012	4	3	9.00	1.00	1.50	1.00	3.75	3.86
blackeye goby	6/12/2012	4	3	8.67	1.15	1.25	0.96	3.50	4.04
blacksmith, adult	6/12/2012	4	1	10.00		0.25	0.50	0.25	0.50
blacksmith, all	6/12/2012	4	1	10.00		0.25	0.50	0.25	0.50
blue rockfish, adult	6/12/2012	4	4	9.00	1.15	3.75	0.50	102.75	24.98
blue rockfish, all	6/12/2012	4	4	9.50	1.00	4.00	0.00	150.75	42.37
blue rockfish, juvenile	6/12/2012	4	4	9.50	1.00	3.00	0.00	48.00	31.21
cabezon, adult	6/12/2012	4	3	7.33	1.53	1.00	0.00	1.00	0.00
California sheephead, female	6/12/2012	4	4	8.75	0.96	2.00	0.00	3.75	0.50
California sheephead, male	6/12/2012	4	4	8.25	2.36	2.00	0.00	3.50	1.00
coralline sculpin	6/12/2012	4	2	6.00	0.00	1.50	0.71	1.50	0.71
gopher rockfish, adult	6/12/2012	4	2	8.00	2.83	1.50	0.71	1.50	0.71
kelp greenling	6/12/2012	4	1	7.00		1.00		1.00	
kelp rockfish, adult	6/12/2012	4	4	10.00	0.00	3.00	0.00	27.75	9.32
kelp rockfish, all	6/12/2012	4	4	10.00	0.00	3.00	0.00	27.75	9.32
kelpfish spp.	6/12/2012	4	1	9.00		1.00		1.00	
lingcod, adult	6/12/2012	4	4	6.75	1.50	1.25	0.50	1.25	0.50
olive rockfish, adult	6/12/2012	4	4	9.25	0.96	2.25	0.50	7.00	4.24
olive rockfish, all	6/12/2012	4	4	9.25	0.96	2.25	0.50	7.00	4.24
painted greenling	6/12/2012	4	4	9.50	0.58	2.25	0.50	8.75	4.99
pile perch, adult	6/12/2012	4	2	6.00	1.41	0.50	0.58	0.50	0.58
pile perch, all	6/12/2012	4	2	6.00	1.41	0.50	0.58	0.50	0.58
snubnose sculpin	6/12/2012	4	1	9.00		2.00		3.00	
striped surfperch, adult	6/12/2012	4	4	10.00	0.00	3.00	0.00	15.00	2.94
striped surfperch, all	6/12/2012	4	4	10.00	0.00	3.00	0.00	15.00	2.94
treefish, adult	6/12/2012	4	3	10.00	0.00	1.50	1.00	2.75	2.22
vermillion rockfish, adult	6/12/2012	4	2	9.00	0.00	1.00	0.00	1.00	0.00
wolf eel	6/12/2012	4	4	9.25	0.96	1.25	0.50	1.25	0.50

2012 ROVING DIVER FISH COUNT

Santa Rosa Island - Trancion Canyon

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
bat ray	8/29/2012	4	1	5.00		1.00		1.00	
black and yellow rockfish, adult	8/29/2012	4	4	9.25	0.96	2.50	0.58	7.75	4.35
black rockfish, adult	8/29/2012	4	4	10.00	0.00	2.75	0.50	13.00	6.16
black surfperch, adult	8/29/2012	4	4	9.00	0.82	2.00	0.82	8.00	5.77
black surfperch, all	8/29/2012	4	4	9.00	0.82	2.25	0.96	9.50	6.61
black surfperch, juvenile	8/29/2012	4	2	8.50	2.12	1.00	1.15	1.50	1.91
blackeye goby	8/29/2012	4	4	9.75	0.50	2.50	0.58	19.50	16.70
blacksmith, adult	8/29/2012	4	4	9.75	0.50	4.00	0.00	357.50	131.37
blacksmith, all	8/29/2012	4	4	9.75	0.50	4.00	0.00	357.50	131.37
blue rockfish, adult	8/29/2012	4	4	10.00	0.00	3.00	0.00	60.25	25.06
blue rockfish, all	8/29/2012	4	4	10.00	0.00	4.00	0.00	170.75	43.29
blue rockfish, juvenile	8/29/2012	4	4	10.00	0.00	3.50	0.58	113.00	64.69
cabezon, adult	8/29/2012	4	4	8.75	1.26	1.75	0.50	2.25	1.26
California halibut	8/29/2012	4	1	5.00		1.00		1.00	
California sheephead, female	8/29/2012	4	4	10.00	0.00	2.00	0.00	8.25	1.50
California sheephead, juvenile	8/29/2012	4	1	10.00		0.50	1.00	2.50	5.00
California sheephead, male	8/29/2012	4	4	7.50	2.08	1.50	0.58	1.50	0.58
coralline sculpin	8/29/2012	4	1	10.00		1.00		1.00	
gopher rockfish, adult	8/29/2012	4	1	9.00		1.00		1.00	
kelp rockfish, adult	8/29/2012	4	4	10.00	0.00	3.25	0.50	85.25	20.69
kelp rockfish, all	8/29/2012	4	4	10.00	0.00	3.25	0.50	85.25	20.69
kelp surfperch	8/29/2012	4	1	9.00		2.00		4.00	
kelpfish spp.	8/29/2012	4	2	8.00	1.41	1.50	0.71	1.50	0.71
lingcod, adult	8/29/2012	4	4	9.00	1.15	1.50	0.58	2.00	1.41
olive rockfish, adult	8/29/2012	4	4	9.75	0.50	2.75	0.50	18.25	13.30
olive rockfish, all	8/29/2012	4	4	9.75	0.50	3.00	0.00	24.00	12.65
olive/yellowtail rockfish, juvenile	8/29/2012	4	4	8.50	1.29	2.00	0.00	5.75	2.99
opaleye, adult	8/29/2012	4	4	10.00	0.00	3.00	0.00	22.50	4.51
painted greenling	8/29/2012	4	4	10.00	0.00	3.00	0.00	33.25	11.98
pile perch, adult	8/29/2012	4	4	8.50	1.91	1.75	0.50	2.75	1.26
pile perch, all	8/29/2012	4	4	9.75	0.50	2.00	0.00	5.50	1.73
pile perch, juvenile	8/29/2012	4	4	9.00	1.41	2.00	0.00	2.75	0.50
rainbow surfperch	8/29/2012	4	3	5.67	0.58	2.00	0.00	5.00	2.65
rubberlip surfperch	8/29/2012	4	2	9.50	0.71	2.00	0.00	3.00	1.41
señorita, adult	8/29/2012	4	4	9.50	1.00	3.00	0.00	64.50	18.86
señorita, all	8/29/2012	4	4	9.50	1.00	3.00	0.00	64.50	18.86
snubnose sculpin	8/29/2012	4	2	10.00	0.00	2.00	0.00	3.50	0.71
striped surfperch, adult	8/29/2012	4	4	10.00	0.00	3.00	0.00	26.50	8.27
striped surfperch, all	8/29/2012	4	4	10.00	0.00	3.00	0.00	38.50	15.61
striped surfperch, juvenile	8/29/2012	4	4	10.00	0.00	2.25	0.50	12.00	8.29
surfperch spp., juvenile	8/29/2012	4	2	6.50	2.12	2.50	0.71	13.50	9.19
treefish, adult	8/29/2012	4	2	6.50	0.71	0.75	0.96	0.75	0.96
treefish, juvenile	8/29/2012	4	2	6.50	0.71	0.50	0.58	0.50	0.58
tubesnout, adult	8/29/2012	4	4	9.50	1.00	2.50	0.58	29.75	32.15

2012 ROVING DIVER FISH COUNT

Santa Rosa Island - Chickasaw

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	7/11/2012	7	5	8.40	2.07	1.60	0.55	3.20	2.86
black and yellow/gopher rockfish, juvenile	7/11/2012	7	1	9.00		2.00		2.00	
black rockfish, adult	7/11/2012	7	2	9.50	0.71	2.00	0.00	2.00	0.00
black surfperch, adult	7/11/2012	7	6	8.33	1.37	1.71	0.76	3.00	1.53
black surfperch, all	7/11/2012	7	6	8.33	1.37	1.71	0.76	3.00	1.53
blackeye goby	7/11/2012	7	7	9.57	0.53	2.14	0.69	7.00	7.51
blacksmith, adult	7/11/2012	7	1	8.00		0.29	0.76	0.29	0.76
blacksmith, all	7/11/2012	7	1	8.00		0.29	0.76	0.29	0.76
blue rockfish, adult	7/11/2012	7	7	9.57	0.53	3.29	0.49	64.57	34.66
blue rockfish, all	7/11/2012	7	7	10.00	0.00	3.43	0.53	94.29	54.64
blue rockfish, juvenile	7/11/2012	7	7	9.57	1.13	2.86	0.38	29.71	20.87
cabezon, adult	7/11/2012	7	4	7.25	2.06	1.25	0.50	1.25	0.50
California sheephead, female	7/11/2012	7	7	9.57	0.53	2.00	0.00	3.43	0.98
California sheephead, male	7/11/2012	7	7	9.00	1.73	1.71	0.49	2.14	0.90
canary rockfish, juvenile	7/11/2012	7	2	6.00	0.00	1.50	0.71	1.50	0.71
coralline sculpin	7/11/2012	7	1	8.00		1.00		1.00	
kelp bass, adult	7/11/2012	7	1	6.00		0.14	0.38	0.14	0.38
kelp bass, all	7/11/2012	7	1	6.00		0.14	0.38	0.14	0.38
kelp rockfish, adult	7/11/2012	7	7	10.00	0.00	3.00	0.00	24.86	3.89
kelp rockfish, all	7/11/2012	7	7	10.00	0.00	3.00	0.00	25.14	4.10
kelp rockfish, juvenile	7/11/2012	7	2	6.50	2.12	0.29	0.49	0.29	0.49
kelp surfperch	7/11/2012	7	2	8.50	2.12	2.00	0.00	2.00	0.00
lingcod, adult	7/11/2012	7	7	7.43	1.40	1.57	0.53	1.86	1.07
olive rockfish, adult	7/11/2012	7	6	6.67	1.51	1.57	0.79	2.43	2.23
olive rockfish, all	7/11/2012	7	6	7.50	1.87	1.57	0.79	2.86	2.34
olive/yellowtail rockfish, juvenile	7/11/2012	7	2	8.50	2.12	0.43	0.79	0.43	0.79
painted greenling	7/11/2012	7	7	9.86	0.38	2.71	0.49	12.00	2.52
pile perch, adult	7/11/2012	7	6	7.50	1.38	1.71	0.76	2.00	1.00
pile perch, all	7/11/2012	7	6	7.50	1.38	1.71	0.76	2.00	1.00
señorita, adult	7/11/2012	7	3	8.00	1.73	0.86	1.21	2.29	4.42
señorita, all	7/11/2012	7	3	8.00	1.73	0.86	1.21	2.29	4.42
striped surfperch, adult	7/11/2012	7	6	8.83	1.33	1.86	0.90	6.57	3.82
striped surfperch, all	7/11/2012	7	6	8.83	1.33	2.14	1.07	8.86	4.45
striped surfperch, juvenile	7/11/2012	7	4	7.50	1.00	1.14	1.07	2.29	2.75
treefish, adult	7/11/2012	7	5	7.20	1.48	1.00	0.82	1.14	1.07
treefish, juvenile	7/11/2012	7	1	9.00		0.14	0.38	0.14	0.38
tubesnout, adult	7/11/2012	7	7	9.00	0.82	3.71	0.49	194.71	161.18
vermillion rockfish, adult	7/11/2012	7	1	9.00		1.00		1.00	

2012 ROVING DIVER FISH COUNT

Santa Rosa Island - South Point

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	7/12/2012	5	4	8.25	2.06	1.75	0.50	2.25	1.26
black surfperch, adult	7/12/2012	5	4	10.00	0.00	1.40	0.89	2.40	1.95
black surfperch, all	7/12/2012	5	4	10.00	0.00	1.60	1.14	4.60	6.50
black surfperch, juvenile	7/12/2012	5	1	10.00		0.60	1.34	2.20	4.92
blackeye goby	7/12/2012	5	5	9.40	0.89	2.00	0.00	4.20	2.17
blacksmith, adult	7/12/2012	5	4	7.75	0.96	1.20	0.84	1.60	1.34
blacksmith, all	7/12/2012	5	4	7.75	0.96	1.20	0.84	1.60	1.34
blue rockfish, adult	7/12/2012	5	5	9.80	0.45	2.80	0.45	15.80	7.66
blue rockfish, all	7/12/2012	5	5	9.80	0.45	3.00	0.00	45.00	25.58
blue rockfish, juvenile	7/12/2012	5	5	9.80	0.45	3.00	0.00	29.20	18.27
bocaccio, juvenile	7/12/2012	5	4	7.00	1.83	2.25	0.50	10.00	8.04
cabezon, adult	7/12/2012	5	3	8.67	0.58	1.67	0.58	1.67	0.58
California sheephead, female	7/12/2012	5	5	8.80	1.30	2.00	0.00	5.80	2.95
California sheephead, male	7/12/2012	5	5	9.00	0.71	1.80	0.45	4.00	1.73
kelp bass, adult	7/12/2012	5	1	7.00		0.20	0.45	0.20	0.45
kelp bass, all	7/12/2012	5	1	7.00		0.20	0.45	0.20	0.45
kelp greenling	7/12/2012	5	2	8.00	0.00	1.00	0.00	1.00	0.00
kelp rockfish, adult	7/12/2012	5	5	10.00	0.00	3.00	0.00	22.80	6.10
kelp rockfish, all	7/12/2012	5	5	10.00	0.00	3.00	0.00	22.80	6.10
kelp surfperch	7/12/2012	5	4	7.00	1.83	1.25	0.50	2.75	3.50
kelpfish spp.	7/12/2012	5	1	8.00		1.00		1.00	
KGB	7/12/2012	5	1	5.00		2.00		2.00	
lingcod, adult	7/12/2012	5	1	6.00		1.00		1.00	
olive rockfish, adult	7/12/2012	5	5	9.60	0.55	2.40	0.55	11.80	5.45
olive rockfish, all	7/12/2012	5	5	9.60	0.55	3.00	0.00	32.60	21.16
olive/yellowtail rockfish, juvenile	7/12/2012	5	5	7.80	1.64	2.40	0.55	20.80	21.57
opaleye, adult	7/12/2012	5	1	8.00		0.40	0.89	0.40	0.89
painted greenling	7/12/2012	5	5	9.80	0.45	2.40	0.55	11.00	4.47
pile perch, adult	7/12/2012	5	4	9.75	0.50	1.40	0.89	2.40	1.82
pile perch, all	7/12/2012	5	4	9.75	0.50	1.40	0.89	2.40	1.82
rainbow surfperch	7/12/2012	5	1	6.00		2.00		2.00	
rubberlip surfperch	7/12/2012	5	3	8.00	1.00	1.33	0.58	1.67	1.15
sanddab spp.	7/12/2012	5	1	10.00		1.00		1.00	
señorita, adult	7/12/2012	5	5	10.00	0.00	3.40	0.55	78.40	48.03
señorita, all	7/12/2012	5	5	10.00	0.00	3.40	0.55	78.40	48.03
striped surfperch, adult	7/12/2012	5	5	9.60	0.55	2.80	0.45	12.80	3.42
striped surfperch, all	7/12/2012	5	5	9.80	0.45	2.80	0.45	16.80	6.22
striped surfperch, juvenile	7/12/2012	5	5	8.80	1.30	1.80	0.45	4.00	3.39
tubesnout, adult	7/12/2012	5	5	8.60	1.14	4.00	0.00	398.00	137.46

2012 ROVING DIVER FISH COUNT

Santa Cruz Island - Devil's Peak Member

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	6/28/2012	6	2	8.50	2.12	1.50	0.71	1.50	0.71
black and yellow rockfish, adult	10/3/2012	4	1	7.00		2.00		2.00	
black surfperch, adult	10/3/2012	4	4	10.00	0.00	2.75	0.50	26.75	13.28
black surfperch, adult	6/28/2012	6	6	9.67	0.52	2.33	0.52	9.50	5.65
black surfperch, all	6/28/2012	6	6	9.67	0.52	2.50	0.55	11.33	5.85
black surfperch, all	10/3/2012	4	4	10.00	0.00	3.00	0.00	38.25	10.40
black surfperch, juvenile	6/28/2012	6	6	8.50	1.38	1.33	0.52	1.83	1.33
black surfperch, juvenile	10/3/2012	4	4	9.75	0.50	2.50	0.58	11.50	3.11
blackeye goby	10/3/2012	4	4	10.00	0.00	4.00	0.00	160.00	35.59
blackeye goby	6/28/2012	6	6	10.00	0.00	3.33	0.52	102.67	46.09
blacksmith, adult	6/28/2012	6	3	9.67	0.58	1.50	1.64	12.33	15.11
blacksmith, adult	10/3/2012	4	4	10.00	0.00	3.50	0.58	80.75	34.38
blacksmith, all	6/28/2012	6	3	9.67	0.58	1.50	1.64	12.33	15.11
blacksmith, all	10/3/2012	4	4	10.00	0.00	3.50	0.58	91.50	36.27
blacksmith, juvenile	10/3/2012	4	4	9.50	0.58	2.50	0.58	10.75	3.86
blue rockfish, adult	6/28/2012	6	6	9.83	0.41	2.50	0.55	27.33	29.35
blue rockfish, adult	10/3/2012	4	4	9.75	0.50	2.75	0.50	15.00	9.66
blue rockfish, all	10/3/2012	4	4	9.75	0.50	3.00	0.00	46.00	33.54
blue rockfish, all	6/28/2012	6	6	10.00	0.00	2.83	0.41	40.83	32.22
blue rockfish, juvenile	6/28/2012	6	6	9.83	0.41	2.67	0.52	13.50	4.46
blue rockfish, juvenile	10/3/2012	4	4	9.50	0.58	3.00	0.00	31.00	23.90
blue-banded goby	6/28/2012	6	2	5.50	0.71	0.33	0.52	0.33	0.52
blue-banded goby	10/3/2012	4	1	10.00		0.50	1.00	0.50	1.00
California moray eel	10/3/2012	4	1	8.00		1.00		1.00	
California moray eel	6/28/2012	6	1	6.00		1.00		1.00	
California scorpionfish, adult	10/3/2012	4	2	6.00	1.41	1.00	0.00	1.00	0.00
California sheephead, female	6/28/2012	6	6	8.17	2.14	1.83	0.41	2.17	0.75
California sheephead, female	10/3/2012	4	4	10.00	0.00	2.00	0.00	6.25	2.06
copper rockfish, adult	10/3/2012	4	2	6.00	0.00	1.00	0.00	1.00	0.00
coralline sculpin	6/28/2012	6	1	9.00		1.00		1.00	
fringehead spp.	6/28/2012	6	1	6.00		1.00		1.00	
garibaldi, adult	6/28/2012	6	6	10.00	0.00	2.67	0.52	12.00	4.90
garibaldi, adult	10/3/2012	4	4	10.00	0.00	3.00	0.00	24.25	6.70
gopher rockfish, adult	6/28/2012	6	5	8.20	1.92	1.40	0.55	1.60	0.89
halfmoon, adult	10/3/2012	4	3	9.00	1.73	1.67	0.58	2.33	1.15
island kelpfish	10/3/2012	4	4	7.75	0.50	2.00	0.00	4.75	2.50
island kelpfish	6/28/2012	6	1	6.00		0.17	0.41	0.17	0.41
kelp bass, adult	10/3/2012	4	4	10.00	0.00	2.75	0.50	14.25	5.50
kelp bass, adult	6/28/2012	6	6	8.50	1.64	2.17	0.75	6.00	4.29
kelp bass, all	10/3/2012	4	4	10.00	0.00	2.75	0.50	14.25	5.50
kelp bass, all	6/28/2012	6	6	8.50	1.64	2.17	0.75	6.00	4.29
kelp rockfish, adult	10/3/2012	4	4	8.75	1.50	2.00	0.00	5.50	2.38
kelp rockfish, adult	6/28/2012	6	2	9.00	1.41	0.67	1.03	0.83	1.33
kelp rockfish, all	10/3/2012	4	4	8.75	1.50	2.00	0.00	5.50	2.38
kelp rockfish, all	6/28/2012	6	2	9.00	1.41	0.67	1.03	0.83	1.33
lingcod, adult	6/28/2012	6	1	8.00		1.00		1.00	
olive rockfish, adult	6/28/2012	6	5	8.60	1.52	1.50	0.84	3.00	2.53
olive rockfish, adult	10/3/2012	4	4	10.00	0.00	2.00	0.00	6.75	2.63
olive rockfish, all	10/3/2012	4	4	10.00	0.00	2.00	0.00	7.00	2.71
olive rockfish, all	6/28/2012	6	5	8.60	1.52	1.50	0.84	3.33	3.01
olive/yellowtail rockfish, juvenile	6/28/2012	6	2	7.50	3.54	0.33	0.52	0.33	0.52
olive/yellowtail rockfish, juvenile	10/3/2012	4	1	7.00		0.25	0.50	0.25	0.50
opaleye, adult	6/28/2012	6	1	5.00		0.17	0.41	0.17	0.41
opaleye, adult	10/3/2012	4	3	9.00	1.00	1.00	0.82	1.75	2.22
painted greenling	10/3/2012	4	4	10.00	0.00	3.00	0.00	38.25	16.58
painted greenling	6/28/2012	6	6	10.00	0.00	3.00	0.00	54.83	15.04
pile perch, adult	10/3/2012	4	4	9.25	0.96	1.75	0.50	3.25	1.50
pile perch, adult	6/28/2012	6	5	9.60	0.55	1.67	0.82	5.50	3.67
pile perch, all	6/28/2012	6	6	9.33	0.82	1.83	0.41	5.83	3.60
pile perch, all	10/3/2012	4	4	9.75	0.50	2.50	0.58	10.25	3.50
pile perch, juvenile	6/28/2012	6	2	7.50	0.71	0.33	0.52	0.33	0.52
pile perch, juvenile	10/3/2012	4	4	9.75	0.50	2.00	0.00	7.00	2.45
rock wrasse, female	10/3/2012	4	4	7.50	2.38	1.50	0.58	1.75	0.96
rock wrasse, female	6/28/2012	6	5	8.60	1.52	1.33	0.82	1.33	0.82
rock wrasse, male	10/3/2012	4	1	7.00		0.25	0.50	0.25	0.50

2012 ROVING DIVER FISH COUNT

rock wrasse, male	6/28/2012	6	3	6.33	1.15	0.50	0.55	0.50	0.55
rubberlip surfperch	10/3/2012	4	3	7.67	0.58	1.67	0.58	1.67	0.58
rubberlip surfperch	6/28/2012	6	2	9.00	1.41	1.50	0.71	2.00	1.41
señorita, adult	6/28/2012	6	6	9.83	0.41	2.67	0.52	27.67	23.47
señorita, adult	10/3/2012	4	4	10.00	0.00	3.75	0.50	119.75	22.66
señorita, all	10/3/2012	4	4	10.00	0.00	3.75	0.50	119.75	22.66
señorita, all	6/28/2012	6	6	9.83	0.41	2.83	0.41	37.17	23.99
señorita, juvenile	6/28/2012	6	2	8.00	1.41	0.83	1.33	9.50	20.04
striped surfperch, adult	6/28/2012	6	1	7.00		0.17	0.41	0.17	0.41
striped surfperch, all	6/28/2012	6	1	7.00		0.17	0.41	0.17	0.41
swell shark	6/28/2012	6	1	9.00		1.00		1.00	
top smelt	6/28/2012	6	1	9.00		1.00		1.00	
treefish, adult	6/28/2012	6	6	8.50	1.05	1.50	0.55	2.33	2.34
treefish, adult	10/3/2012	4	4	8.25	1.26	2.00	0.00	3.50	1.73
tubesnout, juvenile	6/28/2012	6	1	7.00		2.00		4.00	
zebra goby	10/3/2012	4	2	7.50	0.71	1.50	0.71	1.50	0.71

2012 ROVING DIVER FISH COUNT

Santa Cruz Island - Potato Pasture

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	10/2/2012	4	1	8.00		2.00		5.00	
black and yellow rockfish, adult	7/23/2012	6	1	5.00		1.00		1.00	
black rockfish, adult	7/23/2012	6	1	10.00		1.00		1.00	
black surfperch, adult	10/2/2012	4	4	10.00	0.00	3.00	0.00	33.75	9.71
black surfperch, adult	7/23/2012	6	6	10.00	0.00	3.00	0.00	19.17	5.91
black surfperch, all	10/2/2012	4	4	10.00	0.00	3.00	0.00	43.00	6.06
black surfperch, all	7/23/2012	6	6	10.00	0.00	3.00	0.00	20.00	6.45
black surfperch, juvenile	10/2/2012	4	3	9.33	1.15	1.75	1.26	9.25	8.30
black surfperch, juvenile	7/23/2012	6	3	8.33	1.53	0.83	0.98	0.83	0.98
blackeye goby	10/2/2012	4	4	10.00	0.00	4.00	0.00	185.75	43.27
blackeye goby	7/23/2012	6	6	9.83	0.41	3.67	0.82	129.83	74.69
blacksmith, adult	7/23/2012	6	6	8.83	1.17	4.00	0.00	195.00	86.38
blacksmith, adult	10/2/2012	4	4	10.00	0.00	4.00	0.00	322.25	177.90
blacksmith, all	10/2/2012	4	4	10.00	0.00	4.00	0.00	515.25	310.48
blacksmith, all	7/23/2012	6	6	8.83	1.17	4.00	0.00	195.00	86.38
blacksmith, juvenile	10/2/2012	4	4	9.00	0.82	3.50	0.58	193.00	135.55
blue rockfish, adult	10/2/2012	4	4	9.75	0.50	3.00	0.00	16.25	3.30
blue rockfish, adult	7/23/2012	6	6	9.00	0.89	3.00	0.00	17.67	3.72
blue rockfish, all	10/2/2012	4	4	9.75	0.50	3.00	0.00	67.25	20.60
blue rockfish, all	7/23/2012	6	6	9.83	0.41	3.00	0.00	39.67	11.78
blue rockfish, juvenile	10/2/2012	4	4	9.50	0.58	3.00	0.00	51.00	20.12
blue rockfish, juvenile	7/23/2012	6	6	9.67	0.52	3.00	0.00	22.00	12.15
blue-banded goby	10/2/2012	4	2	8.50	2.12	0.75	0.96	1.00	1.41
brown rockfish, adult	7/23/2012	6	3	7.33	1.53	1.33	0.58	1.33	0.58
cabezon, adult	7/23/2012	6	3	8.33	1.53	1.67	0.58	2.67	2.08
cabezon, adult	10/2/2012	4	2	7.00	1.41	1.00	0.00	1.00	0.00
California moray eel	10/2/2012	4	2	9.00	0.00	1.00	0.00	1.00	0.00
California scorpionfish, adult	10/2/2012	4	1	8.00		1.00		1.00	
California sheephead, female	7/23/2012	6	6	8.67	1.21	2.00	0.00	6.50	3.02
California sheephead, female	10/2/2012	4	4	10.00	0.00	3.00	0.00	17.00	3.16
California sheephead, male	10/2/2012	4	3	8.67	0.58	1.25	0.96	1.25	0.96
California sheephead, male	7/23/2012	6	1	8.00		0.17	0.41	0.17	0.41
copper rockfish, adult	10/2/2012	4	4	8.00	0.82	2.00	0.00	3.75	3.50
copper rockfish, juvenile	10/2/2012	4	1	9.00		1.00		1.00	
coralline sculpin	7/23/2012	6	1	9.00		1.00		1.00	
garibaldi, adult	7/23/2012	6	6	10.00	0.00	2.50	0.55	10.33	3.61
garibaldi, adult	10/2/2012	4	4	10.00	0.00	2.75	0.50	15.50	5.20
giant kelpfish, juvenile	7/23/2012	6	1	7.00		1.00		1.00	
gopher rockfish, adult	7/23/2012	6	5	8.60	0.89	1.40	0.55	1.40	0.55
gopher rockfish, adult	10/2/2012	4	3	7.67	0.58	1.67	0.58	1.67	0.58
halfmoon, adult	10/2/2012	4	3	8.33	1.53	1.67	0.58	2.67	2.08
halfmoon, adult	7/23/2012	6	6	8.17	0.98	2.00	0.00	3.83	1.72
horn shark	10/2/2012	4	3	8.67	1.53	1.33	0.58	1.67	1.15
island kelpfish	10/2/2012	4	3	7.33	1.53	1.00	0.82	1.75	2.22
kelp bass, adult	10/2/2012	4	4	10.00	0.00	3.00	0.00	28.25	2.63
kelp bass, adult	7/23/2012	6	6	9.00	0.89	2.50	0.55	11.33	5.79
kelp bass, all	7/23/2012	6	6	9.00	0.89	2.50	0.55	11.33	5.79
kelp bass, all	10/2/2012	4	4	10.00	0.00	3.00	0.00	29.00	2.45
kelp bass, juvenile	10/2/2012	4	2	7.00	0.00	0.75	0.96	0.75	0.96
kelp rockfish, adult	7/23/2012	6	4	9.00	0.00	1.00	0.89	1.00	0.89
kelp rockfish, adult	10/2/2012	4	2	9.50	0.71	0.50	0.58	0.50	0.58
kelp rockfish, all	7/23/2012	6	4	9.00	0.00	1.00	0.89	1.00	0.89
kelp rockfish, all	10/2/2012	4	2	9.50	0.71	0.75	0.96	0.75	0.96
kelp rockfish, juvenile	10/2/2012	4	1	8.00		0.25	0.50	0.25	0.50
kelp surfperch	7/23/2012	6	1	5.00		3.00		15.00	
KGB	10/2/2012	4	1	6.00		1.00		1.00	
lingcod, adult	7/23/2012	6	1	10.00		1.00		1.00	
ocean whitefish, adult	10/2/2012	4	3	8.33	0.58	1.67	0.58	2.33	1.15
ocean whitefish, adult	7/23/2012	6	2	8.00	1.41	1.00	0.00	1.00	0.00
olive rockfish, adult	10/2/2012	4	4	9.75	0.50	2.00	0.00	6.00	1.63
olive rockfish, adult	7/23/2012	6	6	8.67	1.21	1.33	0.52	2.17	1.83
olive rockfish, all	10/2/2012	4	4	9.75	0.50	2.00	0.00	6.00	1.63
olive rockfish, all	7/23/2012	6	6	8.67	1.21	1.33	0.52	2.17	1.83
opaleye, adult	7/23/2012	6	3	8.00	2.00	0.50	0.55	0.50	0.55
opaleye, adult	10/2/2012	4	4	9.50	0.58	2.75	0.50	15.50	5.45

2012 ROVING DIVER FISH COUNT

painted greenling	7/23/2012	6	6	10.00	0.00	2.83	0.41	23.67	10.19
painted greenling	10/2/2012	4	4	10.00	0.00	3.00	0.00	25.50	11.85
pile perch, adult	10/2/2012	4	3	9.00	1.73	1.00	0.82	1.00	0.82
pile perch, adult	7/23/2012	6	4	8.50	1.91	1.33	1.21	3.50	4.93
pile perch, all	10/2/2012	4	3	9.00	1.73	1.00	0.82	1.00	0.82
pile perch, all	7/23/2012	6	4	8.50	1.91	1.33	1.21	3.50	4.93
rock wrasse, female	10/2/2012	4	3	10.00	0.00	1.00	0.82	1.00	0.82
rock wrasse, female	7/23/2012	6	4	7.50	1.91	1.00	0.89	1.00	0.89
rock wrasse, juvenile	10/2/2012	4	1	5.00		0.50	1.00	0.50	1.00
rock wrasse, male	7/23/2012	6	4	6.50	2.38	0.83	0.75	0.83	0.75
rock wrasse, male	10/2/2012	4	3	6.67	1.53	1.00	0.82	1.00	0.82
rubberlip surfperch	10/2/2012	4	4	8.75	1.26	1.75	0.50	2.25	1.26
rubberlip surfperch	7/23/2012	6	3	9.33	1.15	2.00	0.00	5.67	3.51
seporita, adult	7/23/2012	6	6	8.67	1.63	2.17	0.75	11.83	12.35
seporita, adult	10/2/2012	4	4	10.00	0.00	3.25	0.50	80.00	52.63
seporita, all	7/23/2012	6	6	8.67	1.63	2.17	0.75	11.83	12.35
seporita, all	10/2/2012	4	4	10.00	0.00	3.25	0.50	85.25	62.02
seporita, juvenile	10/2/2012	4	1	7.00		0.75	1.50	5.25	10.50
treefish, adult	10/2/2012	4	4	8.00	0.82	1.75	0.50	2.25	1.26
treefish, adult	7/23/2012	6	4	9.00	0.82	1.17	0.98	1.83	1.94
treefish, juvenile	10/2/2012	4	1	10.00		0.25	0.50	0.25	0.50
zebra goby	10/2/2012	4	2	8.50	2.12	1.50	0.71	1.50	0.71

2012 ROVING DIVER FISH COUNT

Santa Cruz Island - Cavern Point

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	6/28/2012	6	2	8.50	2.12	1.50	0.71	1.50	0.71
black and yellow rockfish, adult	10/2/2012	4	1	7.00		1.00		1.00	
black and yellow/gopher rockfish, juvenile	6/28/2012	6	1	6.00		2.00		2.00	
black surfperch, adult	6/28/2012	6	6	9.50	0.84	2.00	0.00	6.50	2.43
black surfperch, adult	10/2/2012	4	4	10.00	0.00	3.00	0.00	27.00	3.27
black surfperch, all	10/2/2012	4	4	10.00	0.00	3.00	0.00	33.25	5.38
black surfperch, all	6/28/2012	6	6	9.50	0.84	2.00	0.00	7.17	1.72
black surfperch, juvenile	6/28/2012	6	1	8.00		0.33	0.82	0.67	1.63
black surfperch, juvenile	10/2/2012	4	3	9.67	0.58	1.75	1.50	6.25	6.70
blackeye goby	10/2/2012	4	4	10.00	0.00	3.75	0.50	121.25	41.92
blackeye goby	6/28/2012	6	6	10.00	0.00	3.33	0.52	74.67	44.19
blacksmith, adult	10/2/2012	4	4	10.00	0.00	3.00	0.00	56.00	25.34
blacksmith, adult	6/28/2012	6	6	9.50	1.22	2.83	0.41	29.67	28.94
blacksmith, all	6/28/2012	6	6	9.50	1.22	2.83	0.41	29.67	28.94
blacksmith, all	10/2/2012	4	4	10.00	0.00	3.75	0.50	225.00	124.93
blacksmith, juvenile	10/2/2012	4	4	9.50	1.00	3.75	0.50	169.00	100.00
blue rockfish, adult	10/2/2012	4	4	8.75	1.50	2.50	1.00	29.00	18.85
blue rockfish, adult	6/28/2012	6	6	8.83	1.17	2.17	0.41	11.00	12.92
blue rockfish, all	10/2/2012	4	4	9.50	1.00	2.75	0.50	35.50	23.59
blue rockfish, all	6/28/2012	6	6	9.50	0.55	3.00	0.00	37.33	21.33
blue rockfish, juvenile	6/28/2012	6	6	9.33	0.82	3.00	0.00	26.33	11.76
blue rockfish, juvenile	10/2/2012	4	4	8.25	2.36	2.00	0.82	6.50	6.19
blue-banded goby	6/28/2012	6	1	9.00		0.33	0.82	0.33	0.82
blue-banded goby	10/2/2012	4	1	10.00		0.25	0.50	0.25	0.50
California moray eel	6/28/2012	6	2	8.00	1.41	1.00	0.00	1.00	0.00
California moray eel	10/2/2012	4	1	7.00		1.00		1.00	
California scorpionfish, adult	10/2/2012	4	2	7.50	2.12	1.00	0.00	1.00	0.00
California sheephead, female	6/28/2012	6	6	9.50	0.84	2.17	0.41	9.50	1.97
California sheephead, female	10/2/2012	4	4	10.00	0.00	2.50	0.58	10.50	2.65
California sheephead, juvenile	6/28/2012	6	2	7.50	2.12	0.33	0.52	0.33	0.52
California sheephead, male	6/28/2012	6	2	5.50	0.71	0.33	0.52	0.33	0.52
California sheephead, male	10/2/2012	4	4	8.00	1.83	1.25	0.50	1.25	0.50
copper rockfish, juvenile	6/28/2012	6	1	9.00		1.00		1.00	
garibaldi, adult	10/2/2012	4	4	10.00	0.00	2.75	0.50	13.25	4.19
garibaldi, adult	6/28/2012	6	6	9.50	0.84	2.00	0.00	6.50	1.38
giant kelpfish, juvenile	10/2/2012	4	2	9.00	0.00	1.00	0.00	1.00	0.00
giant kelpfish, juvenile	6/28/2012	6	1	10.00		2.00		2.00	
gopher rockfish, adult	10/2/2012	4	4	8.50	1.73	1.75	0.50	2.75	1.26
gopher rockfish, adult	6/28/2012	6	5	7.60	1.95	1.60	0.55	3.00	2.35
halfmoon, adult	10/2/2012	4	2	9.00	1.41	1.50	0.71	1.50	0.71
horn shark	6/28/2012	6	3	8.00	2.00	1.00	0.00	1.00	0.00
island kelpfish	10/2/2012	4	2	8.00	0.00	0.75	0.96	1.00	1.41
island kelpfish	6/28/2012	6	4	7.75	1.50	0.83	0.75	1.00	1.10
kelp bass, adult	6/28/2012	6	6	9.83	0.41	2.50	0.55	13.67	9.46
kelp bass, adult	10/2/2012	4	4	9.75	0.50	3.00	0.00	15.50	3.70
kelp bass, all	6/28/2012	6	6	9.83	0.41	2.50	0.55	13.83	9.37
kelp bass, all	10/2/2012	4	4	9.75	0.50	3.00	0.00	21.25	7.04
kelp bass, juvenile	6/28/2012	6	1	10.00		0.17	0.41	0.17	0.41
kelp bass, juvenile	10/2/2012	4	3	9.33	0.58	1.50	1.00	5.75	4.03
kelp rockfish, adult	10/2/2012	4	4	9.50	0.58	2.00	0.00	8.00	0.82
kelp rockfish, adult	6/28/2012	6	5	9.00	1.41	1.67	0.82	4.33	3.08
kelp rockfish, all	6/28/2012	6	5	9.00	1.41	1.67	0.82	4.33	3.08
kelp rockfish, all	10/2/2012	4	4	9.50	0.58	2.00	0.00	8.00	0.82
kelp surfperch	10/2/2012	4	4	7.50	2.89	3.25	0.50	70.00	78.60
kelp surfperch	6/28/2012	6	2	9.50	0.71	2.00	0.00	5.50	2.12
kelpfish spp.	6/28/2012	6	1	7.00		2.00		2.00	
KGB	6/28/2012	6	1	10.00		2.00		2.00	
lingcod, adult	6/28/2012	6	5	8.20	1.48	1.20	0.45	1.20	0.45
ocean whitefish, adult	6/28/2012	6	4	8.50	1.91	1.50	0.58	2.75	2.06
olive rockfish, adult	6/28/2012	6	3	8.67	1.53	0.83	0.98	0.83	0.98
olive rockfish, adult	10/2/2012	4	4	10.00	0.00	2.00	0.00	4.00	1.63
olive rockfish, all	10/2/2012	4	4	10.00	0.00	2.00	0.00	6.50	2.08
olive rockfish, all	6/28/2012	6	4	8.25	2.22	1.17	0.98	1.17	0.98
olive/yellowtail rockfish, juvenile	10/2/2012	4	2	9.50	0.71	1.00	1.15	2.50	2.89
olive/yellowtail rockfish, juvenile	6/28/2012	6	2	7.00	2.83	0.33	0.52	0.33	0.52

2012 ROVING DIVER FISH COUNT

opaleye, adult	10/2/2012	4	3	9.00	1.00	1.50	1.00	3.25	2.50
opaleye, adult	6/28/2012	6	6	8.17	1.47	1.67	0.52	2.33	1.86
painted greenling	6/28/2012	6	6	10.00	0.00	3.00	0.00	44.50	10.99
painted greenling	10/2/2012	4	4	10.00	0.00	3.00	0.00	28.25	11.64
pile perch, adult	6/28/2012	6	6	9.33	0.82	2.17	0.41	6.17	4.54
pile perch, adult	10/2/2012	4	4	10.00	0.00	3.00	0.00	22.50	7.23
pile perch, all	6/28/2012	6	6	9.33	0.82	2.17	0.41	6.33	4.37
pile perch, all	10/2/2012	4	4	10.00	0.00	3.00	0.00	25.00	6.78
pile perch, juvenile	6/28/2012	6	1	10.00		0.17	0.41	0.17	0.41
pile perch, juvenile	10/2/2012	4	4	7.75	1.50	1.75	0.50	2.50	1.73
rock wrasse, female	10/2/2012	4	2	10.00	0.00	1.00	1.15	1.25	1.50
rock wrasse, female	6/28/2012	6	4	8.25	0.96	1.00	0.89	1.17	1.17
rock wrasse, male	10/2/2012	4	2	10.00	0.00	0.50	0.58	0.50	0.58
rock wrasse, male	6/28/2012	6	1	9.00		0.17	0.41	0.17	0.41
rubberlip surfperch	6/28/2012	6	5	8.60	0.89	2.00	0.00	2.80	0.45
rubberlip surfperch	10/2/2012	4	4	10.00	0.00	2.50	0.58	11.25	4.35
seporita, adult	10/2/2012	4	4	10.00	0.00	3.00	0.00	76.25	13.77
seporita, adult	6/28/2012	6	6	9.17	1.17	2.50	0.55	31.00	31.60
seporita, all	10/2/2012	4	4	10.00	0.00	3.75	0.50	105.25	29.02
seporita, all	6/28/2012	6	6	9.17	1.17	2.50	0.55	31.00	31.60
seporita, juvenile	10/2/2012	4	4	9.00	1.15	2.75	0.50	29.00	21.28
snubnose sculpin	10/2/2012	4	2	7.50	3.54	1.00	0.00	1.00	0.00
striped surfperch, adult	6/28/2012	6	2	7.50	3.54	0.50	0.84	0.67	1.21
striped surfperch, adult	10/2/2012	4	1	9.00		0.25	0.50	0.25	0.50
striped surfperch, all	6/28/2012	6	2	7.50	3.54	0.50	0.84	0.67	1.21
striped surfperch, all	10/2/2012	4	1	9.00		0.50	1.00	0.50	1.00
striped surfperch, juvenile	10/2/2012	4	1	9.00		0.25	0.50	0.25	0.50
top smelt	10/2/2012	4	1	10.00		3.00		30.00	
treefish, adult	6/28/2012	6	5	6.80	1.10	1.00	0.63	1.00	0.63
treefish, adult	10/2/2012	4	2	8.00	1.41	0.75	0.96	0.75	0.96
treefish, juvenile	6/28/2012	6	5	8.20	0.84	1.17	0.75	1.50	1.38
treefish, juvenile	10/2/2012	4	1	7.00		0.25	0.50	0.25	0.50
tubesnout	10/2/2012	4	1	7.00		1.00		1.00	
tubesnout, adult	6/28/2012	6	5	8.20	1.64	3.20	0.45	76.80	59.13
zebra goby	6/28/2012	6	1	6.00		1.00		1.00	

2012 ROVING DIVER FISH COUNT

Santa Cruz Island - Little Scorpion

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
bat ray	10/1/2012	4	2	10.00	0.00	1.00	0.00	1.00	0.00
black and yellow rockfish, adult	5/16/2012	6	5	8.40	0.89	1.60	0.55	2.00	1.22
black and yellow rockfish, adult	10/1/2012	4	3	7.00	0.00	2.00	0.00	4.00	3.46
black and yellow/gopher rockfish, juvenile	5/16/2012	6	1	5.00		1.00		1.00	
black surfperch, adult	5/16/2012	6	6	9.67	0.82	2.50	0.55	9.00	4.56
black surfperch, adult	10/1/2012	4	4	10.00	0.00	3.00	0.00	21.25	6.02
black surfperch, all	10/1/2012	4	4	10.00	0.00	3.00	0.00	22.00	5.48
black surfperch, all	5/16/2012	6	6	9.67	0.82	2.50	0.55	9.00	4.56
black surfperch, juvenile	10/1/2012	4	1	8.00		0.50	1.00	0.75	1.50
blackeye goby	5/16/2012	6	6	10.00	0.00	3.83	0.41	277.33	120.74
blackeye goby	10/1/2012	4	4	10.00	0.00	4.00	0.00	171.25	76.85
blacksmith, adult	10/1/2012	4	4	10.00	0.00	4.00	0.00	270.50	101.63
blacksmith, adult	5/16/2012	6	6	9.67	0.52	3.67	0.52	227.33	204.25
blacksmith, all	5/16/2012	6	6	9.67	0.52	3.67	0.52	227.33	204.25
blacksmith, all	10/1/2012	4	4	10.00	0.00	4.00	0.00	828.50	371.16
blacksmith, juvenile	10/1/2012	4	4	9.50	0.58	4.00	0.00	558.00	292.85
blue rockfish, adult	5/16/2012	6	4	7.25	1.71	1.00	0.89	2.00	3.03
blue rockfish, adult	10/1/2012	4	4	9.50	1.00	2.00	0.00	6.00	2.45
blue rockfish, all	5/16/2012	6	6	10.00	0.00	2.17	0.41	10.83	8.18
blue rockfish, all	10/1/2012	4	4	10.00	0.00	3.00	0.00	22.25	7.68
blue rockfish, juvenile	10/1/2012	4	4	9.50	0.58	2.75	0.50	16.25	8.66
blue rockfish, juvenile	5/16/2012	6	6	10.00	0.00	2.17	0.41	8.83	5.46
blue-banded goby	10/1/2012	4	2	9.00	1.41	0.50	0.58	0.50	0.58
blue-banded goby	5/16/2012	6	5	9.20	0.84	0.83	0.41	0.83	0.41
cabezon, adult	10/1/2012	4	3	9.67	0.58	1.00	0.00	1.00	0.00
cabezon, adult	5/16/2012	6	2	10.00	0.00	1.00	0.00	1.00	0.00
California moray eel	5/16/2012	6	1	9.00		2.00		2.00	
California moray eel	10/1/2012	4	1	7.00		1.00		1.00	
California sheephead, female	5/16/2012	6	6	9.67	0.52	2.17	0.41	6.00	3.22
California sheephead, female	10/1/2012	4	4	10.00	0.00	2.00	0.00	6.50	2.52
garibaldi, adult	5/16/2012	6	6	9.67	0.52	2.33	0.52	9.50	2.17
garibaldi, adult	10/1/2012	4	4	9.75	0.50	3.00	0.00	21.50	4.80
gopher rockfish, adult	5/16/2012	6	3	9.33	1.15	1.00	0.00	1.00	0.00
halfmoon, adult	10/1/2012	4	4	9.75	0.50	2.00	0.00	4.50	1.73
halfmoon, adult	5/16/2012	6	1	5.00		2.00		4.00	
horn shark	5/16/2012	6	2	7.00	1.41	1.00	0.00	1.00	0.00
horn shark	10/1/2012	4	3	6.67	1.15	1.67	0.58	2.33	1.53
island kelpfish	10/1/2012	4	1	6.00		0.25	0.50	0.25	0.50
kelp bass, adult	5/16/2012	6	5	9.60	0.89	1.50	0.84	2.67	2.50
kelp bass, adult	10/1/2012	4	4	10.00	0.00	2.75	0.50	13.75	6.99
kelp bass, all	10/1/2012	4	4	10.00	0.00	2.75	0.50	14.00	6.98
kelp bass, all	5/16/2012	6	5	9.60	0.89	1.50	0.84	2.67	2.50
kelp bass, juvenile	10/1/2012	4	1	9.00		0.25	0.50	0.25	0.50
kelp rockfish, adult	5/16/2012	6	6	9.00	0.89	2.17	0.41	5.83	3.92
kelp rockfish, adult	10/1/2012	4	4	9.25	0.96	2.00	0.00	4.25	2.63
kelp rockfish, all	10/1/2012	4	4	9.25	0.96	2.00	0.00	4.25	2.63
kelp rockfish, all	5/16/2012	6	6	9.00	0.89	2.17	0.41	5.83	3.92
ocean whitefish, adult	5/16/2012	6	2	9.00	1.41	1.00	0.00	1.00	0.00
ocean whitefish, adult	10/1/2012	4	3	8.00	2.00	1.67	0.58	3.67	3.79
olive rockfish, adult	5/16/2012	6	2	9.50	0.71	0.33	0.52	0.33	0.52
olive rockfish, adult	10/1/2012	4	2	7.50	0.71	0.50	0.58	0.50	0.58
olive rockfish, all	10/1/2012	4	2	7.50	0.71	0.50	0.58	0.50	0.58
olive rockfish, all	5/16/2012	6	2	9.50	0.71	0.33	0.52	0.33	0.52
opaleye, adult	10/1/2012	4	4	9.25	0.96	2.00	0.00	5.50	1.00
painted greenling	10/1/2012	4	4	10.00	0.00	2.75	0.50	15.50	8.66
painted greenling	5/16/2012	6	6	10.00	0.00	3.00	0.00	36.83	8.57
pile perch, adult	5/16/2012	6	3	8.33	1.53	0.83	0.98	1.33	1.75
pile perch, all	5/16/2012	6	3	8.33	1.53	0.83	0.98	1.33	1.75
rock wrasse, female	5/16/2012	6	4	10.00	0.00	1.17	0.98	1.67	1.63
rock wrasse, male	5/16/2012	6	2	10.00	0.00	0.50	0.84	0.50	0.84
rubberlip surfperch	10/1/2012	4	2	7.00	1.41	1.00	0.00	1.00	0.00
rubberlip surfperch	5/16/2012	6	3	8.67	1.15	1.33	0.58	1.33	0.58
seporita, adult	10/1/2012	4	1	5.00		0.50	1.00	2.00	4.00
seporita, all	10/1/2012	4	4	7.75	2.06	2.00	0.82	7.75	4.57
seporita, juvenile	10/1/2012	4	4	7.75	2.06	2.00	0.82	5.75	4.99
treefish, adult	5/16/2012	6	6	8.50	1.64	1.50	0.55	2.67	2.07
treefish, adult	10/1/2012	4	4	8.75	1.50	1.75	0.50	3.50	2.52
zebra goby	5/16/2012	6	1	7.00		1.00		1.00	

2012 ROVING DIVER FISH COUNT

Santa Cruz Island - Pedro Reef

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
bat ray	8/13/2012	5	3	8.00	1.73	1.00	0.00	1.00	0.00
black surfperch, adult	8/13/2012	5	4	8.00	1.15	1.80	1.10	5.20	4.97
black surfperch, adult	10/19/2012	3	3	9.33	0.58	2.00	0.00	2.33	0.58
black surfperch, all	10/19/2012	3	3	9.33	0.58	2.00	0.00	2.33	0.58
black surfperch, all	8/13/2012	5	4	8.00	1.15	1.80	1.10	5.20	4.97
blackeye goby	10/19/2012	3	3	10.00	0.00	4.00	0.00	511.67	34.03
blackeye goby	8/13/2012	5	5	10.00	0.00	4.00	0.00	530.40	78.17
blacksmith, adult	8/13/2012	5	5	9.80	0.45	4.00	0.00	457.40	250.82
blacksmith, adult	10/19/2012	3	3	10.00	0.00	4.00	0.00	266.67	120.97
blacksmith, all	10/19/2012	3	3	10.00	0.00	4.00	0.00	329.33	141.54
blacksmith, all	8/13/2012	5	5	9.80	0.45	4.00	0.00	457.60	250.81
blacksmith, juvenile	10/19/2012	3	3	9.33	0.58	3.00	0.00	62.67	28.01
blacksmith, juvenile	8/13/2012	5	1	7.00		0.20	0.45	0.20	0.45
blue rockfish, adult	8/13/2012	5	2	8.50	0.71	1.00	1.41	3.20	5.22
blue rockfish, all	8/13/2012	5	5	8.20	0.84	2.40	0.55	13.60	11.78
blue rockfish, all	10/19/2012	3	2	9.00	1.41	1.00	1.00	1.00	1.00
blue rockfish, juvenile	8/13/2012	5	5	7.40	1.14	2.20	0.45	10.40	12.12
blue rockfish, juvenile	10/19/2012	3	2	9.00	1.41	1.00	1.00	1.00	1.00
blue-banded goby	10/19/2012	3	1	9.00		0.33	0.58	0.33	0.58
cabezon, adult	10/19/2012	3	3	8.67	1.15	1.00	0.00	1.00	0.00
California moray eel	8/13/2012	5	2	5.00	0.00	1.00	0.00	1.00	0.00
California moray eel	10/19/2012	3	1	8.00		1.00		1.00	
California scorpionfish, adult	8/13/2012	5	2	7.00	1.41	1.00	0.00	1.00	0.00
California sheephead, female	10/19/2012	3	3	10.00	0.00	3.00	0.00	15.67	3.51
California sheephead, female	8/13/2012	5	5	9.80	0.45	2.60	0.55	10.60	4.16
California sheephead, male	10/19/2012	3	1	6.00		0.33	0.58	0.33	0.58
fringehead spp.	10/19/2012	3	1	8.00		1.00		1.00	
garibaldi, adult	8/13/2012	5	5	7.60	1.52	2.00	0.00	3.80	0.84
garibaldi, adult	10/19/2012	3	3	10.00	0.00	2.00	0.00	5.33	0.58
garibaldi, juvenile	10/19/2012	3	2	8.50	0.71	1.00	1.00	1.00	1.00
halfmoon, adult	8/13/2012	5	5	8.60	1.14	2.20	0.45	8.60	9.74
halfmoon, adult	10/19/2012	3	3	8.33	1.15	2.33	0.58	8.00	4.36
kelp bass, adult	8/13/2012	5	5	9.40	0.55	2.20	0.45	8.20	3.03
kelp bass, adult	10/19/2012	3	3	10.00	0.00	2.00	0.00	8.00	1.00
kelp bass, all	10/19/2012	3	3	10.00	0.00	2.00	0.00	8.00	1.00
kelp bass, all	8/13/2012	5	5	9.40	0.55	2.20	0.45	8.20	3.03
kelp greenling	8/13/2012	5	3	9.00	1.73	1.00	0.00	1.00	0.00
ocean whitefish, adult	10/19/2012	3	3	7.67	0.58	2.00	0.00	4.67	1.15
ocean whitefish, adult	8/13/2012	5	1	8.00		1.00		1.00	
opaleye, adult	8/13/2012	5	5	8.00	1.73	2.40	0.55	9.60	8.68
opaleye, adult	10/19/2012	3	3	9.00	0.00	2.00	0.00	2.67	1.15
painted greenling	10/19/2012	3	3	10.00	0.00	2.33	0.58	15.00	9.54
painted greenling	8/13/2012	5	5	10.00	0.00	3.00	0.00	22.20	4.87
pile perch, adult	8/13/2012	5	5	7.60	2.30	2.00	0.00	4.00	1.00
pile perch, adult	10/19/2012	3	3	8.67	2.31	1.33	0.58	2.00	1.73
pile perch, all	10/19/2012	3	3	8.67	2.31	1.33	0.58	2.00	1.73
pile perch, all	8/13/2012	5	5	7.60	2.30	2.00	0.00	4.00	1.00
rock wrasse, juvenile	10/19/2012	3	1	6.00		0.33	0.58	0.33	0.58
seporita, adult	10/19/2012	3	3	10.00	0.00	3.00	0.00	46.67	22.74
seporita, adult	8/13/2012	5	5	9.20	0.45	2.60	0.55	12.20	7.46
seporita, all	8/13/2012	5	5	9.20	0.45	2.80	0.45	14.60	8.41
seporita, all	10/19/2012	3	3	10.00	0.00	3.00	0.00	49.33	21.94
seporita, juvenile	10/19/2012	3	3	7.00	0.00	2.00	0.00	2.67	1.15
seporita, juvenile	8/13/2012	5	2	8.50	0.71	0.80	1.10	2.40	3.36
snubnose sculpin	8/13/2012	5	1	7.00		1.00		1.00	
snubnose sculpin	10/19/2012	3	1	7.00		2.00		2.00	
top smelt	10/19/2012	3	1	10.00		3.00		40.00	
vermillion rockfish, juvenile	8/13/2012	5	1	9.00		1.00		1.00	
zebra goby	10/19/2012	3	2	5.00	0.00	1.00	0.00	1.00	0.00

2012 ROVING DIVER FISH COUNT

Anacapa Island - Keyhole

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black surfperch, adult	6/29/2012	7	4	9.00	0.82	0.71	0.76	0.71	0.76
black surfperch, all	6/29/2012	7	5	9.00	0.71	1.14	0.90	1.14	0.90
black surfperch, juvenile	6/29/2012	7	2	8.50	0.71	0.43	0.79	0.43	0.79
blackeye goby	6/29/2012	7	7	10.00	0.00	4.00	0.00	715.43	243.28
blacksmith, adult	6/29/2012	7	7	10.00	0.00	3.86	0.38	226.14	95.71
blacksmith, all	6/29/2012	7	7	10.00	0.00	3.86	0.38	226.14	95.71
blue rockfish, adult	6/29/2012	7	4	9.25	0.96	1.14	1.07	1.29	1.25
blue rockfish, all	6/29/2012	7	7	8.71	1.11	2.57	0.53	14.00	7.66
blue rockfish, juvenile	6/29/2012	7	7	8.29	0.95	2.57	0.53	12.71	6.82
blue-banded goby	6/29/2012	7	2	8.00	1.41	0.57	0.98	0.57	0.98
cabezon, adult	6/29/2012	7	1	6.00		1.00		1.00	
California moray eel	6/29/2012	7	2	7.50	3.54	1.00	0.00	1.00	0.00
California sheephead, female	6/29/2012	7	7	9.43	1.13	2.00	0.00	4.86	2.85
California sheephead, male	6/29/2012	7	5	8.40	2.07	1.00	0.82	1.14	1.07
coralline sculpin	6/29/2012	7	1	8.00		1.00		1.00	
garibaldi, adult	6/29/2012	7	7	9.71	0.76	2.00	0.00	5.86	1.07
halfmoon, adult	6/29/2012	7	1	9.00		1.00		1.00	
island kelpfish	6/29/2012	7	5	7.60	1.14	1.29	0.95	2.29	2.43
kelp bass, adult	6/29/2012	7	7	9.57	0.79	2.14	0.38	6.71	2.81
kelp bass, all	6/29/2012	7	7	9.57	0.79	2.14	0.38	6.71	2.81
kelp rockfish, adult	6/29/2012	7	2	8.00	2.83	0.29	0.49	0.29	0.49
kelp rockfish, all	6/29/2012	7	2	8.00	2.83	0.29	0.49	0.29	0.49
olive rockfish, adult	6/29/2012	7	2	8.00	1.41	0.43	0.79	0.43	0.79
olive rockfish, all	6/29/2012	7	2	8.00	1.41	0.43	0.79	0.43	0.79
opaleye, adult	6/29/2012	7	4	9.50	0.58	1.00	1.00	2.29	3.59
painted greenling	6/29/2012	7	7	10.00	0.00	3.00	0.00	28.14	10.79
pile perch, adult	6/29/2012	7	1	8.00		0.14	0.38	0.14	0.38
pile perch, all	6/29/2012	7	1	8.00		0.14	0.38	0.14	0.38
rock wrasse, male	6/29/2012	7	1	6.00		0.14	0.38	0.14	0.38
treefish, adult	6/29/2012	7	5	7.00	1.22	1.14	0.90	1.29	1.11
zebra goby	6/29/2012	7	1	7.00		2.00		2.00	

2012 ROVING DIVER FISH COUNT

Anacapa Island - East Fish Camp

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	5/15/2012	3	1	6.00		1.00		1.00	
blackeye goby	5/15/2012	3	3	10.00	0.00	4.00	0.00	246.67	112.97
blacksmith, adult	5/15/2012	3	3	10.00	0.00	3.33	0.58	80.00	28.35
blacksmith, all	5/15/2012	3	3	10.00	0.00	3.33	0.58	80.00	28.35
blue rockfish, adult	5/15/2012	3	1	10.00		0.67	1.15	1.00	1.73
blue rockfish, all	5/15/2012	3	3	10.00	0.00	3.67	0.58	144.00	44.44
blue rockfish, juvenile	5/15/2012	3	3	9.67	0.58	3.67	0.58	143.00	46.13
bocaccio, juvenile	5/15/2012	3	1	7.00		2.00		4.00	
cabezon, adult	5/15/2012	3	2	7.50	0.71	1.00	0.00	1.00	0.00
California scorpionfish, adult	5/15/2012	3	1	10.00		1.00		1.00	
California sheephead, female	5/15/2012	3	3	10.00	0.00	2.00	0.00	5.33	1.53
garibaldi, adult	5/15/2012	3	3	10.00	0.00	2.33	0.58	10.33	1.53
kelp bass, adult	5/15/2012	3	1	6.00		0.67	1.15	0.67	1.15
kelp bass, all	5/15/2012	3	1	6.00		0.67	1.15	0.67	1.15
KGB	5/15/2012	3	3	8.33	0.58	3.33	0.58	77.00	44.68
olive rockfish, all	5/15/2012	3	2	7.50	0.71	1.00	1.00	3.33	4.93
olive/yellowtail rockfish, juvenile	5/15/2012	3	3	7.33	0.58	1.67	0.58	4.33	4.16
painted greenling	5/15/2012	3	3	10.00	0.00	3.00	0.00	29.67	7.64
rockfish spp.	5/15/2012	3	1	7.00		2.00		3.00	
seporita, adult	5/15/2012	3	3	9.00	1.00	1.67	0.58	2.33	1.53
seporita, all	5/15/2012	3	3	9.00	1.00	2.00	0.00	2.67	1.15
seporita, juvenile	5/15/2012	3	1	7.00		0.33	0.58	0.33	0.58
vermillion rockfish, juvenile	5/15/2012	3	3	7.67	1.15	1.67	0.58	2.67	2.08

2012 ROVING DIVER FISH COUNT

Anacapa Island - Black Sea Bass Reef

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
bat ray	8/15/2012	7	3	9.00	1.00	1.00	0.00	1.00	0.00
black surfperch, adult	8/15/2012	7	4	8.25	0.96	0.71	0.76	1.14	1.77
black surfperch, all	8/15/2012	7	4	8.25	0.96	0.71	0.76	1.14	1.77
blackeye goby	8/15/2012	7	7	10.00	0.00	4.00	0.00	543.29	213.41
blacksmith, adult	8/15/2012	7	7	9.86	0.38	3.71	0.49	103.86	39.51
blacksmith, all	8/15/2012	7	7	9.86	0.38	3.71	0.49	104.00	39.56
blacksmith, juvenile	8/15/2012	7	1	9.00		0.14	0.38	0.14	0.38
blue rockfish, all	8/15/2012	7	7	10.00	0.00	3.00	0.00	47.86	10.11
blue rockfish, juvenile	8/15/2012	7	7	10.00	0.00	3.00	0.00	47.86	10.11
blue-banded goby	8/15/2012	7	5	8.40	0.89	1.43	1.27	4.86	6.20
California sheephead, female	8/15/2012	7	7	10.00	0.00	2.14	0.38	6.86	2.85
California sheephead, male	8/15/2012	7	5	8.40	1.52	0.71	0.49	0.71	0.49
copper rockfish, juvenile	8/15/2012	7	3	6.33	1.53	1.33	0.58	1.33	0.58
garibaldi, adult	8/15/2012	7	7	9.71	0.49	2.00	0.00	5.43	1.62
giant black sea bass, adult	8/15/2012	7	6	9.50	0.84	1.33	0.52	1.33	0.52
halfmoon, adult	8/15/2012	7	5	7.60	0.89	2.20	0.45	6.00	3.87
island kelpfish	8/15/2012	7	6	9.00	1.55	1.71	0.76	4.43	3.46
kelp bass, adult	8/15/2012	7	7	10.00	0.00	3.00	0.00	35.43	17.01
kelp bass, all	8/15/2012	7	7	10.00	0.00	3.00	0.00	35.43	17.01
kelp rockfish, adult	8/15/2012	7	7	9.14	0.69	2.00	0.00	6.14	1.95
kelp rockfish, all	8/15/2012	7	7	9.14	0.69	2.00	0.00	6.14	1.95
ocean whitefish, adult	8/15/2012	7	2	7.00	0.00	1.50	0.71	1.50	0.71
opaleye, adult	8/15/2012	7	7	9.29	0.76	1.86	0.38	4.57	1.81
painted greenling	8/15/2012	7	7	10.00	0.00	3.00	0.00	26.57	8.62
rock wrasse, male	8/15/2012	7	1	9.00		0.14	0.38	0.14	0.38
seporita, adult	8/15/2012	7	3	8.33	2.89	1.29	1.60	14.71	23.06
seporita, all	8/15/2012	7	3	8.33	2.89	1.29	1.60	14.71	23.06
treefish, adult	8/15/2012	7	4	8.00	1.41	0.86	0.90	1.43	2.15
zebra goby	8/15/2012	7	2	9.00	0.00	2.00	0.00	3.50	0.71

2012 ROVING DIVER FISH COUNT

Anacapa Island - Lighthouse

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	6/1/2012	3	1	9.00		1.00		1.00	
black and yellow rockfish, adult	5/17/2012	7	5	8.60	1.52	1.60	0.55	2.20	1.64
black surfperch, adult	6/1/2012	3	1	10.00		0.67	1.15	0.67	1.15
black surfperch, adult	5/17/2012	7	5	8.40	1.95	1.14	0.90	1.14	0.90
black surfperch, all	5/17/2012	7	5	8.40	1.95	1.14	0.90	1.14	0.90
black surfperch, all	6/1/2012	3	1	10.00		0.67	1.15	0.67	1.15
blackeye goby	6/1/2012	3	3	10.00	0.00	4.00	0.00	279.00	146.38
blackeye goby	5/17/2012	7	7	10.00	0.00	3.71	0.49	171.43	79.63
blacksmith, adult	5/17/2012	7	7	10.00	0.00	3.00	0.00	69.57	20.95
blacksmith, adult	6/1/2012	3	3	10.00	0.00	4.00	0.00	165.33	53.72
blacksmith, all	6/1/2012	3	3	10.00	0.00	4.00	0.00	165.33	53.72
blacksmith, all	5/17/2012	7	7	10.00	0.00	3.00	0.00	69.57	20.95
blue rockfish, adult	5/17/2012	7	6	8.67	1.03	1.57	0.79	2.71	2.29
blue rockfish, adult	6/1/2012	3	3	10.00	0.00	2.67	0.58	14.00	4.00
blue rockfish, all	5/17/2012	7	7	10.00	0.00	3.00	0.00	69.29	17.78
blue rockfish, all	6/1/2012	3	3	10.00	0.00	3.00	0.00	69.33	22.90
blue rockfish, juvenile	6/1/2012	3	3	10.00	0.00	3.00	0.00	55.33	22.28
blue rockfish, juvenile	5/17/2012	7	7	10.00	0.00	3.00	0.00	66.57	16.03
cabezon, adult	5/17/2012	7	5	7.00	1.41	1.00	0.00	1.00	0.00
cabezon, adult	6/1/2012	3	1	7.00		1.00		1.00	
California scorpionfish, adult	5/17/2012	7	3	7.67	1.53	1.33	0.58	1.33	0.58
California sheephead, female	6/1/2012	3	3	9.33	0.58	2.00	0.00	6.00	1.00
California sheephead, female	5/17/2012	7	7	9.43	0.79	2.00	0.00	5.86	1.86
California sheephead, juvenile	6/1/2012	3	1	10.00		0.33	0.58	0.33	0.58
c-o turbot	5/17/2012	7	4	8.50	1.29	1.00	0.00	1.00	0.00
c-o turbot	6/1/2012	3	2	8.50	2.12	1.00	0.00	1.00	0.00
coralline sculpin	5/17/2012	7	3	8.33	2.89	1.00	0.00	1.00	0.00
garibaldi, adult	6/1/2012	3	3	10.00	0.00	2.67	0.58	10.00	2.65
garibaldi, adult	5/17/2012	7	7	9.86	0.38	2.43	0.53	9.57	2.70
gopher rockfish, adult	5/17/2012	7	2	7.50	3.54	1.00	0.00	1.00	0.00
halfmoon, adult	6/1/2012	3	1	9.00		3.00		30.00	
halfmoon, adult	5/17/2012	7	2	8.00	1.41	2.00	0.00	6.00	5.66
island kelpfish	6/1/2012	3	1	9.00		0.33	0.58	0.33	0.58
kelp bass, adult	5/17/2012	7	6	8.50	1.05	1.43	0.79	2.14	1.68
kelp bass, adult	6/1/2012	3	3	9.67	0.58	2.33	0.58	9.33	2.52
kelp bass, all	5/17/2012	7	6	8.50	1.05	1.43	0.79	2.14	1.68
kelp bass, all	6/1/2012	3	3	9.67	0.58	2.33	0.58	9.33	2.52
kelpfish spp.	6/1/2012	3	1	6.00		1.00		1.00	
lingcod, adult	6/1/2012	3	2	9.50	0.71	2.00	0.00	2.00	0.00
lingcod, adult	5/17/2012	7	4	8.25	2.06	1.50	0.58	1.75	0.96
ocean whitefish, adult	5/17/2012	7	1	7.00		1.00		1.00	
ocean whitefish, adult	6/1/2012	3	3	8.33	2.08	1.67	0.58	2.00	1.00
olive rockfish, adult	6/1/2012	3	1	5.00		0.33	0.58	0.33	0.58
olive rockfish, all	6/1/2012	3	1	5.00		0.33	0.58	0.33	0.58
opaleye, adult	6/1/2012	3	2	9.50	0.71	1.67	1.53	12.00	17.44
opaleye, adult	5/17/2012	7	5	7.60	1.95	1.14	0.90	2.29	2.69
painted greenling	6/1/2012	3	3	10.00	0.00	3.00	0.00	58.33	7.09
painted greenling	5/17/2012	7	7	10.00	0.00	3.00	0.00	23.43	6.68
pile perch, adult	6/1/2012	3	3	8.33	0.58	1.67	0.58	3.00	2.00
pile perch, adult	5/17/2012	7	5	7.40	2.07	0.86	0.69	1.14	1.35
pile perch, all	6/1/2012	3	3	8.33	0.58	1.67	0.58	3.00	2.00
pile perch, all	5/17/2012	7	5	7.40	2.07	0.86	0.69	1.14	1.35
rock wrasse, female	5/17/2012	7	2	6.50	2.12	0.43	0.79	0.43	0.79
rock wrasse, male	6/1/2012	3	1	10.00		0.33	0.58	0.33	0.58
rock wrasse, male	5/17/2012	7	1	9.00		0.14	0.38	0.14	0.38
rockfish spp., juvenile	5/17/2012	7	2	8.00	2.83	1.50	0.71	1.50	0.71
seporita, adult	5/17/2012	7	1	6.00		0.14	0.38	0.14	0.38
seporita, adult	6/1/2012	3	1	5.00		0.67	1.15	1.00	1.73
seporita, all	5/17/2012	7	1	6.00		0.14	0.38	0.14	0.38
seporita, all	6/1/2012	3	1	5.00		0.67	1.15	1.00	1.73
snubnose sculpin	6/1/2012	3	1	10.00		2.00		2.00	
treefish, adult	5/17/2012	7	2	8.00	1.41	0.29	0.49	0.29	0.49
treefish, adult	6/1/2012	3	1	7.00		0.33	0.58	0.33	0.58
zebra goby	6/1/2012	3	1	8.00		1.00		1.00	

2012 ROVING DIVER FISH COUNT

Santa Barbara Island - Webster's Arch

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	6/13/2012	4	4	9.00	1.15	2.00	0.00	3.75	2.36
black surfperch, adult	6/13/2012	4	4	8.25	2.06	1.75	0.50	1.75	0.50
black surfperch, all	6/13/2012	4	4	8.25	2.06	1.75	0.50	2.00	0.82
black surfperch, juvenile	6/13/2012	4	1	6.00		0.25	0.50	0.25	0.50
blackeye goby	6/13/2012	4	4	9.75	0.50	2.75	0.50	33.25	20.84
blacksmith, adult	6/13/2012	4	4	10.00	0.00	3.25	0.50	77.75	27.84
blacksmith, all	6/13/2012	4	4	10.00	0.00	3.25	0.50	77.75	27.84
blue rockfish, adult	6/13/2012	4	1	9.00		0.50	1.00	0.50	1.00
blue rockfish, all	6/13/2012	4	4	9.25	0.96	4.00	0.00	165.00	51.40
blue rockfish, juvenile	6/13/2012	4	4	9.25	0.96	4.00	0.00	164.50	50.64
cabezon, adult	6/13/2012	4	3	9.33	0.58	1.67	0.58	1.67	0.58
California scorpionfish, adult	6/13/2012	4	4	7.75	1.50	1.00	0.00	1.00	0.00
California sheephead, female	6/13/2012	4	4	10.00	0.00	3.00	0.00	19.50	3.79
California sheephead, male	6/13/2012	4	4	9.00	1.41	2.00	0.00	4.75	1.71
garibaldi, adult	6/13/2012	4	4	10.00	0.00	2.00	0.00	9.75	0.50
kelp bass, adult	6/13/2012	4	1	10.00		0.25	0.50	0.25	0.50
kelp bass, all	6/13/2012	4	1	10.00		0.25	0.50	0.25	0.50
kelp rockfish, adult	6/13/2012	4	1	7.00		0.25	0.50	0.25	0.50
kelp rockfish, all	6/13/2012	4	1	7.00		0.25	0.50	0.25	0.50
opaleye, adult	6/13/2012	4	4	8.50	1.73	1.75	0.50	2.25	0.96
painted greenling	6/13/2012	4	4	10.00	0.00	3.00	0.00	40.25	8.62
pile perch, adult	6/13/2012	4	1	6.00		0.50	1.00	0.50	1.00
pile perch, all	6/13/2012	4	1	6.00		0.50	1.00	0.50	1.00
rubberlip surfperch	6/13/2012	4	2	5.00	0.00	2.00	0.00	5.50	2.12
seporita, adult	6/13/2012	4	3	9.67	0.58	2.25	1.50	13.75	11.87
seporita, all	6/13/2012	4	3	9.67	0.58	2.25	1.50	13.75	11.87
snubnose sculpin	6/13/2012	4	1	5.00		2.00		2.00	
striped surfperch, adult	6/13/2012	4	2	7.50	2.12	0.50	0.58	0.50	0.58
striped surfperch, all	6/13/2012	4	2	7.50	2.12	0.50	0.58	0.50	0.58

2012 ROVING DIVER FISH COUNT

Santa Barbara Island - Graveyard Canyon

Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
blackeye goby	5/31/2012	6	6	10.00	0.00	3.17	0.41	59.17	39.52
blue rockfish, all	5/31/2012	6	6	7.83	1.47	1.33	0.52	1.33	0.52
blue rockfish, juvenile	5/31/2012	6	6	7.83	1.47	1.33	0.52	1.33	0.52
cabezon, adult	5/31/2012	6	1	7.00		1.00		1.00	
California halibut	5/31/2012	6	2	10.00	0.00	1.00	0.00	1.00	0.00
coralline sculpin	5/31/2012	6	1	10.00		2.00		2.00	
garibaldi, adult	5/31/2012	6	1	6.00		0.17	0.41	0.17	0.41
kelp bass, adult	5/31/2012	6	3	6.67	0.58	0.50	0.55	0.50	0.55
kelp bass, all	5/31/2012	6	3	6.67	0.58	0.50	0.55	0.50	0.55
kelp rockfish, all	5/31/2012	6	6	8.17	1.17	2.83	0.41	12.50	3.62
kelp rockfish, juvenile	5/31/2012	6	6	8.17	1.17	2.83	0.41	12.50	3.62
olive rockfish, all	5/31/2012	6	2	8.00	0.00	0.50	0.84	0.50	0.84
olive/yellowtail rockfish, juvenile	5/31/2012	6	2	8.00	0.00	0.50	0.84	0.50	0.84
Pacific angel shark	5/31/2012	6	5	7.60	1.34	1.00	0.00	1.00	0.00
painted greenling	5/31/2012	6	2	8.00	0.00	0.33	0.52	0.33	0.52
rockfish spp., juvenile	5/31/2012	6	1	7.00		1.00		1.00	
speckled sanddab	5/31/2012	6	2	9.00	1.41	2.00	0.00	5.50	3.54
tubesnout, adult	5/31/2012	6	2	8.00	2.83	1.00	0.00	1.00	0.00
vermillion rockfish, juvenile	5/31/2012	6	6	8.00	1.26	2.00	0.00	6.50	1.87

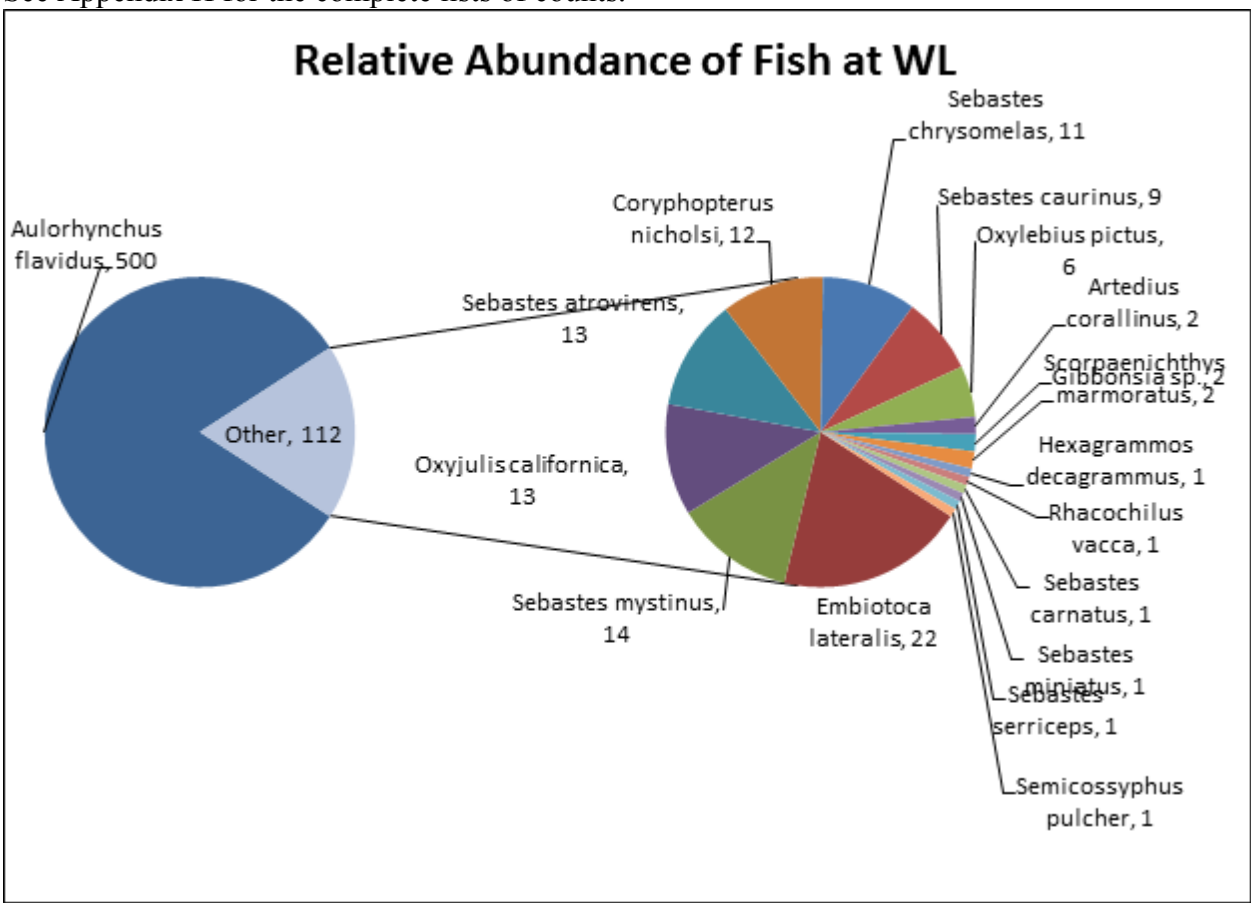
2012 ROVING DIVER FISH COUNT

Santa Barbara Island - Southeast Reef

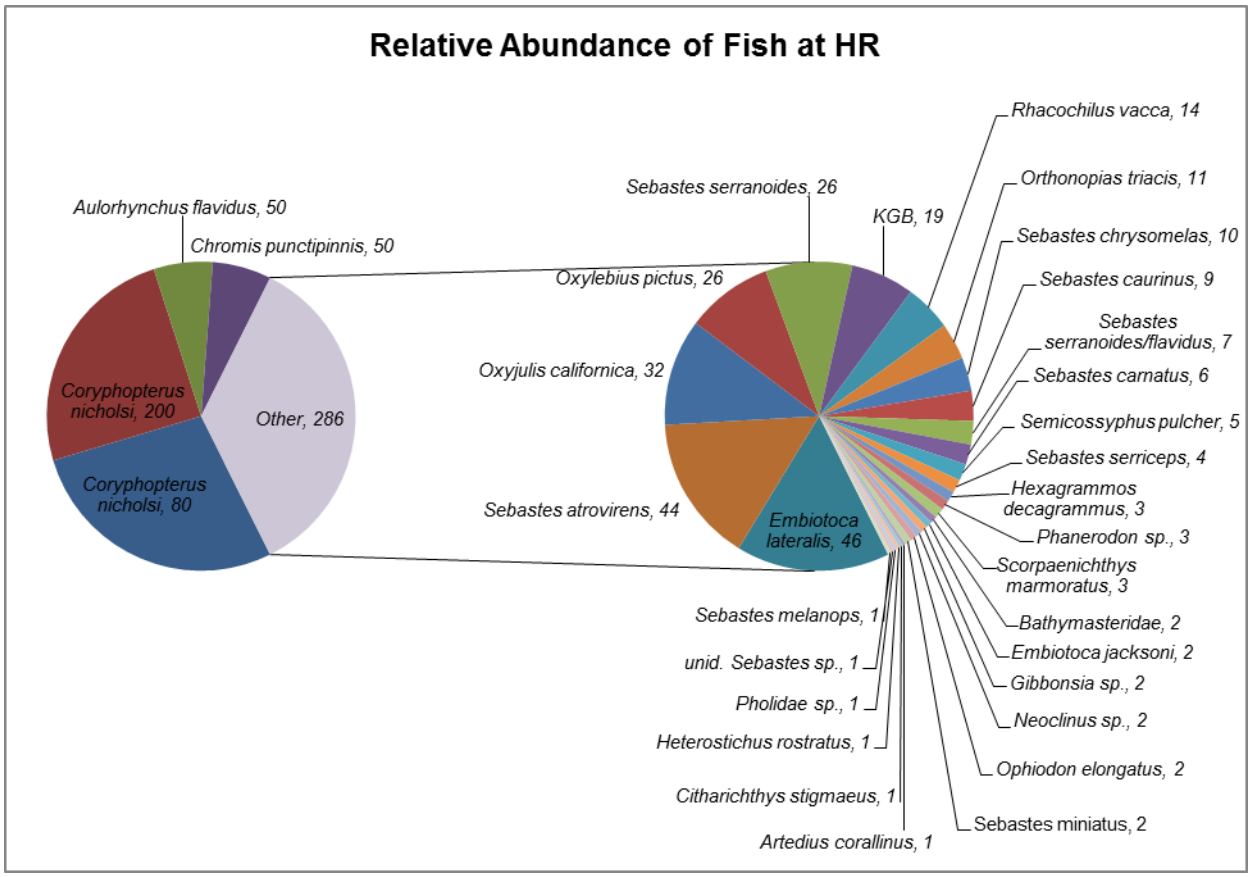
Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	5/30/2012	6	5	9.00	1.22	1.80	0.45	2.00	0.71
black surfperch, adult	5/30/2012	6	6	9.83	0.41	2.00	0.00	4.00	2.61
black surfperch, all	5/30/2012	6	6	9.83	0.41	2.00	0.00	4.17	2.48
black surfperch, juvenile	5/30/2012	6	1	8.00		0.17	0.41	0.17	0.41
blackeye goby	5/30/2012	6	5	8.20	0.84	2.33	1.21	14.00	9.65
blacksmith, adult	5/30/2012	6	6	9.67	0.52	3.83	0.41	166.33	70.45
blacksmith, all	5/30/2012	6	6	9.67	0.52	3.83	0.41	166.33	70.45
blue rockfish, all	5/30/2012	6	2	8.50	0.71	0.67	1.03	1.00	1.55
blue rockfish, juvenile	5/30/2012	6	2	8.50	0.71	0.67	1.03	1.00	1.55
cabezon, adult	5/30/2012	6	1	10.00		1.00		1.00	
California moray eel	5/30/2012	6	2	5.50	0.71	1.00	0.00	1.00	0.00
California sheephead, female	5/30/2012	6	6	10.00	0.00	2.00	0.00	5.33	2.50
California sheephead, male	5/30/2012	6	6	9.50	0.55	1.67	0.52	2.00	0.89
garibaldi, adult	5/30/2012	6	6	10.00	0.00	3.00	0.00	25.67	2.34
giant kelpfish, juvenile	5/30/2012	6	1	7.00		1.00		1.00	
kelp bass, adult	5/30/2012	6	3	8.33	2.89	0.83	0.98	1.00	1.26
kelp bass, all	5/30/2012	6	3	8.33	2.89	0.83	0.98	1.00	1.26
kelp rockfish, adult	5/30/2012	6	5	8.80	0.84	1.50	0.84	1.67	1.03
kelp rockfish, all	5/30/2012	6	6	8.17	1.72	1.83	0.41	2.00	0.63
kelp rockfish, juvenile	5/30/2012	6	1	5.00		0.33	0.82	0.33	0.82
kelp surfperch	5/30/2012	6	2	10.00	0.00	2.00	0.00	2.00	0.00
KGB	5/30/2012	6	5	7.60	0.55	2.00	0.00	4.20	1.92
olive rockfish, all	5/30/2012	6	5	8.40	1.14	1.83	1.17	11.33	14.90
olive/yellowtail rockfish, juvenile	5/30/2012	6	5	8.40	1.14	1.83	1.17	11.33	14.90
opaleye, adult	5/30/2012	6	6	7.67	1.37	2.00	0.00	4.67	3.08
painted greenling	5/30/2012	6	6	9.67	0.52	3.00	0.00	17.33	3.72
pile perch, adult	5/30/2012	6	1	10.00		0.17	0.41	0.17	0.41
pile perch, all	5/30/2012	6	1	10.00		0.17	0.41	0.17	0.41
señorita, adult	5/30/2012	6	6	9.33	1.63	2.50	0.84	22.17	22.23
señorita, all	5/30/2012	6	6	9.33	1.63	2.50	0.84	22.17	22.23
treefish, adult	5/30/2012	6	3	7.33	2.08	0.83	0.98	0.83	0.98
tubesnout, adult	5/30/2012	6	2	9.00	0.00	2.00	0.00	9.00	1.41

Appendix I. Roving Diver Fish Count Relative Abundance Graphs

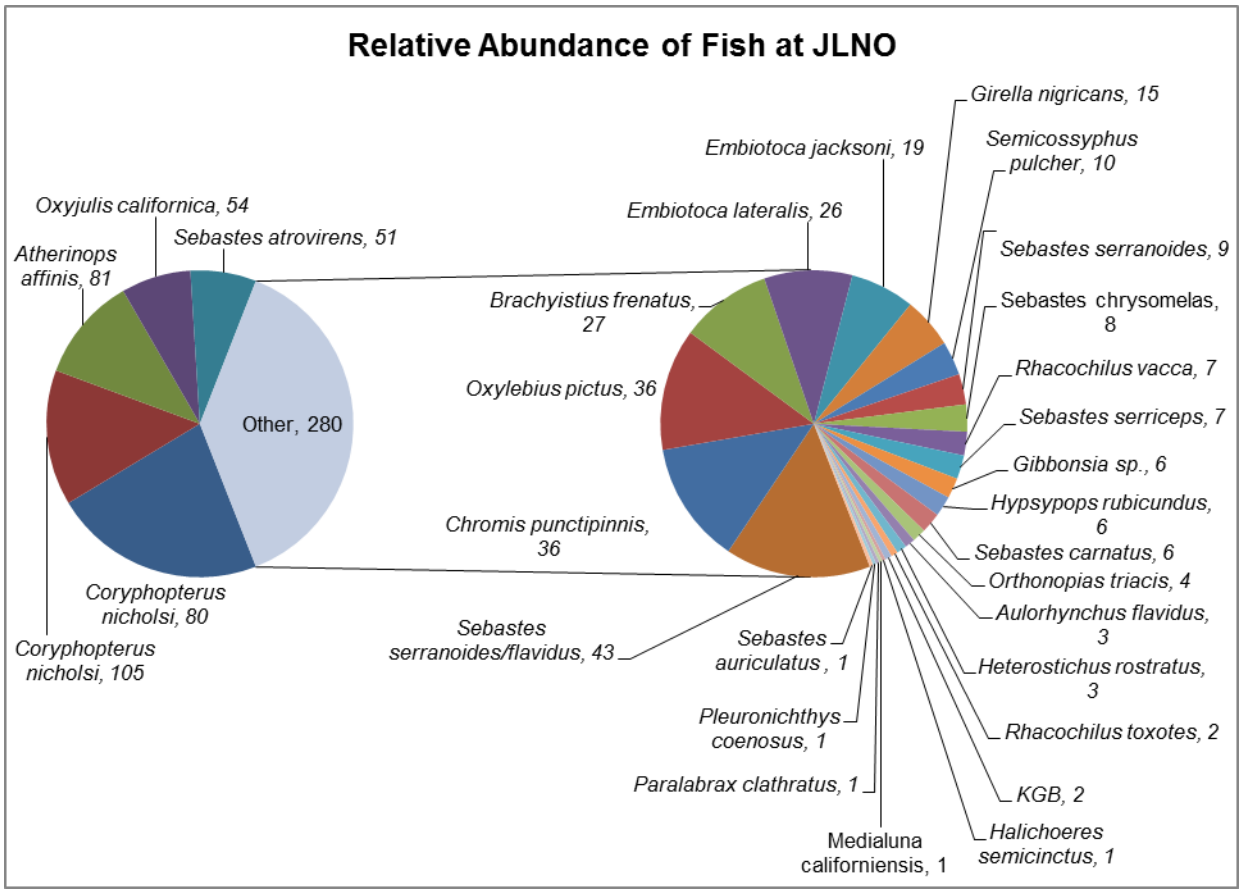
Note: these figures are based on the highest counts observed during RDFC. Larval fish spp. counts and schools of baitfish with counts greater than 1000 were not included in these figures. See Appendix H for the complete lists of counts.



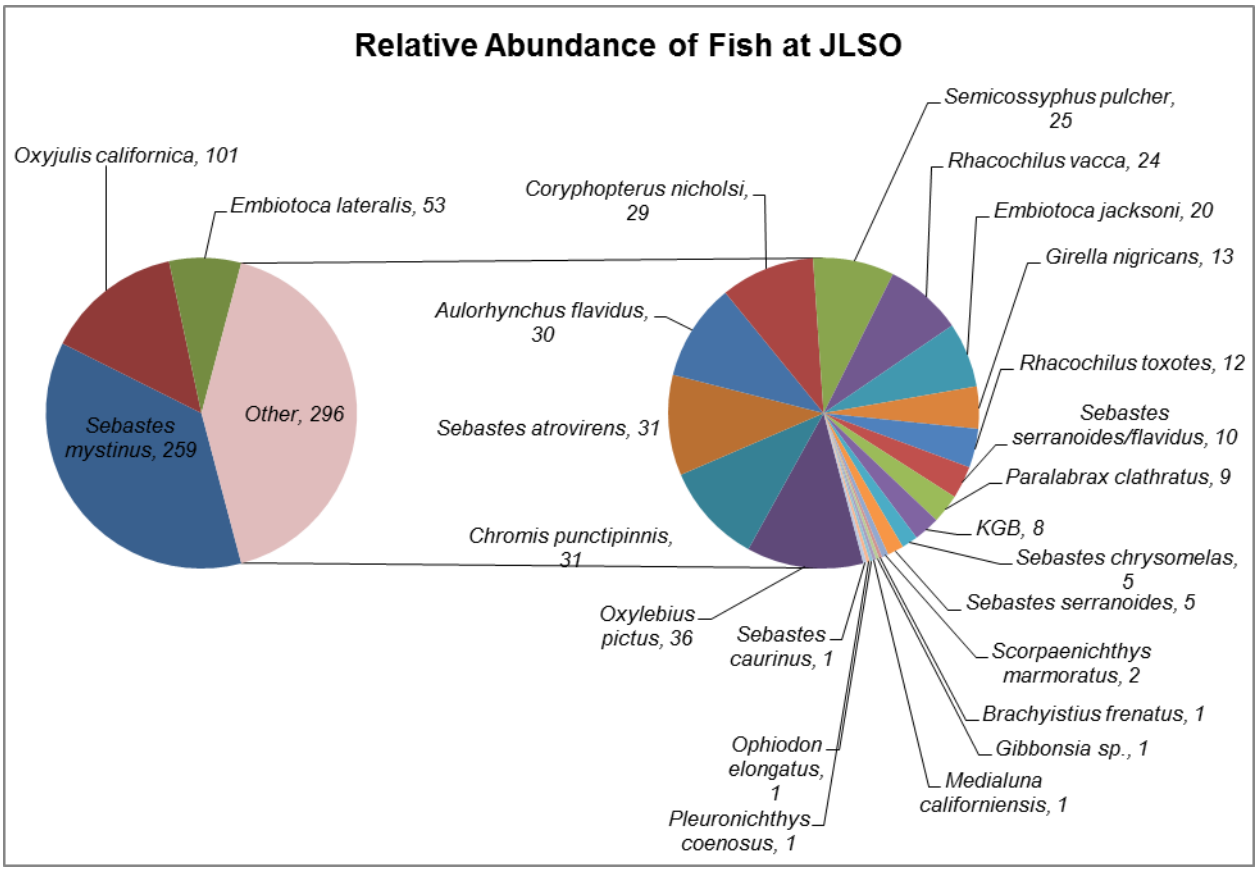
Species	Max Count	Species	Max Count
Artedius corallinus	2	Scorpaenichthys marmoratus, juvenile	1
Aulorhynchus flavidus, adult	500	Sebastes atrovirens, adult	13
Coryphopterus nicholsi	12	Sebastes carnatus, adult	1
Embiotoca lateralis, adult	5	Sebastes caurinus, adult	9
Embiotoca lateralis, juvenile	17	Sebastes chrysomelas, adult	11
Gibbonsia spp.	2	Sebastes miniatus, juvenile	1
Hexagrammos decagrammus	1	Sebastes mystinus, adult	6
Oxyjulis californica, adult	13	Sebastes mystinus, juvenile	8
Oxylebius pictus	6	Sebastes serriceps, adult	1
Rhacochilus vacca, adult	1	Semicossyphus pulcher, female	1
Scorpaenichthys marmoratus, adult	1		



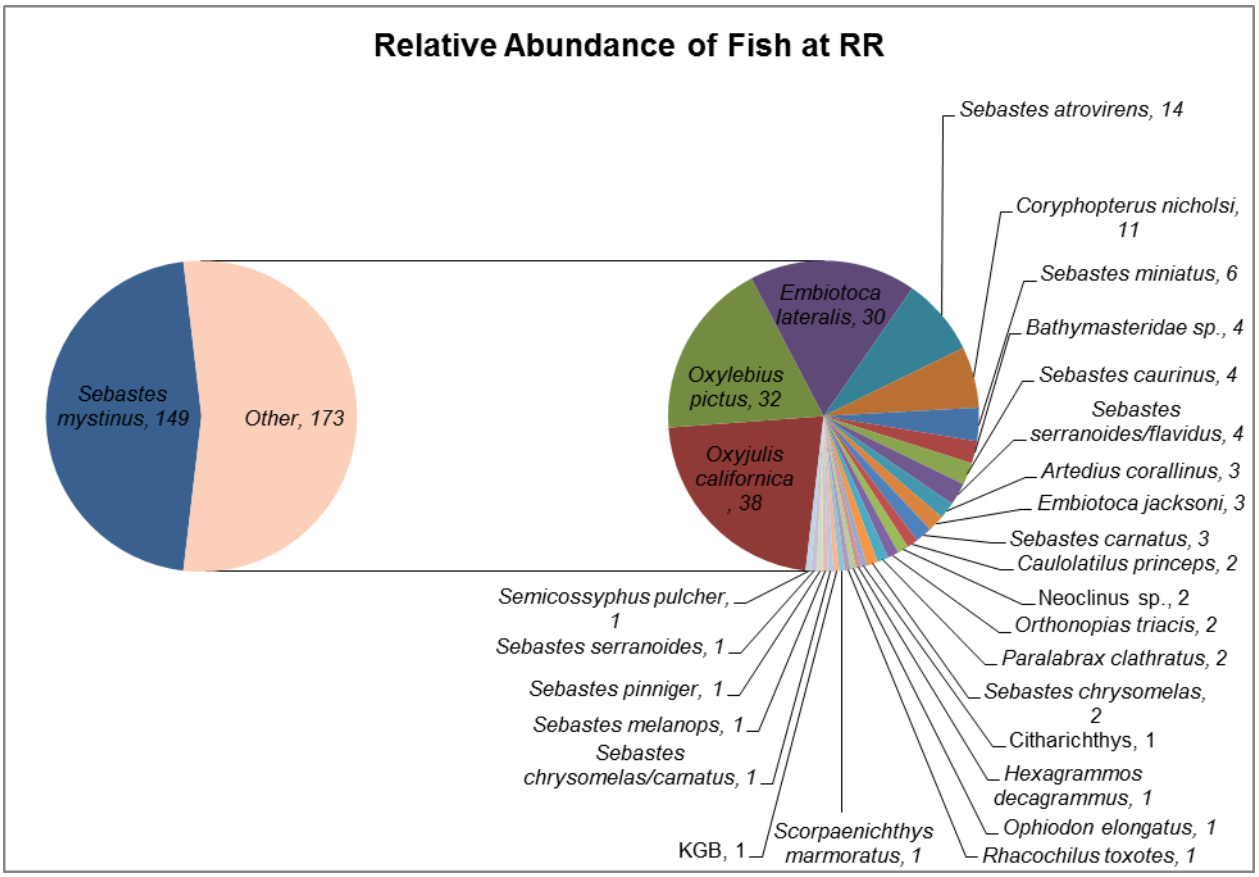
Species	Max Count	Species	Max Count
Artedius corallinus	1	Phanerodon sp.	3
Aulorhynchus flavidus, adult	50	Pholidae sp.	1
Bathymasteridae spp.	2	Rhacochilus vacca, adult	14
Chromis punctipinnis, adult	47	Scorpaenichthys marmoratus, adult	3
Chromis punctipinnis, juvenile	3	Sebastes atrovirens, adult	25
Citharichthys stigmaeus	1	Sebastes atrovirens, juvenile	19
Coryphopterus nicholsi	200	Sebastes carnatus, adult	6
Embiotoca jacksoni, adult	1	Sebastes caurinus, adult	7
Embiotoca jacksoni, juvenile	1	Sebastes caurinus, juvenile	2
Embiotoca lateralis, adult	25	Sebastes chrysomelas, adult	10
Embiotoca lateralis, juvenile	21	Sebastes melanops, adult	1
Gibbonsia sp.	2	Sebastes miniatus, juvenile	2
Heterostichus rostratus, juvenile	1	Sebastes mystinus, adult	70
Hexagrammos decagrammus	3	Sebastes mystinus, juvenile	155
KGB	19	Sebastes serranoides, adult	26
Neoclinus sp.	2	Sebastes serranoides/flavidus, juvenile	7
Ophiodon elongatus, adult	2	Sebastes serriceps, adult	4
Orthonopias triacis	11	Semicossyphus pulcher, female	4
Oxyjulis californica, adult	32	Semicossyphus pulcher, male	1
Oxylebius pictus	26	unid. Sebastes sp., juvenile	1



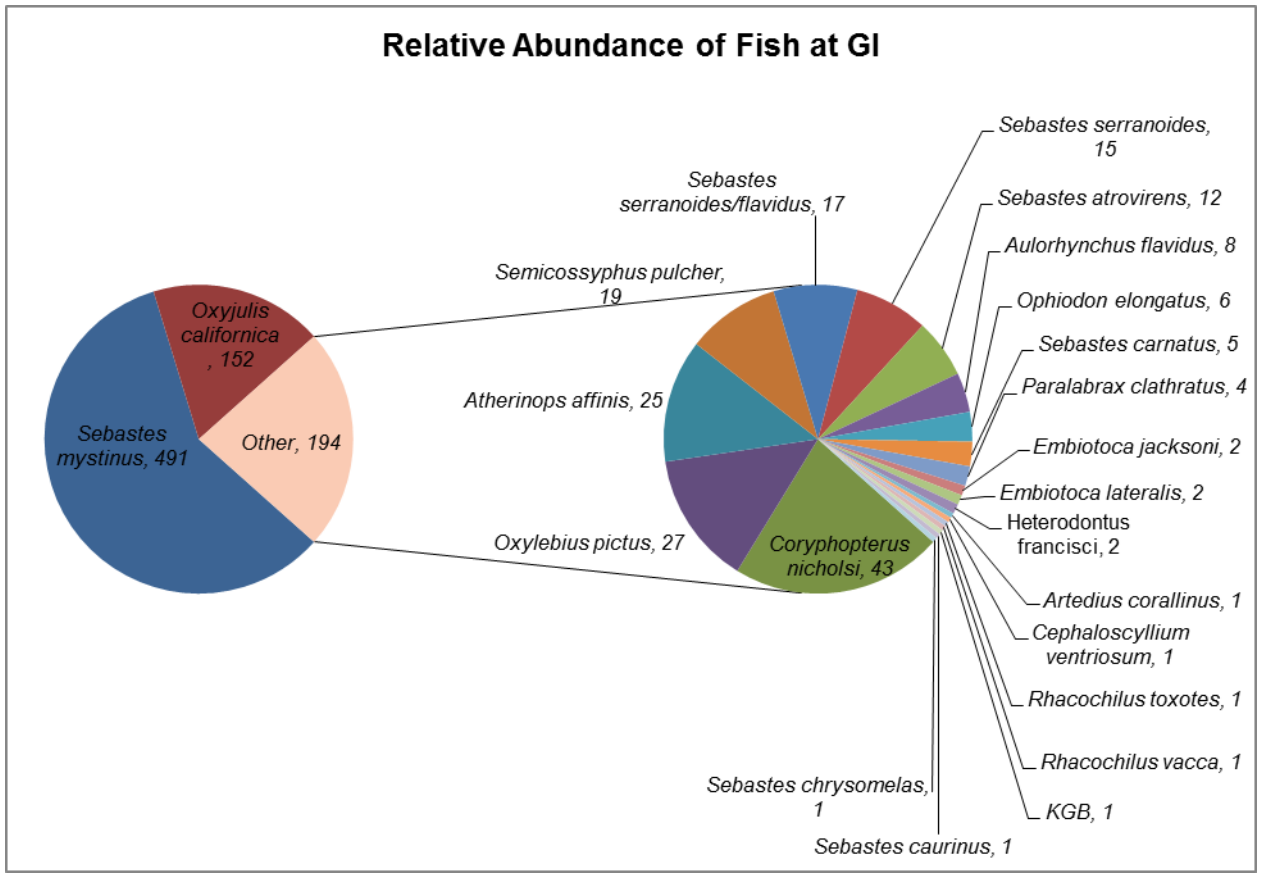
Species	Max Count	Species	Max Count
Atherinops affinis	81	Oxyjulis californica, juvenile	3
Aulorhynchus flavidus, adult	3	Oxylebius pictus	36
Brachyistius frenatus	27	Paralabrax clathratus, adult	1
Chromis punctipinnis, adult	35	Pleuronichthys coenosus	1
Chromis punctipinnis, juvenile	1	Rhacochilus toxotes	2
Coryphopterus nicholsi	105	Rhacochilus vacca, adult	4
Embiotoca jacksoni, adult	9	Rhacochilus vacca, juvenile	3
Embiotoca jacksoni, juvenile	10	Sebastes atrovirens, adult	41
Embiotoca lateralis, adult	13	Sebastes atrovirens, juvenile	10
Embiotoca lateralis, juvenile	13	Sebastes auriculatus, adult	1
Gibbonsia sp.	6	Sebastes carnatus, adult	5
Girella nigricans, adult	15	Sebastes carnatus, juvenile	1
Halichoeres semicinctus, male	1	Sebastes chrysomelas, adult	8
Heterostichus rostratus, adult	1	Sebastes mystinus, adult	24
Heterostichus rostratus, juvenile	2	Sebastes mystinus, juvenile	140
Hypsypops rubicundus, adult	6	Sebastes serranoides, adult	9
KGB	2	Sebastes serranoides/flavidus, juvenile	43
Medialuna californiensis, adult	1	Sebastes serriceps, adult	7
Orthonopias triacis	4	Semicossyphus pulcher, female	10
Oxyjulis californica, adult	51		



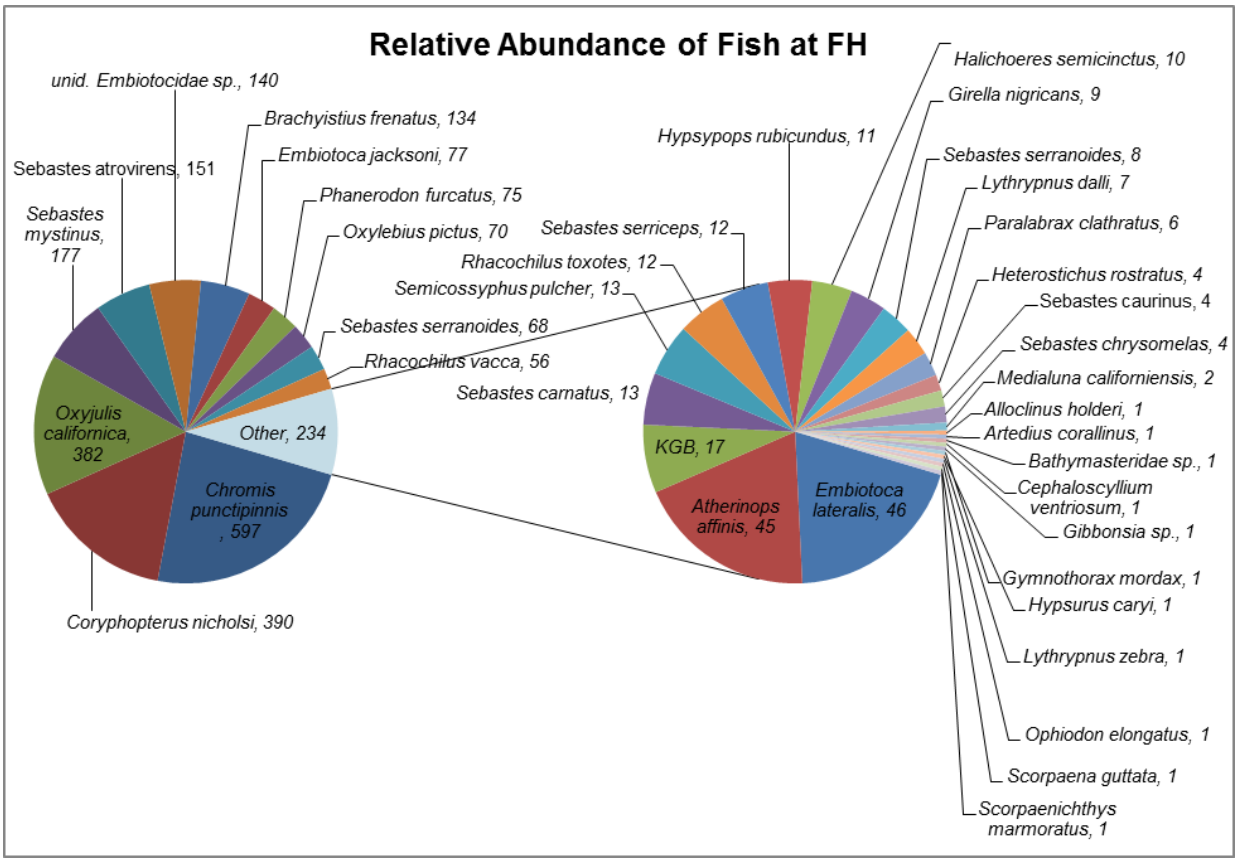
Species	Max Count	Species	Max Count
Aulorhynchus flavidus, adult	30	Pleuronichthys coenosus	1
Brachyistius frenatus	1	Rhacochilus toxotes	12
Chromis punctipinnis, adult	31	Rhacochilus vacca, adult	23
Coryphopterus nicholsi	29	Rhacochilus vacca, juvenile	1
Embiotoca jacksoni, adult	14	Scorpaenichthys marmoratus, adult	2
Embiotoca jacksoni, juvenile	6	Sebastes atrovirens, adult	30
Embiotoca lateralis, adult	45	Sebastes atrovirens, juvenile	1
Embiotoca lateralis, juvenile	8	Sebastes caurinus, juvenile	1
Gibbonsia sp.	1	Sebastes chrysomelas, adult	5
Girella nigricans, adult	13	Sebastes mystinus, adult	39
KGB	8	Sebastes mystinus, juvenile	220
Medialuna californiensis, adult	1	Sebastes serranoides, adult	5
Ophiodon elongatus, adult	1	Sebastes serranoides/flavidus, juvenile	10
Oxyjulis californica, adult	101	Semicossyphus pulcher, female	12
Oxylebius pictus	36	Semicossyphus pulcher, male	13
Paralabrax clathratus, adult	9		



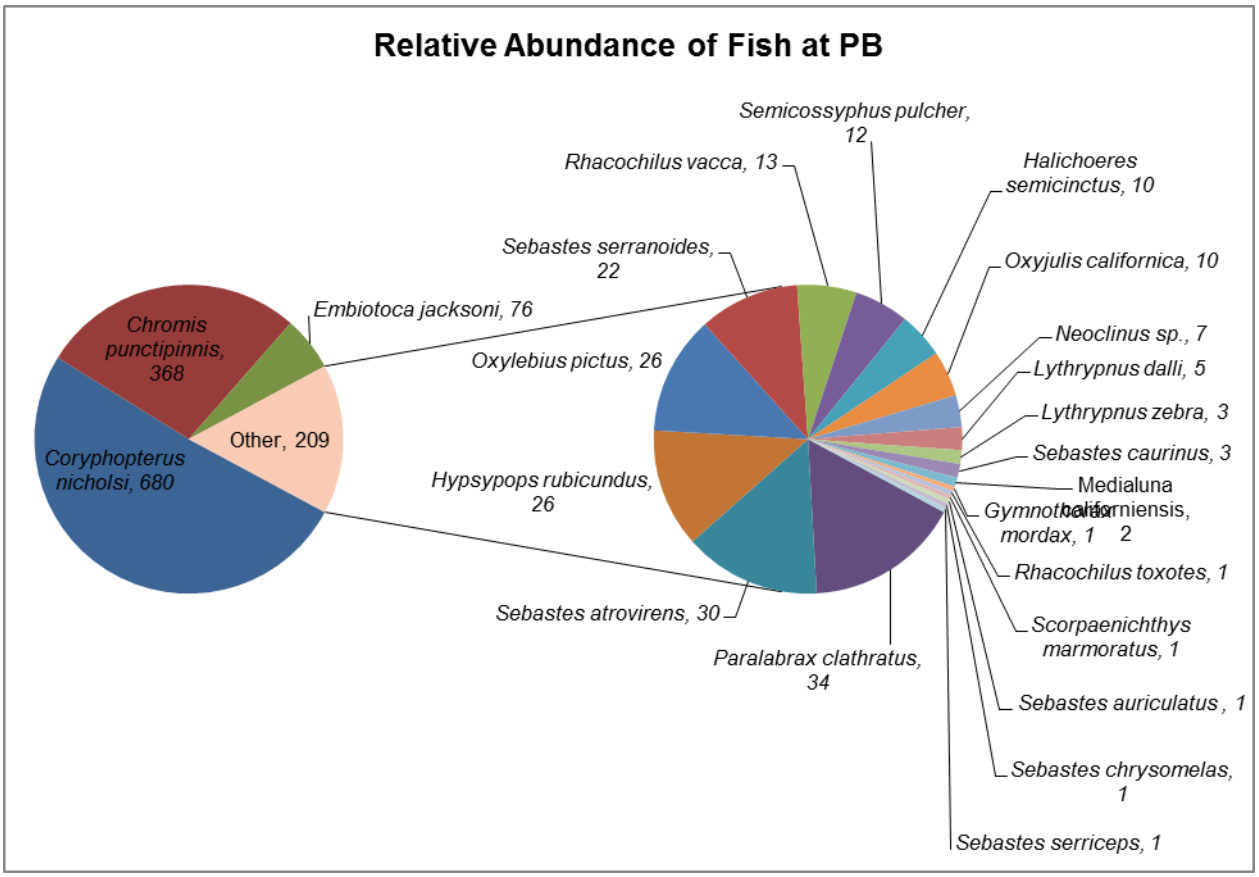
Species	Max Count	Species	Max Count
Artedius corallinus	3	Scorpaenichthys marmoratus, adult	1
Bathymasteridae sp.	4	Sebastes atrovirens, adult	14
Caulolatilus princeps, adult	2	Sebastes carnatus, adult	2
Citharichthys sp.	1	Sebastes carnatus, juvenile	1
Coryphopterus nicholsi	11	Sebastes caurinus, adult	4
Embiotoca jacksoni, adult	3	Sebastes chrysomelas, adult	2
Embiotoca lateralis, adult	9	Sebastes chrysomelas/carnatus, juvenile	1
Embiotoca lateralis, juvenile	21	Sebastes melanops, adult	1
Hexagrammos decagrammus	1	Sebastes miniatus, adult	1
KGB	1	Sebastes miniatus, juvenile	5
Neoclinus sp.	2	Sebastes mystinus, adult	22
Ophiodon elongatus, adult	1	Sebastes mystinus, juvenile	127
Orthonopias triacis	2	Sebastes pinniger, juvenile	1
Oxyjulis californica, adult	38	Sebastes serranoides, adult	1
Oxylebius pictus	32	Sebastes serranoides/flavidus, juvenile	4
Paralabrax clathratus, adult	2	Semicossyphus pulcher, male	1
Rhacochilus toxotes	1		



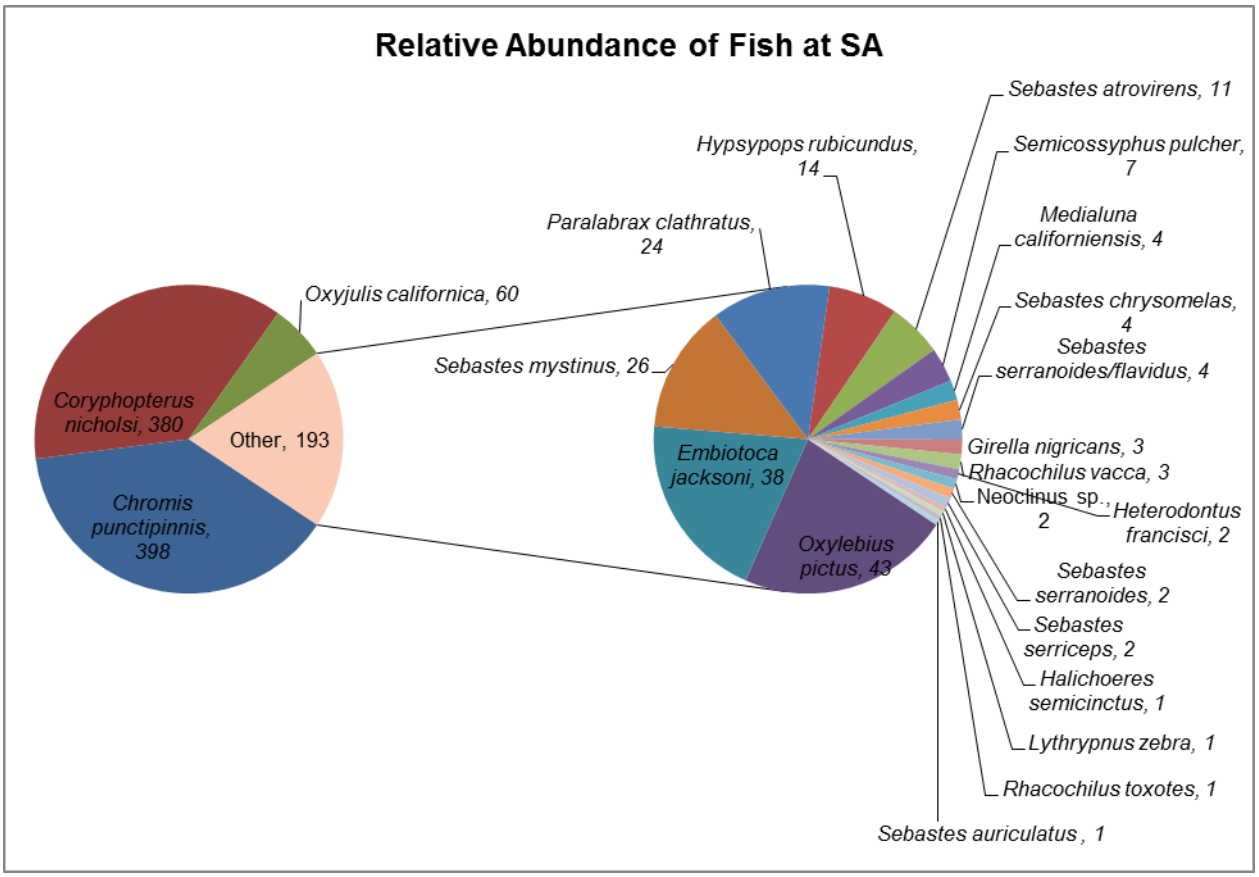
Species	Max Count	Species	Max Count
Artedius corallinus	1	Rhacochilus toxotes	1
Atherinops affinis	25	Rhacochilus vacca, adult	1
Aulorhynchus flavidus, adult	8	Sebastes atrovirens, adult	12
Cephaloscyllium ventriosum	1	Sebastes carnatus, adult	4
Coryphopterus nicholsi	43	Sebastes carnatus, juvenile	1
Embiotoca jacksoni, adult	2	Sebastes caurinus, adult	1
Embiotoca lateralis, adult	2	Sebastes chrysomelas, adult	1
Heterodontus francisci	2	Sebastes mystinus, adult	11
KGB	1	Sebastes mystinus, juvenile	480
Ophiodon elongatus, adult	6	Sebastes serranoides, adult	15
Oxyjulis californica, adult	152	Sebastes serranoides/flavidus, juvenile	17
Oxylebius pictus	27	Semicossyphus pulcher, female	16
Paralabrax clathratus, adult	4	Semicossyphus pulcher, male	3



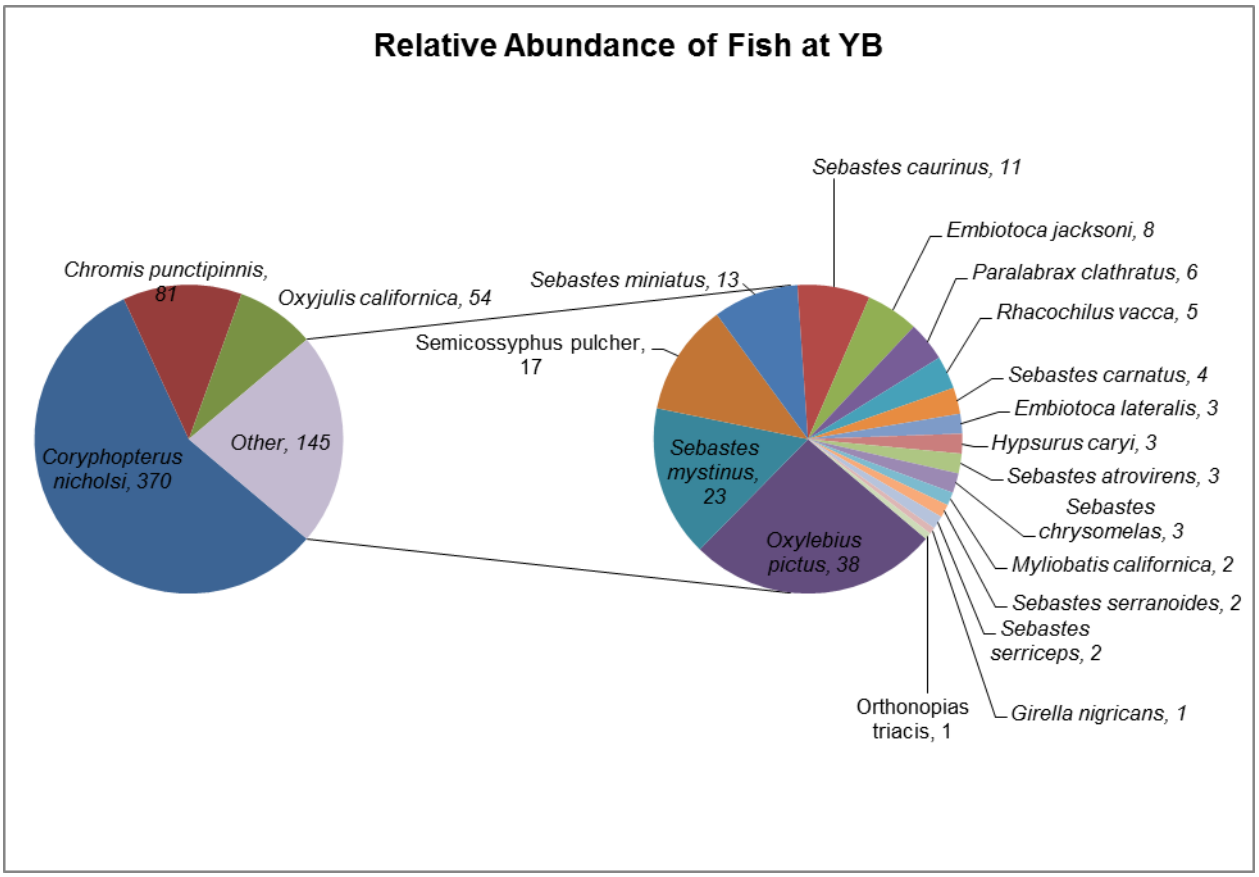
Species	Max Count	Species	Max Count
Alloclinus holderi	1	Oxyjulis californica, adult	380
Artedius corallinus	1	Oxyjulis californica, juvenile	2
Atherinops affinis	45	Oxylebius pictus	70
Bathymasteridae sp.	1	Paralabrax clathratus, adult	6
Brachyistius frenatus	134	Phanerodon furcatus	75
Cephaloscyllium ventriosum	1	Rhacochilus toxotes	12
Chromis punctipinnis, adult	565	Rhacochilus vacca, adult	15
Chromis punctipinnis, juvenile	32	Rhacochilus vacca, juvenile	41
Coryphopterus nicholsi	390	Scorpaena guttata, adult	1
Embiotoca jacksoni, adult	27	Scorpaenichthys marmoratus, adult	1
Embiotoca jacksoni, juvenile	50	Sebastes atrovirens, adult	95
Embiotoca lateralis, adult	26	Sebastes atrovirens, juvenile	56
Embiotoca lateralis, juvenile	20	Sebastes carnatus, adult	10
Gibbonsia sp.	1	Sebastes carnatus, juvenile	3
Girella nigricans, adult	9	Sebastes caurinus, adult	1
Gymnothorax mordax	1	Sebastes caurinus, juvenile	3
Halichoeres semicinctus, female	4	Sebastes chrysomelas, adult	4
Halichoeres semicinctus, male	6	Sebastes mystinus, adult	2
Heterostichus rostratus, adult	2	Sebastes mystinus, juvenile	175
Heterostichus rostratus, juvenile	2	Sebastes serranoides, adult	8
Hypsurus caryi	1	Sebastes serranoides/flavidus, juvenile	68
Hypsypops rubicundus, adult	11	Sebastes serriceps, adult	10
KGB	17	Sebastes serriceps, juvenile	2
Lythrypnus dalli	7	Semicossyphus pulcher, female	11
Lythrypnus zebra	1	Semicossyphus pulcher, juvenile	1
Medialuna californiensis, adult	2	Semicossyphus pulcher, male	1
Ophiodon elongatus, adult	1	unid. Embiotocidae sp.	140



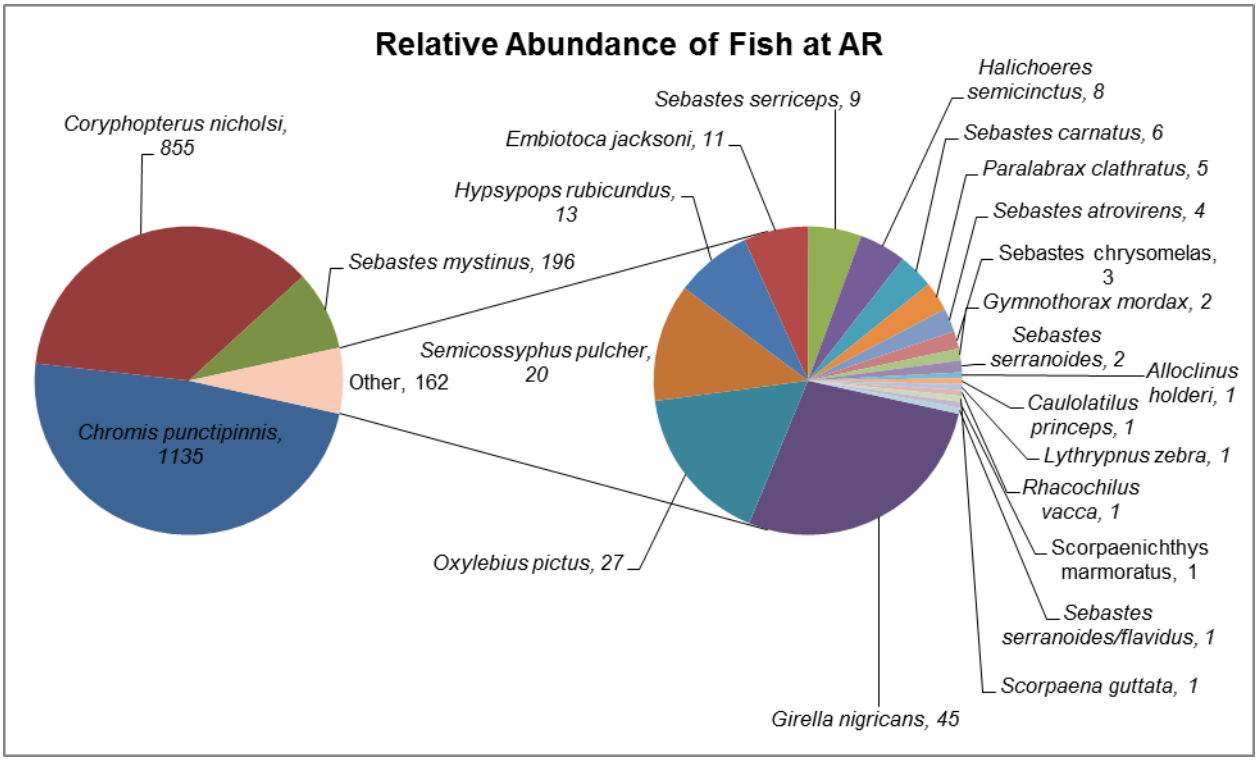
Species	Max Count	Species	Max Count
Chromis punctipinnis, adult	360	Oxyjulis californica, adult	10
Chromis punctipinnis, juvenile	8	Oxylebius pictus	26
Coryphopterus nicholsi	680	Paralabrax clathratus, adult	34
Embiotoca jacksoni, adult	49	Rhacochilus toxotes	1
Embiotoca jacksoni, juvenile	27	Rhacochilus vacca, adult	13
Gymnothorax mordax	1	Scorpaenichthys marmoratus, adult	1
Halichoeres semicinctus, female	6	Sebastes atrovirens, adult	30
Halichoeres semicinctus, male	4	Sebastes auriculatus, adult	1
Hypsypops rubicundus, adult	26	Sebastes caurinus, adult	3
Lythrypnus dalli	5	Sebastes chrysomelas, adult	1
Lythrypnus zebra	3	Sebastes serranoides, adult	22
Medialuna californiensis, adult	2	Sebastes serriceps, adult	1
Neoclinus	7	Semicossyphus pulcher, female	12



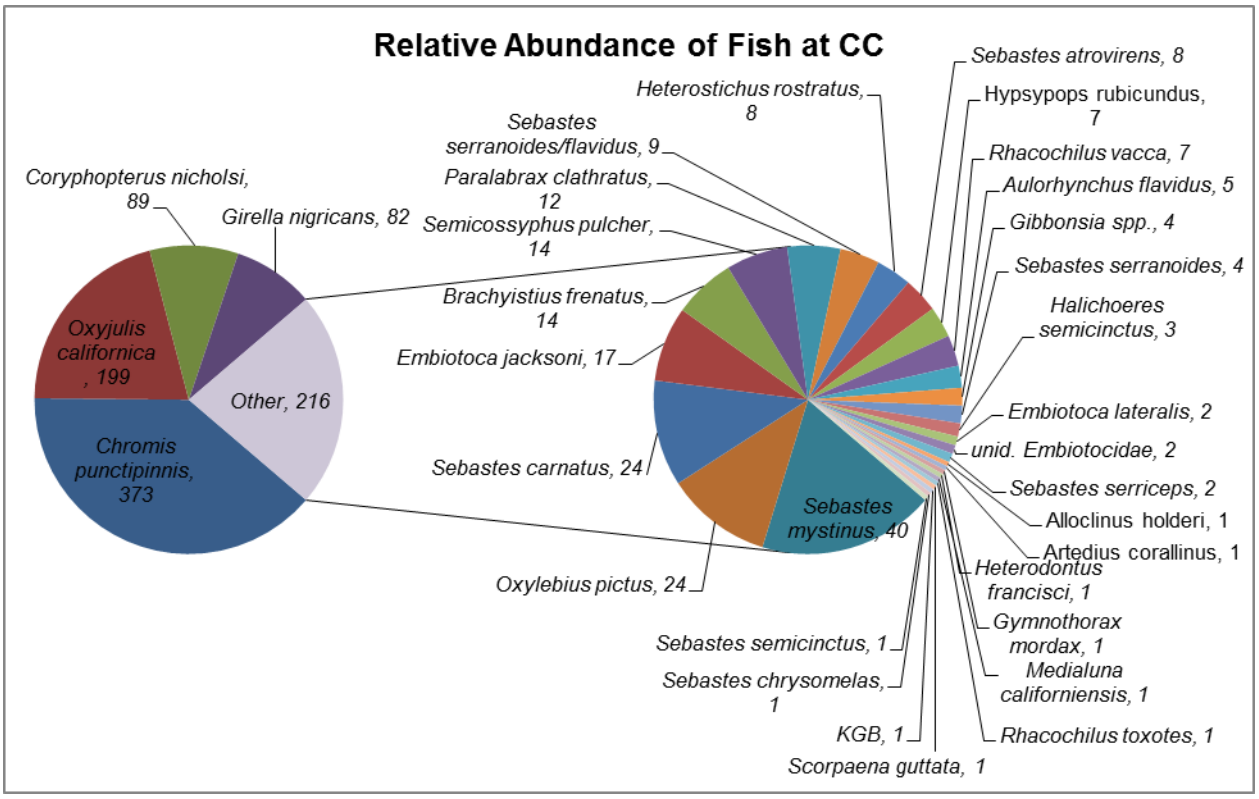
Species	Max Count	Species	Max Count
Chromis punctipinnis, adult	218	Paralabrax clathratus, adult	23
Chromis punctipinnis, juvenile	180	Paralabrax clathratus, juvenile	1
Coryphopterus nicholsi	380	Rhacochilus toxotes	1
Embiotoca jacksoni, adult	26	Rhacochilus vacca, adult	3
Embiotoca jacksoni, juvenile	12	Sebastes atrovirens, adult	10
Girella nigricans, adult	3	Sebastes atrovirens, juvenile	1
Halichoeres semicinctus, male	1	Sebastes auriculatus, adult	1
Heterodontus francisci	2	Sebastes chrysomelas, adult	4
Hypsypops rubicundus, adult	13	Sebastes mystinus, adult	8
Hypsypops rubicundus, juvenile	1	Sebastes mystinus, juvenile	18
Lythrypnus zebra	1	Sebastes serranoides, adult	2
Medialuna californiensis, adult	4	Sebastes serranoides/flavidus, juvenile	4
Neoclinus sp.	2	Sebastes serriceps, adult	2
Oxyjulis californica, adult	60	Semicossyphus pulcher, female	6
Oxylebius pictus	43	Semicossyphus pulcher, male	1



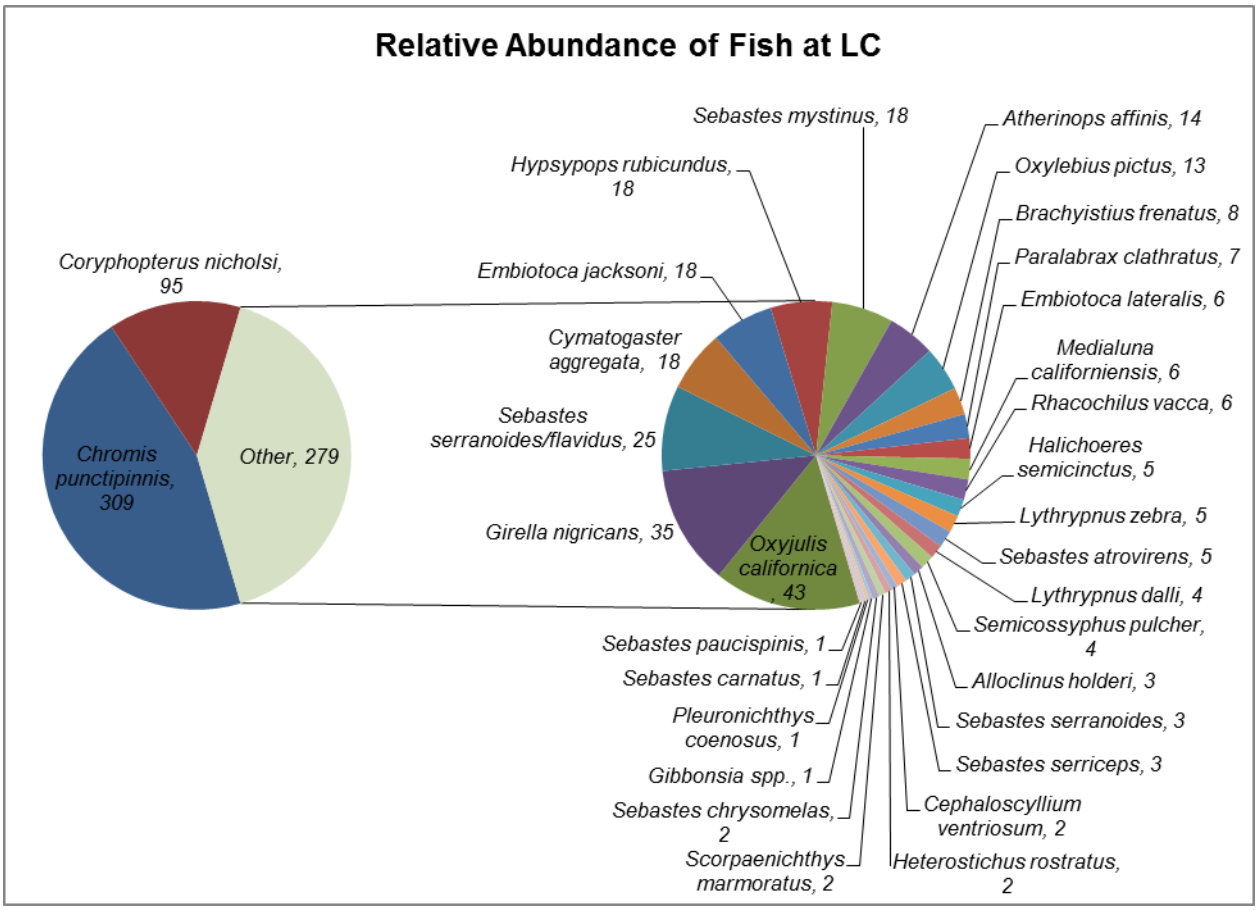
Species	Max Count	Species	Max Count
Chromis punctipinnis, adult	75	Rhacochilus vacca, juvenile	2
Chromis punctipinnis, juvenile	6	Sebastes atrovirens, adult	3
Coryphopterus nicholsi	370	Sebastes carnatus, adult	3
Embiotoca jacksoni, adult	2	Sebastes carnatus, juvenile	1
Embiotoca jacksoni, juvenile	6	Sebastes caurinus, adult	2
Embiotoca lateralis, adult	1	Sebastes caurinus, juvenile	9
Embiotoca lateralis, juvenile	2	Sebastes chrysomelas, adult	3
Girella nigricans, adult	1	Sebastes miniatus, juvenile	13
Hypsurus caryi	3	Sebastes mystinus, adult	3
Myliobatis californica	2	Sebastes mystinus, juvenile	20
Orthonopias triacis	1	Sebastes serranoides, adult	2
Oxyjulis californica, adult	54	Sebastes serriceps, juvenile	2
Oxylebius pictus	38	Semicossyphus pulcher, female	16
Paralabrax clathratus, adult	6	Semicossyphus pulcher, male	1
Rhacochilus vacca, adult	3		



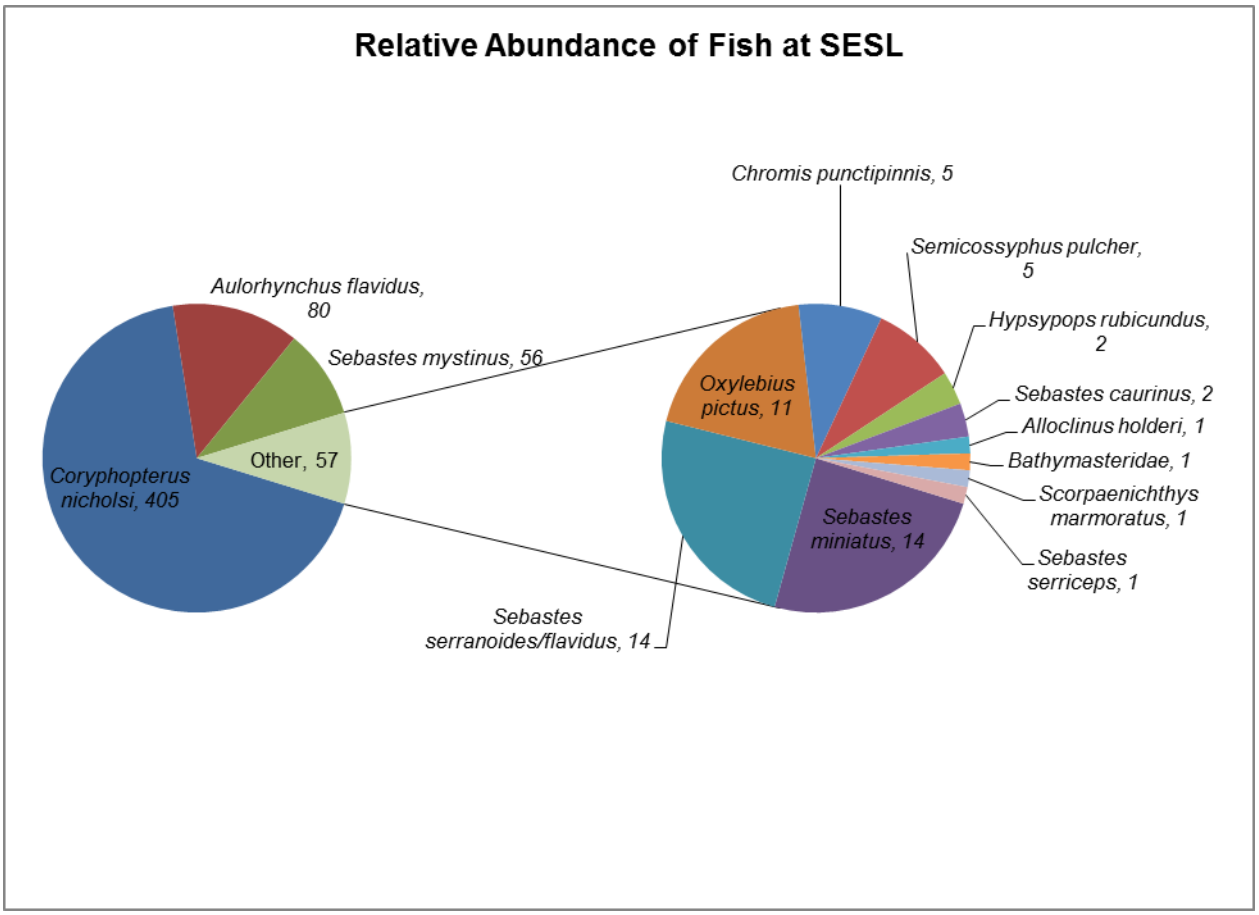
Species	Max Count	Species	Max Count
Alloclinus holderi	1	Paralabrax clathratus, adult	5
Caulolatilus princeps, adult	1	Rhacochilus vacca, adult	1
Chromis punctipinnis, adult	710	Scorpaena guttata, adult	1
Chromis punctipinnis, juvenile	425	Scorpaenichthys marmoratus, adult	1
Coryphopterus nicholsi	855	Sebastes atrovirens, adult	4
Embiotoca jacksoni, adult	2	Sebastes carnatus, adult	6
Embiotoca jacksoni, juvenile	9	Sebastes chrysomelas, adult	3
Girella nigricans, adult	45	Sebastes mystinus, adult	61
Gymnothorax mordax	2	Sebastes mystinus, juvenile	135
Halichoeres semicinctus, female	4	Sebastes serranoides, adult	2
Halichoeres semicinctus, male	4	Sebastes serranoides/flavidus, juvenile	1
Hypsypops rubicundus, adult	13	Sebastes serriceps, adult	9
Lythrypnus zebra	1	Semicossyphus pulcher, female	20
Oxylebius pictus	27		



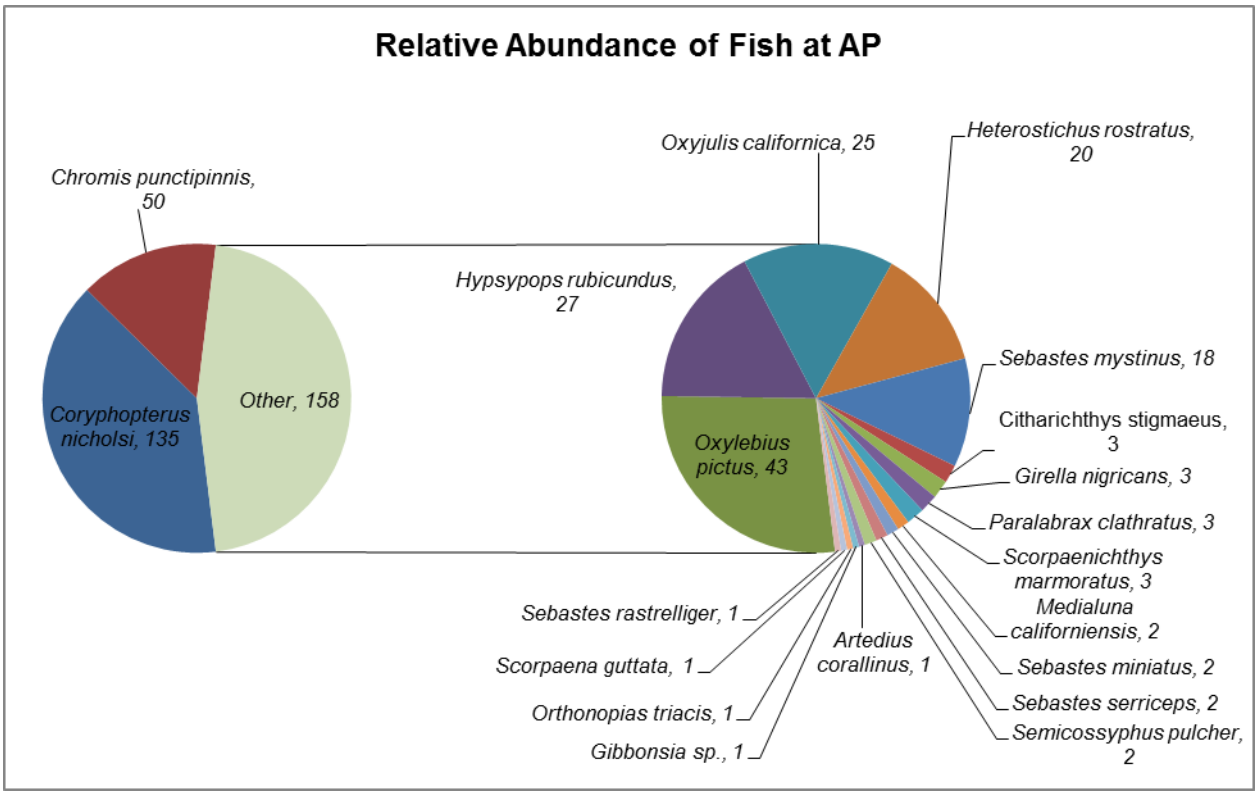
Species	Max Count	Species	Max Count
Alloclinus holderi	1	Oxyjulis californica, juvenile	75
Artedius corallinus	1	Oxylebius pictus	24
Aulorhynchus flavidus, adult	5	Paralabrax clathratus, adult	11
Brachyistius frenatus	14	Paralabrax clathratus, juvenile	1
Chromis punctipinnis, adult	373	Rhacochilus toxotes	1
Coryphopterus nicholsi	89	Rhacochilus vacca, adult	2
Embiotoca jacksoni, adult	12	Rhacochilus vacca, juvenile	5
Embiotoca jacksoni, juvenile	5	Scorpaena guttata, adult	1
Embiotoca lateralis, adult	1	Sebastes atrovirens, adult	8
Embiotoca lateralis, juvenile	1	KGB	1
unid. Embiotocidae, juvenile	2	Sebastes carnatus, juvenile	24
Gibbonsia spp.	4	Sebastes chrysomelas, adult	1
Girella nigricans, adult	82	Sebastes mystinus, adult	3
Gymnothorax mordax	1	Sebastes mystinus, juvenile	37
Halichoeres semicinctus, female	2	Sebastes semicinctus, adult	1
Halichoeres semicinctus, male	1	Sebastes serranoides, adult	4
Heterodontus francisci	1	Sebastes serranoides/flavidus, juvenile	9
Heterostichus rostratus, adult	1	Sebastes serriceps, adult	1
Heterostichus rostratus, juvenile	7	Sebastes serriceps, juvenile	1
Hypsypops rubicundus, adult	7	Semicossyphus pulcher, female	11
Medialuna californiensis, adult	1	Semicossyphus pulcher, male	3
Oxyjulis californica, adult	124		



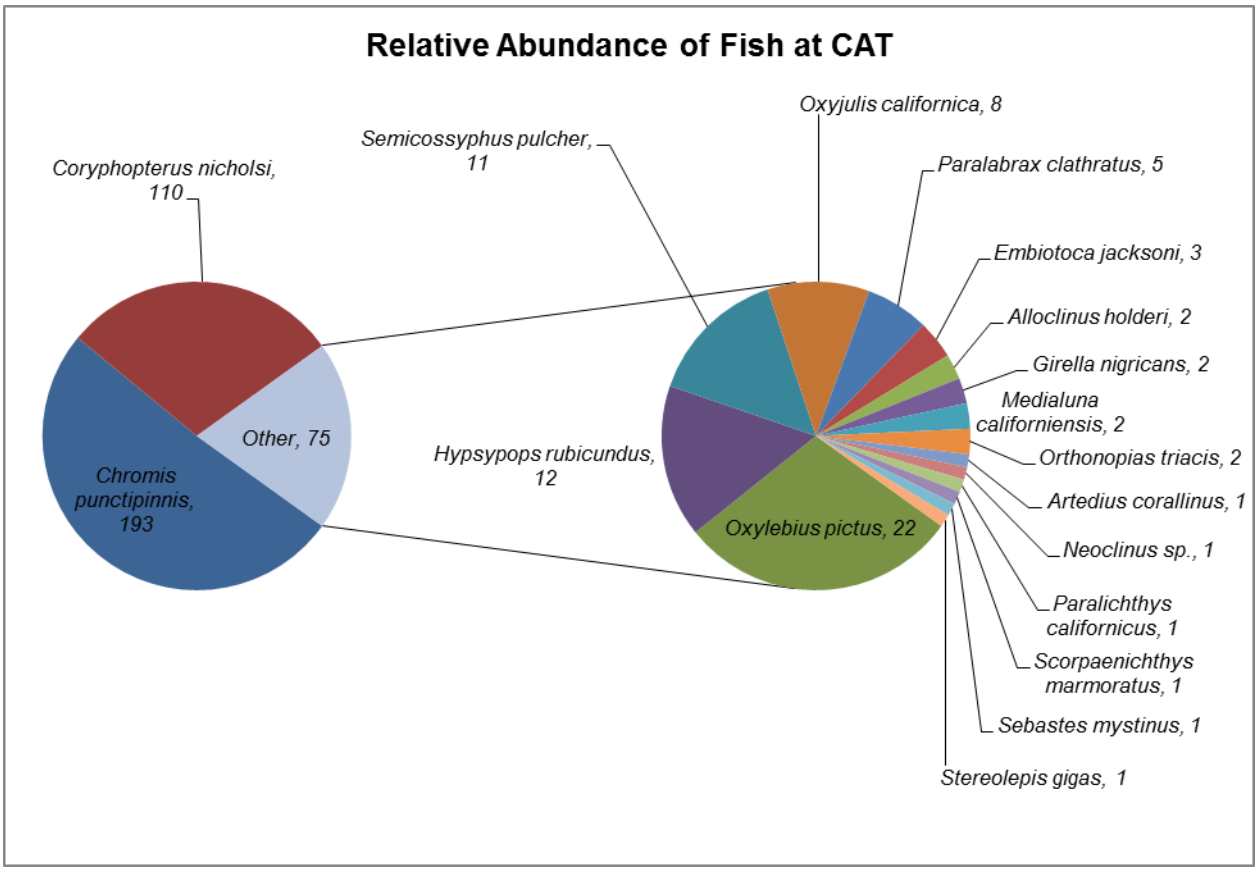
Species	Max Count	Species	Max Count
Alloclinus holderi	3	Medialuna californiensis, adult	6
Atherinops affinis	14	Oxyjulis californica, adult	43
Brachyistius frenatus	8	Oxylebius pictus	13
Cephaloscyllium ventriosum	2	Paralabrax clathratus, adult	6
Chromis punctipinnis, adult	309	Paralabrax clathratus, juvenile	1
Coryphopterus nicholsi	95	Pleuronichthys coenosus	1
Cymatogaster aggregata	18	Rhacochilus vacca, adult	2
Embiotoca jacksoni, adult	7	Rhacochilus vacca, juvenile	4
Embiotoca jacksoni, juvenile	11	Scorpaenichthys marmoratus, adult	2
Embiotoca lateralis, adult	4	Sebastes atrovirens, adult	5
Embiotoca lateralis, juvenile	2	Sebastes carnatus, adult	1
Gibbonsia spp.	1	Sebastes chrysomelas, adult	2
Girella nigricans, adult	35	Sebastes mystinus, juvenile	18
Halichoeres semicinctus, female	3	Sebastes paucispinis, juvenile	1
Halichoeres semicinctus, male	2	Sebastes serranoides, adult	3
Heterostichus rostratus, adult	1	Sebastes serranoides/flavidus, juvenile	25
Heterostichus rostratus, juvenile	1	Sebastes serriceps, adult	2
Hypsypops rubicundus, adult	18	Sebastes serriceps, juvenile	1
Lythrypnus dalli	4	Semicossyphus pulcher, female	3
Lythrypnus zebra	5	Semicossyphus pulcher, male	1



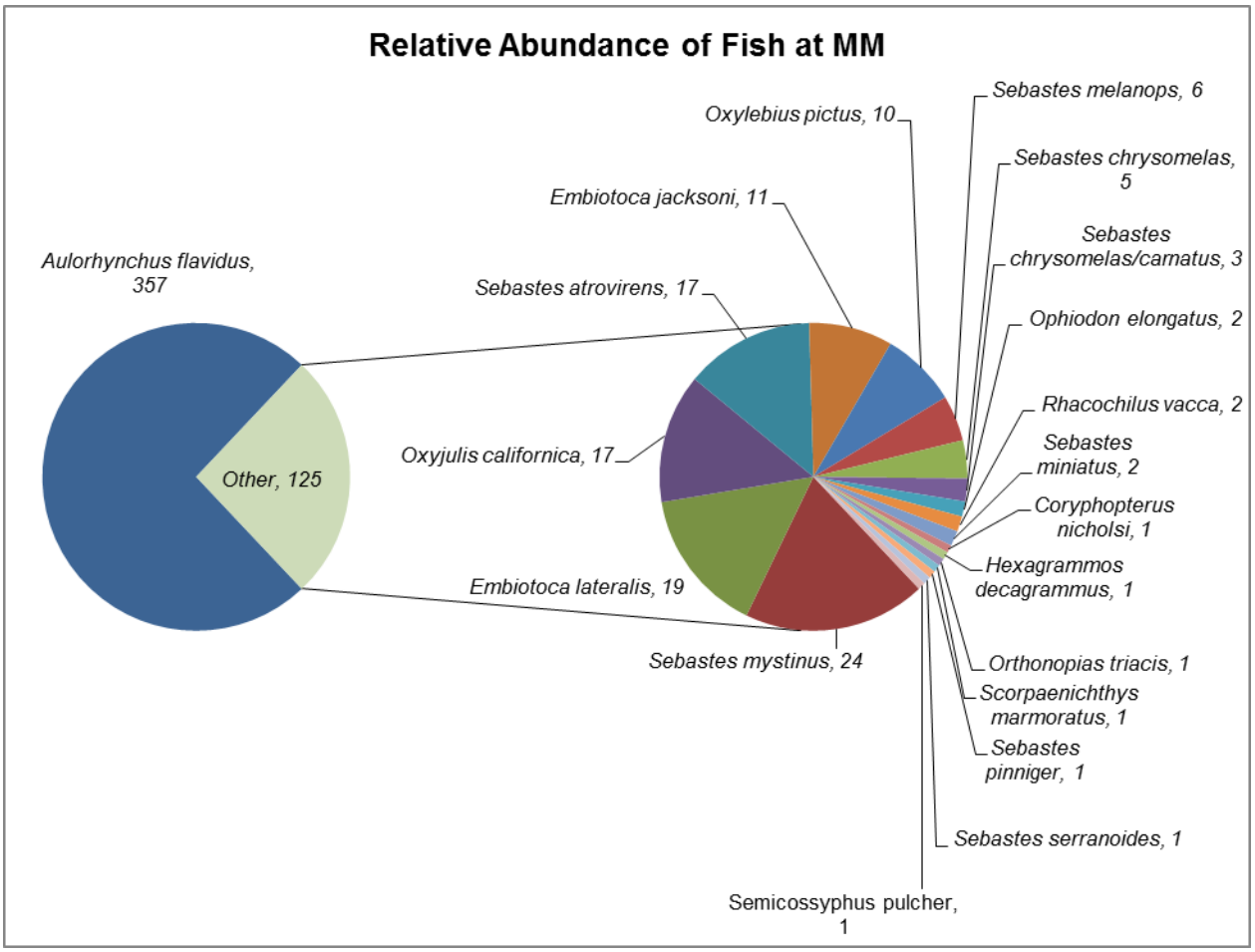
Species	Max Count	Species	Max Count
Alloclinus holderi	1	Scorpaenichthys marmoratus, juvenile	1
Aulorhynchus flavidus, adult	80	Sebastes caurinus, juvenile	2
Bathymasteridae spp.	1	Sebastes miniatus, juvenile	14
Chromis punctipinnis, adult	4	Sebastes mystinus, juvenile	56
Chromis punctipinnis, juvenile	1	Sebastes serranoides/flavidus, juvenile	14
Coryphopterus nicholsi	405	Sebastes serriceps, adult	1
Hypsypops rubicundus, adult	2	Semicossyphus pulcher, female	5
Oxylebius pictus	11		



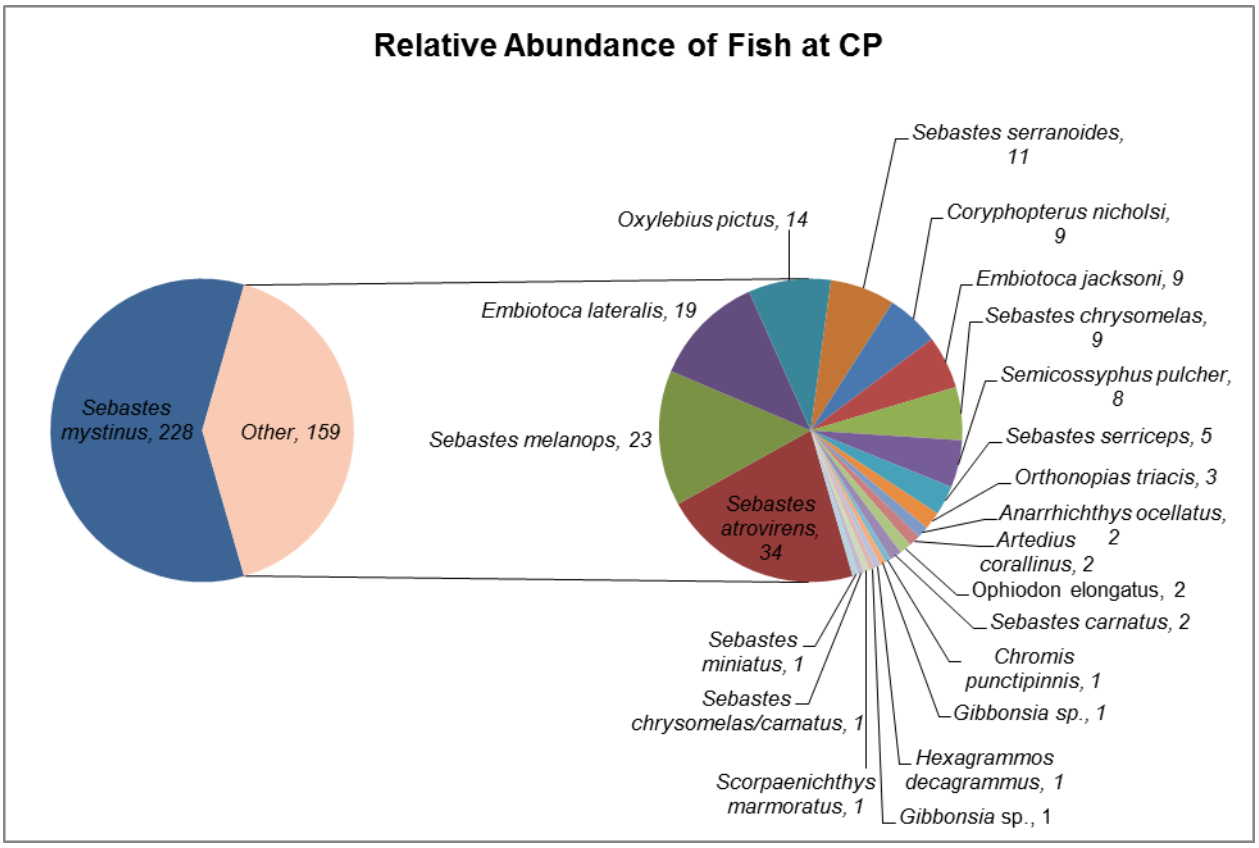
Species	Max Count	Species	Max Count
Artedius corallinus	1	Oxylebius pictus	43
Chromis punctipinnis, adult	50	Paralabrax clathratus, adult	3
Citharichthys stigmaeus	3	Scorpaena guttata, adult	1
Coryphopterus nicholsi	135	Scorpaenichthys marmoratus, adult	1
Gibbonsia sp.	1	Scorpaenichthys marmoratus, juvenile	2
Girella nigricans, adult	3	Sebastes miniatus, juvenile	2
Heterostichus rostratus, juvenile	20	Sebastes mystinus, juvenile	18
Hypsypops rubicundus, adult	27	Sebastes rastrelliger, adult	1
Medialuna californiensis, adult	2	Sebastes serriceps, adult	2
Orthonopias triacis	1	Semicossyphus pulcher, female	2
Oxyjulis californica, adult	25		



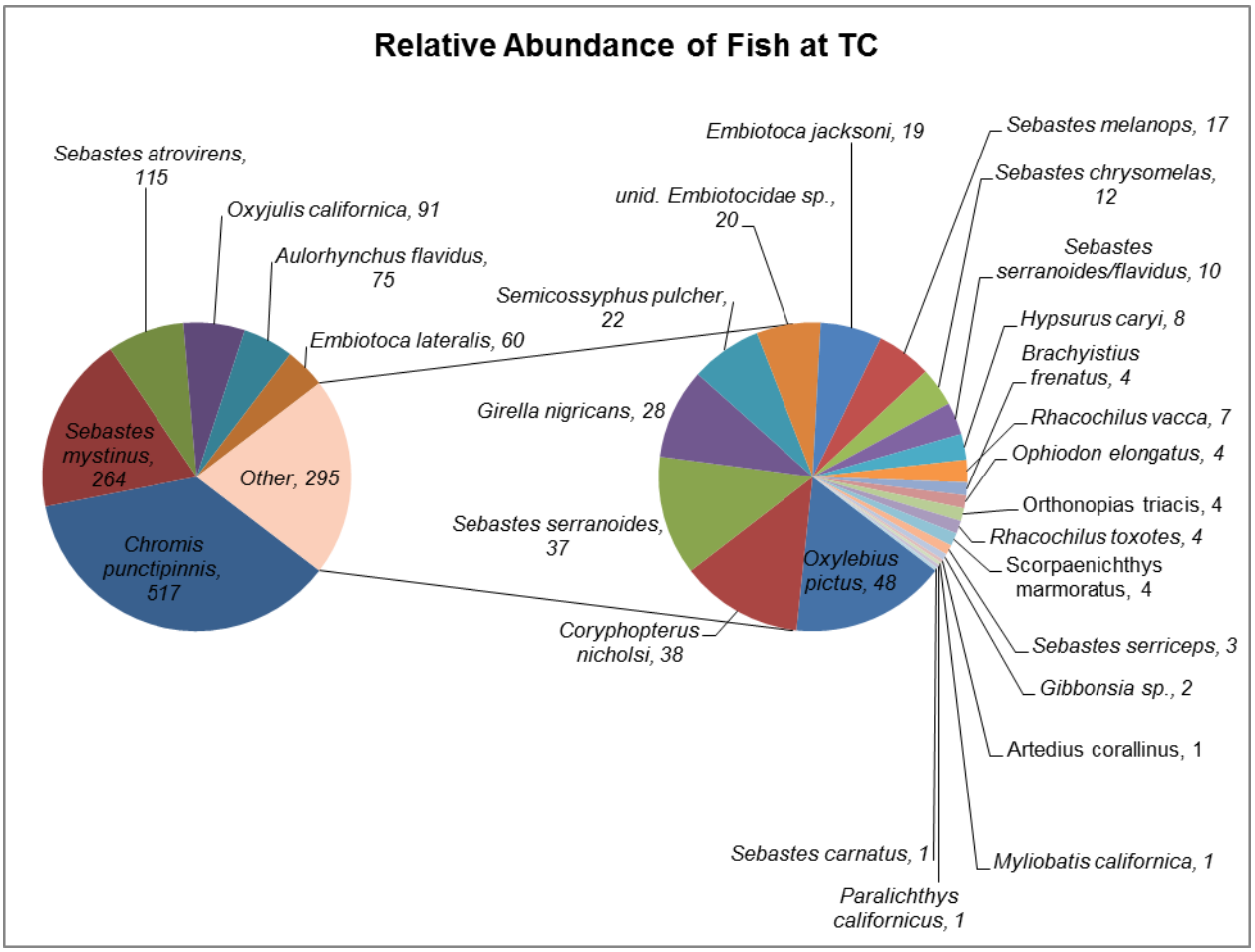
Species	Max Count	Species	Max Count
Alloclinus holderi	2	Orthonopias triacis	2
Artedius corallinus	1	Oxyjulis californica, adult	8
Chromis punctipinnis, adult	193	Oxylebius pictus	22
Coryphopterus nicholsi	110	Paralabrax clathratus, adult	5
Embiotoca jacksoni, adult	3	Paralichthys californicus	1
Girella nigricans, adult	2	Scorpaenichthys marmoratus, adult	1
Hypsypops rubicundus, adult	11	Sebastes mystinus, juvenile	1
Hypsypops rubicundus, juvenile	1	Semicossyphus pulcher, female	11
Medialuna californiensis, adult	2	Stereolepis gigas, adult	1
Neoclinus sp.	1		



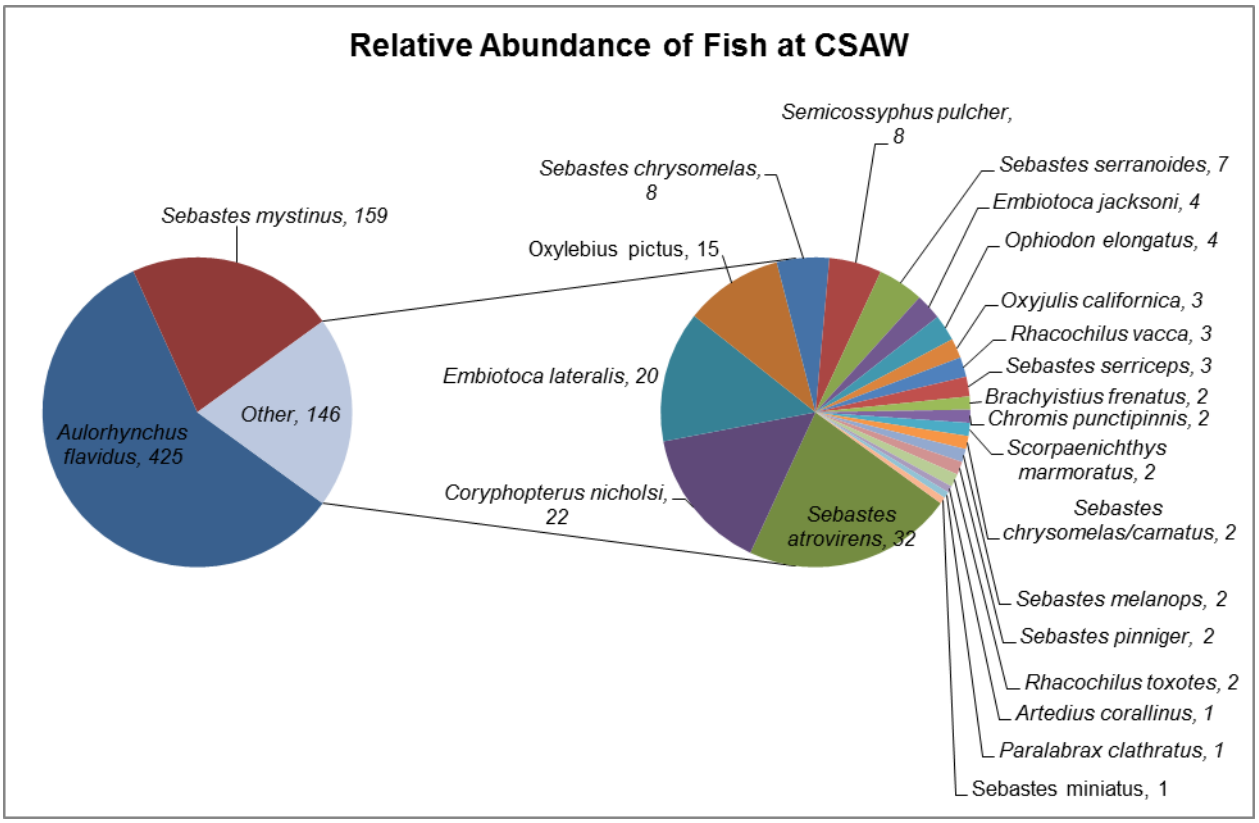
Species	Max Count	Species	Max Count
Aulorhynchus flavidus, adult	357	Scorpaenichthys marmoratus, adult	1
Coryphopterus nicholsi	1	Sebastes atrovirens, adult	17
Embiotoca jacksoni, adult	11	Sebastes chrysomelas, adult	5
Embiotoca lateralis, adult	17	Sebastes chrysomelas/carnatus, juvenile	3
Embiotoca lateralis, juvenile	2	Sebastes melanops, adult	6
Hexagrammos decagrammus	1	Sebastes miniatus, adult	2
Ophiodon elongatus, adult	2	Sebastes mystinus, adult	15
Orthonopias triacis	1	Sebastes mystinus, juvenile	9
Oxyjulis californica, adult	17	Sebastes pinniger, juvenile	1
Oxylebius pictus	10	Sebastes serranoides, adult	1
Rhacochilus vacca, adult	2	Semicossyphus pulcher, female	1



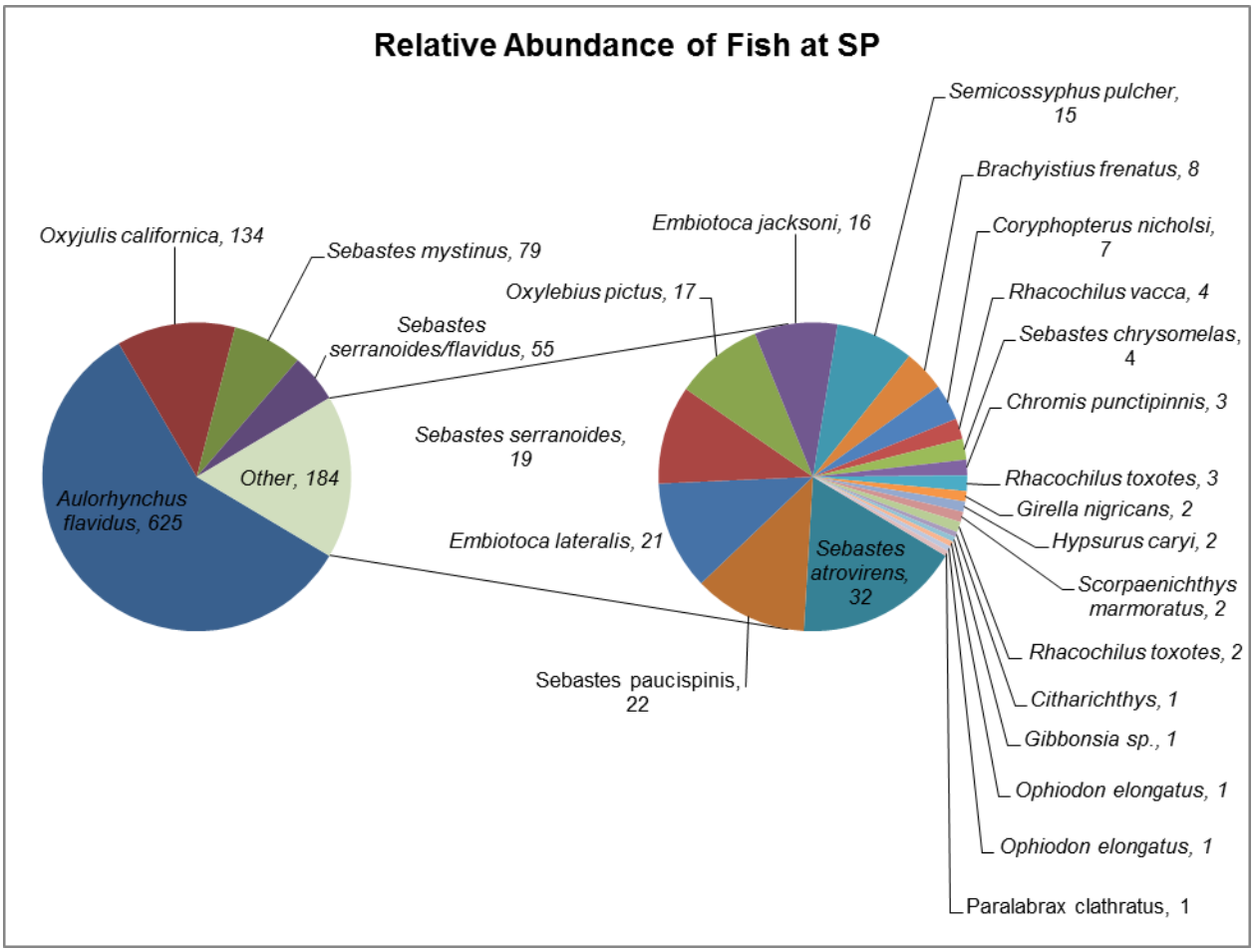
Species	Max Count	Species	Max Count
Anarrhichthys ocellatus	2	Sebastes atrovirens, adult	34
Artedius corallinus	2	Sebastes carnatus, adult	2
Chromis punctipinnis, adult	1	Sebastes chrysomelas, adult	9
Coryphopterus nicholsi	9	Sebastes chrysomelas/carnatus, juvenile	1
Embiotoca jacksoni, adult	9	Sebastes melanops, adult	23
Embiotoca lateralis, adult	19	Sebastes miniatus, adult	1
Gibbonsia sp.	1	Sebastes mystinus, adult	135
Hexagrammos decagrammus	1	Sebastes mystinus, juvenile	93
Ophiodon elongatus, adult	2	Sebastes serranoides, adult	11
Orthonopias triacis	3	Sebastes serriceps, adult	5
Oxylebius pictus	14	Semicossyphus pulcher, female	4
Rhacochilus vacca, adult	1	Semicossyphus pulcher, male	4
Scorpaenichthys marmoratus, adult	1		



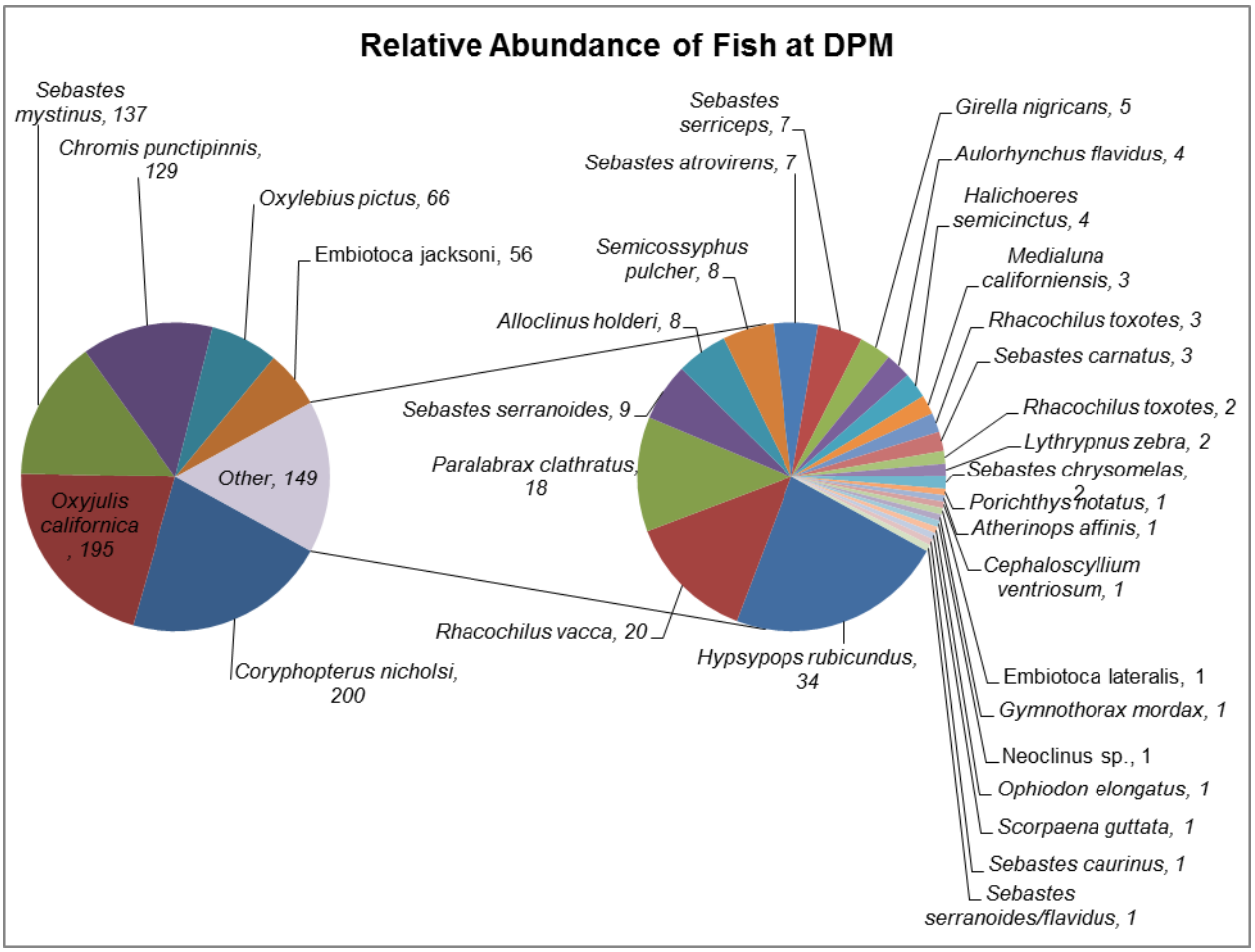
Species	Max Count	Species	Max Count
Artedius corallinus	1	Rhacochilus toxotes	4
Aulorhynchus flavidus, adult	75	Rhacochilus vacca, adult	4
Brachyistius frenatus	4	Rhacochilus vacca, juvenile	3
Chromis punctipinnis, adult	517	Scorpaenichthys marmoratus, adult	4
Coryphopterus nicholsi	38	Sebastes atrovirens, adult	115
Embiotoca jacksoni, adult	15	Sebastes carnatus, adult	1
Embiotoca jacksoni, juvenile	4	Sebastes chrysomelas, adult	12
Embiotoca lateralis, adult	36	Sebastes melanops, adult	17
Embiotoca lateralis, juvenile	24	Sebastes mystinus, adult	94
Gibbonsia sp.	2	Sebastes mystinus, juvenile	170
Girella nigricans, adult	28	Sebastes serranoides, adult	37
Hypsurus caryi	8	Sebastes serranoides/flavidus, juvenile	10
Myliobatis californica	1	Sebastes serriceps, adult	2
Ophiodon elongatus, adult	4	Sebastes serriceps, juvenile	1
Orthonopias triacis	4	Semicossyphus pulcher, female	10
Oxyjulis californica, adult	91	Semicossyphus pulcher, juvenile	10
Oxylebius pictus	48	Semicossyphus pulcher, male	2
Paralichthys californicus	1	unid. Embiotocidae, juvenile	20



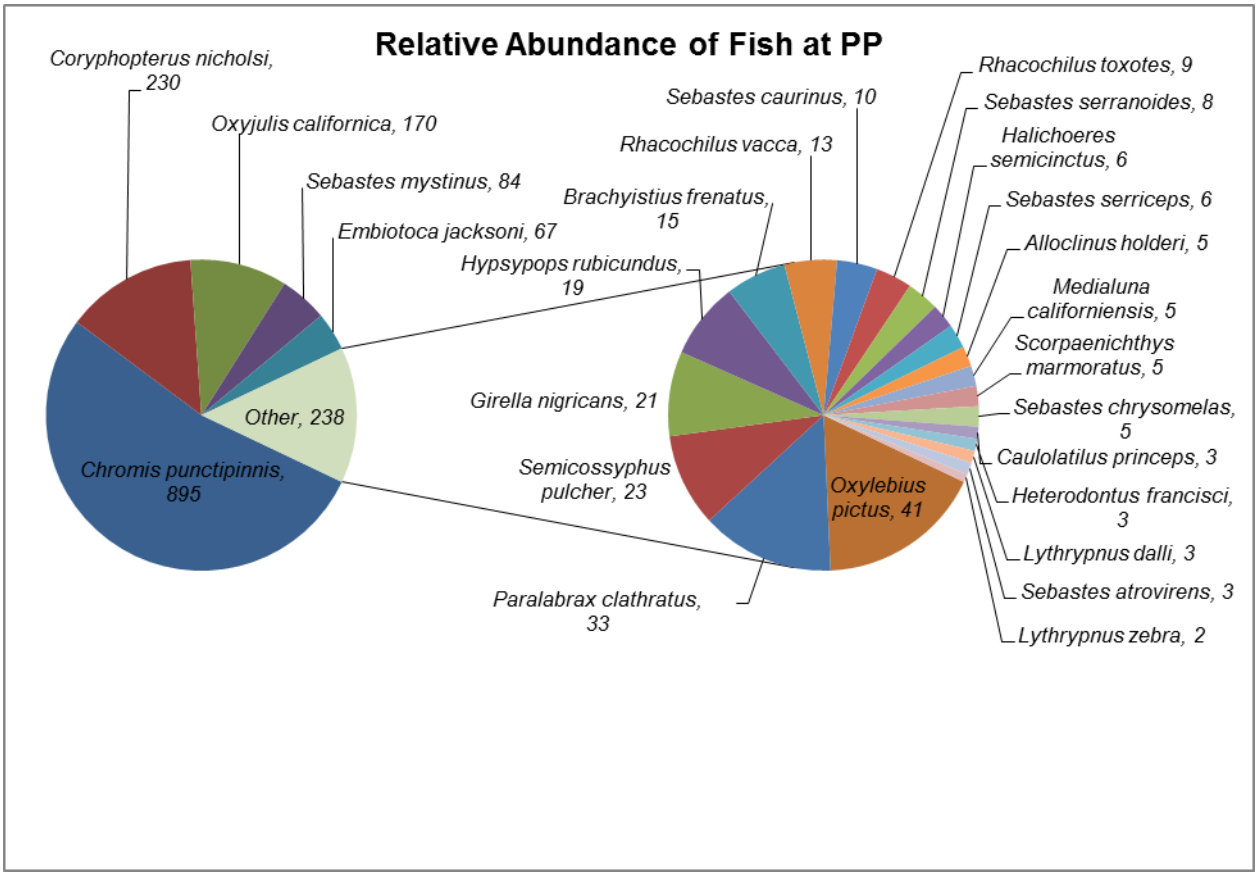
Species	Max Count	Species	Max Count
Artedius corallinus	1	Sebastes atrovirens, adult	31
Aulorhynchus flavidus, adult	425	Sebastes atrovirens, juvenile	1
Brachyistius frenatus	2	Sebastes chrysomelas, adult	8
Chromis punctipinnis, adult	2	Sebastes chrysomelas/carnatus, juvenile	2
Coryphopterus nicholsi	22	Sebastes melanops, adult	2
Embiotoca jacksoni, adult	4	Sebastes miniatus, adult	1
Embiotoca lateralis, adult	13	Sebastes mystinus, adult	105
Embiotoca lateralis, juvenile	7	Sebastes mystinus, juvenile	54
Ophiodon elongatus, adult	4	Sebastes pinniger, juvenile	2
Oxyjulis californica, adult	3	Sebastes serranoides, adult	7
Oxylebius pictus	15	Sebastes serranoides/flavidus, juvenile	2
Paralabrax clathratus, adult	1	Sebastes serriceps, adult	3
Rhacochilus vacca, adult	3	Semicossyphus pulcher, female	5
Scorpaenichthys marmoratus, adult	2	Semicossyphus pulcher, male	3



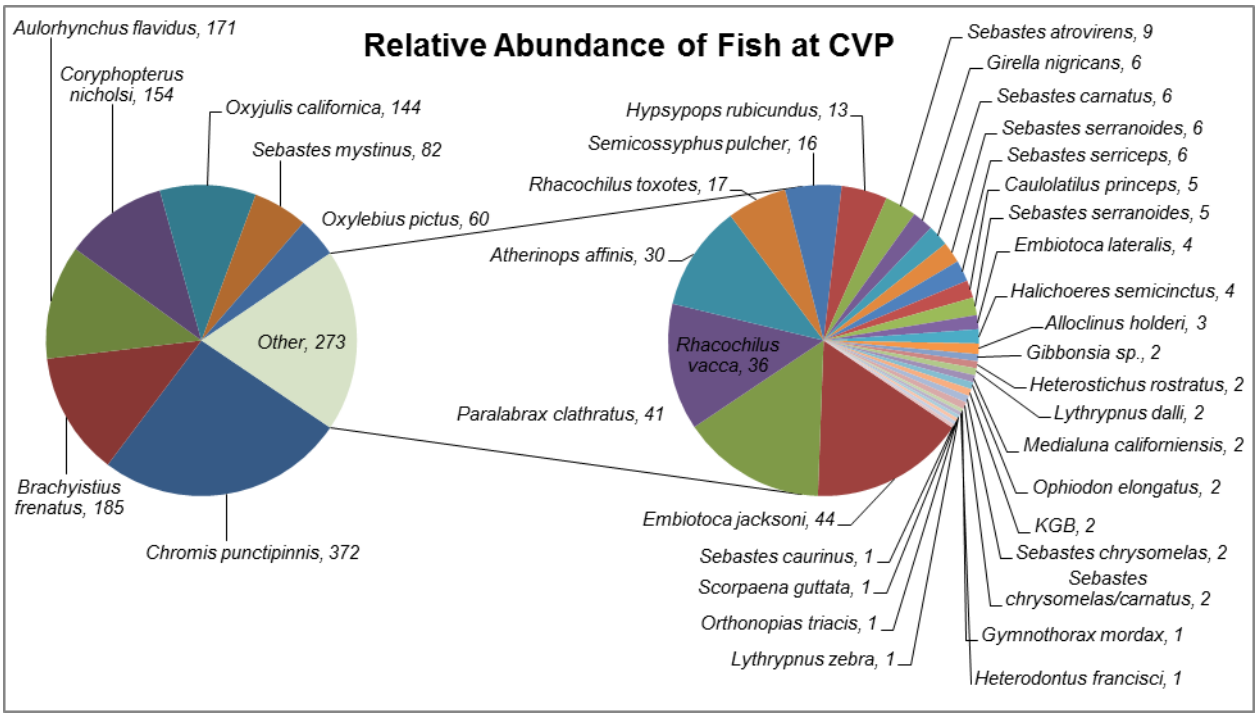
Species	Max Count	Species	Max Count
Aulorhynchus flavidus, adult	625	Oxyjulis californica, adult	134
Brachyistius frenatus	8	Oxylebius pictus	17
Chromis punctipinnis, adult	3	Paralabrax clathratus, adult	1
Citharichthys sp.	1	Rhacochilus toxotes	3
Coryphopterus nicholsi	7	Rhacochilus vacca, adult	4
Embiotoca jacksoni, adult	5	Scorpaenichthys marmoratus, adult	2
Embiotoca jacksoni, juvenile	11	Sebastes atrovirens, adult	32
Embiotoca lateralis, adult	15	Sebastes chrysomelas, adult	4
Embiotoca lateralis, juvenile	6	Sebastes mystinus, adult	25
Gibbonsia spp.	1	Sebastes mystinus, juvenile	54
Girella nigricans, adult	2	Sebastes paucispinis, juvenile	22
Hexagrammos decagrammus	1	Sebastes serranoides, adult	19
Hypsurus caryi	2	Sebastes serranoides/flavidus, juvenile	55
KGB	2	Semicossyphus pulcher, female	10
Ophiodon elongatus, adult	1	Semicossyphus pulcher, male	5



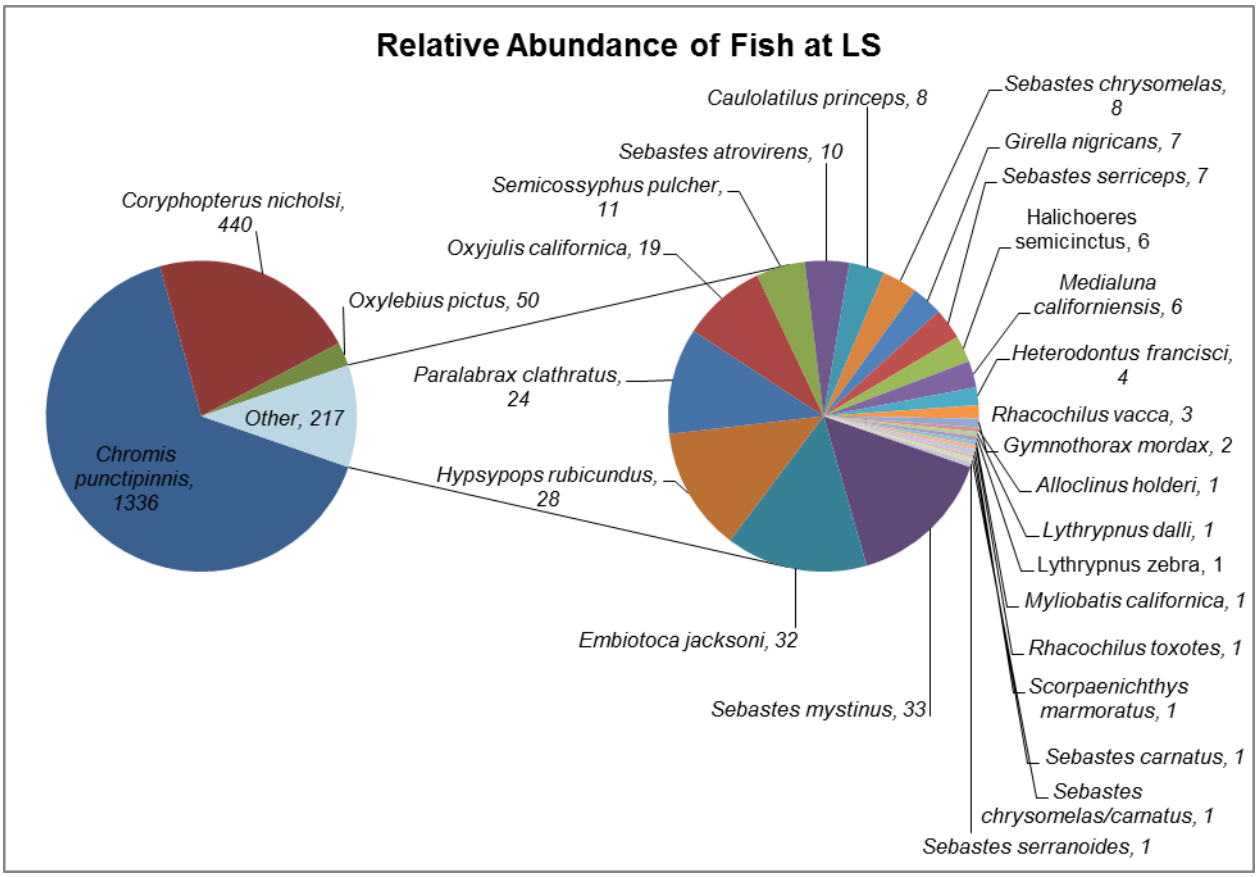
Species	Max Count	Species	Max Count
Alloclinus holderi	8	Ophiodon elongatus, adult	1
Artedius corallinus	1	Oxyjulis californica, adult	145
Atherinops affinis	1	Oxyjulis californica, juvenile	50
Aulorhynchus flavidus, juvenile	4	Oxylebius pictus	66
Cephaloscyllium ventriosum	1	Paralabrax clathratus, adult	18
Chromis punctipinnis, adult	114	Rhacochilus toxotes	3
Chromis punctipinnis, juvenile	15	Rhacochilus vacca, adult	10
Coryphopterus nicholsi	200	Rhacochilus vacca, juvenile	10
Embiotoca jacksoni, adult	41	Scorpaena guttata, adult	1
Embiotoca jacksoni, juvenile	15	Sebastes atrovirens, adult	7
Embiotoca lateralis, adult	1	Sebastes carnatus, adult	3
Girella nigricans, adult	5	Sebastes caurinus, adult	1
Gymnothorax mordax	1	Sebastes chrysomelas, adult	2
Halichoeres semicinctus, female	3	Sebastes mystinus, adult	71
Halichoeres semicinctus, male	1	Sebastes mystinus, juvenile	66
Hypsypops rubicundus, adult	34	Sebastes serranoides, adult	9
Lythrypnus dalli	2	Sebastes serranoides/flavidus, juvenile	1
Lythrypnus zebra	2	Sebastes serriceps, adult	7
Medialuna californiensis, adult	3	Semicossyphus pulcher, female	8
Neoclinus sp.	1		



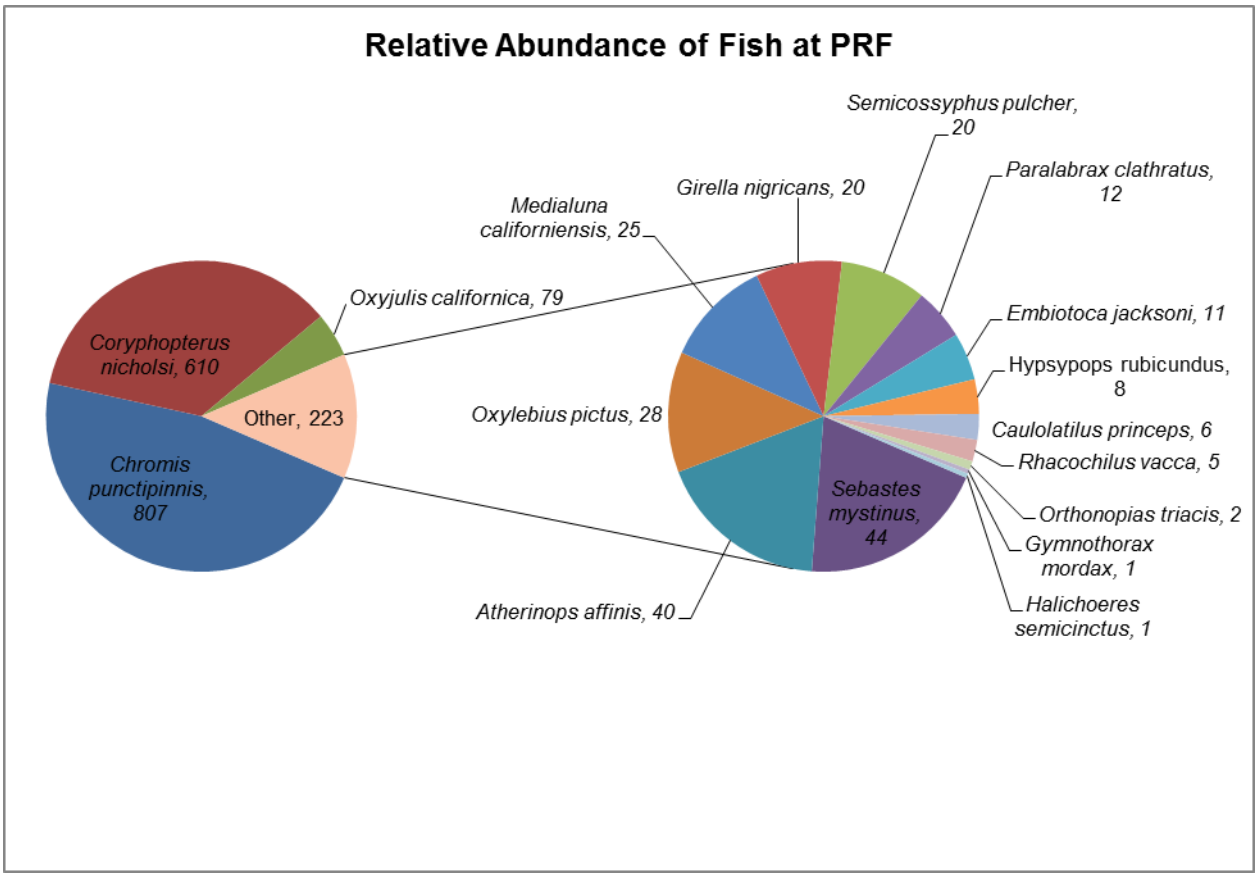
Species	Max Count	Species	Max Count
Alloclinus holderi	5	Oxylebius pictus	41
Artedius corallinus	1	Paralabrax clathratus, adult	31
Brachyistius frenatus	15	Paralabrax clathratus, juvenile	2
Caulolatilus princeps, adult	3	Rhacochilus toxotes	9
Chromis punctipinnis, adult	520	Rhacochilus vacca, adult	13
Chromis punctipinnis, juvenile	375	Scorpaena guttata, adult	1
Coryphopterus nicholsi	230	Scorpaenichthys marmoratus, adult	5
Embiotoca jacksoni, adult	47	Sebastes atrovirens, adult	2
Embiotoca jacksoni, juvenile	20	Sebastes atrovirens, juvenile	1
Girella nigricans, adult	21	Sebastes auriculatus, adult	2
Gymnothorax mordax	1	Sebastes carnatus, adult	2
Halichoeres semicinctus, female	2	Sebastes caurinus, adult	9
Halichoeres semicinctus, juvenile	2	Sebastes caurinus, juvenile	1
Halichoeres semicinctus, male	2	Sebastes chrysomelas, adult	5
Heterodontus francisci	3	Sebastes melanops, adult	1
Heterostichus rostratus, juvenile	1	Sebastes mystinus, adult	21
Hypsypops rubicundus, adult	19	Sebastes mystinus, juvenile	63
KGB	1	Sebastes serranoides, adult	8
Lythrypnus dalli	3	Sebastes serriceps, adult	5
Lythrypnus zebra	2	Sebastes serriceps, juvenile	1
Medialuna californiensis, adult	5	Semicossyphus pulcher, female	21
Oxyjulis californica, adult	149	Semicossyphus pulcher, male	2
Oxyjulis californica, juvenile	21		



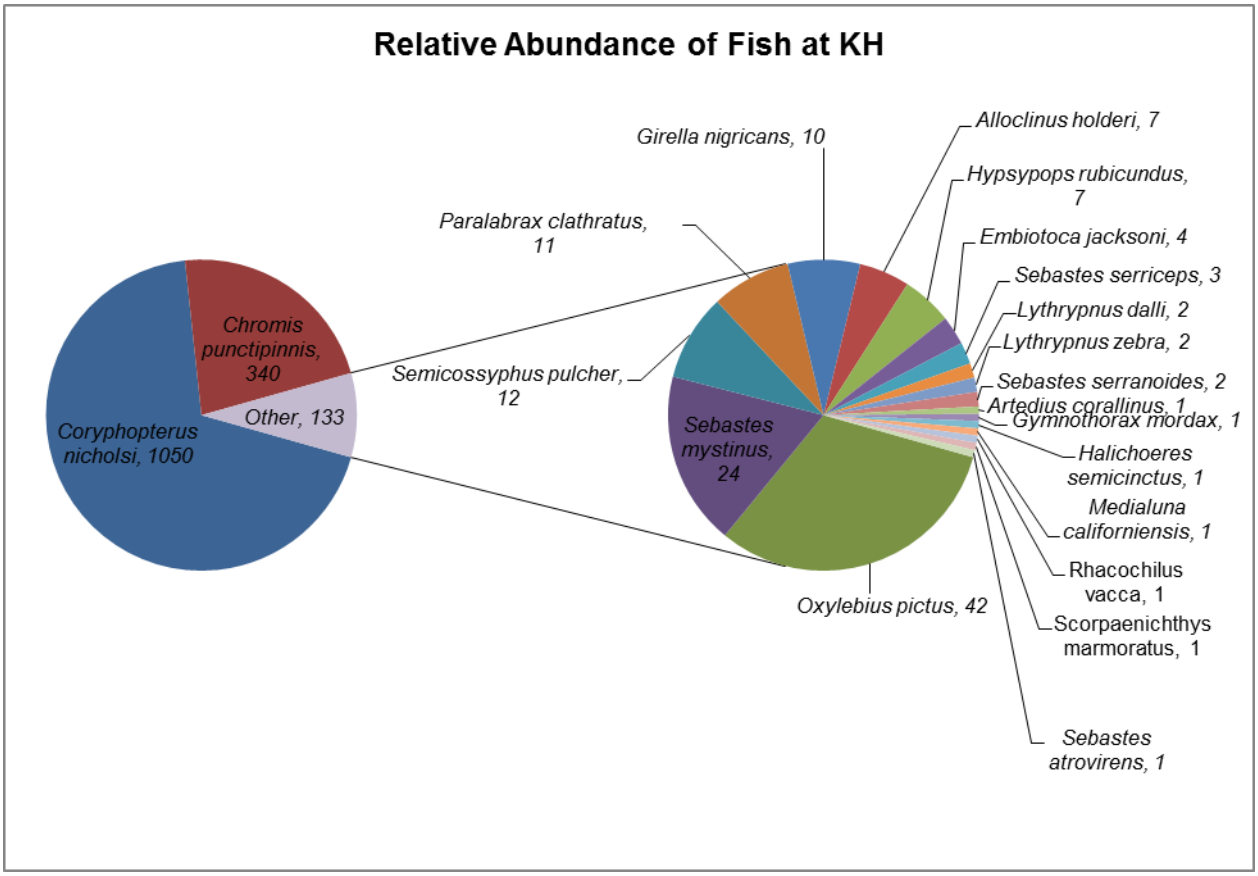
Species	Max Count	Species	Max Count
Alloclinus holderi	3	Ophiodon elongatus, adult	2
Atherinops affinis	30	Orthonopias triacis	1
Aulorhynchus flavidus	1	Oxyjulis californica, adult	90
Aulorhynchus flavidus, adult	170	Oxyjulis californica, juvenile	54
Brachyistius frenatus	185	Oxylebius pictus	60
Caulolatilus princeps, adult	5	Paralabrax clathratus, adult	32
Chromis punctipinnis, adult	87	Paralabrax clathratus, juvenile	9
Chromis punctipinnis, juvenile	285	Rhacochilus toxotes	17
Coryphopterus nicholsi	154	Rhacochilus vacca, adult	31
Embiotoca jacksoni, adult	31	Rhacochilus vacca, juvenile	5
Embiotoca jacksoni, juvenile	13	Scorpaena guttata, adult	1
Embiotoca lateralis, adult	3	Sebastes atrovirens, adult	9
Embiotoca lateralis, juvenile	1	Sebastes carnatus, adult	6
Gibbonsia sp.	2	Sebastes caurinus, juvenile	1
Girella nigricans, adult	6	Sebastes chrysomelas, adult	2
Gymnothorax mordax	1	Sebastes chrysomelas/carnatus, juvenile	2
Halichoeres semicinctus, female	3	Sebastes mystinus, adult	42
Halichoeres semicinctus, male	1	Sebastes mystinus, juvenile	40
Heterodontus francisci	1	Sebastes serranoides, adult	6
Heterostichus rostratus, juvenile	2	Sebastes serranoides/flavidus, juvenile	5
Hypsypops rubicundus, adult	13	Sebastes serriceps, adult	2
KGB	2	Sebastes serriceps, juvenile	4
Lythrypnus dalli	2	Semicossyphus pulcher, female	14
Lythrypnus zebra	1	Semicossyphus pulcher, juvenile	1
Medialuna californiensis, adult	2	Semicossyphus pulcher, male	1



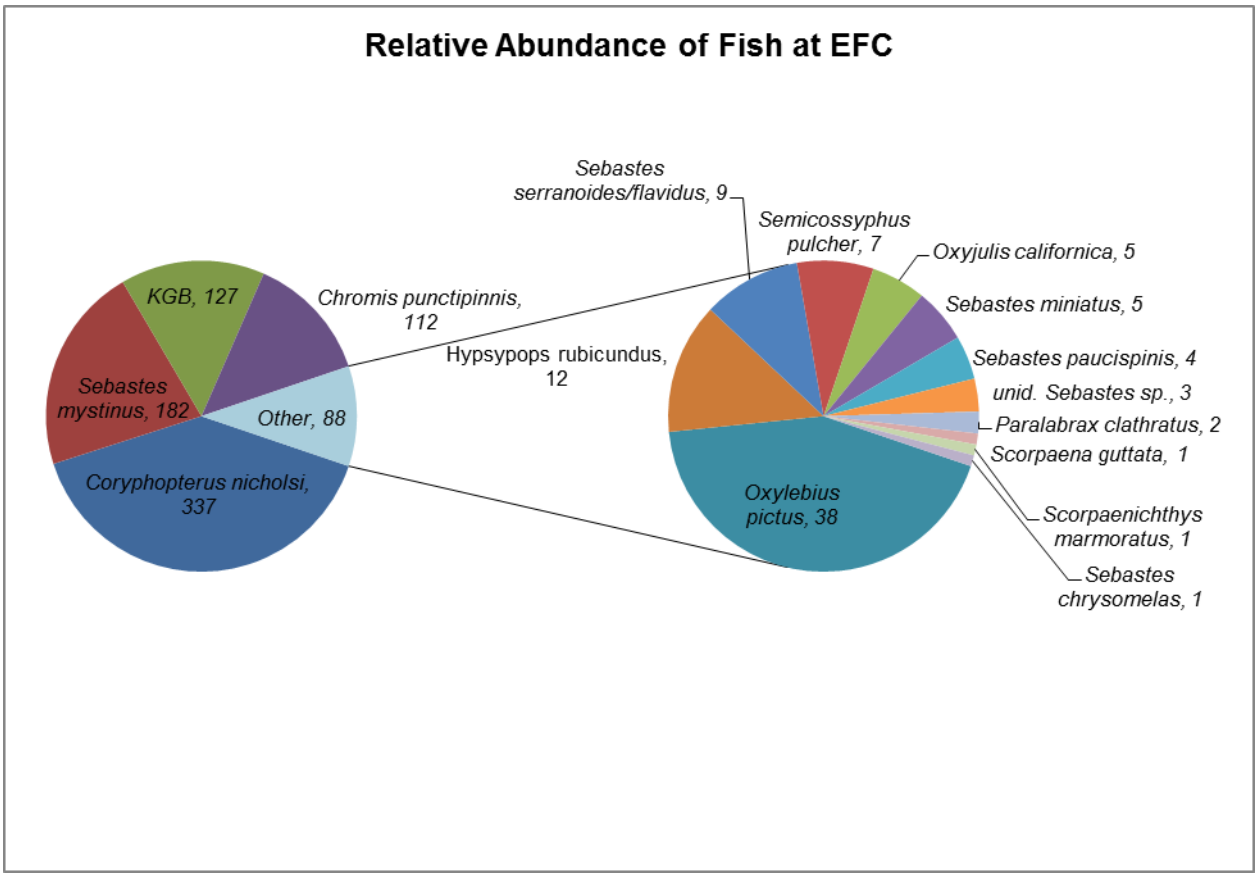
Species	Max Count	Species	Max Count
Alloclinus holderi	1	Oxyjulis californica, adult	8
Caulolatilus princeps, adult	8	Oxyjulis californica, juvenile	11
Chromis punctipinnis, adult	486	Oxylebius pictus	50
Chromis punctipinnis, juvenile	850	Paralabrax clathratus, adult	23
Coryphopterus nicholsi	440	Paralabrax clathratus, juvenile	1
Embiotoca jacksoni, adult	29	Rhacochilus toxotes	1
Embiotoca jacksoni, juvenile	3	Rhacochilus vacca, adult	3
Girella nigricans, adult	7	Scorpaenichthys marmoratus, adult	1
Gymnothorax mordax	2	Sebastes atrovirens, adult	10
Halichoeres semicinctus, female	4	Sebastes carnatus, adult	1
Halichoeres semicinctus, male	2	Sebastes chrysomelas, adult	8
Heterodontus francisci	4	Sebastes chrysomelas/carnatus, juvenile	1
Hypsypops rubicundus, adult	28	Sebastes mystinus, adult	9
Lythrypnus dalli	1	Sebastes mystinus, juvenile	24
Lythrypnus zebra	1	Sebastes serranoides, adult	1
Medialuna californiensis, adult	6	Sebastes serriceps, adult	7
Myliobatis californica	1	Semicossyphus pulcher, female	11



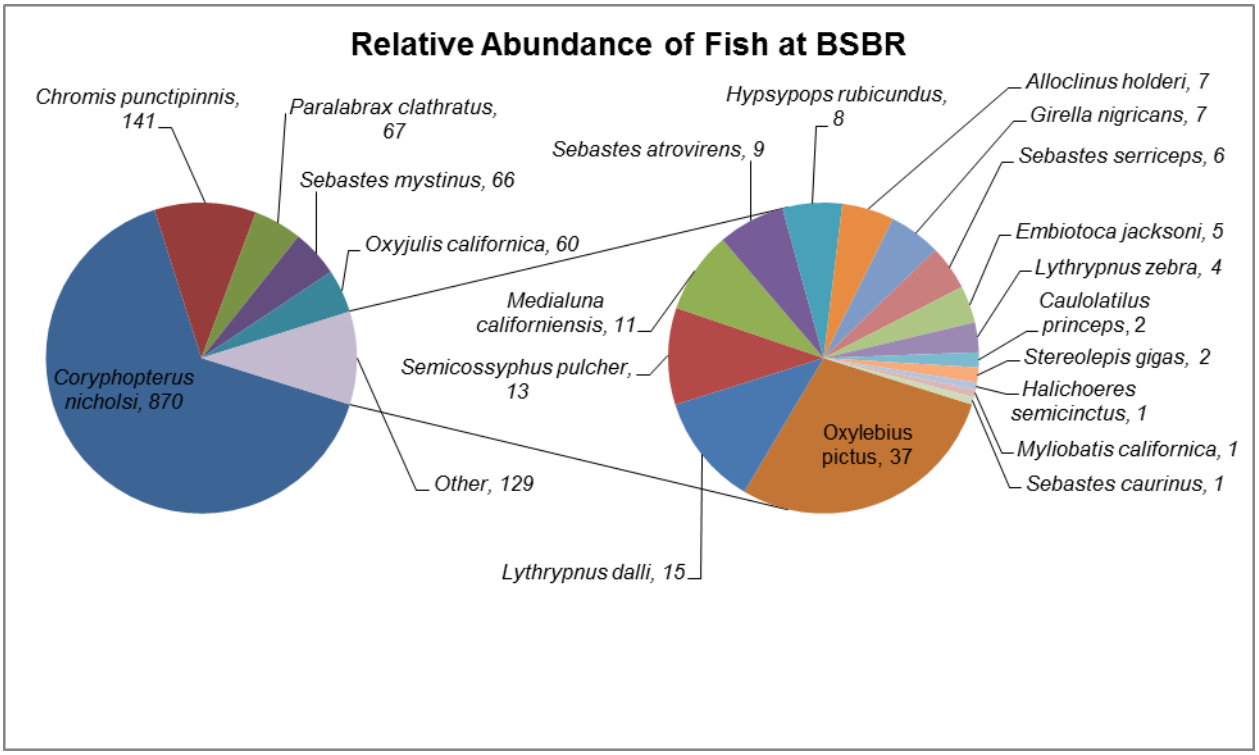
Species	Max Count	Species	Max Count
Atherinops affinis	40	Myliobatis californica	1
Caulolatilus princeps, adult	6	Neoclinus sp.	1
Chromis punctipinnis, adult	712	Orthonopias triacis	2
Chromis punctipinnis, juvenile	95	Oxyjulis californica, adult	72
Coryphopterus nicholsi	610	Oxyjulis californica, juvenile	7
Embiotoca jacksoni, adult	11	Oxylebius pictus	28
Girella nigricans, adult	20	Paralabrax clathratus, adult	12
Gymnothorax mordax	1	Rhacochilus vacca, adult	5
Halichoeres semicinctus, juvenile	1	Scorpaena guttata, adult	1
Hexagrammos decagrammus	1	Scorpaenichthys marmoratus, adult	1
Hypsypops rubicundus, adult	6	Sebastes miniatus, juvenile	1
Hypsypops rubicundus, juvenile	2	Sebastes mystinus, adult	12
Lythrypnus dalli	1	Sebastes mystinus, juvenile	32
Lythrypnus zebra	1	Semicossyphus pulcher, female	19
Medialuna californiensis, adult	25	Semicossyphus pulcher, male	1



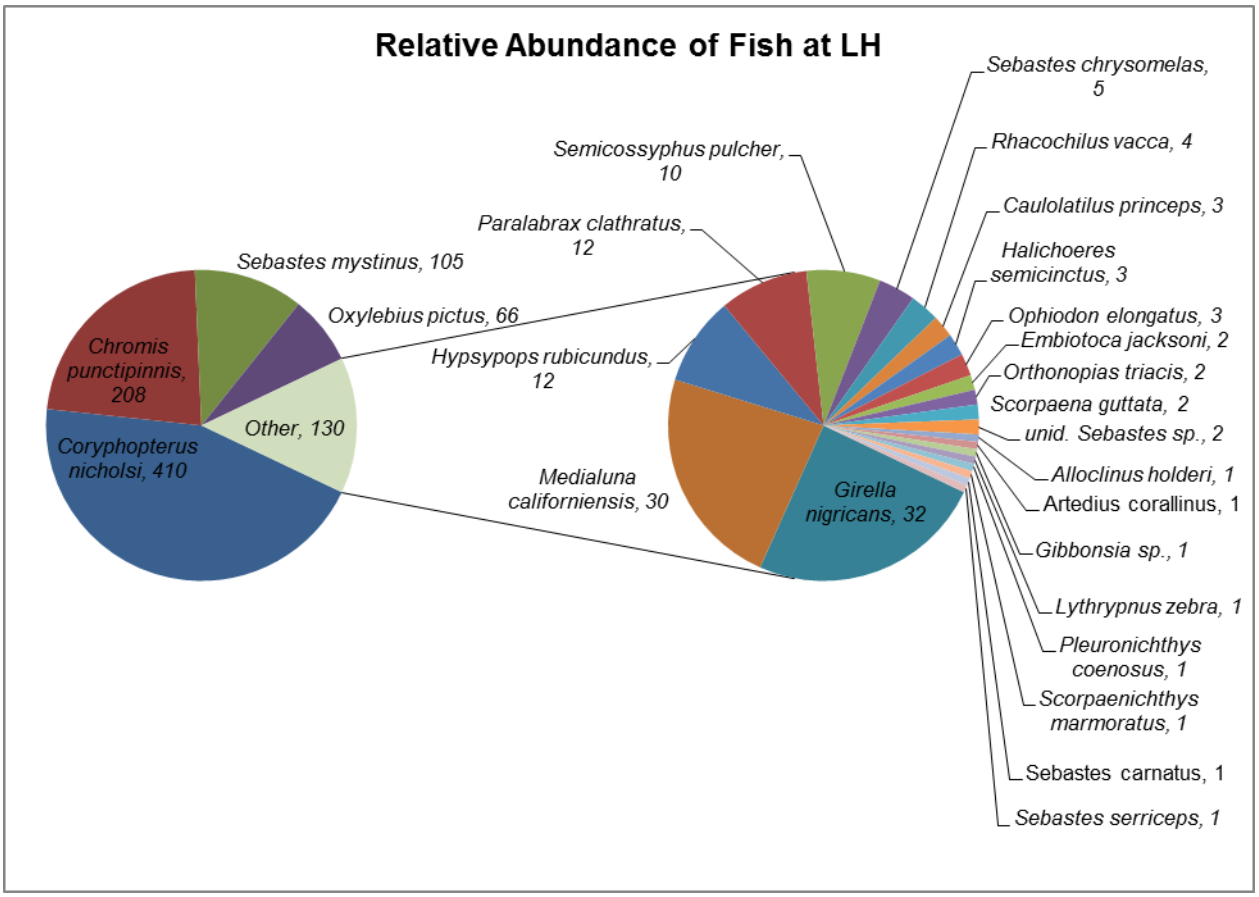
Species	Max Count	Species	Max Count
Alloclinus holderi	7	Medialuna californiensis, adult	1
Artedius corallinus	1	Oxylebius pictus	42
Chromis punctipinnis, adult	340	Paralabrax clathratus, adult	11
Coryphopterus nicholsi	1050	Rhacochilus vacca, adult	1
Embiotoca jacksoni, adult	2	Scorpaenichthys marmoratus, adult	1
Embiotoca jacksoni, juvenile	2	Sebastes atrovirens, adult	1
Girella nigricans, adult	10	Sebastes mystinus, adult	3
Gymnothorax mordax	1	Sebastes mystinus, juvenile	21
Halichoeres semicinctus, male	1	Sebastes serranoides, adult	2
Hypsypops rubicundus, adult	7	Sebastes serriceps, adult	3
Lythrypnus dalli	2	Semicossyphus pulcher, female	9
Lythrypnus zebra	2	Semicossyphus pulcher, male	3



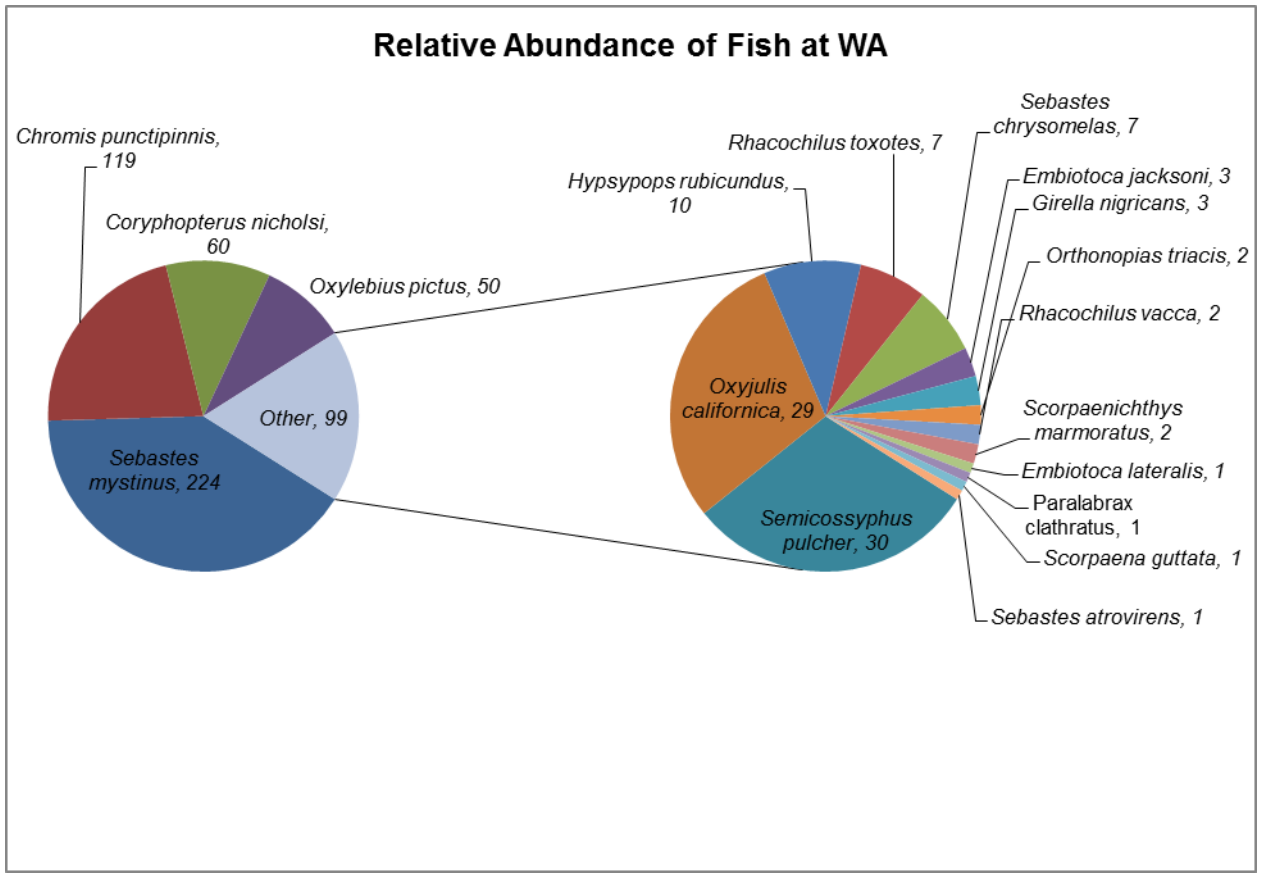
Species	Max Count	Species	Max Count
Chromis punctipinnis, adult	112	Scorpaenichthys marmoratus, adult	1
Coryphopterus nicholsi	337	Sebastes chrysomelas, adult	1
Hypsypops rubicundus, adult	12	Sebastes miniatus, juvenile	5
KGB	127	Sebastes mystinus, adult	3
Oxyjulis californica, adult	4	Sebastes mystinus, juvenile	179
Oxyjulis californica, juvenile	1	Sebastes paucispinis, juvenile	4
Oxylebius pictus	38	Sebastes serranoides/flavidus, juvenile	9
Paralabrax clathratus, adult	2	Sebastes spp.	3
Scorpaena guttata, adult	1	Semicossyphus pulcher, female	7



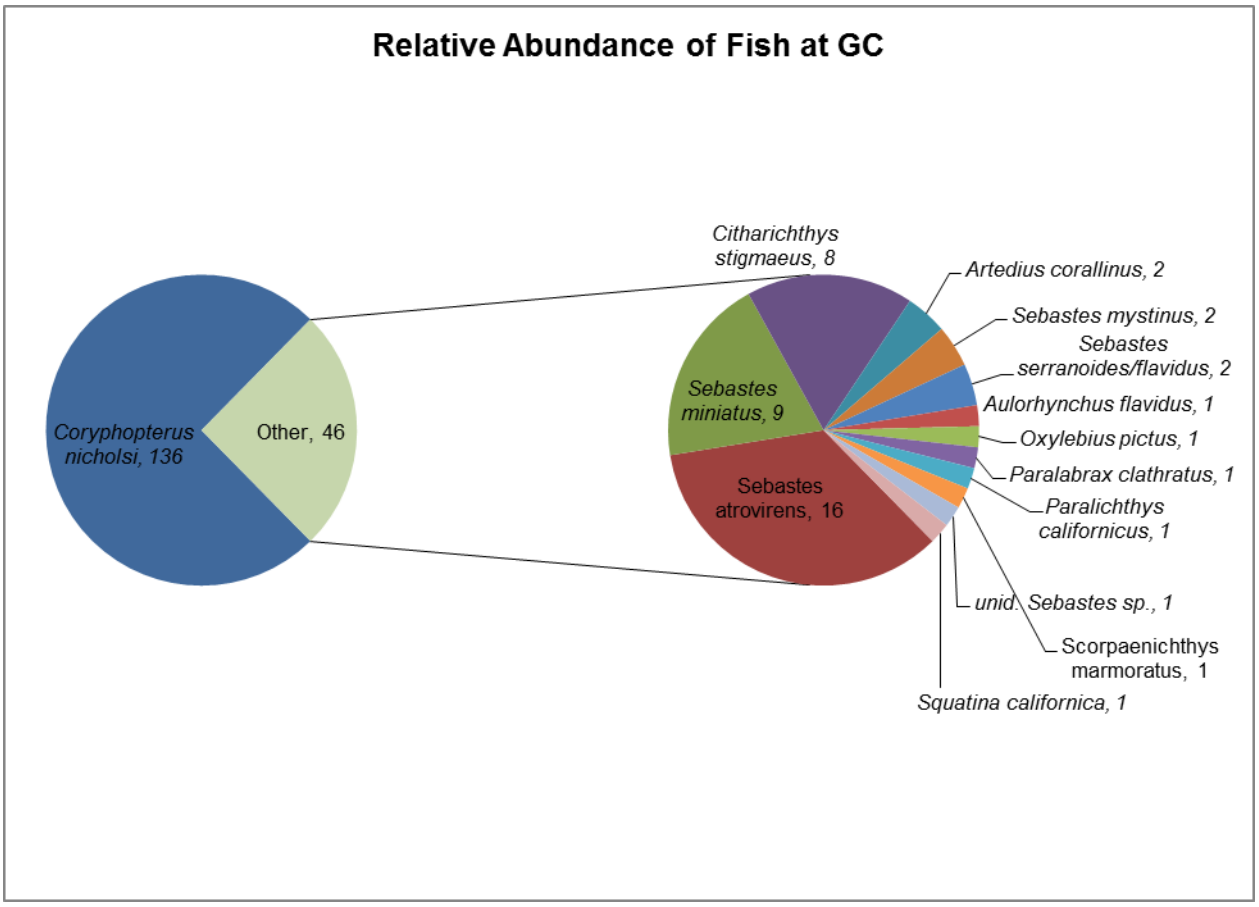
Species	Max Count	Species	Max Count
Alloclinus holderi	7	Myliobatis californica	1
Caulolatilus princeps, adult	2	Oxyjulis californica, adult	60
Chromis punctipinnis, adult	140	Oxylebius pictus	37
Chromis punctipinnis, juvenile	1	Paralabrax clathratus, adult	67
Coryphopterus nicholsi	870	Sebastes atrovirens, adult	9
Embiotoca jacksoni, adult	5	Sebastes caurinus, juvenile	1
Girella nigricans, adult	7	Sebastes mystinus, juvenile	66
Halichoeres semicinctus, male	1	Sebastes serriceps, adult	6
Hypsypops rubicundus, adult	8	Semicossyphus pulcher, female	12
Lythrypnus dalli	15	Semicossyphus pulcher, male	1
Lythrypnus zebra	4	Stereolepis gigas, adult	2
Medialuna californiensis, adult	11		



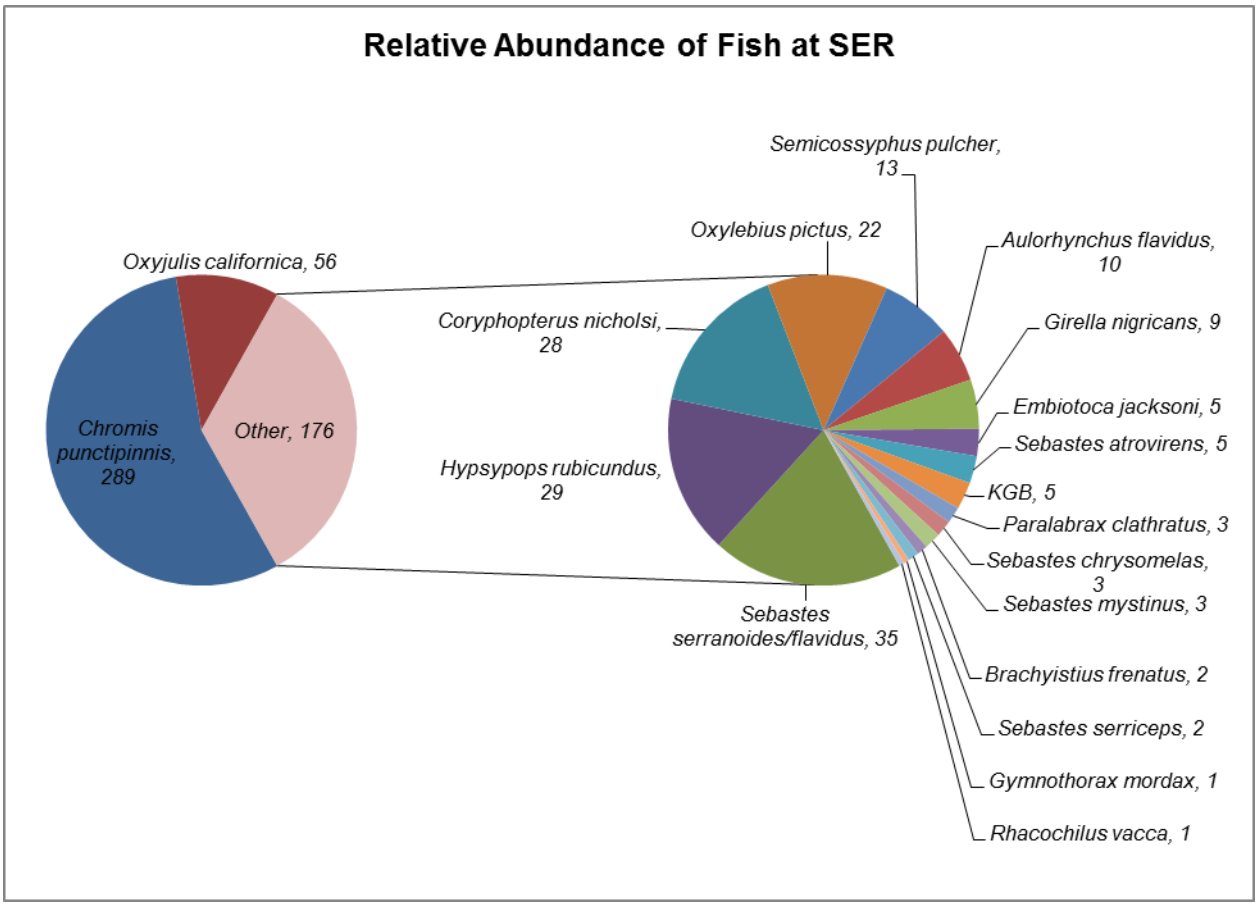
Species	Max Count	Species	Max Count
Alloclinus holderi	1	Oxylebius pictus	66
Artedius corallinus	1	Paralabrax clathratus, adult	12
Caulolatilus princeps, adult	3	Pleuronichthys coenosus	1
Chromis punctipinnis, adult	208	Rhacochilus vacca, adult	4
Coryphopterus nicholsi	410	Scorpaena guttata, adult	2
Embiotoca jacksoni, adult	2	Scorpaenichthys marmoratus, adult	1
Gibbonsia spp.	1	Sebastes carnatus, adult	1
Girella nigricans, adult	32	Sebastes chrysomelas, adult	5
Halichoeres semicinctus, female	2	Sebastes mystinus, adult	18
Halichoeres semicinctus, male	1	Sebastes mystinus, juvenile	87
Hypsypops rubicundus, adult	12	Sebastes serriceps, adult	1
Lythrypnus zebra	1	Semicossyphus pulcher, female	9
Medialuna californiensis, adult	30	Semicossyphus pulcher, juvenile	1
Ophiodon elongatus, adult	3	unid. Sebastes spp., juvenile	2
Orthonopias triacis	2		



Species	MaxCount	Species	MaxCount
Chromis punctipinnis, adult	119	Rhacochilus toxotes	7
Coryphopterus nicholsi	60	Rhacochilus vacca, adult	2
Embiotoca jacksoni, adult	2	Scorpaena guttata, adult	1
Embiotoca jacksoni, juvenile	1	Scorpaenichthys marmoratus, adult	2
Embiotoca lateralis, adult	1	Sebastes atrovirens, adult	1
Girella nigricans, adult	3	Sebastes chrysomelas, adult	7
Hypsypops rubicundus, adult	10	Sebastes mystinus, adult	2
Orthonopias triacis	2	Sebastes mystinus, juvenile	222
Oxyjulis californica, adult	29	Semicossyphus pulcher, female	25
Oxylebius pictus	50	Semicossyphus pulcher, male	5
Paralabrax clathratus, adult	1		



Species	Max Count	Species	Max Count
Artedius corallinus	2	Scorpaenichthys marmoratus, adult	1
Aulorhynchus flavidus, adult	1	Sebastes atrovirens, juvenile	16
Citharichthys stigmaeus	8	Sebastes miniatus, juvenile	9
Coryphopterus nicholsi	136	Sebastes mystinus, juvenile	2
Oxylebius pictus	1	Sebastes serranoides/flavidus, juvenile	2
Paralabrax clathratus, adult	1	Squatina californica	1
Paralichthys californicus	1	unid. Sebastes sp., juvenile	1



Species	Max Count	Species	Max Count
Aulorhynchus flavidus, adult	10	Oxylebius pictus	22
Brachyistius frenatus	2	Paralabrax clathratus, adult	3
Chromis punctipinnis, adult	289	Rhacochilus vacca, adult	1
Coryphopterus nicholsi	28	Sebastes atrovirens, adult	3
Embiotoca jacksoni, adult	4	Sebastes atrovirens, juvenile	2
Embiotoca jacksoni, juvenile	1	Sebastes chrysomelas, adult	3
Girella nigricans, adult	9	Sebastes mystinus, juvenile	3
Gymnothorax mordax	1	Sebastes serranoides/flavidus, juvenile	35
Hypsypops rubicundus, adult	29	Sebastes serriceps, adult	2
KGB	5	Semicossyphus pulcher, female	10
Oxyjulis californica, adult	56	Semicossyphus pulcher, male	3

Appendix J. Natural Habitat Size Frequencies Distributions

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Wyckoff Ledge

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	1.6 %
40 - 49	8.2 %
50 - 59	4.9 %
60 - 69	11.5 %
70 - 79	16.4 %
80 - 89	11.5 %
90 - 99	18.0 %
> 99	27.9 %
(Cases) N =	61
mean	86
min size (mm)	36
max size (mm)	132

Kelletia kelletii

< 40	0.0 %
40 - 49	4.5 %
50 - 59	0.0 %
60 - 69	4.5 %
70 - 79	11.9 %
80 - 89	41.8 %
90 - 99	31.3 %
100 - 109	6.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	67
mean	84
min size (mm)	44
max size (mm)	105

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	25.0 %
110 - 119	50.0 %
> 119	25.0 %
(Cases) N =	4
mean	114
min size (mm)	104
max size (mm)	120

Haliotis rufescens

<25	0.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	0.6 %
105 - 114	3.5 %
115 - 124	4.0 %
125 - 134	0.6 %
135 - 144	2.9 %
145 - 154	4.0 %
155 - 164	4.6 %
165 - 174	6.9 %
175 - 184	18.5 %
185 - 194	20.2 %
>195	32.9 %
(Cases) N =	173
mean	179
min size (mm)	103
max size (mm)	243

Lithopoma gibberosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	5.0 %
50 - 59	36.7 %
60 - 69	56.7 %
70 - 79	1.7 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	60
mean	60
min size (mm)	48
max size (mm)	71

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	8.3 %
40 - 49	16.7 %
50 - 59	33.3 %
60 - 69	8.3 %
70 - 79	16.7 %
80 - 89	8.3 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	8.3 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	12
mean	64
min size (mm)	38
max size (mm)	126

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Wyckoff Ledge

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	5.0 %
50 - 59	8.3 %
60 - 69	21.7 %
70 - 79	40.0 %
80 - 89	20.0 %
90 - 99	3.3 %
> 99	1.7 %
(Cases) N =	60
mean	72
min size (mm)	43
max size (mm)	101

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	9.8 %
60 - 79	25.5 %
80 - 99	27.5 %
100 - 119	25.5 %
120 - 139	11.8 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	51
mean	88
min size (mm)	41
max size (mm)	136

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	11.1 %
40 - 59	11.1 %
60 - 79	44.4 %
80 - 99	11.1 %
100 - 119	0.0 %
120 - 139	22.2 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	9
mean	78
min size (mm)	32
max size (mm)	132

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	1.0 %
10 - 14	1.9 %
15 - 19	2.9 %
20 - 24	5.2 %
25 - 29	1.4 %
30 - 34	2.4 %
35 - 39	3.3 %
40 - 44	4.3 %
45 - 49	5.7 %
50 - 54	4.3 %
55 - 59	2.9 %
60 - 64	6.7 %
65 - 69	3.8 %
70 - 74	6.7 %
75 - 79	2.9 %
80 - 84	7.6 %
85 - 89	7.6 %
90 - 94	7.6 %
95 - 99	7.1 %
100 - 104	4.3 %
105 - 109	4.8 %
> 109	5.7 %
(Cases) N =	210
mean	67
min size (mm)	6
max size (mm)	130

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	1.0 %
10 - 14	1.9 %
15 - 19	9.5 %
20 - 24	14.3 %
25 - 29	10.5 %
30 - 34	14.3 %
35 - 39	11.4 %
40 - 44	8.6 %
45 - 49	12.4 %
50 - 54	6.7 %
55 - 59	2.9 %
60 - 64	4.8 %
65 - 69	0.0 %
70 - 74	1.9 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	105
mean	37
min size (mm)	9
max size (mm)	74

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Hare Rock

Tethya aurantia

<10	0.0 %
10 - 19	1.8 %
20 - 29	7.1 %
30 - 39	8.9 %
40 - 49	19.6 %
50 - 59	23.2 %
60 - 69	17.9 %
70 - 79	16.1 %
80 - 89	1.8 %
90 - 99	1.8 %
> 99	1.8 %
(Cases) N =	56
mean	55
min size (mm)	18
max size (mm)	104

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	11.1 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	22.2 %
110 - 119	55.6 %
120 - 129	11.1 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	9
mean	109
min size (mm)	78
max size (mm)	120

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	100.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	1
mean	95
min size (mm)	95
max size (mm)	95

Haliotis rufescens

<25	100.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	0.0 %
155 - 164	0.0 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	1
mean	22
min size (mm)	22
max size (mm)	22

Lithopoma gibberosa

<10	0.0 %
10 - 19	9.4 %
20 - 29	21.9 %
30 - 39	1.6 %
40 - 49	1.6 %
50 - 59	14.1 %
60 - 69	51.6 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	64
mean	46
min size (mm)	15
max size (mm)	69

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	5.9 %
50 - 59	11.8 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	5.9 %
110 - 119	11.8 %
120 - 129	11.8 %
130 - 139	11.8 %
> 139	41.2 %
(Cases) N =	17
mean	124
min size (mm)	47
max size (mm)	165

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Hare Rock

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	1.5 %
30 - 39	12.3 %
40 - 49	24.6 %
50 - 59	27.7 %
60 - 69	21.5 %
70 - 79	10.8 %
80 - 89	1.5 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	65
mean	55
min size (mm)	28
max size (mm)	87

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	4.8 %
60 - 79	19.4 %
80 - 99	29.0 %
100 - 119	24.2 %
120 - 139	12.9 %
140 - 159	8.1 %
160 - 179	1.6 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	62
mean	98
min size (mm)	51
max size (mm)	162

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	3.5 %
40 - 59	10.5 %
60 - 79	8.8 %
80 - 99	15.8 %
100 - 119	19.3 %
120 - 139	14.0 %
140 - 159	8.8 %
160 - 179	1.8 %
180 - 199	0.0 %
200 - 219	5.3 %
220 - 239	1.8 %
240 - 259	5.3 %
260 - 279	3.5 %
280 - 299	1.8 %
> 299	0.0 %
(Cases) N =	57
mean	122
min size (mm)	22
max size (mm)	280

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	1.0 %
10 - 14	3.5 %
15 - 19	3.5 %
20 - 24	3.0 %
25 - 29	5.0 %
30 - 34	3.0 %
35 - 39	2.5 %
40 - 44	5.5 %
45 - 49	5.5 %
50 - 54	9.0 %
55 - 59	10.0 %
60 - 64	6.0 %
65 - 69	6.5 %
70 - 74	6.0 %
75 - 79	6.5 %
80 - 84	10.0 %
85 - 89	4.0 %
90 - 94	3.5 %
95 - 99	3.5 %
100 - 104	1.5 %
105 - 109	1.5 %
> 109	0.0 %
(Cases) N =	201
mean	57
min size (mm)	8
max size (mm)	109

Strongylocentrotus purpuratus

< 5	4.0 %
5 - 9	10.2 %
10 - 14	5.7 %
15 - 19	17.0 %
20 - 24	18.8 %
25 - 29	9.1 %
30 - 34	13.1 %
35 - 39	9.1 %
40 - 44	9.1 %
45 - 49	2.8 %
50 - 54	0.6 %
55 - 59	0.6 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	176
mean	27
min size (mm)	3
max size (mm)	55

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee North

Tethya aurantia

<10	0.0 %
10 - 19	3.3 %
20 - 29	4.9 %
30 - 39	9.8 %
40 - 49	11.5 %
50 - 59	8.2 %
60 - 69	8.2 %
70 - 79	14.8 %
80 - 89	18.0 %
90 - 99	6.6 %
> 99	14.8 %
(Cases) N =	61
mean	65
min size (mm)	10
max size (mm)	111

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	100.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	1
mean	138
min size (mm)	138
max size (mm)	138

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	13.3 %
70 - 79	0.0 %
80 - 89	13.3 %
90 - 99	33.3 %
100 - 109	26.7 %
110 - 119	13.3 %
> 119	0.0 %
(Cases) N =	15
mean	95
min size (mm)	66
max size (mm)	114

Haliotis rufescens

<25	0.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	2.9 %
55 - 64	0.0 %
65 - 74	2.9 %
75 - 84	2.9 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	2.9 %
145 - 154	0.0 %
155 - 164	5.9 %
165 - 174	8.8 %
175 - 184	11.8 %
185 - 194	8.8 %
>195	50.0 %
(Cases) N =	34
mean	182
min size (mm)	47
max size (mm)	225

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	20.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	80.0 %
(Cases) N =	5
mean	124
min size (mm)	81
max size (mm)	139

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	5.3 %
30 - 39	10.5 %
40 - 49	10.5 %
50 - 59	21.1 %
60 - 69	26.3 %
70 - 79	15.8 %
80 - 89	0.0 %
90 - 99	5.3 %
100 - 109	0.0 %
110 - 119	5.3 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	19
mean	62
min size (mm)	23
max size (mm)	112

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee North

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	6.2 %
40 - 49	4.6 %
50 - 59	16.9 %
60 - 69	35.4 %
70 - 79	33.8 %
80 - 89	3.1 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	65
mean	63
min size (mm)	31
max size (mm)	85

Pisaster giganteus

< 20	0.0 %
20 - 39	1.6 %
40 - 59	3.3 %
60 - 79	18.0 %
80 - 99	54.1 %
100 - 119	21.3 %
120 - 139	1.6 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	61
mean	86
min size (mm)	37
max size (mm)	136

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	0.0 %
40 - 59	1.2 %
60 - 79	10.6 %
80 - 99	10.6 %
100 - 119	23.5 %
120 - 139	23.5 %
140 - 159	11.8 %
160 - 179	5.9 %
180 - 199	5.9 %
200 - 219	3.5 %
220 - 239	2.4 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	1.2 %
> 299	0.0 %
(Cases) N =	85
mean	129
min size (mm)	54
max size (mm)	297

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	1.7 %
15 - 19	1.7 %
20 - 24	5.9 %
25 - 29	8.8 %
30 - 34	10.0 %
35 - 39	10.5 %
40 - 44	9.6 %
45 - 49	5.4 %
50 - 54	2.5 %
55 - 59	1.7 %
60 - 64	1.3 %
65 - 69	0.8 %
70 - 74	3.8 %
75 - 79	2.5 %
80 - 84	4.6 %
85 - 89	5.9 %
90 - 94	6.3 %
95 - 99	3.3 %
100 - 104	5.0 %
105 - 109	3.3 %
> 109	5.4 %
(Cases) N =	239
mean	61
min size (mm)	10
max size (mm)	127

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	2.4 %
15 - 19	4.7 %
20 - 24	7.5 %
25 - 29	14.2 %
30 - 34	9.0 %
35 - 39	11.3 %
40 - 44	17.9 %
45 - 49	13.2 %
50 - 54	13.2 %
55 - 59	4.2 %
60 - 64	2.4 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	212
mean	38
min size (mm)	11
max size (mm)	63

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee South

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	1.8 %
30 - 39	5.3 %
40 - 49	5.3 %
50 - 59	14.0 %
60 - 69	19.3 %
70 - 79	19.3 %
80 - 89	15.8 %
90 - 99	3.5 %
> 99	15.8 %
(Cases) N =	57
mean	74
min size (mm)	26
max size (mm)	129

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	15.4 %
70 - 79	15.4 %
80 - 89	7.7 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	30.8 %
120 - 129	30.8 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	13
mean	101
min size (mm)	68
max size (mm)	126

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	7.1 %
60 - 69	0.0 %
70 - 79	28.6 %
80 - 89	14.3 %
90 - 99	42.9 %
100 - 109	7.1 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	14
mean	86
min size (mm)	50
max size (mm)	103

Haliotis rufescens

<25	0.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	11.1 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	0.0 %
155 - 164	0.0 %
165 - 174	11.1 %
175 - 184	0.0 %
185 - 194	22.2 %
>195	55.6 %
(Cases) N =	9
mean	196
min size (mm)	82
max size (mm)	270

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	100.0 %
(Cases) N =	1
mean	140
min size (mm)	140
max size (mm)	140

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	5.0 %
40 - 49	12.5 %
50 - 59	22.5 %
60 - 69	30.0 %
70 - 79	10.0 %
80 - 89	5.0 %
90 - 99	5.0 %
100 - 109	5.0 %
110 - 119	2.5 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	2.5 %
(Cases) N =	40
mean	69
min size (mm)	38
max size (mm)	190

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee South

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	6.7 %
50 - 59	11.7 %
60 - 69	28.3 %
70 - 79	36.7 %
80 - 89	16.7 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	60
mean	66
min size (mm)	43
max size (mm)	86

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	7.1 %
60 - 79	7.1 %
80 - 99	26.8 %
100 - 119	25.0 %
120 - 139	21.4 %
140 - 159	7.1 %
160 - 179	3.6 %
180 - 199	1.8 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	56
mean	108
min size (mm)	56
max size (mm)	198

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	0.0 %
40 - 59	1.6 %
60 - 79	1.6 %
80 - 99	7.8 %
100 - 119	12.5 %
120 - 139	23.4 %
140 - 159	20.3 %
160 - 179	12.5 %
180 - 199	3.1 %
200 - 219	7.8 %
220 - 239	1.6 %
240 - 259	3.1 %
260 - 279	3.1 %
280 - 299	1.6 %
> 299	0.0 %
(Cases) N =	64
mean	147
min size (mm)	43
max size (mm)	284

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.5 %
15 - 19	0.9 %
20 - 24	4.7 %
25 - 29	12.3 %
30 - 34	9.0 %
35 - 39	5.7 %
40 - 44	4.2 %
45 - 49	6.1 %
50 - 54	6.1 %
55 - 59	1.9 %
60 - 64	6.6 %
65 - 69	2.4 %
70 - 74	6.1 %
75 - 79	3.3 %
80 - 84	6.6 %
85 - 89	4.2 %
90 - 94	6.6 %
95 - 99	3.3 %
100 - 104	3.3 %
105 - 109	0.5 %
> 109	5.7 %
(Cases) N =	212
mean	64
min size (mm)	11
max size (mm)	150

Strongylocentrotus purpuratus

< 5	0.5 %
5 - 9	1.0 %
10 - 14	2.9 %
15 - 19	2.9 %
20 - 24	11.2 %
25 - 29	13.2 %
30 - 34	16.6 %
35 - 39	10.2 %
40 - 44	7.3 %
45 - 49	6.8 %
50 - 54	12.2 %
55 - 59	6.8 %
60 - 64	6.3 %
65 - 69	1.5 %
70 - 74	0.5 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	205
mean	38
min size (mm)	4
max size (mm)	74

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Rodes Reef

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	4.1 %
30 - 39	4.1 %
40 - 49	6.8 %
50 - 59	6.8 %
60 - 69	17.8 %
70 - 79	12.3 %
80 - 89	19.2 %
90 - 99	13.7 %
> 99	15.1 %
(Cases) N =	73
mean	76
min size (mm)	21
max size (mm)	133

Kelletia kelletii

< 40	15.4 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	3.8 %
70 - 79	26.9 %
80 - 89	7.7 %
90 - 99	7.7 %
100 - 109	23.1 %
110 - 119	15.4 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	26
mean	82
min size (mm)	24
max size (mm)	112

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	17.6 %
80 - 89	0.0 %
90 - 99	52.9 %
100 - 109	5.9 %
110 - 119	23.5 %
> 119	0.0 %
(Cases) N =	17
mean	96
min size (mm)	74
max size (mm)	115

Haliotis rufescens

<25	0.0 %
25 - 34	50.0 %
35 - 44	50.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	0.0 %
155 - 164	0.0 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	2
mean	34
min size (mm)	27
max size (mm)	40

Lithopoma gibberosa

<10	0.0 %
10 - 19	49.0 %
20 - 29	21.6 %
30 - 39	5.9 %
40 - 49	7.8 %
50 - 59	7.8 %
60 - 69	5.9 %
70 - 79	2.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	51
mean	30
min size (mm)	10
max size (mm)	71

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	50.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	25.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	25.0 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	4
mean	76
min size (mm)	52
max size (mm)	111

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Rodes Reef

Haliotis assimilis

<25	0.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	100.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	0.0 %
155 - 164	0.0 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	1
mean	85
min size (mm)	85
max size (mm)	85

Patiria miniata

<10	1.6 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	1.6 %
40 - 49	15.9 %
50 - 59	23.8 %
60 - 69	34.9 %
70 - 79	15.9 %
80 - 89	6.3 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	63
mean	61
min size (mm)	4
max size (mm)	88

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	18.3 %
60 - 79	26.7 %
80 - 99	6.7 %
100 - 119	10.0 %
120 - 139	10.0 %
140 - 159	18.3 %
160 - 179	6.7 %
180 - 199	1.7 %
200 - 219	1.7 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	60
mean	107
min size (mm)	46
max size (mm)	215

Pycnopodia helianthoides

< 20	6.7 %
20 - 39	22.5 %
40 - 59	20.2 %
60 - 79	14.6 %
80 - 99	10.1 %
100 - 119	9.0 %
120 - 139	2.2 %
140 - 159	3.4 %
160 - 179	3.4 %
180 - 199	2.2 %
200 - 219	5.6 %
220 - 239	0.0 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	89
mean	80
min size (mm)	12
max size (mm)	217

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	1.9 %
10 - 14	2.8 %
15 - 19	0.0 %
20 - 24	2.8 %
25 - 29	2.3 %
30 - 34	4.7 %
35 - 39	4.7 %
40 - 44	6.1 %
45 - 49	6.1 %
50 - 54	2.3 %
55 - 59	6.1 %
60 - 64	11.3 %
65 - 69	10.3 %
70 - 74	10.3 %
75 - 79	6.1 %
80 - 84	7.0 %
85 - 89	3.8 %
90 - 94	4.2 %
95 - 99	3.8 %
100 - 104	1.4 %
105 - 109	0.9 %
> 109	0.9 %
(Cases) N =	213
mean	63
min size (mm)	8
max size (mm)	110

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	33.3 %
15 - 19	33.3 %
20 - 24	16.7 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
50 - 54	16.7 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	6
mean	23
min size (mm)	13
max size (mm)	53

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island

Tethya aurantia

<10	0.0 %
10 - 19	4.6 %
20 - 29	13.8 %
30 - 39	20.0 %
40 - 49	16.2 %
50 - 59	20.8 %
60 - 69	13.1 %
70 - 79	8.5 %
80 - 89	3.1 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	130
mean	47
min size (mm)	10
max size (mm)	86

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	12.5 %
60 - 69	0.0 %
70 - 79	12.5 %
80 - 89	12.5 %
90 - 99	12.5 %
100 - 109	37.5 %
110 - 119	0.0 %
120 - 129	12.5 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	8
mean	93
min size (mm)	52
max size (mm)	127

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	3.6 %
50 - 59	10.7 %
60 - 69	17.9 %
70 - 79	14.3 %
80 - 89	28.6 %
90 - 99	10.7 %
100 - 109	7.1 %
110 - 119	7.1 %
> 119	0.0 %
(Cases) N =	28
mean	80
min size (mm)	42
max size (mm)	116

Haliotis rufescens

<25	0.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	0.0 %
155 - 164	0.0 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	100.0 %
(Cases) N =	1
mean	212
min size (mm)	212
max size (mm)	212

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	8.7 %
60 - 69	8.7 %
70 - 79	4.3 %
80 - 89	21.7 %
90 - 99	8.7 %
100 - 109	13.0 %
110 - 119	8.7 %
> 119	26.1 %
(Cases) N =	23
mean	97
min size (mm)	53
max size (mm)	135

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	4.3 %
40 - 49	17.4 %
50 - 59	13.0 %
60 - 69	4.3 %
70 - 79	13.0 %
80 - 89	13.0 %
90 - 99	8.7 %
100 - 109	0.0 %
110 - 119	26.1 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	23
mean	80
min size (mm)	39
max size (mm)	119

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island

Patiria miniata

<10	0.0 %
10 - 19	1.3 %
20 - 29	0.0 %
30 - 39	5.1 %
40 - 49	17.7 %
50 - 59	19.0 %
60 - 69	24.1 %
70 - 79	26.6 %
80 - 89	6.3 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	79
mean	60
min size (mm)	16
max size (mm)	86

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	6.5 %
60 - 79	14.5 %
80 - 99	21.0 %
100 - 119	30.6 %
120 - 139	12.9 %
140 - 159	11.3 %
160 - 179	1.6 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	1.6 %
> 239	0.0 %
(Cases) N =	62
mean	106
min size (mm)	43
max size (mm)	234

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	0.0 %
100 - 119	0.0 %
120 - 139	0.0 %
140 - 159	0.0 %
160 - 179	4.5 %
180 - 199	4.5 %
200 - 219	22.7 %
220 - 239	18.2 %
240 - 259	22.7 %
260 - 279	18.2 %
280 - 299	9.1 %
> 299	0.0 %
(Cases) N =	22
mean	233
min size (mm)	174
max size (mm)	280

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.8 %
10 - 14	4.2 %
15 - 19	5.9 %
20 - 24	10.0 %
25 - 29	9.2 %
30 - 34	7.9 %
35 - 39	10.0 %
40 - 44	3.8 %
45 - 49	2.5 %
50 - 54	2.9 %
55 - 59	1.3 %
60 - 64	3.3 %
65 - 69	2.9 %
70 - 74	2.1 %
75 - 79	3.3 %
80 - 84	4.2 %
85 - 89	2.5 %
90 - 94	1.3 %
95 - 99	5.4 %
100 - 104	2.1 %
105 - 109	5.4 %
> 109	8.8 %
(Cases) N =	239
mean	59
min size (mm)	9
max size (mm)	132

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.4 %
10 - 14	1.6 %
15 - 19	11.0 %
20 - 24	13.1 %
25 - 29	14.3 %
30 - 34	22.4 %
35 - 39	18.8 %
40 - 44	11.4 %
45 - 49	4.1 %
50 - 54	2.9 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	245
mean	32
min size (mm)	8
max size (mm)	54

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Fry's Harbor

Tethya aurantia

<10	0.0 %
10 - 19	5.7 %
20 - 29	7.1 %
30 - 39	14.3 %
40 - 49	15.7 %
50 - 59	32.9 %
60 - 69	14.3 %
70 - 79	5.7 %
80 - 89	1.4 %
90 - 99	2.9 %
> 99	0.0 %
(Cases) N =	70
mean	48
min size (mm)	11
max size (mm)	92

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	22.2 %
80 - 89	33.3 %
90 - 99	11.1 %
100 - 109	33.3 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	9
mean	89
min size (mm)	72
max size (mm)	103

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	23.5 %
50 - 59	29.4 %
60 - 69	11.8 %
70 - 79	23.5 %
80 - 89	11.8 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	17
mean	63
min size (mm)	41
max size (mm)	88

Haliotis rufescens

<25	0.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	50.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	0.0 %
155 - 164	0.0 %
165 - 174	50.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	2
mean	140
min size (mm)	110
max size (mm)	169

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	16.7 %
30 - 39	0.0 %
40 - 49	16.7 %
50 - 59	16.7 %
60 - 69	33.3 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	16.7 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	6
mean	57
min size (mm)	23
max size (mm)	90

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	40.0 %
50 - 59	0.0 %
60 - 69	20.0 %
70 - 79	20.0 %
80 - 89	20.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	5
mean	63
min size (mm)	42
max size (mm)	82

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Fry's Harbor

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	22.4 %
40 - 49	10.2 %
50 - 59	6.1 %
60 - 69	4.1 %
70 - 79	24.5 %
80 - 89	30.6 %
90 - 99	0.0 %
> 99	2.0 %
(Cases) N =	49
mean	62
min size (mm)	32
max size (mm)	102

Pisaster giganteus

< 20	1.6 %
20 - 39	0.0 %
40 - 59	14.8 %
60 - 79	32.8 %
80 - 99	29.5 %
100 - 119	11.5 %
120 - 139	3.3 %
140 - 159	1.6 %
160 - 179	3.3 %
180 - 199	1.6 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	61
mean	86
min size (mm)	5
max size (mm)	190

Pycnopodia helianthoides

< 20	10.5 %
20 - 39	0.0 %
40 - 59	2.6 %
60 - 79	7.9 %
80 - 99	7.9 %
100 - 119	5.3 %
120 - 139	5.3 %
140 - 159	26.3 %
160 - 179	7.9 %
180 - 199	15.8 %
200 - 219	5.3 %
220 - 239	0.0 %
240 - 259	5.3 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	38
mean	129
min size (mm)	4
max size (mm)	253

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.9 %
10 - 14	6.1 %
15 - 19	12.3 %
20 - 24	9.9 %
25 - 29	8.0 %
30 - 34	7.5 %
35 - 39	9.0 %
40 - 44	5.2 %
45 - 49	2.8 %
50 - 54	5.7 %
55 - 59	4.2 %
60 - 64	3.3 %
65 - 69	3.8 %
70 - 74	2.4 %
75 - 79	3.8 %
80 - 84	1.9 %
85 - 89	1.4 %
90 - 94	5.7 %
95 - 99	2.8 %
100 - 104	0.5 %
105 - 109	1.4 %
> 109	1.4 %
(Cases) N =	212
mean	51
min size (mm)	7
max size (mm)	116

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	1.3 %
10 - 14	3.9 %
15 - 19	3.1 %
20 - 24	10.1 %
25 - 29	14.0 %
30 - 34	19.7 %
35 - 39	9.2 %
40 - 44	11.8 %
45 - 49	10.1 %
50 - 54	11.4 %
55 - 59	2.6 %
60 - 64	2.2 %
65 - 69	0.0 %
70 - 74	0.4 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	228
mean	36
min size (mm)	6
max size (mm)	72

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pelican Bay

Tethya aurantia

<10	0.0 %
10 - 19	3.3 %
20 - 29	23.3 %
30 - 39	23.3 %
40 - 49	26.7 %
50 - 59	13.3 %
60 - 69	6.7 %
70 - 79	3.3 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	30
mean	42
min size (mm)	19
max size (mm)	74

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	20.0 %
100 - 109	0.0 %
110 - 119	60.0 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	20.0 %
> 149	0.0 %
(Cases) N =	5
mean	117
min size (mm)	98
max size (mm)	140

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	33.3 %
50 - 59	33.3 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	33.3 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	3
mean	60
min size (mm)	46
max size (mm)	82

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	33.3 %
80 - 89	33.3 %
90 - 99	33.3 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	6
mean	82
min size (mm)	71
max size (mm)	92

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	7.1 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	14.3 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	7.1 %
120 - 129	14.3 %
130 - 139	14.3 %
> 139	42.9 %
(Cases) N =	14
mean	125
min size (mm)	30
max size (mm)	172

Tegula regina

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	100.0 %
45 - 49	0.0 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	2
mean	42
min size (mm)	40
max size (mm)	44

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	5.0 %
40 - 49	3.3 %
50 - 59	18.3 %
60 - 69	15.0 %
70 - 79	21.7 %
80 - 89	20.0 %
90 - 99	15.0 %
> 99	1.7 %
(Cases) N =	60
mean	71
min size (mm)	31
max size (mm)	103

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pelican Bay

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	13.8 %
80 - 99	19.0 %
100 - 119	37.9 %
120 - 139	6.9 %
140 - 159	15.5 %
160 - 179	3.4 %
180 - 199	3.4 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	58
mean	113
min size (mm)	64
max size (mm)	190

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	0.0 %
100 - 119	0.0 %
120 - 139	0.0 %
140 - 159	50.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	50.0 %
> 299	0.0 %
(Cases) N =	2
mean	215
min size (mm)	149
max size (mm)	280

Lytechinus anamesus

< 5	1.8 %
5 - 9	7.3 %
10 - 14	10.9 %
15 - 19	42.7 %
20 - 24	23.6 %
25 - 29	10.9 %
30 - 34	2.7 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	110
mean	19
min size (mm)	4
max size (mm)	32

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.5 %
15 - 19	1.0 %
20 - 24	3.9 %
25 - 29	6.8 %
30 - 34	15.5 %
35 - 39	11.2 %
40 - 44	9.7 %
45 - 49	7.8 %
50 - 54	6.3 %
55 - 59	6.8 %
60 - 64	10.7 %
65 - 69	7.3 %
70 - 74	3.9 %
75 - 79	3.4 %
80 - 84	3.4 %
85 - 89	1.9 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	206
mean	52
min size (mm)	14
max size (mm)	87

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.5 %
15 - 19	10.3 %
20 - 24	21.7 %
25 - 29	23.2 %
30 - 34	16.3 %
35 - 39	16.3 %
40 - 44	7.4 %
45 - 49	3.9 %
50 - 54	0.5 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	203
mean	32
min size (mm)	12
max size (mm)	50

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Scorpion Anchorage

Tethya aurantia

<10	0.0 %
10 - 19	4.0 %
20 - 29	8.0 %
30 - 39	8.0 %
40 - 49	24.0 %
50 - 59	28.0 %
60 - 69	8.0 %
70 - 79	12.0 %
80 - 89	4.0 %
90 - 99	4.0 %
> 99	0.0 %
(Cases) N =	25
mean	53
min size (mm)	18
max size (mm)	90

Kelletia kelletii

< 40	100.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	1
mean	38
min size (mm)	38
max size (mm)	38

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	1.6 %
40 - 49	3.2 %
50 - 59	16.1 %
60 - 69	40.3 %
70 - 79	25.8 %
80 - 89	11.3 %
90 - 99	1.6 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	62
mean	67
min size (mm)	32
max size (mm)	93

Haliotis rufescens

<25	66.7 %
25 - 34	33.3 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	0.0 %
155 - 164	0.0 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	6
mean	24
min size (mm)	17
max size (mm)	31

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	25.0 %
40 - 49	25.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	25.0 %
90 - 99	25.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	4
mean	64
min size (mm)	35
max size (mm)	97

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	36.4 %
40 - 49	9.1 %
50 - 59	9.1 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	9.1 %
100 - 109	18.2 %
110 - 119	9.1 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	9.1 %
(Cases) N =	11
mean	78
min size (mm)	30
max size (mm)	155

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Scorpion Anchorage

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	1.6 %
30 - 39	9.5 %
40 - 49	23.8 %
50 - 59	20.6 %
60 - 69	19.0 %
70 - 79	14.3 %
80 - 89	11.1 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	63
mean	58
min size (mm)	24
max size (mm)	88

Pisaster giganteus

< 20	0.0 %
20 - 39	1.7 %
40 - 59	0.0 %
60 - 79	6.7 %
80 - 99	25.0 %
100 - 119	41.7 %
120 - 139	18.3 %
140 - 159	5.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	1.7 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	60
mean	108
min size (mm)	38
max size (mm)	212

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	0.0 %
40 - 59	100.0 %
60 - 79	0.0 %
80 - 99	0.0 %
100 - 119	0.0 %
120 - 139	0.0 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	1
mean	55
min size (mm)	55
max size (mm)	55

Lytechinus anamesus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	100.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	19
min size (mm)	19
max size (mm)	19

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	1.9 %
20 - 24	12.1 %
25 - 29	10.3 %
30 - 34	9.3 %
35 - 39	1.4 %
40 - 44	12.1 %
45 - 49	11.7 %
50 - 54	13.1 %
55 - 59	4.7 %
60 - 64	6.1 %
65 - 69	4.2 %
70 - 74	2.8 %
75 - 79	2.3 %
80 - 84	1.4 %
85 - 89	1.4 %
90 - 94	1.9 %
95 - 99	1.4 %
100 - 104	1.4 %
105 - 109	0.0 %
> 109	0.5 %
(Cases) N =	214
mean	51
min size (mm)	17
max size (mm)	110

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	2.2 %
10 - 14	4.0 %
15 - 19	18.8 %
20 - 24	18.3 %
25 - 29	13.8 %
30 - 34	15.2 %
35 - 39	8.5 %
40 - 44	4.9 %
45 - 49	4.5 %
50 - 54	5.8 %
55 - 59	3.1 %
60 - 64	0.9 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	224
mean	33
min size (mm)	6
max size (mm)	60

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

Tethya aurantia

<10	0.0 %
10 - 19	1.7 %
20 - 29	5.0 %
30 - 39	13.3 %
40 - 49	26.7 %
50 - 59	26.7 %
60 - 69	16.7 %
70 - 79	6.7 %
80 - 89	3.3 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	60
mean	51
min size (mm)	18
max size (mm)	82

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	50.0 %
90 - 99	0.0 %
100 - 109	25.0 %
110 - 119	25.0 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	4
mean	96
min size (mm)	84
max size (mm)	111

Lithopoma gibberosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	20.0 %
30 - 39	40.0 %
40 - 49	30.0 %
50 - 59	10.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	10
mean	37
min size (mm)	22
max size (mm)	57

Haliotis corrugata

<25	0.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	100.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	0.0 %
155 - 164	0.0 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	1
mean	86
min size (mm)	86
max size (mm)	86

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	2.9 %
30 - 39	7.1 %
40 - 49	7.1 %
50 - 59	4.3 %
60 - 69	11.4 %
70 - 79	2.9 %
80 - 89	7.1 %
90 - 99	12.9 %
100 - 109	11.4 %
110 - 119	12.9 %
> 119	20.0 %
(Cases) N =	70
mean	87
min size (mm)	24
max size (mm)	135

Megathura crenulata

<10	0.0 %
10 - 19	4.8 %
20 - 29	0.0 %
30 - 39	9.5 %
40 - 49	0.0 %
50 - 59	23.8 %
60 - 69	19.0 %
70 - 79	33.3 %
80 - 89	9.5 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	21
mean	60
min size (mm)	18
max size (mm)	84

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	25.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	50.0 %
90 - 99	0.0 %
100 - 109	25.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	4
mean	82
min size (mm)	53
max size (mm)	102

Haliotis assimilis

<25	0.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	100.0 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	0.0 %
155 - 164	0.0 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	1
mean	71
min size (mm)	71
max size (mm)	71

Tegula regina

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	33.3 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	33.3 %
50 - 54	33.3 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	3
mean	41
min size (mm)	26
max size (mm)	50

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	3.3 %
30 - 39	6.7 %
40 - 49	10.0 %
50 - 59	16.7 %
60 - 69	26.7 %
70 - 79	20.0 %
80 - 89	15.0 %
90 - 99	0.0 %
> 99	1.7 %
(Cases) N =	60
mean	60
min size (mm)	20
max size (mm)	109

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	17.8 %
60 - 79	37.8 %
80 - 99	17.8 %
100 - 119	11.1 %
120 - 139	13.3 %
140 - 159	2.2 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	45
mean	85
min size (mm)	50
max size (mm)	150

Pycnopodia helianthoides

< 20	2.3 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	0.0 %
100 - 119	0.0 %
120 - 139	0.0 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	2.3 %
200 - 219	4.7 %
220 - 239	0.0 %
240 - 259	14.0 %
260 - 279	14.0 %
280 - 299	16.3 %
> 299	46.5 %
(Cases) N =	43
mean	278
min size (mm)	7
max size (mm)	360

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

Lytechinus anamesus

< 5	4.5 %
5 - 9	18.0 %
10 - 14	53.0 %
15 - 19	23.5 %
20 - 24	1.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	200
mean	12
min size (mm)	3
max size (mm)	23

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	3.9 %
10 - 14	23.6 %
15 - 19	12.8 %
20 - 24	13.3 %
25 - 29	7.4 %
30 - 34	4.9 %
35 - 39	3.4 %
40 - 44	0.5 %
45 - 49	1.5 %
50 - 54	1.0 %
55 - 59	1.5 %
60 - 64	3.9 %
65 - 69	6.4 %
70 - 74	5.4 %
75 - 79	3.0 %
80 - 84	3.0 %
85 - 89	1.5 %
90 - 94	0.5 %
95 - 99	0.5 %
100 - 104	0.0 %
105 - 109	1.0 %
> 109	1.0 %
(Cases) N =	203
mean	45
min size (mm)	7
max size (mm)	118

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	2.2 %
10 - 14	3.6 %
15 - 19	10.2 %
20 - 24	21.3 %
25 - 29	28.9 %
30 - 34	12.4 %
35 - 39	12.4 %
40 - 44	3.6 %
45 - 49	2.7 %
50 - 54	0.9 %
55 - 59	0.9 %
60 - 64	0.4 %
65 - 69	0.4 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	225
mean	29
min size (mm)	6
max size (mm)	65

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Admiral's Reef

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	27.3 %
30 - 39	9.1 %
40 - 49	18.2 %
50 - 59	18.2 %
60 - 69	22.7 %
70 - 79	4.5 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	22
mean	46
min size (mm)	21
max size (mm)	70

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	61.1 %
100 - 109	38.9 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	18
mean	98
min size (mm)	91
max size (mm)	108

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	28.6 %
40 - 49	0.0 %
50 - 59	7.1 %
60 - 69	14.3 %
70 - 79	21.4 %
80 - 89	28.6 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	14
mean	65
min size (mm)	32
max size (mm)	86

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	4.9 %
50 - 59	21.3 %
60 - 69	37.7 %
70 - 79	26.2 %
80 - 89	9.8 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	61
mean	66
min size (mm)	45
max size (mm)	84

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	33.3 %
70 - 79	11.1 %
80 - 89	22.2 %
90 - 99	11.1 %
100 - 109	0.0 %
110 - 119	11.1 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	11.1 %
(Cases) N =	9
mean	86
min size (mm)	60
max size (mm)	147

Tegula regina

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	9.1 %
45 - 49	13.6 %
50 - 54	50.0 %
55 - 59	18.2 %
60 - 64	9.1 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	22
mean	52
min size (mm)	42
max size (mm)	62

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	6.7 %
50 - 59	28.3 %
60 - 69	41.7 %
70 - 79	15.0 %
80 - 89	5.0 %
90 - 99	3.3 %
> 99	0.0 %
(Cases) N =	60
mean	64
min size (mm)	43
max size (mm)	92

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Admiral's Reef

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	0.0 %
100 - 119	0.0 %
120 - 139	33.3 %
140 - 159	33.3 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	33.3 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	3
mean	159
min size (mm)	136
max size (mm)	200

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.5 %
10 - 14	3.5 %
15 - 19	2.0 %
20 - 24	5.0 %
25 - 29	8.5 %
30 - 34	8.0 %
35 - 39	11.4 %
40 - 44	16.9 %
45 - 49	11.9 %
50 - 54	10.0 %
55 - 59	13.4 %
60 - 64	4.0 %
65 - 69	2.0 %
70 - 74	1.5 %
75 - 79	1.0 %
80 - 84	0.0 %
85 - 89	0.5 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	201
mean	45
min size (mm)	5
max size (mm)	88

Strongylocentrotus purpuratus

< 5	0.9 %
5 - 9	6.8 %
10 - 14	3.7 %
15 - 19	6.4 %
20 - 24	24.2 %
25 - 29	35.6 %
30 - 34	17.4 %
35 - 39	2.3 %
40 - 44	2.3 %
45 - 49	0.5 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	219
mean	24
min size (mm)	4
max size (mm)	45

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Cathedral Cove

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	66.7 %
70 - 79	33.3 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	3
mean	66
min size (mm)	60
max size (mm)	70

Haliotis corrugata

<25	0.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	25.0 %
155 - 164	50.0 %
165 - 174	0.0 %
175 - 184	25.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	4
mean	161
min size (mm)	146
max size (mm)	179

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	2.3 %
30 - 39	0.0 %
40 - 49	4.7 %
50 - 59	4.7 %
60 - 69	7.0 %
70 - 79	4.7 %
80 - 89	11.6 %
90 - 99	18.6 %
100 - 109	25.6 %
110 - 119	18.6 %
> 119	2.3 %
(Cases) N =	43
mean	86
min size (mm)	26
max size (mm)	132

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	100.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	1
mean	84
min size (mm)	84
max size (mm)	84

Crassedoma giganteum

<10	0.0 %
10 - 19	4.0 %
20 - 29	0.0 %
30 - 39	4.0 %
40 - 49	12.0 %
50 - 59	8.0 %
60 - 69	20.0 %
70 - 79	12.0 %
80 - 89	16.0 %
90 - 99	4.0 %
100 - 109	8.0 %
110 - 119	0.0 %
120 - 129	8.0 %
130 - 139	4.0 %
> 139	0.0 %
(Cases) N =	25
mean	74
min size (mm)	17
max size (mm)	137

Tegula regina

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	50.0 %
45 - 49	50.0 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	2
mean	45
min size (mm)	43
max size (mm)	46

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Cathedral Cove

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	50.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	50.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	2
mean	46
min size (mm)	28
max size (mm)	64

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	25.0 %
80 - 99	25.0 %
100 - 119	25.0 %
120 - 139	0.0 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	25.0 %
(Cases) N =	4
mean	135
min size (mm)	70
max size (mm)	264

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	3.6 %
15 - 19	4.0 %
20 - 24	5.6 %
25 - 29	2.4 %
30 - 34	1.6 %
35 - 39	1.6 %
40 - 44	2.4 %
45 - 49	1.6 %
50 - 54	1.6 %
55 - 59	2.0 %
60 - 64	3.6 %
65 - 69	2.4 %
70 - 74	0.8 %
75 - 79	2.8 %
80 - 84	7.2 %
85 - 89	4.8 %
90 - 94	7.2 %
95 - 99	8.4 %
100 - 104	8.4 %
105 - 109	8.0 %
> 109	20.0 %
(Cases) N =	250
mean	73
min size (mm)	10
max size (mm)	130

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	3.6 %
10 - 14	4.9 %
15 - 19	6.7 %
20 - 24	6.3 %
25 - 29	7.6 %
30 - 34	10.7 %
35 - 39	8.5 %
40 - 44	15.2 %
45 - 49	9.8 %
50 - 54	9.8 %
55 - 59	8.5 %
60 - 64	7.6 %
65 - 69	0.9 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	224
mean	37
min size (mm)	5
max size (mm)	69

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	5.9 %
30 - 39	5.9 %
40 - 49	0.0 %
50 - 59	17.6 %
60 - 69	11.8 %
70 - 79	35.3 %
80 - 89	23.5 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	17
mean	66
min size (mm)	20
max size (mm)	89

Kelletia kelletii

< 40	0.0 %
40 - 49	12.5 %
50 - 59	12.5 %
60 - 69	12.5 %
70 - 79	25.0 %
80 - 89	12.5 %
90 - 99	12.5 %
100 - 109	12.5 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	8
mean	74
min size (mm)	40
max size (mm)	100

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	6.3 %
40 - 49	18.8 %
50 - 59	6.3 %
60 - 69	18.8 %
70 - 79	31.3 %
80 - 89	12.5 %
90 - 99	0.0 %
100 - 109	6.3 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	16
mean	64
min size (mm)	32
max size (mm)	102

Haliotis corrugata

<25	0.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	16.7 %
105 - 114	0.0 %
115 - 124	33.3 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	0.0 %
155 - 164	50.0 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	6
mean	136
min size (mm)	100
max size (mm)	163

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	17.6 %
40 - 49	5.9 %
50 - 59	5.9 %
60 - 69	23.5 %
70 - 79	11.8 %
80 - 89	11.8 %
90 - 99	23.5 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	17
mean	68
min size (mm)	30
max size (mm)	98

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	3.0 %
30 - 39	6.1 %
40 - 49	21.2 %
50 - 59	13.6 %
60 - 69	6.1 %
70 - 79	13.6 %
80 - 89	12.1 %
90 - 99	1.5 %
100 - 109	6.1 %
110 - 119	3.0 %
120 - 129	7.6 %
130 - 139	4.5 %
> 139	1.5 %
(Cases) N =	66
mean	74
min size (mm)	24
max size (mm)	142

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	100.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	1
mean	31
min size (mm)	31
max size (mm)	31

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	6.3 %
60 - 79	18.8 %
80 - 99	21.9 %
100 - 119	12.5 %
120 - 139	18.8 %
140 - 159	6.3 %
160 - 179	3.1 %
180 - 199	6.3 %
200 - 219	0.0 %
220 - 239	6.3 %
> 239	0.0 %
(Cases) N =	32
mean	115
min size (mm)	55
max size (mm)	232

Strongylocentrotus franciscanus

< 5	0.5 %
5 - 9	1.4 %
10 - 14	4.7 %
15 - 19	9.4 %
20 - 24	6.1 %
25 - 29	1.9 %
30 - 34	6.6 %
35 - 39	2.8 %
40 - 44	1.9 %
45 - 49	3.3 %
50 - 54	1.4 %
55 - 59	1.9 %
60 - 64	3.3 %
65 - 69	2.3 %
70 - 74	2.3 %
75 - 79	2.8 %
80 - 84	6.6 %
85 - 89	3.8 %
90 - 94	4.7 %
95 - 99	4.7 %
100 - 104	6.6 %
105 - 109	5.2 %
> 109	16.0 %
(Cases) N =	213
mean	69
min size (mm)	3
max size (mm)	138

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	3.7 %
10 - 14	8.8 %
15 - 19	8.8 %
20 - 24	13.4 %
25 - 29	11.1 %
30 - 34	12.0 %
35 - 39	7.8 %
40 - 44	11.1 %
45 - 49	6.9 %
50 - 54	7.4 %
55 - 59	2.3 %
60 - 64	5.5 %
65 - 69	0.9 %
70 - 74	0.5 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	217
mean	35
min size (mm)	6
max size (mm)	73

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - SE Sea Lion Rookery

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	3.3 %
30 - 39	9.8 %
40 - 49	13.1 %
50 - 59	21.3 %
60 - 69	21.3 %
70 - 79	13.1 %
80 - 89	8.2 %
90 - 99	8.2 %
> 99	1.6 %
(Cases) N =	61
mean	63
min size (mm)	23
max size (mm)	102

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	60.0 %
60 - 69	0.0 %
70 - 79	20.0 %
80 - 89	20.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	5
mean	64
min size (mm)	54
max size (mm)	82

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	50.0 %
40 - 49	0.0 %
50 - 59	50.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	2
mean	48
min size (mm)	39
max size (mm)	57

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	20.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	20.0 %
120 - 129	40.0 %
130 - 139	20.0 %
> 139	0.0 %
(Cases) N =	5
mean	114
min size (mm)	86
max size (mm)	138

Tegula regina

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	8.7 %
40 - 44	26.1 %
45 - 49	60.9 %
50 - 54	4.3 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	23
mean	43
min size (mm)	35
max size (mm)	50

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	4.9 %
40 - 49	6.6 %
50 - 59	11.5 %
60 - 69	21.3 %
70 - 79	26.2 %
80 - 89	19.7 %
90 - 99	8.2 %
> 99	1.6 %
(Cases) N =	61
mean	70
min size (mm)	33
max size (mm)	110

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	5.3 %
60 - 79	5.3 %
80 - 99	15.8 %
100 - 119	5.3 %
120 - 139	52.6 %
140 - 159	0.0 %
160 - 179	15.8 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	19
mean	121
min size (mm)	55
max size (mm)	166

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - SE Sea Lion Rookery

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	1.5 %
15 - 19	15.2 %
20 - 24	28.4 %
25 - 29	12.3 %
30 - 34	7.4 %
35 - 39	7.8 %
40 - 44	10.3 %
45 - 49	2.9 %
50 - 54	8.3 %
55 - 59	2.5 %
60 - 64	1.0 %
65 - 69	2.0 %
70 - 74	0.5 %
75 - 79	0.0 %
80 - 84	0.0 %
85 - 89	0.0 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	204
mean	40
min size (mm)	14
max size (mm)	70

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.4 %
10 - 14	3.5 %
15 - 19	17.3 %
20 - 24	32.3 %
25 - 29	23.5 %
30 - 34	13.3 %
35 - 39	7.1 %
40 - 44	2.2 %
45 - 49	0.4 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	226
mean	27
min size (mm)	5
max size (mm)	45

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Arch Point

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	12.9 %
30 - 39	25.8 %
40 - 49	9.7 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	6.5 %
90 - 99	9.7 %
100 - 109	29.0 %
110 - 119	6.5 %
> 119	0.0 %
(Cases) N =	31
mean	66
min size (mm)	25
max size (mm)	119

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	25.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	25.0 %
100 - 109	50.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	4
mean	93
min size (mm)	69
max size (mm)	103

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	14.3 %
90 - 99	28.6 %
100 - 109	0.0 %
110 - 119	42.9 %
120 - 129	0.0 %
130 - 139	14.3 %
> 139	0.0 %
(Cases) N =	7
mean	105
min size (mm)	83
max size (mm)	130

Tegula regina

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	1.4 %
20 - 24	1.4 %
25 - 29	5.5 %
30 - 34	24.7 %
35 - 39	37.0 %
40 - 44	21.9 %
45 - 49	6.8 %
50 - 54	1.4 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	73
mean	37
min size (mm)	19
max size (mm)	51

Patiria miniata

<10	0.0 %
10 - 19	4.8 %
20 - 29	11.3 %
30 - 39	24.2 %
40 - 49	9.7 %
50 - 59	4.8 %
60 - 69	8.1 %
70 - 79	6.5 %
80 - 89	22.6 %
90 - 99	4.8 %
> 99	3.2 %
(Cases) N =	62
mean	55
min size (mm)	17
max size (mm)	108

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	4.6 %
60 - 79	4.6 %
80 - 99	23.1 %
100 - 119	30.8 %
120 - 139	27.7 %
140 - 159	9.2 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	65
mean	109
min size (mm)	48
max size (mm)	154

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Arch Point

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	50.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	0.0 %
100 - 119	0.0 %
120 - 139	0.0 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	50.0 %
220 - 239	0.0 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	2
mean	115
min size (mm)	30
max size (mm)	200

Lytechinus anamesus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	38.9 %
15 - 19	22.2 %
20 - 24	22.2 %
25 - 29	16.7 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	18
mean	19
min size (mm)	10
max size (mm)	28

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	2.8 %
10 - 14	15.9 %
15 - 19	24.8 %
20 - 24	15.0 %
25 - 29	6.1 %
30 - 34	3.3 %
35 - 39	5.1 %
40 - 44	3.3 %
45 - 49	6.1 %
50 - 54	4.7 %
55 - 59	3.3 %
60 - 64	2.3 %
65 - 69	4.2 %
70 - 74	2.8 %
75 - 79	0.5 %
80 - 84	0.0 %
85 - 89	0.0 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	214
mean	38
min size (mm)	7
max size (mm)	78

Strongylocentrotus purpuratus

< 5	0.4 %
5 - 9	5.2 %
10 - 14	27.5 %
15 - 19	37.8 %
20 - 24	17.2 %
25 - 29	8.6 %
30 - 34	3.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
50 - 54	0.4 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	233
mean	19
min size (mm)	4
max size (mm)	54

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Cat Canyon

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	100.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	3
mean	34
min size (mm)	30
max size (mm)	37

Haliotis fulgens

<25	0.0 %
25 - 34	100.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	0.0 %
155 - 164	0.0 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	1
mean	25
min size (mm)	25
max size (mm)	25

Megastraea undosa

<10	1.4 %
10 - 19	0.0 %
20 - 29	1.4 %
30 - 39	4.2 %
40 - 49	18.3 %
50 - 59	18.3 %
60 - 69	23.9 %
70 - 79	19.7 %
80 - 89	8.5 %
90 - 99	4.2 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	71
mean	61
min size (mm)	6
max size (mm)	96

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	50.0 %
60 - 69	33.3 %
70 - 79	16.7 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	6
mean	59
min size (mm)	51
max size (mm)	71

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	30.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	10.0 %
80 - 89	0.0 %
90 - 99	30.0 %
100 - 109	0.0 %
110 - 119	20.0 %
120 - 129	0.0 %
130 - 139	10.0 %
> 139	0.0 %
(Cases) N =	10
mean	82
min size (mm)	35
max size (mm)	134

Tegula regina

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	1.6 %
25 - 29	3.3 %
30 - 34	1.6 %
35 - 39	16.4 %
40 - 44	23.0 %
45 - 49	27.9 %
50 - 54	19.7 %
55 - 59	3.3 %
60 - 64	3.3 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	61
mean	45
min size (mm)	20
max size (mm)	63

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Cat Canyon

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	7.8 %
30 - 39	15.7 %
40 - 49	15.7 %
50 - 59	29.4 %
60 - 69	23.5 %
70 - 79	7.8 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	51
mean	50
min size (mm)	20
max size (mm)	78

Pisaster giganteus

< 20	0.0 %
20 - 39	5.0 %
40 - 59	25.0 %
60 - 79	21.7 %
80 - 99	31.7 %
100 - 119	11.7 %
120 - 139	5.0 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	60
mean	78
min size (mm)	33
max size (mm)	131

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	0.0 %
100 - 119	0.0 %
120 - 139	0.0 %
140 - 159	100.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	1
mean	155
min size (mm)	155
max size (mm)	155

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	1.8 %
15 - 19	13.2 %
20 - 24	26.5 %
25 - 29	13.7 %
30 - 34	5.5 %
35 - 39	3.2 %
40 - 44	4.1 %
45 - 49	6.8 %
50 - 54	7.3 %
55 - 59	6.4 %
60 - 64	5.5 %
65 - 69	2.3 %
70 - 74	3.2 %
75 - 79	0.5 %
80 - 84	0.0 %
85 - 89	0.0 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	219
mean	40
min size (mm)	11
max size (mm)	77

Strongylocentrotus purpuratus

< 5	1.3 %
5 - 9	3.9 %
10 - 14	10.4 %
15 - 19	29.9 %
20 - 24	31.2 %
25 - 29	13.0 %
30 - 34	6.5 %
35 - 39	3.0 %
40 - 44	0.9 %
45 - 49	0.0 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	231
mean	22
min size (mm)	4
max size (mm)	42

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Miracle Mile

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	7.1 %
30 - 39	7.1 %
40 - 49	7.1 %
50 - 59	7.1 %
60 - 69	14.3 %
70 - 79	17.9 %
80 - 89	10.7 %
90 - 99	17.9 %
> 99	10.7 %
(Cases) N =	28
mean	73
min size (mm)	23
max size (mm)	128

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	25.0 %
100 - 109	50.0 %
110 - 119	25.0 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	4
mean	107
min size (mm)	94
max size (mm)	114

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	16.7 %
90 - 99	33.3 %
100 - 109	0.0 %
110 - 119	50.0 %
> 119	0.0 %
(Cases) N =	6
mean	104
min size (mm)	87
max size (mm)	117

Haliotis rufescens

<25	0.0 %
25 - 34	1.5 %
35 - 44	0.0 %
45 - 54	1.5 %
55 - 64	0.7 %
65 - 74	0.7 %
75 - 84	0.7 %
85 - 94	0.7 %
95 - 104	3.0 %
105 - 114	2.2 %
115 - 124	2.2 %
125 - 134	1.5 %
135 - 144	1.5 %
145 - 154	1.5 %
155 - 164	3.7 %
165 - 174	8.9 %
175 - 184	10.4 %
185 - 194	17.0 %
>195	41.5 %
(Cases) N =	135
mean	175
min size (mm)	25
max size (mm)	234

Lithopoma gibberosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	33.3 %
60 - 69	66.7 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	3
mean	59
min size (mm)	54
max size (mm)	63

Pisaster giganteus

< 20	0.0 %
20 - 39	7.7 %
40 - 59	46.2 %
60 - 79	41.5 %
80 - 99	3.1 %
100 - 119	1.5 %
120 - 139	0.0 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	65
mean	60
min size (mm)	29
max size (mm)	100

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Miracle Mile

Pycnopodia helianthoides	
< 20	0.0 %
20 - 39	5.6 %
40 - 59	16.7 %
60 - 79	44.4 %
80 - 99	16.7 %
100 - 119	11.1 %
120 - 139	0.0 %
140 - 159	5.6 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	18
mean	75
min size (mm)	32
max size (mm)	140

Strongylocentrotus purpuratus	
< 5	0.0 %
5 - 9	2.7 %
10 - 14	2.7 %
15 - 19	1.4 %
20 - 24	12.3 %
25 - 29	11.0 %
30 - 34	13.7 %
35 - 39	6.8 %
40 - 44	17.8 %
45 - 49	5.5 %
50 - 54	15.1 %
55 - 59	5.5 %
60 - 64	1.4 %
65 - 69	2.7 %
70 - 74	1.4 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	73
mean	38
min size (mm)	7
max size (mm)	74

Strongylocentrotus franciscanus	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	2.2 %
15 - 19	1.5 %
20 - 24	1.9 %
25 - 29	2.6 %
30 - 34	1.5 %
35 - 39	1.1 %
40 - 44	0.7 %
45 - 49	2.6 %
50 - 54	1.9 %
55 - 59	2.6 %
60 - 64	2.6 %
65 - 69	4.4 %
70 - 74	4.8 %
75 - 79	2.2 %
80 - 84	7.0 %
85 - 89	9.6 %
90 - 94	13.7 %
95 - 99	13.0 %
100 - 104	12.2 %
105 - 109	4.8 %
> 109	7.0 %
(Cases) N =	270
mean	76
min size (mm)	10
max size (mm)	124

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Cluster Point

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	3.2 %
30 - 39	7.9 %
40 - 49	6.3 %
50 - 59	9.5 %
60 - 69	11.1 %
70 - 79	11.1 %
80 - 89	14.3 %
90 - 99	7.9 %
> 99	28.6 %
(Cases) N =	63
mean	77
min size (mm)	20
max size (mm)	150

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	18.2 %
100 - 109	54.5 %
110 - 119	18.2 %
120 - 129	9.1 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	22
mean	107
min size (mm)	93
max size (mm)	124

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	3.4 %
70 - 79	6.9 %
80 - 89	6.9 %
90 - 99	20.7 %
100 - 109	41.4 %
110 - 119	10.3 %
> 119	10.3 %
(Cases) N =	29
mean	98
min size (mm)	61
max size (mm)	122

Haliotis rufescens

<25	0.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	50.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	0.0 %
155 - 164	0.0 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	50.0 %
(Cases) N =	2
mean	132
min size (mm)	57
max size (mm)	207

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	100.0 %
(Cases) N =	1
mean	125
min size (mm)	125
max size (mm)	125

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	11.1 %
40 - 49	0.0 %
50 - 59	11.1 %
60 - 69	11.1 %
70 - 79	22.2 %
80 - 89	22.2 %
90 - 99	22.2 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	9
mean	72
min size (mm)	35
max size (mm)	98

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Cluster Point

Patiria miniata

<10	0.0 %
10 - 19	14.8 %
20 - 29	21.3 %
30 - 39	26.2 %
40 - 49	9.8 %
50 - 59	13.1 %
60 - 69	14.8 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	61
mean	38
min size (mm)	12
max size (mm)	64

Pisaster giganteus

< 20	0.0 %
20 - 39	19.7 %
40 - 59	23.0 %
60 - 79	26.2 %
80 - 99	18.0 %
100 - 119	9.8 %
120 - 139	0.0 %
140 - 159	1.6 %
160 - 179	1.6 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	61
mean	69
min size (mm)	24
max size (mm)	171

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	3.4 %
80 - 99	13.8 %
100 - 119	6.9 %
120 - 139	10.3 %
140 - 159	3.4 %
160 - 179	10.3 %
180 - 199	13.8 %
200 - 219	17.2 %
220 - 239	6.9 %
240 - 259	10.3 %
260 - 279	0.0 %
280 - 299	3.4 %
> 299	0.0 %
(Cases) N =	29
mean	175
min size (mm)	71
max size (mm)	280

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.9 %
10 - 14	5.2 %
15 - 19	8.3 %
20 - 24	7.0 %
25 - 29	8.7 %
30 - 34	7.0 %
35 - 39	5.7 %
40 - 44	1.7 %
45 - 49	1.7 %
50 - 54	2.2 %
55 - 59	3.9 %
60 - 64	4.8 %
65 - 69	2.6 %
70 - 74	5.2 %
75 - 79	3.9 %
80 - 84	5.7 %
85 - 89	7.0 %
90 - 94	8.3 %
95 - 99	3.5 %
100 - 104	2.6 %
105 - 109	2.2 %
> 109	1.7 %
(Cases) N =	229
mean	57
min size (mm)	6
max size (mm)	128

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.5 %
10 - 14	3.2 %
15 - 19	4.1 %
20 - 24	8.6 %
25 - 29	5.0 %
30 - 34	14.0 %
35 - 39	10.8 %
40 - 44	15.3 %
45 - 49	14.0 %
50 - 54	9.5 %
55 - 59	7.7 %
60 - 64	5.9 %
65 - 69	1.8 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	222
mean	39
min size (mm)	9
max size (mm)	69

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Trancion Canyon

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	3.2 %
70 - 79	19.0 %
80 - 89	14.3 %
90 - 99	23.8 %
> 99	39.7 %
(Cases) N =	63
mean	94
min size (mm)	66
max size (mm)	123

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	2.3 %
60 - 69	6.8 %
70 - 79	6.8 %
80 - 89	15.9 %
90 - 99	34.1 %
100 - 109	20.5 %
110 - 119	11.4 %
> 119	2.3 %
(Cases) N =	44
mean	93
min size (mm)	55
max size (mm)	120

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	9.1 %
40 - 49	45.5 %
50 - 59	9.1 %
60 - 69	27.3 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	9.1 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	11
mean	55
min size (mm)	39
max size (mm)	93

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	3.1 %
30 - 39	3.1 %
40 - 49	16.9 %
50 - 59	33.8 %
60 - 69	32.3 %
70 - 79	9.2 %
80 - 89	1.5 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	65
mean	56
min size (mm)	21
max size (mm)	80

Pisaster giganteus

< 20	0.0 %
20 - 39	1.7 %
40 - 59	8.3 %
60 - 79	20.0 %
80 - 99	40.0 %
100 - 119	23.3 %
120 - 139	3.3 %
140 - 159	3.3 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	60
mean	86
min size (mm)	34
max size (mm)	154

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	5.7 %
80 - 99	0.0 %
100 - 119	5.7 %
120 - 139	8.6 %
140 - 159	2.9 %
160 - 179	14.3 %
180 - 199	25.7 %
200 - 219	22.9 %
220 - 239	5.7 %
240 - 259	8.6 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	35
mean	179
min size (mm)	75
max size (mm)	250

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Trancion Canyon

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	1.8 %
15 - 19	4.9 %
20 - 24	3.1 %
25 - 29	4.0 %
30 - 34	1.8 %
35 - 39	2.7 %
40 - 44	2.7 %
45 - 49	6.2 %
50 - 54	7.1 %
55 - 59	6.7 %
60 - 64	7.1 %
65 - 69	6.2 %
70 - 74	3.6 %
75 - 79	3.1 %
80 - 84	7.1 %
85 - 89	4.9 %
90 - 94	3.1 %
95 - 99	7.6 %
100 - 104	4.0 %
105 - 109	4.9 %
> 109	7.6 %
(Cases) N =	225
mean	65
min size (mm)	13
max size (mm)	122

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.5 %
15 - 19	0.5 %
20 - 24	1.4 %
25 - 29	1.8 %
30 - 34	10.5 %
35 - 39	16.4 %
40 - 44	31.5 %
45 - 49	21.0 %
50 - 54	12.8 %
55 - 59	3.2 %
60 - 64	0.5 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	219
mean	41
min size (mm)	14
max size (mm)	62

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Chickasaw

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	1.6 %
30 - 39	1.6 %
40 - 49	6.6 %
50 - 59	4.9 %
60 - 69	13.1 %
70 - 79	14.8 %
80 - 89	23.0 %
90 - 99	19.7 %
> 99	14.8 %
(Cases) N =	61
mean	77
min size (mm)	27
max size (mm)	127

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	11.8 %
60 - 69	11.8 %
70 - 79	11.8 %
80 - 89	11.8 %
90 - 99	29.4 %
100 - 109	17.6 %
110 - 119	5.9 %
> 119	0.0 %
(Cases) N =	17
mean	84
min size (mm)	52
max size (mm)	112

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	6.5 %
50 - 59	17.7 %
60 - 69	45.2 %
70 - 79	21.0 %
80 - 89	9.7 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	62
mean	65
min size (mm)	43
max size (mm)	88

Haliotis rufescens

<25	0.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	2.9 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	2.9 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	8.6 %
145 - 154	5.7 %
155 - 164	0.0 %
165 - 174	2.9 %
175 - 184	2.9 %
185 - 194	8.6 %
>195	62.9 %
(Cases) N =	35
mean	188
min size (mm)	63
max size (mm)	231

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	8.3 %
30 - 39	16.7 %
40 - 49	16.7 %
50 - 59	16.7 %
60 - 69	8.3 %
70 - 79	8.3 %
80 - 89	8.3 %
90 - 99	16.7 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	12
mean	58
min size (mm)	26
max size (mm)	92

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	21.3 %
80 - 99	47.5 %
100 - 119	9.8 %
120 - 139	11.5 %
140 - 159	6.6 %
160 - 179	0.0 %
180 - 199	1.6 %
200 - 219	1.6 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	61
mean	103
min size (mm)	62
max size (mm)	202

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Chickasaw

Pycnopodia helianthoides	
< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	8.3 %
100 - 119	8.3 %
120 - 139	16.7 %
140 - 159	16.7 %
160 - 179	33.3 %
180 - 199	8.3 %
200 - 219	8.3 %
220 - 239	0.0 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	12
mean	151
min size (mm)	86
max size (mm)	210

Strongylocentrotus purpuratus	
< 5	0.4 %
5 - 9	0.4 %
10 - 14	4.3 %
15 - 19	7.7 %
20 - 24	6.4 %
25 - 29	9.4 %
30 - 34	12.0 %
35 - 39	11.5 %
40 - 44	12.0 %
45 - 49	10.7 %
50 - 54	10.3 %
55 - 59	7.7 %
60 - 64	5.1 %
65 - 69	1.3 %
70 - 74	0.9 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	234
mean	39
min size (mm)	4
max size (mm)	72

Strongylocentrotus franciscanus	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	3.0 %
15 - 19	5.9 %
20 - 24	5.1 %
25 - 29	5.1 %
30 - 34	2.5 %
35 - 39	3.0 %
40 - 44	1.7 %
45 - 49	1.3 %
50 - 54	1.7 %
55 - 59	2.1 %
60 - 64	1.3 %
65 - 69	0.8 %
70 - 74	4.2 %
75 - 79	3.0 %
80 - 84	4.6 %
85 - 89	5.5 %
90 - 94	5.5 %
95 - 99	5.5 %
100 - 104	7.2 %
105 - 109	5.9 %
> 109	25.3 %
(Cases) N =	237
mean	75
min size (mm)	12
max size (mm)	134

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - South Point

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	1.5 %
40 - 49	4.6 %
50 - 59	1.5 %
60 - 69	7.7 %
70 - 79	21.5 %
80 - 89	20.0 %
90 - 99	12.3 %
> 99	30.8 %
(Cases) N =	65
mean	87
min size (mm)	34
max size (mm)	157

Haliotis rufescens

<25	0.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.7 %
65 - 74	2.1 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	1.4 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.7 %
135 - 144	3.4 %
145 - 154	2.1 %
155 - 164	6.8 %
165 - 174	11.0 %
175 - 184	17.8 %
185 - 194	21.9 %
>195	26.7 %
(Cases) N =	146
mean	178
min size (mm)	62
max size (mm)	235

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	50.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	50.0 %
(Cases) N =	2
mean	108
min size (mm)	90
max size (mm)	125

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	25.0 %
90 - 99	12.5 %
100 - 109	12.5 %
110 - 119	50.0 %
> 119	0.0 %
(Cases) N =	8
mean	102
min size (mm)	85
max size (mm)	115

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	16.7 %
50 - 59	33.3 %
60 - 69	16.7 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	16.7 %
100 - 109	16.7 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	6
mean	69
min size (mm)	47
max size (mm)	105

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	6.6 %
30 - 39	11.5 %
40 - 49	8.2 %
50 - 59	16.4 %
60 - 69	37.7 %
70 - 79	18.0 %
80 - 89	1.6 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	61
mean	55
min size (mm)	21
max size (mm)	85

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - South Point

Pisaster giganteus

< 20	0.0 %
20 - 39	1.6 %
40 - 59	9.7 %
60 - 79	19.4 %
80 - 99	30.6 %
100 - 119	29.0 %
120 - 139	8.1 %
140 - 159	0.0 %
160 - 179	1.6 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	62
mean	91
min size (mm)	32
max size (mm)	168

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	0.0 %
40 - 59	9.1 %
60 - 79	0.0 %
80 - 99	4.5 %
100 - 119	4.5 %
120 - 139	0.0 %
140 - 159	0.0 %
160 - 179	13.6 %
180 - 199	27.3 %
200 - 219	22.7 %
220 - 239	13.6 %
240 - 259	4.5 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	22
mean	169
min size (mm)	50
max size (mm)	242

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	3.6 %
15 - 19	4.4 %
20 - 24	9.8 %
25 - 29	6.2 %
30 - 34	6.2 %
35 - 39	3.6 %
40 - 44	3.6 %
45 - 49	6.7 %
50 - 54	3.6 %
55 - 59	4.9 %
60 - 64	4.0 %
65 - 69	2.2 %
70 - 74	3.6 %
75 - 79	2.7 %
80 - 84	5.3 %
85 - 89	2.7 %
90 - 94	4.4 %
95 - 99	4.4 %
100 - 104	3.1 %
105 - 109	3.6 %
> 109	11.6 %
(Cases) N =	225
mean	65
min size (mm)	11
max size (mm)	152

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.5 %
10 - 14	3.6 %
15 - 19	3.6 %
20 - 24	5.0 %
25 - 29	5.9 %
30 - 34	14.1 %
35 - 39	15.9 %
40 - 44	23.2 %
45 - 49	8.2 %
50 - 54	13.6 %
55 - 59	2.3 %
60 - 64	2.3 %
65 - 69	1.8 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	220
mean	38
min size (mm)	8
max size (mm)	67

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Devil's Peak Member

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	4.6 %
30 - 39	21.5 %
40 - 49	33.8 %
50 - 59	26.2 %
60 - 69	9.2 %
70 - 79	3.1 %
80 - 89	1.5 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	65
mean	48
min size (mm)	24
max size (mm)	87

Megastraea undosa

<10	0.0 %
10 - 19	3.6 %
20 - 29	25.0 %
30 - 39	28.6 %
40 - 49	0.0 %
50 - 59	3.6 %
60 - 69	0.0 %
70 - 79	7.1 %
80 - 89	14.3 %
90 - 99	14.3 %
100 - 109	3.6 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	28
mean	58
min size (mm)	13
max size (mm)	102

Lithopoma gibberosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	100.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	1
mean	36
min size (mm)	36
max size (mm)	36

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	1.5 %
50 - 59	3.1 %
60 - 69	9.2 %
70 - 79	29.2 %
80 - 89	46.2 %
90 - 99	10.8 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	65
mean	78
min size (mm)	48
max size (mm)	97

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	4.3 %
50 - 59	8.7 %
60 - 69	8.7 %
70 - 79	0.0 %
80 - 89	17.4 %
90 - 99	13.0 %
100 - 109	4.3 %
110 - 119	8.7 %
120 - 129	8.7 %
130 - 139	13.0 %
> 139	13.0 %
(Cases) N =	23
mean	102
min size (mm)	41
max size (mm)	164

Tegula regina

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	8.7 %
35 - 39	0.0 %
40 - 44	13.0 %
45 - 49	26.1 %
50 - 54	34.8 %
55 - 59	8.7 %
60 - 64	8.7 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	23
mean	49
min size (mm)	32
max size (mm)	60

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	4.3 %
30 - 39	7.2 %
40 - 49	15.9 %
50 - 59	15.9 %
60 - 69	29.0 %
70 - 79	24.6 %
80 - 89	2.9 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	69
mean	56
min size (mm)	22
max size (mm)	84

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Devil's Peak Member

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	1.5 %
60 - 79	0.0 %
80 - 99	0.0 %
100 - 119	25.4 %
120 - 139	50.7 %
140 - 159	16.4 %
160 - 179	3.0 %
180 - 199	0.0 %
200 - 219	1.5 %
220 - 239	1.5 %
> 239	0.0 %
(Cases) N =	67
mean	132
min size (mm)	54
max size (mm)	239

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	0.0 %
100 - 119	0.0 %
120 - 139	0.0 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	10.3 %
220 - 239	10.3 %
240 - 259	31.0 %
260 - 279	13.8 %
280 - 299	17.2 %
> 299	17.2 %
(Cases) N =	29
mean	262
min size (mm)	200
max size (mm)	330

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	2.5 %
20 - 24	7.9 %
25 - 29	12.5 %
30 - 34	10.0 %
35 - 39	10.0 %
40 - 44	10.4 %
45 - 49	7.1 %
50 - 54	7.1 %
55 - 59	13.8 %
60 - 64	11.7 %
65 - 69	6.3 %
70 - 74	0.8 %
75 - 79	0.0 %
80 - 84	0.0 %
85 - 89	0.0 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	240
mean	43
min size (mm)	15
max size (mm)	72

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.4 %
10 - 14	1.1 %
15 - 19	2.6 %
20 - 24	23.5 %
25 - 29	32.1 %
30 - 34	26.9 %
35 - 39	10.8 %
40 - 44	2.6 %
45 - 49	0.0 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	268
mean	28
min size (mm)	9
max size (mm)	42

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Potato Pasture

Tethya aurantia

<10	0.0 %
10 - 19	1.6 %
20 - 29	3.3 %
30 - 39	1.6 %
40 - 49	21.3 %
50 - 59	23.0 %
60 - 69	27.9 %
70 - 79	14.8 %
80 - 89	6.6 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	61
mean	58
min size (mm)	13
max size (mm)	87

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	5.0 %
70 - 79	5.0 %
80 - 89	30.0 %
90 - 99	30.0 %
100 - 109	15.0 %
110 - 119	5.0 %
120 - 129	10.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	20
mean	94
min size (mm)	64
max size (mm)	123

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	15.0 %
30 - 39	30.0 %
40 - 49	20.0 %
50 - 59	25.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	5.0 %
90 - 99	5.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	20
mean	46
min size (mm)	24
max size (mm)	96

Lithopoma gibberosa

<10	0.0 %
10 - 19	100.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	3
mean	13
min size (mm)	11
max size (mm)	14

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	1.9 %
30 - 39	0.0 %
40 - 49	1.9 %
50 - 59	7.4 %
60 - 69	9.3 %
70 - 79	20.4 %
80 - 89	25.9 %
90 - 99	20.4 %
100 - 109	5.6 %
110 - 119	3.7 %
> 119	3.7 %
(Cases) N =	54
mean	80
min size (mm)	23
max size (mm)	129

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	2.1 %
30 - 39	4.3 %
40 - 49	4.3 %
50 - 59	4.3 %
60 - 69	4.3 %
70 - 79	2.1 %
80 - 89	6.4 %
90 - 99	4.3 %
100 - 109	6.4 %
110 - 119	10.6 %
120 - 129	12.8 %
130 - 139	8.5 %
> 139	29.8 %
(Cases) N =	47
mean	112
min size (mm)	29
max size (mm)	183

Tegula regina

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	50.0 %
50 - 54	16.7 %
55 - 59	16.7 %
60 - 64	16.7 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	6
mean	53
min size (mm)	46
max size (mm)	62

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Potato Pasture

Patiria miniata

<10	0.0 %
10 - 19	3.3 %
20 - 29	11.7 %
30 - 39	13.3 %
40 - 49	26.7 %
50 - 59	15.0 %
60 - 69	21.7 %
70 - 79	6.7 %
80 - 89	1.7 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	60
mean	49
min size (mm)	18
max size (mm)	80

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	3.3 %
100 - 119	5.0 %
120 - 139	15.0 %
140 - 159	11.7 %
160 - 179	21.7 %
180 - 199	26.7 %
200 - 219	13.3 %
220 - 239	1.7 %
> 239	1.7 %
(Cases) N =	60
mean	166
min size (mm)	96
max size (mm)	240

Lytechinus anamesus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	2.0 %
15 - 19	25.5 %
20 - 24	47.1 %
25 - 29	23.5 %
30 - 34	2.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	51
mean	22
min size (mm)	12
max size (mm)	30

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	1.9 %
15 - 19	4.3 %
20 - 24	9.0 %
25 - 29	8.1 %
30 - 34	7.6 %
35 - 39	2.8 %
40 - 44	5.2 %
45 - 49	10.9 %
50 - 54	9.0 %
55 - 59	10.9 %
60 - 64	16.6 %
65 - 69	9.0 %
70 - 74	3.3 %
75 - 79	1.4 %
80 - 84	0.0 %
85 - 89	0.0 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	211
mean	44
min size (mm)	12
max size (mm)	76

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	3.2 %
15 - 19	3.5 %
20 - 24	16.7 %
25 - 29	14.5 %
30 - 34	21.9 %
35 - 39	18.6 %
40 - 44	14.8 %
45 - 49	5.8 %
50 - 54	1.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	311
mean	31
min size (mm)	10
max size (mm)	51

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Cavern Point

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	6.0 %
30 - 39	16.0 %
40 - 49	16.0 %
50 - 59	22.0 %
60 - 69	24.0 %
70 - 79	10.0 %
80 - 89	6.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	50
mean	53
min size (mm)	21
max size (mm)	87

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	100.0 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	2
mean	113
min size (mm)	111
max size (mm)	114

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	46.2 %
30 - 39	0.0 %
40 - 49	7.7 %
50 - 59	15.4 %
60 - 69	0.0 %
70 - 79	23.1 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	7.7 %
> 119	0.0 %
(Cases) N =	13
mean	50
min size (mm)	21
max size (mm)	115

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	6.7 %
70 - 79	13.3 %
80 - 89	24.4 %
90 - 99	40.0 %
100 - 109	15.6 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	45
mean	88
min size (mm)	64
max size (mm)	107

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	2.0 %
30 - 39	2.0 %
40 - 49	5.9 %
50 - 59	2.0 %
60 - 69	5.9 %
70 - 79	5.9 %
80 - 89	7.8 %
90 - 99	7.8 %
100 - 109	7.8 %
110 - 119	5.9 %
120 - 129	19.6 %
130 - 139	7.8 %
> 139	19.6 %
(Cases) N =	51
mean	103
min size (mm)	27
max size (mm)	172

Tegula regina

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	40.0 %
45 - 49	0.0 %
50 - 54	60.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	5
mean	48
min size (mm)	41
max size (mm)	54

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	3.3 %
30 - 39	8.3 %
40 - 49	3.3 %
50 - 59	15.0 %
60 - 69	15.0 %
70 - 79	25.0 %
80 - 89	21.7 %
90 - 99	8.3 %
> 99	0.0 %
(Cases) N =	60
mean	65
min size (mm)	26
max size (mm)	98

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Cavern Point

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	2.6 %
80 - 99	5.1 %
100 - 119	10.3 %
120 - 139	25.6 %
140 - 159	23.1 %
160 - 179	23.1 %
180 - 199	5.1 %
200 - 219	2.6 %
220 - 239	0.0 %
> 239	2.6 %
(Cases) N =	39
mean	147
min size (mm)	64
max size (mm)	276

Lytechinus anamesus

< 5	0.0 %
5 - 9	16.7 %
10 - 14	33.3 %
15 - 19	33.3 %
20 - 24	16.7 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	6
mean	14
min size (mm)	7
max size (mm)	20

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	1.0 %
10 - 14	5.0 %
15 - 19	16.4 %
20 - 24	15.4 %
25 - 29	7.5 %
30 - 34	6.0 %
35 - 39	4.5 %
40 - 44	8.5 %
45 - 49	7.5 %
50 - 54	6.0 %
55 - 59	4.5 %
60 - 64	1.0 %
65 - 69	2.0 %
70 - 74	2.0 %
75 - 79	0.5 %
80 - 84	3.5 %
85 - 89	1.5 %
90 - 94	3.0 %
95 - 99	2.0 %
100 - 104	1.5 %
105 - 109	0.5 %
> 109	0.5 %
(Cases) N =	201
mean	50
min size (mm)	8
max size (mm)	112

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	1.7 %
10 - 14	5.7 %
15 - 19	9.0 %
20 - 24	12.7 %
25 - 29	11.4 %
30 - 34	10.0 %
35 - 39	9.0 %
40 - 44	12.7 %
45 - 49	11.7 %
50 - 54	9.0 %
55 - 59	3.7 %
60 - 64	3.3 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	299
mean	36
min size (mm)	6
max size (mm)	63

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Little Scorpion

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	2.1 %
30 - 39	16.7 %
40 - 49	29.2 %
50 - 59	16.7 %
60 - 69	16.7 %
70 - 79	6.3 %
80 - 89	10.4 %
90 - 99	2.1 %
> 99	0.0 %
(Cases) N =	48
mean	55
min size (mm)	24
max size (mm)	97

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	77.8 %
30 - 39	11.1 %
40 - 49	11.1 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	18
mean	28
min size (mm)	21
max size (mm)	47

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	1.7 %
50 - 59	11.7 %
60 - 69	21.7 %
70 - 79	16.7 %
80 - 89	33.3 %
90 - 99	13.3 %
100 - 109	1.7 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	60
mean	77
min size (mm)	46
max size (mm)	105

Haliotis rufescens

<25	0.0 %
25 - 34	0.0 %
35 - 44	100.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	0.0 %
155 - 164	0.0 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	1
mean	35
min size (mm)	35
max size (mm)	35

Lithopoma gibberosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	66.7 %
30 - 39	33.3 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	3
mean	28
min size (mm)	26
max size (mm)	30

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	33.3 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	33.3 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	33.3 %
(Cases) N =	3
mean	93
min size (mm)	34
max size (mm)	140

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Little Scorpion

Tegula regina

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	4.0 %
40 - 44	8.0 %
45 - 49	12.0 %
50 - 54	24.0 %
55 - 59	48.0 %
60 - 64	4.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	25
mean	51
min size (mm)	39
max size (mm)	61

Patiria miniata

<10	0.0 %
10 - 19	0.8 %
20 - 29	7.4 %
30 - 39	12.4 %
40 - 49	23.1 %
50 - 59	19.0 %
60 - 69	23.1 %
70 - 79	9.9 %
80 - 89	4.1 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	121
mean	53
min size (mm)	17
max size (mm)	86

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	1.6 %
60 - 79	0.8 %
80 - 99	2.3 %
100 - 119	13.2 %
120 - 139	22.5 %
140 - 159	28.7 %
160 - 179	23.3 %
180 - 199	7.0 %
200 - 219	0.8 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	129
mean	142
min size (mm)	42
max size (mm)	207

Lytechinus anamesus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	1.0 %
20 - 24	47.4 %
25 - 29	44.3 %
30 - 34	7.3 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	192
mean	26
min size (mm)	18
max size (mm)	33

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	3.6 %
15 - 19	17.5 %
20 - 24	13.9 %
25 - 29	11.9 %
30 - 34	12.4 %
35 - 39	11.3 %
40 - 44	7.7 %
45 - 49	5.7 %
50 - 54	5.2 %
55 - 59	3.6 %
60 - 64	3.1 %
65 - 69	2.1 %
70 - 74	1.0 %
75 - 79	0.5 %
80 - 84	0.5 %
85 - 89	0.0 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	194
mean	38
min size (mm)	11
max size (mm)	81

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	3.5 %
15 - 19	12.7 %
20 - 24	26.6 %
25 - 29	20.1 %
30 - 34	13.1 %
35 - 39	11.8 %
40 - 44	4.4 %
45 - 49	2.6 %
50 - 54	1.7 %
55 - 59	1.7 %
60 - 64	1.7 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	229
mean	33
min size (mm)	13
max size (mm)	62

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pedro Reef

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	13.0 %
40 - 49	34.8 %
50 - 59	30.4 %
60 - 69	17.4 %
70 - 79	4.3 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	23
mean	52
min size (mm)	33
max size (mm)	79

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	100.0 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	1
mean	119
min size (mm)	119
max size (mm)	119

Lithopoma gibberosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	100.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	1
mean	46
min size (mm)	46
max size (mm)	46

Haliotis rufescens

<25	100.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	0.0 %
155 - 164	0.0 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	2
mean	19
min size (mm)	18
max size (mm)	20

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	22.2 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	11.1 %
70 - 79	22.2 %
80 - 89	44.4 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	9
mean	67
min size (mm)	22
max size (mm)	89

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	1.6 %
30 - 39	1.6 %
40 - 49	6.5 %
50 - 59	22.6 %
60 - 69	32.3 %
70 - 79	25.8 %
80 - 89	8.1 %
90 - 99	1.6 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	62
mean	64
min size (mm)	28
max size (mm)	90

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pedro Reef

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	11.1 %
40 - 49	0.0 %
50 - 59	22.2 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	22.2 %
110 - 119	22.2 %
120 - 129	0.0 %
130 - 139	11.1 %
> 139	11.1 %
(Cases) N =	9
mean	99
min size (mm)	31
max size (mm)	164

Tegula regina

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	100.0 %
45 - 49	0.0 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	1
mean	42
min size (mm)	42
max size (mm)	42

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	18.3 %
40 - 49	15.0 %
50 - 59	18.3 %
60 - 69	23.3 %
70 - 79	20.0 %
80 - 89	5.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	60
mean	56
min size (mm)	30
max size (mm)	88

Pisaster giganteus

< 20	0.0 %
20 - 39	6.7 %
40 - 59	41.7 %
60 - 79	33.3 %
80 - 99	11.7 %
100 - 119	0.0 %
120 - 139	1.7 %
140 - 159	3.3 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	1.7 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	60
mean	72
min size (mm)	34
max size (mm)	210

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	25.0 %
80 - 99	0.0 %
100 - 119	25.0 %
120 - 139	25.0 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	25.0 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	4
mean	129
min size (mm)	75
max size (mm)	220

Lytechinus anamesus

< 5	0.0 %
5 - 9	1.9 %
10 - 14	18.4 %
15 - 19	22.7 %
20 - 24	19.8 %
25 - 29	28.5 %
30 - 34	8.7 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	207
mean	20
min size (mm)	8
max size (mm)	32

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pedro Reef

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.6 %
10 - 14	1.9 %
15 - 19	20.0 %
20 - 24	20.0 %
25 - 29	12.5 %
30 - 34	9.4 %
35 - 39	17.2 %
40 - 44	11.6 %
45 - 49	5.6 %
50 - 54	0.9 %
55 - 59	0.3 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
80 - 84	0.0 %
85 - 89	0.0 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	320
mean	31
min size (mm)	5
max size (mm)	56

Strongylocentrotus purpuratus

< 5	0.5 %
5 - 9	0.8 %
10 - 14	7.4 %
15 - 19	40.1 %
20 - 24	42.4 %
25 - 29	8.6 %
30 - 34	0.3 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	394
mean	17
min size (mm)	3
max size (mm)	30

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Keyhole

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	100.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	2
mean	34
min size (mm)	33
max size (mm)	35

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	100.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	1
mean	90
min size (mm)	90
max size (mm)	90

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	100.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	3
mean	32
min size (mm)	31
max size (mm)	33

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	5.3 %
50 - 59	47.4 %
60 - 69	36.8 %
70 - 79	10.5 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	19
mean	61
min size (mm)	41
max size (mm)	75

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	28.6 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	14.3 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	28.6 %
130 - 139	14.3 %
> 139	14.3 %
(Cases) N =	7
mean	101
min size (mm)	42
max size (mm)	160

Tegula regina

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	2.3 %
35 - 39	2.3 %
40 - 44	27.3 %
45 - 49	20.5 %
50 - 54	36.4 %
55 - 59	11.4 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	44
mean	48
min size (mm)	33
max size (mm)	59

Patiria miniata

<10	0.0 %
10 - 19	1.9 %
20 - 29	2.8 %
30 - 39	14.8 %
40 - 49	16.7 %
50 - 59	27.8 %
60 - 69	21.3 %
70 - 79	10.2 %
80 - 89	3.7 %
90 - 99	0.9 %
> 99	0.0 %
(Cases) N =	108
mean	54
min size (mm)	17
max size (mm)	91

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Keyhole

Pisaster giganteus

< 20	1.6 %
20 - 39	0.0 %
40 - 59	4.9 %
60 - 79	11.5 %
80 - 99	4.9 %
100 - 119	24.6 %
120 - 139	36.1 %
140 - 159	9.8 %
160 - 179	0.0 %
180 - 199	3.3 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	3.3 %
(Cases) N =	61
mean	118
min size (mm)	18
max size (mm)	268

Lytechinus anamesus

< 5	0.0 %
5 - 9	2.6 %
10 - 14	5.7 %
15 - 19	35.2 %
20 - 24	19.4 %
25 - 29	21.6 %
30 - 34	14.5 %
35 - 39	0.9 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	227
mean	20
min size (mm)	6
max size (mm)	36

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.5 %
10 - 14	0.0 %
15 - 19	17.5 %
20 - 24	27.0 %
25 - 29	27.0 %
30 - 34	7.6 %
35 - 39	5.2 %
40 - 44	0.5 %
45 - 49	1.9 %
50 - 54	0.0 %
55 - 59	1.4 %
60 - 64	2.8 %
65 - 69	1.4 %
70 - 74	0.5 %
75 - 79	2.4 %
80 - 84	0.5 %
85 - 89	1.9 %
90 - 94	0.0 %
95 - 99	1.4 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.5 %
(Cases) N =	211
mean	48
min size (mm)	6
max size (mm)	110

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.9 %
15 - 19	24.1 %
20 - 24	44.3 %
25 - 29	18.5 %
30 - 34	4.8 %
35 - 39	2.8 %
40 - 44	3.4 %
45 - 49	0.6 %
50 - 54	0.3 %
55 - 59	0.3 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	352
mean	31
min size (mm)	13
max size (mm)	58

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - East Fish Camp

Tethya aurantia

<10	0.0 %
10 - 19	6.7 %
20 - 29	15.6 %
30 - 39	22.2 %
40 - 49	24.4 %
50 - 59	22.2 %
60 - 69	0.0 %
70 - 79	4.4 %
80 - 89	0.0 %
90 - 99	2.2 %
> 99	2.2 %
(Cases) N =	45
mean	43
min size (mm)	11
max size (mm)	106

Kelletia kelletii

< 40	57.1 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	7.1 %
80 - 89	7.1 %
90 - 99	21.4 %
100 - 109	7.1 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	14
mean	59
min size (mm)	20
max size (mm)	100

Megastraea undosa

<10	0.0 %
10 - 19	4.5 %
20 - 29	54.5 %
30 - 39	0.0 %
40 - 49	22.7 %
50 - 59	9.1 %
60 - 69	9.1 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	22
mean	35
min size (mm)	18
max size (mm)	66

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	22.5 %
40 - 49	40.0 %
50 - 59	15.0 %
60 - 69	17.5 %
70 - 79	5.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	40
mean	51
min size (mm)	33
max size (mm)	74

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	6.3 %
30 - 39	6.3 %
40 - 49	12.5 %
50 - 59	18.8 %
60 - 69	12.5 %
70 - 79	18.8 %
80 - 89	6.3 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	6.3 %
130 - 139	0.0 %
> 139	12.5 %
(Cases) N =	16
mean	72
min size (mm)	25
max size (mm)	160

Tegula regina

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	20.0 %
45 - 49	20.0 %
50 - 54	40.0 %
55 - 59	20.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	5
mean	50
min size (mm)	43
max size (mm)	56

Patiria miniata

<10	0.0 %
10 - 19	1.3 %
20 - 29	9.3 %
30 - 39	10.7 %
40 - 49	21.3 %
50 - 59	9.3 %
60 - 69	22.7 %
70 - 79	16.0 %
80 - 89	8.0 %
90 - 99	1.3 %
> 99	0.0 %
(Cases) N =	75
mean	55
min size (mm)	13
max size (mm)	93

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - East Fish Camp

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	7.2 %
80 - 99	0.0 %
100 - 119	7.2 %
120 - 139	24.6 %
140 - 159	27.5 %
160 - 179	15.9 %
180 - 199	14.5 %
200 - 219	1.4 %
220 - 239	0.0 %
> 239	1.4 %
(Cases) N =	69
mean	147
min size (mm)	63
max size (mm)	250

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	0.0 %
100 - 119	0.0 %
120 - 139	0.0 %
140 - 159	50.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	50.0 %
(Cases) N =	2
mean	250
min size (mm)	140
max size (mm)	360

Lytechinus anamesus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	75.0 %
25 - 29	25.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	4
mean	23
min size (mm)	21
max size (mm)	25

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.5 %
15 - 19	10.4 %
20 - 24	12.5 %
25 - 29	27.1 %
30 - 34	30.2 %
35 - 39	14.1 %
40 - 44	3.6 %
45 - 49	1.0 %
50 - 54	0.5 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
80 - 84	0.0 %
85 - 89	0.0 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	192
mean	30
min size (mm)	12
max size (mm)	53

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.5 %
10 - 14	9.7 %
15 - 19	33.8 %
20 - 24	42.1 %
25 - 29	13.0 %
30 - 34	0.9 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	216
mean	20
min size (mm)	9
max size (mm)	30

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Black Sea Bass Reef

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	20.0 %
50 - 59	30.0 %
60 - 69	10.0 %
70 - 79	10.0 %
80 - 89	20.0 %
90 - 99	10.0 %
> 99	0.0 %
(Cases) N =	10
mean	63
min size (mm)	42
max size (mm)	95

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	7.7 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	7.7 %
70 - 79	7.7 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	38.5 %
110 - 119	23.1 %
> 119	15.4 %
(Cases) N =	13
mean	99
min size (mm)	35
max size (mm)	125

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	100.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	2
mean	25
min size (mm)	23
max size (mm)	26

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	14.3 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	14.3 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	14.3 %
100 - 109	14.3 %
110 - 119	14.3 %
120 - 129	0.0 %
130 - 139	14.3 %
> 139	14.3 %
(Cases) N =	7
mean	99
min size (mm)	32
max size (mm)	153

Tegula regina

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	55.6 %
50 - 54	44.4 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	9
mean	49
min size (mm)	45
max size (mm)	52

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	9.1 %
50 - 59	18.2 %
60 - 69	9.1 %
70 - 79	27.3 %
80 - 89	18.2 %
90 - 99	18.2 %
> 99	0.0 %
(Cases) N =	11
mean	72
min size (mm)	49
max size (mm)	94

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	8.3 %
80 - 99	0.0 %
100 - 119	4.2 %
120 - 139	12.5 %
140 - 159	37.5 %
160 - 179	12.5 %
180 - 199	20.8 %
200 - 219	4.2 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	24
mean	153
min size (mm)	72
max size (mm)	207

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Black Sea Bass Reef

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	8.2 %
10 - 14	6.0 %
15 - 19	0.7 %
20 - 24	1.5 %
25 - 29	2.2 %
30 - 34	4.5 %
35 - 39	4.5 %
40 - 44	11.9 %
45 - 49	3.0 %
50 - 54	6.0 %
55 - 59	2.2 %
60 - 64	9.0 %
65 - 69	2.2 %
70 - 74	10.4 %
75 - 79	2.2 %
80 - 84	11.2 %
85 - 89	6.0 %
90 - 94	3.7 %
95 - 99	0.7 %
100 - 104	2.2 %
105 - 109	0.0 %
> 109	1.5 %
(Cases) N =	134
mean	56
min size (mm)	5
max size (mm)	111

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	2.8 %
10 - 14	0.9 %
15 - 19	4.3 %
20 - 24	17.1 %
25 - 29	28.9 %
30 - 34	23.7 %
35 - 39	11.4 %
40 - 44	8.5 %
45 - 49	0.5 %
50 - 54	1.4 %
55 - 59	0.5 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	211
mean	29
min size (mm)	6
max size (mm)	59

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Lighthouse

Tethya aurantia

<10	0.0 %
10 - 19	4.6 %
20 - 29	9.2 %
30 - 39	9.2 %
40 - 49	15.4 %
50 - 59	13.8 %
60 - 69	26.2 %
70 - 79	9.2 %
80 - 89	7.7 %
90 - 99	3.1 %
> 99	1.5 %
(Cases) N =	65
mean	56
min size (mm)	10
max size (mm)	102

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	33.3 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	66.7 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	3
mean	74
min size (mm)	34
max size (mm)	96

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	3.1 %
50 - 59	3.1 %
60 - 69	9.4 %
70 - 79	43.8 %
80 - 89	34.4 %
90 - 99	6.3 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	32
mean	77
min size (mm)	49
max size (mm)	91

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	50.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	50.0 %
(Cases) N =	2
mean	113
min size (mm)	54
max size (mm)	172

Tegula regina

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
50 - 54	0.0 %
55 - 59	100.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	2
mean	57
min size (mm)	55
max size (mm)	58

Patiria miniata

<10	0.0 %
10 - 19	1.7 %
20 - 29	11.7 %
30 - 39	16.7 %
40 - 49	20.0 %
50 - 59	13.3 %
60 - 69	15.0 %
70 - 79	11.7 %
80 - 89	5.0 %
90 - 99	3.3 %
> 99	1.7 %
(Cases) N =	60
mean	52
min size (mm)	19
max size (mm)	105

Pisaster giganteus

< 20	0.0 %
20 - 39	1.7 %
40 - 59	1.7 %
60 - 79	8.3 %
80 - 99	25.0 %
100 - 119	36.7 %
120 - 139	21.7 %
140 - 159	3.3 %
160 - 179	1.7 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	60
mean	106
min size (mm)	39
max size (mm)	160

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Lighthouse

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	0.0 %
40 - 59	33.3 %
60 - 79	33.3 %
80 - 99	0.0 %
100 - 119	0.0 %
120 - 139	0.0 %
140 - 159	33.3 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	3
mean	83
min size (mm)	46
max size (mm)	140

Lytechinus anamesus

< 5	0.0 %
5 - 9	3.2 %
10 - 14	4.5 %
15 - 19	23.2 %
20 - 24	33.5 %
25 - 29	26.5 %
30 - 34	9.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	155
mean	21
min size (mm)	6
max size (mm)	34

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	5.3 %
15 - 19	12.7 %
20 - 24	23.7 %
25 - 29	18.0 %
30 - 34	9.6 %
35 - 39	7.0 %
40 - 44	13.2 %
45 - 49	6.6 %
50 - 54	2.2 %
55 - 59	0.9 %
60 - 64	0.9 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
80 - 84	0.0 %
85 - 89	0.0 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	228
mean	32
min size (mm)	12
max size (mm)	63

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	4.9 %
15 - 19	17.6 %
20 - 24	28.7 %
25 - 29	25.4 %
30 - 34	20.1 %
35 - 39	3.3 %
40 - 44	0.0 %
45 - 49	0.0 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	244
mean	24
min size (mm)	10
max size (mm)	39

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Webster's Arch

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	50.0 %
60 - 69	25.0 %
70 - 79	25.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	4
mean	61
min size (mm)	52
max size (mm)	72

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	1.8 %
50 - 59	0.0 %
60 - 69	3.5 %
70 - 79	14.0 %
80 - 89	31.6 %
90 - 99	38.6 %
100 - 109	8.8 %
110 - 119	1.8 %
> 119	0.0 %
(Cases) N =	57
mean	86
min size (mm)	43
max size (mm)	110

Lithopoma gibberosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	100.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	1
mean	46
min size (mm)	46
max size (mm)	46

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	2.9 %
70 - 79	14.3 %
80 - 89	14.3 %
90 - 99	22.9 %
100 - 109	20.0 %
110 - 119	20.0 %
> 119	5.7 %
(Cases) N =	35
mean	97
min size (mm)	62
max size (mm)	124

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	50.0 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	50.0 %
(Cases) N =	2
mean	135
min size (mm)	118
max size (mm)	152

Tegula regina

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	3.1 %
25 - 29	0.0 %
30 - 34	3.1 %
35 - 39	12.5 %
40 - 44	53.1 %
45 - 49	25.0 %
50 - 54	3.1 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	32
mean	41
min size (mm)	23
max size (mm)	51

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	3.2 %
50 - 59	23.8 %
60 - 69	39.7 %
70 - 79	27.0 %
80 - 89	6.3 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	63
mean	65
min size (mm)	44
max size (mm)	89

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Webster's Arch

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	1.7 %
100 - 119	41.7 %
120 - 139	45.0 %
140 - 159	5.0 %
160 - 179	3.3 %
180 - 199	1.7 %
200 - 219	1.7 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	60
mean	129
min size (mm)	99
max size (mm)	217

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	0.0 %
100 - 119	0.0 %
120 - 139	0.0 %
140 - 159	4.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	40.0 %
220 - 239	8.0 %
240 - 259	8.0 %
260 - 279	16.0 %
280 - 299	8.0 %
> 299	16.0 %
(Cases) N =	25
mean	246
min size (mm)	156
max size (mm)	366

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	3.4 %
15 - 19	20.0 %
20 - 24	16.1 %
25 - 29	12.7 %
30 - 34	9.8 %
35 - 39	8.3 %
40 - 44	12.2 %
45 - 49	7.8 %
50 - 54	3.4 %
55 - 59	2.0 %
60 - 64	1.5 %
65 - 69	1.5 %
70 - 74	1.0 %
75 - 79	0.0 %
80 - 84	0.0 %
85 - 89	0.5 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	205
mean	39
min size (mm)	11
max size (mm)	87

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	5.8 %
15 - 19	42.4 %
20 - 24	35.0 %
25 - 29	12.8 %
30 - 34	3.7 %
35 - 39	0.4 %
40 - 44	0.0 %
45 - 49	0.0 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	243
mean	23
min size (mm)	12
max size (mm)	35

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Graveyard Canyon

Tethya aurantia

<10	1.7 %
10 - 19	0.0 %
20 - 29	3.4 %
30 - 39	12.1 %
40 - 49	15.5 %
50 - 59	22.4 %
60 - 69	25.9 %
70 - 79	10.3 %
80 - 89	5.2 %
90 - 99	3.4 %
> 99	0.0 %
(Cases) N =	58
mean	55
min size (mm)	9
max size (mm)	98

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	50.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	50.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	2
mean	59
min size (mm)	24
max size (mm)	93

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	100.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	1
mean	52
min size (mm)	52
max size (mm)	52

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	25.0 %
40 - 49	0.0 %
50 - 59	25.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	25.0 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	25.0 %
(Cases) N =	4
mean	89
min size (mm)	36
max size (mm)	151

Patiria miniata

<10	0.0 %
10 - 19	3.1 %
20 - 29	9.2 %
30 - 39	9.2 %
40 - 49	13.8 %
50 - 59	21.5 %
60 - 69	16.9 %
70 - 79	10.8 %
80 - 89	9.2 %
90 - 99	6.2 %
> 99	0.0 %
(Cases) N =	65
mean	56
min size (mm)	14
max size (mm)	95

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	7.1 %
60 - 79	7.1 %
80 - 99	21.4 %
100 - 119	50.0 %
120 - 139	0.0 %
140 - 159	14.3 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	14
mean	106
min size (mm)	51
max size (mm)	159

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.5 %
10 - 14	1.0 %
15 - 19	1.5 %
20 - 24	3.0 %
25 - 29	3.0 %
30 - 34	3.0 %
35 - 39	6.6 %
40 - 44	6.6 %
45 - 49	16.8 %
50 - 54	15.7 %
55 - 59	19.3 %
60 - 64	8.6 %
65 - 69	7.6 %
70 - 74	5.6 %
75 - 79	0.5 %
80 - 84	0.0 %
85 - 89	0.5 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	197
mean	48
min size (mm)	9
max size (mm)	88

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Graveyard Canyon

	Strongylocentrotus purpuratus
< 5	0.4 %
5 - 9	10.0 %
10 - 14	10.8 %
15 - 19	8.0 %
20 - 24	19.7 %
25 - 29	24.1 %
30 - 34	21.3 %
35 - 39	5.2 %
40 - 44	0.4 %
45 - 49	0.0 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	249
mean	22
min size (mm)	4
max size (mm)	44

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Southeast Reef

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	28.6 %
40 - 49	0.0 %
50 - 59	28.6 %
60 - 69	14.3 %
70 - 79	0.0 %
80 - 89	14.3 %
90 - 99	14.3 %
> 99	0.0 %
(Cases) N =	7
mean	59
min size (mm)	35
max size (mm)	90

Haliotis corrugata

<25	0.0 %
25 - 34	0.0 %
35 - 44	100.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	0.0 %
155 - 164	0.0 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	1
mean	35
min size (mm)	35
max size (mm)	35

Haliotis fulgens

<25	100.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	0.0 %
155 - 164	0.0 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	1
mean	15
min size (mm)	15
max size (mm)	15

Megastraea undosa

<10	0.0 %
10 - 19	13.6 %
20 - 29	9.1 %
30 - 39	4.5 %
40 - 49	0.0 %
50 - 59	18.2 %
60 - 69	0.0 %
70 - 79	9.1 %
80 - 89	0.0 %
90 - 99	4.5 %
100 - 109	9.1 %
110 - 119	31.8 %
> 119	0.0 %
(Cases) N =	22
mean	76
min size (mm)	15
max size (mm)	119

Lithopoma gibberosa

<10	0.0 %
10 - 19	66.7 %
20 - 29	33.3 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	3
mean	17
min size (mm)	15
max size (mm)	20

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	12.5 %
50 - 59	12.5 %
60 - 69	0.0 %
70 - 79	25.0 %
80 - 89	37.5 %
90 - 99	0.0 %
100 - 109	12.5 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	8
mean	76
min size (mm)	49
max size (mm)	104

2012 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Southeast Reef

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	35.0 %
40 - 49	15.0 %
50 - 59	20.0 %
60 - 69	10.0 %
70 - 79	5.0 %
80 - 89	0.0 %
90 - 99	5.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	5.0 %
130 - 139	5.0 %
> 139	0.0 %
(Cases) N =	20
mean	58
min size (mm)	32
max size (mm)	137

Tegula regina

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	5.1 %
25 - 29	1.7 %
30 - 34	3.4 %
35 - 39	8.5 %
40 - 44	45.8 %
45 - 49	30.5 %
50 - 54	5.1 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	59
mean	41
min size (mm)	22
max size (mm)	51

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	25.0 %
50 - 59	25.0 %
60 - 69	50.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	4
mean	56
min size (mm)	45
max size (mm)	67

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	1.7 %
60 - 79	13.3 %
80 - 99	20.0 %
100 - 119	30.0 %
120 - 139	13.3 %
140 - 159	13.3 %
160 - 179	3.3 %
180 - 199	1.7 %
200 - 219	1.7 %
220 - 239	1.7 %
> 239	0.0 %
(Cases) N =	60
mean	116
min size (mm)	48
max size (mm)	223

Lytechinus anamesus

< 5	14.8 %
5 - 9	63.0 %
10 - 14	18.5 %
15 - 19	3.7 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	27
mean	9
min size (mm)	3
max size (mm)	16

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	1.9 %
10 - 14	7.2 %
15 - 19	12.6 %
20 - 24	15.5 %
25 - 29	3.4 %
30 - 34	4.3 %
35 - 39	3.9 %
40 - 44	1.9 %
45 - 49	1.4 %
50 - 54	2.4 %
55 - 59	0.0 %
60 - 64	0.5 %
65 - 69	1.4 %
70 - 74	4.3 %
75 - 79	1.9 %
80 - 84	5.3 %
85 - 89	8.7 %
90 - 94	7.2 %
95 - 99	5.3 %
100 - 104	5.3 %
105 - 109	1.4 %
> 109	3.9 %
(Cases) N =	207
mean	60
min size (mm)	6
max size (mm)	116

Strongylocentrotus purpuratus

< 5	1.9 %
5 - 9	6.8 %
10 - 14	11.6 %
15 - 19	18.8 %
20 - 24	22.2 %
25 - 29	13.5 %
30 - 34	13.0 %
35 - 39	5.8 %
40 - 44	4.8 %
45 - 49	1.4 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	207
mean	24
min size (mm)	3
max size (mm)	49

Appendix K. *Macrocystis pyrifera* Size Frequency Distributions

2012 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Wyckoff Ledge

Macrocystis pyrifera Adult (>1m) Number of Stipes	
< 3	30.0 %
3 - 5	19.0 %
6 - 8	16.0 %
9 - 11	5.0 %
12 - 14	2.0 %
15 - 17	9.0 %
18 - 20	3.0 %
21 - 23	8.0 %
24 - 26	3.0 %
27 - 29	4.0 %
30 - 32	0.0 %
33 - 35	0.0 %
36 - 38	1.0 %
39 - 41	1.0 %
42 - 44	0.0 %
> 44	0.0 %
(Cases) N =	100
mean	9
min size (mm)	1
max size (mm)	41

Macrocystis pyrifera Adult (>1m) Holdfast Diameter	
< 6	4.0 %
6 - 11	25.0 %
12 - 17	14.0 %
18 - 23	11.0 %
24 - 29	11.0 %
30 - 35	14.0 %
36 - 41	7.0 %
42 - 47	8.0 %
48 - 53	4.0 %
54 - 59	2.0 %
60 - 65	0.0 %
66 - 71	0.0 %
72 - 77	0.0 %
78 - 83	0.0 %
84 - 89	0.0 %
> 89	0.0 %
(Cases) N =	100
mean	23
min size (mm)	4
max size (mm)	56

San Miguel Island - Hare Rock

Macrocystis pyrifera Adult (>1m) Number of Stipes	
< 3	28.3 %
3 - 5	34.8 %
6 - 8	21.7 %
9 - 11	8.7 %
12 - 14	0.0 %
15 - 17	2.2 %
18 - 20	2.2 %
21 - 23	2.2 %
24 - 26	0.0 %
27 - 29	0.0 %
30 - 32	0.0 %
33 - 35	0.0 %
36 - 38	0.0 %
39 - 41	0.0 %
42 - 44	0.0 %
> 44	0.0 %
(Cases) N =	46
mean	5
min size (mm)	1
max size (mm)	23

Macrocystis pyrifera Adult (>1m) Holdfast Diameter	
< 6	0.0 %
6 - 11	19.6 %
12 - 17	32.6 %
18 - 23	26.1 %
24 - 29	10.9 %
30 - 35	8.7 %
36 - 41	2.2 %
42 - 47	0.0 %
48 - 53	0.0 %
54 - 59	0.0 %
60 - 65	0.0 %
66 - 71	0.0 %
72 - 77	0.0 %
78 - 83	0.0 %
84 - 89	0.0 %
> 89	0.0 %
(Cases) N =	46
mean	18
min size (mm)	7
max size (mm)	39

2012 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee North

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	22.4 %	< 6	3.7 %
3 - 5	17.8 %	6 - 11	15.9 %
6 - 8	23.4 %	12 - 17	15.9 %
9 - 11	10.3 %	18 - 23	17.8 %
12 - 14	13.1 %	24 - 29	15.0 %
15 - 17	3.7 %	30 - 35	10.3 %
18 - 20	6.5 %	36 - 41	14.0 %
21 - 23	2.8 %	42 - 47	3.7 %
24 - 26	0.9 %	48 - 53	2.8 %
27 - 29	0.0 %	54 - 59	0.9 %
30 - 32	0.0 %	60 - 65	0.0 %
33 - 35	0.0 %	66 - 71	0.0 %
36 - 38	0.0 %	72 - 77	0.0 %
39 - 41	0.0 %	78 - 83	0.0 %
42 - 44	0.0 %	84 - 89	0.0 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	107	(Cases) N =	107
mean	8	mean	24
min size (mm)	1	min size (mm)	3
max size (mm)	24	max size (mm)	55

Santa Rosa Island - Johnson's Lee South

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	15.5 %	< 6	2.7 %
3 - 5	20.0 %	6 - 11	19.1 %
6 - 8	23.6 %	12 - 17	13.6 %
9 - 11	14.5 %	18 - 23	26.4 %
12 - 14	9.1 %	24 - 29	15.5 %
15 - 17	8.2 %	30 - 35	8.2 %
18 - 20	4.5 %	36 - 41	5.5 %
21 - 23	1.8 %	42 - 47	4.5 %
24 - 26	0.0 %	48 - 53	2.7 %
27 - 29	0.9 %	54 - 59	0.0 %
30 - 32	0.9 %	60 - 65	0.0 %
33 - 35	0.9 %	66 - 71	1.8 %
36 - 38	0.0 %	72 - 77	0.0 %
39 - 41	0.0 %	78 - 83	0.0 %
42 - 44	0.0 %	84 - 89	0.0 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	110	(Cases) N =	110
mean	9	mean	22
min size (mm)	1	min size (mm)	4
max size (mm)	33	max size (mm)	68

2012 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	16.3 %	< 6	9.6 %
3 - 5	12.5 %	6 - 11	11.5 %
6 - 8	11.5 %	12 - 17	14.4 %
9 - 11	8.7 %	18 - 23	14.4 %
12 - 14	7.7 %	24 - 29	11.5 %
15 - 17	12.5 %	30 - 35	10.6 %
18 - 20	13.5 %	36 - 41	11.5 %
21 - 23	7.7 %	42 - 47	6.7 %
24 - 26	6.7 %	48 - 53	4.8 %
27 - 29	1.9 %	54 - 59	1.0 %
30 - 32	1.9 %	60 - 65	2.9 %
33 - 35	0.0 %	66 - 71	0.0 %
36 - 38	2.9 %	72 - 77	1.0 %
39 - 41	0.0 %	78 - 83	0.0 %
42 - 44	0.0 %	84 - 89	0.0 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	104	(Cases) N =	104
mean	13	mean	26
min size (mm)	1	min size (mm)	2
max size (mm)	37	max size (mm)	75

Santa Cruz Island - Fry's Harbor

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	21.8 %	< 6	5.9 %
3 - 5	13.9 %	6 - 11	13.9 %
6 - 8	14.9 %	12 - 17	20.8 %
9 - 11	14.9 %	18 - 23	18.8 %
12 - 14	10.9 %	24 - 29	17.8 %
15 - 17	7.9 %	30 - 35	9.9 %
18 - 20	5.0 %	36 - 41	8.9 %
21 - 23	5.9 %	42 - 47	3.0 %
24 - 26	3.0 %	48 - 53	0.0 %
27 - 29	1.0 %	54 - 59	1.0 %
30 - 32	1.0 %	60 - 65	0.0 %
33 - 35	0.0 %	66 - 71	0.0 %
36 - 38	1.0 %	72 - 77	0.0 %
39 - 41	0.0 %	78 - 83	0.0 %
42 - 44	0.0 %	84 - 89	0.0 %
> 44	1.0 %	> 89	0.0 %
(Cases) N =	101	(Cases) N =	101
mean	10	mean	21
min size (mm)	1	min size (mm)	2
max size (mm)	53	max size (mm)	58

2012 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	84.3 %	< 6	2.2 %
3 - 5	14.6 %	6 - 11	41.6 %
6 - 8	1.1 %	12 - 17	48.3 %
9 - 11	0.0 %	18 - 23	6.7 %
12 - 14	0.0 %	24 - 29	1.1 %
15 - 17	0.0 %	30 - 35	0.0 %
18 - 20	0.0 %	36 - 41	0.0 %
21 - 23	0.0 %	42 - 47	0.0 %
24 - 26	0.0 %	48 - 53	0.0 %
27 - 29	0.0 %	54 - 59	0.0 %
30 - 32	0.0 %	60 - 65	0.0 %
33 - 35	0.0 %	66 - 71	0.0 %
36 - 38	0.0 %	72 - 77	0.0 %
39 - 41	0.0 %	78 - 83	0.0 %
42 - 44	0.0 %	84 - 89	0.0 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	89	(Cases) N =	89
mean	2	mean	12
min size (mm)	1	min size (mm)	4
max size (mm)	7	max size (mm)	27

Anacapa Island - Cathedral Cove

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	20.3 %	< 6	5.6 %
3 - 5	15.4 %	6 - 11	16.8 %
6 - 8	21.7 %	12 - 17	18.9 %
9 - 11	11.2 %	18 - 23	19.6 %
12 - 14	14.0 %	24 - 29	16.8 %
15 - 17	7.7 %	30 - 35	12.6 %
18 - 20	3.5 %	36 - 41	5.6 %
21 - 23	1.4 %	42 - 47	2.8 %
24 - 26	3.5 %	48 - 53	0.0 %
27 - 29	0.0 %	54 - 59	0.7 %
30 - 32	0.0 %	60 - 65	0.0 %
33 - 35	1.4 %	66 - 71	0.0 %
36 - 38	0.0 %	72 - 77	0.0 %
39 - 41	0.0 %	78 - 83	0.7 %
42 - 44	0.7 %	84 - 89	0.0 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	143	(Cases) N =	143
mean	9	mean	21
min size (mm)	1	min size (mm)	4
max size (mm)	42	max size (mm)	80

2012 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	60.9 %	< 6	17.2 %
3 - 5	21.9 %	6 - 11	49.2 %
6 - 8	5.5 %	12 - 17	17.2 %
9 - 11	3.9 %	18 - 23	7.8 %
12 - 14	0.8 %	24 - 29	4.7 %
15 - 17	0.8 %	30 - 35	0.8 %
18 - 20	2.3 %	36 - 41	0.8 %
21 - 23	1.6 %	42 - 47	2.3 %
24 - 26	0.0 %	48 - 53	0.0 %
27 - 29	0.0 %	54 - 59	0.0 %
30 - 32	0.8 %	60 - 65	0.0 %
33 - 35	0.0 %	66 - 71	0.0 %
36 - 38	0.0 %	72 - 77	0.0 %
39 - 41	0.0 %	78 - 83	0.0 %
42 - 44	0.0 %	84 - 89	0.0 %
> 44	1.6 %	> 89	0.0 %
(Cases) N =	128	(Cases) N =	128
mean	5	mean	11
min size (mm)	1	min size (mm)	3
max size (mm)	53	max size (mm)	47

Santa Barbara Island - Cat Canyon

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	100.0 %	< 6	0.0 %
3 - 5	0.0 %	6 - 11	50.0 %
6 - 8	0.0 %	12 - 17	50.0 %
9 - 11	0.0 %	18 - 23	0.0 %
12 - 14	0.0 %	24 - 29	0.0 %
15 - 17	0.0 %	30 - 35	0.0 %
18 - 20	0.0 %	36 - 41	0.0 %
21 - 23	0.0 %	42 - 47	0.0 %
24 - 26	0.0 %	48 - 53	0.0 %
27 - 29	0.0 %	54 - 59	0.0 %
30 - 32	0.0 %	60 - 65	0.0 %
33 - 35	0.0 %	66 - 71	0.0 %
36 - 38	0.0 %	72 - 77	0.0 %
39 - 41	0.0 %	78 - 83	0.0 %
42 - 44	0.0 %	84 - 89	0.0 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	2	(Cases) N =	2
mean	2	mean	10
min size (mm)	1	min size (mm)	7
max size (mm)	2	max size (mm)	12

2012 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Miracle Mile

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	29.0 %	< 6	2.0 %
3 - 5	19.0 %	6 - 11	20.0 %
6 - 8	11.0 %	12 - 17	21.0 %
9 - 11	8.0 %	18 - 23	16.0 %
12 - 14	11.0 %	24 - 29	14.0 %
15 - 17	3.0 %	30 - 35	5.0 %
18 - 20	2.0 %	36 - 41	8.0 %
21 - 23	4.0 %	42 - 47	4.0 %
24 - 26	2.0 %	48 - 53	3.0 %
27 - 29	2.0 %	54 - 59	2.0 %
30 - 32	5.0 %	60 - 65	2.0 %
33 - 35	3.0 %	66 - 71	2.0 %
36 - 38	0.0 %	72 - 77	1.0 %
39 - 41	0.0 %	78 - 83	0.0 %
42 - 44	0.0 %	84 - 89	0.0 %
> 44	2.0 %	> 89	0.0 %
(Cases) N =	100	(Cases) N =	100
mean	10	mean	24
min size (mm)	1	min size (mm)	4
max size (mm)	72	max size (mm)	77

Santa Rosa Island - Cluster Point

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	28.6 %	< 6	6.6 %
3 - 5	20.9 %	6 - 11	26.4 %
6 - 8	8.8 %	12 - 17	20.9 %
9 - 11	8.8 %	18 - 23	9.9 %
12 - 14	3.3 %	24 - 29	13.2 %
15 - 17	6.6 %	30 - 35	6.6 %
18 - 20	1.1 %	36 - 41	4.4 %
21 - 23	3.3 %	42 - 47	1.1 %
24 - 26	2.2 %	48 - 53	1.1 %
27 - 29	6.6 %	54 - 59	1.1 %
30 - 32	3.3 %	60 - 65	2.2 %
33 - 35	1.1 %	66 - 71	1.1 %
36 - 38	2.2 %	72 - 77	1.1 %
39 - 41	0.0 %	78 - 83	1.1 %
42 - 44	1.1 %	84 - 89	1.1 %
> 44	2.2 %	> 89	2.2 %
(Cases) N =	91	(Cases) N =	91
mean	12	mean	23
min size (mm)	1	min size (mm)	3
max size (mm)	76	max size (mm)	102

2012 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Trancion Canyon

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	72.7 %	< 6	36.4 %
3 - 5	0.0 %	6 - 11	18.2 %
6 - 8	18.2 %	12 - 17	36.4 %
9 - 11	0.0 %	18 - 23	0.0 %
12 - 14	9.1 %	24 - 29	0.0 %
15 - 17	0.0 %	30 - 35	9.1 %
18 - 20	0.0 %	36 - 41	0.0 %
21 - 23	0.0 %	42 - 47	0.0 %
24 - 26	0.0 %	48 - 53	0.0 %
27 - 29	0.0 %	54 - 59	0.0 %
30 - 32	0.0 %	60 - 65	0.0 %
33 - 35	0.0 %	66 - 71	0.0 %
36 - 38	0.0 %	72 - 77	0.0 %
39 - 41	0.0 %	78 - 83	0.0 %
42 - 44	0.0 %	84 - 89	0.0 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	11	(Cases) N =	11
mean	4	mean	10
min size (mm)	1	min size (mm)	2
max size (mm)	14	max size (mm)	30

Santa Rosa Island - Chickasaw

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	27.5 %	< 6	7.5 %
3 - 5	27.5 %	6 - 11	23.3 %
6 - 8	20.0 %	12 - 17	26.7 %
9 - 11	8.3 %	18 - 23	12.5 %
12 - 14	5.8 %	24 - 29	5.0 %
15 - 17	0.8 %	30 - 35	5.0 %
18 - 20	1.7 %	36 - 41	3.3 %
21 - 23	2.5 %	42 - 47	7.5 %
24 - 26	2.5 %	48 - 53	4.2 %
27 - 29	3.3 %	54 - 59	3.3 %
30 - 32	0.8 %	60 - 65	0.8 %
33 - 35	0.0 %	66 - 71	0.0 %
36 - 38	0.8 %	72 - 77	0.0 %
39 - 41	0.0 %	78 - 83	0.8 %
42 - 44	0.0 %	84 - 89	0.0 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	120	(Cases) N =	120
mean	7	mean	22
min size (mm)	1	min size (mm)	3
max size (mm)	37	max size (mm)	80

2012 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - South Point

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	43.3 %	< 6	1.6 %
3 - 5	17.3 %	6 - 11	33.1 %
6 - 8	14.2 %	12 - 17	20.5 %
9 - 11	6.3 %	18 - 23	12.6 %
12 - 14	7.9 %	24 - 29	4.7 %
15 - 17	3.1 %	30 - 35	2.4 %
18 - 20	0.8 %	36 - 41	7.9 %
21 - 23	3.1 %	42 - 47	3.1 %
24 - 26	0.8 %	48 - 53	7.1 %
27 - 29	2.4 %	54 - 59	2.4 %
30 - 32	0.0 %	60 - 65	2.4 %
33 - 35	0.8 %	66 - 71	1.6 %
36 - 38	0.0 %	72 - 77	0.8 %
39 - 41	0.0 %	78 - 83	0.0 %
42 - 44	0.0 %	84 - 89	0.0 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	127	(Cases) N =	127
mean	6	mean	23
min size (mm)	1	min size (mm)	5
max size (mm)	34	max size (mm)	76

Santa Cruz Island - Potato Pasture

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	29.8 %	< 6	2.1 %
3 - 5	29.8 %	6 - 11	44.7 %
6 - 8	31.9 %	12 - 17	31.9 %
9 - 11	4.3 %	18 - 23	17.0 %
12 - 14	2.1 %	24 - 29	4.3 %
15 - 17	2.1 %	30 - 35	0.0 %
18 - 20	0.0 %	36 - 41	0.0 %
21 - 23	0.0 %	42 - 47	0.0 %
24 - 26	0.0 %	48 - 53	0.0 %
27 - 29	0.0 %	54 - 59	0.0 %
30 - 32	0.0 %	60 - 65	0.0 %
33 - 35	0.0 %	66 - 71	0.0 %
36 - 38	0.0 %	72 - 77	0.0 %
39 - 41	0.0 %	78 - 83	0.0 %
42 - 44	0.0 %	84 - 89	0.0 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	47	(Cases) N =	47
mean	5	mean	13
min size (mm)	2	min size (mm)	5
max size (mm)	17	max size (mm)	27

2012 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Cavern Point

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	0.9 %	< 6	0.0 %
3 - 5	10.3 %	6 - 11	1.7 %
6 - 8	12.8 %	12 - 17	3.4 %
9 - 11	10.3 %	18 - 23	8.5 %
12 - 14	13.7 %	24 - 29	18.8 %
15 - 17	12.8 %	30 - 35	17.9 %
18 - 20	11.1 %	36 - 41	22.2 %
21 - 23	15.4 %	42 - 47	11.1 %
24 - 26	3.4 %	48 - 53	9.4 %
27 - 29	3.4 %	54 - 59	2.6 %
30 - 32	2.6 %	60 - 65	1.7 %
33 - 35	1.7 %	66 - 71	2.6 %
36 - 38	1.7 %	72 - 77	0.0 %
39 - 41	0.0 %	78 - 83	0.0 %
42 - 44	0.0 %	84 - 89	0.0 %
> 44	0.9 %	> 89	0.0 %
(Cases) N =	117	(Cases) N =	117
mean	16	mean	36
min size (mm)	2	min size (mm)	6
max size (mm)	45	max size (mm)	71

Santa Cruz Island - Pedro Reef

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	50.0 %	< 6	16.7 %
3 - 5	33.3 %	6 - 11	16.7 %
6 - 8	0.0 %	12 - 17	50.0 %
9 - 11	0.0 %	18 - 23	16.7 %
12 - 14	0.0 %	24 - 29	0.0 %
15 - 17	0.0 %	30 - 35	0.0 %
18 - 20	16.7 %	36 - 41	0.0 %
21 - 23	0.0 %	42 - 47	0.0 %
24 - 26	0.0 %	48 - 53	0.0 %
27 - 29	0.0 %	54 - 59	0.0 %
30 - 32	0.0 %	60 - 65	0.0 %
33 - 35	0.0 %	66 - 71	0.0 %
36 - 38	0.0 %	72 - 77	0.0 %
39 - 41	0.0 %	78 - 83	0.0 %
42 - 44	0.0 %	84 - 89	0.0 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	6	(Cases) N =	6
mean	6	mean	12
min size (mm)	2	min size (mm)	4
max size (mm)	19	max size (mm)	19

2012 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - East Fish Camp

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	20.0 %	< 6	20.0 %
3 - 5	40.0 %	6 - 11	10.0 %
6 - 8	0.0 %	12 - 17	40.0 %
9 - 11	10.0 %	18 - 23	20.0 %
12 - 14	0.0 %	24 - 29	0.0 %
15 - 17	0.0 %	30 - 35	10.0 %
18 - 20	0.0 %	36 - 41	0.0 %
21 - 23	20.0 %	42 - 47	0.0 %
24 - 26	10.0 %	48 - 53	0.0 %
27 - 29	10.0 %	54 - 59	0.0 %
30 - 32	0.0 %	60 - 65	0.0 %
33 - 35	0.0 %	66 - 71	0.0 %
36 - 38	0.0 %	72 - 77	0.0 %
39 - 41	0.0 %	78 - 83	0.0 %
42 - 44	0.0 %	84 - 89	0.0 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	10	(Cases) N =	10
mean	10	mean	14
min size (mm)	2	min size (mm)	4
max size (mm)	27	max size (mm)	30

Anacapa Island - Black Sea Bass Reef

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	100.0 %	< 6	20.0 %
3 - 5	0.0 %	6 - 11	80.0 %
6 - 8	0.0 %	12 - 17	0.0 %
9 - 11	0.0 %	18 - 23	0.0 %
12 - 14	0.0 %	24 - 29	0.0 %
15 - 17	0.0 %	30 - 35	0.0 %
18 - 20	0.0 %	36 - 41	0.0 %
21 - 23	0.0 %	42 - 47	0.0 %
24 - 26	0.0 %	48 - 53	0.0 %
27 - 29	0.0 %	54 - 59	0.0 %
30 - 32	0.0 %	60 - 65	0.0 %
33 - 35	0.0 %	66 - 71	0.0 %
36 - 38	0.0 %	72 - 77	0.0 %
39 - 41	0.0 %	78 - 83	0.0 %
42 - 44	0.0 %	84 - 89	0.0 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	5	(Cases) N =	5
mean	1	mean	7
min size (mm)	1	min size (mm)	5
max size (mm)	1	max size (mm)	10

2012 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Webster's Arch

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	100.0 %	< 6	0.0 %
3 - 5	0.0 %	6 - 11	100.0 %
6 - 8	0.0 %	12 - 17	0.0 %
9 - 11	0.0 %	18 - 23	0.0 %
12 - 14	0.0 %	24 - 29	0.0 %
15 - 17	0.0 %	30 - 35	0.0 %
18 - 20	0.0 %	36 - 41	0.0 %
21 - 23	0.0 %	42 - 47	0.0 %
24 - 26	0.0 %	48 - 53	0.0 %
27 - 29	0.0 %	54 - 59	0.0 %
30 - 32	0.0 %	60 - 65	0.0 %
33 - 35	0.0 %	66 - 71	0.0 %
36 - 38	0.0 %	72 - 77	0.0 %
39 - 41	0.0 %	78 - 83	0.0 %
42 - 44	0.0 %	84 - 89	0.0 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	1	(Cases) N =	1
mean	2	mean	10
min size (mm)	2	min size (mm)	10
max size (mm)	2	max size (mm)	10

Santa Barbara Island - Graveyard Canyon

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	100.0 %	< 6	50.0 %
3 - 5	0.0 %	6 - 11	50.0 %
6 - 8	0.0 %	12 - 17	0.0 %
9 - 11	0.0 %	18 - 23	0.0 %
12 - 14	0.0 %	24 - 29	0.0 %
15 - 17	0.0 %	30 - 35	0.0 %
18 - 20	0.0 %	36 - 41	0.0 %
21 - 23	0.0 %	42 - 47	0.0 %
24 - 26	0.0 %	48 - 53	0.0 %
27 - 29	0.0 %	54 - 59	0.0 %
30 - 32	0.0 %	60 - 65	0.0 %
33 - 35	0.0 %	66 - 71	0.0 %
36 - 38	0.0 %	72 - 77	0.0 %
39 - 41	0.0 %	78 - 83	0.0 %
42 - 44	0.0 %	84 - 89	0.0 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	2	(Cases) N =	2
mean	2	mean	7
min size (mm)	2	min size (mm)	5
max size (mm)	2	max size (mm)	8

2012 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Southeast Reef

Macrocystis pyrifera Adult (>1m) *Number of Stipes*	
< 3	18.9 %
3 - 5	17.1 %
6 - 8	17.1 %
9 - 11	12.6 %
12 - 14	13.5 %
15 - 17	4.5 %
18 - 20	8.1 %
21 - 23	3.6 %
24 - 26	0.9 %
27 - 29	2.7 %
30 - 32	0.9 %
33 - 35	0.9 %
36 - 38	0.0 %
39 - 41	0.0 %
42 - 44	0.0 %
> 44	0.0 %
(Cases) N =	111
mean	10
min size (mm)	1
max size (mm)	33

Macrocystis pyrifera Adult (>1m) *Holdfast Diameter*	
< 6	8.1 %
6 - 11	9.9 %
12 - 17	19.8 %
18 - 23	23.4 %
24 - 29	17.1 %
30 - 35	7.2 %
36 - 41	4.5 %
42 - 47	3.6 %
48 - 53	2.7 %
54 - 59	2.7 %
60 - 65	0.9 %
66 - 71	0.0 %
72 - 77	0.0 %
78 - 83	0.0 %
84 - 89	0.0 %
> 89	0.0 %
(Cases) N =	111
mean	23
min size (mm)	3
max size (mm)	62

Appendix L. Gorgonian/*Stylaster californica* Size Frequency Distributions

2012 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

Stylaster californicus heights

< 3	3.6 %
3 - 4	8.3 %
5 - 6	23.8 %
7 - 8	26.2 %
9 - 10	10.7 %
11 - 12	11.9 %
13 - 14	9.5 %
15 - 16	2.4 %
17 - 18	2.4 %
19 - 20	0.0 %
21 - 22	0.0 %
23 - 24	0.0 %
25 - 26	0.0 %
27 - 28	0.0 %
29 - 30	0.0 %
> 30	1.2 %
(Cases) N =	84
mean	9
min size (mm)	2
max size (mm)	35

Stylaster californicus widths

< 3	1.2 %
3 - 4	3.6 %
5 - 6	6.0 %
7 - 8	19.0 %
9 - 10	13.1 %
1 - 12	8.3 %
13 - 14	14.3 %
15 - 16	2.4 %
17 - 18	9.5 %
19 - 20	7.1 %
21 - 22	3.6 %
23 - 24	2.4 %
25 - 26	2.4 %
27 - 28	2.4 %
29 - 30	1.2 %
> 30	3.6 %
(Cases) N =	84
mean	14
min size (mm)	2
max size (mm)	37

Lophogorgia chilensis heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	5.1 %
13 - 16	5.1 %
17 - 20	12.8 %
21 - 24	23.1 %
25 - 28	12.8 %
29 - 32	17.9 %
33 - 36	12.8 %
37 - 40	5.1 %
41 - 44	5.1 %
45 - 48	0.0 %
49 - 52	0.0 %
53 - 56	0.0 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	39
mean	26
min size (mm)	11
max size (mm)	43

Lophogorgia chilensis widths

< 5	0.0 %
5 - 8	5.1 %
9 - 12	15.4 %
13 - 16	23.1 %
17 - 20	17.9 %
21 - 24	2.6 %
24 - 28	15.4 %
29 - 32	15.4 %
33 - 36	2.6 %
37 - 40	0.0 %
41 - 44	0.0 %
45 - 48	2.6 %
49 - 52	0.0 %
53 - 56	0.0 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	39
mean	20
min size (mm)	7
max size (mm)	47

2012 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Fry's Harbor

Lophogorgia chilensis heights	
< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	1.5 %
21 - 24	3.0 %
25 - 28	1.5 %
29 - 32	9.0 %
33 - 36	11.9 %
37 - 40	10.4 %
41 - 44	13.4 %
45 - 48	6.0 %
49 - 52	13.4 %
53 - 56	13.4 %
57 - 60	4.5 %
61 - 64	4.5 %
65 - 68	1.5 %
69 - 72	1.5 %
73 - 76	1.5 %
77 - 80	1.5 %
81 - 84	3.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	67
mean	46
min size (mm)	17
max size (mm)	84

Lophogorgia chilensis widths	
< 5	0.0 %
5 - 8	0.0 %
9 - 12	3.0 %
13 - 16	3.0 %
17 - 20	3.0 %
21 - 24	3.0 %
24 - 28	11.9 %
29 - 32	13.4 %
33 - 36	11.9 %
37 - 40	14.9 %
41 - 44	3.0 %
45 - 48	7.5 %
49 - 52	9.0 %
53 - 56	4.5 %
57 - 60	1.5 %
61 - 64	1.5 %
65 - 68	1.5 %
69 - 72	1.5 %
73 - 76	6.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	1.5 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	67
mean	40
min size (mm)	10
max size (mm)	94

2012 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

Lophogorgia chilensis heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	4.2 %
17 - 20	4.2 %
21 - 24	33.3 %
25 - 28	20.8 %
29 - 32	12.5 %
33 - 36	12.5 %
37 - 40	4.2 %
41 - 44	0.0 %
45 - 48	4.2 %
49 - 52	0.0 %
53 - 56	0.0 %
57 - 60	4.2 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	24
mean	29
min size (mm)	13
max size (mm)	59

Lophogorgia chilensis widths

< 5	4.2 %
5 - 8	4.2 %
9 - 12	8.3 %
13 - 16	20.8 %
17 - 20	20.8 %
21 - 24	8.3 %
24 - 28	8.3 %
29 - 32	8.3 %
33 - 36	4.2 %
37 - 40	8.3 %
41 - 44	0.0 %
45 - 48	4.2 %
49 - 52	0.0 %
53 - 56	0.0 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	24
mean	22
min size (mm)	4
max size (mm)	48

Muricea californica heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	0.0 %
25 - 28	5.6 %
29 - 32	16.7 %
33 - 36	5.6 %
37 - 40	0.0 %
41 - 44	22.2 %
45 - 48	22.2 %
49 - 52	22.2 %
53 - 56	5.6 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	5.6 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	18
mean	44
min size (mm)	27
max size (mm)	70

Muricea californica widths

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	0.0 %
24 - 28	0.0 %
29 - 32	0.0 %
33 - 36	0.0 %
37 - 40	5.6 %
41 - 44	5.6 %
45 - 48	5.6 %
49 - 52	5.6 %
53 - 56	0.0 %
57 - 60	5.6 %
61 - 64	22.2 %
65 - 68	16.7 %
69 - 72	5.6 %
73 - 76	5.6 %
77 - 80	5.6 %
81 - 84	5.6 %
85 - 88	0.0 %
89 - 92	5.6 %
93 - 96	5.6 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	18
mean	65
min size (mm)	40
max size (mm)	93

2012 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Cathedral Cove

Lophogorgia chilensis heights	
< 5	0.0 %
5 - 8	0.0 %
9 - 12	100.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	0.0 %
25 - 28	0.0 %
29 - 32	0.0 %
33 - 36	0.0 %
37 - 40	0.0 %
41 - 44	0.0 %
45 - 48	0.0 %
49 - 52	0.0 %
53 - 56	0.0 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	1
mean	11
min size (mm)	11
max size (mm)	11

Lophogorgia chilensis widths	
< 5	0.0 %
5 - 8	0.0 %
9 - 12	100.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	0.0 %
24 - 28	0.0 %
29 - 32	0.0 %
33 - 36	0.0 %
37 - 40	0.0 %
41 - 44	0.0 %
45 - 48	0.0 %
49 - 52	0.0 %
53 - 56	0.0 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	1
mean	9
min size (mm)	9
max size (mm)	9

Anacapa Island - Landing Cove

Lophogorgia chilensis heights	
< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	50.0 %
17 - 20	0.0 %
21 - 24	0.0 %
25 - 28	0.0 %
29 - 32	0.0 %
33 - 36	0.0 %
37 - 40	0.0 %
41 - 44	50.0 %
45 - 48	0.0 %
49 - 52	0.0 %
53 - 56	0.0 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	2
mean	29
min size (mm)	15
max size (mm)	43

Lophogorgia chilensis widths	
< 5	0.0 %
5 - 8	50.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	0.0 %
24 - 28	0.0 %
29 - 32	0.0 %
33 - 36	0.0 %
37 - 40	50.0 %
41 - 44	0.0 %
45 - 48	0.0 %
49 - 52	0.0 %
53 - 56	0.0 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	2
mean	24
min size (mm)	8
max size (mm)	40

2012 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - SE Sea Lion Rookery

Lophogorgia chilensis heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	2.6 %
25 - 28	0.0 %
29 - 32	7.9 %
33 - 36	13.2 %
37 - 40	26.3 %
41 - 44	18.4 %
45 - 48	15.8 %
49 - 52	7.9 %
53 - 56	5.3 %
57 - 60	2.6 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	38
mean	41
min size (mm)	24
max size (mm)	57

Lophogorgia chilensis widths

< 5	0.0 %
5 - 8	0.0 %
9 - 12	5.3 %
13 - 16	2.6 %
17 - 20	5.3 %
21 - 24	7.9 %
24 - 28	10.5 %
29 - 32	13.2 %
33 - 36	18.4 %
37 - 40	10.5 %
41 - 44	13.2 %
45 - 48	2.6 %
49 - 52	5.3 %
53 - 56	7.9 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	38
mean	33
min size (mm)	10
max size (mm)	56

Muricea fruticosa heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	33.3 %
25 - 28	33.3 %
29 - 32	0.0 %
33 - 36	33.3 %
37 - 40	0.0 %
41 - 44	0.0 %
45 - 48	0.0 %
49 - 52	0.0 %
53 - 56	0.0 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	3
mean	27
min size (mm)	22
max size (mm)	34

Muricea fruticosa widths

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	0.0 %
24 - 28	0.0 %
29 - 32	0.0 %
33 - 36	33.3 %
37 - 40	66.7 %
41 - 44	0.0 %
45 - 48	0.0 %
49 - 52	0.0 %
53 - 56	0.0 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	3
mean	37
min size (mm)	35
max size (mm)	39

2012 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - SE Sea Lion Rookery

Muricea californica heights		*Muricea californica widths*	
< 5	0.0 %	< 5	0.0 %
5 - 8	0.0 %	5 - 8	0.0 %
9 - 12	0.0 %	9 - 12	0.0 %
13 - 16	0.0 %	13 - 16	0.0 %
17 - 20	5.0 %	17 - 20	0.0 %
21 - 24	5.0 %	21 - 24	0.0 %
25 - 28	5.0 %	24 - 28	0.0 %
29 - 32	0.0 %	29 - 32	15.0 %
33 - 36	5.0 %	33 - 36	0.0 %
37 - 40	0.0 %	37 - 40	0.0 %
41 - 44	20.0 %	41 - 44	0.0 %
45 - 48	30.0 %	45 - 48	0.0 %
49 - 52	15.0 %	49 - 52	5.0 %
53 - 56	0.0 %	53 - 56	0.0 %
57 - 60	10.0 %	57 - 60	10.0 %
61 - 64	5.0 %	61 - 64	5.0 %
65 - 68	0.0 %	65 - 68	20.0 %
69 - 72	0.0 %	69 - 72	10.0 %
73 - 76	0.0 %	73 - 76	5.0 %
77 - 80	0.0 %	77 - 80	5.0 %
81 - 84	0.0 %	81 - 84	5.0 %
85 - 88	0.0 %	85 - 88	0.0 %
89 - 92	0.0 %	89 - 92	0.0 %
93 - 96	0.0 %	93 - 96	10.0 %
97 - 100	0.0 %	97 - 100	0.0 %
> 100	0.0 %	> 100	10.0 %
(Cases) N =	20	(Cases) N =	20
mean	44	mean	68
min size (mm)	20	min size (mm)	29
max size (mm)	64	max size (mm)	109

2012 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Potato Pasture

Lophogorgia chilensis heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	1.7 %
17 - 20	6.7 %
21 - 24	1.7 %
25 - 28	13.3 %
29 - 32	11.7 %
33 - 36	11.7 %
37 - 40	6.7 %
41 - 44	6.7 %
45 - 48	18.3 %
49 - 52	13.3 %
53 - 56	10.0 %
57 - 60	1.7 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	60
mean	38
min size (mm)	15
max size (mm)	57

Lophogorgia chilensis widths

< 5	0.0 %
5 - 8	0.0 %
9 - 12	6.7 %
13 - 16	3.3 %
17 - 20	10.0 %
21 - 24	5.0 %
24 - 28	11.7 %
29 - 32	15.0 %
33 - 36	10.0 %
37 - 40	10.0 %
41 - 44	16.7 %
45 - 48	6.7 %
49 - 52	0.0 %
53 - 56	3.3 %
57 - 60	0.0 %
61 - 64	1.7 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	60
mean	32
min size (mm)	9
max size (mm)	62

Muricea californica heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	0.0 %
25 - 28	0.0 %
29 - 32	0.0 %
33 - 36	0.0 %
37 - 40	0.0 %
41 - 44	100.0 %
45 - 48	0.0 %
49 - 52	0.0 %
53 - 56	0.0 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	1
mean	42
min size (mm)	42
max size (mm)	42

Muricea californica widths

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	0.0 %
24 - 28	0.0 %
29 - 32	0.0 %
33 - 36	0.0 %
37 - 40	0.0 %
41 - 44	100.0 %
45 - 48	0.0 %
49 - 52	0.0 %
53 - 56	0.0 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	1
mean	43
min size (mm)	43
max size (mm)	43

2012 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Little Scorpion

Lophogorgia chilensis heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	2.9 %
21 - 24	2.9 %
25 - 28	8.6 %
29 - 32	2.9 %
33 - 36	11.4 %
37 - 40	17.1 %
41 - 44	14.3 %
45 - 48	5.7 %
49 - 52	14.3 %
53 - 56	5.7 %
57 - 60	5.7 %
61 - 64	0.0 %
65 - 68	2.9 %
69 - 72	0.0 %
73 - 76	5.7 %
77 - 80	0.0 %
81 - 84	2.9 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	35
mean	44
min size (mm)	20
max size (mm)	83

Lophogorgia chilensis widths

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	8.6 %
17 - 20	0.0 %
21 - 24	2.9 %
24 - 28	14.3 %
29 - 32	22.9 %
33 - 36	5.7 %
37 - 40	8.6 %
41 - 44	2.9 %
45 - 48	5.7 %
49 - 52	2.9 %
53 - 56	0.0 %
57 - 60	8.6 %
61 - 64	2.9 %
65 - 68	0.0 %
69 - 72	2.9 %
73 - 76	2.9 %
77 - 80	2.9 %
81 - 84	2.9 %
85 - 88	0.0 %
89 - 92	2.9 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	35
mean	41
min size (mm)	13
max size (mm)	92

Muricea californica heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	0.0 %
25 - 28	0.0 %
29 - 32	0.0 %
33 - 36	0.0 %
37 - 40	0.0 %
41 - 44	0.0 %
45 - 48	100.0 %
49 - 52	0.0 %
53 - 56	0.0 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	1
mean	47
min size (mm)	47
max size (mm)	47

Muricea californica widths

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	0.0 %
24 - 28	0.0 %
29 - 32	0.0 %
33 - 36	0.0 %
37 - 40	0.0 %
41 - 44	0.0 %
45 - 48	0.0 %
49 - 52	0.0 %
53 - 56	0.0 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	100.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	1
mean	95
min size (mm)	95
max size (mm)	95

2012 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pedro Reef

Lophogorgia chilensis heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	0.0 %
25 - 28	4.0 %
29 - 32	0.0 %
33 - 36	4.0 %
37 - 40	28.0 %
41 - 44	12.0 %
45 - 48	24.0 %
49 - 52	16.0 %
53 - 56	8.0 %
57 - 60	0.0 %
61 - 64	4.0 %
65 - 68	4.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	25
mean	45
min size (mm)	28
max size (mm)	66

Lophogorgia chilensis widths

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	4.0 %
17 - 20	0.0 %
21 - 24	8.0 %
24 - 28	4.0 %
29 - 32	8.0 %
33 - 36	12.0 %
37 - 40	8.0 %
41 - 44	12.0 %
45 - 48	16.0 %
49 - 52	8.0 %
53 - 56	4.0 %
57 - 60	12.0 %
61 - 64	4.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	25
mean	41
min size (mm)	15
max size (mm)	63

Muricea californica heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	12.5 %
21 - 24	0.0 %
25 - 28	0.0 %
29 - 32	0.0 %
33 - 36	12.5 %
37 - 40	12.5 %
41 - 44	25.0 %
45 - 48	37.5 %
49 - 52	0.0 %
53 - 56	0.0 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	8
mean	39
min size (mm)	17
max size (mm)	48

Muricea californica widths

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	0.0 %
24 - 28	0.0 %
29 - 32	0.0 %
33 - 36	0.0 %
37 - 40	0.0 %
41 - 44	0.0 %
45 - 48	25.0 %
49 - 52	0.0 %
53 - 56	12.5 %
57 - 60	12.5 %
61 - 64	0.0 %
65 - 68	37.5 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	12.5 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	8
mean	60
min size (mm)	45
max size (mm)	79

2012 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Lighthouse

Lophogorgia chilensis heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	3.3 %
21 - 24	14.8 %
25 - 28	14.8 %
29 - 32	9.8 %
33 - 36	19.7 %
37 - 40	23.0 %
41 - 44	9.8 %
45 - 48	3.3 %
49 - 52	1.6 %
53 - 56	0.0 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	61
mean	33
min size (mm)	19
max size (mm)	50

Lophogorgia chilensis widths

< 5	0.0 %
5 - 8	1.6 %
9 - 12	3.3 %
13 - 16	9.8 %
17 - 20	9.8 %
21 - 24	9.8 %
24 - 28	18.0 %
29 - 32	11.5 %
33 - 36	6.6 %
37 - 40	9.8 %
41 - 44	13.1 %
45 - 48	4.9 %
49 - 52	1.6 %
53 - 56	0.0 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	61
mean	29
min size (mm)	8
max size (mm)	50

Muricea fruticosa heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	50.0 %
17 - 20	50.0 %
21 - 24	0.0 %
25 - 28	0.0 %
29 - 32	0.0 %
33 - 36	0.0 %
37 - 40	0.0 %
41 - 44	0.0 %
45 - 48	0.0 %
49 - 52	0.0 %
53 - 56	0.0 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	4
mean	17
min size (mm)	15
max size (mm)	19

Muricea fruticosa widths

< 5	0.0 %
5 - 8	0.0 %
9 - 12	25.0 %
13 - 16	0.0 %
17 - 20	25.0 %
21 - 24	25.0 %
24 - 28	25.0 %
29 - 32	0.0 %
33 - 36	0.0 %
37 - 40	0.0 %
41 - 44	0.0 %
45 - 48	0.0 %
49 - 52	0.0 %
53 - 56	0.0 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	4
mean	19
min size (mm)	10
max size (mm)	25

2012 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Lighthouse

Muricea californica heights		*Muricea californica widths*	
< 5	0.0 %	< 5	0.0 %
5 - 8	0.0 %	5 - 8	0.0 %
9 - 12	0.0 %	9 - 12	0.0 %
13 - 16	3.3 %	13 - 16	1.7 %
17 - 20	1.7 %	17 - 20	0.0 %
21 - 24	6.7 %	21 - 24	3.3 %
25 - 28	6.7 %	24 - 28	3.3 %
29 - 32	13.3 %	29 - 32	3.3 %
33 - 36	11.7 %	33 - 36	3.3 %
37 - 40	23.3 %	37 - 40	1.7 %
41 - 44	8.3 %	41 - 44	3.3 %
45 - 48	10.0 %	45 - 48	3.3 %
49 - 52	11.7 %	49 - 52	8.3 %
53 - 56	5.0 %	53 - 56	15.0 %
57 - 60	3.3 %	57 - 60	11.7 %
61 - 64	0.0 %	61 - 64	3.3 %
65 - 68	0.0 %	65 - 68	5.0 %
69 - 72	0.0 %	69 - 72	8.3 %
73 - 76	0.0 %	73 - 76	3.3 %
77 - 80	0.0 %	77 - 80	6.7 %
81 - 84	0.0 %	81 - 84	1.7 %
85 - 88	0.0 %	85 - 88	1.7 %
89 - 92	0.0 %	89 - 92	6.7 %
93 - 96	0.0 %	93 - 96	3.3 %
97 - 100	0.0 %	97 - 100	0.0 %
> 100	0.0 %	> 100	5.0 %
(Cases) N =	60	(Cases) N =	60
mean	37	mean	61
min size (mm)	15	min size (mm)	14
max size (mm)	60	max size (mm)	108

2012 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Graveyard Canyon

Lophogorgia chilensis heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	2.0 %
21 - 24	2.0 %
25 - 28	4.0 %
29 - 32	10.0 %
33 - 36	14.0 %
37 - 40	32.0 %
41 - 44	22.0 %
45 - 48	8.0 %
49 - 52	0.0 %
53 - 56	0.0 %
57 - 60	4.0 %
61 - 64	2.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	50
mean	39
min size (mm)	18
max size (mm)	61

Lophogorgia chilensis widths

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	4.0 %
17 - 20	0.0 %
21 - 24	12.0 %
24 - 28	8.0 %
29 - 32	8.0 %
33 - 36	16.0 %
37 - 40	24.0 %
41 - 44	8.0 %
45 - 48	8.0 %
49 - 52	2.0 %
53 - 56	6.0 %
57 - 60	2.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	4.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	50
mean	37
min size (mm)	14
max size (mm)	75

Muricea fruticosa heights

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	0.0 %
25 - 28	100.0 %
29 - 32	0.0 %
33 - 36	0.0 %
37 - 40	0.0 %
41 - 44	0.0 %
45 - 48	0.0 %
49 - 52	0.0 %
53 - 56	0.0 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	1
mean	27
min size (mm)	27
max size (mm)	27

Muricea fruticosa widths

< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	0.0 %
24 - 28	0.0 %
29 - 32	0.0 %
33 - 36	0.0 %
37 - 40	0.0 %
41 - 44	0.0 %
45 - 48	100.0 %
49 - 52	0.0 %
53 - 56	0.0 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	1
mean	48
min size (mm)	48
max size (mm)	48

2012 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Graveyard Canyon

Muricea californica heights	
< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	2.7 %
25 - 28	2.7 %
29 - 32	5.4 %
33 - 36	13.5 %
37 - 40	21.6 %
41 - 44	16.2 %
45 - 48	10.8 %
49 - 52	10.8 %
53 - 56	10.8 %
57 - 60	5.4 %
61 - 64	0.0 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	37
mean	42
min size (mm)	24
max size (mm)	58

Muricea californica widths	
< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	0.0 %
24 - 28	0.0 %
29 - 32	0.0 %
33 - 36	2.7 %
37 - 40	2.7 %
41 - 44	0.0 %
45 - 48	0.0 %
49 - 52	0.0 %
53 - 56	10.8 %
57 - 60	0.0 %
61 - 64	5.4 %
65 - 68	8.1 %
69 - 72	5.4 %
73 - 76	21.6 %
77 - 80	10.8 %
81 - 84	5.4 %
85 - 88	5.4 %
89 - 92	5.4 %
93 - 96	5.4 %
97 - 100	5.4 %
> 100	5.4 %
(Cases) N =	37
mean	75
min size (mm)	35
max size (mm)	120

Appendix M. Artificial Recruitment Modules Size Frequencies Distributions

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Admiral's Reef

Crassedoma giganteum

Number of ARMs	6
<10	0.0 %
10 - 19	10.0 %
20 - 29	20.0 %
30 - 39	30.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	10.0 %
80 - 89	20.0 %
90 - 99	10.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	10
mean	51
min size (mm)	18
max size (mm)	96

Cypraea spadicea

Number of ARMs	6
<30	0.0 %
30 - 32	0.0 %
33 - 35	0.0 %
36 - 38	0.0 %
39 - 41	12.5 %
42 - 44	50.0 %
45 - 47	25.0 %
48 - 50	12.5 %
51 - 53	0.0 %
54 - 56	0.0 %
>56	0.0 %
(Cases) N =	8
mean	45
min size (mm)	41
max size (mm)	49

Kelletia kelletii

Number of ARMs	6
< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	100.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	1
mean	94
min size (mm)	94
max size (mm)	94

Lytechinus anamesus

Number of ARMs	6
< 5	0.0 %
5 - 9	0.0 %
10 - 14	100.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	12
min size (mm)	12
max size (mm)	12

Megathura crenulata

Number of ARMs	6
<10	0.0 %
10 - 19	66.7 %
20 - 29	33.3 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	3
mean	18
min size (mm)	15
max size (mm)	23

Patiria miniata

Number of ARMs	6
<10	1.8 %
10 - 19	28.9 %
20 - 29	24.6 %
30 - 39	21.9 %
40 - 49	13.2 %
50 - 59	5.3 %
60 - 69	3.5 %
70 - 79	0.0 %
80 - 89	0.9 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	114
mean	29
min size (mm)	7
max size (mm)	82

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Admiral's Reef

Strongylocentrotus franciscanus

Number of ARMs	6
< 5	0.0 %
5 - 9	0.0 %
10 - 14	1.4 %
15 - 19	12.9 %
20 - 24	15.1 %
25 - 29	4.3 %
30 - 34	17.3 %
35 - 39	20.1 %
40 - 44	20.1 %
45 - 49	5.0 %
50 - 54	2.9 %
55 - 59	0.0 %
60 - 64	0.7 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
80 - 84	0.0 %
85 - 89	0.0 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	139
mean	33
min size (mm)	13
max size (mm)	64

Tegula regina

Number of ARMs	6
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	8.3 %
20 - 24	25.0 %
25 - 29	8.3 %
30 - 34	8.3 %
35 - 39	41.7 %
40 - 44	8.3 %
45 - 49	0.0 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	12
mean	30
min size (mm)	19
max size (mm)	43

Strongylocentrotus purpuratus

Number of ARMs	6
< 5	0.0 %
5 - 9	0.0 %
10 - 14	1.5 %
15 - 19	17.9 %
20 - 24	29.9 %
25 - 29	34.3 %
30 - 34	13.4 %
35 - 39	3.0 %
40 - 44	0.0 %
45 - 49	0.0 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	67
mean	25
min size (mm)	14
max size (mm)	36

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Cathedral Cove

Centrostephanus coronatus

Number of ARMs	**7**
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	100.0 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	1
mean	46
min size (mm)	46
max size (mm)	46

Crassedoma giganteum

Number of ARMs	**7**
<10	50.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	25.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	25.0 %
> 139	0.0 %
(Cases) N =	4
mean	61
min size (mm)	7
max size (mm)	131

Cypraea spadicea

Number of ARMs	**7**
<30	11.1 %
30 - 32	10.0 %
33 - 35	17.8 %
36 - 38	17.8 %
39 - 41	16.7 %
42 - 44	13.3 %
45 - 47	11.1 %
48 - 50	2.2 %
51 - 53	0.0 %
54 - 56	0.0 %
>56	0.0 %
(Cases) N =	90
mean	37
min size (mm)	21
max size (mm)	49

Haliotis corrugata

Number of ARMs	**7**
<25	100.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	0.0 %
155 - 164	0.0 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	1
mean	16
min size (mm)	16
max size (mm)	16

Kelletia kelletii

Number of ARMs	**7**
< 40	100.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	3
mean	17
min size (mm)	15
max size (mm)	21

Megathura crenulata

Megathura crenulata

Number of ARMs	**7**
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	100.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	1
mean	42
min size (mm)	42
max size (mm)	42

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Cathedral Cove

Patiria miniata

Number of ARMs	7
<10	16.7 %
10 - 19	29.2 %
20 - 29	41.7 %
30 - 39	10.4 %
40 - 49	2.1 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	48
mean	20
min size (mm)	4
max size (mm)	46

Pisaster giganteus

Number of ARMs	7
< 20	26.7 %
20 - 39	26.7 %
40 - 59	23.3 %
60 - 79	23.3 %
80 - 99	0.0 %
100 - 119	0.0 %
120 - 139	0.0 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	60
mean	40
min size (mm)	7
max size (mm)	78

Strongylocentrotus franciscanus

Number of ARMs	7
< 5	0.0 %
5 - 9	3.6 %
10 - 14	3.8 %
15 - 19	10.5 %
20 - 24	20.7 %
25 - 29	10.7 %
30 - 34	8.2 %
35 - 39	5.4 %
40 - 44	5.0 %
45 - 49	3.2 %
50 - 54	2.8 %
55 - 59	2.4 %
60 - 64	1.0 %
65 - 69	1.6 %
70 - 74	2.8 %
75 - 79	5.0 %
80 - 84	5.4 %
85 - 89	4.4 %
90 - 94	1.8 %
95 - 99	1.2 %
100 - 104	0.2 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	497
mean	45
min size (mm)	5
max size (mm)	101

Strongylocentrotus purpuratus

Number of ARMs	7
< 5	0.4 %
5 - 9	8.7 %
10 - 14	7.8 %
15 - 19	7.8 %
20 - 24	10.2 %
25 - 29	9.1 %
30 - 34	9.4 %
35 - 39	7.8 %
40 - 44	6.7 %
45 - 49	7.2 %
50 - 54	6.4 %
55 - 59	6.4 %
60 - 64	6.0 %
65 - 69	3.5 %
70 - 74	1.9 %
75 - 79	0.8 %
> 79	0.0 %
(Cases) N =	849
mean	37
min size (mm)	4
max size (mm)	77

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove

Crassedoma giganteum

Number of ARMs	**5**
<10	0.0 %
10 - 19	6.7 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	6.7 %
60 - 69	0.0 %
70 - 79	6.7 %
80 - 89	13.3 %
90 - 99	0.0 %
100 - 109	6.7 %
110 - 119	20.0 %
120 - 129	20.0 %
130 - 139	13.3 %
> 139	6.7 %
(Cases) N =	15
mean	102
min size (mm)	13
max size (mm)	145

Cypraea spadicea

Number of ARMs	**5**
<30	2.1 %
30 - 32	2.1 %
33 - 35	14.6 %
36 - 38	18.8 %
39 - 41	27.1 %
42 - 44	16.7 %
45 - 47	10.4 %
48 - 50	6.3 %
51 - 53	0.0 %
54 - 56	2.1 %
>56	0.0 %
(Cases) N =	48
mean	40
min size (mm)	6
max size (mm)	55

Haliotis corrugata

Number of ARMs	**5**
<25	0.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	100.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	0.0 %
155 - 164	0.0 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	1
mean	64
min size (mm)	64
max size (mm)	64

Kelletia kelletii

Number of ARMs	**5**
< 40	94.4 %
40 - 49	0.0 %
50 - 59	5.6 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	18
mean	22
min size (mm)	15
max size (mm)	50

Megastraea undosa

Number of ARMs	**5**
<10	0.0 %
10 - 19	0.0 %
20 - 29	100.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	1
mean	28
min size (mm)	28
max size (mm)	28

Megathura crenulata

Number of ARMs	**5**
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	100.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	2
mean	41
min size (mm)	40
max size (mm)	41

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove

Patiria miniata

Number of ARMs	**5**
<10	30.6 %
10 - 19	36.1 %
20 - 29	25.0 %
30 - 39	8.3 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	36
mean	17
min size (mm)	5
max size (mm)	32

Pisaster giganteus

Number of ARMs	**5**
< 20	31.8 %
20 - 39	43.2 %
40 - 59	22.7 %
60 - 79	2.3 %
80 - 99	0.0 %
100 - 119	0.0 %
120 - 139	0.0 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	44
mean	30
min size (mm)	11
max size (mm)	62

Strongylocentrotus franciscanus

Number of ARMs	**5**
< 5	0.2 %
5 - 9	15.1 %
10 - 14	14.9 %
15 - 19	9.5 %
20 - 24	14.9 %
25 - 29	12.8 %
30 - 34	6.9 %
35 - 39	4.4 %
40 - 44	2.5 %
45 - 49	1.7 %
50 - 54	1.7 %
55 - 59	1.9 %
60 - 64	1.1 %
65 - 69	1.3 %
70 - 74	3.8 %
75 - 79	1.7 %
80 - 84	1.5 %
85 - 89	2.1 %
90 - 94	1.0 %
95 - 99	0.8 %
100 - 104	0.0 %
105 - 109	0.2 %
> 109	0.0 %
(Cases) N =	524
mean	40
min size (mm)	4
max size (mm)	105

Strongylocentrotus purpuratus

Number of ARMs	**5**
< 5	0.5 %
5 - 9	14.9 %
10 - 14	12.8 %
15 - 19	6.7 %
20 - 24	7.5 %
25 - 29	7.1 %
30 - 34	9.0 %
35 - 39	8.4 %
40 - 44	7.3 %
45 - 49	7.4 %
50 - 54	6.2 %
55 - 59	5.4 %
60 - 64	4.2 %
65 - 69	1.8 %
70 - 74	0.7 %
75 - 79	0.2 %
> 79	0.0 %
(Cases) N =	1124
mean	37
min size (mm)	4
max size (mm)	78

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove

Crassedoma giganteum

Number of ARMs	6
<10	0.0 %
10 - 19	100.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	1
mean	15
min size (mm)	15
max size (mm)	15

Haliotis rufescens

Number of ARMs	6
<25	0.0 %
25 - 34	0.0 %
35 - 44	28.6 %
45 - 54	14.3 %
55 - 64	0.0 %
65 - 74	14.3 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	14.3 %
135 - 144	0.0 %
145 - 154	14.3 %
155 - 164	14.3 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	7
mean	92
min size (mm)	43
max size (mm)	164

Lithopoma gibberosa

Number of ARMs	6
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	100.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	2
mean	55
min size (mm)	52
max size (mm)	57

Patiria miniata

Number of ARMs	6
<10	2.0 %
10 - 19	18.0 %
20 - 29	22.0 %
30 - 39	26.0 %
40 - 49	22.0 %
50 - 59	2.0 %
60 - 69	8.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	50
mean	34
min size (mm)	7
max size (mm)	63

Pisaster giganteus

Number of ARMs	6
< 20	0.0 %
20 - 39	57.1 %
40 - 59	0.0 %
60 - 79	28.6 %
80 - 99	14.3 %
100 - 119	0.0 %
120 - 139	0.0 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	7
mean	51
min size (mm)	23
max size (mm)	80

Pycnopodia helianthoides

Number of ARMs	6
< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	50.0 %
80 - 99	50.0 %
100 - 119	0.0 %
120 - 139	0.0 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	4
mean	78
min size (mm)	70
max size (mm)	85

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Miracle Mile

Strongylocentrotus franciscanus

Number of ARMs	**6**
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	15.4 %
20 - 24	15.4 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	7.7 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
80 - 84	0.0 %
85 - 89	7.7 %
90 - 94	23.1 %
95 - 99	7.7 %
100 - 104	7.7 %
105 - 109	0.0 %
> 109	15.4 %
(Cases) N =	13
mean	71
min size (mm)	18
max size (mm)	126

Strongylocentrotus purpuratus

Number of ARMs	**6**
< 5	0.0 %
5 - 9	0.0 %
10 - 14	100.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	1
mean	11
min size (mm)	11
max size (mm)	11

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Miracle Mile

Crassedoma giganteum

Number of ARMs	5
<10	16.7 %
10 - 19	0.0 %
20 - 29	11.1 %
30 - 39	0.0 %
40 - 49	11.1 %
50 - 59	5.6 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	5.6 %
100 - 109	0.0 %
110 - 119	5.6 %
120 - 129	5.6 %
130 - 139	11.1 %
> 139	27.8 %
(Cases) N =	18
mean	91
min size (mm)	7
max size (mm)	152

Cypraea spadicea

Number of ARMs	5
<30	0.0 %
30 - 32	0.0 %
33 - 35	0.0 %
36 - 38	12.2 %
39 - 41	26.8 %
42 - 44	26.8 %
45 - 47	19.5 %
48 - 50	12.2 %
51 - 53	2.4 %
54 - 56	0.0 %
>56	0.0 %
(Cases) N =	41
mean	44
min size (mm)	36
max size (mm)	52

Haliotis rufescens

Number of ARMs	5
<25	100.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	0.0 %
155 - 164	0.0 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	1
mean	19
min size (mm)	19
max size (mm)	19

Megathura crenulata

Number of ARMs	5
<10	0.0 %
10 - 19	100.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	1
mean	14
min size (mm)	14
max size (mm)	14

Patiria miniata

Number of ARMs	5
<10	0.0 %
10 - 19	13.1 %
20 - 29	24.6 %
30 - 39	36.1 %
40 - 49	6.6 %
50 - 59	6.6 %
60 - 69	6.6 %
70 - 79	4.9 %
80 - 89	1.6 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	61
mean	36
min size (mm)	12
max size (mm)	80

Pisaster giganteus

Number of ARMs	5
< 20	14.3 %
20 - 39	39.3 %
40 - 59	30.4 %
60 - 79	14.3 %
80 - 99	1.8 %
100 - 119	0.0 %
120 - 139	0.0 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	56
mean	42
min size (mm)	13
max size (mm)	86

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Fry's Harbor

Pycnopodia helianthoides

Number of ARMs	5
< 20	93.7 %
20 - 39	1.6 %
40 - 59	1.6 %
60 - 79	0.0 %
80 - 99	1.6 %
100 - 119	0.0 %
120 - 139	0.0 %
140 - 159	1.6 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	63
mean	52
min size (mm)	1
max size (mm)	140

Strongylocentrotus purpuratus

Number of ARMs	5
< 5	2.2 %
5 - 9	6.6 %
10 - 14	3.9 %
15 - 19	3.3 %
20 - 24	6.6 %
25 - 29	9.9 %
30 - 34	13.8 %
35 - 39	12.7 %
40 - 44	14.9 %
45 - 49	12.7 %
50 - 54	4.4 %
55 - 59	5.5 %
60 - 64	2.8 %
65 - 69	0.6 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	181
mean	35
min size (mm)	4
max size (mm)	69

Strongylocentrotus franciscanus

Number of ARMs	5
< 5	0.0 %
5 - 9	7.8 %
10 - 14	14.6 %
15 - 19	5.5 %
20 - 24	7.3 %
25 - 29	8.2 %
30 - 34	11.0 %
35 - 39	8.2 %
40 - 44	6.4 %
45 - 49	5.9 %
50 - 54	5.0 %
55 - 59	6.8 %
60 - 64	4.1 %
65 - 69	1.8 %
70 - 74	1.8 %
75 - 79	0.0 %
80 - 84	1.8 %
85 - 89	1.8 %
90 - 94	1.8 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	219
mean	41
min size (mm)	7
max size (mm)	93

Tegula regina

Number of ARMs	5
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	100.0 %
45 - 49	0.0 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	1
mean	42
min size (mm)	42
max size (mm)	42

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

Crassedoma giganteum

Number of ARMs	14
<10	16.7 %
10 - 19	16.7 %
20 - 29	16.7 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	16.7 %
100 - 109	16.7 %
110 - 119	0.0 %
120 - 129	16.7 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	6
mean	62
min size (mm)	8
max size (mm)	124

Cypraea spadicea

Number of ARMs	14
<30	11.3 %
30 - 32	0.0 %
33 - 35	3.1 %
36 - 38	6.2 %
39 - 41	19.6 %
42 - 44	25.8 %
45 - 47	17.5 %
48 - 50	11.3 %
51 - 53	4.1 %
54 - 56	1.0 %
>56	0.0 %
(Cases) N =	97
mean	40
min size (mm)	17
max size (mm)	55

Megathura crenulata

Number of ARMs	14
<10	0.0 %
10 - 19	75.0 %
20 - 29	0.0 %
30 - 39	12.5 %
40 - 49	6.3 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	6.3 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	16
mean	24
min size (mm)	11
max size (mm)	71

Patiria miniata

Number of ARMs	14
<10	5.1 %
10 - 19	32.1 %
20 - 29	29.5 %
30 - 39	9.0 %
40 - 49	10.3 %
50 - 59	9.0 %
60 - 69	3.8 %
70 - 79	1.3 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	78
mean	29
min size (mm)	6
max size (mm)	77

Pisaster giganteus

Number of ARMs	14
< 20	0.0 %
20 - 39	42.1 %
40 - 59	50.9 %
60 - 79	3.5 %
80 - 99	0.0 %
100 - 119	1.8 %
120 - 139	1.8 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	57
mean	43
min size (mm)	20
max size (mm)	121

Strongylocentrotus franciscanus

Number of ARMs	12
< 5	0.0 %
5 - 9	7.5 %
10 - 14	12.7 %
15 - 19	14.9 %
20 - 24	21.7 %
25 - 29	13.4 %
30 - 34	9.2 %
35 - 39	6.9 %
40 - 44	4.2 %
45 - 49	3.5 %
50 - 54	2.6 %
55 - 59	1.1 %
60 - 64	1.2 %
65 - 69	0.7 %
70 - 74	0.1 %
75 - 79	0.0 %
80 - 84	0.0 %
85 - 89	0.1 %
90 - 94	0.1 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	738
mean	29
min size (mm)	6
max size (mm)	92

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

Strongylocentrotus purpuratus

Number of ARMs	**12**
< 5	0.9 %
5 - 9	4.7 %
10 - 14	2.3 %
15 - 19	6.7 %
20 - 24	10.7 %
25 - 29	9.8 %
30 - 34	12.5 %
35 - 39	11.4 %
40 - 44	11.4 %
45 - 49	14.3 %
50 - 54	9.4 %
55 - 59	4.9 %
60 - 64	1.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	795
mean	34
min size (mm)	3
max size (mm)	64

Tegula regina

Number of ARMs	**14**
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	8.3 %
20 - 24	16.7 %
25 - 29	33.3 %
30 - 34	25.0 %
35 - 39	16.7 %
40 - 44	0.0 %
45 - 49	0.0 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	12
mean	28
min size (mm)	16
max size (mm)	37

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pelican Bay

Crassedoma giganteum

Number of ARMs	6
<10	15.0 %
10 - 19	5.0 %
20 - 29	5.0 %
30 - 39	5.0 %
40 - 49	0.0 %
50 - 59	10.0 %
60 - 69	10.0 %
70 - 79	0.0 %
80 - 89	10.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	5.0 %
120 - 129	15.0 %
130 - 139	5.0 %
> 139	15.0 %
(Cases) N =	20
mean	80
min size (mm)	7
max size (mm)	165

Cypraea spadicea

Number of ARMs	6
<30	3.6 %
30 - 32	0.0 %
33 - 35	0.0 %
36 - 38	10.7 %
39 - 41	35.7 %
42 - 44	28.6 %
45 - 47	7.1 %
48 - 50	10.7 %
51 - 53	3.6 %
54 - 56	0.0 %
>56	0.0 %
(Cases) N =	28
mean	42
min size (mm)	27
max size (mm)	51

Kelletia kelletii

Number of ARMs	6
< 40	100.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	1
mean	21
min size (mm)	21
max size (mm)	21

Megathura crenulata

Number of ARMs	6
<10	0.0 %
10 - 19	0.0 %
20 - 29	50.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	50.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	2
mean	55
min size (mm)	27
max size (mm)	82

Patiria miniata

Number of ARMs	6
<10	2.6 %
10 - 19	38.2 %
20 - 29	36.1 %
30 - 39	12.6 %
40 - 49	4.2 %
50 - 59	1.6 %
60 - 69	3.1 %
70 - 79	1.0 %
80 - 89	0.5 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	191
mean	27
min size (mm)	7
max size (mm)	80

Pisaster giganteus

Number of ARMs	6
< 20	0.0 %
20 - 39	35.7 %
40 - 59	54.8 %
60 - 79	7.1 %
80 - 99	0.0 %
100 - 119	0.0 %
120 - 139	2.4 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	42
mean	46
min size (mm)	21
max size (mm)	124

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pelican Bay

Pycnopodia helianthoides

Number of ARMs	6
< 20	100.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	0.0 %
100 - 119	0.0 %
120 - 139	0.0 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	1
mean	16
min size (mm)	16
max size (mm)	16

Strongylocentrotus purpuratus

Number of ARMs	6
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	5.4 %
20 - 24	14.9 %
25 - 29	35.6 %
30 - 34	19.8 %
35 - 39	13.9 %
40 - 44	5.4 %
45 - 49	4.5 %
50 - 54	0.5 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	202
mean	31
min size (mm)	15
max size (mm)	50

Strongylocentrotus franciscanus

Number of ARMs	6
< 5	0.0 %
5 - 9	0.0 %
10 - 14	1.1 %
15 - 19	2.2 %
20 - 24	2.2 %
25 - 29	29.3 %
30 - 34	30.4 %
35 - 39	17.4 %
40 - 44	7.6 %
45 - 49	1.1 %
50 - 54	1.1 %
55 - 59	1.1 %
60 - 64	2.2 %
65 - 69	1.1 %
70 - 74	0.0 %
75 - 79	2.2 %
80 - 84	0.0 %
85 - 89	1.1 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	92
mean	37
min size (mm)	14
max size (mm)	89

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Scorpion Anchorage

Crassedoma giganteum

Number of ARMs	6
<10	25.0 %
10 - 19	25.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	25.0 %
50 - 59	6.3 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	6.3 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	6.3 %
120 - 129	0.0 %
130 - 139	6.3 %
> 139	0.0 %
(Cases) N =	16
mean	40
min size (mm)	6
max size (mm)	135

Cypraea spadicea

Number of ARMs	6
<30	12.7 %
30 - 32	11.1 %
33 - 35	6.3 %
36 - 38	23.8 %
39 - 41	23.8 %
42 - 44	11.1 %
45 - 47	7.9 %
48 - 50	3.2 %
51 - 53	0.0 %
54 - 56	0.0 %
>56	0.0 %
(Cases) N =	63
mean	37
min size (mm)	21
max size (mm)	48

Haliotis rufescens

Number of ARMs	6
<25	100.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	0.0 %
155 - 164	0.0 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	2
mean	21
min size (mm)	20
max size (mm)	21

Megathura crenulata

Number of ARMs	6
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	100.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	1
mean	84
min size (mm)	84
max size (mm)	84

Patiria miniata

Number of ARMs	6
<10	0.0 %
10 - 19	0.0 %
20 - 29	14.3 %
30 - 39	19.0 %
40 - 49	42.9 %
50 - 59	14.3 %
60 - 69	9.5 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	21
mean	43
min size (mm)	21
max size (mm)	65

Pisaster giganteus

Number of ARMs	6
< 20	0.0 %
20 - 39	33.3 %
40 - 59	0.0 %
60 - 79	11.1 %
80 - 99	33.3 %
100 - 119	22.2 %
120 - 139	0.0 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	9
mean	71
min size (mm)	23
max size (mm)	106

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Scorpion Anchorage

Strongylocentrotus franciscanus

Number of ARMs	**6**
< 5	0.0 %
5 - 9	9.4 %
10 - 14	9.4 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	18.9 %
30 - 34	18.9 %
35 - 39	11.3 %
40 - 44	13.2 %
45 - 49	13.2 %
50 - 54	3.8 %
55 - 59	0.0 %
60 - 64	1.9 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
80 - 84	0.0 %
85 - 89	0.0 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	53
mean	31
min size (mm)	6
max size (mm)	62

Strongylocentrotus purpuratus

Number of ARMs	**6**
< 5	6.9 %
5 - 9	28.6 %
10 - 14	10.6 %
15 - 19	2.6 %
20 - 24	4.8 %
25 - 29	15.3 %
30 - 34	7.9 %
35 - 39	3.7 %
40 - 44	7.4 %
45 - 49	8.5 %
50 - 54	0.5 %
55 - 59	2.6 %
60 - 64	0.5 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	189
mean	26
min size (mm)	3
max size (mm)	61

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

Centrostephanus coronatus

Number of ARMs	15
< 5	0.0 %
5 - 9	60.0 %
10 - 14	20.0 %
15 - 19	20.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	5
mean	12
min size (mm)	8
max size (mm)	15

Crassedoma giganteum

Number of ARMs	15
<10	0.0 %
10 - 19	7.1 %
20 - 29	0.0 %
30 - 39	14.3 %
40 - 49	0.0 %
50 - 59	7.1 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	14.3 %
90 - 99	7.1 %
100 - 109	21.4 %
110 - 119	14.3 %
120 - 129	7.1 %
130 - 139	7.1 %
> 139	0.0 %
(Cases) N =	14
mean	86
min size (mm)	16
max size (mm)	130

Cypraea spadicea

Number of ARMs	15
<30	0.0 %
30 - 32	2.9 %
33 - 35	8.6 %
36 - 38	14.3 %
39 - 41	28.6 %
42 - 44	14.3 %
45 - 47	8.6 %
48 - 50	14.3 %
51 - 53	8.6 %
54 - 56	0.0 %
>56	0.0 %
(Cases) N =	35
mean	42
min size (mm)	32
max size (mm)	52

Haliotis rufescens

Number of ARMs	15
<25	41.7 %
25 - 34	58.3 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	0.0 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	0.0 %
155 - 164	0.0 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	12
mean	26
min size (mm)	21
max size (mm)	31

Kelletia kelletii

Number of ARMs	15
< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	100.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	1
mean	122
min size (mm)	122
max size (mm)	122

Lithopoma gibberosa

Lithopoma gibberosa

Number of ARMs	15
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	100.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	2
mean	34
min size (mm)	32
max size (mm)	35

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

Megathura crenulata

Number of ARMs	15
<10	0.0 %
10 - 19	9.1 %
20 - 29	72.7 %
30 - 39	18.2 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	11
mean	26
min size (mm)	19
max size (mm)	31

Pisaster giganteus

Number of ARMs	15
< 20	11.1 %
20 - 39	48.1 %
40 - 59	24.1 %
60 - 79	9.3 %
80 - 99	1.9 %
100 - 119	5.6 %
120 - 139	0.0 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	54
mean	41
min size (mm)	11
max size (mm)	117

Strongylocentrotus franciscanus

Number of ARMs	15
< 5	0.0 %
5 - 9	13.0 %
10 - 14	26.7 %
15 - 19	21.0 %
20 - 24	17.3 %
25 - 29	11.5 %
30 - 34	5.6 %
35 - 39	2.5 %
40 - 44	1.1 %
45 - 49	0.7 %
50 - 54	0.1 %
55 - 59	0.3 %
60 - 64	0.0 %
65 - 69	0.1 %
70 - 74	0.0 %
75 - 79	0.0 %
80 - 84	0.0 %
85 - 89	0.0 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.1 %
> 109	0.0 %
(Cases) N =	1523
mean	23
min size (mm)	5
max size (mm)	108

Patiria miniata

Number of ARMs	15
<10	6.9 %
10 - 19	33.8 %
20 - 29	14.6 %
30 - 39	9.2 %
40 - 49	8.5 %
50 - 59	10.0 %
60 - 69	10.0 %
70 - 79	6.2 %
80 - 89	0.8 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	130
mean	33
min size (mm)	4
max size (mm)	82

Pycnopodia helianthoides

Number of ARMs	15
< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	0.0 %
100 - 119	33.3 %
120 - 139	0.0 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	33.3 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	33.3 %
> 299	0.0 %
(Cases) N =	3
mean	203
min size (mm)	110
max size (mm)	280

Strongylocentrotus purpuratus

Number of ARMs	15
< 5	0.8 %
5 - 9	9.9 %
10 - 14	4.4 %
15 - 19	9.3 %
20 - 24	13.4 %
25 - 29	12.4 %
30 - 34	12.6 %
35 - 39	7.9 %
40 - 44	5.6 %
45 - 49	3.6 %
50 - 54	4.9 %
55 - 59	6.6 %
60 - 64	4.9 %
65 - 69	2.5 %
70 - 74	1.1 %
75 - 79	0.3 %
> 79	0.0 %
(Cases) N =	756
mean	34
min size (mm)	3
max size (mm)	76

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

Tegula regina	
Number of ARMs	**15**
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	16.7 %
40 - 44	0.0 %
45 - 49	83.3 %
50 - 54	0.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	6
mean	45
min size (mm)	37
max size (mm)	48

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

Crassedoma giganteum	
Number of ARMs	**9**
<10	9.1 %
10 - 19	0.0 %
20 - 29	9.1 %
30 - 39	9.1 %
40 - 49	0.0 %
50 - 59	18.2 %
60 - 69	9.1 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	27.3 %
120 - 129	9.1 %
130 - 139	9.1 %
> 139	0.0 %
(Cases) N =	11
mean	75
min size (mm)	9
max size (mm)	135

Cypraea spadicea	
Number of ARMs	**9**
<30	1.7 %
30 - 32	0.0 %
33 - 35	1.7 %
36 - 38	1.7 %
39 - 41	5.1 %
42 - 44	22.0 %
45 - 47	20.3 %
48 - 50	16.9 %
51 - 53	18.6 %
54 - 56	11.9 %
>56	0.0 %
(Cases) N =	59
mean	47
min size (mm)	23
max size (mm)	55

Megathura crenulata	
Number of ARMs	**9**
<10	0.0 %
10 - 19	0.0 %
20 - 29	14.3 %
30 - 39	57.1 %
40 - 49	14.3 %
50 - 59	14.3 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	7
mean	38
min size (mm)	23
max size (mm)	50

Patiria miniata	
Number of ARMs	**9**
<10	3.0 %
10 - 19	21.2 %
20 - 29	24.2 %
30 - 39	21.2 %
40 - 49	6.1 %
50 - 59	6.1 %
60 - 69	15.2 %
70 - 79	3.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	33
mean	35
min size (mm)	8
max size (mm)	77

Pisaster giganteus	
Number of ARMs	**9**
< 20	0.0 %
20 - 39	33.3 %
40 - 59	59.3 %
60 - 79	7.4 %
80 - 99	0.0 %
100 - 119	0.0 %
120 - 139	0.0 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	27
mean	42
min size (mm)	20
max size (mm)	75

Pycnopodia helianthoides	
Number of ARMs	**9**
< 20	0.0 %
20 - 39	0.0 %
40 - 59	20.0 %
60 - 79	20.0 %
80 - 99	20.0 %
100 - 119	20.0 %
120 - 139	10.0 %
140 - 159	0.0 %
160 - 179	10.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	10
mean	93
min size (mm)	48
max size (mm)	170

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee North

Strongylocentrotus franciscanus

Number of ARMs	**9**
< 5	0.0 %
5 - 9	0.3 %
10 - 14	0.5 %
15 - 19	2.6 %
20 - 24	6.3 %
25 - 29	8.9 %
30 - 34	12.6 %
35 - 39	15.2 %
40 - 44	7.9 %
45 - 49	7.6 %
50 - 54	3.7 %
55 - 59	3.7 %
60 - 64	4.2 %
65 - 69	2.9 %
70 - 74	6.0 %
75 - 79	4.2 %
80 - 84	2.9 %
85 - 89	3.9 %
90 - 94	1.8 %
95 - 99	2.1 %
100 - 104	1.0 %
105 - 109	1.0 %
> 109	0.8 %
(Cases) N =	382
mean	51
min size (mm)	8
max size (mm)	116

Strongylocentrotus purpuratus

Number of ARMs	**9**
< 5	0.4 %
5 - 9	0.9 %
10 - 14	9.8 %
15 - 19	16.9 %
20 - 24	17.8 %
25 - 29	14.7 %
30 - 34	13.3 %
35 - 39	8.9 %
40 - 44	4.9 %
45 - 49	4.0 %
50 - 54	4.4 %
55 - 59	2.2 %
60 - 64	1.8 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	225
mean	30
min size (mm)	4
max size (mm)	63

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee South

Crassedoma giganteum

Number of ARMs	7
<10	0.0 %
10 - 19	0.0 %
20 - 29	28.6 %
30 - 39	14.3 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	28.6 %
120 - 129	0.0 %
130 - 139	28.6 %
> 139	0.0 %
(Cases) N =	7
mean	81
min size (mm)	20
max size (mm)	139

Cypraea spadicea

Number of ARMs	7
<30	0.0 %
30 - 32	0.0 %
33 - 35	0.0 %
36 - 38	0.0 %
39 - 41	4.2 %
42 - 44	25.0 %
45 - 47	25.0 %
48 - 50	25.0 %
51 - 53	16.7 %
54 - 56	4.2 %
>56	0.0 %
(Cases) N =	24
mean	47
min size (mm)	39
max size (mm)	54

Kelletia kelletii

Number of ARMs	7
< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	66.7 %
70 - 79	0.0 %
80 - 89	33.3 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	3
mean	69
min size (mm)	62
max size (mm)	80

Megathura crenulata

Number of ARMs	7
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	100.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	2
mean	36
min size (mm)	35
max size (mm)	36

Patiria miniata

Number of ARMs	7
<10	1.9 %
10 - 19	3.8 %
20 - 29	18.9 %
30 - 39	20.8 %
40 - 49	24.5 %
50 - 59	22.6 %
60 - 69	3.8 %
70 - 79	3.8 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	53
mean	40
min size (mm)	9
max size (mm)	71

Pisaster giganteus

Number of ARMs	7
< 20	0.0 %
20 - 39	6.5 %
40 - 59	58.1 %
60 - 79	29.0 %
80 - 99	3.2 %
100 - 119	0.0 %
120 - 139	3.2 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	31
mean	59
min size (mm)	24
max size (mm)	137

2012 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee South

Pycnopodia helianthoides	
Number of ARMs	**7**
< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	14.3 %
80 - 99	28.6 %
100 - 119	28.6 %
120 - 139	0.0 %
140 - 159	14.3 %
160 - 179	14.3 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	7
mean	109
min size (mm)	78
max size (mm)	160

Strongylocentrotus purpuratus	
Number of ARMs	**7**
< 5	0.0 %
5 - 9	0.0 %
10 - 14	1.6 %
15 - 19	1.6 %
20 - 24	9.7 %
25 - 29	11.3 %
30 - 34	6.5 %
35 - 39	4.8 %
40 - 44	12.9 %
45 - 49	8.1 %
50 - 54	4.8 %
55 - 59	16.1 %
60 - 64	11.3 %
65 - 69	9.7 %
70 - 74	1.6 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	62
mean	46
min size (mm)	11
max size (mm)	70

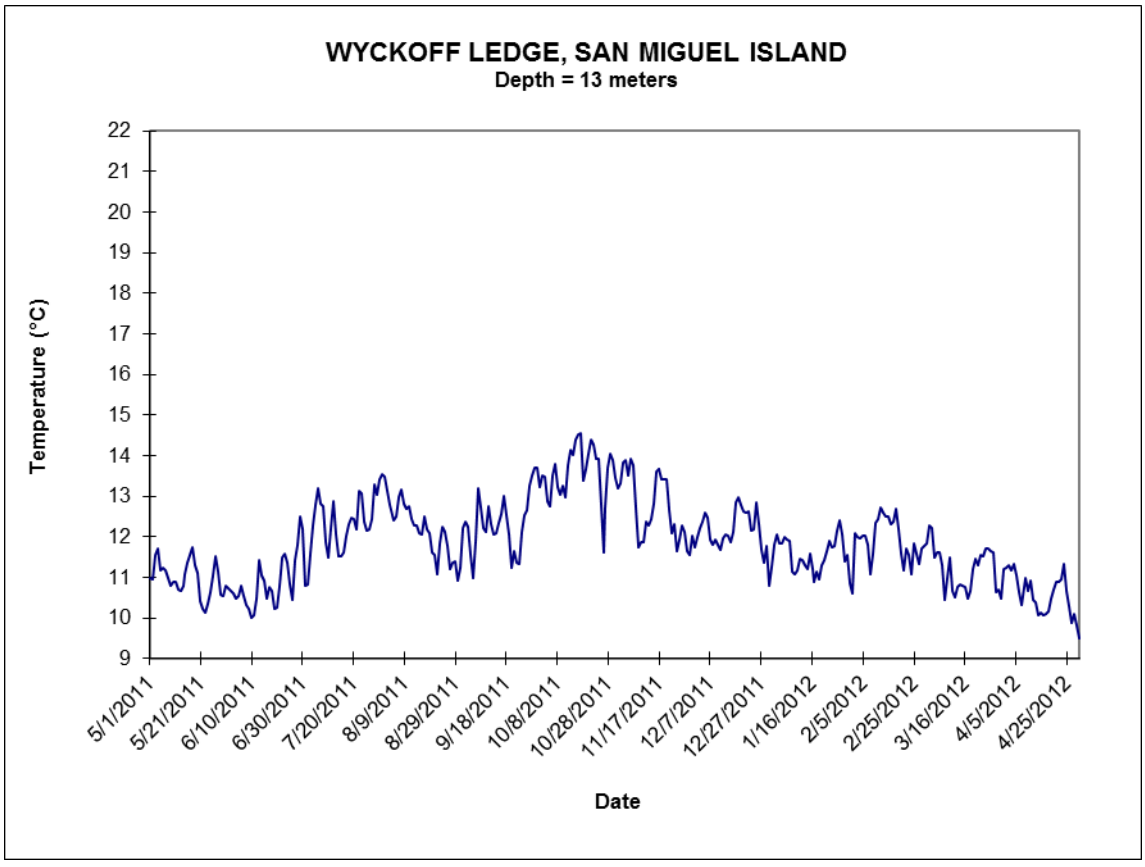
Strongylocentrotus franciscanus	
Number of ARMs	**7**
< 5	0.0 %
5 - 9	0.0 %
10 - 14	2.3 %
15 - 19	3.1 %
20 - 24	2.7 %
25 - 29	5.0 %
30 - 34	6.1 %
35 - 39	5.7 %
40 - 44	7.3 %
45 - 49	9.5 %
50 - 54	8.4 %
55 - 59	5.0 %
60 - 64	10.3 %
65 - 69	6.1 %
70 - 74	5.3 %
75 - 79	5.7 %
80 - 84	5.0 %
85 - 89	3.4 %
90 - 94	2.7 %
95 - 99	3.8 %
100 - 104	1.1 %
105 - 109	0.4 %
> 109	1.1 %
(Cases) N =	262
mean	57
min size (mm)	10
max size (mm)	120

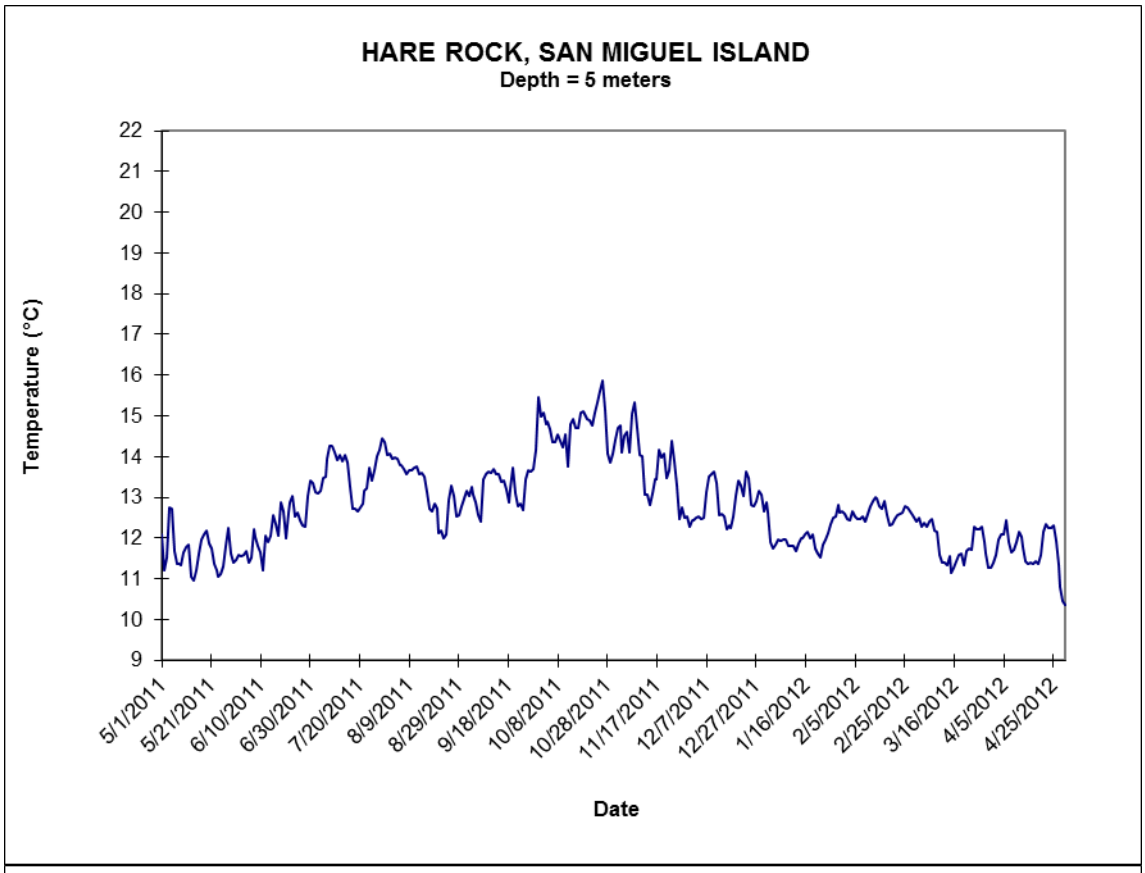
Appendix N. Temperature Data Graphs

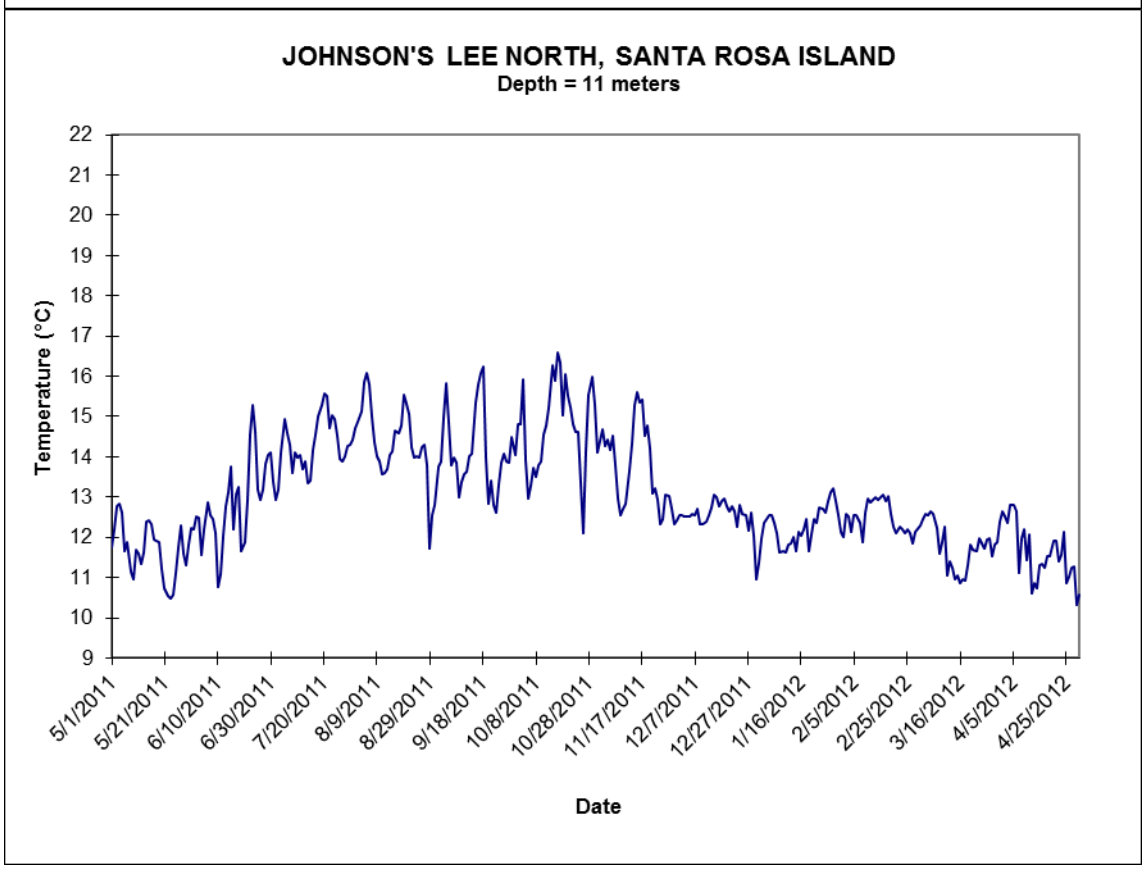
2012 TEMPERATURE DATA GRAPHS

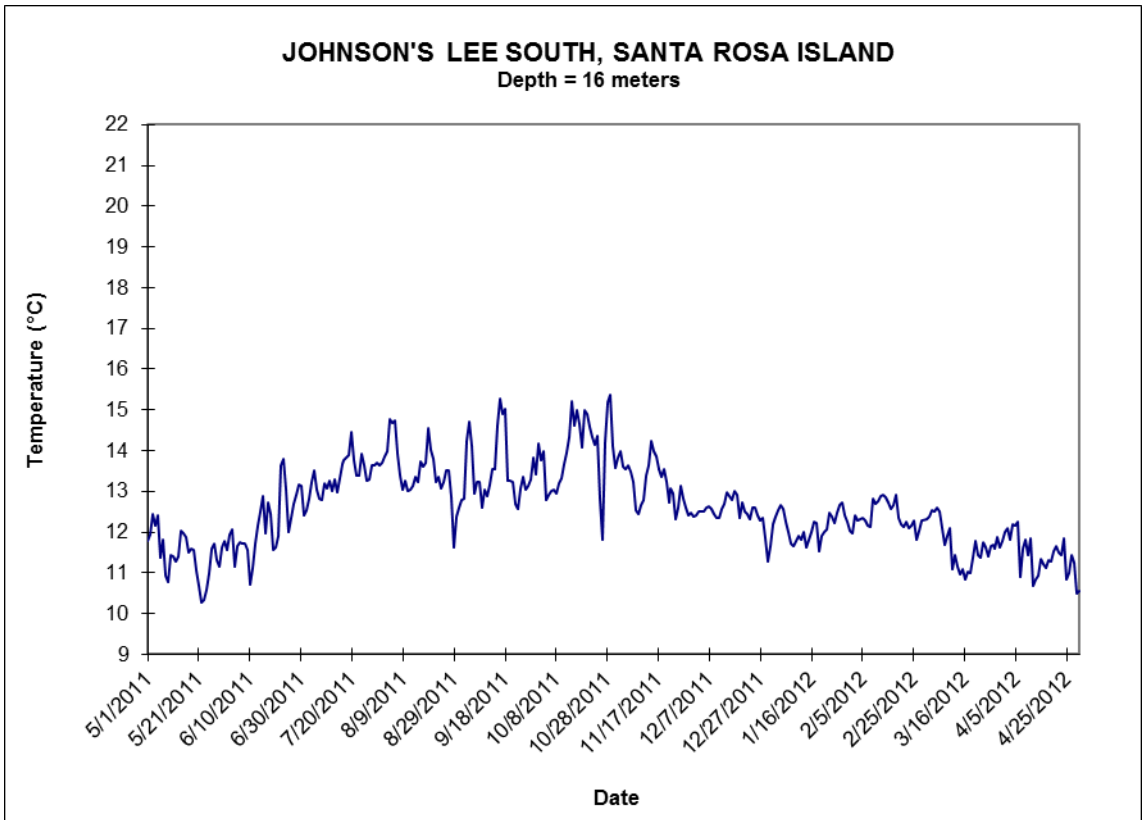
Introduction

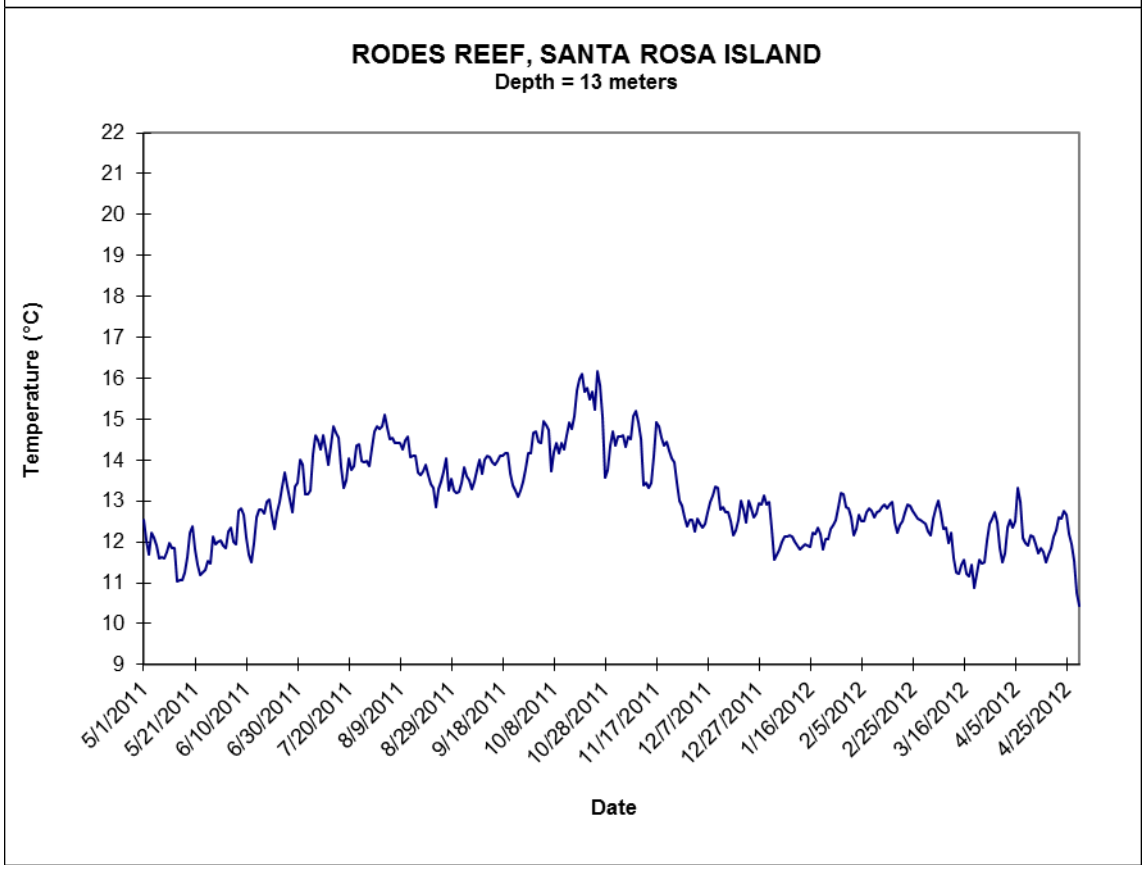
This appendix contains the temperature data (presented graphically) collected by temperature loggers that were deployed at 32 Kelp Forest Monitoring sites. We report the average daily temperatures between May 1, 2011 and April 30, 2012. Technical problems or loss of the temperature units may result in missing data for a site and this information is included in the results section for each site.

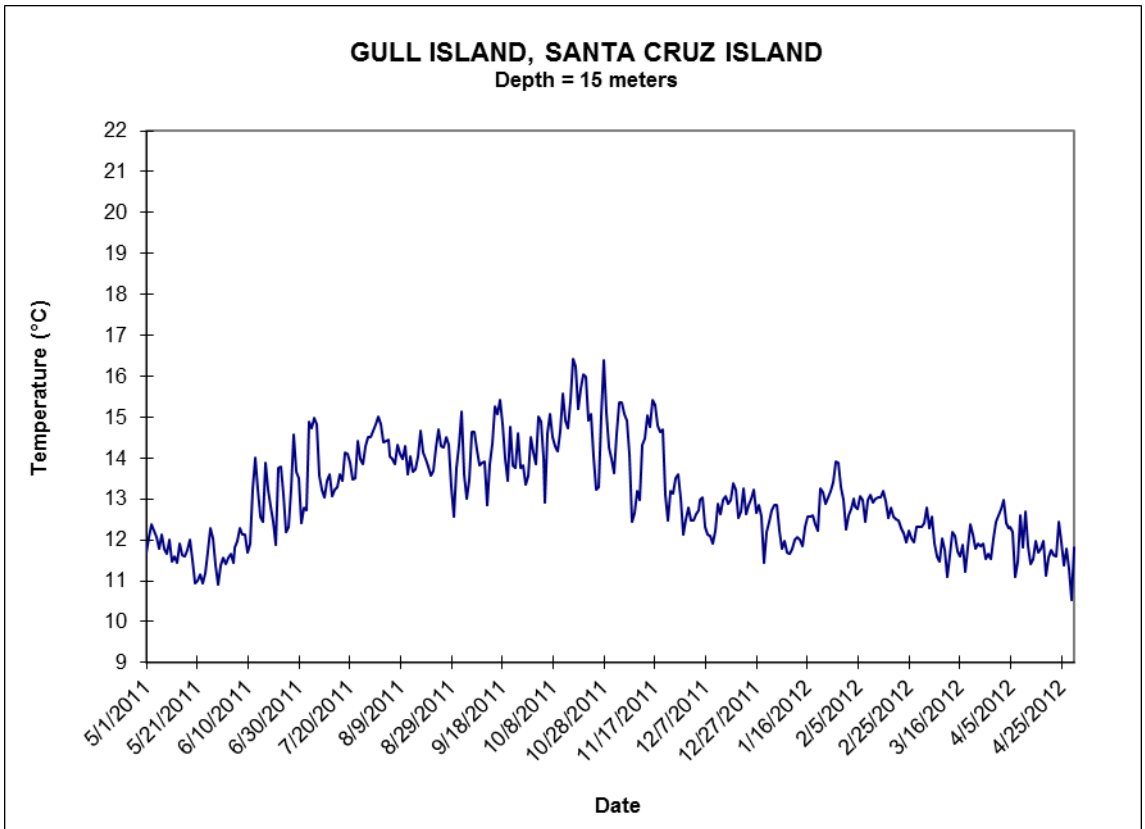


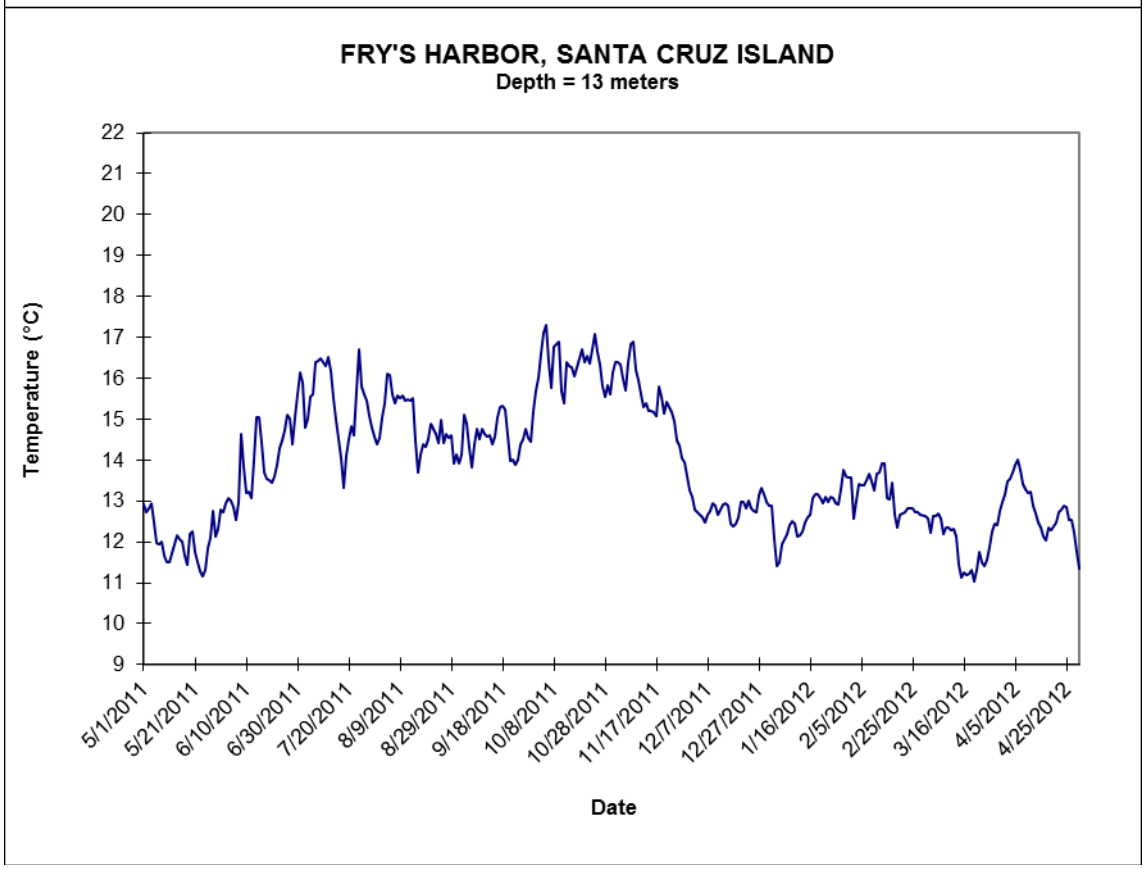

HARE ROCK, SAN MIGUEL ISLAND
Depth = 5 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

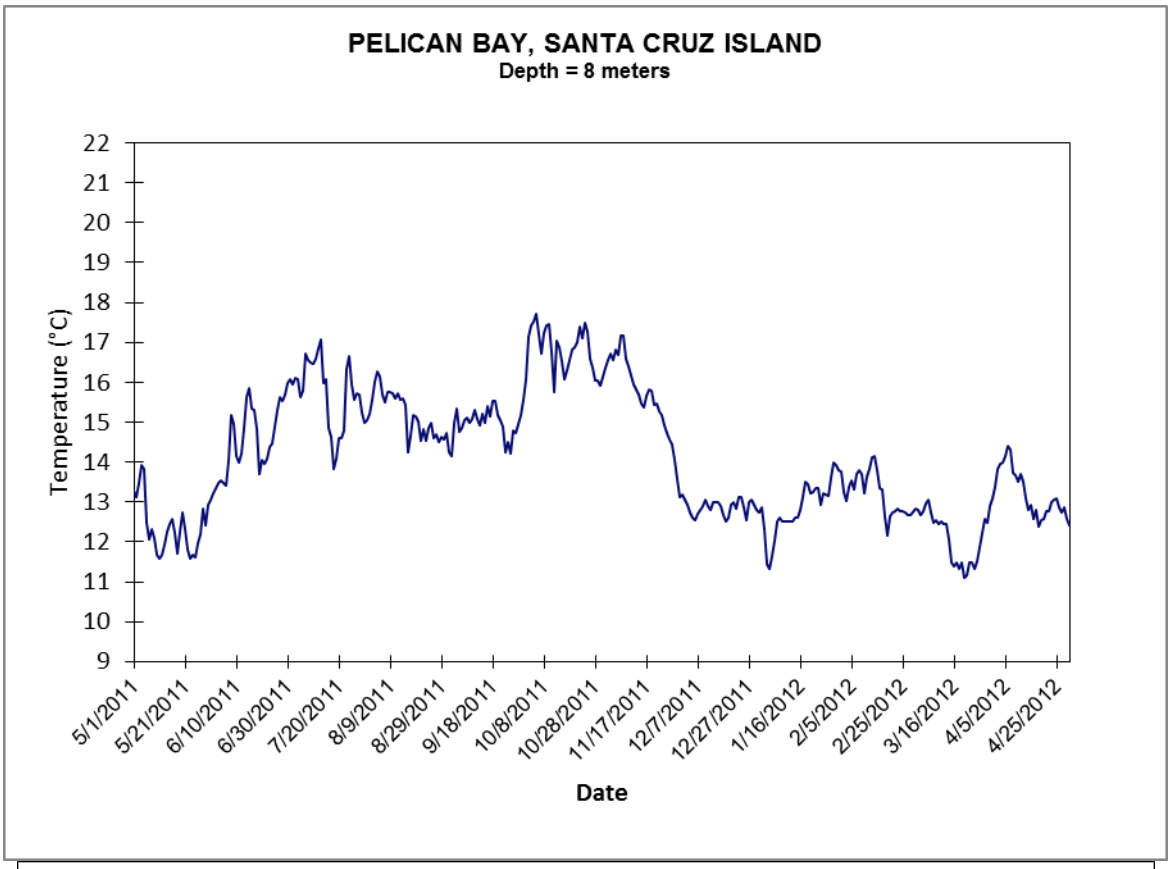

JOHNSON'S LEE NORTH, SANTA ROSA ISLAND
Depth = 11 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

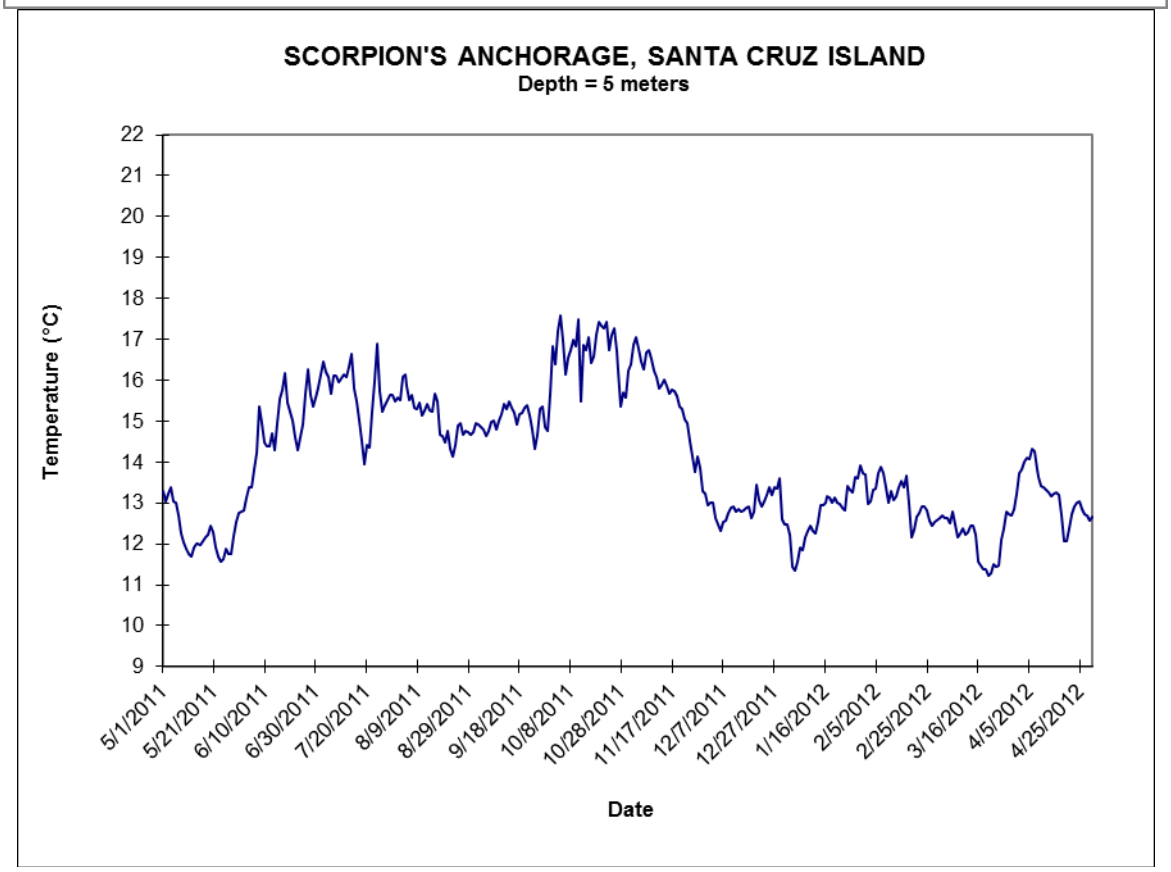

JOHNSON'S LEE SOUTH, SANTA ROSA ISLAND
Depth = 16 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

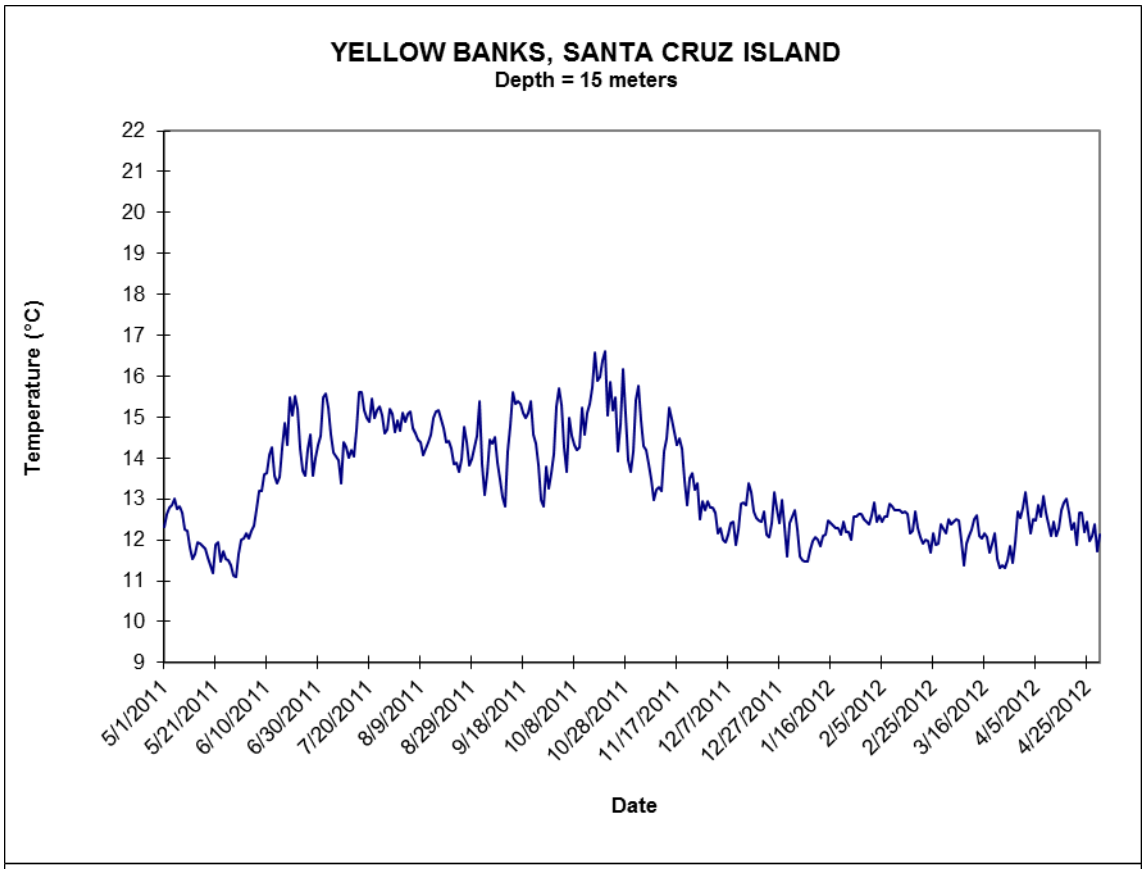

RODES REEF, SANTA ROSA ISLAND
Depth = 13 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

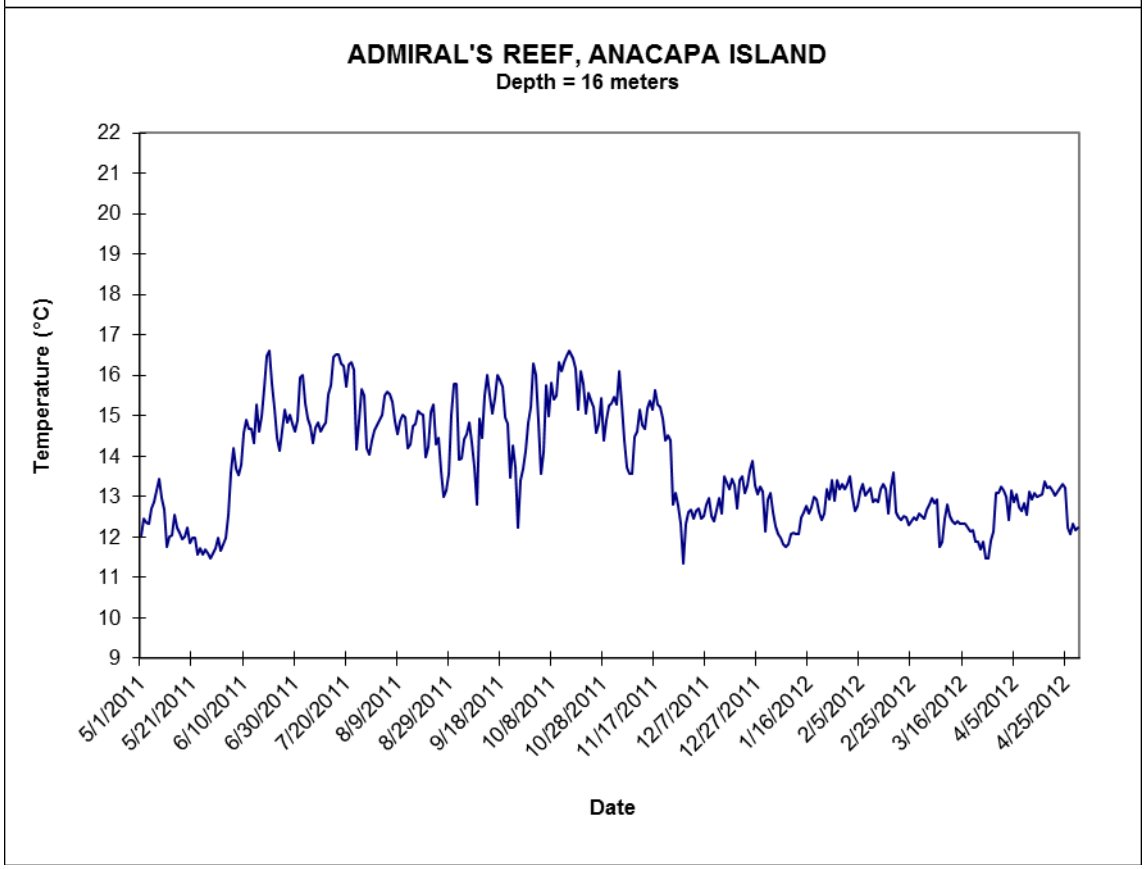

GULL ISLAND, SANTA CRUZ ISLAND
Depth = 15 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

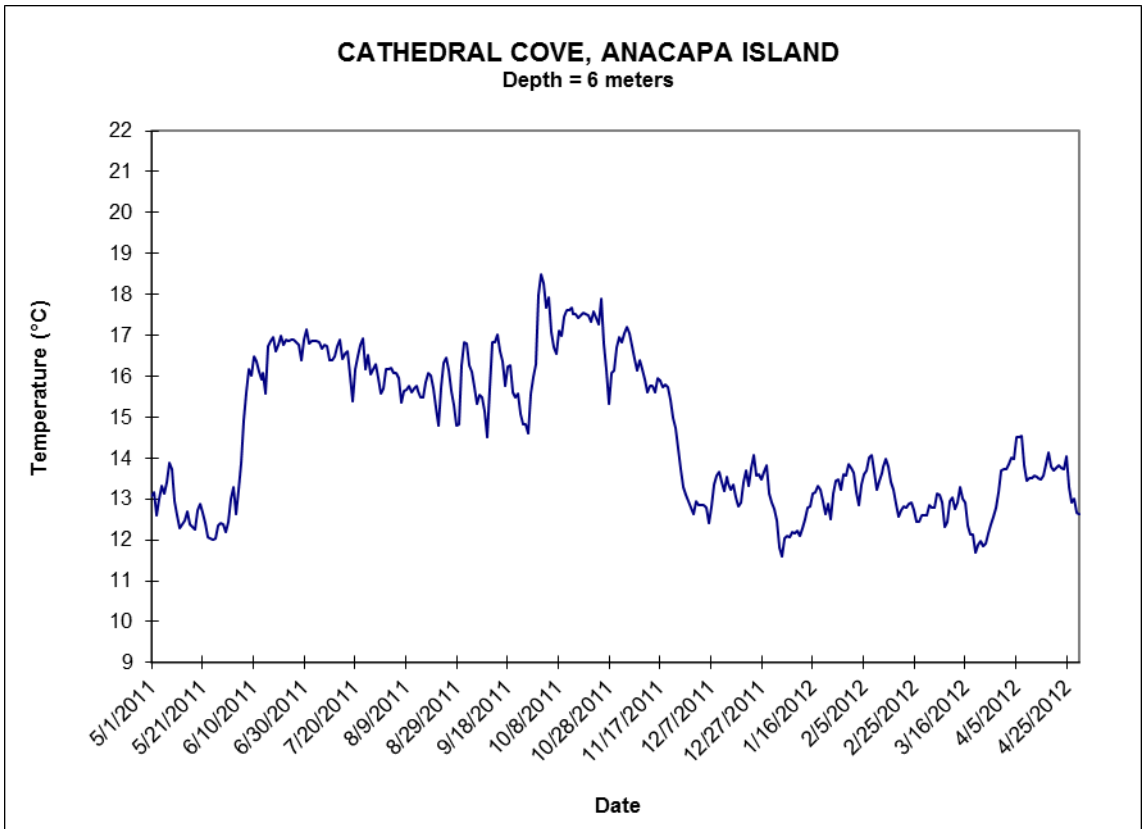

FRY'S HARBOR, SANTA CRUZ ISLAND
Depth = 13 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

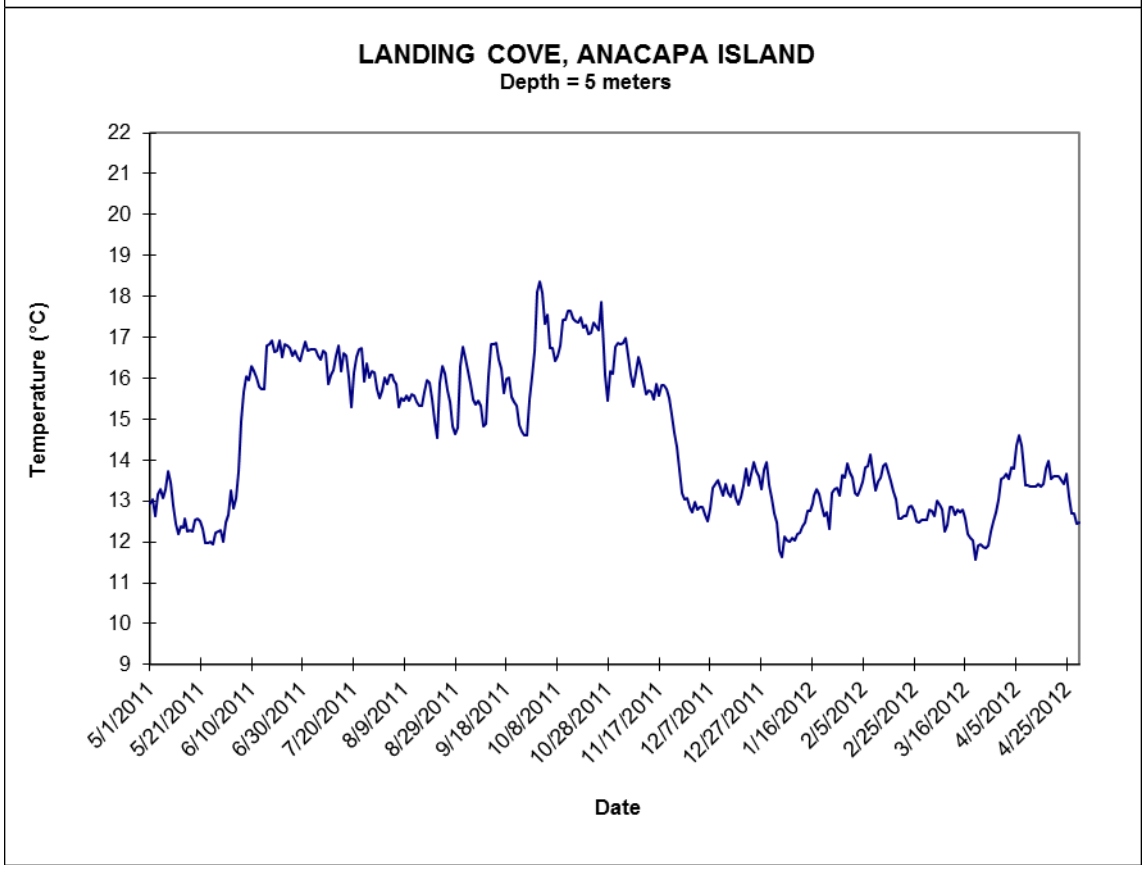

PELICAN BAY, SANTA CRUZ ISLAND
Depth = 8 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

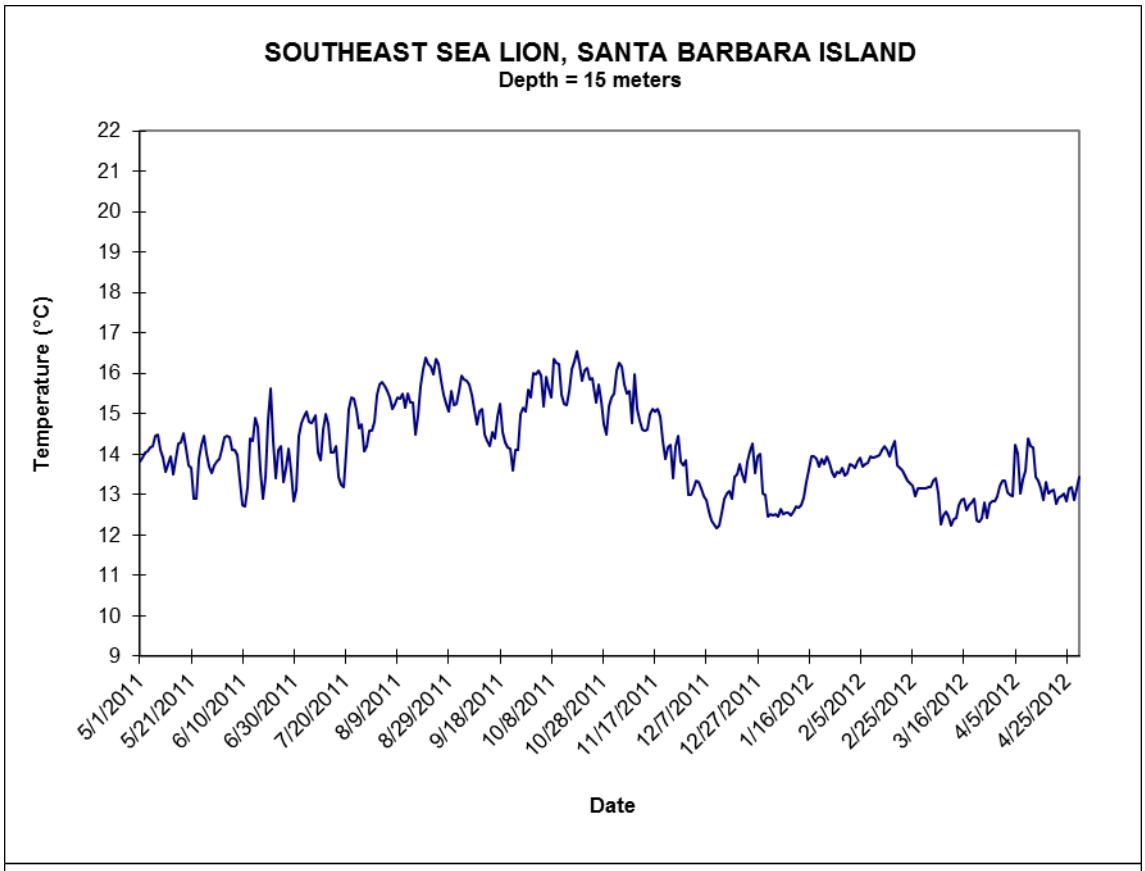

SCORPION'S ANCHORAGE, SANTA CRUZ ISLAND
Depth = 5 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

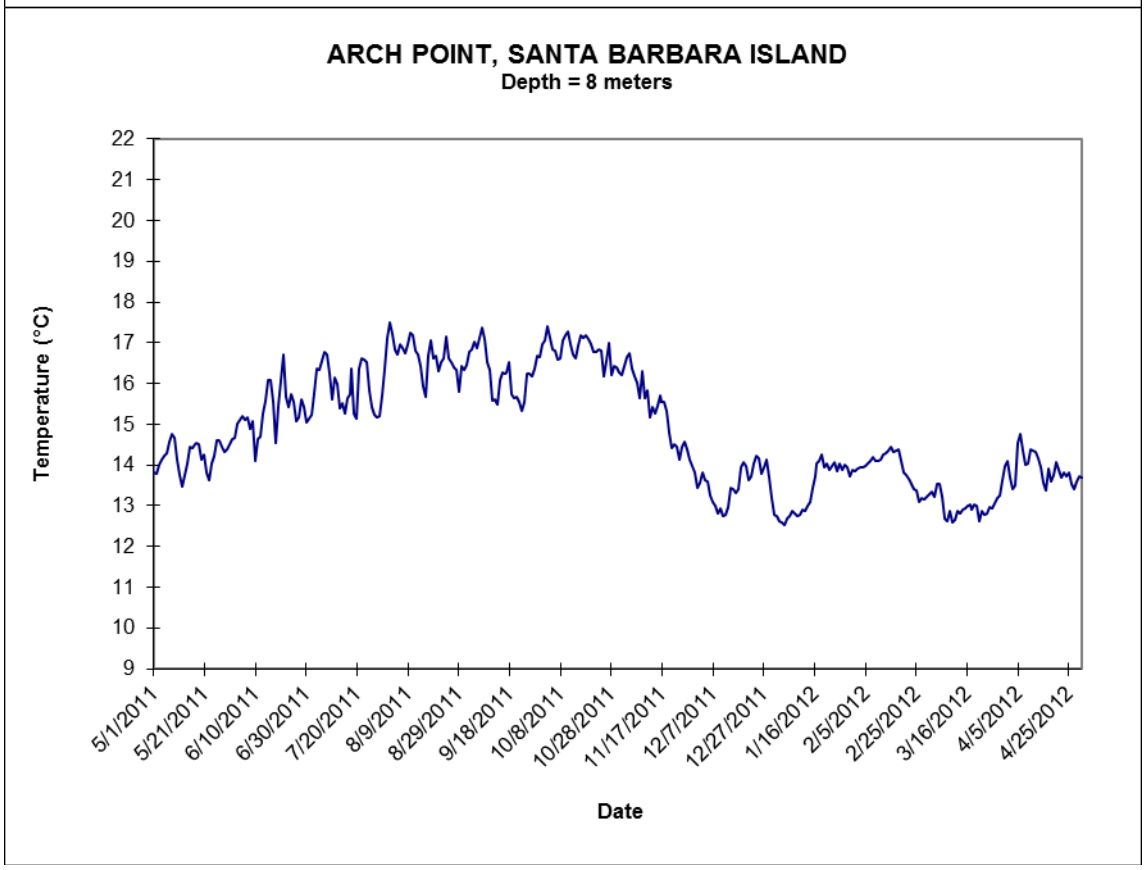

YELLOW BANKS, SANTA CRUZ ISLAND
Depth = 15 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

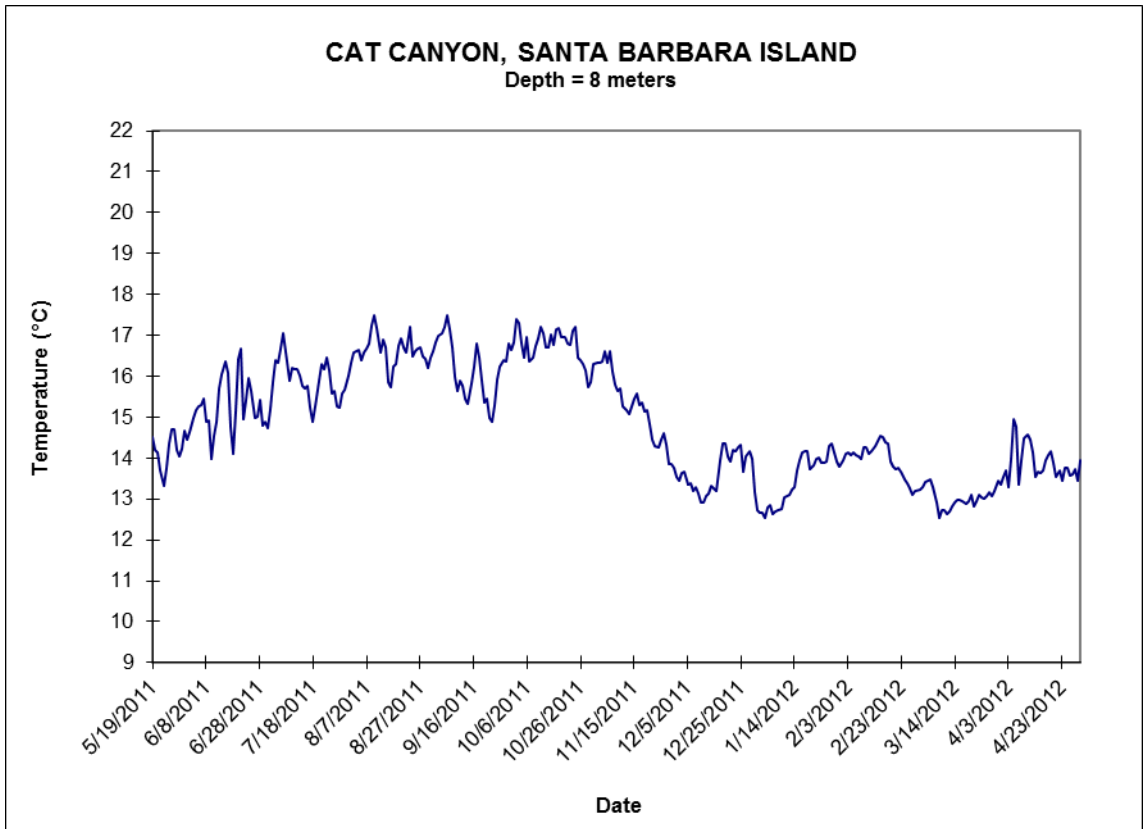

ADMIRAL'S REEF, ANACAPA ISLAND
Depth = 16 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

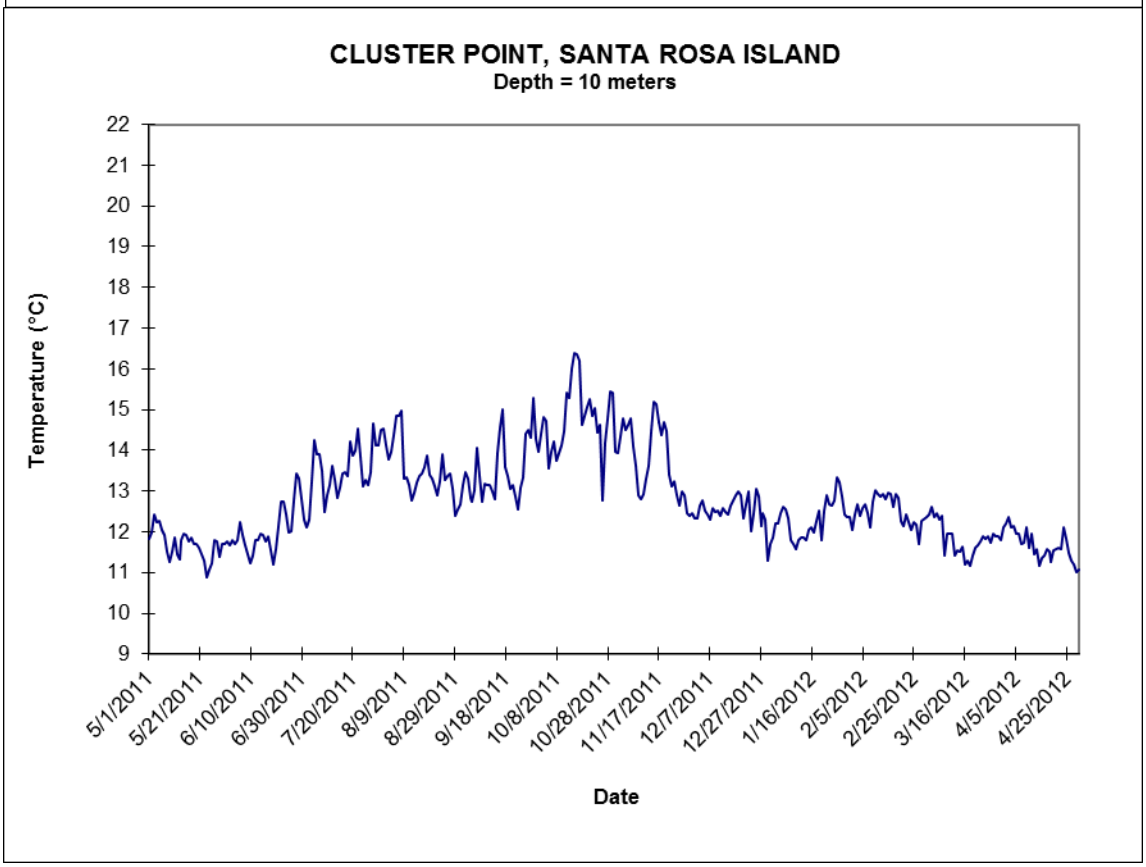

CATHEDRAL COVE, ANACAPA ISLAND
Depth = 6 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

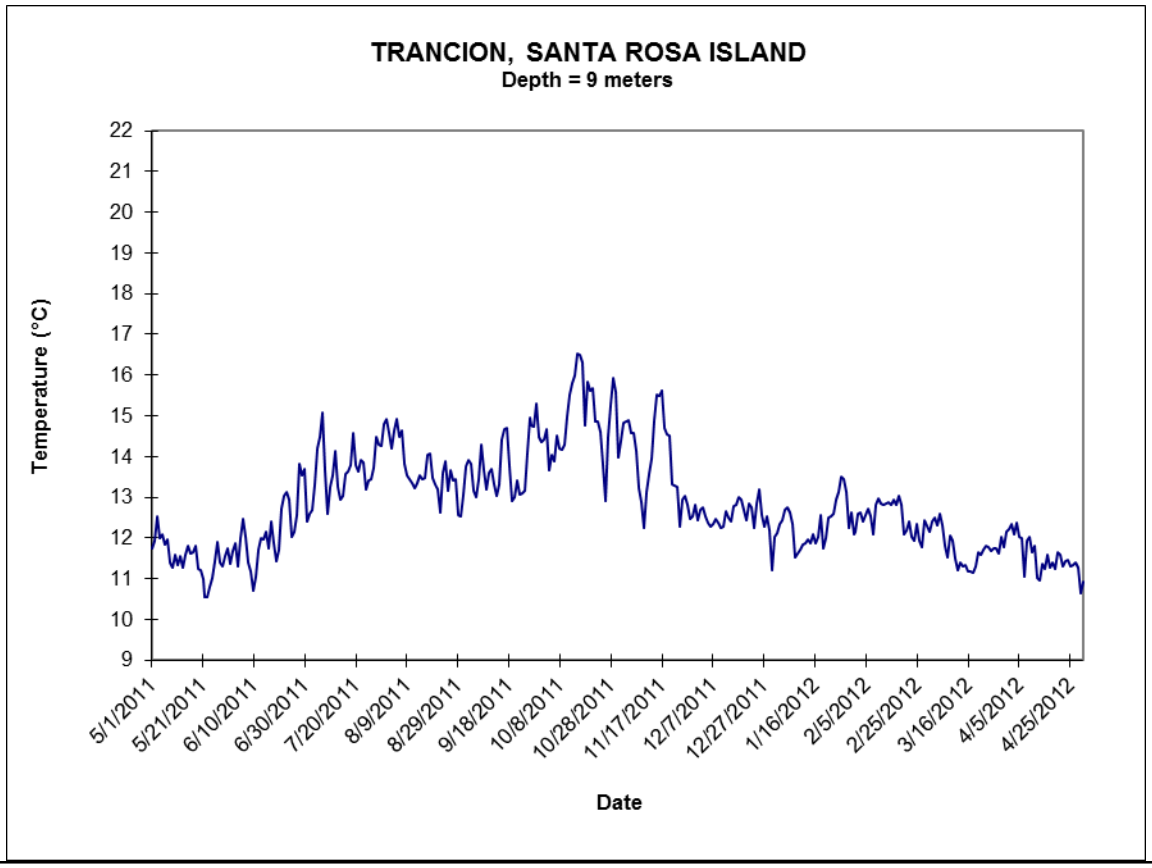

LANDING COVE, ANACAPA ISLAND
Depth = 5 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

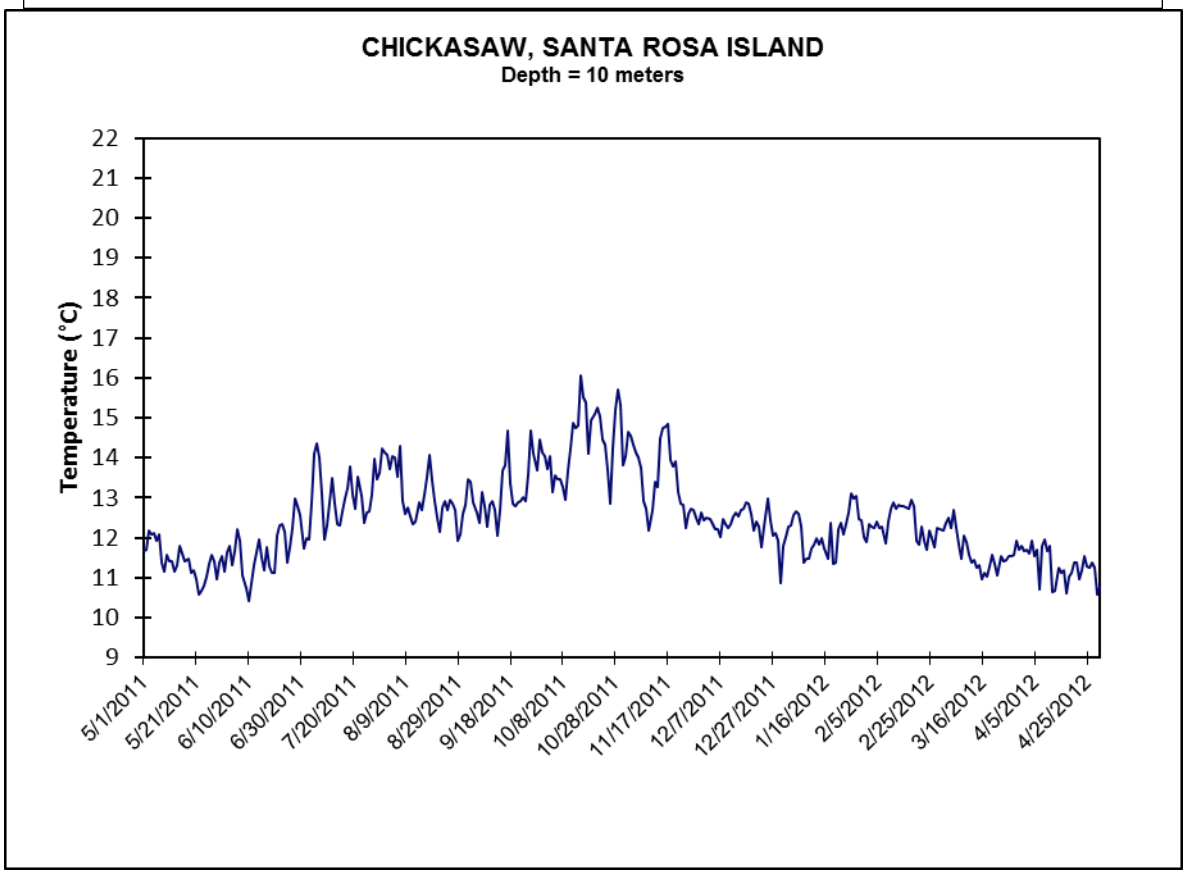

SOUTHEAST SEA LION, SANTA BARBARA ISLAND
Depth = 15 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

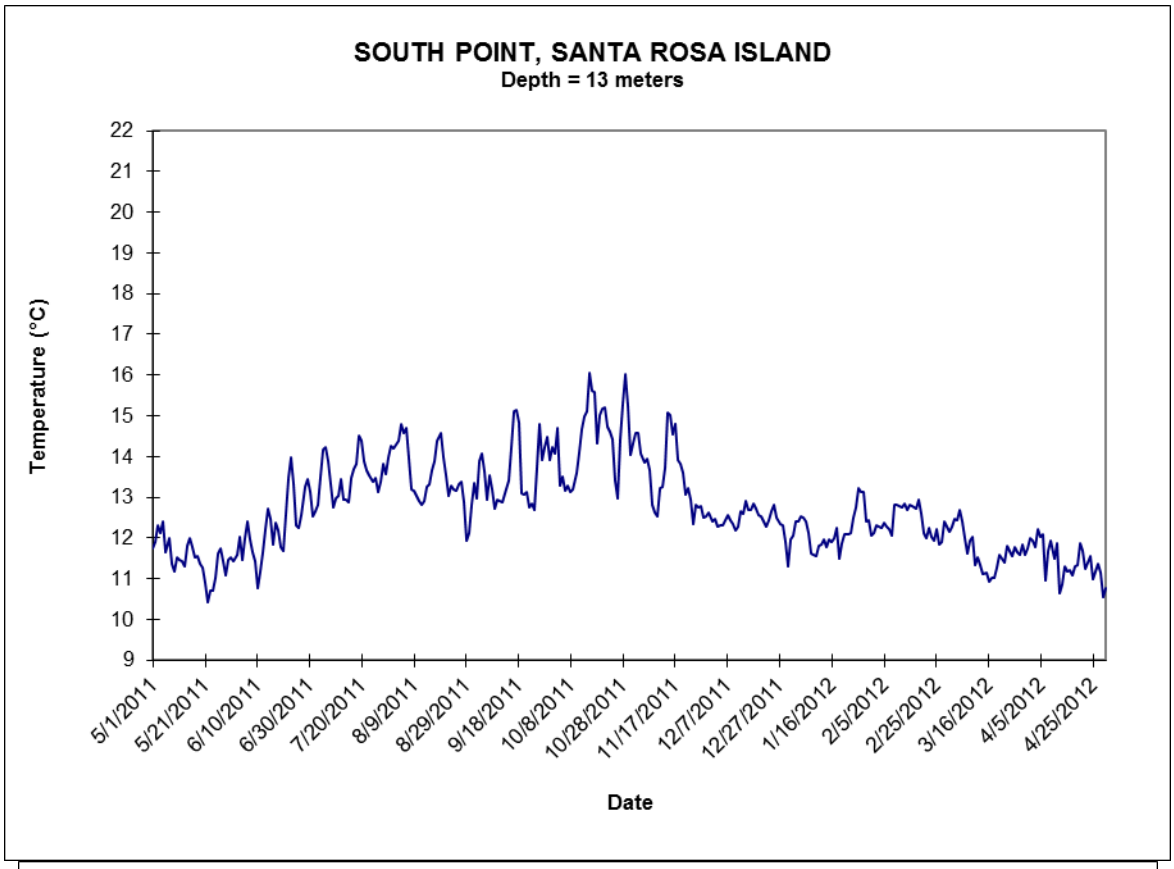

ARCH POINT, SANTA BARBARA ISLAND
Depth = 8 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

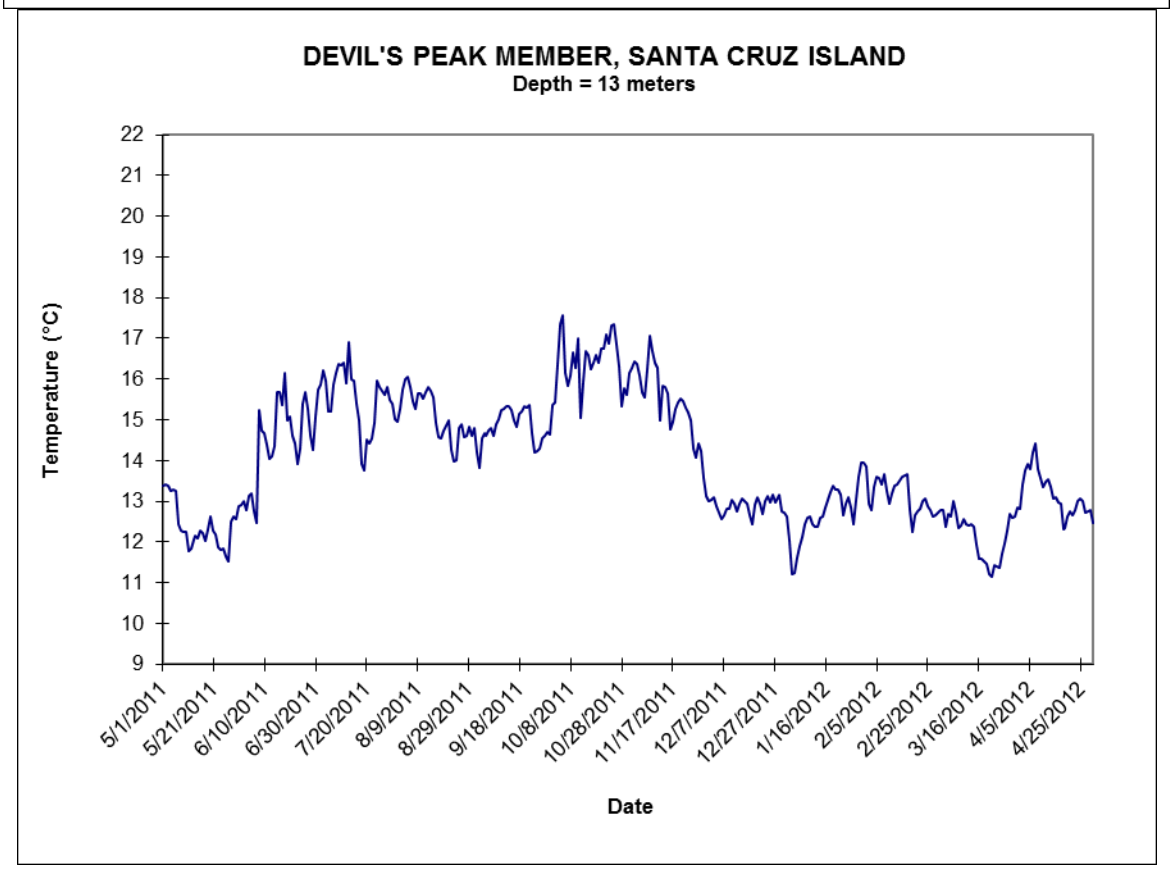

CAT CANYON, SANTA BARBARA ISLAND
Depth = 8 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/19/2011
6/8/2011
6/28/2011
7/18/2011
8/7/2011
8/27/2011
9/16/2011
10/6/2011
10/26/2011
11/15/2011
12/5/2011
12/25/2011
1/14/2012
2/3/2012
2/23/2012
3/14/2012
4/3/2012
4/23/2012
Date

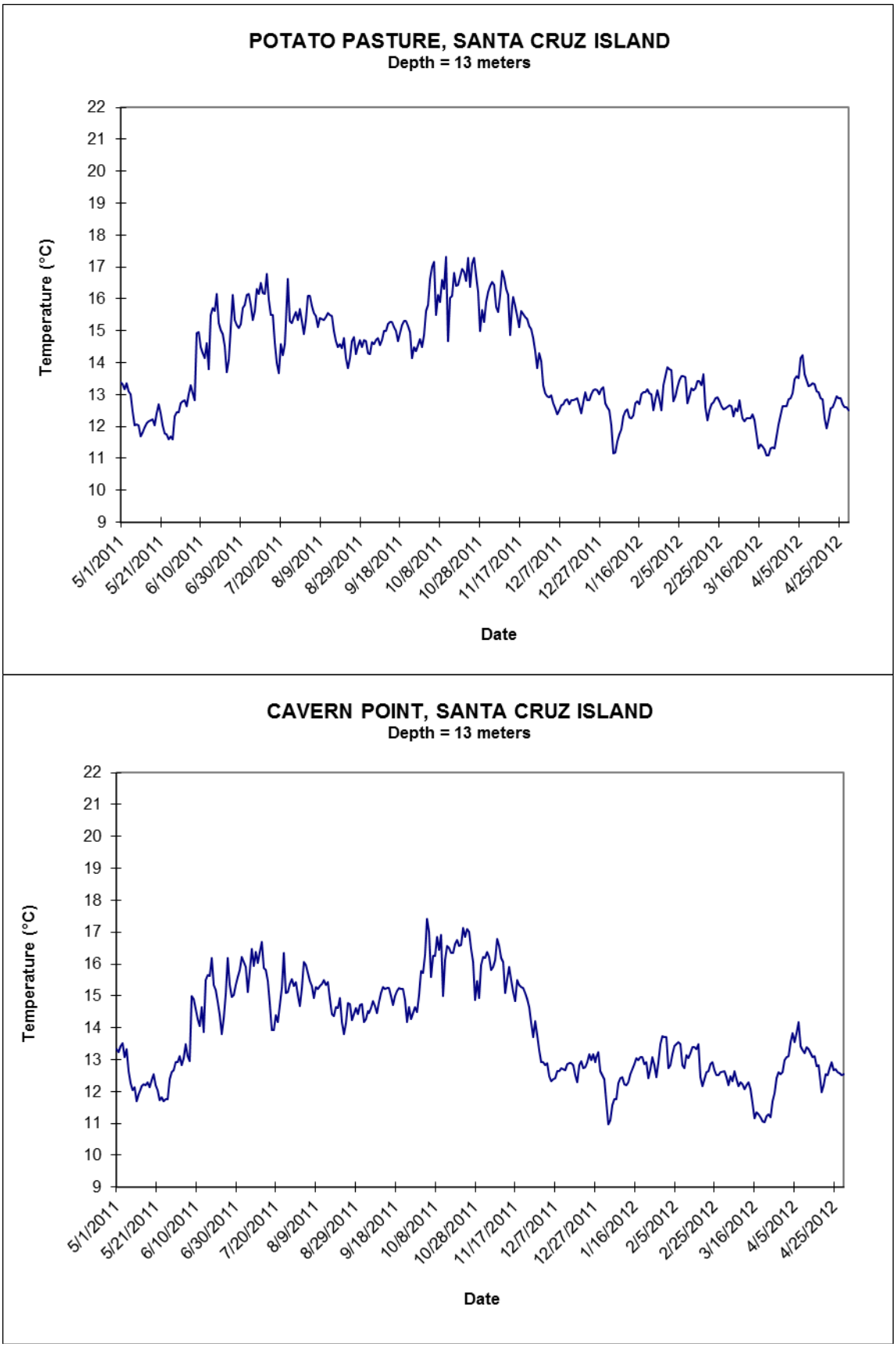

CLUSTER POINT, SANTA ROSA ISLAND
Depth = 10 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

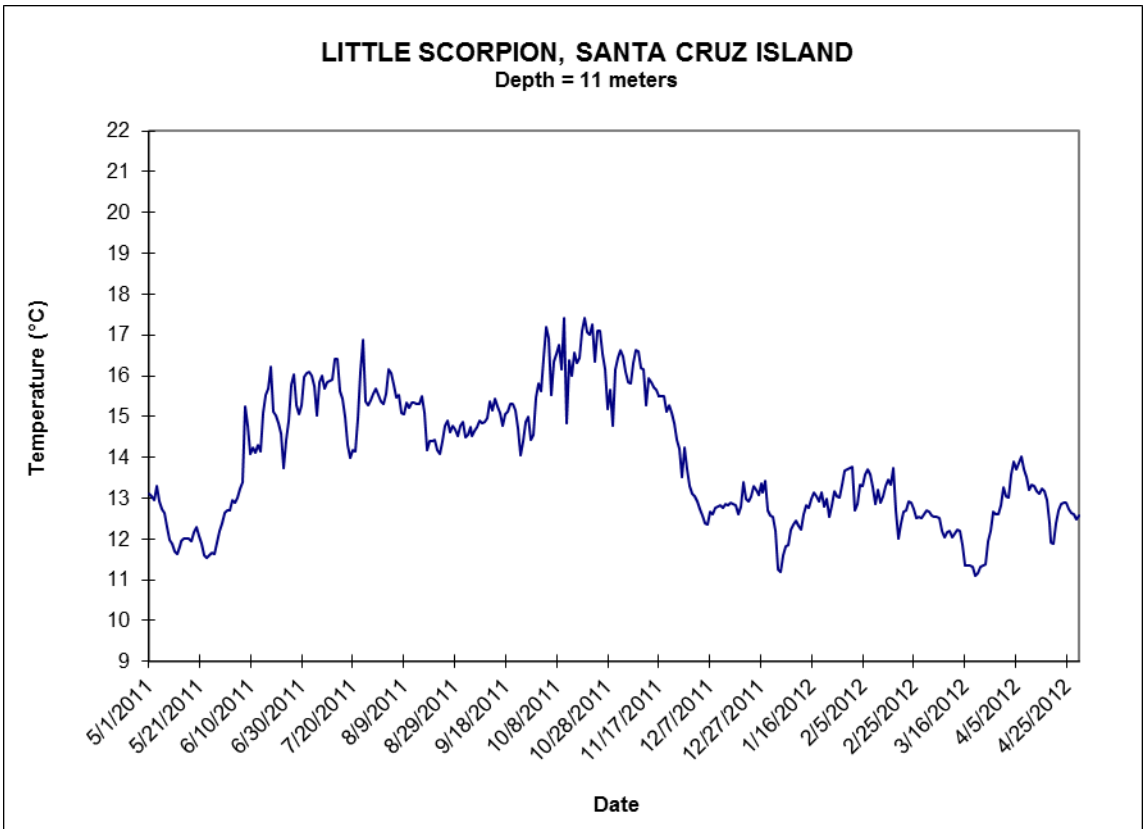

TRANCION, SANTA ROSA ISLAND
Depth = 9 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

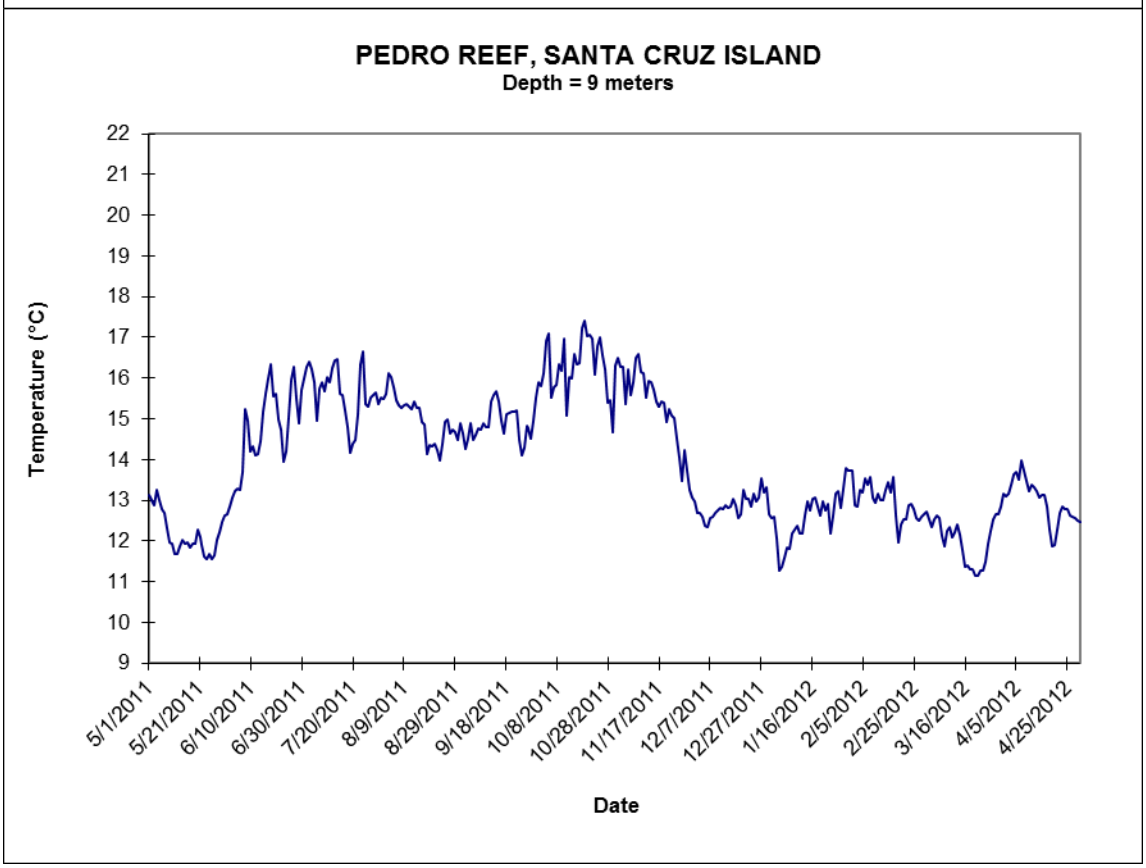

CHICKASAW, SANTA ROSA ISLAND
Depth = 10 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012

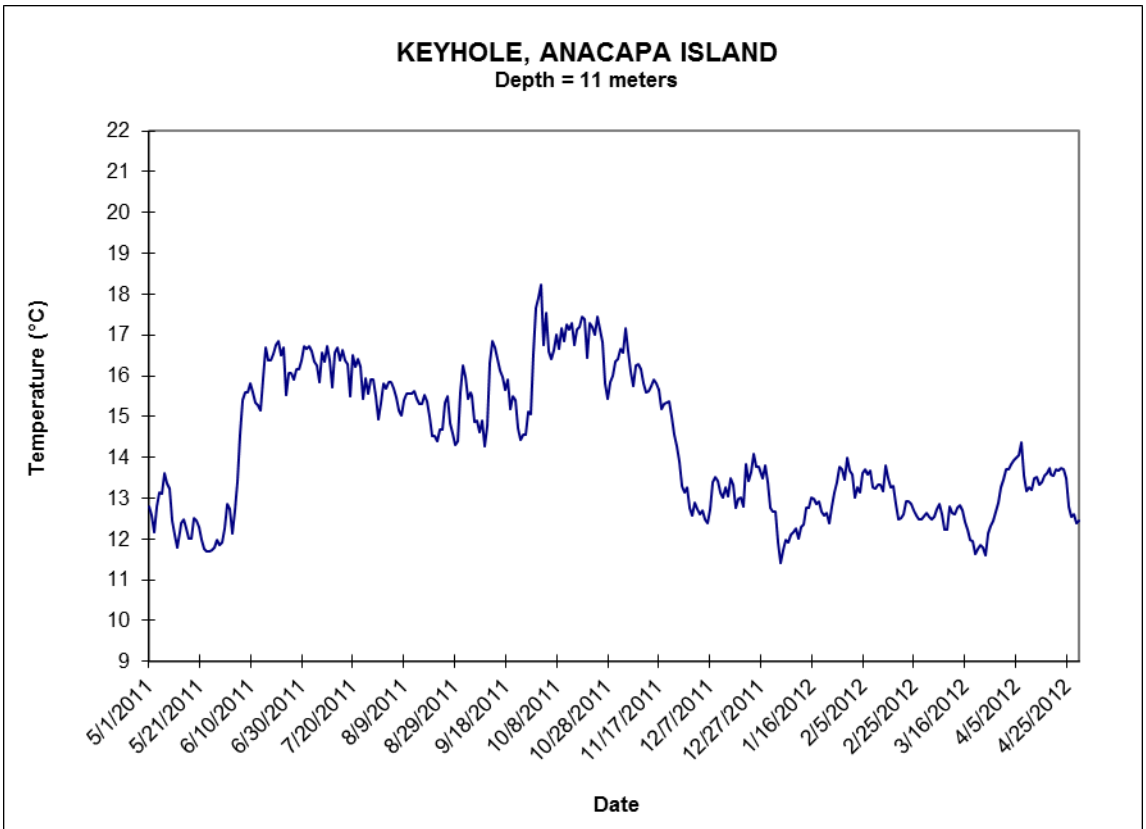

SOUTH POINT, SANTA ROSA ISLAND
Depth = 13 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

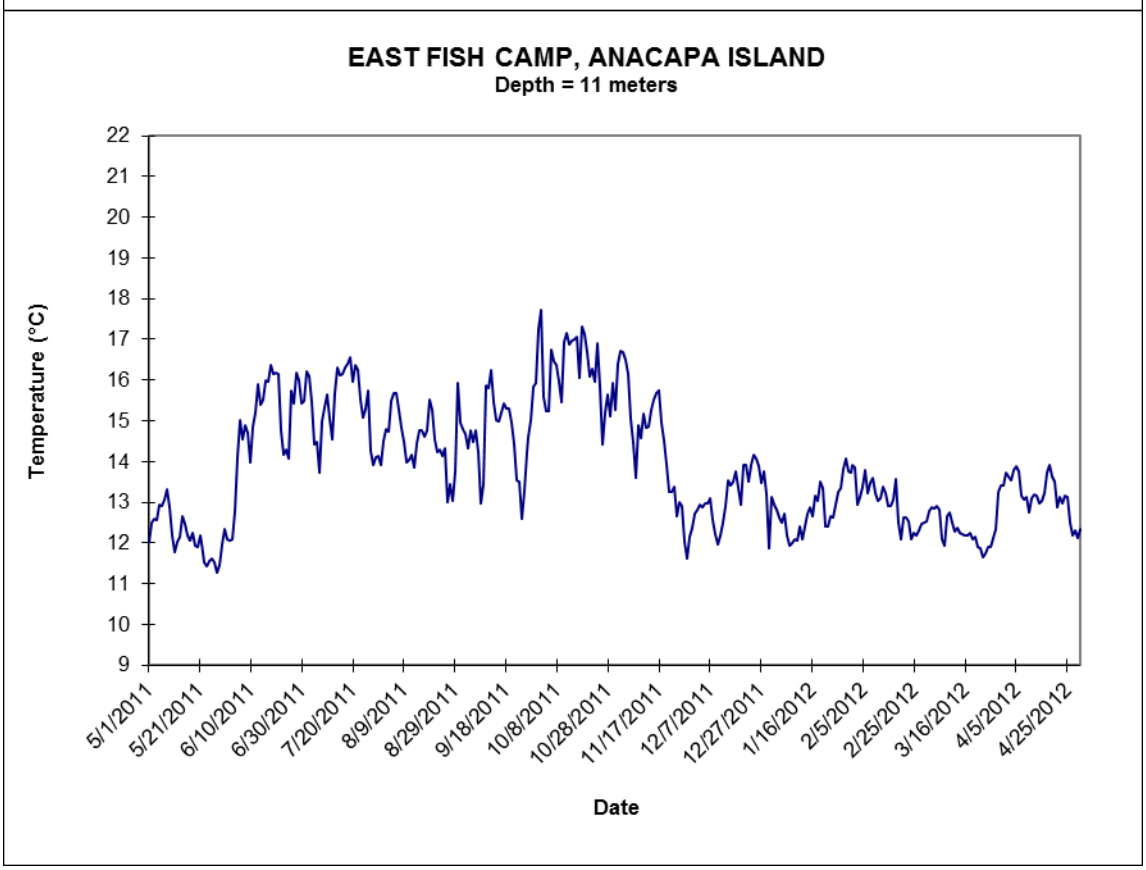

DEVIL'S PEAK MEMBER, SANTA CRUZ ISLAND
Depth = 13 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

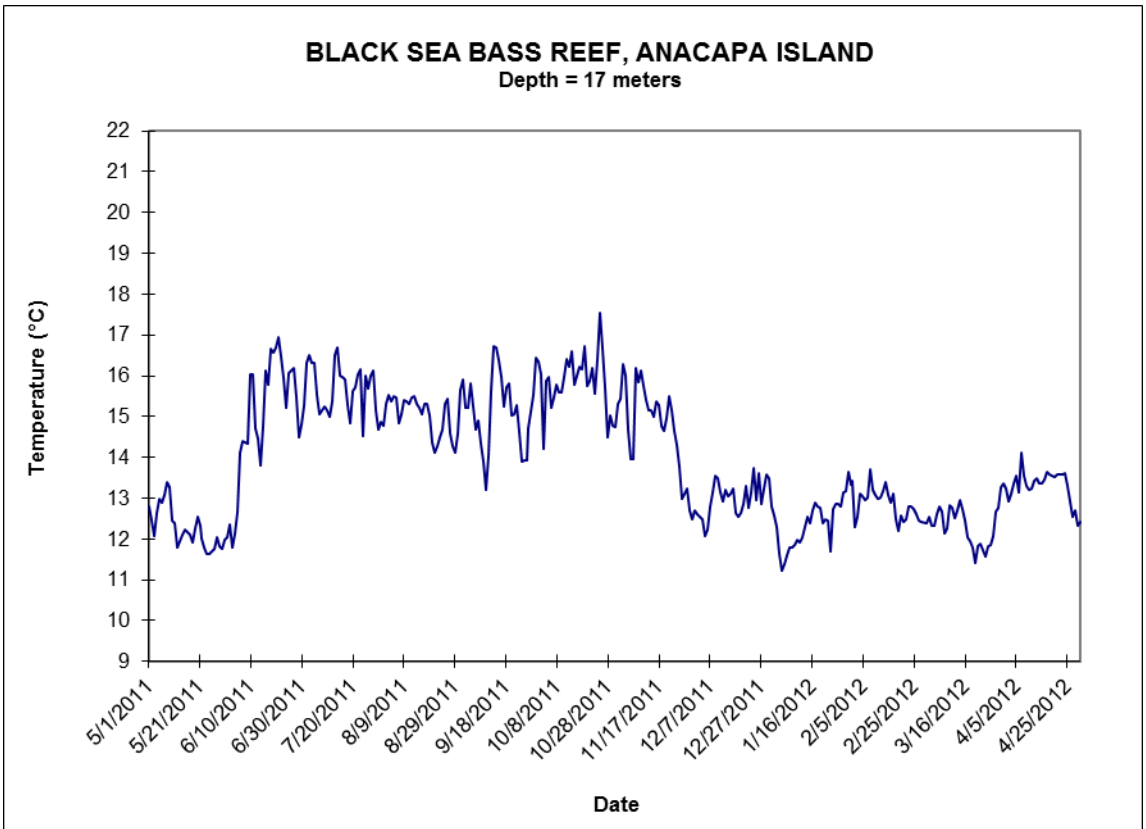

POTATO PASTURE, SANTA CRUZ ISLAND
Depth = 13 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date
CAVERN POINT, SANTA CRUZ ISLAND
Depth = 13 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

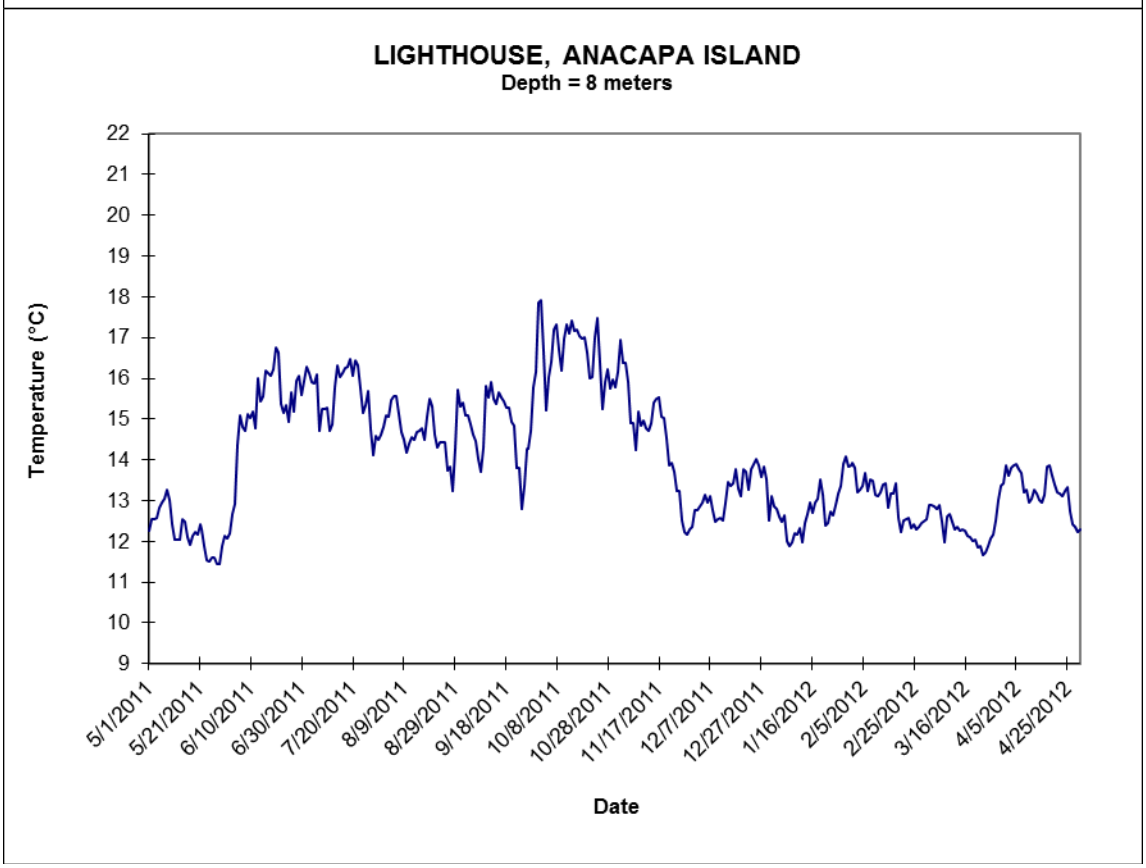

LITTLE SCORPION, SANTA CRUZ ISLAND
Depth = 11 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

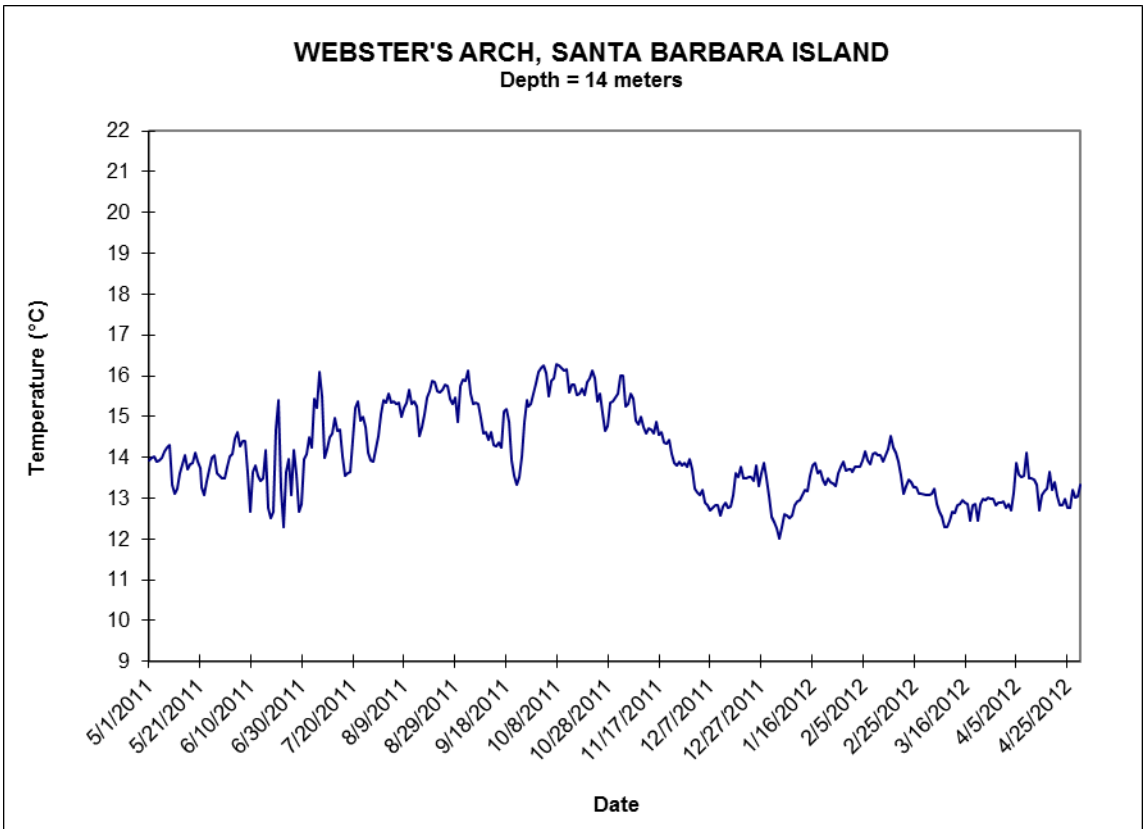

PEDRO REEF, SANTA CRUZ ISLAND
Depth = 9 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

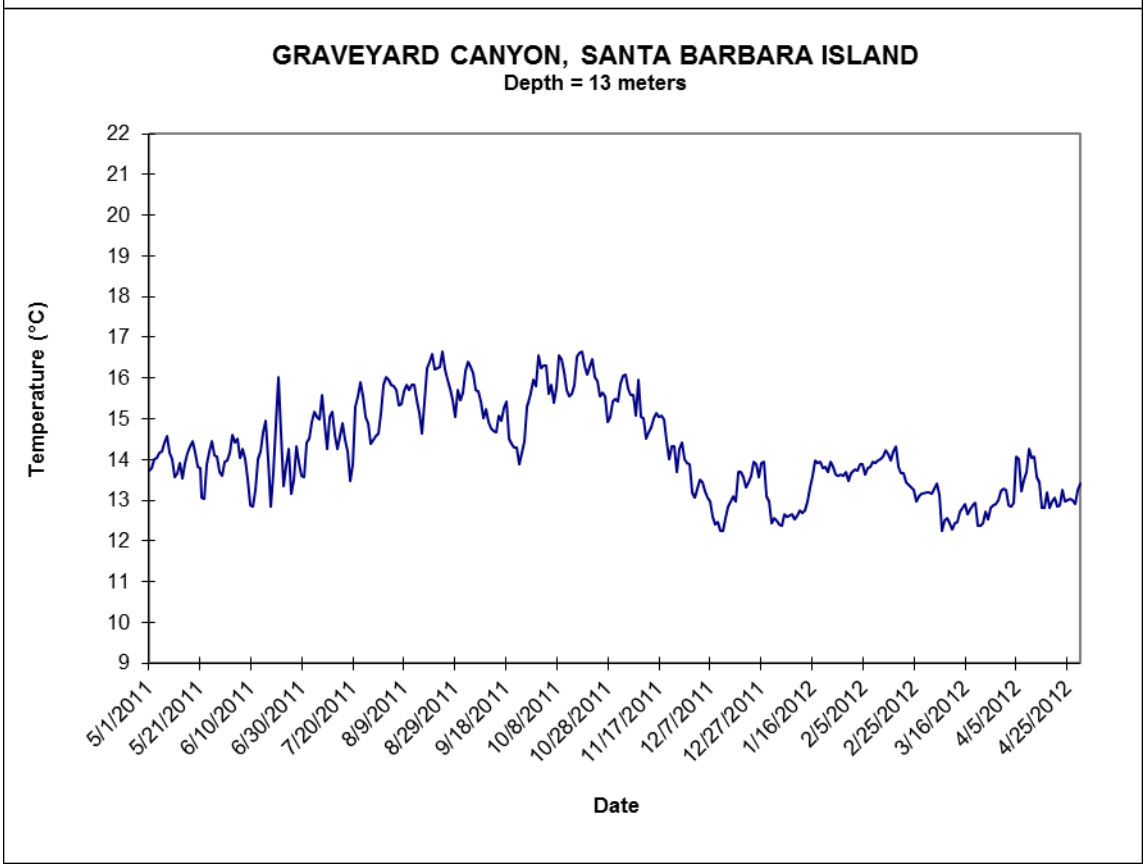

KEYHOLE, ANACAPA ISLAND
Depth = 11 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

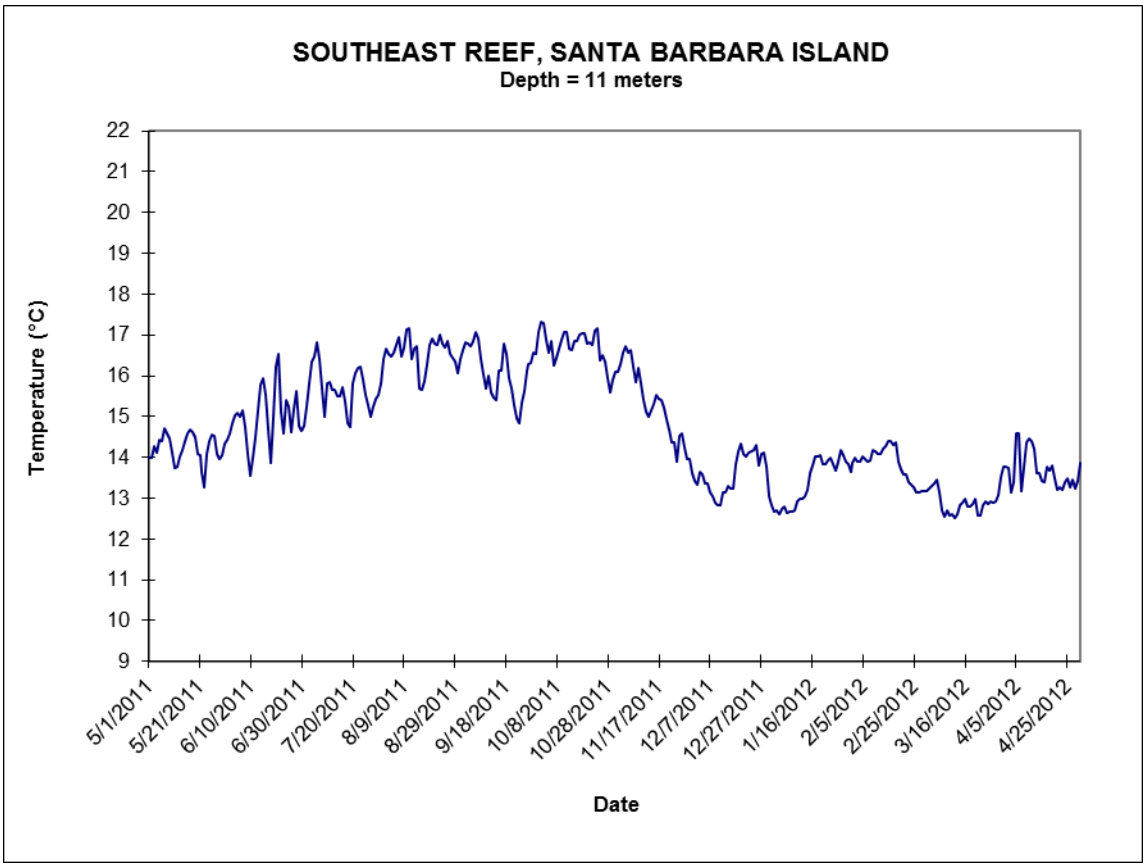

EAST FISH CAMP, ANACAPA ISLAND
Depth = 11 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date


BLACK SEA BASS REEF, ANACAPA ISLAND
Depth = 17 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date


LIGHTHOUSE, ANACAPA ISLAND
Depth = 8 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date


WEBSTER'S ARCH, SANTA BARBARA ISLAND
Depth = 14 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date


GRAVEYARD CANYON, SANTA BARBARA ISLAND
Depth = 13 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date


SOUTHEAST REEF, SANTA BARBARA ISLAND
Depth = 11 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2011
5/21/2011
6/10/2011
6/30/2011
7/20/2011
8/9/2011
8/29/2011
9/18/2011
10/8/2011
10/28/2011
11/17/2011
12/7/2011
12/27/2011
1/16/2012
2/5/2012
2/25/2012
3/16/2012
4/5/2012
4/25/2012
Date

Appendix O. 2010-2012 Indicator Species List for Channel Islands National Park's Kelp Forest Monitoring Sites.

Introduction

The species list contains presence/absence and relative abundance data for all indicator species that could be found and identified during the site visits between May and November. The overall effort varies from site to site with the water conditions and available time. Relative abundance values are subjective, and generally based on opinions of several divers viewing the overall site. When identification is tentative we either do not mark it or place a question mark on the list.

Abundance Ratings

X - present, no relative abundance rating given
4 - abundant, organism present in higher than normal densities
3 - common, organism found over most of site or in high density patches
2 - present, organism found in moderate numbers
1 - rare, few organisms found
0 - noticeably absent, an effort was made to look for an organism that was not found.
? - unknown

Notes

j	- juvenile
s	- shell only
#/J#	- (e.g. 2/J3 - adult abundance 2, juvenile abundance 3)

2010 Indicator Species List for Channel Islands National Park's Kelp Forest Monitoring Sites.
Sites #1-16

LOCATION:	SM WL	SM HR	SR JLNO	SR JLSO	SR RR	SC GI	SC FH	SC PB	SC SA	SC YB	AN AR	AN CC	AN LC	SB SESL	SB AP	SB CAT
SPECIES: SITE#:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
CHLOROPHYTA																
other green algae	X	1	2	2	?	2	1	X	X	1	1	1	2	2	1	1
PHAEOPHYTA																
Macrocystis pyrifera	4/j2	0	4/j1	4/j1	1/j2	4/j3	4/j2	3/j2	1/j1	2/j3	0/j1	4/j4	2/j4	2/j3	1	2/j3
Eisenia arborea	2	0	1	2/j1	0	2/j3	4/j2	2/j1	0	2/j1	1/j1	1/j2	4/j3	0/j1	1/j2	1/j1
Pterygophora californica	3	0	2/j1	2	0	1/j1	0	0	0	2/j3	0	1	3/j4	0	0	0
Laminaria farlowii	0	0	2/j1	2	0/j1	1/j1	0	0	1/j1	2/j1	0	4/j4	4/j4	0	0	0
Cystoseira spp.	2	0	2	1	0	2	2	0	1	2	0	4	2	1	0	1
Desmarestia spp.	3	1	0	0	3	0	0	0	0	1	0	0	2	4	0	1
Sargassum horneri	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0
other brown algae	3	1	1	2	1	0	1	1	2	2	1	3	3	3	3	4
RHODOPHYTA																
Gelidium spp.	0	0	0	0	0	0	1	?	0	0	0	2	3	0	0	0
Gigartina spp.	2	1	2	2	0	2	2	0	1	0	0	0	2	1	1	0
encrusting corallines	2	?	?	?	4	?	3	?	4	?	4	2	?	?	3	4
articulated corallines	3	?	?	?	1	?	1	?	1	?	1	3	?	?	2	1
other red algae	3	1	3	3	2	3	3	1	2	2	2	2	3	2	2	1
MISC.PLANT (diatom film or *Phyllospadix* spp.)	?	?	?	?	?	?	?	?	3	?	2	?	3	?	?	?
PORIFERA																
Tethya aurantia	3	2	3	4	3	4	4	2	3	3	3	1	3	4	1	1
misc. sponges	2	1	4	3	1	2	2	2	2	2	1	3	3	2	X	1
CNIDARIA																
Stylaster californicus	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
Lophogorgia chilensis	0	0	0	2	1	2	4	3	1	2	3	0	1	3	1	1
Muricea californica	0	0	0	1	0	0	0	0	0	2	3	0	0	3	1	1
Muricea fruticosa	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	1
Corynactis californica	3	3	2	2	2	2	1	1	2	1	2	1	2	2	2	2
Urticina lofotensis	3	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0
Astrangia lajollensis	1	3	3	2	3	1	3	3	2	2	2	1	2	0	1	2
Balanophyllia elegans	2	3	2	2	2	2	1	1	2	2	1	0	1	1	X	2
ANNELIDA																
Diopatra ornata	2	1	2	3	2	3	3	2	2	2	1	2	2	X	0	1
Phragmatopoma californica	2	0	3	1	0	0	0	0	1	0	0	3	2	0	0	1
MOLLUSCA																
Cryptochiton stelleri	?	?	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haliotis corrugata	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0

LOCATION:	SM WL	SM HR	SR JLNO	SR JLSO	SR RR	SC GI	SC FH	SC PB	SC SA	SC YB	AN AR	AN CC	AN LC	SB SESL	SB AP	SB CAT
SPECIES: SITE#:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Haliotis fulgens	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haliotis rufescens	3	0	2	2	0	0	1	0	0	0	0	0	0	0	0	0
Haliotis sorenseni	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haliotis assimilis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Megathura crenulata	1	1	2	0	2	1	2	2	3	2	2	1	1	0	1	1
Astraea gibberosa	3	3	0	1	1	0	0	0	0	?	0	0	0	1	0	0
Megastraea undosa	0	0	1	0	0	1	0	1	2/j1	2	2	3	1	2	3	3
Tegula regina	0	0	0	0	0	0	1	1	1	1	1	1	2	2	4	3
Cypraea spadicea	2	3	2	3	3	2	3	2	2	2	2	2	2	2	2	2
Kelletia kelletii	4	1	1	2	2	1	1	1	0	2	2	1	2	0	0	1
Crassedoma giganteum	1	2	1/j3	2	2	2	1	2	2	1	2	2	3	1	1	1
Serpulorbis squamigerus	2	2	1	1	?	2	2	2	2	1	1	3	2	X	1	2
Aplysia californica	0	0	0	0	0	0	1	3	2	2	1	1	1	3	4	4
ARTHROPODA																
Panulirus interruptus	0	0	0	0	0	0	1	1	2	0	1	3	3	1	1	1
BRYOZOA																
Diaperoecia californica	1	0	2	3	X	3	3	2	2	2	1	2	3	1	X	1
misc. bryozoans	3	1	3	3	1	4	4	2	2	2	1	3	3	X	1	1
misc. invertebrates	X	x	X	x	x	x	X	X	?	X	?	X	X	X	X	X
ECHINODERMATA																
Patiria miniata	4	4	3	4	4	3	4	3	2	2	3	1	1	2	4	2
Pisaster giganteus	2	3	3	3	3	3	3	2	3	2	2	1	2	1	4	2
Pisaster ochraceus	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
Pycnopodia helianthoides	1	3	3	4	3	2	2	2	0	2	0	0	0	0	0	0
Centrostephanus coronatus	0	0	0	0	0	0	4	2	1	1	2	1	2	2/j1	1/j1	2
Lytechinus anamesus	0	0	0	0	0	1	0	1	0	2	1	0	1	1	1	1
Strongylocentrotus franciscanus	3/j1	4/j1	2/j1	3/j1	3/j1	2/j1	2/j1	2/j1	3/j1	2/j1	3/j1	2/j3	3	2/j2	4/j2	3/j2
Strongylocentrotus purpuratus	1/j1	1/j1	2/j1	3/j1	1/j1	2/j1	2/j1	3/j1	4/j1	2/j1	2/j1	3/j3	2	2/j2	4/j4	3/j1
Ophiothrix spiculata	0	1	0	2	0	X	1	1	0	2	4	0	0	4	1	1
Pachythyone rubra	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Parastichopus parvimensis	2	1	2	2	2	2	2	2	3	2	2	4	2	2	2	2
CHORDATA																
Styela montereyensis	2	0	2/j3	3/j3	1	1/j1	1	1	0	0	0	0	0	0	0	0
misc. tunicates	2	1	3	3	2	3	2	2	3	1	1	4	3	2	1	1
Paralabrax clathratus																
Sebastes atrovirens																
Sebastes serranoides																
Sebastes mystinus																

LOCATION:	SM WL	SM HR	SR JLNO	SR JLSO	SR RR	SC GI	SC FH	SC PB	SC SA	SC YB	AN AR	AN CC	AN LC	SB SESL	SB AP	SB CAT
SPECIES: SITE#:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Sebastes serriceps																
Alloclinus holderi																
Rhinogobiops nicholsii																
Lythrypnus dalli																
Semicossyphus pulcher																
Oxyjulis californica																
Halichoeres semicinctus																
Hypsypops rubicundus																
Chromis punctipinnis																
Embiotoca lateralis																
Embiotoca jacksoni																
Rhacochilus vacca																
Girella nigricans																

2010 Indicator Species List for Channel Islands National Park's Kelp Forest Monitoring Sites.
Sites #21-37

LOCATION:	SM MM	SR CP	SR TC	SR CSAW	SR SP	SC DP M	SC PP	SC CVP	SC LS	SC PRF	AN KH	AN EFC	AN BSBR	AN LH	SB WA	SB GC	SB SER
SPECIES: SITE#:	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
CHLOROPHYTA																	
other green algae	1	X	1	?	1	X	2	3	X	1	1	1	1	1	3	X	2
PHAEOPHYTA																	
Macrocystis pyrifera	4/j2	3/j2	3/j1	4/j1	4/j2	0/j1	2/j2	2/j3	0	0	2/j3	1	2/j1	1/j1	0/j2	3	3/j4
Eisenia arborea	2/j2	3/j2	3	1	1	0/j2	2/j3	3/j4	0/j1	0	2/j1	0	1/j0	1	1/j2	0/j1	2/j2
Pterygophora californica	2/j2	3/j2	3	3/j1	3/j2	0	0	0	0	0	0	0	0	0	0	0	0
Laminaria farlowii	0	0	0	0	2/j2	0	0	0	0	0	1/j2	0	2/j2	0	0	0	0
Cystoseira spp.	0	2	1	2	3	0	0	2	0	0	1	0	0	1	0	1	3
Desmarestia spp.	2	1	1	0	0	0	0	1	0	0	1	0	0	0	3	3	3
Sargassum horneri	0	0	0	0	0	0	0	2/j3	0	0	3	0	0	0	0	1	0
other brown algae	X	1	2	1	0	1	3	3	1	0	3	1	X	2	1	2	3
RHODOPHYTA																	
Gelidium spp.	1	0	0	0	0	1	0	2	0	0	1	0	0	0	0	0	2
Gigartina spp.	3	2	1	1	2	0	0	2	0	0	1	0	0	0	0	1	1
encrusting corallines	2	?	3	?	?	3	?	?	4	?	?	?	?	?	3	?	?
articulated corallines	4	?	3	?	?	1	?	?	1	?	?	?	?	?	1	?	?
other red algae	4	4	3	2	3	2	2	3	2	2	2	2	2	2	2	2	3
MISC.PLANT	?	?	?	?	?	1	?	?	?	?	?	?	?	?	?	2	?

LOCATION:	SM MM	SR CP	SR TC	SR CSAW	SR SP	SC DP M	SC PP	SC CVP	SC LS	SC PRF	AN KH	AN EFC	AN BSBR	AN LH	SB WA	SB GC	SB SER
SPECIES: SITE#:	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
(diatom film or *Phyllospadix* spp.)																	
PORIFERA																	
Tethya aurantia	3	4	3	3	3	3	3	3	1	2	1	2	2	3	1	3	1
misc. sponges	3	4	3	3	4	2	2	3	2	1	2	2	2	3	3	X	2
CNIDARIA																	
Stylaster californicus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lophogorgia chilensis	0	0	1	0	0	4	2	3	3	4	2	2	2	3	2	2	2
Muricea californica	0	0	0	0	0	3	1	2	0	2	2	1	1	4	2	2	2
Muricea fruticosa	0	0	0	0	0	1	0	1	0	0	1	1	1	3	1	1	2
Corynactis californica	2	2	3	1	1	2	2	2	3	3	2	4	2	3	2	2	1
Tealia lofotensis	3	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0
Astrangia lajollensis	0	2	3	0	2	3	2	3	3	3	2	2	2	3	1	X	0
Balanophyllia elegans	3	2	4	1	2	1	2	2	2	3	1	1	1	X	1	?	1
ANNELIDA																	
Diopatra ornata	1	2	3	2	3	2	2	2	1	1	2	1	1	2	1	X	2
Phragmatopoma californica	2	2	2	3	4	0	0	0	0	1	0	0	0	2	0	1	1
MOLLUSCA																	
Cryptochiton stelleri	?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haliotis corrugata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haliotis fulgens	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haliotis rufescens	4/j1	1	1	2/j1	3/j0	0	0	0	0	S	0	0	0	0	0	0	0
Haliotis sorenseni	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haliotis assimilis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Megathura crenulata	2	2	0	2	1	4	2	2	4	3	2	3/j3	2/j2	3	3	1	1
Astraea gibberosa	3	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Megastraea undosa	0	0	0	1	1	2	2/j1	2/j2	2/j3	2	3/j2	2/j0	2	3	3	1	2
Tegula regina	?	0	0	0	0	2	2	2	2	1	3	2	2	2	2	0	3
Cypraea spadicea	2	2	3	2	2	2	1	2	1	2	2	2	2	2	2	1	2
Kelletia kelletii	1	2	2	0	1	1	2	1	2	1	2	3	2	1	1	0	0
Crassedoma giganteum	1	2	2	2	1	2	3	3	2	2	2	1	2/j1	2	1	1	1
Serpulorbis squamigerus	2	2	1	X	2	2	2	2	2	2	2	X	1	1	1	X	2
Aplysia californica	0	0	0	0	1	1	2	2	2	3	3	3	1	3	4	3	2
ARTHROPODA																	
Panulirus interruptus	0	0	0	0	0	1	2	2	1	0	1	0	3	0	0	0	2
BRYOZOA																	
Diaperoecia californica	1	1	1	1	1	2	3	3	2	1	2	1	2	1	1	1	2
misc. bryozoans	2	2	2	3	4	3	3	3	2	1	2	1	3	2	2	1	4

LOCATION:	SM MM	SR CP	SR TC	SR CSAW	SR SP	SC DP M	SC PP	SC CVP	SC LS	SC PRF	AN KH	AN EFC	AN BSBR	AN LH	SB WA	SB GC	SB SER
SPECIES: SITE#:	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
misc. invertebrates	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ECHINODERMATA																	
Patiria miniata	4	3	3	3	3	3	2	2	3	2	4	3	2	2	2	3	0
Pisaster giganteus	4	3	3	3	3	3	2	3	3	3	3	2	2	2	2	2	2
Pisaster ochraceus	?	?	?	?	?	2	2	2	?	?	3	3	?	2	?	?	?
Pycnopodia helianthoides	2	2	2	2	2	2	0	0	0	1	0	1	0	0	2	0	0
Centrostephanus coronatus	0	0	0	0	0	2	3	3	2	2	2	2	3	2	2/j1	2	3
Lytechinus anamesus	0	0	0	0	0	1	1	1	2	3	2	3	1	2	1	1	1
Strongylocentrotus franciscanus	3/j1	3	4/j2	3/j1	3/j1	3/j1	2/j1	2/j1	3/j1	4/j1	2/j2	4/j2	2/j3	3	2	3/j2	3/j2
Strongylocentrotus purpuratus	1/j1	2	3/j2	2/j1	3/j1	3/j1	3/j1	3/j1	4/j1	4/j1	3/j2	4/j2	4/j3	3/j2	3	4/j2	2/j2
Ophiothrix spiculata	0	X	0	0	?	X	1	X	X	1	1	3	4	1	3	4	0
Pachythyone rubra	0	0	0	0	2	1	3	0	0	0	0	0	0	0	0	0	0
Parastichopus parvimensis	2	2	3	2	1	2	3	3	2	2	2	2	3	2	2	2	3
CHORDATA																	
Styela montereyensis	2/j1	2	2	2/j3	2/j3	0	0	0	0	0	0	0	0	0	0	0	0
misc. tunicates	3	3	3	3	4	3	3	4	2	1	2	1	1	2	2	X	3
Paralabrax clathratus																	
Sebastes atrovirens																	
Sebastes serranoides																	
Sebastes mystinus																	
Sebastes serriceps																	
Alloclinus holderi																	
Rhinogobiops nicholsii																	
Lythrypnus dalli																	
Semicossyphus pulcher																	
Oxyjulis californica																	
Halichoeres semicinctus																	
Hypsypops rubicundus																	
Chromis punctipinnis																	
Embiotoca lateralis																	
Embiotoca jacksoni																	
Rhacochilus vacca																	
Girella nigricans																	

2011 Indicator Species List for Channel Islands National Park's Kelp Forest Monitoring Sites.
Sites #1-16

LOCATION:	SM WL	SM HR	SR JLNO	SR JLSO	SR RR	SC GI	SC FH	SC PB	SC SA	SC YB	AN AR	AN CC	AN LC	SB SESL	SB AP	SB CAT
SPECIES: SITE#:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
CHLOROPHYTA																
other green algae	0	3	1	1	?	1	1	1	1	1	1	1	2	1	1	1
PHAEOPHYTA																
Macrocystis pyrifera	4/j1	1/j1	4/j2	3/j2	1	3/j1	3/j1	0	0	2/j1	0/j1	4/j3	2/j3	1/j0	1	0
Eisenia arborea	1/j0	0/j1	2/?	2/j1	0	3/j2	4/j3	0	0	2/j1	0/j1	3/j3	3/j4	0/j1	1	0
Pterygophora californica	3/j1	0/j1	3/j2	2/j2	0	1/j1	0	0	0	2/j1	0	0/j1	3/j4	0	0	0
Laminaria farlowii	0	0	2/j2	3/j2	0	1/j1	0	0	0	2/j0	0	4/j4	4/j4	0	0	0
Cystoseira spp.	1	0	2	1	0	1	1	0	0	3	0	2	2	0	1	1
Desmarestia spp.	2	2	1	2	1	0	1	1	0	0	0	1	2	0	0	1
Sargassum horneri	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
other brown algae	2	2	1	1	1	2	2	1	1	2	1	3	3	1	2	1
RHODOPHYTA																
Gelidium spp.	0	0	0	0	0	1	0	0	0	0	0	2	3	0	1	0
Gigartina spp.	1	1	3	4	0	2	2	0	0	0	0	1	1	1	1	0
encrusting corallines	3	4	2	2	3	3	2	2	4	3	4	3	3	4	4	4
articulated corallines	2	1	2	2	1	2	1	1	1	2	1	3	3	1	1	1
other red algae	2	2	3	4	1	3	3	1	1	2	1	3	3	1	2	2
MISC.PLANT (diatom film or *Phyllospadix* spp.)	1	1	x	1	1	1	0	3	2	2	2	1	2	1	0	1
PORIFERA																
Tethya aurantia	3	2	2	3	2	4	3	2	2	3	2	1	1	3	1	1
misc. sponges	2	1	3	3	2	3	2	2	1	2	2	2	3	2	1	1
CNIDARIA																
Stylaster californicus	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
Lophogorgia chilensis	0	0	0	2	1	2	3	3	1	2	2	0	1	2	1	1
Muricea californica	0	0	0	1	0	0	0	0	0	2	2	0	1	2	1	1
Muricea fruticosa	0	0	0	0	0	0	0	0	0	1	2	0	0	1	0	1
Corynactis californica	2	3	2	2	2	2	1	2	2	2	3	1	3	2	4	2
Urticina lofotensis	3	2	2	3	2	1	0	0	0	0	0	0	0	0	0	0
Astrangia lajollensis	1	3	2	2	3	2	4	3	3	2	2	1	2	2	3	2
Balanophyllia elegans	1	4	2	2	3	2	2	2	2	2	1	1	1	1	1	2
ANNELIDA																
Diopatra ornata	2	2	2	3	2	3	2	2	1	2	1	2	1	?	?	?
Phragmatopoma californica	2	0	3	2	0	0	1	0	2	0	0	2	2	?	2	3
MOLLUSCA																
Cryptochiton stelleri	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haliotis corrugata	0	0	0	0	0	0	0	1	s	s	0	1	1	0	0	0/j1
Haliotis fulgens	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

LOCATION:	SM WL	SM HR	SR JLNO	SR JLSO	SR RR	SC GI	SC FH	SC PB	SC SA	SC YB	AN AR	AN CC	AN LC	SB SESL	SB AP	SB CAT
SPECIES: SITE#:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Haliotis rufescens	3/j1	0/j1	2/j0	1	1	0	0	0	0	S	0	0	0	0	0	0
Haliotis sorenseni	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haliotis assimilis	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Megathura crenulata	1	1	2	1	1	1	2	1	3	1	3	0	1	1	1	1/j1
Astraea gibberosa	3	3/j1	0	1	2/j3	0	0	0	0	1	0	0	0	1	0	0
Megastraea undosa	0	0	0	0	0	2	1	1	2/j2	3/j3	2	2	2	2	2/j1	3/j0
Tegula regina	0	0	0	0	0	1	1	1	1	1	3	1	1	3	3	3
Cypraea spadicea	2	3	3	3	2	3	4	1	2	2	2	2	2	2	2	2
Kelletia kelletii	4	2	0	1	1	1	1	1	0	2	2	0	1	0	0	0
Crassedoma giganteum	1	2	2	2	2	2	1	2	2	1	2	2	2	2	2	1
Serpulorbis squamigerus	1	2	4	2	0	1	1	2	2	1	1	2	2	1	2	2
Aplysia californica	0	1	0	0	0	1	1	1	1	0	1	1	0	2	3	4
ARTHROPODA																
Panulirus interruptus	0	0	0	0	0	1	0	1	2	1	0	4	3	1	2	1
BRYOZOA																
Diaperoecia californica	1	1	2	2	1	2	3	2	2	2	1	2	3	1	0	1
misc. bryozoans	3	2	3	3	2	4	4	2	1	2	1	3	3	2	2	1
misc. invertebrates	x	x	x	x	x	x	x	x	X	x	X	x	X	x	X	X
ECHINODERMATA																
Patiria miniata	3	4	3	4	3	3	3	2	2	2	2	1	1	3	4	2
Pisaster giganteus	2	4	2	2	3	3	2	3	3	2	2	1	1	2	2	2
Pisaster ochraceus	1	1	?	?	?	?	?	?	2	?	2	?	?	?	?	?
Pycnopodia helianthoides	2	3/j2	3	3	3/j4	2	2	1/j1	1	2	1	0	0	1	1	0
Centrostephanus coronatus	0	0	0	0	0	0	1	0	1	0	2	2	2	3	2	3
Lytechinus anamesus	0	0	0	0	0	0	0	1	1	2/j2	1	0	0	1	2	1
Strongylocentrotus franciscanus	3/j3	4/j1	3/j1	3/j2	3/j1	3/j2	2/j1	3/j1	4/j4	3/j1	3/j0	3/j1	3	3/j2	2/j2	4/j2
Strongylocentrotus purpuratus	1/j1	1/j1	2/j2	2/j2	1/j1	3/j2	3/j2	3/j1	4/j3	3/j2	3/j1	2/j1	2	3/j1	4/j2	4/j3
Ophiothrix spiculata	1	1	1	1	2	3	2	1	1	2	4	1	2	4	X	1
Pachythyone rubra	0	0	0	0	0	0	2	1	0	0	0	0	0	0	1	0
Parastichopus parvimensis	1	2	2	2	1	2	2	1	3	1	2	3	3	2	2	2
CHORDATA																
Styela montereyensis	1	1	4	3	1	1	1	0	0	0	0	0	0	0	0	0
misc. tunicates	2	1	3	3	2	2	1	1	1	1	1	3	3	1	1	2
Paralabrax clathratus																
Sebastes atrovirens																
Sebastes serranoides																
Sebastes mystinus																
Sebastes serriceps																

LOCATION:	SM WL	SM HR	SR JLNO	SR JLSO	SR RR	SC GI	SC FH	SC PB	SC SA	SC YB	AN AR	AN CC	AN LC	SB SESL	SB AP	SB CAT
SPECIES: SITE#:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Alloclinus holderi																
Rhinogobiops nicholsii																
Lythrypnus dalli																
Semicossyphus pulcher																
Oxyjulis californica																
Halichoeres semicinctus																
Hypsypops rubicundus																
Chromis punctipinnis																
Embiotoca lateralis																
Embiotoca jacksoni																
Rhacochilus vacca																
Girella nigricans																

2011 Indicator Species List for Channel Islands National Park's Kelp Forest Monitoring Sites.
Sites #21-37

LOCATION:	SM MM	SR CP	SR TC	SR CSAW	SR SP	SC DP M	SC PP	SC CVP	SC LS	SC PRF	AN KH	AN EFC	AN BSBR	AN LH	SB WA	SB GC	SB SER
SPECIES: SITE#:	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
CHLOROPHYTA																	
other green algae	1	1	1	0	1	1	1	1	1	1	1	1	1	1	3	1	2
PHAEOPHYTA																	
Macrocystis pyrifera	3/j2	3/j2	1/j1	3/j2	3/j2	0/j1	2/j1	3/j3	0	1/j1	0	1/j2	1/j0	1/j1	0/j1	0/j1	3/j3
Eisenia arborea	3/j2	2/j2	1/j?	2/j1	3/j1	1/j2	2/j1	3/j3	0	0/j1	0/j1	1/j2	1/j1	1/j1	1/j1	0/j1	3/j2
Pterygophora californica	3/j2	3/j2	0/j1	2/j2	3/j2	0	0	0	0	0	0	0	0	0	0	0	0
Laminaria farlowii	0	0	0/j1	1/j?	2/j2	0	0	0/j1	0	0	0	0	0	0/j1	0	0	1
Cystoseira spp.	2	2	0	2	1	1	0	2	0	0	0	0	0	0	0	0	3
Desmarestia spp.	2	2	2	1	0	1	1	1	0	2	0	1	0	1	3	1	3
Sargassum horneri	0	0	0	0	0	0	0	3/j4	0	0	0	0	0	0	0	0	1
other brown algae	1	2	1	2	1	1	1	3	0	1	1	1	1	1	1	1	3
RHODOPHYTA																	
Gelidium spp.	?	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	1
Gigartina spp.	2	1	2	2	2	0	0	1	0	0	0	0	0	0	0	0	2
encrusting corallines	2	3	4	2	2	3	2	2	3	3	2	3	4	3	3	3	3
articulated corallines	3	2	2	2	2	1	1	1	1	1	1	1	1	1	2	1	2
other red algae	4	3	2	3	4	2	2	3	2	2	2	1	1	1	3	2	3
MISC.PLANT (diatom film or *Phyllospadix* spp.)	1	2	2	1	1	1	2	1	1	1	1	2	1	2	2	2	2

LOCATION:	SM MM	SR CP	SR TC	SR CSAW	SR SP	SC DP M	SC PP	SC CVP	SC LS	SC PRF	AN KH	AN EFC	AN BSBR	AN LH	SB WA	SB GC	SB SER
SPECIES: SITE#:	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
PORIFERA																	
Tethya aurantia	3	3	4	2	2	2	2	2	2	3	1	2	3	2	1	3	1
misc. sponges	4	3	2	1	4	2	2	3	3	2	2	1	3	1	3	2	2
CNIDARIA																	
Stylaster californicus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lophogorgia chilensis	0	0	0	0	1	4	3	3	3	3	3	2	1	2	1	2	2
Muricea californica	0	0	0	0	0	2	2	1	0	2	2	2	1	3	1	2	2
Muricea fruticosa	0	0	0	0	0	1	0	0	0	1	1	1	1	2	1	1	1
Corynactis californica	2	2	3	2	1	2	2	2	2	4	2	4	2	3	3	2	2
Tealia lofotensis	3	2	3	2	2	0	0	0	0	0	0	0	0	0	0	0	0
Astrangia lajollensis	1	2	2	?	1	2	3	2	3	2	3	2	2	2	2	1	2
Balanophyllia elegans	2	3	4	2	2	2	2	2	1	3	1	1	1	1	4	1	2
ANNELIDA																	
Diopatra ornata	2	3	3	3	3	2	2	2	0	1	1	1	1	2	1	1	2
Phragmatopoma californica	1	3	2	3	4	2	0	1	0	0	2	0	0	1	0	0	3
MOLLUSCA																	
Cryptochiton stelleri	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haliotis corrugata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S
Haliotis fulgens	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haliotis rufescens	4/j1	1	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0
Haliotis sorenseni	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haliotis assimilis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Megathura crenulata	2	2	2	2	1	4	2	2/j1	3	2	3	4	1	2	3	0	1
Astraea gibberosa	3	0	0	0	0	0	0/j1	0	1	0	0	0	0	0	0	0	0
Megastraea undosa	0	0	0	0	1	2	2/j3	1/j1	2/j1	1/j3	2/j3	2/j1	1/j1	2	2	1	2
Tegula regina	0	0	0	0	0	1	2	1	2	1	2	3	1	1	2	0	3/j3
Cypraea spadicea	1	2	4	3	2	3	2	2	2	2	2	3	2	3	2	1	2
Kelletia kelletii	2	2	1	0	1	0	2	0	1	1	2	2	1	1	0	0	0
Crassedoma giganteum	2	2	1	2	2	2	3	3/j2	1	1	3/j2	2	1	1	1	1	2
Serpulorbis squamigerus	1	1	?	2	2	2	2	2	2	1	2	2	1	1	2	1	2
Aplysia californica	0	0	0	0	1	2	2	2	1	2	1	4	0	2	3	3	3
ARTHROPODA																	
Panulirus interruptus	0	0	1	1	0	0	2	2	0	0	1	1	2	0	1	0	2
BRYOZOA																	
Diaperoecia californica	1	1	2	1	1	3	3	4	2	1	2	1	2	1	2	1	2
misc. bryozoans	2	2	2	3	2	2	2	3	2	1	2	1	1	1	2	1	3
misc. invertebrates	3	x	x	x	x	x	x	x	x	X	X	X	X	X	X	X	X

LOCATION:	SM MM	SR CP	SR TC	SR CSAW	SR SP	SC DP M	SC PP	SC CVP	SC LS	SC PRF	AN KH	AN EFC	AN BSBR	AN LH	SB WA	SB GC	SB SER
SPECIES: SITE#:	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
ECHINODERMATA																	
Patiria miniata	3	4	4	3	3	2	2	2	2/j3	2	3	2	1	2	4	2	0
Pisaster giganteus	3	2	3	3	2	2	3	2	3	3	2	3	1	2	3	2	2
Pisaster ochraceus	2	?	?	?	?	2	2	2	2	2	2	?	?	2	?	?	?
Pycnopodia helianthoides	2	2	2	2	2	2	0	0	0	1	0	1	0	1	2	0	0
Centrostephanus coronatus	0	0	0	0	0	2	1	2	2	2	2	3	2	2	1	1	3
Lytechinus anamesus	0	0	0	0	0	1	2	1	3	3/j1	3/j1	2	1	2	1	1	0
Strongylocentrotus franciscanus	2/j2	3/j1	3/j2	3/j1	3/j1	3/j1	2/j3	2/j2	2/j3	4/j3	4/j2	4/j1	2/j1	3/j1	2/j2	3/j2	3/j3
Strongylocentrotus purpuratus	1/j1	2/j1	2/j1	2/j1	3/j1	3/j1	3/j3	3/j2	2/j3	4/j3	4/j2	4/j2	3/j2	4/j1	3/j2	3/j2	3/j3
Ophiothrix spiculata	1	1	1	1	1	1	2	1	1	1	1	3	4	1	3	4	2
Pachythyone rubra	0	1	3	0	2	2	3	0	0	1	0	1	0	0	0	0	0
Parastichopus parvimensis	1	2	2	2	1	2	4	4	2	1	3	2	3	2	2	1	3
CHORDATA																	
Styela montereyensis	2	2/j2	2	1	2/j1	0	0	0	0	0	0	0	0	0	0	0	0
misc. tunicates	3	3	2	2	3	1	2	3	2	1	1	1	1	1	2	2	4
Paralabrax clathratus																	
Sebastes atrovirens																	
Sebastes serranoides																	
Sebastes mystinus																	
Sebastes serriceps																	
Alloclinus holderi																	
Rhinogobiops nicholsii																	
Lythrypnus dalli																	
Semicossyphus pulcher																	
Oxyjulis californica																	
Halichoeres semicinctus																	
Hypsypops rubicundus																	
Chromis punctipinnis																	
Embiotoca lateralis																	
Embiotoca jacksoni																	
Rhacochilus vacca																	
Girella nigricans																	

2012 Indicator Species List for Channel Islands National Park's Kelp Forest Monitoring Sites.
Sites #1-16

LOCATION:	SM WL	SM HR	SR JLNO	SR JLSO	SR RR	SCGI	SC FH	SC PB	SC SA	SC YB	AN AR	AN CC	AN LC	SB SESL	SB AP	SB CAT
SPECIES: SITE#:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
CHLOROPHYTA																
other green algae	x	3	1	X	0	1	2	1	1	1	1	2	1	1	1	1
PHAEOPHYTA																
Macrocystis pyrifera	3/j2	1/J1	3/J2	4/J1	0/J1	2/J2	2/J2	0	0	2/J2	1/J1	4/J3	3/j3	0/j1	0/j1	1/j1
Eisenia arborea	1/j0	1/J1	?	2/J1	0	2/J2	3/J3	0	0	1/J1	0/J1	3/j3	4/j2	0/j1	1/j1	0/j1
Pterygophora californica	4/j2	0	3/J2	2/J1	0	0/J1	0	0	0	1/J1	0	0	2/j3	0	0	0
Laminaria farlowii	1	0	3/J1	3/J2	0	1/J1	0	0	0	1/J1	0	4/j4	3/j3	0	0	0
Cystoseira spp.	2	0	2	1	0	1	0	0	0	2	0	3	2	0	0	0
Desmarestia spp.	3	2	1	1	1	1	0	0	1	1	0	1	2	1	0/j1	1
Sargassum horneri	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
other brown algae	2	1	1	2	0	1	X	1	1	3	1	2	3	1	2	1
RHODOPHYTA																
Gelidium spp.	1	0	0	0	0	0	1	0	0	0	0	1	3	0	0	0
Gigartina spp.	2	0	3	2	0	1	2	0	0	0	0	2	2	1	0	0
encrusting corallines	2	4	1	2	3	3	2	3	3	3	4	2	2	4	3	3
articulated corallines	2	1	1	2	1	2	1	1	1	1	1	2	2	1	1	1
other red algae	3	2	3	3	1	3	2	2	1	2	1	2	2	2	2	2
MISC.PLANT (diatom film or *Phyllospadix* spp.)	1	1	1	1	1	1	1	2	1	2	1	1	1	1	2	2
PORIFERA																
Tethya aurantia	3	2	3/J1	3	3	4	3	2	1	3	2	1	1	2	1	1
misc. sponges	2	1	3	2	1	2	2	2	1	2	2	0	3	3	1	1
CNIDARIA																
Stylaster californicus	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
Lophogorgia chilensis	?	0	0	2	1	2	3	2	1	2	1	1	1	2	1	0
Muricea californica	0	0	0	1	0	0	0	0	0	2	1	0	1	2	1	1
Muricea fruticosa	0	0	0	1	0	0	0	0	0	0	1	0	0	1	1	1
Corynactis californica	2	3	1	2	2	2	1	1	2	2	3	1	3	2	3	2
Urticina lofotensis	4		0	2	2	1	0	0	0	0	1	0	1	0	0	0
Astrangia lajollensis	x	2	x	1	2	2	3	3	2	2	2	1	2	2	2	3
Balanophyllia elegans	1	2	2	2	3	2	1	2	1	2	1	1	1	2	1	1
ANNELIDA																
Diopatra ornata	3	1	1	2	1	3	2	1	1	1	1	2	2	1	1	1
Phragmatopoma californica	2	1	2	X	0		0	0	0	0	0	?	1	0	0	3

LOCATION:	SM WL	SM HR	SR JLNO	SR JLSO	SR RR	SCGI	SC FH	SC PB	SC SA	SC YB	AN AR	AN CC	AN LC	SB SESL	SB AP	SB CAT
SPECIES: SITE#:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
MOLLUSCA																
Cryptochiton stelleri	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haliotis corrugata	0	0	0	0	0	0	0	0	0	1/s	0	1	1	0	0	0
Haliotis fulgens	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Haliotis rufescens	3	1	2/J1	1	0/J1	0	1	0	1	2/s	0	0	0	0	0	0
Haliotis sorenseni	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haliotis assimilis	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Megathura crenulata	1	1	1	1	2	1	2	1	3	1	4	1	1/j1	1	2	1
Astraea gibberosa	3	3/J2	0	0	1/J3	0	0	0	0	1/j1	0	0	2	0	0	0
Megastraea undosa	0	0	1	1	0	1	1	1	1	3/j1	1/j0	2/j0	2/j1	1	2	3
Tegula regina	0	0	0	0	0	0	1	1	?	1	3	1	1	2	4	3
Cypraea spadicea	1	3	2	3	2	3	4	1	2	1	2	3	3	2	1	2
Kelletia kelletii	4	1	1	1	2/J1	1	1	1	0	2	2	0	1/j1	0	0	0
Crassedoma giganteum	1	2	1/J2	2	1	2	2	2	2	1	2	2/j2	3/j3	1	2	1
Serpulorbis squamigerus	x	2	2	X	1		X	2	2	1	2	2	2	1	1	2
Aplysia californica	1	1	1	2	1	1	1	2	2	1	1	1	0	1	3	4
ARTHROPODA																
Panulirus interruptus	0	0	0	0	0	0	1	1	3	2	1	2	0	2	1	2
BRYOZOA																
Diaperoecia californica	2	1	3	2	2	2	2	1	1	1	1	2	2	2	1	1
misc. bryozoans	3	2	3	4	1	3	4	1	1	1	1	3	3	1	1	2
misc. invertebrates	2	2	3	3	1	2	4	3	2	2	2	3	3	2	3	2
ECHINODERMATA																
Patiria miniata	4	4	2	4	4	3	3	2	2	3	2	1	1	2	4	2
Pisaster giganteus	2	4	3	3	3	3	4	3	3	2	1	1	1	2	3	2
Pisaster ochraceus	1	0	0	0	1	0	0	0	2	0	0	0	0	0	2	1
Pycnopodia helianthoides	1	2	3	3/J1	4	3	2/J2	1	1	3	0	0	0	1	1	1
Centrostephanus coronatus	0	0	0	0	0	1	0	1	2	0	2	2	2	2	1	1
Lytechinus anamesus	0	0	0	0	0	0	1	2	1	3/j2	0	0	0	0	2	0
Strongylocentrotus franciscanus	2	4/J2	3/J1	3/J1	3/J2	3/J1	2/J2	3/J1	3/j1	3/j2	2/j1	3/j2	2/j2	2/j0	3/j1	2/j1
Strongylocentrotus purpuratus	1/j1	1/J1	2/J1	2/J1	1	3/J0	2/J1	4/J1	4/j1	2/j2	3/j2	2/j1	2/j2	3/j1	4/j1	4/j1
Ophiothrix spiculata	1	1	0	1	1	3	1	2	1	2	4	1	1	4	2	1
Pachythyone rubra	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0
Parastichopus parvimensis	2	2	2	2	1	3	2	1	3	1	1	3	3	2	2	2
CHORDATA																
Styela montereyensis	2	0	3/J2	2	2	1	1	0	0	0	0	3	0	0	0	0
misc. tunicates	2	1	3	2	0	2	2	1	1	1	1	2	2	2	1	2
Paralabrax clathratus																

LOCATION:	SM WL	SM HR	SR JLNO	SR JLSO	SR RR	SCGI	SC FH	SC PB	SC SA	SC YB	AN AR	AN CC	AN LC	SB SESL	SB AP	SB CAT
SPECIES: SITE#:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Sebastes atrovirens																
Sebastes serranoides																
Sebastes mystinus																
Sebastes serriceps																
Alloclinus holderi																
Rhinogobiops nicholsii																
Lythrypnus dalli																
Semicossyphus pulcher																
Oxyjulis californica																
Halichoeres semicinctus																
Hypsypops rubicundus																
Chromis punctipinnis																
Embiotoca lateralis																
Embiotoca jacksoni																
Rhacochilus vacca																
Girella nigricans																

2012 Indicator Species List for Channel Islands National Park's Kelp Forest Monitoring Sites.
Sites #21-37

LOCATION:	SMM M	SR CP	SR TC	SR CSAW	SR SP	SC DP M	SC PP	SC CVP	SC LS	SC PRF	AN KH	AN EFC	AN BSBR	AN LH	SB WA	SB GC	SB SER
SPECIES: SITE#:	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
CHLOROPHYTA																	
other green algae	X	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	2
PHAEOPHYTA																	
Macrocystis pyrifera	4/	2/j2	1/j2	3/j2	3/j2	0/j1	2/j1	3/j2	0/j1	1/j1	0/j1	1/j1	1/j1	0/j1	1/j1	1/j1	4/j2
Eisenia arborea	2/J2	3/j2	1/j1j	2/j1	2/	1/j2	2/j2	2/j1	0/j1	1/j2	0/j1	1/j2	0/j1	0/j1	2/j1	0/j1	3/j2
Pterygophora californica	3/J2	2/j2	2/j2	3/j1	3/j2	0	0	0	0	0	0	0	0	0	0	0	0
Laminaria farlowii	0	0	0	1	3/j2	0	0	0	0	0	0	0	1/j1	0	0	0	1/j2
Cystoseira spp.	2	1	0	1	2	0	0	1	1	0	0	1	0	1	0	0	2
Desmarestia spp.	2	2	4	2	1	0	1	1	0	2	1	1	1	1	2	2	2
Sargassum horneri	0	0	0	0	0	0	1	3	0	0	0	/j1	0/j1	0	0	0	0
other brown algae	X	2	x	1	1	1	1	2	1	2	1	1	1	1	1	2	2
RHODOPHYTA																	
Gelidium spp.	1	1	0	1	1	1	0	1	0	0	0	0	0	0	1	0	2
Gigartina spp.	1	2	1	3	2	0	0	1	1	0	0	0	1	1	0	0	1
encrusting corallines	2	2	4	2	2	3	2	2	3	0	3	3	4	3	4	2	2

LOCATION:	SMMM	SRCP	SRTC	SRCSAW	SRSP	SCDPM	SCPP	SCCVP	SCLS	SCPRF	ANKH	ANEFC	ANBSBR	ANLH	SBWA	SBGC	SBSER
SPECIES: SITE#:	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
articulated corallines	3	2	2	2	2	1	1	1	1	1	1	1	1	1	2	1	2
other red algae	4	4	2	4	3	2	2	3	2	2	2	2	1	2	3	2	2
MISC.PLANT (diatom film or *Phyllospadix* spp.)	X	1	1	1	1	1	1	1	1	3	2	1	2	2	2	3	1
PORIFERA																	
Tethya aurantia	3	4	3	2	2	3	3	3	2	2	1	2	2	3	1	3	1
misc. sponges	3	2	1	2	4	2	2	3	2	1	2	2	1	1	2	2	3
CNIDARIA																	
Stylaster californicus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Lophogorgia chilensis	0	0	1	0	0	3	2/j1	3	2	3	3	1	1	2	1	2	1
Muricea californica	0	0	0	0	0	0	1	2	1	0	3	2	0	3	1	2	1
Muricea fruticosa	0	0	0	0	0	0	0	1	0	0	0	1	2	1	1	1	1
Corynactis californica	2	2	3	2	1	2	2	1	3	4	2	3	2	3	3	2	2
Tealia lofotensis	3	2	2	2	2	0	0	3	0	0	0	0	0	0	0	3	1
Astrangia lajollensis	2	2	2	1	1	3	3	2	3	2	2	1	2	3	2	2	1
Balanophyllia elegans	2	2	4	1	1	1	2	2	1	2	2	1	1	1	3	1	1
ANNELIDA																	
Diopatra ornata	2	2	1	2	3	2	2	2	1	1	2	1	1	1	1	1	2
Phragmatopoma californica	1	1	1	3	2	0	0	0	0	0	0	0	0	1	1	1	2
MOLLUSCA																	
Cryptochiton stelleri	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haliotis corrugata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Haliotis fulgens	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Haliotis rufescens	4	1	0	2	3/j1	0	0	0	1	1	0	0	0	0	0	0	0
Haliotis sorenseni	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haliotis assimilis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Megathura crenulata	1	2	2	2	0	3	2	2	4	2	2	2/j3	1	2	1	1	1
Astraea gibberosa	3	0	0	0	1	0	0/j1	0	1	1	0	1	0	0	1	1	0/j1
Megastraea undosa	0	1	0	0	0	2/j2	2/j2	1/j1	2/j0	1/j1	1	2	1	1	3	0	1/j1
Tegula regina	0	0	0	0	1	2	3	1	2	1	2	2	2	2	2	0	3
Cypraea spadicea	2	3	2	3	2	2	1	2	2	3	2	2	1	2	2	2	2
Kelletia kelletii	1	2	0	0	0	1	2	1	1	1	1	1	1	0	0	0	0
Crassedoma giganteum	1	2	1	2	0	2/j1	2	3/j2	1	1	2	2/j2	1	2	1	1	2
Serpulorbis squamigerus	X	2	x	2	2	2	2	2	2	x	2	2	?	2	2	1	1
Aplysia californica	1	0	0	1	1	2	2	0	0	2	1	3	1	2	2	0	1
ARTHROPODA																	
Panulirus interruptus	0	0	0	0	0	0	2-3	2-3	1	0	1	0	4	1	1	0	1

LOCATION:	SMMM	SRCP	SRTC	SRCSAW	SRSP	SCDPM	SCPP	SCCVP	SCLS	SCPRF	ANKH	ANEFC	ANBSBR	ANLH	SBWA	SBGC	SBSER
SPECIES: SITE#:	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
BRYOZOA																	
Diaperoecia californica	1	2	1	1	1	2	3	3	1	1	1	1	1	1	2	1	2
misc. bryozoans	2	2	2	2	2	2	3	3	1	1	1	1	1	2	2	1	3
MISC. INVERTEBRATES	2	3	3	2	4	2	2	3	2	3	2	2	1	2	3	2	2
ECHINODERMATA																	
Patiria miniata	3	4	4	2	3	2	2/j2	3	3	2	2	2	1	2	4	2	1
Pisaster giganteus	3	2	4	2	2	2	2/j1	2	3	3	2	2	2	2	3	2	2
Pisaster ochraceus		0	0	0	0	2	2	2	1	1	1	1	1	0		0	0
1Pycnopodia helianthoides	2	2	2	2	2	3	0	0	0	2	0	1	0	1	2	1	0
Centrostephanus coronatus	0	0	0	0	0	2	2	1	1	2	2	3	2	2	1	1	2
Lytechinus anamesus	0	1	0	0	0	0	1	1	3	3	2	2	0	2/j1	0	0	1/j1
Strongylocentrotus franciscanus	3/	2/J1	4/j1	3/j1	3/j1	3/j1	2/j1	2/j1	3/j0	3/j2	4/j1	3/j0	2/j1	3/j0	3/j1	2/j1	3/j1
Strongylocentrotus purpuratus	2/	2/J1	3/j1	2/j1	3/j1	3/j1	3/j2	3/j2	3/j0	4/j2	4/j1	4/j0	2/j1	3/j0	3/j1	3/j2	3/j2
Ophiothrix spiculata		1	1	1	1	1	1	1	1	2	1	3	4	2	3	4	1
Pachythyone rubra	0	0	1	0	2	1	3	0	0	0	0	0	0	0	0	0	0
Parastichopus parvimensis	2	2	2	2	1	2	3	3	2	1	3	2	2	2	1	2	3
CHORDATA																	
Styela montereyensis	2	2	1	2	2	0	0	0	0	0	0	1	0	0	0	0	0
misc. tunicates	3	2	2	3	2	1	1	3	1	1	1	2	1	1	2	1	4
Paralabrax clathratus																	
Sebastes atrovirens																	
Sebastes serranoides																	
Sebastes mystinus																	
Sebastes serriceps																	
Alloclinus holderi																	
Rhinogobiops nicholsii																	
Lythrypnus dalli																	
Semicossyphus pulcher																	
Oxyjulis californica																	
Halichoeres semicinctus																	
Hypsypops rubicundus																	
Chromis punctipinnis																	
Embiotoca lateralis																	
Embiotoca jacksoni																	
Rhacochilus vacca																	
Girella nigricans																	

Appendix P. Protocol Modifications, Data Management, and Additional Projects Information

Protocol Changes

Pisaster ochraceus was added to the 5 m^2 quadrat protocol. This species has become increasingly more common at many KFM sites over the last several years.

Corrections in the Database

There were no corrections made to the database in 2012.

Sampling Difficulties

All proposed data collection was completed this year.

Quantification of Observer Variability

We began a collaboration in 2011 with Jarrett Byrnes, who is currently at the National Center for Ecological Analysis and Synthesis, to calibrate our monitoring techniques. In order to quantify observer variability we had two sets of observers collect replicate data, concurrently with each other, for the following protocols: 1 m quadrats and 5 m quadrats. Calibration data were collected in 2012 at the following sites: Devil's Peak Member, Little Scorpion, Cavern Point. For Devil's Peak Member and Cavern Point one pair of observers performed sampling protocols two separate times so that both intra- and inter-observer variability could be determined. In addition, replicate RPC data were collected at Pelican bay by two divers. Each diver performed RPCs twice, independently, so that both intra- and inter-observer variability could be determined. Through a video that Jarrett made for the Science Fund Challenge he was able to raise $4,048 in 2011 for the Channel Islands Foundation to assist with collection of this data.

On October 3rd, calibration was done during 1 meter and 5 meter sampling. Both 1 and 5 meter quadrats were done three times. Buddy pair A did the quadrats twice, for intra observer calibration. During the second sampling done by buddy pair A, buddy pair B sampled the quadrates simultaneously, inter observer calibration. The calibration that was conducted for 5 meter quadrates was done similarly to the 1 meter calibration. Buddy pair A conducted the 5 meter quadrates twice for intra observer calibration and buddy pair B conducted 5 meter quadrats for inter observer calibration. During all 5 meter quadrates conducted for calibration, *Parastichopus parvimensis* was added to the species sampled.

Installation of Additional ARMs

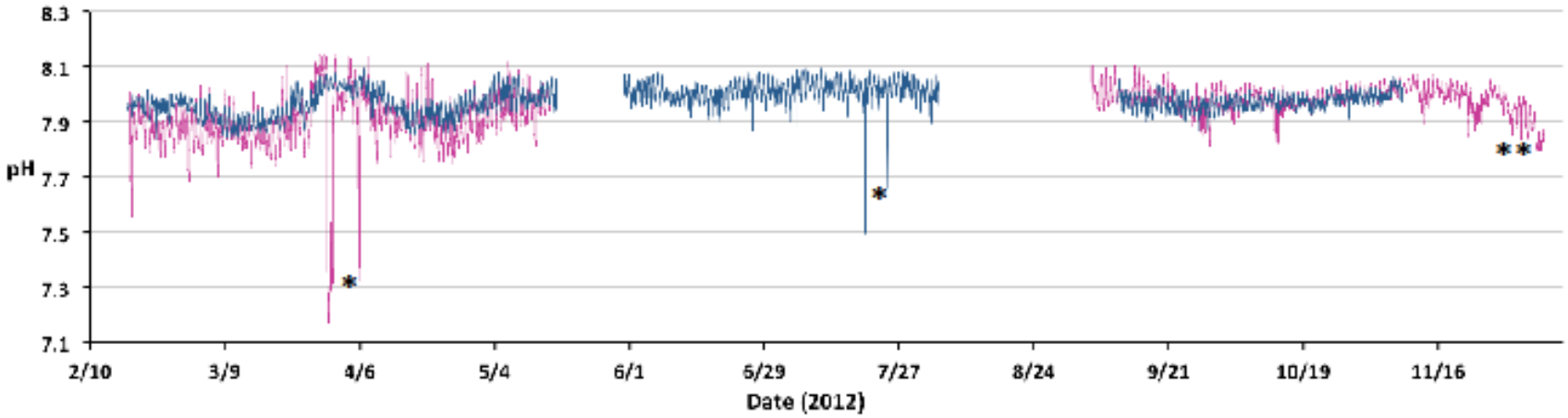
Three ARMs (2478, 2479, 2480) were deployed and bolted to the substrate at the Santa Barbara Island site Southeast Reef. These are the only ARMs installed at this island.

Deployment of pH Loggers

UCSB Graduate Student Lydia Kapsenberg in Dr. Gretchen Hoffman's lab and CINP Biologist David Kushner deployed two SeaFET™ pH loggers in the park on February 17, 2013. These are the first such loggers to be deployed at the park and they were placed at the Landing Cove pier at Anacapa Island and at Prisoners Harbor pier at Santa Cruz Island. Dr. Gretchen Hoffman hopes to maintain these loggers as well as others deployed along the West Coast as part of a large scale pH monitoring program.

Channel Islands National Park

First pH time series



* low pH anomalies are currently unexplained but could be due to an organisms crawling near the sensor (where their respiration decreases the pH)

** declining pH at the end of the 3rd deployment at Santa Cruz Island could be a function of biofouling

Funded by the George Melendez Wright Climate Change Fellowship to Lydia Kapsenberg

Appendix Q. KFM Program Data Usage for 2012

Publications

The following two scientific papers using KFM data were published in 2012:

RECONCILING CONFLICT BETWEEN THE DIRECT AND INDIRECT EFFECTS OF MARINE RESERVE PROTECTION Environmental Conservation 39:225–236

NICK T. SHEARS[1]*, DAVID J. KUSHNER[2], STEPHEN L. KATZ[3] AND STEVEN D. GAINES [4]

[1] Marine Science Institute, University of California Santa Barbara, CA 93106, USA [2] Channel Islands National Park, 1901 Spinnaker Drive, Ventura, CA 93001, USA [3] Channel Islands National Marine Sanctuary, NOAA, 735 State Street, Suite 619, Santa Barbara, CA 93101, USA, and [4] Bren School of Environmental Science and Management, University of California, Santa Barbara, CA 93106, USA. Date submitted: 1 July 2011; Date accepted: 2 February 2012.

No-take marine reserves directly promote the recovery of predatory species, which can have negative indirect effects on prey populations in reserves. When harvesting also occurs on prey species there is potential conflict between the direct and indirect effects of protection, and reserves may not have conservation benefits for prey species. For example, sea urchins are fished in many regions, but may decline in reserves due to increased predation rates. To investigate this potential conflict, this paper compares density, size, biomass and reproductive potential of both a harvested and an unharvested urchin species between a long-term reserve and unprotected sites in California. Consistent with density-mediated indirect interactions, densities of the unharvested species were 3.4-times higher at unprotected sites compared to reserve sites. However, for the harvested species, densities were comparable between reserve and unprotected sites. Both species were consistently larger at reserve sites, and the biomass and reproductive potential of the harvested species was 4.8- and 7.0-times higher, respectively, than at unprotected sites. This is likely due to differences in size-selectivity between harvesting and predators, and potential compensatory effects of predators. While the generality of these effects needs to be tested, these results suggest mechanisms whereby reserves can benefit both predator and prey species.

COLLABORATIVE ASSESSMENT OF CALIFORNIA SPINY LOBSTER POPULATION AND FISHERY RESPONSES TO A MARINE RESERVE NETWORK Ecological Applications, 22(1), 2012, pp. 322-335

MATTHEW C. KAY,[1,3] HUNTER S. LENIHAN,[1] CARLA M. GUENTHER,[1] JONO R. WILSON,[1] CHRISTOPHER J. MILLER,[2] AND SAMUEL W. SHROUT[2]

Assessments of the conservation and fisheries effects of marine reserves typically focus on single reserves where sampling occurs over narrow spatiotemporal scales. A strategy for broadening the collection and interpretation of data is collaborative fisheries research (CFR). Here we report results of a CFR program formed in part to test whether reserves at the Santa Barbara Channel Islands, USA, influenced lobster size and trap yield, and whether abundance

changes in reserves led to spillover that influenced trap yield and effort distribution near reserve borders. Industry training of scientists allowed us to sample reserves with fishery relevant metrics that we compared with pre-reserve fishing records, a concurrent port sampling program, fishery effort patterns, the local ecological knowledge (LEK) of fishermen, and fishery-independent visual surveys of lobster abundance. After six years of reserve protection, there was a four- to eightfold increase in trap yield, a 5–10% increase in the mean size (carapace length) of legal sized lobsters, and larger size structure of lobsters trapped inside vs. outside of three replicate reserves. Patterns in trap data were corroborated by visual scuba surveys that indicated a four- to sixfold increase in lobster density inside reserves. Population increases within reserves did not lead to increased trap yields or effort concentrations (fishing the line) immediately outside reserve borders. The absence of these catch and effort trends, which are indicative of spillover, may be due to moderate total mortality ($Z \approx 0.59$ for legal sized lobsters outside reserves), which was estimated from analysis of growth and length frequency data collected as part of our CFR program. Spillover at the Channel Islands reserves may be occurring but at levels that are insufficient to influence the fishery dynamics that we measured. Future increases in fishing effort (outside reserves) and lobster biomass (inside reserves) are likely and may lead to increased spillover, and CFR provides an ideal platform for continued assessment of fishery–reserve interactions.

Presentations

The following four talks were presented at the 2012 California Islands Symposium:

FISH COMMUNITY STRUCTURE AND MPA EVALUATION IN THE NORTHERN CHANNEL ISLANDS: A COMPARISON OF TWO LONG-TERM DATASETS.

Jennifer Caselle[1], Scott Hamilton[2], and David Kushner*[3], [1]Marine Science Institute, U.C. Santa Barbara, Santa Barbara, CA 93106 caselle@msi.ucsb.edu, [2]Moss Landing Marine Laboratories, 8272 Moss Landing Rd., Moss Landing, CA 95039, [3]Channel Islands National Park, 1901 Spinnaker Dr. Ventura, CA 93001

We utilized two long-term kelp forest monitoring datasets to assess spatial variation in the structure of fish communities across the gradient of environmental conditions present in the northern Channel Islands. We also compared the ability of the two datasets to detect changes in size and density of fishes in response to Marine Protected Areas. The two programs are the Channel Islands National Park Service kelp forest monitoring program (KFM) and the Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO). We found that both programs similarly characterize biogeographic changes in fish community structure from Eastern to Western sites. In addition, size frequency distributions were indistinguishable at paired sites. Differences in species size distributions between MPAs and reference sites were also similar for both programs. In contrast, we found large differences in the absolute density of species counted at paired locations, which may be a result of different sampling methodologies. Evaluations of the species that responded most strongly to MPAs (inside vs. outside response ratios) in terms of fish density also indicated that the two monitoring programs have qualitatively different results.

KELP FOREST TODAY, BARREN TOMORROW: TEMPORAL VARIATION IN KELP FOREST STRUCTURE THROUGHOUT THE CHANNEL ISLANDS NATIONAL PARK

Stacie Fejtek*, Michael Civiello, Joshua Sprague, David Kushner, Johnathan Centoni, and Sarah Carter, National Park Service, 1901 Spinnaker Drive, Ventura, CA 93001

Temperate reef systems naturally fluctuate between kelp forest and barren systems. However, as previous studies have indicated, it is difficult to classify these systems as either kelp forest, barren, or transitional system, due to the fact that some kelp forests can support high numbers of urchins, and conversely, the density of kelp plants decline as a forest matures. Channel Islands National Park has conducted long-term ecological monitoring of the kelp forests around San Miguel, Santa Rosa, Santa Cruz, Anacapa and Santa Barbara Islands since 1982. A total of 33 sites are surveyed annually, including 15 sites which fall within the Marine Protected Areas established in 2003. We focused specifically on sites which have fluctuated between both extremes over time, paying particular attention to the changes occurring in the Marine Protected Areas. Using giant kelp (*Macrocystis pyrifera*) stipe counts and densities, we were able to assess the status of these sites as they change through time. Size frequency of adult Macrocystis has been assessed within sites by measuring 100 individuals at each site annually since 1984 and within 1m quadrats since 2007. A comparison of the two methodologies reveals quadrats may underestimate plant size and create discrepancies in designating site status.

REGIONAL-SCALE RECRUITMENT PATTERS DETERMINE RESERVE EFFICACY ACROSS AN ISLAND MARINE RESERVE NETWORK

David Kushner*[1], and Nick Shears[2], [1]Channel Islands National Park, 1901 Spinnaker Drive, Ventura, CA 93001, [2]Leigh Marine Laboratory, University of Auckland, PO Box 349, Warkworth 0947, New Zealand.

Our understanding of the effectiveness of marine protected areas in protecting and promoting exploited species is largely derived from spatial comparisons between reserve and fished sites or from a limited number of reserves where before and after protection data are available. The establishment of networks of marine reserves worldwide provides increased opportunity to examine how exploited species respond to protection across regions and determine important factors driving variation in response of exploited species to protection. We utilize a globally unique marine reserve monitoring data set that spans 30 years, 6 marine reserves, and 2 biogeographic regions, to investigate the response of a heavily harvested sea cucumber (*Parastichopus parvimensis*) to protection in the Channel Islands Marine Reserve Network, California, USA. Clear regional variation was found in sea cucumber abundance and harvest levels across the Channel Islands, with both density and fisheries landings increasing with warming water temperatures from west to east. Concomitant with this was higher rates of recovery in reserves in the warmer region and a greater overall magnitude of reserve effects. These patterns correspond to higher recruitment levels in the warmer region, which appear to be driven by oceanographic features that promote greater larval supply. These results provide a unique example of how monitoring data from a network of marine reserves can be used to assess and interpret variation in the performance of MPAs and develop better predictions as to how exploited species will respond to protection.

DECADAL CHANGES IN KELP FOREST COMMUNITIES: EL NIÑO, LA NIÑA, OR LA NADA?

Joshua Sprague*, David Kushner, and Stacie Fejtek, Channel Islands National Park, 1901 Spinnaker Drive, Ventura, CA 93001 joshua_sprague@nps.gov

Large changes in abundances of subtidal marine species have been well documented on small time scales as a result of large-scale oceanographic perturbations such as El Niño and La Niña

events. However, there are few data sets that have documented larger timescale or decadal changes. Channel Islands National Park implemented a long-term Kelp Forest Monitoring Program that has collected annual abundances of fish, invertebrate and algal species since 1982. Several El Niño events, including two of the strongest observed in the last century, were experienced during the 1980s and 1990s. During this period the monitoring program documented rapid and fluctuating changes in abundances for many species. Since 2000, a relatively stable-state cold-water period has persisted, and there have been notably more stable changes as well as unprecedented abundances of many monitored species. Using the Kelp Forest Monitoring Program's data set, we compare species density to sea surface and bottom temperatures to examine how this cold-water period has influenced the abundances of monitored species. Many colder- water species are at the highest densities recorded, while warmer-water species are at record low densities suggesting a major regime shift is occurring and possibly having larger scale community effects.

Posters

The following three posters were presented at the 2012 California Islands Symposium:

CAN WE USE ANECDOTAL EVIDENCE TO ESTIMATE FISHING PRESSURE AT REMOTE ISLAND LOCATIONS?

Sarah Carter*, Johnathan Centoni, Stacie Fejtek, Michael Civiello, Joshua L. Sprague, Kelly J. Moore, and David J. Kushner, National Park Service, 1901 Spinnaker Drive, Ventura, CA 93001

Fishermen often inadvertently leave behind hooks, fishing line, weights, etc., as a reminder of their activities. Channel Islands National Park's Kelp Forest Monitoring Program monitors 33 sites located around all five park islands, both inside and outside the Marine Protected Areas. Since the establishment of the MPAs in 2003 the Kelp Forest Monitoring Program has collected miscellaneous fishing indicators (lures and weights) during annual SCUBA surveys at the sites. By documenting fishing indicators found inside and near the Marine Protected Areas this may give us insight into legal and illegal fishing activities. The number of fishing indicators is lower within the Marine Protected Areas, but these indicators are not entirely absent, possibly indicating illegal fishing.

THE USE OF ANECDOTAL EVIDENCE TO MONITOR LOW DENSITIES OF ABALONE AT PERMANENT SITES

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Abalone (*Haliotis* spp.) were once abundant at all of the Channel Islands, but due to disease, environmental factors, and commercial and recreational fishing, populations have greatly decreased from historic numbers. Abalone are important and cryptic invertebrate herbivores that were once important to both modern and past human populations in Southern California. Small, less than 100 mm, abalone are often cryptic and not easily monitored. In addition, current abundances of abalone are typically so low, that they are difficult to monitor by most standardized monitoring protocol. The Channel Islands National Park Kelp Forest Monitoring Program has been monitoring abalone at permanent sites since 1982. By the early 1990s, the

program had documented declines of red (*Haliotis rufescens*), pink (*H. corrugata*) and green abalone (*H. fulgens*) to zero or near zero densities at most of the monitoring sites. In 1992, the monitoring program began annually collecting, measuring, and removing shells from the permanent sites in an effort to monitor low abundances of abalone, presence of recruitment, and possibly an indication of mortality. Here we evaluate nearly 20 years of abalone shell data from permanent monitoring sites. Our data suggests that recruitment events have sporadically occurred within our sites which were not detected by the monitoring protocols. There is a time lag between these potential recruitment events and the appearance of these individuals in the size frequency data. These recruitment events could result in an increase in abalone densities throughout our sites and concurrently throughout the Channel Islands.

THE APPEARANCE, DOMINANCE, AND PERSISTENCE OF SPINY BRITTLE STAR (*OPHIOTHRIX SPICULATA*) THROUGHOUT THE CHANNEL ISLANDS NATIONAL PARK

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Kelp forests can rapidly turn to barren areas with low diversity, due to both biotic and abiotic factors that are influenced by natural and anthropogenic effects. The Channel Islands National Park has been monitoring kelp forests since 1982. While motile invertebrates are not usually included in assessing bottom cover, the spiny brittle star (*Ophiothrix spiculata*) has presented a unique phenomenon covering as much as 84% of the bottom in areas that were once a lush kelp forest. As a result of increasing abundance in the 1990s, the Kelp Forest Monitoring Program added *O. spiculata* to its list of monitored species in 2003. Despite often occurring along with high densities of urchins (*Strongylocentrotus* spp.), these brittle star barrens appear to be functionally different from traditional urchin barrens. In urchin barrens, urchins reduce kelp density through herbivory, while *O. spiculata* reduces recruitment of kelps by precluding settlement presumably through filter feeding, as well as substrate use. Additionally, while kelp forests normally fluctuate between urchin barrens and kelp forests, brittle star barrens appear to be more persistent. Here we evaluate the existing 9 years of *O. spiculata* data as well as review existing information known from other sources about this important and dominant species.

Data Requests

There were 12 formal requests from outside NPS. All requests were fulfilled.

- Nick Shears from the University of Auckland was sent *Parastichopus parvimensis* data for 1m quadrats as well as *P. parvimensis* data collected from additional late fall 5 m quadrats surveys. He is examining differences in abundances inside versus outside of Channel Islands MPAs.
- Cynthia Button from CDFG was sent band transect data for *Haliotis rufescens* for all sites from 2007-2012 and ARMs size frequency data for *H. rufescens* at all sites and all years.
- Elizabeth Hoaglund from UCSB was sent temperature data from 2000-2010 for Pelican Bay and Yellow Banks. She is examining the concordance of temperature events at offshore mooring sites and onshore intertidal sites. They have few intertidal sites and are hoping the KFM sites can help fill in the gaps.

- Christy Juhasz from CDFG was sent ARMs data for *Haliotis rufescens* for 2012, as well as *H. rufescens* density data for Miracle Mile and all band transect data for Wyckoff Ledge.
- Kendra Karr and Rod Fujita from the Environmental Defense Fund were sent all KFM size frequency and abundance data. They are looking for ecosystem state thresholds between algal-dominated states and urchin-dominated states, and indicators associated with these thresholds.
- Carlos Mireles from CDFG was sent all *Parastichopus parvimensis* abundance data and all temperature data.
- Dr. Anne Solomon from San Francisco State University was sent 2012 KFM data for two papers she was working on.
- Alex Lowe from the University of Washington was sent all Strongylocentrotus spp. data (density, size frequency, and ARM size frequency), as well as all temperature data. He is exploring links between urchin recruitment and drift algae availability.
- The California Abalone Association was sent *Haliotis rufescens* abundance data for San Miguel Island sites.
- PISCO at UCSB was sent 2011 *Strongylocentrotus* spp. size frequency data. They use the data as part of their site data where our sites overlap.
- Tom McCormick from Channel Islands Marine Research Institute was sent all temperature data for Yellow Banks. The data will be used for a scientific paper on *Haliotis sorenseni* to be published in the Journal of Shellfish Research.
- Tal Ben-Horin at UCSB was sent *Haliotis* spp. density data.

Information Requests

The kelp forest monitoring handbooks and annual reports are available in PDF format on the web at: http://www.nps.gov/chis/rm/Index.htm

To obtain raw data collected by the Kelp Forest Monitoring Program, please write to the address below:

Superintendent
Channel Islands National Park
1901 Spinnaker Drive
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