National Park Service
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Natural Resource Stewardship and Science

Channel Islands National Park

Kelp Forest Monitoring Program: Annual Report 2011

Natural Resource Report NPS/MEDN/NRDS—2013/480



ON THE COVER
Haliotis rufescens, red abalone
Photograph by: NPS photo

Channel Islands National Park
Kelp Forest Monitoring Program:

Annual Report 2011

Natural Resource Report NPS/MEDN/NRDS—2013/480

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Contents

Page

Figures v

Tables v

Appendices vii

Executive Summary ix

Acknowledgments xi

List of Acronyms xiii

Introduction 1

Methods 5

Results 9

Discussion 13

- Algae 13
- Invertebrates 14
- Fish 19
- Artificial Recruitment Modules (ARMs) 21
- Unusual Species / Non-Indicator Species 22
- Invasive Species 23
- Temperature 24

Literature Cited 25

Figures

Page

Figure 1. Kelp Forest Monitoring locations at Channel Islands National Park. 6

Tables

Page

Table 1. Regularly monitored species and associated monitoring technique(s). 3

Table 2. Changes in scientific nomenclature. 4

Table 3. Site information. 5

Table 4. Summary of sampling techniques. 7

Table 5. Size frequency measurement dimensions. 8

Table 6. 2011 Kelp forest monitoring site status with 2010 status for comparison. 9

Table 7. 2011 Kelp Forest Monitoring participant list. 10

Table 8. 2011 Kelp Forest Monitoring Program cruise list 10

Table 9. 2011 Echinoderm wasting disease observations. 15

Appendices

Appendix A. Results by Individual Site. 29

Appendix B. 1 Meter Quadrat Data 89

Appendix C. 5 Meter Quadrat Data 107

Appendix D. Band Transect Data 113

Appendix E. Random Point Contact Data 131

Appendix F. Fish Transect Data 165

Appendix G. Fish Size Frequency Data 183

Appendix H. Roving Diver Fish Count Data 257

Appendix I. Roving Diver Fish Count Relative Abundance Graphs 291

Appendix J. Natural Habitat Size Frequencies Distributions 325

Appendix K. *Macrocystis pyrifera* Size Frequency Distributions 387

Appendix L. Gorgonian/*Stylaster californica* Size Frequency Distributions 399

Appendix M. Artificial Recruitment Modules Size Frequencies Distributions 417

Appendix N. Temperature Data Graphs 435

Appendix O. Protocol Modifications, Data Management, and Additional Projects Information 453

Appendix P. KFM Program Data Usage for 2011 455

Executive Summary

Channel Islands National Park (CHIS) 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, an additional 16 permanent sites were established to collect base line data from inside and adjacent to four Marine Protected Areas (MPAs) that were established in 2003. Sampling results from all 33 sites as mentioned above are included in this report.

All prescribed monitoring data were collected in 2011. The 2011 monitoring efforts utilized 54 days of vessel time to conduct 1,057 dives for a total of 1,064 hours of bottom time. Population dynamics of 71 taxa or categories of algae, fish and invertebrates were measured at the 33 permanent sites in 2011. Survey techniques follow CHIS's Kelp Forest Monitoring Protocol Handbook Volume 1 (Davis et al. 1997). New data collection protocols have been added to the program since the release of the handbook. A new version of this document is currently being written (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 2011. All of the data collected during 2011 can be found summarized in the Appendices A-N in this report.

All 33 permanent sites were established in areas that are historically known to have had or had kelp forests when they were established. In 2011, 12 of the 33 sites monitored were characterized as kelp forests. In addition two sites were in a state of transition to kelp forests. The remaining 19 sites were mostly dominated by echinoderms. Of these, eight were dominated by *Strongylocentrotus purpuratus* and *S. franciscanus,* one by *S. franciscanus,* one by *S. purpuratus*, four by *S. purpuratus, S. franciscanus* and *Ophiothrix spiculata,* one by *O. spiculata* and one was an open area with a moderately high density of *S. franciscanus*. Overall, the number of sites characterized by kelp forests and echinoderms was similar to last year. This year's site status in comparison with 2010 is summarized in Table 4.

The status of kelp forests was notably different among the five Islands. Many Santa Barbara Island sites continue to be dominated by echinoderms. The two sites that were in a state of transition last year due to high recruitment of macroalgae have since returned to being dominated by echinoderms. A site that was half dominated by sea urchins and half kelp forest, has become a more mature kelp forest with *Macrocystis pyrifera* distributed across the whole transect. This is the only Santa Barbara Island site that has mature *Macrocystis pyrifera* plants present. *Ophiothrix spiculata* continues to be abundant at the Island and was abundant at three of the monitoring sites. *Strongylocentrotus purpuratus* densities increased at four sites while densities remained similar to last year at the remaining two sites. Overall, there has been a continuing decrease in *S. franciscanus* density for the past several years at this island. This trend continues

at two sites, though the decreases in density at each site were small. The monitoring sites here appear to represent well the overall conditions of this island.

Many Anacapa Island sites continue to be dominated by echinoderms. The two sites (Landing Cove and Cathedral Cove) in the Anacapa State Ecological Reserve that was established in 1978 continued to be kelp forests, while the five remaining sites continued to be mostly dominated by echinoderms. Although last year there were some macroalgae at Keyhole and Black Sea Bass Reef, this year the macroalgae were gone. These two sites are within the State MPA or marine conservation area established in 2003. 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. The monitoring sites here appear to represent the overall conditions of this island well.

Overall, sites on Santa Cruz Island remained similar to last year. There was an increase in macroalgae at Cavern Point. Macroalgae was more abundant and diverse than has been recorded at this site. In addition, *Strongylocentrotus purpuratus* density remains low compared to previous years, though similar to last year. Macroalgae decreased and *Strongylocentrotus* spp. increased at three sites. The kelp forest at the western end of the Scorpion Anchorage site continues to persist, and has several large, mature *Macrocystis pyrifera* plants. But the rest of this site remains dominated by *S. purpuratus*. *Strongylocentrotus* spp. continues to dominate six of the 10 sites at this island. *Strongylocentrotus purpuratus* densities increased at one site and remained similar at nine. *Strongylocentrotus franciscanus* densities remained similar to last year at this island. Though the Kelp Forest Monitoring (KFM) sites as a group appropriately represent the status of kelp forests at most of the Island, the sites do under-represent the western third of the island where only one site is present.

Kelp forests continued to be abundant around Santa Rosa and San Miguel Islands. 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. Though densities of *S. purpuratus* remain low on Santa Rosa Island, they increased at Trancion Canyon while macroalgae abundance decreased. The monitoring sites here appear to represent the conditions of these islands well.

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/reports/

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
Ventura, CA 93001

Acknowledgments

Funding for the kelp forest monitoring program in 2011 was entirely provided by the U.S. National Park Service 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).

We are deeply indebted to the many divers who have participated in this project in 2011 (Table 5). 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 Diving Safety Officer, Dave Stoltz, for ensuring that all of our operations run safely and successful.

List of Acronyms

ARM…….. Artificial Recruitment Module

CDFG…….. California Department of Fish and Game

CHIS…….. 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

MPA…… Marine Protected Area

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 (CHIS) 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 CHIS 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 CHIS 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). Funding for the kelp forest monitoring program in 2011 was entirely provided by the U.S. National Park Service 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), describe the 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, , and 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 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 at least three sites were inside and three adjacent to each of the four MPAs.

This report summarizes the monitoring efforts and results from 2011, our 30th 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
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 16th and October 21st 2011 using the NPS vessel "Sea Ranger". Site and species selection criteria and sampling protocol are described in the Kelp Forest Monitoring Handbook Volume I (Davis et al., 1997) available online at http://www.nature.nps.gov/im/units/chis/Reports_PDF/Marine/KFM-HandbookVol1.pdf. Data management and entry procedures are described in the Kelp Forest Monitoring Handbook Volume II (Kushner et al., 1997c) available online at http://www.nature.nps.gov/im/units/chis/Reports_PDF/Marine/KFM-HandbookVol2.pdf. New versions of both of these documents are currently being written (Kushner et al., in progress).

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 Quadrat	1 m x 2 m	12
5 m 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) spp.	60	Max. shell diameter, mm
Kelletia kelletia	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).

In past years, and this year, we attempt to complete all of the abundance estimate techniques (1 m quadrats, 5 m quadrats, band transects, random point contacts, roving diver fish counts, fish transects and fish size frequencies) during the same visit. During the second and/or 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. 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 2011 and a summary of the status at each site is presented in Table 6. Twenty-two divers (Table 7) collected data on nine five-day cruises and one four-day cruise between May and October (Table 8). The divers logged 1,057 dives with over 1,064 hours of bottom time. All prescribed monitoring data were collected in 2011.

Table 6. 2011 Kelp forest monitoring site status with 2010 status for comparison.

Island/Site	2011 Status	2010 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	Dominated by *Strongylocentrotus* spp.	Mature kelp forest
Chickasaw	Mature kelp forest	Mature kelp forest
South Point	Mature kelp forest	Mature kelp forest
Santa Cruz Island		
Gull Island South	Mature kelp forest	Mature kelp forest
Fry's Harbor	State of transition	Mature kelp forest
Pelican Bay	Dominated by *Strongylocentrotus* spp.	Kelp forest
Scorpion Anchorage	Dominated by *Strongylocentrotus* spp.	Dominated by *S. purpuratus*
Yellow banks	State of transition	Mature kelp forest
Devil's Peak Member	Dominated by *Strongylocentrotus* spp.	Dominated by *S. purpuratus*
Potato Pasture	Dominated by *S. purpuratus*	Dominated by *S. purpuratus*
Cavern Point	Kelp forest	State of transition
Little Scorpion	Dominated by *Strongylocentrotus* spp.	Dominated by *Strongylocentrotus* spp.
Pedro Reef	Dominated by *Stronglyocentrotus* 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 *S. purpuratus*
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 *Strongylocentrotus* spp. 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*	State of transition
Webster's Arch	Dominated by *Strongylocentrotus* spp. and *O. spiculata*	Dominated by *Strongylocentrotus* spp. and *O. spiculata*
Graveyard Canyon	Dominated by *Strongylocentrotus* spp. and *O. spiculata*	State of transition
Southeast Reef	Mature kelp forest	Half mature kelp forest and half dominated by *Strongylocentrotus* spp.

Table 7. 2011 Kelp Forest Monitoring participant list.

Participants	Affiliation	Cruises Participated
Blinick, Naiomi	Channel Islands National Park VIP	10
Brooks, Diane	Channel Islands National Park	4
Canestro, Don	Channel Islands National Park VIP	8
Davis, Katie	University California at Santa Barbara	2
Duran, Keith	Channel Islands National Park	10
Gaines, Bailey	Death Valley National Park	4
Grunden, James	Student Conservation Association	All Cruises
Guardino, Michael	Monterey Bay High School	3
Huang, David	University California at Santa Barbara	8
Ibarra, Sonia	Channel Islands National Park	All Cruises
Kushner, David	Channel Islands National Park	All Cruises
Mooney, Eric	Channel Islands National Park	3,4, 5, 6, 7, 8, 9, 10, 11
Moore, Kelly	Channel Islands National Park	1, 2, 3, 5, 6, 7, 9, 10, 11
Ormonde, Larissa	Student Conservation Association	1
Osorio, Dave	California Department of Fish and Game	10
Rassweiler, Andrew	University California at Santa Barbara	6
Sprague, Joshua	Channel Islands National Park	All Cruises
Traiger, Sarah	Student Conservation Association	All Cruises
Taniguchi, Ian	California Department of Fish and Game	7
Whitaker, Stephen	Channel Islands National Park	2, 9
Wilson, Kevin	Death Valley National Park	4
Witting, Dave	National Oceanic and Atmospheric Administration	11

Table 8. 2011 Kelp Forest Monitoring Program cruise list.

Cruise #	Cruise Dates	KFM Sites Visited
Cruise #1	05/16 - 05/20	SBSESL, SCDPM, SBAP, SCCC
Cruise #2	05/31 - 06/03	ANLC, ANLH, ANEFC, ANAR
Cruise #3	06/13 - 06/17	ANLC, SBCAT, SBSESL, SBWA, SBGC
Cruise #4	06/27 - 07/01	ANKH, SCLS, SCPRF, ANCC, SCCVP
Cruise #5	07/11 - 07/15	ANLC, SCFH, SRJLSO, ANBSBR
Cruise #6	07/25 - 07/29	SBSER, SCGI, SRCP, ANAR, SRSP
Cruise #7	08/15 - 08/19	SRJLSO, SCSA, SCGI, SRJLNO
Cruise #8	08/29 - 09/02	SCPB, SCYB, SCPP
Cruise #9	09/12 - 09/16	SRRR, SRHR, SMWL
Cruise #10	10/03 - 10/07	SRCSAW, ANLH, SMTC, SMMM
Cruise #11	10/17 - 10/21	SRJLSO, SRJLNO, SRCSAW, SCPB

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 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-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 (Davis et al., 1997).

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 in 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 experienced observer data are included in the tables. 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.

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 April 30th 2010 – May 1st 2011 in Appendix N. In 2011, 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. However, a statistical trend analysis report is planned for in the future.

All 33 permanent monitoring sites were monitored in 2011. 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 which began in 2005.

In 2011, 12 of the 33 sites monitored were characterized as kelp forests. In addition, two sites were in a state of transition. The remaining 19 sites were mostly dominated by echinoderms. Of these 19, nine were dominated by *Strongylocentrotus purpuratus* and *S. franciscanus,* one by *S. franciscanus*, two by *S. purpuratus*, four by *S. purpuratus*, *S. franciscanus* and *Ophiothrix spiculata*, two by *O. 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 2010 is summarized in Table 6.

Algae

The status of kelp forests was notably different among the five Islands. Many Santa Barbara Island sites continue to be dominated by echinoderms. The two sites that were in a state of transition last year due to high recruitment of macroalgae have since returned to being dominated by echinoderms. A site that was half dominated by sea urchins and half kelp forest, has become a more mature kelp forest with *Macrocystis pyrifera* distributed across the whole transect. This is the only Santa Barbara Island site that has mature *Macrocystis pyrifera* plants present. *Ophiothrix spiculata* continues to be abundant at the Island and was abundant at three of the monitoring sites. *Strongylocentrotus purpuratus* densities increased at four sites while densities remained similar to last year at the remaining two sites. Overall, there has been a continuing decrease in *S. franciscanus* density for the past several years at this island. This trend continues at two sites, though the decreases in density at each site were small. The monitoring sites here appear to represent well the overall conditions of this island.

Many Anacapa Island sites continue to be dominated by echinoderms. The two sites (Landing Cove and Cathedral Cove) in the Anacapa State Ecological Reserve that was established in 1978 continued to be kelp forests, while the five remaining sites continued to be mostly dominated by echinoderms. Although last year there were some macroalgae at Keyhole and Black Sea Bass Reef, this year the macroalgae were gone. These two sites are within the State MPA or marine conservation area established in 2003. 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. The monitoring sites here appear to represent the overall conditions of this island well.

Overall, sites on Santa Cruz Island remained similar to last year. There was an increase in macroalgae Cavern Point. Macroalgae was more abundant and diverse than has been recorded at this site. In addition, *Strongylocentrotus purpuratus* density remains low compared to previous years, though similar to last year. Macroalgae decreased and *Strongylocentrotus* spp. increased at three sites. The kelp forest at the western end of the Scorpion Anchorage site continues to persist, and has several large, mature *Macrocystis pyrifera* plants. But the rest of this site remains dominated by *S. purpuratus*. *Strongylocentrotus* spp. continues to dominate six of the 10 sites at this island. *Strongylocentrotus purpuratus* densities increased at one site and remained similar at nine. *Strongylocentrotus franciscanus* densities remained similar to last year at this island. Though the Kelp Forest Monitoring (KFM) sites as a group appropriately represent the status of kelp forests at most of the Island, the sites do under-represent the western third of the island where only one site is present.

Kelp forests continued to be abundant around Santa Rosa and San Miguel Islands. 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. Though densities of *S. purpuratus* remain low on Santa Rosa Island, they increased at Trancion Canyon while macroalgae abundance decreased. The monitoring sites here appear to represent the conditions of these islands well.

Invertebrates

There was small increase in *Strongylocentrotus franciscanus* abundance overall with most of the increases occurring at Santa Cruz Island. Six sites experienced increases in *S. franciscanus* density while the remaining sites had little change. *Strongylocentrotus purpuratus* densities increased moderately at Anacapa, Santa Cruz, and Santa Barbara Islands. There were increases at six sites, a decrease at one site, and little change at the remaining sites. *Lytechinus anamesus* densities remained low overall. However, there was an increase at one site on Anacapa Island. *Centrostephanus coronatus* continued to be 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 ten years.

Overall, *Strongylocentrotus* spp. recruitment increased compared to recent years. Juvenile *Strongylocentrotus* spp. are defined as having a test diameter of less than 16 mm. Juvenile *S. franciscanus* were common at Santa Cruz, Anacapa, and Santa Barbara Islands. The sites with the greatest number of juvenile *S. franciscanus* were LH, AP, SER, SA, and PP (refer to Table 3 for site codes). Juvenile *S. purpuratus* were common at Santa Cruz, Anacapa, and Santa Barbara Islands. The sites with the greatest number of juvenile *S. purpuratus* were KH, AP, SER, SA, PP, and PRF. More information on *Strongylocentrotus* spp. recruitment can be found in the ARMs section of the discussion.

We continued to observe sea urchin wasting disease (Lafferty and Kushner, 1999, and Richards and Kushner, 1992) at a few sites (Table 9). Wasting disease was observed at nine sites this year compared to five sites in 2010. Diseased *Lytechinus anamesus* were observed at two sites (Yellow Banks, and Potato Pasture). Diseased *Strongylocentrotus franciscanus* were observed at

six sites (Scorpion Anchorage, Admiral's Reef, East Fish Camp, Lighthouse, SE Sea Lion Rookery, Cat Canyon, and Graveyard Canyon). Diseased *S. purpuratus* were observed at five sites (Keyhole, Lighthouse, SE Sea Lion Rookery, Cat Canyon, and Graveyard Canyon). In most cases, the prevalence of the disease was less than 1% in *Strongylocentrotus* spp, similar to 2010. Cat Canyon had the highest prevalence of disease with *S. franciscanus* estimated at 5%.

Table 9. 2011 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	None		None	
Scorpion Anchorage	None		6	08/19
Yellow banks	None		3	08/29
Devil's Peak Member	None		None	
Potato Pasture	None		3	08/30
Cavern Point	None		None	
Little Scorpion	None		None	
Pedro Reef	None		None	
Anacapa Island				
Admiral's Reef	None		6	06/03, 07/25
Cathedral Cove	None		None	
Landing Cove	None		None	
Keyhole	None		None	
East Fish Camp	None		2,6	05/31
Black Sea Bass Reef	None		None	
Lighthouse	None		2,6	06/01
Santa Barbara Island				
SE Sea Lion Rookery	None		2,6	06/16
Arch Point	None		None	
Cat Canyon	None		2,6	06/14
Webster's Arch	None		None	
Graveyard Canyon	None		2,6	06/15
Southeast Reef	None		None	

None = Not observed at this site during our visits in 2011.
Date = Date(s) disease/syndrome was observed.
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 continued to gradually increase. This is likely due in part 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. Their densities increased from last year overall with most of the increases occurring at Santa Rosa and San Miguel Islands. There were increases at seven sites, decreases at three sites, and the remaining 22 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 die-offs (Eckert et al., 1999). This year we observed increases at eight sites, decreases at three sites, and little to no change at the remaining 22 sites. There was a noticeable recruitment of *Pisaster giganteus* (< 10 mm) in the ARMs in July (see ARMs discussion below). *Pisaster giganteus* densities increased similar to other sea star indicator species. Based on 5 m^2 density data, *P. giganteus* increased at eight sites, decreased at two sites, and changed little at the remaining 23 sites. *Ophiothrix spiculata* cover increased overall at Santa Barbara Island, and to a lesser degree Anacapa Island where this species is found in high density patches. The other three islands experienced little change. Two sites increased in cover while the remaining 31 sites remained similar to last year.

Sea star wasting disease was not observed at any of the sites this year, similar to last year. The cooler sea temperatures experienced at the sites for the past two years are a likely factor.

Parastichopus parvimensis densities changed little this year. Similar to recent years, it appears this species is more abundant inside the Anacapa Island and Scorpion MPAs.

Pachythyone rubra cover changed little this year. Cover of *P. rubra* at Santa Cruz Island remained low compared to the 1990s. *Pachythyone rubra* was scattered around East Fish Camp on Anacapa Island and was moderately abundant at various places at Santa Cruz Island.

Overall, sponge cover was similar to last year. *Tethya aurantia* densities, when grouped by island, remained at or near all-time highs at Anacapa, Santa Cruz, and San Miguel Islands. Santa Rosa Island experienced a decrease overall, though it still had the highest density of all five islands. *Tethya aurantia* densities increased at 10 sites, decreased at five sites, and remained similar at the remaining 18 sites. The abundance of *T. aurantia* has steadily increased over the last decade, likely due to the cold water regime the region has been experiencing.

Tunicate cover decreased at five sites, increased at two sites, and changed little at the remaining sites. *Styela montereyensis* remained common at Santa Rosa and San Miguel Island sites. Densities decreased at three sites and remained similar at the remaining sites. Few juveniles were observed.

Diopatra ornata cover was similar to last year, with an increase at one site, a decrease at one site, while the remaining sites were similar to last year. *Phragmatopoma californica* was most abundant at the Santa Rosa Island sites. There was an increase in *P. californica* cover at two

Santa Barbara Island sites, while all other sites remained similar to previous years. *Serpulorbis squamigerus* abundance was similar to last year.

Overall, bryozoan cover was comparable to last year. For the miscellaneous bryozoans category, decreases were observed at five sites, increases at three sites, and the remaining sites changed little. Santa Rosa Island sites overall experienced the greatest decrease in bryozoan cover of the five islands. *Diaperoecia californica* abundance changed little overall, but increased at one site.

Urticina lofotensis density increased at seven sites and remained similar to last year at the remaining sites. All of the increases occurred at Santa Rosa and San Miguel Islands. *Corynactis californica* cover was more abundant this year with increases at six sites. The remaining sites were similar to last year. The greatest increases occurred at Anacapa, Santa Barbara, and Santa Cruz Islands, where *C. californica* has been abundant during the last several years. *Balanophyllia elegans* cover was similar to recent years with an increase at one site. The cover of this species has remained relatively low since 1996 compared to years prior. *Astrangia lajollaensis* cover increased at two sites on Santa Cruz Islands.

Stylaster californica continued to be present only at Gull Island, Santa Cruz Island with their density remaining relatively high, similar to last year.

Lophogorgia chilensis, *Muricea fruticosa*, and *M. californica* densities were similar to last year with no notable trends.

In past years, both the abundance and size of *Panulirus interruptus* appear to have dramatically increased inside of all of the MPAs at Santa Barbara, Anacapa, Santa Cruz and Santa Rosa Islands. Nearly everyone who has recently dived inside and adjacent to these reserves will confirm this. Unfortunately, our monitoring program does not target *P. interruptus* populations sufficiently to infer any trends for two main reasons. First, they are nocturnal and all of our monitoring is conducted during daylight hours. Second, the monitoring sites were not established to include specific den habitat that *P. interruptus* prefer to utilize during daylight hours. As a result many of our sites do not give a good estimate of lobster abundance. However, because of the long time scale of the monitoring project, we can see general trends over time and have identified sites with higher or lower daytime abundances. 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 if our monitoring sites do not encompass very 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 the nearly all divers that there are now notably larger inside the MPAs. This year, *Panulirus interruptus* densities increased at two sites and decreased at one site within the Anacapa Island MPA, while they remained similar at the remaining sites.

Megastraea undosa densities continued to decline, though there were slight increases at two sites this year. The pattern in density changes we have recently 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. However, at ANKH and SCPRF many small

individuals were observed indicating recent recruitment. *Astraea gibberosa* continued to be common at only a few of the monitoring sites. We observed a large recruitment of individuals 6-18 mm at Rodes Reef on Santa Rosa Island. This was the largest recruitment of *A. Gibberosa* observed at any KFM site, as well as the smallest individuals recorded in the KFM Program dataset. The previous smallest size recorded was 14 mm. There were no notable trends in *Tegula regina*.

Overall, *Megathura crenulata* densities continued to be relatively abundant compared to the past 20 years. There were increases at four sites while the remaining sites stayed about the same as last year. *Crassedoma giganteus* densities remained low at all of the KFM sites. The three original Anacapa Island sites had record low densities of *C. giganteum,* but overall there was little change in *C. giganteus* densities. *Kelletia kelletii* densities increased at one site, decreased at three sites, and stayed the same at 30 sites. *Cypraea spadicea* densities overall were similar to last year.

Overall, *Aplysia californica* were common this year but were notably small. Densities were on average lower than the past several years with increases at three sites, decreases at five sites and little change at the remaining 25 sites.

At the sites where *Haliotis rufescens* have recently been present, densities were similar to last year and remained higher relative to the past 10-20 years. With the exception of a few small *H. rufescens* in ARMS at Santa Cruz Island, all other observations were at San Miguel and Santa Rosa Islands. Densities at San Miguel Island sites increased overall. Miracle Mile, the site near Wyckoff Ledge that was installed in 2001 specifically to monitor *H. rufescens,* continued to have a high density. 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 and overall remained similar to the past five years. On Santa Rosa Island, Chickasaw, South Point (reserves), and Johnson's Lee North had higher *H. rufescens* densities compared to the other sites on the Island. Size frequencies at sites with a high abundance of *H. rufescens* show that mean size has steadily been increasing (Miracle Mile, Wykoff Ledge, Chickasaw, Johnson's Lee North, and South Point). All of these sites have mean sizes for *H. rufescens* greater than 180 mm consistently for the last two to 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. 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 one site, Cathedral Cove, similar to recent years. For size frequencies, *H. corrugata* were found at Cathedral Cove, Landing Cove, Cat Canyon, and Pelican Bay. In addition to the seven live *H. corrugata* observed at the above sites, we also found fresh *H. corrugata* shells at Landing Cove, Cat Canyon, Scorpion Anchorage, Yellow Banks, and Pelican Bay, most of which were < 50 mm. These observations imply a low level of *H. corrugata* recruitment occurred, similar to recent years. See the ARMs section for more information on the recruitment of *H. corrugata*.

Haliotis fulgens was not observed on band transects or found for size frequency measurements, similar to recent years, nor were any fresh shells found at monitoring sites. However, one small individual was found in an ARM at Cathedral Cove. No live *H. sorenseni* were observed this year. Several (8) fresh *H. cracherodii* shells were found at Pelican Bay, indicating recent recruitment. The shells likely came from above the transect in the intertidal zone. We observed one live *H. assimilis* on band transects at Rodes Reef, as well as one in the ARMs at Yellowbanks. 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. 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. *Haliotis rufescens* densities have gradually increased at several of the sites in recent years though they were similar to last year. 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.

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 Santa Cruz Island. There were increases in density at seven sites, decreases at three sites while the remaining sites were similar to last year. *Alloclinus holderi* densities remained relatively low, continuing a trend of decreasing density for the last 5-6 years. 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* density remained low at all sites, similar to last year. This is a warm water species and experiences increases in abundance during warm water events, such as an El Niño, which occurred in 2009. Proceeding El Niño events, their abundance typically tapers off over the next year or two.

The three species of wrasses present and monitored all had similar abundances or declined this year. These three species are warmer water species so this is to be expected in a cooler water year like 2011. The mean count for male *Semicossyphus pulcher* was 3/site, similar to the last three years. Female abundance remained high, similar to last year, with observations at 33 sites and a mean of 13/site. Juvenile *S. pulcher* abundance continued to notably decrease, with none observed this year. We observed them at 11 sites in 2010 with a mean of 2/site, and 27 sites in 2009 with a mean of 9/site. This is likely due to below average water temperages experienced in 2010 and 2011. Adult *Oxyjulis californica* decreased in abundance for the third consecutive year.

They were observed at 29 sites with a mean of 76/site. Observations of juvenile *O. californica* decreased to five sites at an average of 10/site this year from six sites with a mean of 14/site in 2010 and 19 sites with a mean of 39/site in 2009.Male and female *Halichoeres semicinctus* abundances were low compared to recent years and were observed at 11 sites and 12 sites, respectively. Juvenile *H. semicinctus* were not observed this year, similar to last year.

Adult *Chromis punctipinnis* abundance and distribution changed little from last year with observations made at 29 sites and a mean of 203/site. Juvenile *Chromis punctipinnis* were observed at nine sites this year with a mean of 17/site. This is similar to observation made in the last two years. *Hypsypops rubicundus* abundance was similar to past years. Juvenile *H. rubicundus* continued to be rare, with one individual observed at one site. Adult *H. rubicundus* were observed at 21 sites with a mean of 13/site. *Girella nigricans* were observed at 26 sites with a mean of 16/site, an increase from 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 one site, similar to last year. 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 *E. jacksoni* remained similar to recent years and were observed at 26 sites with 15/site. Juvenile *E. jacksoni* were observed at 18 sites and 6/site, similar to recent years. Adult *Embiotoca lateralis* were observed at 15 sites with 15/site, similar to recent years. Juvenile *E. lateralis* were observed at 12 sites and remained relatively abundant with 9/site observed. Little change was observed in adult and juvenile *Rhacochilus vacca* which were observed at 25 sites with 8/site and seven sites with 3/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 not as high as last year. Adult *S. mystinus* were observed at 30 sites, an increase from recent years. The average count for adult *S. mystinus* was 30/site, also an increase from recent years. Juvenile *S. mystinus* decreased from the high last year, but still remain relatively abundant with observations at 29 sites at 20/site. Adult *S. serranoides* were observed at 26 sites, an increase from recent years, with counts of 10/site. Juvenile *S. serranoides* were observed at 16 sites, a decrease from last year's high but still relatively high compared to recent years. The average count for juvenile *S. serranoides* was 10/site. Adult and juvenile *Sebastes serriceps* were observed at 23 sites with 3/site and 12 sites with 2/site, respectively. Adult and juvenile *S. atrovirens* abundance increased. Adult *S. atrovirens* were observed at 27 sites with an average of 19/site, similar to last year. Juvenile *S. atrovirens* were observed at 11 sites with 11/site. The KGB juvenile complex were less abundant this year and were observed at 25 sites with a mean of 15/site.

Adult *S. paucispinis,* bocaccio, were not observed this year. Juvenile *S. paucispinis* observations decreased from last year's high with observations at five sites, compared to 18 sites in 2010. The mean for juvenile *S. paucispinis* was 11/site compared with 50/site in 2010. Juvenile *S. caurinus,* copper rockfish, were observed at 13 sites, similar to last year, at a mean of 10/site. Adults of this species were observed at 14 sites with a mean of 3/site. Adult *S. miniatus,* vermillion rockfish, remained similar to previous years with observations at four sites with 2/site. Juvenile *S. miniatus* also remained similar to recent years with observations at five sites with 7/site. Adult *S. chrysomelas,* black and yellow rockfish, abundance increased this year. Adult *S. chrysomelas*

were observed at 24 sites with a mean of 6/site. Adult *S. carnatus*, gopher rockfish, were observed at 19 sites with 2/site. Black and yellow/gopher rockfish juvenile were recorded separately from the KGB juvenile complex category, when discernable, 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 12 sites with 4/site, similar to last year. Adult *S. auriculatus*, brown rockfish, were observed at three sites with 1/site, similar to last year. Juvenile *S. auriculatus* were observed at two sites with 1/site, similar to last year. Adult *Sebastes melanops*, black rockfish, were observed at eight sites with 4/site. Adult *Sebastes rastrelliger*, grass rockfish, were observed at three sites with 2/site. Juvenile *S. saxicola*, stripetail rockfish, were observed at three sites, with a mean of 5/site, similar to last year. This species is rarely seen at KFM sites. Another rare species observed this year was a single juvenile *S. dallii*, calico rockfish.

Adult *Ophiodon elongatus*, lingcod, were observed at 13 sites with a mean of 2/site, similar to recent years. *Scorpaenichthys marmoratus*, cabezon, were observed at 21 sites with a mean of 2/site. Adult *Caulolatilus princeps*, ocean whitefish, were observed at eight sites with 3/site, a decrease from recent years. Adult *Stereolepis gigas*, giant black sea bass, were observed at two sites, similar to past years, with a mean of 1/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. Over 40 individuals were observed during one survey dive at Santa Barbara Island west of shag rock. David Kushner stopped counting after 40 individual and estimates seeing twice that number. This is a commercially important species and although it is uncommon to observe them during our fish counts, we do try to keep track of all observations. There has been a notable increase in sightings of this species over the past ten 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 rufescens 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 seven observed. Six were in the ARMs at Yellowbanks, and the other one was at Scorpion Anchorage. This high number of juvenile *H. rufescens* recorded in the Yellowbanks ARMs is similar to last year's record high. Juveniles were not recorded at Miracle Mile for the third year in a row, even though this site is where we have observed most of the recruitment in the ARMs in recent years. However, there were six adult *H. rufescens* in the ARMs at this site. At Johnson's Lee South and Scorpion Anchorage, we observed one adult *H. rufescens.*

The other *Haliotis* spp. continued to be rare in the ARMs. Four *H. corrugata* juveniles were observed at two sites, Landing Cove and Yellowbanks. No adult *H. corrugata* were observed in the ARMs. No *Haliotis fulgens* were observed in the ARMs. One *H. assimilis* was observed in the ARMs at Yellowbanks. The last time this species was observed in ARMs was in 2005, also at Yellowbanks. 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. Their density increased at one site, decreased at two sites and remained about the same at eight sites. A total of nine small

Kelletia kelletii, less than 50 mm, were in the ARMs this year. *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 one site, and the remaining sites similar to last year. However, the number of juveniles decreased overall when looking at the total number observed in all of the ARMs combined.

Overall, *Patiria miniata* densities in the ARMs remained similar to last year. Overall *Pisaster giganteus* juvenile (< 40 mm) densities in the ARMs were similar to last year, but increased at three sites. There was little change in *Pycnopodia helianthoides* abundance in the ARMs. Overall there was an increase in *Strongylocentrotus franciscanus* densities in the ARMs with an increase at four sites, decrease at two sites and little change at five sites. Juvenile *S. franciscanus* (< 16 mm) abundance increased at two sites, decreased at one site and remained about the same at eight sites. Overall, densities of *Strongylocentrotus purpuratus* in the ARMs were similar to last year, with increases at two sites, a decrease at one site and little change at eight sites. Juvenile *S. purpuratus* (< 16 mm) increased at one site, decreased at one site and remained about the same at the remaining nine sites. Most of the recruitment for *Strongylocentrotus* spp. occurred at Anacapa Island. *Centrostephanus coronatus* remained in low abundance in the ARMs this year with only one individual observed in all the ARMs combined. *Centrostephanus coronatus* recruitment remained low at all sites.

Unusual Species / Non-Indicator Species

Though we did not conduct any formal surveys for eel grass, *Zostera* spp., we have made some general observations this year that are worth noting. Eel grass beds were abundant prior to a dramatic increase in *Lytechinus anamesus* populations in the early 1980s that decimated the beds by the mid 1980s. Since then and up to around 2005, eel grass was rare at CHIS. However, over the past six years we have noticed a gradual increase that seems to have dramatically increased over the past two years. This year, we have observed extensive and dense beds over much of Smugglers Anchorage, Chinese Harbor and Prisoners Harbor at Santa Cruz Island. In addition, some small, dense beds were observed at Forney's Cove at the west end of Santa Cruz Island.

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.

In the past several years, there has been an increase in *Pisaster ochraceus* observations at the KFM sites. This sea star is typically an intertidal species, which is why it is unusual to see it at the depths of the KFM sites. Observations of *P. ochraceus* were made at the following sites this year: SMWL, SMHR, SCSA, ANAR, SMMM, SCPP, SCCVP, SCLS, SCPRF, ANKH, ANEFC, and ANLH (refer to Table 3 for site codes). At sites with relatively high numbers present, *P. ochraceus* density was recorded and can be found in the site summary results. These data have not been entered in the database because we inconsistently collected the information from all sites. We plan on collecting *P. ochraceus* data for all sites next year.

There was a high abundance of salps, jellies, siphonophores, and pyrosomes observed in the water column around many KFM sites until the middle of October. Salps and pyrosomes were

particularly abundant at Santa Rosa Island. Also, it was not uncommon this season for divers to experience a mild sting, likely from siphonophores, on the exposed area of the face. The water column typically appears green at the beginning of the KFM sampling season, in spring, and begins to clear in mid-summer. This year the green water conditions persisted through to the middle of October and also remained anomalously cold.

There was a noticeable recruitment of barnacles at Wyckoff Ledge on San Miguel Island and at Pelican Bay on Santa Cruz Island. Barnacles in general have been very abundant the past several years.

In May/June we observed a large number of both small *Octopus rubescens* and large *O. bimaculatus*. We observed them in the ARMs or in the open on every island except San Miguel Island. They appeared more abundant than in previous year at Santa Barbara Island and Anacapa Island. Combining all ARMS at all Anacapa Island sites, we observed a total of 21 *Octopus* sp. in 2011, compared with seven in 2010, seven in 2009, and three in 2008.

Amphipod tube mats were moderately abundant at many of the sites this year, including sites on Santa Barbara Island, this is common for colder water years.

Loxorhynchus grandis was common at Anacapa Island and Santa Cruz Island this year. David Kushner observed a large male actively preying on a large *Strongylocentrotus purpuratus* during a survey dive on the south side of Santa Cruz Island.

Invasive Species

In 2009, the first observation of the non-native invasive alga, *Sargassum horneri* in CHIS 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 that limits or prohibits the take of all or most marine algae, fish and invertebrates.

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 2012 sampling season.

Sargassum horneri was observed at a total of five KFM sites at the Channel Islands this year. Observations were made at Southeast Sea Lion and Southeast Reef at Santa Barbara Island, Cathedral Cove and Admiral's Reef at Anacapa Island and Cavern Point at Santa Cruz Island. Adult *S. horneri* were present at Southeast Reef and Cavern Point, while Southeast Sea Lion, Cathedral Cove, and Admiral's Reef only had juveniles present. Overall, there was a decrease in *S. horneri* abundance, which is the opposite of what was expected from our observations in 2009 and 2010. For density data from these sites, please refer to the station results section. Unlike last year, *S. horneri* was not observed at Graveyard Canyon or Keyhole.

This alga 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 this year for the first time. *Watersipora subtorquata* was observed growing on an ARM cage at Cathedral Cove on Anacapa Island and in-shore of the Fry's Harbor site on Santa Cruz Island. Sarah Traiger, one of the KFM Student Conservation Intern's identified this invasive bryozoan. Sarah had previously worked in a lab performing a study on *W. subtorquata*, and was therefore able to discern this species from the native bryozoans that were also growing on the ARMs. We do not actively look for this species. It is likely that *W. subtorquata* had been at the islands in recent years prior to its documentation at Cathedral Cove and Fry's Harbor this year.

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 2010 to May 2011. Hourly temperature data were averaged by day and the sites were grouped by island. Santa Barbara Island experienced the coldest summer in 2010 since the KFM Program began collecting temperature data in 1993. Santa Barbara Island usually experiences average daily temperatures above 19° C for part of the summer. The average daily temperature was below 17° C throughout 2010. Anacapa and San Miguel Islands also experienced the coldest averaged daily summer temperatures in 2010 since we began collecting temperature data. Santa Cruz Island experienced the coldest summer in 2010 since 1999. Santa Rosa Island experienced below average temperatures for 2010.

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Appendix A. Results by Individual Site.

Location: Wyckoff Ledge, San Miguel Island
Site #1, SMWL
Year sampling began: 1982
2011 sampling dates: 9/15
2011 status: Mature kelp forest

This site continued to be a mature kelp forest with widely-spaced *Macrocystis pyrifera* plants and a thick canopy, creating low light conditions for understory algae which were in low abundance. Canopy cover was similar to last year at an estimated 100%. *Macrocystis pyrifera* adult and juvenile densities were similar to recent years at 0.24/m² and 0.083/m², respectively. Subadult density decreased to 0.025/m². Cover of *M. pyrifera* was 20%. *Eisenia arborea* was rare and not observed during sampling. *Pterygophora californica* adults were moderately abundant at 0.88/m², and juveniles were rare at 0.083/m². Cover of *P. californica* was 17%. No *Laminaria farlowii* were observed, similar to previous years. *Sargassum horneri* was not observed at the site. *Dictyoneuropsis reticulata* adults were moderately abundant and had a density of 4.1/m^2. Miscellaneous brown algae cover was 6.0%, and much of the cover was *D. reticulata*. *Desmarestia* spp. were common with 3.0% cover. *Cystoseira* spp. were rare at 0.33% cover. Miscellaneous red algae were common with a cover of 32%, a decrease from the last two years. *Gelidium* spp. were not observed at the site. *Gigartina* spp. were rare and not observed during sampling. Green algae were not observed at the site. Articulated coralline algae cover was 7.7%, similar to recent years. Encrusting coralline algae cover decreased to 14%. Bare substrate cover was 26%, a decrease from last year's high.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover increased to a high of 29%. The most abundant taxa in this category were barnacles, followed by *Pista elongata*. Tunicates were common with a cover of 5.8%, the highest recorded cover at this site. *Styela montereyensis* was rare at 0.33/m², similar to last year. Sponges were common but not observed on RPCs. *Tethya aurantia* remained moderately abundant at 0.21/m², which is near an all time high density. *Phragmatopoma californica* was common and scattered around the site, and had a cover of 4.0%. *Diopatra ornata* was common at 9.0% cover. Miscellaneous bryozoans were common with a cover of 17%, similar to recent years. *Diaperoecia californica* was not observed on RPCs, though it was present at the site. *Urticina lofotensis* density remained high at 0.36/m², similar to recent years. *Corynactis californica* cover was 0.50%. *Balanophyllia elegans* was rare at 0.33% cover. *Astrangia lajollaensis* was rare with a density of 0.33%. No gorgonians were observed at the site, similar to past years.

Strongylocentrotus franciscanus was moderately abundant at 1.0/m². Mean size of *S. franciscanus* was 58 mm, the lowest recorded since 2000. *Strongylocentrotus purpuratus* was rare with a density of 0.33/m², similar to recent years. Mean size for *S. purpuratus* was 34 mm, an increase from last year. No *Lytechinus anamesus* or *Centrostephanus coronatus* were observed, similar to past years. No sea urchin wasting disease was observed.

Pisaster giganteus was common and counted on 5 m^2 and 1 m^2 quadrats with densities of 0.055/m² and 0.083/m², respectively. Mean size of *P. giganteus* was 107 mm, the highest recorded at this site. *Patiria miniata* was abundant with a density of 2.6/m², similar to past years. *Pycnopodia helianthoides* was rare with a density of 0.026/m^2, an increase from recent years.

Ophiothrix spiculata was rare and not observed on RPCs. *Pachythyone rubra* was not observed at the site, similar to past years. *Parastichopus parvimensis* was common, with a density of 0.17/m², similar to previous years. No sea star wasting disease was observed.

Haliotis rufescens remained relatively abundant with a density of 0.12/m², the highest recorded at this site. A total of 166 *H. rufescens* were located for size frequency measurements with mean size of 189 mm, the highest recorded at this site. One juvenile *H. rufescens* was found, with the rest of the individuals being medium and large in size. 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 common though not observed on 1 m^2 quadrats. *Astraea gibberosa* was moderately abundant with a density of 0.17/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 0.91/m^2. *Megathura crenulata* was rare with a density of 0.0042/m^2, and consisted mostly of large individuals. *Crassedoma giganteum* was rare and had a density of 0.113/m^2. *Aplysia californica* was not observed at the site. *Cryptochiton stelleri* was not recorded on band transects, though one individual was observed at the site. This species is not one of our indicator species, but we have been trying to remember to count them on band transects. *Panulirus interruptus* was not observed.

Coryphopterus nicholsii, Lythrypnus dalli and *Alloclinus holderi* were rare and not observed on quadrats. Roving diver fish counts were conducted on September 15th by four divers observing 27 species of fish. Figures summarizing RDFC data can be found in Appendix C.

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
2011 sampling dates: 9/14
2011 status: Dominated by *Strongylocentrotus franciscanus*

This site continues to be dominated by *Strongylocentrotus franciscanus* and is almost devoid of macroalgae, although there is a dense patch of *Macrocystis pyrifera* just off the site on the inshore side of Hare Rock. Adult, subadult and juvenile *M. pyrifera* all had densities of 0.0/m², similar to recent years, and a cover of 0.0%. No *Eisenia arborea, Pterygophora californica, Laminaria farlowii, Sargassum horneri* or *Cystoseira* spp. were observed at the site. *Desmarestia* spp. was common with 0.50% cover. Miscellaneous red algae, consisting mostly of *Laurencia pacifica,* was common with a cover of 3.5%. *Gigartina* spp. and *Gelidium* spp. were not observed during sampling, but were rare and absent at the site, respectively. Green algae were moderately abundant with a cover of 5.8%. The green algae category consisted almost entirely of *Ulva* spp. which were in dense patches along the transect. Articulated coralline algae were rare and cover was 1.2%. Encrusting coralline algae were abundant and similar to last year with a cover of 52%. Bare substrate cover was similar to last year at 23%.

Overall, this site had few encrusting invertebrates. Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 6.5%, and consisted mostly of barnacles and *Dodecaceria* spp. Tunicates were rare with 0.0% cover. *Styela montereyensis* was rare and not observed during sampling. Sponges were rare with a cover of 0.0%. *Tethya aurantia* was common at 0.049/m², similar to past years. *Phragmatopoma californica* was rare with none observed on RPCs. *Diopatra ornata* was rare with a cover of 0.50%, similar to recent years. Miscellaneous bryozoans were rare at 1.3% cover. *Diaperoecia californica* cover was 0.0%, similar to past years. *Urticina lofotensis* was common at 0.026/m². *Corynactis californica,* and *Astrangia lajollaensis* were moderately abundant and *Balanophyllia elegans* was abundant with covers of 6.8%, 1.8% and 4.7%, respectively. No gorgonians were observed at the site, similar to past years.

Overall, there was little change in *Strongylocentrotus* spp. from recent years. *Strongylocentrotus franciscanus* remained abundant, and was evenly distributed and out in the open over most of the transect. Density of *S. franciscanus* remained high at 15/m². Most were large and juveniles were rare. *Strongylocentrotus purpuratus* was rare with a density of 0.21/m².The *S. purpuratus* observed along the transect were mostly sheltered under *S. franciscanus*. No *Lytechinus anamesus* or *Centrostephanus coronatus* were observed. No sea urchin wasting disease was observed.

Patiria miniata remained very abundant at 6.1/m² and most were large individuals. *Pisaster giganteus* densities on 5 m^2 quadrats and 1 m^2 were 0.33/m² and 0.25/m², respectively, an increase from last year. The mean size of *P. giganteus* was similar to last year at 113 mm. *Pycnopodia helianthoides* was moderately abundant, with all size classes present. Mean size of *P. helianthoides* density was 0.18/m², an increase from last year. *Ophiothrix spiculata* was rare and not observed during RPCs. *Pachythyone rubra* was not observed at the site, similar to past years. *Parastichopus parvimensis* was rare with a density of 0.0/m². No sea star wasting disease was observed.

Two juvenile *Haliotis rufescens* were observed at the site and small fresh shells were moderately abundant. One *Haliotis assimilis,* threaded abalone, was observed on band transects and measured at 40 mm. *H. assimilis* density was 0.0014/m².*Cypraea spadicea* was moderately abundant at a density of 0.58/m². *Astraea gibberosa* was moderately abundant at 0.33/m². *Megastraea undosa* was not observed at the site. *Kelletia kelletii* and *Megathura crenulata* were both rare with densities of 0.022/m² and 0.0028/m², respectively. *Tegula regina* was not observed. *Crassedoma giganteum* was common at a density of 0.019/m², similar to previous years. *Aplysia californica* was rare with a density of 0.0014/m². *Panulirus interruptus* was not observed.

Fish abundance and diversity were moderate, similar to recent years. *Coryphopterus nicholsii* was moderately abundant with a density of 0.46/m². No *Lythrypnus dalli* or *Alloclinus holderi* were observed. Roving diver fish counts were conducted on September 14th by six divers observing 26 species. Figures summarizing RDFC data can be found in Appendix C.

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
2011 sampling dates: 8/16, 10/17
2011 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. Large dead holdfasts were common along the bottom and many were held together by encrusting invertebrates such as *Phragmatopoma californica* and *Serpulorbis squamigerus*. Canopy cover was estimated at 35%, which seemed low relative to the dense mature kelp forest that was present at the site. *Macrocystis pyrifera* adults were abundant with a density of 0.42/m². Subadult *M. pyrifera* were observed in high density patches throughout the transect with a density of 0.42/m². Juvenile *M. pyrifera* were common with a density of 4.3/m², similar to recent years. Cover of *M. pyrifera* was 39%, same as last year. *Eisenia arborea* adults were common to the site, although not observed during sampling (0.0/m²), but juveniles were observed on 1 m^2 quadrats at 0.25/m². Cover of *E. arborea* was 0.0%. *Pterygophora californica* adults were moderately abundant and juveniles were common with densities of 0.46/m² and 0.25/m², respectively. Cover of *P. californica* was 16%, an increase from last year but similar to years past. *Laminaria farlowii* adults and juveniles were common with densities of 0.38/m² and 2.2/m², respectively. Cover of *L. farlowii* was 17%, the highest cover on record for this site. *Cystoseira* spp. were common with a cover of 0.33%, but appeared less abundant than past years. *Desmarestia* spp. were rare with a cover of 0.33% and only several individuals were observed. Miscellaneous red algae were moderately abundant at 77%, the highest cover on record for this site. *Gelidium* spp. were not observed at the site. *Gigartina* spp. were moderately abundant at 21%, the highest cover on record for this site. Miscellaneous green algae were rare at 0.17% cover. Miscellaneous plant (i.e. diatom film) cover was 0.17%. Articulated coralline algae were common, similar to last year, at 8.5% and encrusting coralline algae were common at 13%. Bare substrate cover was 1.5%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 15%, similar to last year. The most common invertebrates in this category were hydroids and *Cucumaria* spp. Tunicates were moderately abundant and diverse with a cover of 12%. *Styela montereyensis* remained abundant with a density of 3.1/m² and most individuals were large adults with a few juveniles present. Sponges were moderately abundant and cover was 3.0%. *Tethya aurantia* was common with a density of 0.13/m², a decrease from last year's all time high. *Phragmatopoma californica* continued to be moderately abundant following last year's record high with a cover of 12%. The high percent cover of *P. californica* was one of the more notable observations at this site this year. *Diopatra ornata* was common with a cover of 4.0%. *Serpulorbis squamigerus* cover was notably abundant in flat areas as well as in *M. pyrifera* holdfasts; however, this increase was not reflected in the data with a cover of just 0.17% observed, same as last year. Miscellaneous bryozoans were moderately abundant with a cover of 45%, similar to last year, and included *Membranipora membranacea, Bugula californica* and *Hippodiplosia insculpta. Diaperoecia californica* cover was 0.83%. *Urticina lofotensis* was common at 0.019/m^2, similar to last year. *Corynactis californica* cover was 2.5%, similar to recent years. *Balanophyllia elegans* and *Astrangia lajollaensis* were both common with covers of 1.0% and 0.83%, respectively. *Lophogorgia chilensis, Muricea californica* and *Muricea fruticosa* were not observed at the site.

Strongylocentrotus purpuratus adults and juveniles were common and mostly located in small cracks or under large *S. franciscanus* that dominated the crevices. The density of *S. purpuratus* was 0.25/m² and mean size was 37 mm, similar to last year. *Strongylocentrotus franciscanus* were moderately abundant and occupied most of the deep crevices where they appeared to be competing for space with *Haliotis* spp. The density of *S. franciscanus* was 0.58/m² and mean size was 77 mm, similar to last year. No *Lytechinus anamesus* or *Centrostephanus coronatus* were observed at the site, similar to past years. No sea urchin wasting disease was observed.

Pisaster giganteus was common and recorded on both 5 m^2 quadrats and 1 m^2quadrats at 0.17/m² and 0.25/m², respectively. *Patiria miniata* was moderately abundant at 1.4/m², similar to the past few years, but a decrease from last year. *Pycnopodia helianthoides* was moderately abundant at 0.079/m², a decrease from last year. Most *P. helianthoides* were small to medium in size, with few large individuals present. *Ophiothrix spiculata* was rare at the site and was not observed during sampling. *Pachythyone rubra* was not observed at the site, similar to past years. *Parastichopus parvimensis* was common at 0.083/m², similar to last year. No sea star wasting disease was observed.

Haliotis rufescens was scattered over much of the transect in crevice habitat. Most *H. rufescens* were large with very few small individuals present. No fresh shells were found at the site. Forty-one *H. rufescens* were measured during size frequencies for a mean size of 181 mm, similar to last year. The density of *H. rufescens* on band transects was 0.025/m². *Cypraea spadicea* was moderately abundant with a density of 0.21/m². *Megastraea undosa* was rare and not observed during sampling and *Astraea gibberosa* was absent from the site. *Tegula regina* was not observed. *Kelletia kelletii* was rare and not observed for the first time since 1993. *Megathura crenulata* was common and notably large at 0.018/m². *Crassedoma giganteum* was common at 0.013/m². *Aplysia californica* was not observed. *Panulirus interruptus* was not observed at the site.

Fish at this site were abundant and diverse, similar to past years. *Coryphopterus nicholsii* density was 0.042/m², same as last year. *Alloclinus holderi* was not observed during sampling. *Lythrypnus dalli* was not observed. Interesting to note was a school of about 60 large (35-50 cm) *Sebastes serranoides* on the inshore side of the transect near the 100-meter end. Several juvenile *S. atrovirens* and *S. paucispinus,* bocaccio, were observed in the kelp canopy. Two *Scorpeonicthys marmoratus,* cabezon, were also observed. Roving diver fish counts were conducted on August 16th by seven divers observing 31 species. Figures summarizing RDFC data can be found in Appendix C.

Seven of the nine ARMs were monitored on October 17th for all indicator species. During our first visit in August, the three ARMs in the middle group (2446, 2414, and 2398) were found with either no lid or a lid open. The bricks in ARMs 2446 and 2398 were found outside the recruitment modules and the cages were split open. These two ARMs were rebuilt but not sampled this year. The bricks were intact in ARM 2398 with just the lid removed so this ARM was repaired during our first visit and sampled during our second visit.

No *Haliotis* spp. were observed in the ARMs this season. *Cypraea spadicea* remained relatively abundant at 8.1/ARM, similar to last year. No *Megastraea undosa* or *Kelletia kelletii* were observed. *Megathura crenulata* was present at 0.57/ARM and all were small with a mean size of

35 mm. *Crassedoma giganteum* density was 1.0/ARM and a mean of 88 mm was observed, similar to last year. *Patiria miniata* density was 6.3/ARM with a mean of 43 mm, similar to recent years. *Pisaster giganteus* density continued to increase to 5.4/ARM with a mean of 36 mm. *Pycnopodia helianthoides* density was 0.57/ARM with a mean of 107 mm, similar to recent years. *Strongylocentrotus franciscanus* density remained relatively high for this site at 39/ARM with a mean of 49 mm. *Strongylocentrotus purpuratus* density was 17/ARM and a mean of 33 mm was observed, similar to recent years. No *Parastichopus parvimensis* <10 cm were present in the ARMs this year and four *P. parvimensis* >10 cm were observed for a density of 0.57/ARM. At least one juvenile *C. spadicea* was observed in the ARMs. Two swell sharks were present in ARM 2477 and one *Octopus* spp. was observed.

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
2011 sampling dates: 7/13, 8/17, 10/17
2011 status: Mature kelp forest

Overall, this site continued to be a mature kelp forest with large, widely spaced *Macrocystis pyrifera* plants as well as patches of smaller plants. Canopy cover decreased to 25%. Understory algae were abundant and diverse, with all indicator species present. Overall cover of *M. pyrifera* was 8.7% and adult density was 0.090/m², similar to last year. Subadult and juvenile *M. pyrifera* densities both decreased to 0.095/m² and 2.6/m², respectively. Adult *Eisenia arborea* were common over much of the transect and juveniles were rare. Adult and juvenile densities were 0.083/m² and 0.0/m², respectively. Cover of *E. arborea* was 1.7%. *Pterygophora californica* was common at 0.67% cover. Adult and juvenile densities were 0.042/m^2 and 0.17/m^2, respectively. Adult and juvenile *Laminaria farlowii* densities were 0.88/m² and 1.2/m^2, respectively. *L. farlowii* cover was 15%, and increased from past years. *Desmarestia* spp. was not observed on RPCs but was common elsewhere at the site and consisted mostly of small plants. *Cystoseira* spp. cover was 0.83%. *Sargassum horneri* was not observed at the site. Miscellaneous brown algae cover was 1.3%, similar to recent years. *Gigartina* spp. was abundant over much of the site with 12% cover. *Gelidium* spp. was not observed. Miscellaneous red algae were abundant at 76% cover, an increase from recent years. Other green algae were not observed during RPCs. Articulated coralline algae cover was 6.5%, similar to last year. Encrusting coralline algae cover was 23%. Bare substrate cover was 11%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 15% and mainly consisted of hydroids and barnacles. *Balanus nubilus* was abundant and sea stars were actively feeding on them. Tunicates were moderately abundant with a cover of 8.5%, a decrease from last year's high. *Polyclinum planum* was common but less so than at Johnson's Lee North and South Point. *Styela montereyensis* was moderately abundant and individuals were mostly large. The density of *S. montereyensis* was 2.8/m². Sponges were moderately abundant at 1.3%. *Tethya aurantia* was moderately abundant at a density of 0.30/m², a decrease from last year's all time high. *Diopatra ornata* was moderately abundant with a cover of 13%, similar to last year. *Phragmatopoma californica* was common at 1.0%. Miscellaneous bryozoans were moderately abundant with a cover of 40%, the highest recorded at this site. *Diaperoecia californica* was

common and was observed at 1% cover. *Corynactis californica* cover was 3.7%, similar to last year. *Urticina lofotensis* density was 0.18/m². *Astrangia lajollaensis* cover was 1.7%. *Balanophyllia elegans* was present in patches with a cover of 2.7%. *Lophogorgia chilensis* was common at 0.047/m², similar to recent years. *Muricea californica* was rare and not observed on band transects. No *Muricea fruticosa* were observed.

Strongylocentrotus spp. distribution was patchy. Most were confined to crevice habitat, with much of that available habitat being full of sea urchins. *S. franciscanus* was moderately abundant and had a density of 0.92/m^2. *Strongylocentrotus purpuratus* was common at 4.0/m^2. The mean size of *S. franciscanus* and *S. purpuratus* was 53 mm and 42 mm, respectively. Juvenile *Strongylocentrotus* spp. were common. No *Lytechinus anamesus* or *Centrostephanus coronatus* were observed. No sea urchin wasting disease was observed.

Pisaster giganteus was common and was sampled on both 5 m^2 and 1 m^2 quadrats at 0.14/m² and 0.17/m², respectively. Mean size for *P. giganteus* was 118 mm, the highest on record for this site. *Patiria miniata* was abundant, similar to recent years, at 5.8/m². This is the highest density recorded at this site sice 1982. *Pycnopodia helianthoides* was moderately abundant with a density of 0.092/ m², a decrease from last year, and mean size of 147 mm. *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* was common at the site, although not observed during sampling. *Dermasterias imbricata,* although not an indicator species, was noticeably more abundant than past years. This species is being considered for becoming an indicator species. No sea star wasting disease was observed.

Haliotis rufescens was rare with a density of 0.0069/m², similar to last year. A total of 7 were measured for a mean size of 194 mm. No fresh shells were observed. The very large (265 mm) *H. rufescens* very close to the transect line at meter 90 was present again this year. This abalone has been at or near the same exact spot on the transect for many years. No *H. corrugata* or *H. fulgens* were observed. *Cypraea spadicea* was moderately abundant at 0.29/m². *Megastrea undosa, Asterina gibberosa,* and *Tegula regina* were not observed *Kelletia kelletii* was rare at 0.0014/m². *Megathura crenulata* was rare at 0.0069/m². *Crassedoma giganteum* had a density of 0.035/m² and mostly consisted of small individuals. *Aplysia californica* was not observed at the site. *Panulirus interruptus* was not observed. One *Phyllolithodes papillosus* was observed on band transects. This species has become more abundant in the ARMs over the last several years, and this is the first time this species was observed at the site outside of the ARMs.

Fish were abundant and diverse, similar to past years. *Coryphopterus nicholsii* was relatively abundant with a density of 0.50/m². *Alloclinus holderi* and *Lythrypnus dalli* were not observed. Roving diver fish counts were performed on October 17th by six divers observing 29 species of fish. Figures summarizing RDFC data can be found in Appendix C.

All seven ARMs were monitored for all indicator species. One ARM had moved and was upside down. 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.

One, *Haliotis rufescens* was observed in the ARMs with a density of 0.13/ARM, similar to past years. *Cypraea spadicea* density was 3.8/ARM, a decrease from recent years. *Megathura crenulata* was not observed in the ARMs. *Crassedoma giganteus* density was 0.88/ARM. Two *Kelletia kelletii* were observed in the ARMs for a density of 0.29/ARM. *Patiria miniata* density was 7.1/ARM, similar to recent years, with a mean size of 49 mm. *Pisaster giganteus* density was 0.88/ARM, and had a mean size of 44 mm. *Pycnopodia helianthoides* density was 0.75/ARM, with a mean size of 113 mm. *Strongylocentrotus franciscanus* density was 23/ARM, with a mean size of 55 mm, similar to recent years. *Strongylocentrotus purpuratus* density was 9.8/ARM, with a mean size of 47 mm, similar to recent years. No *Parastichopus parvimensis* <10 cm and seven *P. parvimensis* >10 cm were observed in the ARMs for densities of 0.0/ARM and 0.88/ARM, respectively.

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
2011 sampling dates: 9/12, 9/13
2011 status: Open area with moderately high density of *Strongylocentrotus francsicanus*

This site remained an open area with a moderate abundance of *Strongylocentrotus franciscanus* and appeared notably more grazed over than the past several years. The entire transect was nearly devoid of all macroalgae. No adult, subadult or juvenile *Macrocystis pyrifera* were observed during sampling and only one small subadult was observed overall on the site. The absence of *M. pyrifera* adult and juvenile life stages is similar to previous years, while the absence of subadults is a decrease from last year. Percent cover of *M. pyrifera* remained at 0.0%. *Desmarestia* spp. were rare overall and not observed during sampling. 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 rare; neither were observed during RPCs. Miscellaneous red algae cover remained low at 8.0%, similar to previous years. No *Gigartina* spp., *Gelidium* spp. or articulated coralline algae were observed during RPC's, although articulated coralline was present at the site. Encrusting coralline algae were moderately abundant and cover increased to 77%, the highest recorded cover since 1999. Miscellaneous plants, consisting of filamentous diatoms, had a cover of 0.17%, the first recorded cover at this site since 2002. Bare substrate cover remained at 10%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover decreased from last year to 5%. Last year's increase in this category coincided with a notable recruitment of barnacles of the genus *Balanus.* Since last year, recruitment deceased and empty shells were moderately abundant over much of the site, which could account for this year's decreased cover of miscellaneous invertebrates. The most abundant miscellaneous invertebrates for 2011 composed mainly of hydroids, similar to years prior. Large *Balanus nubilus* were also moderately abundant as were their empty shells. Tunicates were common with a cover of 0.67% and consisted mostly of a bright fluorescent orange encrusting species. *Styela montereyensis* was rare and not observed during sampling. Sponges were rare with a cover of 0.17%, the lowest recorded cover since 2000. *Tethya aurantia* was common at 0.30/m², the highest density recorded at this site. Percent

cover of *Diopatra ornata* continued to decrease for the fourth consecutive year to 0.67%, the lowest recorded density since 2003. A large bed of *D. ornata* located in the cobble area of the transect had notably fewer individuals this year. *Phragmatopoma californica* and *Serpulorbis squamigerus* were not observed during sampling. Miscellaneous bryozoans were common and cover was 1.2%, similar to last year. *Diaperoecia californica* was rare and not observed during RPCs, same as last year. *Urticina lofotensis* was common with a density of 0.088/m^2. *Corynactis californica* was common at the site, but not observed during RPCs. *Balanophyllia elegans* was moderately abundant with a cover of 0.67%. *Astrangia lajollaensis* was moderately abundant at 6.8% cover. *Lophogorgia chilensis* was rare with one individual observed at a density of 0.0014/m^2. No *Muricea californica* or *M. fruticosa* were observed at the site.

Large to medium size *Strongylocentrotus franciscanus* were moderately abundant while juveniles were rare at a density of 16/m^2. This is the highest recorded density for this species since sampling began in 1983 and is likely a contributing factor to the overly grazed appearance of the site and low densities of algae. Mean size of *S. franciscanus* was 56 mm, similar to previous years. *Strongylocentrotus purpuratus* were rare with a density of 0.50/m^2. Only fourty-seven *S. purpuratus* were found for size frequencies for an average size of 17 mm, with the majority of those being juveniles found near the eastern end of the transect. This low abundance of *S. purpuratus* is likely due to the high density of *Pycnopodia helianthoides* this year. *Lytechinus anamesus* and *Centrostephanus coronatus* were not observed at the site. No sea urchin wasting disease was observed.

Pisaster giganteus was moderately abundant and recorded on both 5 m^2 and 1 m^2 quadrats at a density of 0.67/m^2 and 0.38/m^2, respectively. This is the highest density recorded for this species during 5 m^2 quadrats since 2002. *P. giganteus* had a mean size of 114 mm, the highest average size recorded since sampling began in 1986. *Patiria miniata* was moderately abundant at 5.7/m^2, a decrease from last year, but similar to the past five years. *Pycnopodia helianthoides* was abundant overall with a moderate abundance of large individuals (> 5 cm) and a very high abundance of small individuals (< 5 cm). Density of *P. helianthoides* increased to 0.53/m^2. This is the highest density recorded for this species at any site. It should be noted that the density of *P. helianthoides* was likely higher. During sampling, replicate data were collected by different observers to measure observer error (see discussion for more information). It was determined that one observer was missing some of the *P. helianthoides* that were < 3 cm and under ledges. The divers that collected replicate data recorded a density of 0.61/m^2. *Pycnopodia helianthoides* were measured for a mean size of 7.4 cm. The decrease in mean size of *P. helianthoides*, coupled with the high densities is an indication of recent recruitment. No *Ophiothrix spiculata* were observed during sampling, although they were common at the site overall. *Pachythyone rubra* was not observed at the site, similar to past years. *Parastichopus parvimensis* was rare with a density of 0.083/m^2. No sea star wasting disease was observed.

Small, fresh and old *Haliotis rufescens* shells were common at the site. Seven fresh shells were measured at 15 mm, 19 mm, two at 21 mm, 22 mm, 23 mm and 25 mm in length. One live *H. rufescens* was observed at 19 mm and one *H. assimilis*, threaded abalone, was observed during band transects at 55 mm**.** It is important to note that *H. assimilis* is not monitored as an indicator species for this program. *Cypraea spadicea* was common at 0.46/m^2, and most individuals were large. No *Megastraea undosa* were observed during sampling. Adult *Astraea gibberosa* were common and juveniles were abundant, for an overall density of 0.17/m^2. Though the density of

A. gibberosa was low, there was a noticeable recruitment observed. Of the 110 *A. gibberosa* measured for size frequencies, 85 of those were < 18 mm. Prior to this, there were only nine *A. gibberosa* <18 mm recorded in the entire KFM dataset. *Tegula regina* was not observed. *Kelletia kelletii* was rare with individuals relatively small at a density of 0.024/m², the lowest recorded density since 2006. *Megathura crenulata* was rare with mostly large individuals at a density of 0.025/m². *Crassedoma giganteus* was common and consisted of mostly small to medium sizes at a density of 0.049/m², the highest recorded density since sampling began. No *Aplysia californica* or *Panulirus interruptus* were observed during sampling.

Fish diversity remained similar to previous years while densities appeared to increase at the site. No *Lythrypnus dalli* or *Alloclinus holderi* were observed during sampling, similar to previous years. *Coryphopterus nicholsii* was notably more abundant at a density of 0.21/m^2, the highest recorded density at this site. *Rathbunella* sp., were common at the site with up to three counted. More were observed during subsequent dives and most appeared to be smaller than in years past. Two color morphs were observed for this ronquil and there is some debate as to whether the more uncommon *R. alleni* is also present or the difference is sexual dimorphism of *R. hypoplecta*. Later in the afternoon a large group of *Semicossyphus pulcher*, California sheephead, and several large *Caulolatilus princeps*, ocean whitefish, were observed along with a single, large *Torpedo californica*, torpedo ray. Roving diver fish counts were performed on September 12th with four divers observing 24 species. Figures summarizing RDFC data can be found in Appendix C.

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

For the following protocols, 1 m quadrats, 5 m quadrats, and band transects, we had two sets of observers collecting replicate data for each of these techniques in order to quantify observer variability. See Appendix I for more information.

Location: Gull Island, Santa Cruz Island
Site #6, SCGI
Year sampling began: 1982
2011 sampling dates: 7/29, 8/15, 8/18
2011 status: Mature kelp forest

This site remained a mature kelp forest with a moderate amount of understory algae. *Macrocystis pyrifera* canopy cover was estimated at 25%. Adult and subadult *M. pyrifera* densities were 0.070/m^2 and 0.12/m^2, respectively. Juvenile *M. pyrifera* were rare and density decreased from last year to 0.38/m^2. Cover of *M. pyrifera* decreased to 4.3%. *Eisenia arborea* abundance was similar to last year with adult and juvenile densities at 0.29/m² and 0.33/m², respectively, and a cover of 4.2% was observed. *Pterygophora californica* was rare overall, with no adults or juveniles observed on 1 m^2 quadrats or RPCs. *Laminaria farlowii* was rare with adult and juvenile densities of 0.0/m² and 0.042/m², respectively. No *L. farlowii* cover was observed on RPCs. No *Desmarestia* spp. were observed. No *Sargassum horneri* was observed. *Cystoseira* spp. cover was 0.50%. Miscellaneous brown algae cover was 2.3% and consisted mostly of *Agarum fimbiatum*, which was common in low lying areas throughout the site. Miscellaneous red algae, consisting primarily of *Rhodymenia* spp., remained moderately abundant with a cover of 47%. *Gigartina* spp. were common with cover of 0.67%. Green algae were not observed on

RPCs and were rare at the site. Articulated coralline algae were common at 1.7% cover. Encrusting coralline algae were moderately abundant at 25% cover. Bare substrate cover was 9.7%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover was 3.5%. The most abundant invertebrates in this category were hydroids followed by *Stylaster californica*. *Garveia annulata* was moderately abundant, but notably less than last year. Tunicates were common with cover of 0.50%. *Styela montereyensis* was rare and not observed on 1 m^2 quadrats. Sponge cover was 2.5% consisting mostly of *Hymenamphiastra cyanocrypta*. *Tethya aurantia* of all sizes were abundant and had a density of 0.37/m², the highest recorded at this site and similar to the last two years. *Diopatra ornata* was moderately abundant with a cover of 7.3%. *Phragmatopoma californica* was not observed. Miscellaneous bryozoan cover remained high at 21%, consisting mostly of *Phidolopora pacifica, Membranipora* spp., and *Hippodiplosia insculpta*. *Diaperoecia californica* cover was 1.3%. *Urticina lofotensis* was not observed. *Corynactis californica* was common with a cover of 2.5%. *Balanophyllia elegans* and *Astrangia lajollaensis* covers were 2.3% and 0.50%, respectively, similar to recent years. *S. californica* was noticeably more abundant than last year, although the density recorded does not reflect this observation. The density of *S. californica* remained similar to last year at 0.11/m². *Lophogorgia chilensis* density was 0.047/m^2, similar to past years. No *Muricea californica* or *Muricea fruticosa* were observed during sampling.

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* and *S. purpuratus* densities both increased to 6.3/m² and 37/m², respectively. Their mean sizes were similar to last year at 53 mm and 28 mm, respectively. *Lytechinus anamesus* and *Centrostephanus coronatus* were not observed at the site. No sea urchin wasting disease was observed.

Pisaster giganteus was moderately abundant and sampled on both 5 m^2 quadrats and 1 m^2 quadrats with densities of 0.20/m² and 0.25/m², respectively. *Patiria miniata* remained moderately abundant with a density of 3.8/m² and all sizes were present. *Pycnopodia helianthoides* was common and consisted of mostly large individuals with a density of 0.015/m², similar to recent years. *Ophiothrix spiculata* was more abundant than in recent years, specifically in kelp holdfasts and *Diopatra ornata* beds. Cover was recorded at 4.5%, the highest recorded for this site. No *Pachythyone rubra* was observed. *Parastichopus parvimensis* was common to the site with a density of 0.29/m², similar to recent years. No sea star wasting disease was observed.

No live *Haliotis spp.* were observed during sampling but one fresh *H. rufescens* shell measuring 51 mm was found. *Cypraea spadicea* was moderately abundant with a density of 1.2/m². *Megastraea undosa* was common at 0.042/m^2 and most individuals were large at a mean size of 100 mm. *Astraea gibberosa* and *Tegula regina* were not observed. *Kelletia kelletii* density was similar to recent years at 0.0042/m². *Megathura crenulata* remained rare with a density of 0.014/m². *Aplysia californica* was rare at a density of 0.0014/m^2. *Crassedoma giganteum* density remained similar to recent years at 0.028/m². *Crassedoma giganteum* mean size was 69 mm and

there were several small empty shells observed throughout the site. *Panulirus interruptus* was rare and not observed during sampling.

Fish were moderately abundant and diverse, similar to past years. *Cephaloscyllium ventriosum,* swell shark, was noticeably abundant. At least three *Ophiodon elangatus,* lingcod, were observed on 08/15/2011 and nine were observed on 07/29/11. *Sebastes serranoides* were more abundant than usual at this site and at least four year classes were observed. Large male and various sizes of female *Semicossyphus pulcher* were observed. Several *Sebastes serriceps* juveniles were observed at the site after the fish count. Density of *Coryphopterus nicholsii* was 0.33/m². *Alloclinus holderi* and *Lythrypnus dalli* were not observed on 1 m^2 quadrats. Roving diver fish counts were conducted on August 15th by five divers observing 28 species. Figures summarizing RDFC data can be found in Appendix C.

All 14 ARMs were intact and monitored for all indicator species. *Strongylocentrotus* spp. was most abundant in the ARMs, followed by *Cypraea spadicea* and *Patiria miniata*. The density of *Cypraea spadicea* was 7.1/ARM, similar to recent years. Three *C. spadicea* had juvenile morphology. The mean size of *C. spadicea* remained similar to last year at 42 mm. No *C. spadicea* egg masses were observed in the ARMs. *Kelletia kelletii, Tegula regina,* and *Megastraea undosa* were not observed. One *Astraea gibberosa* was located in the ARMs for a density of 0.07/ARM. This is the second time we have observed *A. gibberosa* in the ARMs since 1992. *Megathura crenulata* had a density of 0.64/ARM and a mean size of 29 mm. *Crassedoma giganteum* had a density of 1.1/ARM and a mean size of 55 mm, similar to last year. *Patiria miniata* density remained similar to last year at 6.4/ARM, and had a mean size of 25 mm. *Pisaster giganteus* density was 2.1/ARM and mean size remained similar to past years at 50 mm. *Pycnopodia helianthoides* was not observed. *Strongylocentrotus franciscanus* density was 46/ARM, with a mean size of 29 mm. *Strongylocentrotus purpuratus* density increased from past years to 62/ARM, with a mean size of 33 mm. The density of *Parastichopus parvimensis* <10 cm was 1.0/ARM and *P. parvimensis* >10 cm was 0.57ARM. A total of five *Octopus* spp. were observed.

This site has two temperature logger stakes. The original stake and a new stake that was installed in 2007 are at the 0 m end about 20 m away from the original stake. Four temperature loggers were deployed for the past two years, two at each stake, to test for a difference in temperature between the two locations. All four loggers were retrieved this year and all data were downloaded successfully. There was no significant difference in temperature between the two different logger locations over the last two years. As a result, the location of the temperature logger has now been moved permanently to the new location at the 0 m end of the transect.

Location: Fry's Harbor, Santa Cruz Island
Site #7, SCFH
Year sampling began: 1982
2011 sampling dates: 7/12, 9/16
2011 status: State of transition

This site was noticeably different from last year with less *Macrocystis pyrifera* and *Eisenia arborea* resulting in more open area. However, there remained a high density of *E. arborea* in some areas along the transect. Canopy cover was estimated at 20%, a decrease from 95% last year. *Macrocystis pyrifera* adult density continued to decrease from the high in 2009 to a current

density of 0.090/m^2. Subadult density was 0.11/m^2. Juvenile *M. pyrifera* were rare with a density of 0.25/m^2. Cover of *M. pyrifera* decreased to 5.0%. Adult and subadult *M. pyrifera* were commonly covered with bryozoans. Though still abundant, *E. arborea* density continues to decline. Adult and juvenile densities were 0.79/m^2 and 0.29/m^2, respectively. *Eisenia arborea* cover was 22%, similar to the past two years. No *Pterygophora californica* or *Laminaria farlowii* were observed. *Desmarestia* spp. were not observed during RPCs. *Cystoseira* spp. were rare with a cover of 0.17%. *Sargassum horneri* was not observed at the site. Miscellaneous red algae were moderately abundant with a cover of 36%, an increase from last year. Most of the red algae present were covered with bryozoans. *Gigartina* spp. were common with a cover of 0.67%. *Gelidium* spp. were not observed on RPCs. Miscellaneous green algae were rare with a cover of 0.33%, and consisted mainly of *Codium fragile*. Encrusting coralline algae cover was 31%, similar to last year. Articulated coralline algae cover was 0.50%. Bare substrate cover was 5.8%.

Overall, encrusting invertebrates such as bryozoans and hydroids were abundant, similar to recent years. Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 13%, similar to last year. The dominant invertebrates in this category were hydroids. Tunicates were rare with a cover of 3.8%. *Styela montereyensis* was rare and had a density of 0.083/m^2. Most individuals were notably large. Sponges were common and had a cover of 0.50%. *Tethya aurantia* density continued to increase for the sixth consecutive year. Density was observed at 0.23/m^2, the highest recorded since 1984 and similar to densities when the monitoring program began in 1983. A range of sizes were present, but most *T. aurantia* were small. 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. It appears that *T. aurantia* may be a good indicator of the condition of a kelp forest as this site's conditions have recently changed to a kelp forest again, similar to how it was described in 1983. *Diopatra ornata* was common, with patchy distribution, and had a cover of 6.3%. This is the highest cover recorded for this species at this site. *Serpulorbis squamigerus* was rare, with no cover recorded on RPCs. *Phragmatopoma californica* was rare, with no cover recorded on RPCs. Miscellaneous bryozoans remained abundant with a cover of 38%. The most common species in this category were *Membranipora* sp., *Bugula* sp., *Costazia costazi*, and *Heteropora pacifica*. *Diaperoecia californica* was moderately abundant, with patchy distribution on large boulders, at a cover of 4.7%. *Urticina lofotensis* was not observed. *Balanophyllia elegans* was common, but not recorded on RPCs. *Astrangia lajollaensis* was abundant and present throughout the entire site. Cover of *A. lajollaensis* was 15%, an increase from last year. *Corynactis californica* was rare and had a cover of 0.17%. *Lophogorgia chilensis* was moderately abundant with a density of 0.19/m^2, similar to recent years. *Muricea californica* and *M. fruticosa* were not observed. *Eugorgia rubens* was rare, and found only on the deeper offshore side of the transect. However, this species is not monitored.

Adult and juvenile *Strongylocentrotus* spp. were common, and most that were measured for size frequencies were found on the inshore side of the transect in shallow water. *Strongylocentrotus purpuratus* had a density of 3.4/m^2, an increase from recent years. *Strongylocentrotus franciscanus* had a density of 2.3/m^2, also an increase from recent years. Mean sizes for *S. purpuratus* and *S. franciscanus* decreased this year to 26 mm and 45 mm, respectively. *Centrostephanus coronatus* was rare and not observed on 1 m^2 quadrats. *Lytechinus anamesus* was not observed at the site. No sea urchin wasting disease was observed.

Pisaster giganteus was moderately abundant with densities on 5 m^2 quadrats and 1 m^2 quadrats recorded at 0.32/m^2 and 0.17/m^2, respectively, and similar to recent years. All size classes of *P. giganteus* were present, with a mean size of 84 mm. *Patiria miniata* was moderately abundant at a density of 4.4/m^2, the highest density recorded at this site. *Pycnopodia helianthoides* was common at a density of 0.019/m^2, with all size classes present. This is the lowest density recorded since 2002. *Parastichopus parvimensis* was common, but found mostly between 50-100 m on the offshore side. Density was recorded at of 0.042/m^2, similar to recent years. *Ophiothrix spiculata* was common, but not recorded on RPCs. *Pachythyone rubra* was rare directly along the transect, with no cover recorded on RPCs. However, on the inshore side of the transect from 0-40 m *P. rubra* was moderately abundant in high density patches. No sea star wasting disease was observed.

No live *Haliotis* spp. or fresh shells were observed. One old *H. rufescens* shell that looked like it came from a hatchery-raised abalone was found. *Cypraea spadicea* was abundant and had a density of 0.88/m^2. *Astraea gibberosa* was not observed at the site. *Megastraea undosa* was rare and recorded at a density of 0.042/m^2. *Tegula regina* was rare and not observedon 1 m^2 quadrats. *Kelletia kelletii* was rare at a density of 0.011/m^2. *Megathura crenulata* remained common at a density of 0.069/m^2. *Crassedoma gigantea*was rare at a density of 0.014/m^2. *Crassedoma gigantean* was more common on the onshore side of the transect and several small shells were observed, indicating recent recruitment. *Aplysia californica* was rare and had a density of 0.0028/m^2. *Panulirus interruptus* was not observed at the site.

Similar to past years, fish diversity and abundance were high. *Coryphopterus nicholsii* was common at 2.0/m^2, an increase from last year. *Alloclinus holderi* density remained low at 0.042/m^2. *Lythrypnus dalli* was less abundant than in recent years and none were recorded on 1 m^2 quadrats. Juvenile *Sebastes* spp. were abundant, with large numbers of KGBs present in the kelp canopy and understory algae. Several unidentified *Sebastes* spp. were observed, as well as at least five *Sebastes entomelas*, widow rockfish. However, these were not observed during the roving diver fish counts. Notably few *Paralabrax clathratus* were observed. Roving diver fish counts were performed on July 12th by four divers observing 29 species. Figures summarizing RDFC data can be found in Appendix C.

All five ARMs were intact and monitored for all indicator species. No *Haliotis* spp. were found in the ARMs this year, similar to recent years. Crabs were abundant in the ARMs with several species observed. *Cypraea spadicea* was common at 6.6/ARM, a decrease from last year. *Megathura crenulata* were rare with a density of 1.6/ARM. *Crassedoma giganteum* was common at 3.2/ARM, similar to past years. *Patiria miniata* density remained similar to previous years at 14/ARM. *Pisaster giganteus* density was 7.0/ARM, a decrease from last year. *Strongylocentrotus franciscanus* density was 33/ARM, similar to last year, with a mean size of 39 mm. *Strongylocentrotus purpuratus* density was 19/ARM, similar to last year, with a mean size of 33 mm. *Parastichopus parvimensis* density <10 cm was 1.0/ARM and density >10 cm was 0.80/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
2011 sampling dates: 9/1, 10/20
2011 status: Dominated by *Strongylocentrotus* spp.

Beginning in 2008 we observed the start of a shift from a barren site almost completely devoid of macroalgae and dominated by *Strongylocentrotus* spp. to the beginning of a young, healthy kelp forest. Last year, *Macrocystis pyrifera* dominated the first 80 meters of the transect with an abundance of adult, subadult and juvenile plants. This year, there were some holdfast remnants on the offshore side, but very few live large brown macroalgae were present at the site. Canopy cover was estimated at 0%, a large decrease from 80% canopy cover that was recorded last year. Adult *M. pyrifera* densities were recorded on both 5 m^2 and 1 m^2 quadrats at 0.0050/m^2 and 0.0/m^2, respectively. Subadult and juvenile *M. pyrifera* were not observed. Cover of *M. pyrifera* was 0%, also a decrease from the last three years. *Eisenia arborea* was not observed. *Pterygophora californica*, *Laminaria farlowii*, *Cystoseira* spp., *Gelidium* spp. and *Gigartina* spp. were not observed at the site, same as last year. *Desmarestia* spp. was rare and not observed on RPCs. *Sargassum horneri* was not observed at the site. Green algae and miscellaneous brown algae were rare and not observed during sampling. Miscellaneous red algae cover was 0.67%, similar to last year. Miscellaneous plants, consisting of filamentous diatoms, had a cover of 8.8%. Articulated coralline algae remained rare at 0.0%. Encrusting coralline algae cover was 22%, a decrease from recent years. Bare substrate cover was 55%, the highest recorded since 2001.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover was 3.8%, the lowest recorded at this site. The most abundant invertebrates in this category were hydroids. Tunicates were rare and not observed on RPCs. *Styela montereyensis* was not observed. Sponge cover was 0.33%, similar to recent years. *Tethya aurantia* remained common at 0.064/m^2, the highest density recorded at this site. Most were found in small aggregations and covered in silt. *Diopatra ornata* was scattered around the site, with a cover of 4.5%. *Phragmatopoma californica* was not observed. Miscellaneous bryozoans decreased to 0.67% cover. *Diaperoecia californica* was common but not observed on RPCs. *Urticina lofotensis* was not observed. *Corynactis californica* was common with 1.3% cover. *Balanophyllia elegans* was common but not observed on RPCs. *Astrangia lajollaensis* was moderately abundant with a cover of 12%, similar to last year. *Lophogorgia chilensis* was moderately abundant with a density of 0.16/m^2, similar to last year. *Muricea californica* and *M. fruticosa* were not observed at the site.

Strongylocentrotus purpuratus was moderately abundant, and scattered over much of the transect. *S. purpuratus* density was 23/m^2, an increase from last year. *Strongylocentrotus purpuratus* mean size was 30 mm, similar to last year. *Strongylocentrotus franciscanus* was moderately abundant and scattered across the site with large individuals in crevices. *Strongylocentrotus fransiscanus* density was 4.0/m^2. Mean size was 46 mm, similar to last year. Juveniles of both species were rare. *Lytechinus anamesus* was rare and individuals were relatively large compared to Yellow Banks and Potato Pasture. *Lytechinus anamesus* was sampled on band transects and 1m^2 quadrats at 0.18/m^2 and 0.75/m^2, respectively. *Centrostephanus coronatus* was not observed. No sea urchin wasting disease was observed.

Patiria miniata was common at 0.75/m². *Pisaster giganteus* was moderately abundant and increased from last year with densities of 0.37/m² and 0.33/m² on 5 m^2 and 1 m^2 quadrats, respectively. This is the highest density recorded at this site. *Pycnopodia helianthoides* was rare, at 0.0097/m², same as last year. *Ophiothrix spiculata* was rare and not observed on RPCs. *Parastichopus parvimensis* was rare at 0.04/m². *Pachythyone rubra* was not observed on RPCs, though present in low density patches. No sea star wasting disease was observed.

No live *Haliotis* spp. were observed at the site, though several fresh *H. rufenscens* shells were observed. *Cypraea spadicea* was rare at 0.042/m^2. *Kelletia kelletii* was rare, with a density of 0.0028/m². *Megathura crenulata* density was 0.014/m², similar to last year. *Crassedoma giganteum* was common at 0.0042/m². *Megastraea undosa* was rare at 0.0028/m². *Astraea gibberosa* was not observed. *Tegula regina* was rare and not observed on 1 m^2 quadrats. *Aplysia californica* was rare at 0.011/m². *Panulirus interruptus* was rare with one individual observed at the site and none observed on band transects.

Fish remained moderately abundant and diverse. *Coryphopterus nicholsii* density increased to 2.8/m². *Lythrypnus dalli* was not observed on 1 m^2 quadrats. *Alloclinus holderi* was not observed. Roving diver fish counts were conducted on September 1st by eight divers observing 25 species. Figures summarizing RDFC data can be found in Appendix C.

All six ARMs were sampled for all indicator species. One *Octopus* sp., one *O. rubescens,* and one *O. bimaculoides* were found during sampling. Barnacles were abundant, covering approximately 50% of several ARMs. *Haliotis* spp. were not observed in the ARMs. *Cypraea spadicea* density was 3.8/ARM, similar to last year. *Megastraea undosa, Astraea gibberosa* and *Tegula regina* were not observed. *Megathura crenulata* density was 0.33/ARM. *Crassedoma giganteum* density was 2.8/ARM, a decrease from recent years. *Patiria miniata* density was 36/ARM, the highest recorded at this site. *Pisaster giganteus* was 8.7/ARM, similar to last year. Mean sizes of *P. miniata* and *P. giganteus* were 23 mm and 37 mm, respectively. *Strongylocentrotus franciscanus* density was 25/ARM, similar to last year, with mean size 33 mm. *Strongylocentrotus purpuratus* density was 41/ARM with mean size 35 mm. *Parastichopus parvimensis* <10 cm increased slightly with 12 observed in a single ARM and an overall density of 4.5/ARM. *Parastichopus parvimensis* >10 cm was increased to 3.0/ARM, the highest density recorded since 1997.

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

For the following protocols, 1 m quadrats, 5 m quadrats, and band transects, we had two sets of observers collecting replicate data for each of these techniques in order to quantify observer variability. See Appendix I for more information.

Location: Scorpion Anchorage, Santa Cruz Island
Site #9, SCSA
Year sampling began: 1982
2011 sampling dates: 8/18, 8/19
2011 status: Dominated by *Strongylocentrotus* spp.

This site continued to be dominated by *Strongylocentrotus* spp. There was an increase in large *Strongylocentrotus* spp. at the site, especially at the west end. The area at the west end was a kelp forest last year and has reverted back to an urchin barren this year. No *Macrocystis pyrifera, Eisenia arborea, Pterygophora californica, Laminaria farlowii, Cystoseira* spp., or *Desmarestia* spp. were observed at the site. Density and cover of *M. pyrifera* decreased from previous years and was not observed on 5 m^2 quadrats, 1 m^2 quadrats or RPCs. Canopy cover was absent. *Sargassum horneri* was not observed at the site or inshore of the site. Miscellaneous brown algae and green algae were rare with none observed during RPCs, a decrease from last year. Miscellaneous red algae were rare with a cover of 1.7%. No *Gelidium* spp. or *Gigartina* spp. were observed. Miscellaneous plants, consisting mostly of filamentous diatoms, had a cover of 1.5%. Articulated coralline algae were rare with a cover of 0.67%. Encrusting coralline algae cover was common at 47%. Bare substrate cover was 35%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover remained similar to previous years at 11%. The dominant species in this category was *Spirobranchus spinosus*. Tunicates were rare and not observed during RPCs, a decrease from last year. *Styela montereyensis* was not observed, similar to past years. Sponges were rare with none observed during RPCs. *Tethya aurantia* was common with a density of 0.051/m^2, similar to the last three years which had the highest densities recorded at this site. *Phragmatopoma californica* was not observed during sampling, similar to past years. *Serpulorbis squamigerus* was common at the site, although none were observed during RPCs. *Diopatra ornata* was rare and not observed on RPCs, a decrease from last year. Miscellaneous bryozoans were not observed during RPCs. *Diaperoecia californica* was common at the site, although not observed during RPCs. *Urticina lofotensis* was not observed. *Corynactis californica* was common with a cover of 0.50%. *Astrangia lajollaensis* was moderately abundant with a cover of 2.3%. *Balanophyllia elegans* was common with a cover of 1.3%, similar to past years. Gorgonians were rare with only three small *Lophogorgia chilensis* observed on the transect with a density of 0.0028/m^2, similar to past years. *Muricea californica* and *M. fruticosa* were not observed.

The site was dominated by *Strongylocentrotus* spp. Adult and juvenile *S. franciscanus* were abundant with a density of 6.8/m^2, an increase from last year. Mean size of *S. franciscanus* was 36 mm, a decrease from last year. Adult *S. purpuratus* remained abundant and juveniles were moderately abundant at 62/m^2 with a mean size of 22 mm. Urchin mean sizes increased slightly compared to recent years, especially at the west end of the transect. With macroalgae absent at the west end, *Strongylocentrotus* spp. appear to have moved out of crevices and into the open over much of the site. *Centrostephanus coronatus* was rare with none observed on 1 m^2 quadrats. *Lytechinus anamesus* was rare with densities of 0.0069/m^2 and 0.13/m^2, on band transects and 1m^2 quadrats respectively. On August 19th we observed sea urchin wasting disease in less than 1% of *S. franciscanus.*

Pisaster giganteus was moderately abundant with densities of 0.27/m^2 and 0.38/m^2, on 5 m^2 and 1 m^2 quadrats, respectively. This is the highest density recorded at this site. *Patiria miniata* was

common and consisted of large individuals at a density of 0.54/m². *Ophiothrix spiculata* was rare and not observed during RPCs. *Pycnopodia helianthoides* and was rare with only one large *P. helianthoides* observed at the site, and none observed on band tarnsects for a density of 0.00/m^2. *Parastichopus parvimensis* was moderately abundant with a density of 0.63/m^2. *Pachythyone rubra* was not observed on RPCs. Additionally, *P. ochraceus* was common with a density of 0.0042/m^2 and 0.030/m^2, on band transects and 5 m^2 quadrats respectively. No sea star wasting disease was observed.

Cypraea spadicea was common at 0.13/m². Adult and juvenile *Megastraea undosa* were common at 0.083/m², and had a mean size of 56 mm. *Astraea gibberosa* was not observed. *Tegula regina* remained rare and none were observed on 1 m^2 quadrats. *Kelletia kelletii* was not observed at the site, similar to past years. *Megathura crenulata* was moderately abundant at 0.31/m^2, the highest density recorded at this site. *Crassedoma giganteum* was common at a density of 0.026/m². *Aplysia californica* were rare and less abundant than in recent years with a density of 0.013/m², a decrease from last year. *Panulirus interruptus* was common with most individuals of legal harvest size and at a density of 0.018/m^2.

Fish were moderately abundant and diverse, similar to past years. *Coryphopterus nicholsii* was abundant with a density of 2.0/m^2, an increase from last year. *Alloclinus holderi* remained rare and none were observed on 1 m^2 quadrats. *Lythrypnus dalli* were not observed on 1 m^2 quadrates, similar to past years. Large *Paralabrax clathratus* were observed. Roving diver fish counts were conducted on August 19th by six divers observing 25 species. Figures summarizing RDFC data can be found in Appendix C.

Six out of the seven ARMs were sampled for all indicator species. ARM #2425 was found empty with no bricks inside and was removed from the site. ARMs #2382, #2422 and #2424 were found on their sides. In ARM #2382, at least four layers of bricks were covered in sand. An untagged abandoned cage from a few years ago was unburied from the sand and removed from the site. One *Haliotis rufescens* at 28 mm was observed. *Cypraea spadicea* was more abundant that last year at 14/ARM. *Megastraea undosa* density was 0.33/ARM. No *Megathura crenulata* was present in the ARMs. *Crassedoma giganteum* density increased to 1.5/ARM. *Patiria miniata* was moderately abundant with a density of 3.3/ARM. *Pisaster giganteus* was common at 1.2/ARM. No *Pycnopodia helianthoides* were observed in the ARMs. *Strongylocentrotus franciscanus* density increased to 18/ARM, with a mean size of 26 mm. *Strongylocentrotus purpuratus* density decreased to 31/ARM. Mean size for *S. purpuratus* was 27 mm, similar to recent years. No *Centrostephanus coronatus* were observed. *Parastichopus parvimensis* was moderately abundant with densities of 1.2/ARM and 9.3/ARM for sizes <10 cm and >10 cm, respectively.

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
2011 sampling dates: 8/29, 8/31
2011 status: State of transition

This site has notably changed from last year with less macroalgae and more sea urchins out in the open. Most *Macrocystis pyrifera* were small and dead holdfasts were common, presumably as result of sea urchin grazing. Canopy cover was estimated at 5%. Adult and subadult *M. pyrifera* densities were 0.0/m² and 0.025/m², respectively. Juvenile *M. pyrifera* density was 0.042/m². Overall *M. pyrifera* cover was 0.0%. Adult *Eisenia arborea* and *Pterygophora californica* were common, but none were observed on 1 m^2 quadrats. *Eisenia arborea* and *P. californica* juveniles were rare and also not observed on 1 m^2quadrats. Total cover of *E. arborea* was 1.7% and total cover of *P. californica* was 1.3%. Adult *Laminaria farlowii* was common and juveniles were noticeably absent with densities of 0.083/m² and 0.0/m², respectively. Cover of *L. farlowii* was 0.67%. *Cystoseira* spp. were moderately abundant, with a cover of 5.5%. *Cystoseira* spp. were mostly small individuals and had patchy distribution. *Desmarestia* spp. were absent from the site. *Sargassum horneri* was not observed at the site. Miscellaneous brown algae, consisting mostly of *Dictyota* spp./*Pachydictyon* spp., were common with 0.50% cover. *Gigartina* spp. and *Gelidium* spp. were absent from the site. Miscellaneous red algae were patchy with a cover of 7.0%. Green algae were rare with a cover of 0.0%. Miscellaneous plants, consisting mostly of filamentous diatoms, were common with a cover of 6.2%. Encrusting coralline algae were moderately abundant with a cover of 56%. Articulated coralline algae remained common at 4.5% cover, similar to recent years. Bare substrate cover was similar to last year at 27%.

Miscellaneous invertebrates cover, excluding *Ophiothrix spiculata,* was 8.3%, and consisted mostly of gorgonians and hydroids. Tunicates were rare overall at 1.7% cover. *Styela montereyensis* was not observed, similar to past years. Sponges were common at 1.3% cover. *Tethya aurantia* was moderately abundant at a density of 0.23/m², the highest density recorded at this site though similar to the last three years. *Diopatra ornata* was common with a cover of 0.17%. *Phragmatopoma californica* and *Serpulorbis squamigerus* were not observed, similar to past years. Miscellaneous bryozoans were common with a cover of 1.7%. *Diaperoecia californica* was common, but was not observed during RPCs. No *Urticina lofotensis* were observed. *Corynactis californica* was common with a cover of 0.17%. *Balanophyllia elegans* and *Astrangia lajollaensis* were common with covers of 1.2% and 2.7%, respectively. *Lophogorgia chilensis* was common at a density of 0.042/m², similar to recent years. *Muricea fruticosa* was rare at a density of 0.0028/m². *Muricea californica* was common at a density of 0.019/m², similar to past years. Most *Muricea californica* were largeindividuals, while *M. fruticosa* and *L. chilensis* were mostly small.

Strongylocentrotus spp. were found out in the open more than last year and formed small, localized barrens. *Strongylocentrotus purpuratus* adults were moderately abundant, while juveniles were common. *Strongylocentrotus purpuratus* density was 28/m², the highest recorded density since 2000. *Strongylocentrotus franciscanus* adults were moderately abundant and juveniles were rare. *Strongylocentrotus franciscanus* density was 8.5/m², the highest density recorded at this site. *Strongylocentrotus purpuratus* and *S. franciscanus* were mostly small to medium in size with means of 28 mm and 40 mm, respectively. Adult and juvenile *Lytechinus*

anamesus were common, but very cryptic and small. *Lytechinus anamesus* was recorded on both band transects and 1 m^2 quadrats with densities of 0.57/m^2 and 0.0/m^2, respectively. *Centrostephanus coronatus* was absent from the site. Signs of active predation on *S. purpuratus* by *Pycnopodia helianthoides* were common On August 29th we observed sea urchin wasting disease in less than 1% of *L. anamesus.*

Pisaster giganteus was common and sampled on 5 m^2 quadrats and 1 m^2 quadrats with densities of 0.085/m^2 and 0.13/m^2, respectively, with a mean size of 85 mm. *Patiria miniata* was common at the site at 2.5/m^2, similar to past years. Mean size of *P. miniata* was 59 mm and many were small indicating recent recruitment. *Pycnopodia helianthoides* was common at a density of 0.028/m^2, an increase from last year. A total of 40 *P. helianthoides* were measured at a mean of 316 mm. *Ophiothrix spiculata* was common with a cover of 1.2%. *Pachythyone rubra* was not observed. *Parastichopus parvimensis* was rare with only a few large individuals observed at the site and none were observed during sampling. No sea star wasting disease was observed.

Although no live *Haliotis* spp. were observed along the transect, three fresh *Haliotis rufescens* shells were found measuring 29, 35 and 42 mm, and one *Haliotis corrugata* shell was found at 36 mm. *Megastraea undosa* adults and juveniles were moderately abundant with all sizes present. *Megastraea undosa* density was 0.67/m^2, with a mean size of 64 mm. *Cypraea spadicea* was common at a density of 0.17/m^2. *Astraea gibberosa* and *Tegula regina* were rare and not observed during sampling. *Kelletia kelletii* was more common than at most sites on Santa Cruz and Anacapa Islands with a density of 0.046/m^2. *Megathura crenulata* was rare and mostly small, at a density of 0.011/m^2. *Crassedoma giganteum* was rare at a density of 0.0014/m^2. *Aplysia californica* and *Panulirus interruptus* were not observed during sampling but *P. interruptus* was rare at the site.

Fish abundance and diversity were moderate, similar to last year. *Coryphopterus nicholsii* was common at a density of 1.2/m^2. *Alloclinus holderi* and *Lythrypnus dalli* were not observed on 1 m^2 quadrats. Roving diver fish counts were conducted on August 29th by six divers observing 22 species. Figures summarizing RDFC data can be found in Appendix C.

This year, all 15 ARMS at this site were sampled for all indicator species. We replaced two cages for ARMs #2361 and #2363. Similar to last year, there was abalone recruitment. Two *Haliotis rufescens* at 23 mm and 28 mm and one *Haliotis corrugata* at 24 mm were found in the middle group of ARMs. The East Group of ARMs had four *H. rufescens* at 22 mm, 25 mm, 28 mm, and 29 mm, two *H. corrugata* at 26 mm and 38 mm, and one, *Haliotis assimilis* at 32 mm. *Haliotis rufescens* density was 0.40/ARM with a mean size of 26 mm. *Haliotis rufescens* densities for 2011 and 2010 have been the highest recorded at this site. *Haliotis corrugata* density was 0.20/ARM with a mean of 29 mm. *Haliotis corrugata* densities for 2011 and 2010 have been the highest recorded since 2000. One *H. assimilis* was also observed for a density of 0.070/ARM. *Cypraea spadicea* density was 3.3/ARM, with a mean size of 41 mm. *Tegula regina* density was 0.67/ARM, with a mean size of 20 mm. *Kelletia kelletii* density was 0.20/ARM with a mean of 114 mm. No *Astraea gibberosa* were observed. *Megastraea undosa* density was 0.20/ARM with a mean of 32 mm. *Megathura crenulata* density has steadily increased since the record low of 0.07/ARM in 2005. This year's *M. crenulata* density was 1.0/ARM, with a mean size of 19 mm. *Crassedoma giganteum* density was 0.93/ARM, similar to last year. *Strongylocentrotus franciscanus* density decreased from last year to 27/ARM, with a

mean size of 21 mm. *Strongylocentrotus purpuratus* density remained similar to last year at 165/ARM, with a mean of 37 mm. *Centrostephanus coronatus* was not observed. *Patiria miniata* density was 8.1/ARM with a mean size of 20 mm, similar to past years. *Pisaster giganteus* density was was2.9/ARM with a mean size of 25 mm. *Parastichopus parvimensis* <10 cm and >10 cm were observed at 0.13/ARM and 0.27/ARM, respectively. The ARMs densities of *P. parvimensis* <10 cm have shown a steady decline since 2006. One *Octopus* spp. was observed in the ARMs.

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
2011 sampling dates: 6/3, 7/25
2011 status: Dominated by *Ophiothrix spiculata*

Overall, there was little change as this site remained dominated by *Ophiothrix spiculata*, which appeared more abundant. Most of the transect directly along the line was devoid of macroalgae. There was an increase in *Corynactis californica*, which may have resulted in a few macroalgae individuals near the *C. californica* being protected from grazing by urchins. *Macrocystis pyrifera* was rare with no adults, subadults, or juveniles recorded during sampling. Cover of *M. pyrifera* was 1.2%, which consisted only of juveniles. More *M. pyrifera* juveniles were present on top of the reef. *Eisenia arborea* was rare with no adults or juveniles recorded on 1 m^2 quadrats. Cover of *E. arborea* was 0.17%, which consisted only of juveniles. *Pterygophora californica*, *Laminaria farlowii*, *Cystoseira* spp. and *Desmarestia* spp. were absent from the site, similar to recent years. Miscellaneous brown algae were also rare at 0% cover. *Sargassum horneri* decreased in density from last year with adult and juvenile densities on band transects at 0.000/m^2 and 0.0014m^2, respectively. Cover of *S. horneri* was 0.0%. A small patch of *S. horneri* was present on top of the reef and consisted of small individuals. Miscellaneous red algae were rare with a cover of 8.0%. *Gigartina* spp. and *Gelidium* spp. were not observed. Green algae remained rare with no cover recorded on RPCs. Miscellaneous plant cover, consisting of filamentous diatoms, was common at 14%. Encrusting coralline algae were abundant with a cover of 61%. Articulated coralline algae remained rare at 0.33% cover. Bare substrate cover was 20%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover remained high at 22%. The most common invertebrates in this category were *Spirobranchus spinosus,* and secondly gorgonians, consisting mostly of *Eugorgia rubens*. *Diopatra ornata* and *Serpulorbis squamigerus* were both rare and not observed on RPCs. *Phragmatopoma californica* was not observed. Tunicates were rare at a cover of 0.83%, similar to previous years. *Styela montereyensis* was not observed. Sponges were common with a cover of 0.67%, similar to previous years. *Tethya aurantia* was common and had a density of 0.060/m^2, similar to previous years. Miscellaneous bryozoans were rare with a cover of 0.33%, similar to recent years. *Diaperoecia californica* was rare at a cover of 0.0%. *Urticina lofotensis* was not observed.*Corynactis californica* was moderately abundant at 7.0% cover, the highest recorded at this site. The increased cover of *C. californica* appeared to protect a few macroalgae individuals near the *C. californica* from being grazed by urchins. *Astrangia lajollaensis* was relatively

common and cover was 1.5%. *Balanophyllia elegans* was rare and not observed on RPCs. Gorgonians were moderately abundant, similar to past years. *Eugorgia rubens*, which is not an indicator species, remains abundant at this site. *Lophogorgia chilensis* density was 0.060/m². *Muricea fruticosa* and *Muricea californica* densities were 0.0056/m² and 0.036/m², respectively.

Strongylocentrotus franciscanus was moderately abundant at a density of 7.7/m², similar to last year, and had a mean size of 43 mm. *Strongylocentrotus purpuratus* had a density of 7.5/m², similar to recent years. Mean size of *S. purpuratus* was 27 mm. Juveniles of both *S. franciscanus* and *S. purpuratus* were notably rare. *Lytechinus anamesus* remained rare with a density of 0.0042/m² on band transects and 0.083/m² on 1 m^2 quadrats. *Centrostephanus coronatus* was common at a density of 0.54/m², similar to past years. On June 3rd we observed sea urchin wasting disease in approximately 4% of *S. franciscanus.*

Echinoderm densities remained high with *Ophiothrix spiculata* being most abundant and covering 50% of the bottom, the highest cover recorded for this site. *Pisaster giganteus* was sampled on 5 m^2 and 1 m^2 quadrats and remained common with densities of 0.090/m² and 0.042/m², respectively. *Pisaster ochraceus* was present up to a depth of 45 feet, with approximately eight individuals observed at the site. It is unusual to see this intertidal species at such a depth, but this observation has been made at several of our Santa Cruz Island and Anacapa Island sites over the last few years. *Patiria miniata* was common with a density of 1.8/m², similar to the past eight years. *Pycnopodia helianthoides* was not observed on band transects, similar to previous years, but one was observed at the site. *Pachythyone rubra* was not observed. *Parastichopus parvimensis* was common at a density of 0.50/m², similar to recent years. No sea star wasting disease was observed.

No live *Haliotis* spp. or fresh shells were observed at the site, similar to previous years. *Cypraea spadicea* was observed at a density of 0.083/m^2, similar to past years. *Megastraea undosa* was common but not observed on 1 m^2 quadrats. *Astraea gibberosa* was not observed *Tegula regina* was rare and not observed on 1 m^2 quadrats, similar to previous years. *Kelletia kelletii* density was rare at a density of 0.0014/m², a decrease from last year. *Megathura crenulata* was relatively abundant with a density of 0.44/m², the highest recorded density for this species since 1984. *Crassedoma giganteum* was common at a density of 0.014/m², the lowest density recorded at this site. *Aplysia californica* was rare with a density of 0.0083/m², a decrease from recent years. *Panulirus interruptus* was not observed at the site.

Coryphopterus nicholsii decreased to a density of 0.33/m², the lowest recorded since 1986. It should be noted that sea conditions were severe when 1 m^2 quadrats were conducted. It is likely that this influenced the *C. nicholsii* density. *Alloclinus holderi* density was 0.0/m^2**.** *Lythrypnus dalli* was not observed. Juvenile *Chromis punctipinnis* were observed for the first time this season. Roving diver fish counts were conducted on July 25th by seven divers counting 23 species. Figures summarizing RDFC data can be found in Appendix C.

All six ARMs were monitored for all indicator species. *Strongylocentrotus franciscanus* and *S. purpuratus* were common in the ARMs at densities of 23/ARM and 25/ARM, respectively. Mean sizes of *S. franciscanus* and *S. purpuratus* in the ARMs were 30 mm and 20 mm, respectively. *Cypraea spadicea* was rare at 0.50/ARM, similar to last year. *Megathura crenulata* decreased from last year to 0.50/ARM. *Crassedoma giganteum* was present at 0.83/ARM,

similar to last year. *Tegula regina* was present at 1.2 /ARM. *Patiria miniata* density was 15/ARM. *Pisaster giganteus* was not observed in the ARMs. *Parastichopus parvimensis* <10 cm were absent from the ARMS and *P. parvimensis* >10 cm had a density of 0.33/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
2011 sampling dates: 5/19, 7/1
2011 status: Mature kelp forest

This site continued to be a mature kelp forest with a canopy cover of approximately 50%. *Macrocystis pyrifera* was abundant over most of the transect and consisted mainly of subadults. Adult *M. pyrifera* was abundant at 0.28/m². Juvenile *M. pyrifera* was moderately abundant at 16/m², a decrease from last year's high. Subadult density was 0.98/m², the highest recorded at this site. Cover of *M. pyrifera* was 49%, the highest cover recorded in five years. Adult and juvenile *Eisenia arborea* were moderately abundant, mostly on the tops of rocks, with densities of 0.21/m² and 0.13/m², respectively. Cover of *E. arborea* was 7.7%, the highest cover recorded at this site. No *Pterygophora californica* adults were observed, but *P. californica* juveniles had a density of 0.042/m². Cover of *P. californica* was 0.0%. Adult and juvenile *Laminaria farlowii* were abundant at 8.7/m² and 33/m², respectively. Cover of *L. farlowii* remained similar to last year at 42%. Juvenile *Sargassum horneri* was sampled on 1 m^2 quadrats, 5 m^2 quadrats, and band transects with corresponding densities of 0.0/m², 0.0/m², and 0.0014/m², same as last year. Adult *S. horneri* were not observed at the site. *Sargassum muticum* was common, with many reproductive plants present. *Cystoseira* spp. were common with a cover of 19%. *Desmarestia* spp. were rare with a cover of 0.17%. Miscellaneous brown algae were moderately abundant at 3.0% cover. Miscellaneous red algae were moderately abundant with 31% cover, the highest recorded cover for this site. No *Gelidium* spp. or *Gigartina* spp. were observed on RPCs, although both species were present. Green algae were rare with a density of 0.33%. Miscellaneous plant cover, consisting of filamentous diatoms, was rare and not observed on RPCs. Articulated coralline algae were moderately abundant at 20%. Encrusting coralline algae cover was moderately abundant although this year was the lowest cover recorded for this site at 6%. Bare substrate cover was 14%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, were diverse and abundant with a cover of 15%. The most abundant invertebrates in this category were hydroids, followed by amphipod tube mats. Tunicates were moderately abundant with 16% cover, the highest cover recorded at the site. The last three years have seen the highest cover of tunicates at this site, which have consisted mostly of *Metandrocarpa taylori*. *Styela montereyensis* was not observed. The most abundant tunicate was *Pycnoclavella* sp. Sponges were common although none were observed on RPCs. *Tethya aurantia* was rare at 0.0042/m². *Diopatra ornata* was common at 3.8% cover. *Serpulorbis squamigerus* was common although not observed during RPCs. *Phragmatopoma californica* was also common and scattered around in small aggregations at a cover of 3.8%. Miscellaneous bryozoans were moderately abundant with a cover of 25%, similar to last year, with *Membranipora* sp. being the most common species in this category. *Diaperoecia californica* was common at a cover of 1.0%. *Urticina lofotensis* was not

observed.*Astrangia lajollaensis* was rare with a cover of 0.33%. *Balanophyllia elegans* and *Corynactis californica* were rare and not observed during RPCs. No gorgonians were observed at the site, similar to previous years.

Strongylocentrotus franciscanus was moderately abundant at a density of 4.4/m², similar to past years. Mean size of *S. franciscanus* was 86 mm, continuing to increase since 2007. *Strongylocentrotus purpuratus* was common with a density of 2.6/m², similar to past years. Mean size of *S. purpuratus* was 38 mm. 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 was rare and had densities on 5 m^2 quadrats and 1 m^2 quadrats of 0.0050/m² and 0.0/m^2, respectively. *Patiria miniata* was also rare with none observed on 1 m^2 quadrats and only several 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. *Parastichopus parvimensis* was abundant at a density of 1.2/m², similar to past years. Several *P. parvimensis* were observed with white blotches. No sea star wasting disease was observed.

Haliotis corrugata was rare, with one individual observed on band transects, at a density of 0.0014/m², similar to recent years. It measured 146 mm. No other *H. corrugata* were observed at the site. *Cypraea spadicea* was common at a density of 0.042/m², similar to previous years. *Megastraea undosa* was common at 0.17/m², similar to recent years. *Astraea gibberosa* was not observed. *Tegula regina* was rare with none observed during sampling. *Kelletia kelletii* was not observed at the site. *Megathura crenulata* was not observed at the site. *Crassedoma giganteum* was common at 0.0097/m², the lowest recorded density at this site. *Aplysia californica* was rare and not observed on band transects. *Panulirus interruptus* was abundant and density remained similar to recent years at 0.058/m², the highest recorded density since 1993.

Similar to past years, fish were abundant and diverse. *Coryphopterus nicholsii* was present at a density of 0.13/m², similar to last year. *Alloclinus holderi* was not observed on 1 m^2 quadrats for the first time at this site since sampling began. *Lythrypnus dalli* was not observed. One juvenile *Sebastes saxicola*, stripetail rockfish, was observed. *Sebastes mystinus* that appear to be from the 2009 recruitment cohort were common at the site. Roving diver fish counts were conducted on May 19th by six divers counting 26 species. Figures summarizing RDFC data can be found in Appendix C.

All seven ARMs were sampled for all indicator species and all were in good condition. ARM #2429 had sediment covering the bottom layer of bricks. The non-native bryozoan *Watersipora subtorquata* was noted as growing on one of the the ARMs. Eight *Octopus* spp. were found in the ARMs with one guarding a clutch of eggs. Eleven *Cypraea spadicea* egg masses along with two individuals with juvenile morphology were observed in the ARMs this year. *Cypraea spadicea* were recorded at a density of 11.0/ARM. One juvenile *Haliotis fulgens* was observed for a density of 0.14/ARM. No *Megastraea undosa* or *Megathura crenulata* were observed in the ARMs, same as last year. *Kelletia kelletii* were absent in all ARMs, a decrease from last year. *Crassedoma giganteum* density was 2.0/ARM, a decrease from last years' high density, but

similar to previous years. *Patiria miniata* density was 5.7/ARM, a slight increase from last year, but relatively low compared to previous years. *Pisaster giganteus* density was 7.1/ARM, similar to last year. *Strongylocentrotus franciscanus* density increased to 100/ARM, the highest density since 2006. *Strongylocentrotus purpuratus* density increased to 153/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 3.6/ARM and 1.5/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
2011 sampling dates: 6/2, 6/17, 7/11
2011 status: Mature kelp forest

Overall, the site was similar to recent years with all indicator algae present in similar abundances. The site remains a mature kelp forest with a thick understory of brown and red algae. Canopy cover was estimated at 5%, likely due to the high volume of boat traffic this cove receives. *Macrocystis pyrifera* adults were common and density was 0.050/m², similar to last year. Subadult density decreased from last year to 0.050/m². Juveniles were moderately abundant at 22/m², a decrease from last year's record high. Cover of *M. pyrifera* was 6.5%, similar to last year. Adult *Eisenia arborea* was moderately abundant on top of the reef, for a density of 1.6/m². Juvenile *E. arborea* was abundant with a density of 1.9/m². Cover of *E. arborea* was 15%. Adult *Pterygophora californica* was moderately abundant at a density of 1.9/m², the highest recorded at this site. *Pterygophora californica* juveniles were abundant at11/m², a decrease from last year. *Pterygophora californica* cover was observed at 14%, similar to recent years. *Laminaria farlowii* remained abundant with adult and juvenile densities of 5.8/m² and 28/m², respectively; both similar to last year. *Laminaria farlowii* cover was observed at 16%, a decrease from recent years. *Cystoseira* spp. were common with a cover of 1.5%, similar to last year. *Desmarestia* spp. were common in the low-lying areas and had a cover of 1.4%, also similar to last year. Miscellaneous brown algae cover was 0.75% and consisted of mostly *Dictyota* spp. and *Pachydictyon* spp. Miscellaneous red algae cover was similar to recent years at 26%. Although *Gelidium* spp. were moderately abundant, cover was observed at 5.3%, the lowest recorded cover since 1988. As usual, *Gelidium* spp. was mostly observed on top of the reef at the eastern end of the transect. *Gigartina* spp. were rare with a cover of 0.17%. Green algae cover was 0.33%. Articulated coralline algae cover was 6.8%, the lowest recorded cover since sampling began in 1982. Encrusting coralline algae cover remained low relative to past years, and the lowest on record for this site at 6.3%. Miscellaneous plant cover, consisting of filamentous diatoms, was common with a cover of 0.25%. Bare substrate cover remained similar to last year at 8.1%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover was similar to recent years at 9.1%. The most common invertebrates in this category were hydroids. Tunicates were moderately abundant and diverse on the top of the reef with a cover of 4.1%, similar to last year. *Styela montereyensis* was not observed. Sponges were moderately abundant and diverse in high relief areas at 1.3% cover, similar to last year. *Tethya aurantia* density was 0.019/m². *Diopatra ornata* was rare and not observed during sampling, a decrease from last year. *Phragmatopoma*

californica was common with a cover of 1.2%, similar to recent years. *Serpulorbis squamigerus* was common with 0.25% cover. Miscellaneous bryozoans were moderately abundant with a cover of 4.5%, the lowest recorded since 1998. *Diaperoecia californica* was moderately abundant on top of the reef with a cover of 2.3%, similar to last year. *Urticina lofotensis* was not observed. *Corynactis californica* was moderately abundant at 1.8% cover, similar to recent years. *Astrangia lajollaensis* was common with a cover of 0.42%. *Balanophyllia elegans* was rare and not observed during sampling. *Lophogorgia chilensis* and *Muricea californica* were rare and both had a density of 0.0014/m², similar to last year. No *Muricea fruticosa* was observed at the site.

Strongylocentrotus franciscanus was common at 4.3/m², similar to last year. Mean size of *S. franciscanus* decreased to 68 mm. *Strongylocentrotus purpuratus* was moderately abundant with a density at 8.0/m², slightly higher than recent years. Mean sizes of *S. purpuratus* decreased to 26 mm. *Centrostephanus coronatus* was common but not observed on 1 m^2 quadrats. *Lytechinus anamesus* was not observed during sampling, similar to past years. No sea urchin wasting disease was observed.

Pisaster giganteus was rare and was sampled on both 5 m^2 and 1 m^2 quadrats with densities of 0.0050/m² and 0.0/m^2, respectively. *Patiria miniata* was rare and not observed on 1 m^2 quadrats, similar to past years. *Pycnopodia helianthoides* was not observed at the site, also similar to past years. *Ophiothrix spiculata* was common in kelp holdfasts, but rare throughout the site, and had an overall cover of 0.33%. *Pachythyone rubra* was not observed. *Parastichopus parvimensis* was moderately abundant in the low lying areas with an overall density of 0.42/m². No sea star wasting disease was observed.

Haliotis corrugata was rare with none observed on band transects. One individual was found that measured 175 mm. One fresh *H. corrugata* shell was found that measured 92 mm. *Cypraea spadicea* was common at 0.13/m², same as last year. *Megastraea undosa* density remains low compared to the early 2000s with a density of 0.083/m². *Astraea gibberosa* and *Tegula regina* were not observed. *Kelletia kelletii* was rare and not observed on band transects, a decrease from last year. *Megathura crenulata* was rare at 0.022/m², an increase from last year. *Crassedoma giganteus* was common, but remain less abundant compared to pre-2009 years. Density was recorded at 0.046/m², the lowest recorded at this site. *Aplysia californica* was not observed at the site. *Panulirus interruptus* was moderately abundant at 0.033/m², an increase from recent years.

Similar to past years, fish were abundant and diverse. *Coryphopterus nicholsii* was common throughout the site but not observed during 1 m^2 quadrats, a decrease from last year. *Alloclinus holderi*, and *Lythrypnus dalli* were not observed during 1 m^2 quadrats. Roving diver fish counts were conducted on June 17th by seven divers observing 35 species. Figures summarizing RDFC data can be found in Appendix C.

All six ARMs were sampled for all indicator species. One *Haliotis corrugata* were observed in the ARMs for a density of 0.20/ARM and were measured at 39 mm. The density of *C. spadicea* in the ARMs was 6.3/ARM. Small *Kelletia kelletii* were observed in the ARMs with a density of 1.0/ARM. *Megastraea undosa* density was 0.17/ARM, low for this site. *Megathura crenulata* density remained low at 0.33/ARM, similar to past years. *Crassedoma giganteum* density was 4.7/ARM, similar to last year. *Tegula regina* was not observed. *Patiria miniata* density was

similar to last year at 6.1/ARM. *Pisaster giganteus* density was high at 11/ARM, the highest density observed since sampling began. *Strongylocentrotus franciscanus* density was higher than last year at 112/ARM. *Strongylocentrotus purpuratus* density was 249/ARM, similar to recent years. *Parastichopus parvimensis* density was 3.2ARM <10 cm and 4.0/ARM >10 cm, an increase in individuals <10 cm compared to last year. *Octopus* spp. were moderately abundant with thirteen 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
2011 sampling dates: 5/17, 6/14, 6/16
2011 status: Dominated by *Ophiothrix spiculata* and *Strongylocentrotus* spp.

Due to a major oversight by the KFM staff, this monitoring site was mistakenly sampled twice this season. During our first monitoring cruise to Santa Barbara Island, we arrived on May 17th at what we thought was our Southeast Reef site. We proceeded to sample the entire site taking notes on how dramatically the site had changed from last year. It was not until our second visit to Santa Barbara Island during the week of June 13th -17th that we discovered a discrepancy with the dates on the temperature logger units we retrieved from our Southeast Sea Lion Rookery site that we sampled on June 14th. This discrepancy eventually warranted two KFM staff to make a special visit to Santa Barbara Island on June 22nd to dive our Southeast Reef site. The divers reported that Southeast Reef looked very similar to last year and it became instantly obvious that we had sampled Southeast Sea Lion Rookery on May 17th, not our Southeast Reef site. In the end, all sites were sampled and data from both Southeast Sea Lion Rookery and Southeast Reef were collected and entered appropriately into the KFM database. In this site summary for Southeast Sea Lion Rookery, we report on the data collected during our first visit on May 17th with the data from our second visit on June 14th following in parenthesis. The two sampling dates were approximately one month apart and the site appears to have changed little during that time.

This site remains dominated by *Ophiothrix spiculata* and *Strongylocentrotus purpuratus* and was mostly devoid of macroalgae. Last year's increase in abundance of algae, consisting mainly of *Desmarestia* spp., was not observed this season. The low abundance of *Macrocystis pyrifera* adults, subadults and juveniles that was observed throughout the site last year was not observed this season. *Macrocystis pyrifera* was absent during sampling with a cover of 0.0% (0.0%), although a few subadults were observed growing epiphytically on gorgonians. No *Eisenia arborea, Laminaria farlowii* or *Pterygophora californica* were observed during sampling, same as last year, but juvenile *E. arborea* were rare to the site in May. *Cystoseira* spp. were rare with no cover observed on either visit, similar to previous years. *Desmarestia* spp. cover decreased from last year and was not observed during sampling, although small patches were observed during our June visit. Other brown algae were rare with a cover of 0.0% (0.0%) and consisted mostly of *Dictyota* spp. and *Pachydictyon* spp. *Sargassum horneri* juveniles were observed at the site, but not observed on the sampling protocols for a density of 0.0/m^2 (0.0014/m^2). Adult *S. horneri* were not observed (0.0/m^2). Last year we observed *S. horneri* in both the adult and juvenile stages at this site. Miscellaneous red algae were rare during our May visit with 0.83% cover and common during our June visit at 1.2%. This category consisted mostly of *Laurencia*

pacifica. During both visits, *Gelidium* spp. were not observed. *Gigartina* spp. were observed growing epiphytically on gorgonians but were not observed during RPCs. Green algae were rare with a cover of 0.0% (0.0%), similar to past years, and consisted mainly of *Codium* spp. Miscellaneous plant cover was 0.0% (0.17%). Encrusting coralline algae were abundant with a cover of 74% (68%), similar to last year. Articulated coralline cover was 0.17% (0.0%). Bare substrate cover was 19% (25%).

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover was 6.2% (5.8%), similar to recent years. Anemones were the most abundant taxa in this category during our first visit and gorgonians were most abundant during our second visit. Tunicates were rare with a cover of 0.33% (1.0%). *Styela montereyensis* was not observed. Sponges were common with a 1.0% (0.17%) cover. *Tethya aurantia* was moderately abundant with a density of 0.18/m² (0.20/m²), the highest records at this site. All sizes of *T. aurantia* were present. Miscellaneous bryozoans were common with a cover of 0.17% (1.0%). *Diaperoecia californica* was not observed on RPCs but was observed at the site during both visits. *Urticina lofotensis* was not observed. *Corynactis californica* was common with a cover of 1.2% (2.0%), similar to past years. *Astrangia lajollaensis* cover was 0.33% (0.17%). *Balanophyllia elegans* was rare during both visits and not observed on RPCs. *Lophogorgia chilensis* was common with a density of 0.10/m² (0.13/m²), similar to recent years. *Muricea californica* was also common at 0.026/m² (0.028/m²). *Muricea fruticosa* was rare at a density of 0.0014/m² (0.0/m²).

Strongylocentrotus purpuratus density increased from last year to 48/m² (50/m²) with a mean size of 23 mm (21 mm). Juvenile *S. purpuratus* were common. *Strongylocentrotus franciscanus* was common at 4.8/m² (5.4/m²), similar to last year. The mean size of *S. franciscanus* was 43 mm (40 mm), the largest mean size since 1992. Juvenile *S. franciscanus* were relatively uncommon compared to past years. *Lytechinus anamesus* remained rare with a density of 0.0028/m² (0.0014/m²). *Centrostephanus coronatus* was moderately abundant during our first visit at 0.29/m² and common during our second visit at 0.042/m². During our second visit in June, we observed sea urchin wasting disease in an estimated 1% of both *S. purpuratus* and *S. franciscanus*.

Pisaster giganteus densities on 5 m^2 quadrats and 1 m^2 quadrats were 0.025/m² (0.010/m²) and 0.0/m² (0.0/m²), respectively, similar to last year. The density of *Patiria miniata* increased to 1.3/m² (0.50/m²) this year. The observation in May is the highest density of *P. miniata* on record for this site. *Pycnopodia helianthoides* was rare with a density of 0.0014/m² (0.0/m²). *Ophiothrix spiculata* covered the entire site, similar to last year, and percent cover increased to 84% (63%). The cover observed during our May visit was the highest cover of *O. spiculata* on record for this site. *Pachythyone rubra* was not observed. *Parastichopus parvimensis* was common with a density of 0.25/m² (0.38/m²). No sea star wasting disease was observed.

No live *Haliotis* spp. or fresh shells were observed. *Cypraea spadicea* was common at 0.0/m² (0.13/m²). *Megastraea undosa* was common at the site but not observed during sampling. *Astraea gibberosa* was not recorded on 1 m^2 quadrats but a few were observed at the site on both visits. *Tegula regina* was common with a density of 0.25/m² (0.0/m²), similar to years past. *Kelletia kelletii* was not observed during sampling but one was observed at the site in June. *Megathura crenulata* was rare with a density of 0.0028/m² (0.0028/m²). *Crassedoma giganteum* was rare at 0.0097/m² (0.0083/m²). *Aplysia californica* was common with a density of 0.0014/m²

(0.0015/m²), similar to past years. *Panulirus interruptus* were common with a total of three observed at the site in May and six observed at the site in June. Density of *P. interruptus* was 0.0014/m² (0.0056/m²).

Overall, there was relatively moderate fish diversity and abundance at this site. *Coryphopterus nicholsii* was common with a density of 1.2/m² (0.33/m²). *Alloclinus holderi* was rare at 0.0/m² and (0.083/m²). *Lythrypnus dalli* was not observed. During both visits, one very large *Stereolepis gigas*, black sea bass, was observed and estimated to be approximately two meters in length. Several small female and one small male *Semicossyphus pulcher* were observed. Three juvenile *Sebastes saxicola*, stripetail rockfish, were also observed. Roving diver fish counts were conducted on May 17nd (June 14th) with four divers (six divers) observing 16 (22) species. Figures summarizing RDFC data can be found in Appendix C.

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
2011 sampling dates: 5/16, 5/17
2011 status: Dominated by *Strongylocentrotus* spp.

Similar to previous years, macroalgae were rare and what little algae were present were located primarily on the tops of large rocks. *Macrocystis pyrifera* and *Eisenia arborea* were not observed during sampling, though present at the site. No *Laminaria farlowii, Pterygophora californica,* or *Desmarestia* spp. were observed at the site. *Cystoseira* spp. were rare and not observed on RPCs. Miscellaneous brown algae were common and had a cover of 0.17%, similar to past years. This category consisted mostly of *Dictyota* spp. and *Pachydictyon* spp. No *Sargassum horneri* was observed at the site. Miscellaneous red algae were common, consisting mostly of *Laurencia pacifica,* and had a cover of 11%, a decrease from recent years. *Gigartina* spp. and *Gelidium* spp. were both rare and not observed during sampling. Articulated coralline algae were rare with a cover of 0.0%. Encrusting coralline algae were abundant with a cover of 43%. Green algae remained rare at 0.33%. Bare substrate cover was 34%, similar to last year.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 10%. The most common invertebrate in this category was *Spirobranchus spinosus.* Both *S. spinosus* and barnacles appeared less abundant than in recent years. Tunicates were rare and not observed during RPC's. *Styela montereyensis* was not observed. *Serpulorbis squamigerus* was common, although not observed during sampling. Sponges were rare with 0.0% cover. *Tethya aurantia* was rare at a density of 0.0014/m². Miscellaneous bryozoans were common with a cover of 1.5%. *Diaperoecia californica* was not observed on RPCs. *Urticina lofotensis* was not observed. *Corynactis californica* was notably more abundant than in recent years at 14% cover. In the past 28 years, *C. californica* has gone through three distinct cycles of high and low percent cover and this year's observations have been the highest recorded cover at this site. *Astrangia lajollaensis* was moderately abundant at 0.17% cover. *Balanophyllia elegans* was rare and not observed on RPCs. *Phragmatopoma californica* were common at the site but not observed during sampling. *Lophogorgia chilensis* and *Muricea californica* were both rare at 0.0028/m² and 0.0014/m²,

respectively, similar to past years. *Muricea fruticosa* was absent with none observed, similar to past years.

Strongylocentrotus purpuratus was abundant over most of the site. *Strongylocentrotus purpuratus* density was 137/m², similar to previous years. Juvenile *S. purpuratus* (<7 mm) were less common compared to recent years. The mean size of *S. purpuratus* increased for the third consecutive year to 17 mm. *Strongylocentrotus franciscanus* juveniles and adults were common with a density of 6.0/m², similar to last year. *Strongylocentrotus franciscanus* mean size was 37 mm, a decrease from last year. *Lytechinus anamesus* was common with density of 0.24/m². *Centrostephanus coronatus* was common at a density of 0.25/m², with several small (<25 mm) individuals present. No sea urchin wasting disease was observed.

Pisaster giganteus was common and had densities on 1 m^2 quadrats and 5 m^2 quadrats of 0.0/m^2 and 0.15/m², respectively. *Patiria miniata* was abundant, with many size classes present, at a density of 3.3/m², similar to recent years. *Pycnopodia helianthoides* had a density of 0.0014/m². *Ophiothrix spiculata* was not observed at the site. *Parastichopus parvimensis* was rare and had a density of 0.083/m², similar to past years. *Pachythyone rubra* was rare with a few individuals scattered around but not observed during RPCs. No sea star wasting disease was observed.

No *Haliotis* spp. were observed at the site. *Cypraea spadicea* was common at a density of 0.29/m². *Megastraea undosa* was common and had a density of 0.13/m^2. Most of the *M. undosa* consisted of large individuals, though one 6 mm individual was observed indicative of recent recruitment. *Astraea gibberosa* was not observed. *Tegula regina* was moderately abundant with a density of 0.29/m². *Kelletia kelletii* was not observed at the site. *Megathura crenulata* was rare at a density of 0.0056/m², consisting mostly of large individuals. *Crassedoma giganteum* was common at a density of 0.0083/m². Several small shells were observed, indicative of recent recruitment. *Aplysia californica* was moderately abundant, consisting mostly of small individuals (5-15mm), at a density of 0.16/m², similar to previous years. *Panulirus interruptus* was common with a density of 0.0042/m². Large *Octopus* sp. appeared notably more abundant than has been seen at this site, with many being active and out in the open.

Fish abundance and diversity was higher than in previous years. *Sebastes mystinus* that appear to be from the 2009 recruitment cohort (~14-17 cm) were common at the site. Three young-of the-year *S. mystinus* were observed. There was a noticeable recruitment event of *Coryphopterus nicholsii* along the outer edge of the transect area where we typically observe them. Most *C. nicholsii* individuals were small, of the same size. Density of *C. nicholsii* was 0.79/m². *Alloclinus holderi* and *Lythrypnus dalli* were not observed.A large school of up to 20,000 unidentified fish larvae was observed. Roving diver fish counts were conducted on May 16th, by seven divers observing a total of 24 species. Figures summarizing RDFC data can be found in Appendix C.

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
2011 sampling dates: 6/14
2011 status: Dominated by *Strongylocentrotus purpuratus*

In 2010, this site was in a state of transition with more algae present than had been observed here since the mid-1990s. However, this year the site was once again nearly devoid of macroalgae. No *Macrocystis pyrifera*, *Eisenia arborea*, *Pterygophora californica* or *Laminaria farlowii* was observed at the site. *Desmarestia* spp. and *Cystoseira* spp. were not observed during sampling but were noted at the site. *Sargassum horneri* was not observed at the site. Miscellaneous brown algae decreased from last year's record high to a cover of 0.0%. No *Gelidium* spp. or *Gigartina* spp. were observed at the site, similar to past years. Miscellaneous red algae cover decreased from 17% to 2.5%. The miscellaneous plant category, consisting mainly of filamentous diatoms, also decreased in cover from 14% to 0.17%. Both articulated coralline algae and encrusting coralline algae covers remained similar to last year at 0.5% and 41%, respectively. Bare substrate cover was 25%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover increased to 19%, the highest recorded at this site. This category consisted mostly of anemones, specifically *Sagartia* spp. and *Cactosoma* spp., a few hydroids and amphipod tube mats. The non-indicator species *Spirobranchus spiculata*, was common but not as abundant as in recent years. *Serpulorbis squamigerus* was common, but not observed on RPCs. *Diopatra ornata* was not observed at the site. Tunicates were common with a cover of 0.67%, similar to recent years. Sponges were rare and had a cover of 0.17%. *Tethya aurantia* was rare with a density of 0.0083/m². *Styela montereyensis* was not observed. *Phragmatopoma californica* cover increased from last year to 8.5% and was present over most of the site in higher than normal densities. *Phragmatopoma californica* has been common at other Santa Barbara Island sites this year as well. Miscellaneous bryozoan cover was 1.3%. *Diaperoecia californica* was rare with none observed during RPCs. *Urticina lofotensis* was not observed. *Corynactis californica* was common with a cover of 1.0% and no noticeable increase was observed in this species at this site like we observed at other Santa Barbara Island sites this season. *Astrangia lajollaensis* and *Balanophyllia elegans* were both common with covers of 0.50% and 1.3%, respectively. All three gorgonian species were rare with only *Muricea californica* observed during sampling at a density of 0.0014/m².

Strongylocentrotus spp. continued to be notably abundant. *Strongylocentrotus purpuratus* juveniles were moderately abundant and *S. franciscanus* juveniles were common under conspecifics. *Strongylocentrotus purpuratus* density increased to 80/m². *Strongylocentrotus purpuratus* mean size remained low at 20 mm. *Strongylocentrotus franciscanus* density was 11/m², similar to last year. Mean size of *S. franciscanus* was 37 mm, an increase from recent years. *Lytechinus anamesus* was rare with a density of 0.0014/m². *Centrostephanus coronatus* was not observed during sampling, but was common at the site and a few were notably smaller than we have seen elsewhere on this island. Sea urchin wasting disease was present in an estimated 5% of *S. franciscanus* and 1% *S. purpuratus.*

Pisaster giganteus densities on 5 m^2 quadrats and 1 m^2 quadrats were 0.15/m² and 0.042/m², respectively, an increase from last year. *Patiria miniata* density was 0.17/m², similar to recent years, and most were small with a few large individuals present. *Pycnopodia helianthoides* was

not observed at the site. *Ophiothrix spiculata* was rare and not observed on RPCs. *Pachythyone rubra* was not observed. *Parastichopus parvimensis* density was 0.21/m², similar to last year, and some were noticeably small in size. No sea star wasting disease was observed.

Four juvenile *Haliotis corrugata* were found and had a mean size of 30 mm. Two fresh *H. corrugata* shells were also found and measured at 27 mm and 32 mm. *Cypraea spadicea* was common at 0.042/m², similar to past years. *Megastraea undosa* density remained moderately abundant at 0.88/m². Mean size of *M. undosa* was 58 mm. *Astraea gibberosa* was not observed. *Tegula regina* density was 0.42/m², with several size classes present though no juveniles. *Kelletia kelletii* remained rare and none were observed during sampling. *Megathura crenulata* remained rare with both adults and juveniles present at 0.0083/m². *Crassedoma giganteum* was rare at 0.011/m². *Aplysia californica* was abundant with a density of 0.36/m², similar to last year, with many size classes present. *Panulirus interruptus* was rare and not observed during band transects, although one individual was observed at the site.

Overall, fish diversity and abundance remained low. *Coryphopterus nicholsii* density was 0.083/m², a decrease from last year. *Alloclinus holderi* was rare with a density of 0.042/m². *Lythrypnus dalli* was not observed. Roving diver fish counts were conducted on June 14th by seven divers observing 24 species. Figures summarizing RDFC data can be found in Appendix C.

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
2011 sampling dates: 10/5
2011 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 85% of the site. Adult *M. pyrifera* were moderately abundant with a density of 0.25/m² and most were notably large with high numbers of stipes. Subadult and juvenile *M. pyrifera* densities were 0.14/m² and 1.0/m², respectively. Overall cover of *M. pyrifera* was 10%, similar to recent years. *Eisenia arborea* adults were moderately abundant with a density of 0.21/m² and juveniles were common at 0.083/m². *Eisenia arborea* cover was 4.2%, a decrease from last year and the lowest cover recorded for this species at this site. Densities of adult and juvenile *Pterygophora californica* both increased slightly to 0.67/m² and 2.4/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.

were common with a cover of 0.5%. *Desmarestia* spp. were common with a 6.7% cover. *Sargassum horneri* was not observed at the site. Miscellaneous green algae and miscellaneous brown algae were both common with covers of 0.17% and 2.7%, respectively. Miscellaneous red algae were abundant at 59% and this category included *Cryptopleura* sp., *Botryoglossum* sp., and *Callophylis* sp. *Gigartina* spp. were common to the site but were not recorded on RPCs for the first time since sampling began at this site. *Gelidium* spp. cover was 0.0%. Miscellaneous plants, consisting of filamentous diatoms, had a cover of 0.0%. Articulated coralline cover was 19%, similar to past years, and encrusting coralline cover was 23%. Bare substrate cover was 19%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* weremoderately abundant at 15% cover. The most common invertebrates in this category were hydroids. Tunicates were moderately abundant and diverse with a 20% cover. *Styela montereyensis* was common with a density of 0.13/m², similar to last year. Sponges were abundant and diverse with a cover of 3.7%. *Tethya aurantia* density was 0.28/m², an increase from last year, and the highest density recorded at this site. *Phragmatopoma californica* was rare with a cover of 0.67%. *Serpulorbis squamigerus* was rare with a cover of 0.0%. *Diopatra ornata* cover was similar to recent years at 0.33%. Miscellaneous bryozoans cover was 13%, similar to recent years. *Diaperoecia californica* was rare and not observed on RPCs. *Urticina lofotensis* was moderately abundant at 0.26/m². *Corynactis californica* was common with a cover of 0.50%. *Balanophyllia elegans* was common with cover of 1.3%. *Astrangia lajollaensis* was rare at the site with a cover of 0.0%. No gorgonians were observed at the site.

Strongylocentrotus spp. abundance remained relatively low. *Strongylocentrotus franciscanus* was common in small patches deep in cracks and crevices. The density of *S. franciscanus* was 1.8/m² with mean size of 75 mm, slightly smaller than in recent years. *Strongylocentrotus purpuratus* was rare and even with a moderate search effort we could not locate 200 individuals for size frequencies. The density of *S. purpuratus* was 0.13/m², same as last year, with a mean of 30 mm. Juvenile *S. franciscanus* were common while juvenile *S. purpuratus* were rare. No *Centrostephanus coronatus* or *Lytechinus anamesus* were observed. No sea urchin wasting disease was observed.

Pycnopodia helianthoides was common with a density of 0.024/m². Most were small to medium in size with a mean of 93 mm. *Patiria miniata* was moderately abundant at 3.3/m². *Pisaster giganteus* was also moderately abundant and observed on 5 m^2 quadrats and 1 m^2 quadrats with densities of 0.19/m²and0.46/m², respectively, a decrease from last year. Most *P. giganteus* were small, similar to past years and a mean of 79 mm was observed. Several *Pisaster ochraceous* were observed and they were recorded on 5 m^2 quadrats for a density of 0.015/m². *Ophiothrix spiculata* was not observed during sampling. *Pachythyone rubra* was not observed. *Parastichopus parvimensis* was rare at 0.083/m², similar to recent years. No sea star wasting disease was observed.

Haliotis rufescens was abundant with observed densities on band transects and 1 m^2 quadrats of 0.75/m² and 0.42/m^2, respectively, similar to past years. Most *H. rufescenes* were large, but smaller ones (~100-150 mm) were also common. A total of 178 *H. rufescens* were measured for size frequencies with a mean of 184 mm, same as last year. Juvenile *H. rufescens* were rare. *Cryptochiton stelleri* were sampled on band transects at a density of 0.0028/m^2 *Astraea gibberosa* was moderately abundant and variable in size with a density of 0.50/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, although a few *Cypraea spadicea* were observed at the site. *Kelletia kelletii* was common at 0.024/m², similar to years past. *Megathura crenulata* density was 0.028/m². *Crassedoma giganteum* was common and mostly small in size with a density of 0.021/m² on band transects. *Aplysia californica* was not observed at the site. *Panulirus interruptus* was not observed.

Fish were moderately abundant and diverse, similar to past years. *Coryphopterus nicholsii* was rare and notably large at 0.0/m². No *Lythrypnus dalli* or *Alloclinus holderi* were observed in 1 m^2 quadrats. Roving diver fish counts were conducted on October 5th by six divers observing 23 species. Figures summarizing RDFC data can be found in Appendix C.

Six of the seven ARMs were monitored for all indicator species. The lid on ARM #2471 was ripped off its bolt and upside down. This ARM was still sampled. ARM #2472 was destroyed and the cage was lost. The remaining five ARMs cages were in good condition and none had sand covering the bottom layer of bricks, which has been a problem in past years. A total of six *Haliotis rufescens* were observed in the ARMs for a density of 1.0/ARM, similar to past years, with a decrease in mean size from 133 mm to 80 mm this year. *Astraea gibberosa* was not observed in the ARMs. *Crassedoma giganteum* and *Kelletia kelletii* were not observed. *Patiria miniata* density was 8.3/ARM with a mean size of 38 mm, similar to last year. *Pisaster giganteus* density was 0.50/ARM with a mean size of 25 mm, the smallest mean in our records for this site. Two *Pycnopodia helianthoides* were observed for a density of 0.33/ARM and a mean of 62 mm was recorded. *Strongylocentrotus franciscanus* density was 1.7/ARM with a mean size of 95 mm, the largest mean on record for this site. *Strongylocentrotus purpuratus* was not observed in the ARMs this year for the first time since we began monitoring this site. *Centrostephanus coronatus* was not observed. *Parastichopus parvimensis* was not observed.

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
2011 sampling dates: 7/28
2011 status: Mature kelp forest

Little has changed at this site other than a decrease in macroalgae. 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 60%, similar to last year. Density of adult and *M. pyrifera* decreased from recent years to 0.030/m², while subadult density remained similar to last year at 0.050/m². Juvenile *M. pyrifera* density was 0.42/m², similar to recent years. Cover decreased for the third consecutive year to 4.7%. *Eisenia arborea* was common with adult and juvenile densities at 0.38/m² and 0.083/m², respectively, similar to last year. Cover decreased from last year to 4.5%. *Pterygophora californica* adult and juvenile densities were recorded at 1.4/m² and 0.58/m², respectively. Cover was recorded at 17%, a decrease from recent years. *Laminaria farlowii* was not observed at the site. *Desmarestia* spp. were common and had a cover of 1.7%. *Cystoseira* spp. had a cover of 0.50%. *Sargassum horneri* was not observed. Miscellaneous brown algae cover was 1.8%, similar to recent years. Green algae were rare, and

were not observed on RPCs. Miscellaneous red algae were moderately abundant with a cover of 65%, similar to recent years. *Gigartina* spp. were rare with a cover of 1.2%. Articulated coralline algae cover remained low at 2.5%. Encrusting coralline algae had a cover of 26%, a decrease from last year. Bare substrate cover was 13%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* was high at 20% cover and the most dominant taxa in this category were hydroids, followed by cucumbers. Sponges were moderately abundant at 7.2% cover, an increase from last year. *Tethya aurantia* density was 0.38/m², a decrease from the last two years. Tunicates were moderately abundant at 5.3% cover, a decrease from last year. *Styela montereyensis* density was 1.2/m², an increase from last year and the highest density recorded at this site. *Serpulorbis squamigerus* was rare and had a cover of 0.17%. *Phragmatopoma californica* was moderately abundant and had a cover of 5.2%, an increase from recent years. *Diopatra ornata* was moderately abundant and had a cover of 11%, an increase from recent years. Miscellaneous bryozoans were common with a cover of 6.0%, a decrease from recent years. *Diaperoecia californica* was rare and was not observed on RPCs. *Urticina lofotensis* density was similar to last year at 0.078/m², with many small individuals observed. *Corynactis californica* was common throughout the site, but no cover was recorded on RPCs. *Balanophyllia elegans* and *Astrangia lajollaensis* covers were low at 1.3% and 0.17%, respectively. *Lophogorgia chilensis, Muricea californica* and *Muricea fruticosa* were not observed.

Strongylocentrotus spp. were common at the site, similar to last year. However, they have been gradually increasing in density since we began monitoring in 2005. *Strongylocentrotus franciscanus* density was 6.0/m², with a mean size of 65 mm. *Strongylocentrotus purpuratus* density was 8.3/m², with a mean size of 40 mm. No *Lytechinus anamesus* or *Centrostephanus coronatus* were observed, similar to previous years. No sea urchin wasting disease was observed.

Pisaster giganteus density remained similar to last year on both 5 m^2 and 1 m^2 quadrats at 0.11/m² and 0.083/m², respectively, with a mean size of 90 mm. *Patiria miniata* was abundant and had a density of 5.0/m², the highest recorded at this site. *Pycnopodia helianthoides* was common with a density of 0.021/m², an increase from last year, and had a mean size of 183 mm. *Parastichopus parvimensis* was common and had a density of 0.17/m². *Ophiothrix spiculata* was rare and had a cover of 0.17/m^2. *Pachythyone rubra* was rare with a cover of 0.33%. No sea star wasting disease was observed.

Haliotis rufescens was rare, with none recorded on band transects. One *H. rufescens* was observed at the site, which was measured at 13 mm. *Cypraea spadicea* was common at a density of 0.21/m². No *Megastraea undosa* or *Astraea gibberosa* were observed. *Kelletia kelletii* was common in the low lying areas and had a density of 0.017/m², a decrease from last year. *Megathura crenulata* was common with a density of 0.035/m². *Crassedoma giganteum* was common and had a density of 0.026/m². *Tegula regina, Aplysia californica,* and *Panulirus interruptus* were not observed, similar to past years.

Fish were moderately diverse and abundant, similar to past years. *Coryphopterus nicholsii* was rare at a density of 0.083/m². *Alloclinus holderi* and *Lythrypnus dalli* were not observed. Roving diver fish counts were performed on July 28th with five divers observing 28 species. Figures summarizing RDFC data can be found in Appendix C.

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
2011 sampling dates: 10/4
2011 status: Dominated by *Strongylocentrotus* spp.

This site has changed from last year with a notable decrease in all macroalgae. *Strongylocentrotus franciscanus* (mostly large individuals) and *Strongylocentrotus purpuratus* (mostly medium-sized individuals) were out in the open and there was an increase in bottom scour. *Macrocystis pyrifera* and *Eisenia arborea* were rare with none observed during sampling. *Pterygophora californica* and *Laminaria farlowii* juveniles were rare and neither species were observed during sampling. No *Cystoseira* spp. were observed. *Desmarestia* spp. were common although none were observed during sampling. *Sargassum horneri* was not observed at the site. Miscellaneous brown and green algae were rare with none observed during sampling. Miscellaneous red algae were common with a cover of 10%, a decrease from last year. *Gigartina* spp. was common with a cover of 0.83%, similar to last year. Articulated coralline algae cover was common at 2.0%. Encrusting coralline algae cover was abundant at 43%, similar to last year. Bare substrate cover was 26%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover decreased to 9.3% with hydroids and barnacles being the most common invertebrates in this category. Tunicates were common with 0.33% cover, a decrease from last year. *Styela montereyensis* was common although none were observed during sampling. Sponges were common although cover decreased from last year to 1.3%. *Tethya aurantia* was abundant at 0.27/m², similar to last year. *Diopatra ornata* was moderately abundant in the low-lying areas at 8.7% cover. *Phragmatopoma californica* was common and scattered around the site in small patches with a cover of 0.50%. Miscellaneous bryozoans were common but decreased in cover to 0.33%. *Diaperoecia californica* was common although none was observed during sampling. *Urticina lofotensis* was moderately abundant at 0.22/m². *Corynactis californica* was moderately abundant and cover was 1.5%. *Balanophyllia elegans* was abundant and cover was 7.0%, an increase from past years. *Astrangia lajollaensis* was common and cover was 3.8%. No *Lophogorgia chilensis* or *Muricea* spp. were observed at the site.

Adult *Strongylocentrotus franciscanus* were moderately abundant and juveniles were common. Density of *S. franciscanus* was 12/m², with a mean size of 67 mm, similar to previous years. Both species of urchins were mostly out in the open with few found in crevice habitats. *Strongylocentrotus purpuratus* was common at 9.1/m^2, a decrease from last year. *Strongylocentrotus purpuratus* had a mean size of 34 mm, similar to past years. Juvenile *S. purpuratus* were rare. No *Lytechinus anamesus* or *Centrostephanus coronatus* were observed. No sea urchin wasting disease was observed.

Pisaster giganteus was moderately abundant with a mean size of 97 mm. *Pisaster giganteus* were recorded on both 5 $m^2$and 1 m^2 quadrats at densities of 0.43/m² and 0.67/m², respectively. *Patiria miniata* was abundant with a mean size of 65 mm and a density of 3.4/m². *Pycnopodia helianthoides* was common at a density of 0.047/m², an increase from last year. Most individuals were medium to large with a mean size of 205 mm. *Parastichopus parvimensis* was common at

0.083/m², a decrease from last year. *Pachythyone rubra* was moderately abundant and three patches of moderate density were observed at the site. No *P. rubra* was observed during sampling. *Ophiothrix spiculata* was rare and none were observed during sampling. No sea star wasting disease was observed.

Haliotis rufescens was not observed during sampling. Nine fresh *H. rufescens* shells were measured at 12 mm, two at 27 mm, 29 mm, two at 31 mm, 32 mm, 35 and 40 mm. *Cypraea spadicea* was abundant at 0.92/m². No *Megastraea undosa* or *Astraea gibberosa* were observed during sampling. *Tegula regina* was not observed. *Kelletia kelletii* was rare and none was observed during sampling. *Megathura crenulata* was common with a density of 0.076/m² and a mean size of 101 mm. *Crassedoma giganteum* was rare with a density of 0.026/m². Similar to previous years, no *Aplysia californica* was observed at the site. One, approximately two pound, *Panulirus interruptus* was observed for a density of 0.0014/m^2. No *Cryptochiton stelleri,* gumboot chiton, were observed 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 0.17/m^2, a decrease from last year. *Alloclinus holderi* and *Lythrypnus dalli* were not observed. Roving diver fish counts were conducted on October 4th by six divers observing 26 species. Figures summarizing RDFC data can be found in Appendix C.

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
2011 sampling dates: 10/3, 10/18
2011 status: Mature kelp forest

This site remained a mature kelp forest consisting of large adult *Macrocystis pyrifera* plants with a canopy cover estimated at 80 - 85%. The tops of reefs had notably dense and diverse red algae communities while the low lying areas appeared to be slightly scoured or covered with *Phragmatapoma californica*. Adult *M. pyrifera* were moderately abundant at a density of 0.16/m², the lowest density at this site since 2006. Subadult density was 0.045/m^2, a slight increase from last year, but relatively low compared to previous years. Density of juvenile *M. pyrifera* increased from last year to 0.83/m². Cover of *M. pyrifera* remained similar to previous years at 13%. *Eisenia arborea* adults were common at a density of 0.042/m^2, but appeared to be less represented than last year. Juvenile *E. arborea* were rare and not observed during sampling. Cover of *E. arborea* decreased to 0.0%. *Pterygophora californica* adults were common with patches remaining on the eastern offshore side of the transect at a density of 0.33/m². Juvenile *P. californica* were common and increased from last year to 0.083/m^2, with overall cover at 3.5%. *Laminaria farlowii* was rare overall at the site with none observed during sampling. *Cystoseira* spp. were common at 1.2% cover, similar to last year. *Desmarestia* spp. were observed during RPCs for the first time since 2006 at a cover of 0.67%. *Sargassum horneri* was not observed at the site. Miscellaneous brown algae were common with several *Laminaria setchellii* observed and a cover of 0.33%. Miscellaneous red algae were moderately abundant with diverse and dense patches on reef tops at a cover of 57%. Miscellaneous plants, consisting of filamentous diatoms,

were not observed during sampling for the second consecutive year. *Gigartina* spp. were common at 2.5% cover, similar to years past. Miscellaneous green algae were not observed on RPCs. Articulated coralline algae were common and cover remained similar to last year at 6.7%. Encrusting coralline algae were common and cover decreased to 7.8%, the lowest recorded cover since 2006. Bare substrate cover was 17%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 4.8%, similar to previous years. The most common invertebrates in this category were *Cucumaria* spp., followed by anemones, mostly of the genus *Epiactis* spp. Tunicates were common and cover decreased to 3.0%, the lowest recorded cover at this site. *Styela montereyensis* were notably large with a density of 0.79/m^2, the highest recorded density at this site. Sponges were rare at 3.5% cover, similar to previous years. *Tethya aurantia* remained common at the site with a density of 0.14/m^2. *Phragmatopoma californica* was notably more abundant in the low lying areas than in previous years, with a cover of 13%, the highest recorded cover at this site. *Diopatra ornata* was common in the low lying sandy areas with a cover of 7.7%, the lowest recorded cover since 2005. *Serpulorbis squamigerus* was common over the site, though not observed during RPCs. Miscellaneous bryozoans were moderately abundant and cover decreased to 7.8%, the lowest recorded cover for this category. *Diaperoecia californica* was rare and observed with a cover of 0.83%, similar to previous years. *Urticina lofotensis* remained common with a density of 0.16/m^2. *Corynactis californica* was common on the rocky reef habitat with a cover of 0.33%. *Balanophyllia elegans* was common over the entire site at a cover of 1.7%. A*strangia lajollaensis* was not observed during sampling. No *Lophogorgia chilensis*, *Muricea californica* or *Muricea fruticosa* were observed, similar to past years.

Densities of *Strongylocentrotus* spp. have gradually increased at this site since monitoring began in 2005. *Strongylocentrotus purpuratus* were patchy and located in crevice habitat with a density of 2.0/m^2 and a mean size of 34 mm, similar to recent years. *Strongylocentrotus franciscanus* was moderately abundant and more common in the available crevice habitat that abalone once occupied. Density of *S. franciscanus* increased to the highest density recorded at 3.2/m^2, and a mean size of 83 mm. *Strongylocentrotus* spp. recruits were rare at the site. No *Lytechinus anamesus* or *Centrostephanus coronatus* were observed. No sea urchin wasting disease was observed.

Pycnopodia helianthoides was common and mostly large with a density of 0.013/m^2, similar to last year. *Patiria miniata* was moderately abundant, similar to years past, at a density of 2.4/m^2. Fifty-nine *Patiria miniata* were measure for a mean size of 50 mm, a decrease from last year. This decrease in size suggests an increased abundance of a younger age class. *Pisaster giganteus* was moderately abundant and was sampled on both 5 $m^2$and 1 m^2 quadrats with densities of 0.15/m^2 and 0.083/m^2, respectively. Mean size for *P.giganteus* was relatively small at 94 mm, similar to other sites on Santa Rosa and San Miguel islands. *Ophiothrix spiculata* was rare at the site and not observed during sampling. *Pachythyone rubra* was not observed.*Parastichopus parvimensis* was common and observed in crevice habitat with a density of 0.13/m^2. No sea star wasting disease was observed.

Haliotis rufescens was common with a density of 0.018/m^2, similar to past years. Fifty-three *H. rufescens* were measured for a mean size of 188 mm, the highest mean size recorded at this site. Size frequency measurements for *H. rufescens* were conducted during band transects and

covered the area between each transect. Fewer small (< 100 mm) live *H. rufescens* were observed this year relative to past years. One fresh *H. rufescens* shell was found at 26 mm. *Cypraea spadicea* was moderately abundant at 0.13/m². No *Megastraea undosa*, *Lithopoma gibberosa*, *Tegula regina* or *Kelletia kelletii* were observed during sampling. *Megathura crenulata* was common and mostly large at a density of 0.015/m^2. *Crassedoma giganteum* was common and mostly small at a density of 0.036/m², the highest recorded density at this site. Twenty-two *C. giganteum* were measured for an average size of 58 mm, indicating a recent recruitment in the last year. *Aplysia californica* was not observed at the site. No *Panulirus interruptus* were observed during sampling, though three legal sized individuals were observed elsewhere on the site. During a subsequent dive inshore of the site, approximately twenty legal sized *P. interruptus* and several four -eight pound individuals were observed.

Fish were moderately abundant and diverse, similar to last year. *Coryphopterus nicholsii* was rare with a density of 0.042/m², same as last year. *Alloclinus holderi* and *Lythrypnus dalli* were not observed. Roving diver fish counts were performed on October 3rd with eight divers observing 29 species. The site was revisited on October 18th to complete sampling and conduct replicate 1 m^2 quadrats, 5 m^2 quadrats and band transects. *Scorpaenichthy marmoratus*, cabazon, were notably abundant with six observed as well as three *Ophiodon elongatus*, lingcod. Figures summarizing RDFC data can be found in Appendix C.

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

For the following protocols, 1 m quadrats, 5 m quadrats, and band transects, we had two sets of observers collecting replicate data for each of these techniques in order to quantify observer variability. See Appendix I for more information.

Location: South Point, Santa Rosa Island
Site #25, SRSP
Year sampling began: 2005
2011 sampling dates: 7/27
2011 status: Mature kelp forest

This site has continued developing as a mature kelp forest with a dense understory of *Eisenia arborea, Pterogophora californica, Laminaria farlowii* and other brown algae. *Macrocystis pyrifera* canopy cover was estimated to be 75%. Adult *M. pyrifera* was healthy and moderately abundant with a density of 0.11/m^2. Juvenile *M. pyrifera* was common at a density of 1.5/m^2. Subadults had a density of 0.11/m^2. Cover of *M. pyrifera* decreased to10%, the lowest recorded for this site. Adult *E. arborea* were moderately abundant while juveniles were rare, with densities of 0.0/m^2 and 0.083/m^2, respectively. *Eisenia arborea* was not observed during RPCs. *Pterygophora californica* adults were moderately abundant while juveniles were common with densities of 0.71/m^2 and 1.3/m^2, respectively, and overall cover at 16%. Adult and juvenile *L. farlowii* were common at1.1/m² and 0.38/m², respectively. *Laminaria farlowii* cover was 7.8%. *Desmarestia* spp. and *Sargassum horneri* were not observed at the site. *Cystoseira* spp. were rare at the site and not observed during sampling. Miscellaneous brown algae had a cover 0.33%. Miscellaneous red algae were abundant with a cover of 76%. Green algae were rare and not observed during RPCs. *Gigartina* spp. were common at the site but not observed on RPCs.

Gelidium spp. were not observed.. Articulated coralline algae had a cover of 12%,. Encrusting coralline algae cover was 17%, similar to previous years. Bare substrate cover was 9.7%.

Overall, cover of sea cucumber species such as, *Cucumaria* spp., *Pachythyone* spp., and *Eupentacta* spp. were more abundant than recent years. Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 32%, and consisted mainly of *Cucumaria* spp, followed by anemones and hydroids. Tunicates remained moderately abundant and diverse with a cover of 3.8% and *Polyclinum planum* was abundant. Large individuals of *Styela montereyensis* were common and small individuals were rare. *Styela montereyensis* density was 2.2/m². Sponges were abundant, especially *Acarnus* spp. and *Polymastia* spp., with overall cover of 6.3%. *Tethya aurantia* was common with a density of 0.10/m². Most *T. aurantia* individuals were large. *Phragmatopoma californica* was abundant throughout much of the site and was observed at15% cover, the highest recorded at this site. *Serpulorbis squamigerus* was common at 0.83% cover. *Diopatra ornata* was moderately abundant, mostly in sandy areas, with a cover of 4.3%. Miscellaneous bryozoan cover decreased to 4.7%, the lowest recorded at this site. *Diaperoecia californica* was rare and was not observed on RPCs. *Urticina lofotensis* was common with a density of 0.072/m². *Corynactis californica, Astrangia lajollaensis* and *Balanophyllia elegans* were not observed on RPCs, but were present elsewhere at the site. Similar to past years, no *Lophogorgia chilensis*, *Muricea californica* or *Muricea fruticosa* were observed during band transects, but one *L. chilensis* was observed on the site.

Strongylocentrotus spp. adults were moderately abundant and juveniles were rare throughout the site. *Strongylocentrotus franciscanus* individuals were mostly large. Large aggregations occupied most of the crevices where abalone would typically be. *Strongylocentrotus franciscanus* had a density of 1.6/m² and consisted of large adults at a mean size of 63 mm. *Strongylocentrotus purpuratus* density was 11/m², and mean size of 33 mm. These are the highest densities of *Strongylocentrotus* spp. recorded for this site. No *Lytechinus anamesus* or *Centrostephanus coronatus* were observed. No sea urchin wasting disease was observed.

Pycnopodia helianthoides was common and individuals were mostly medium to large in size, with a density of 0.015/m². *Patiria miniata* remained moderately abundant with a density of 2.9/m². *Pisaster giganteus* was common, and individuals were mostly medium sized, with a mean size of 100 mm. *Pisaster giganteus* densities for 5 m^2 quadrats and 1 m^2 quadrats were 0.035/m² and 0.0/m², respectively. *Parastichopus parvimensis* was rare at a density of 0.13/m^2. *Ophiothrix spiculata* was not observed on RPCs. *Pachythyone rubra* was common at a cover of 1.0% and individuals were mostly small and in high density patches throughout the site. No sea star wasting disease was observed.

Haliotis rufescens adults were moderately abundant and juveniles were rare with an overall density of 0.11/m², similar to past years. 160 individuals were measured for a mean size of 185 mm. Three large, fresh *H. rufescens* shells were observed at the site. *Cypraea spadicea* was common though few were observed on 1 m^1 quadrats for a density of 0.083/m². *Astraea gibberosa* and *Megastraea undosa* were not observed during 1 m^2 quadrats, although several large *M. undosa* were observed along the transect, similar to past years. *Astraea gibberosa* and *Tegula regina* were not osbserved. *Kelletia kelletii* remained rare with a density of 0.0014/m². *Megathura crenulata* was rare at 0.0069/m² and individuals were large. *Crassedoma giganteum*

was rare and mostly small with a density of 0.0097/m². *Aplysia californica* was rare with a density of 0.0014/m^2. No *Panulirus interruptus* were observed.

Fish were moderately abundant and diverse, similar to previous years. Most of the *Coryphopterus nicholsii* were large adults and had a density was 0.21/m². *Alloclinus holderi* and *Lythrypnus dalli* were not observed. A school of up to 15 large *Sebastes serranoides*, olive rockfish, were observed, similar to previous years. Adult and juvenile *Scorpaenichthys marmoratus*, Cabazon, were moderately abundant with at least ten observed. Roving diver fish counts were conducted on July 27th by five divers observing 27 species of fish. Figures summarizing RDFC data can be found in Appendix C.

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
2011 sampling dates: 5/20
2011 status: Dominated by *Strongylocentrotus* spp.

Overall this site changed little from last year and continued to be dominated by *Strongylocentrotus purpuratus.* The site was devoid of macroalgae with the exception of juvenile *Eisenia arborea* and *Macrocystis pyrifera*. Juvenile *E. arborea* were common on the tops of large rocks, and had a density of 0.46/m². Juvenile *M. pyrifera* were rare at 0.042/m². No cover was recorded for either species. No *Pterygophora californica, Laminaria farlowii* or *Sargassum horneri* were observed at the site. *Desmarestia* spp. and *Cystoseira* spp. were not observed during sampling. Miscellaneous brown algae cover was 0.17%, similar to past years. Miscellaneous red algae cover was 18% and consisted mostly of *Laurencia pacifica,* similar to past years. Miscellaneous green algae were not observed, similar to past years. Miscellaneous plant cover, mostly consisting of filamentous diatoms, was 1.3%. Encrusting coralline algae were moderately abundant with a cover of 65%, the highest recorded at this site. Articulated coralline algae cover was 0.17%, similar to past years. Bare substrate cover was 4.0%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover decreased from last year to 22%. The most common miscellaneous invertebrate on RPCs was *Spirobranchus spinosus*. Tunicate cover was observed at 3.0%. *Styela montereyensis* was not observed. Sponges were common with a cover of 1.2%. *Tethya aurantia* density continued to gradually increase for the fifth consecutive year to 0.16/m², the highest recorded at this site. *Serpulorbis squamigerus* was common, but not observed on RPCs. *Diopatra ornata* was present in the low lying sandy areas with a cover of 0.50%. *Phragmatopoma californica* was common at a cover of 0.33%. Miscellaneous bryozoans were common with a cover of 5.7%. *Diaperoecia californica* was moderately abundant on the sides of rocks with a cover of 6.0% the highest recorded at this site. *Urticina lofotensis* was not observed. *Corynactis californica* was common with a cover of 0.50%. *Astrangia lajollaensis* was common with a cover of 3.7%, similar to past years. *Balanophyllia elegans* was common and had a cover of 0.17%. *Lophogorgia chilensis* was abundant with a density of 0.12/m², similar to last year. *Muricea californica* was common with a density of 0.0056/m². *Muricea fruticosa* was rare with a density of 0.0028/m².

Strongylocentrotus purpuratus was moderately abundant with a density of 11/m², the lowest density recorded at this site. *Strongylocentrotus franciscanus* was moderately abundant with a density of 3.5/m², similar to last year. Juvenile *S. purpuratus* and *S. franciscanus* were both rare. Mean sizes for *S. purpuratus* and *S. franciscanus* were 33 mm and 50 mm, respectively. *Centrostephanus coronatus* was common with density 0.17/m². *Lytechinus anamesus* was rare with a density of 0.0014/m². No sea urchin wasting disease was observed.

Pisaster giganteus was observed on 5 m^2 quadrats and 1 m^2 quadrats with densities of 0.28/m² and 0.29/m², respectively. Mean size of *P. giganteus* was 132 mm. *Patiria miniata* was common, consisting mostly of large individuals, for a density of 0.96/m². *Pycnopodia helianthoides* was common at 0.0056/m² and consisted mostly of medium sized individuals. *Pisaster ochraceus* were notably abundant, similar to last year. Though not an indicator species, we started recording this species density at sites where they have become common. *Pisaster ochraceus* were counted on band transects and 5 m^2 quadrats with densities of 0.144/m^2 and 0.085/m^2, respectively. *Pachythyone rubra* was common, found mostly solitary or in small patches, with a cover of 0.83%. *Parastichopus parvimensis* was common with a density of 0.46/m², similar to last year. *Ophiothrix spiculata* was rare and was not observed on RPCs. No sea star wasting disease was observed.

No live *Haliotis* spp. or fresh shells were observed. *Cypraea spadicea* was moderately abundant with a density of 0.042/m², same as last year. *Megastraea undosa* was common although none were observed on quadrats. *Astraea gibberosa* was not observed. *Tegula regina* was rare at 0.042/m², same as last year. *Kelletia kelletii* was not observed at the site. *Megathura crenulata* was abundant with a density of 0.59/m², similar to recent years. *Crassedoma giganteum* was common at 0.040/m² and consisted mostly of large individuals. *Aplysia californica* was common, and most were large individuals, with a density of 0.022/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* was not observed in 1 m^2 quadrats. This was the lowest recorded density since sampling began in 2005. Due to the rough conditions during sampling, *C. nicholsii* may have been sheltering in holes. *Alloclinus holderi* was not observed on 1 m^2 quadrats. *Lythrypnus dalli* was not observed. Roving diver fish counts were conducted on May 20th with five divers observing 28 species of fish. Figures summarizing RDFC data can be found in Appendix C.

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
2011 sampling dates: 8/30
2011 status: Dominated by *Strongylocentrotus purpuratus*.

Overall this site was similar to last year. It remained dominated by *Strongylocentrotus purpuratus,* with most macroalgae and encrusting invertebrates present in the high relief areas. *Macrocystis pyrifera* abundance decreased overall and was present in patches along the transect, on top of the large reef area and consisted mostly of subadult plants. Adult *M. pyrifera* were

common while juveniles were rare. Densities of adult, subadult and juvenile *M. pyrifera* were 0.015/m², 0.045/m², and 0.083/m², respectively. *Macrocystis pyrifera* was not observed on RPCs, a decrease from last year. Juvenile and adult *Eisenia arborea* were rare and only a few individual plants were present in small patches on the high relief areas. Adult and juvenile *E. arborea* was 0.13/m² and 0.33/m², respectively, with juvenile density decreasing from last year. Cover of *E. arborea* was 2.8%. No *Pterygophora californica, Laminaria farlowii, Cystoseira* spp., *Desmarestia* spp., *Sargassum horneri, Gelidium* spp., or *Gigartina* spp. were observed. Miscellaneous brown algae were not observed on RPCs, a decrease from last year. Miscellaneous red algae were common with a cover of 9.8%, similar to previous years. Green algae were rare with a cover of 0.67%. Miscellaneous plants cover, consisting of filamentous diatoms, was 2.3%. Encrusting coralline algae were common with a cover of 39%. Articulated coralline algae were rare with a cover of 0.17%. Bare substrate cover was similar to last year at 23%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 11%, a decrease from last year. The most dominant invertebrates in this category were *Cucumaria* spp. and *Spirobranchus spinosus.* Tunicates were common with a cover of 0.50%, a decrease from last year's record high. *Styela montereyensis* was not observed. Sponges were common, although none were observed during RPCs, a decrease from last year. *Tethya aurantia* was common at 0.12/m², similar to last year's record high. *Diopatra ornata* was common with a cover of 0.33%. *Phragmatopoma californica* was not observed. Miscelleous bryozoans were common with a cover of 3.0%, a decrease from last year. *Diaperoecia californica* was moderately abundant with a cover of 5.2%. *Urticina lofotensis* was not observed. *Corynactis californica* was common with cover of 4.5%. *Astrangia lajollaensis* was moderately abundant and patchy with a cover of 4.3%. *Balanophyllia elegans* was common with a cover of 0.50%. *Lophogorgia chilensis* was moderately abundant with a density of 0.15/m². *Muricea californica* was common with a density of 0.0042/m². No *Muricea fruticosa* was observed at the site.

Adult and juvenile *Strongylocentrotus purpuratus* were moderately abundant throughout much of the transect, except high relief areas. Juvenile *S. purpuratus* were found in high density patches. These individuals were very small (<7 mm), indicating recent recruitment. Density of *S. purpuratus* was 40/m², the highest recorded density since sampling began. Adult *S. franciscanus* were common and juveniles were moderately abundant throughout much of the site. Density of *S. franciscanus* was 4.0/m². *Lytechinus anamesus* was common with mostly small individuals present at a density of 0.15/m² on band transects. *Centrostephanus coronatus* was rare with only a few large individuals observed. *Centrostephanus coronatus* was not observed on band transects. One *L. anamesus* was observed with sea urchin wasting disease.

Pisaster giganteus was moderately abundant on 5 m^2 quadrats and 1 m^2 quadrats with densities of 0.17/m² and 0.17/m², respectively, similar to last year. *Patiria miniata* was common at a density of 1.9/m². *Pisaster ochraceus* were observed along the transect with densities of 0.022/m² and 0.015/m² on band transects and 5 m^2 quadrats, respectively. *Pachythyone rubra* was moderately abundant, notably at the zero end, and had a cover of 2.2%. *Pycnopodia helianthoides* was not observed at the site. *Ophiothrix spiculata* was common at the site but not observed on RPCs. *Parastichopus parvimensis* was abundant at a density of 1.0/m², similar to recent years. No sea star wasting disease was observed.

Haliotis spp. were not observed. *Crassedoma giganteum* was moderately abundant and notably large with a density of 0.075/m², similar to past years. *Megathura crenulata* was common with a density of 0.040/m². *Megastraea undosa* was common with a density of 0.29/m². Juvenile *M. undosa* were moderately abundant in the low-lying areas. *Astraea gibberosa* was not observed. *Tegula regina* was common and had a density of 0.13/m². Several small (~25 mm) *T. regina* individuals were observed. *Kelletia kelletii* was common and medium-sized with a density of 0.011/m². *Aplysia californica* was common with a density of 0.051/m². *Panulirus interruptus* was common with a density of 0.0097/m².

Similar to recent years, fish at this site were moderately abundant and diverse. *Coryphopterus nicholsii* was common at 0.92/m². *Alloclinus holderi* was rare with a density of 0.13/m². *Lythrypnus dalli* was not observed. Roving diver fish counts were conducted on August 30th by seven divers observing 27 species. Figures summarizing RDFC data can be found in Appendix C.

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
2011 sampling dates: 6/28
2011 status: 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. Algae appeared more abundant and diverse. *Macrocystis pyrifera* was moderately abundant with an estimated canopy cover of 75-80%. Cover of *M. pyrifera* was 76%, the highest cover recorded at this site. *Eisenia arborea* was moderately abundant with 14% cover. Density of adult and juvenile *E. arborea* was 1.2/m^2 and 2.0/m^2, respectively. *Pterygophora californica* adults were not observed at the site. *Pterygophora californica* juveniles were rare at 0.042/m^2. Adult and juvenile *Laminaria farlowii* densities were observed at 0.0/m^2 and 0.042/m^2, respectively, and no cover observed on RPCs. *Cystoseira* spp. were common and scattered around the transect with none observed on RPCs. *Desmarestia* spp. were rare with none observed on RPCs. Adult and juvenile *Sargassum horneri* were present over the entire site. Most *S. horneri* adults (reproductive or > 0.5 m) were moderately abundant, typically 30-70 cm tall, and most were unhealthy looking and senescing. The adult and juvenile *S. horneri* densities, respectively and per method are as follows, 1 m quadrats: 7.5/m^2 and 3.3/m^2, 5 m quadrats: 5.3/m^2 and 5.9/m^2, band transects: 2.0/m^2 and 4.8/m^2. *Sargassum horneri* cover on RPCs was 15%. Miscellaneous brown algae were moderately abundant with a cover of 9.2%, the highest observed at this site, and consisted mostly of *Dictyota/Pachydictyon* sp. Miscellaneous red algae were moderately abundant with a cover of 13%, a decrease from last year. *Gelidium* spp. were common although none were observed during sampling. *Gigartina* spp. were rare and notobserved during sampling. Miscellaneous green algae were rare, and mostly consisted of *Codium fragile* and *Ulva* spp., with a cover of 0.17%, a decrease from last year. Encrusting coralline algae were common with a cover of 28%, a decrease from last year. Articulate coralline algae were rare with a cover of 1.2%, similar to last year. Bare substrate cover was 9.8%. Miscellaneous plants were rare with none observed during sampling, a decrease from last year.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover was 23%, similar to previous years. Encrusting invertebrates were highly diverse in high relief areas, similar to Landing Cove on Anacapa Island. The most common invertebrates were hydroids and tube worms (*Salmacina tribranchiata, Pista elongata,* etc.). Tunicates were moderately abundant with a cover of 20%. *Styela montereyensis* was not observed. *Pycnoclavella* spp. and *Metandrocarpa* spp. were notably abundant. Sponges were moderately abundant with a cover of 0.17%, and were particularly diverse. *Tethya aurantia* was common at a density of 0.14/m², the highest recorded at this site. Miscellaneous bryozoans were moderately abundant with a cover of 21%, the highest recorded at this site. *Diaperoecia californica* was abundant and covered much of the rocky high relief areas with a cover of 5.5%. *Serpulorbis squamigerus* was common with a cover of 0.17%. *Phragmatopoma californica* and *Diopatra ornata* were common at covers of 0.17% and 1.3%, respectively. *Urticina lofotensis* was not observed. *Corynactis californica* was common with a cover of 0.50%. *Balanophyllia elegans* was common with a cover 0.33%, a decrease from last year. *Astrangia lajollaensis* was common with a cover of 2.2%. *Lophogorgia chilensis* remained moderately abundant with a density of 0.22/m^2. *Muricea californica* remained rare with a density of 0.0042/m². *Muricea fruticosa* was not observed at the site.

Strongylocentrotus purpuratus was moderately abundant with a density of 18/m². Juvenile *S. purpuratus* were common. The mean size of *S. purpuratus* was 31 mm. Adult and juvenile *S. franciscanus* were common with a density of 1.2/m^2, similar to past years. *Centrostephanus coronatus* was common throughout the site although none were observed during sampling. Predation of *C. coronatus* was evident by the presence of many sea urchin tests at the site. *Lytechinus anamesus* was rare with only small individuals present and a density of 0.011/m^2 was observed, similar to last year. No sea urchin wasting disease was observed.

Pisaster giganteus was common and was sampled on both 5 m^2 and 1 m^2 quadrats at 0.10/m² and 0.0/m^2, respectively. *Pisaster giganteus* mean size was 135 mm. *Patiria miniata* was common with a density of 0.50/m². *Pycnopodia helianthoides* was not observed at the site. *Ophiothrix spiculata* was rare with a cover of 0.17%. *Pisaster ochraceus* was unusually common for a subtidal site with at least 38 individuals observed and although *P. ochraceus* is not one of our indicator species, they were sampled on band transects and 5 m^2 quadrats with densities of 0.053/m^2 and 0.030/m^2, respectively. *Pachythyone rubra* was not observed. *Parastichopus parvimensis* was common, especially in the low-lying areas, with a density of 1.6/m^2. No sea star wasting disease was observed.

No live *Haliotis* spp. or fresh shells were observed. *Cypraea spadicea* was common with a density of 0.083/m^2. Adult and juvenile *Megastraea undosa* were rare with a density of 0.042/m^2. *Astraea gibberosa* was not observed. *Tegula regina* was rare with none observed during sampling. No *Kelletia kelletii* was observed at the site. *Megathura crenulata* was common at 0.064/m². Juvenile *M. crenulata* were noted as being rare. *Crassedoma giganteum* was moderately abundant at 0.16/m², similar to last year. Juvenile *C. giganteus* were noted as being common. *Aplysia californica* was common and consisted mostly of large individuals. Density of *A. californica* was 0.015/m². *Panulirus interruptus* was common at 0.0069/m^2.

Fish were abundant and diverse at this site. *Coryphopterus nicholsii* was common with a density of 0.63/m². *Lythrypnus dalli* was not observed on 1 m^2 quadrats, though present at the site. All of the *L. dalli* observed were large and likely several years old. *Alloclinus holderi* was rare with a

density of 0.042/m^2. All of the *A. holderi* observed were very large individuals. Similar to the Little Scorpion site, two year old *Sebastes mystinus* were common. Also, 2-3 year old *Sebastes serranoides* were common offshore of the transect. Roving diver fish counts were conducted on June 28th by five divers observing 36 species. Figures summarizing RDFC data can be found in Appendix C.

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
2011 sampling dates: 6/27
2011 status: Dominated by *Strongylocentrotus* spp.

This site continued to be dominated by *Strongylocentrotus* spp. and was almost entirely devoid of macroalgae. Similar to last year, there were no *Macrocystis pyrifera, Pterygophora californica, Laminaria farlowii, Cystoseira* spp., *Desmarestia* spp., *Eisenia arborea, Gigartina* spp. or *Gelidium* spp. present. Green algae were rare and not observed on RPCs. Miscellaneous red algae cover was 3.5%, a decrease from last year, and consisted mostly of *Laurencia pacifica*. *Sargassum horneri* was not observed at the site. Encrusting coralline algae cover was 40%, similar to last year. Articulated coralline algae were rare at 0.17% cover. Miscellaneous plants, consisting of filamentous diatoms, were rare and not observed on RPCs. Bare substrate cover was 28%, similar to past years.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 14%, the lowest recorded for this site. The most dominant miscellaneous invertebrate in this category was *Spirobranchus spinosus*. Tunicates were common with a cover of 0.83%. *Styela montereyensis* was not observed. Sponges were relatively abundant and diverse, and had a cover of 0.33%. *Tethya aurantia* density was 0.053/m^2, the highest recorded at this site. *Diopatra ornata* had 0.17% cover. *Serpulorbis squamigerus* was notably abundant at the edge of the site (10 m off of the transect), but was not observed on RPCs. *Phragmatopoma californica* was not observed. *Dodecaceria* sp. was noted as being common. Miscellaneous bryozoan cover was 1.8%, the lowest recorded at this site. *Diaperoecia californica* cover was 0.83%, similar to past years. *Urticina lofotensis* was not observed. *Corynactis californica* cover was 1.3% along the transect, but appeared more abundant throughout the site. *Balanophyllia elegans* was rare at 0.17% cover. *Astrangia lajollaensis* was moderately abundant with a cover of 11%, the highest recorded at this site. *Lophogorgia chilensis* was moderately abundant with a density of 0.10/m^2, similar to last year. *Muricea fruticosa* and *M. californica* were not observed at the site.

Strongylocentrotus franciscanus and *S. purpuratus* were common with densities of 9.7/m^2 and 25/m^2, respectively, both the highest recorded for this site. *Strongylocentrotus franciscanus* and *S. purpuratus* mean sizes were similar to past years at 41 mm and 26 mm, respectively, both the lowest recorded for this site. *Strongylocentrotus* spp. juveniles were moderately abundant. *Lytechinus anamesus* was moderately abundant and was sampled on both band transects and 1 m^2 quadrats with corresponding densities of 1.5/m^2 and 2.5/m^2, the highest recorded for this site. *Lytechinus anamesus* were mostly large in size. *Centrostephanus coronatus* was common, although none were observed in 1 m^2 quadrats. No sea urchin wasting disease was observed.

Patiria miniata was moderately abundant, with many size classes present, and had a density of 2.4/m². *Pisaster giganteus* was also moderately abundant and was sampled on both 5 m^2 quadrats and 1 m^2 quadrats with densities of 0.17/m² and 0.17/m², respectively, a decrease from last year. *Pycnopodia helianthoides* was not observed at the site. *Pisaster ochraceus* has become increasingly abundant at this site, as well as several other sites we have sampled this year. Though not an indicator species, the density of this species was recorded on band transects and 5 m^2 quadrats at 0.058/m^2 and 0.055/m^2, respectively. *Ophiothrix spiculata* was rare and was not observed on RPCs. *Pachythyone rubra* was not observed. *Parastichopus parvimensis* was common with a density of 0.33/m², 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* was common at 0.13/m^2. Adult *Megastraea undosa* were rare, but there were some recent recruits. *Megastraea undosa* density was 0.17/m^2. Mean size of *M. undosa* was 38 mm, the lowest mean recorded for this site, indicative of recent recruitment. *Astraea gibberosa* was not observed. *Tegula regina* was common, and consisted mostly of large individuals, with a density of 0.13/m^2. *Kelletia kelletii* was rare at a density of 0.0069/m². *Megathura crenulata* was moderately abundant with a density of 0.43/m² and many size classes were present. *Crassedoma giganteum* was rare, with all sizes present, at a density of 0.029m², similar to last year. *Crassedoma giganteum* were mostly large but several small individuals were also observed. *Aplysia californica* was rare and consisted mostly of large individuals, with a density of 0.0083/m², similar to last year. *Panulirus interruptus* was not observed.

This site continued to have high fish abundance and diversity. *Coryphopterus nicholsii* density was 4.0/m², an increase from last year. *Lythrypnus dalli* and *Alloclinus holderi* were rare and not observed on 1 m^2 quadrats. *Lythrypnus dalli* were notably large and likely several years old. Roving diver fish counts were performed on June 27th, 2011 by five divers observing 22 species of fish. Figures summarizing RDFC data can be found in Appendix C.

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
2011 sampling dates: 6/29
2011 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. *Macrocystis pyrifera* adult and juveniles were not observed during sampling, but *M. pyrifera* subadults were observed at0.0050/m^2. Canopy and RPC cover of *M. pyrifera* was 0.0%. No *Eisenia arborea*, *Pterygophora californica*, *Laminaria farlowii*, *Cystoseira* spp. or *Gigartina* spp. were observed, similar to past years. *Desmarestia* spp. were the most abundant macroalgae throughout the site, although not observed on RPCs. *Gelidium* spp. were rare and not observed during RPCs. Miscellaneous red algae were common at 5.0% cover and *Laurencia pacifica* was the most common algae in this category. Miscellaneous green algae and miscellaneous plants (i.e. filamentous diatoms) were rare and not observed on RPCs. *Sargassum horneri* was not observed. Articulated coralline algae cover was

0.33%, similar to recent years. Encrusting coralline algae cover was 26%. Bare substrate cover increased from last year to 34%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover decreased from past years to 13%. The most common taxa in this category were *Spirobranchus spinosus* and gorgonians. Tunicates remained rare at 0.0% cover. *Styela montereyensis* was not observed. Sponges were common but not observed during RPCs. *Tethya aurantia* was moderately abundant with a density of 0.15/m². *Diopatra ornata* was rare at 4.7% cover, the highest record for this site. *Phragmatopoma californica* was absent from the site. *Serpulorbis squamigerus* was rare and not observed during RPCs. Miscellaneous bryozoans were rare at 0.17% cover. *Diaperoecia californica* was rare and not observed on RPCs. *Urticina lofotensis* was not observed. *Corynactis californica* was abundant with a cover of 27%, the highest recorded at this site. *Astrangia lajollaensis* and *Balanophyllia elegans* covers were 2.3% and 0.67%, respectively. *Lophogorgia chilensis* was moderately abundant with a density of 0.29/m², similar to last year. *Muricea californica* density was 0.0069/m², while *M. fruticosa* was not observed.

Strongylocentrotus spp. remained abundant and relatively small. *Strongylocentrotus purpuratus* density was 134/m², the highest recorded for this site, with a mean size of 18 mm, similar to last year. *Strongylocentrotus franciscanus* density was 24/m², also the highest recorded for this site, with a mean size of 28 mm, similar to last year. *Centrostephanus coronatus* was common with a density of 0.042/m^2. *Lytechinus anamesus* was moderately abundant and was counted on both band transects and 1 m^2 quadrats with densities of 1.2/m² and 4.2/m², respectively; the highest on record for this site for both sampling methods. No sea urchin wasting disease was observed.

Pisaster giganteus was moderately abundant and counted on both 5 m^2 and 1 m^2 quadrats with densities of 0.14/m² and 0.17/m², respectively. *Pisaster ochraceus* was relatively abundant compared to our other sites and counted on band transects and 5 m^2 quadrats with densities of 0.044/m^2 and 0.055/m^2. *Patiria miniata* was common with a density of 1.1/m², the highest recorded for this site. *Pycnopodia helianthoides* was rare and not observed on band transects, although two individuals were observed at the site. *Ophiothrix spiculata* rare and cover was 0.33%. *Parastichopus parvimensis* was rare at a density of 0.13/m². *Pachythyone rubra* was rare at a cover of 0.50% and were scattered around most of the site, but mostly at the 50 – 100 m end. No sea star wasting disease was observed.

No *Haliotis* spp. were observed, although one fresh *H. rufescens* shell was found and measured at 30 mm. *Cypraea spadicea* was common at a density of 0.25/m². *Megastraea undosa* density was 0.71/m². Juveniles were moderately abundant while adults were rare. *Astraea gibberosa* was not observed. *Tegula regina* was rare and not observed on1 m^2 quadrats. *Kelletia kelletii* density remained relatively low at 0.0083/m². *Megathura crenulata* was common with a density of 0.072/m², similar to last year. *Crassedoma giganteum* was rare with at 0.035/m². *Aplysia californica* was common and mostly large, at a density of 0.085/m², the highest recorded at this site. No *Panulirus interruptus* were observed at the site.

Fish were moderately diverse and abundant, similar to last year. *Coryphopterus nicholsii* was common with a density of 3.3/m^2. No *Lythrypnus dalli* or *Alloclinus holderi* were observed on 1 m^2 quadrats though one *L. dalli* was observed at the site. Roving diver fish counts were

conducted on June 29th by four divers observing 18 species. Figures summarizing RDFC data can be found in Appendix C.

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
2011 sampling dates: 6/30
2011 status: Dominated by *Strongylocentrotus* spp.

Unlike last year, this site was mostly devoid of large brown macroalgae. The site was notably more barren than previous years and was dominated by *Strongylocentrotus* spp. Canopy cover of *Macrocystis pyrifera* decreased to 0.0%. No *M. pyrifera*, *Eisenia arborea*, *Pterygophora californica* or *Laminaria farlowii* were observed during sampling, although three juvenile *E. arborea* were observed at the site. In 2010 both adult and juveniles of these species, excluding *P. californica*, were present at the site. No *Cystoseira* spp. or *Desmarestia* spp. were observed during sampling. Miscellaneous brown algae and green algae were not observed during RPCs. No *Sargassum horneri* was observed at the site, a decrease from last year. This is the second 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 were common at 1.3% cover and consisted mostly of *Laurencia pacifica*. Miscellaneous red algae cover was the lowest on record for this site. No *Gelidium* spp. or *Gigartina* spp. were observed during sampling. Articulated coralline algae cover was 0.17%, the lowest on record for this site. Encrusting coralline algae were common at 51% cover. Miscellaneous plants, consisting mostly of filamentous diatoms, were not observed during sampling. Bare substrate was notably more abundant at 37%cover, the highest recorded at this site.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, were common on the steep sides and tops of rocks at 21% cover. The most common taxa in this category were barnacles, *Spirobranchus spinosus*, and gorgonians. Barnacles were common and *S. spinosus* was moderately abundant, and both species had many empty calcium structures present. Tunicates were rare with a cover of 0.50%. *Styela montereyensis* was not observed. Sponges were common, but not observed during RPCs. *Tethya aurantia* was rare with a density of 0.0042/m². *Serpulorbis squamigerus* was not observed during sampling although it was common elsewhere at the site. *Diopatra ornata* was rare at 1.5% cover, same as last year. *Phragmatopoma californica* was common but not observed on RPCs. Miscellaneous bryozoan cover was 0.50%, the lowest recorded for this site. *Diaperoecia californica* was common and was observed at 0.17% cover. *Urticina lofotensis* was not observed. *Corynactis californica* was common with a cover of 0.83%. *Astrangia lajollaensis* was moderately abundant at a cover of 3.5%, the highest recorded at this site. *Balanophyllia elegans* was rare and not observed during sampling, a decrease from last year. *Paracyathus stearnsii*, was moderately abundant at the site although this species is not one of our indicator species. All three gorgonian species were present at densities similar to past years. *Lophogorgia chilensis* was moderately abundant at 0.20/m². *Muricea californica* was common at 0.029/m². *Muricea fruticosa* was rare at 0.0014/m². *Eugorgia rubens* was abundant, similar to past years, although this species is not one of our indicator species. A

gorgonian at the 25 meter mark that is covered in *Parazoanthus lucificum,* a yellow zoanthid anemone, was still present and has been observed since sampling began at this site.

Strongylocentrotus spp. were abundant and juveniles were common. *Strongylocentrotus purpuratus* had a density of 56/m², the highest recorded for this site. *Strongylocentrotus franciscanus* densities increased to 11/m², also the highest recorded for this site. Mean sizes for *S. purpuratus* and *S. franciscanus* both decreased to 19 mm and 27 mm, respectively. The increase in densities and decrease in mean sizes for both these species are indicative of a recent recruitment event. *Lytechinus anamesus* was moderately abundant and densities were observed on both band transects and 1 m^2 quadrats. Densities for *L. anamesus* increased on band transects to 3.11/m^2, the highest on record and has followed an increasing trend since 2006. *Lytechinus anamesus* densities on 1 m^2 quadrats increased to 6.0/m^2. *Centrostephanus coronatus* was common at 0.42/m² and was mostly large in size. No sea urchin wasting disease was observed.

Pisaster giganteus was common with densities recorded on 5 m^2 and 1 m^2 quadrats at 0.090/m² and 0.21/m² respectively; the highest on record at this site for both sampling methods. Mean size of *P. giganteus* was similar to recent years at 126 mm. *Patiria miniata* was moderately abundant, with all size classes present, at a density of 2.4/m². *Pisaster ochraceus* was common and sampled on band transects and 5 m^2 quadrats with a density of 0.025/m^2 and 0.030/m² respectively. *Ophiothrix spiculata* was rare and not observed during RPCs. *Pycnopodia helianthoides* was not observed. *Pachythyone rubra* was not observed. *Parastichopus parvimensis* was moderately abundant at 1.1/m². No sea star wasting disease was observed.

No live *Haliotis* spp. were observed at the site, although one fresh *H. corrugata* shell was found and measured at 29 mm. One *H. fulgens* shell that had likely been deceased for approximately two years was also found and measured at 49 mm. *Cypraea spadicea* was common overall at the site and was observed at a density of 0.042/m², same as last year. *Megastraea undosa* was common with a density of 0.71/m². The mean size of *M. undosa* decreased to 32 mm, the lowest recorded for this site. Juvenile *M. undosa* were moderately abundant, indicative of recent recruitment. *Astraea gibberosa* was not observed at the site. *Tegula regina* was common at 0.083/m², same as last year. *Kelletia kelletii* was common with a density of 0.0069/m². *Megathura crenulata* was moderately abundant with a density of 0.060/m², the highest on record for this site. A mean size of 66 mm was observed for *M. crenulata,* similar to recent years. *Crassedoma giganteum* was moderately abundant with juveniles common and a density of 0.036/m² was observed. *Aplysia californica* was rare at 0.014/m². *Panulirus interruptus* was rare at a density of 0.0014/m², similar to past years.

Fish were less diverse and abundant than in recent years. *Coryphopterus nicholsii* was moderately abundant at 4.6/m². *Alloclinus holderi* was rare at 0.042/m², the lowest recorded density for this site. *Lythrypnus dalli* density was 0.042/m². Four California moray eels were observed at the site and one was small at about 30 cm. Roving diver fish counts were conducted on June 30th with five observers counting 20 species of fish. Figures summarizing RDFC data can be found in Appendix C.

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
2011 sampling dates: 5/31
2011 status: Dominated by *Strongylocentrotus* spp. and *Ophiothrix spiculata*

Although this site remained dominated by echinoderms, there were some notable changes from last year. Specifically, there was an increase in *Corynactis californica* and algae. The algae that were present were more localized near dense patches of *C. californica* that appeared to be acting as barriers to urchin grazing. No *Macrocystis pyrifera* adults were observed. Juvenile *M. pyrifera* were common at a density of 0.17/m^2 Subadult *M. pyrifera* were observed throughout the site with a density of 0.0050/m^2, and up to 10 individuals measured for size frequencies. No *M. pyrifera* cover was recorded on RPCs. Adult *Eisenia arborea* were present, but not observed on quadrats. Juvenile *E. arborea* were observed at a density of 0.29/m^2. No *E. arborea* cover was recorded on RPCs. *Desmarestia* spp. was rare at the site and not observed on RPCs. No *Pterygophora californica, Laminaria farlowii, Sargassum horneri, Cystoseira* spp., *Gigartina* spp. or *Gelidium* spp. were observed at the site. Miscellaneous brown algae cover was 0.17%. No miscellaneous green algae were observed on RPCs, though *Colpomenia* sp. was present. Miscellaneous plants, consisting mostly of filamentous diatoms, were observed at 1.3% cover. Miscellaneous red algae cover decreased from last year to 1.7%, the lowest recorded at this site. No articulated coralline algae were observed on RPCs, similar to past years. Encrusting coralline algae were moderately abundant and cover was 36%, similar to past years. Bare substrate covered 38% of the bottom, similar to previous years.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 1.2%, the lowest recorded at this site. *Spirobranchus spinosus* and anthozoans were the most abundant taxa in this category. Tunicates were rare with a cover of 0.17%. *Styela montereyensis* was not observed. Sponges were rare, and none were observed on RPCs. *Tethya aurantia* was common with a density of 0.046/m^2, the highest recorded at this site. Most were covered with sediment and filamentous diatoms, making them difficult to see. *Diopatra ornata* was rare and not observed on RPCs. *Phragmatopoma californica* was not observed. Miscellaneous bryozoans and *Diaperoecia californica* were rare with neither being observed on RPCs, similar to past years. *Urticina lofotensis* was not observed. *Corynactis californica* was abundant compared to recent years with 23%. Many of the *C. californica* were notably large. *Balanophyllia elegans* was rare and not observed on RPCs. *Astrangia lajollaensis* was common and had a cover of 0.50%, similar to recent years. *Lophogorgia chilensis, Muricea californica* and *Muricea fruticosa* were observed with densities of 0.0097/m^2, 0.0083/m^2 and 0.0056/m^2, respectively.

Strongylocentrotus purpuratus was abundant with a density of 114/m^2, similar to the high density of last year. Juvenile *S. purpuratus* were common with moderately high recruitment observed in some areas along the transect. Mean size of *S. purpuratus* was 18 mm. *Strongylocentrotus franciscanus* was also abundant, at 17/m^2, similar to last year. Juvenile *S. franciscanus* were rare. Mean size of *S. franciscanus* was 28 mm. *Centrostephanus coronatus* was moderately abundant and had a density of 0.71/m^2, similar to recent years. Only large *C. coronatus* individuals were observed. *Lytechinus anamesus* was common with a density of 0.20/m^2, the lowest density recorded at this site. *L. anamesus* was mostly located at the west end of the transect. Wasting disease was observed in less than 1% of *Strongylocentrotus* spp.

Pycnopodia helianthoides was rare with a density of 0.0042/m^2. *Patiria miniata* was common with a density of 1.3/m^2, similar to last year's high. *Pisaster giganteus* was moderately abundant, consisting mostly of large individuals, with densities on 5 m^2 and 1 m^2 quadrats of 0.050/m^2 and 0.13/m^2, respectively. *Pisaster ochraceus,* while not one of our indicator species, was common. *Parastichopus parvimensis* was common and had a density of 0.33/m^2. *Pachythyone rubra* was observed scattered around the site, but no cover was recorded on RPCs. *Ophiothrix spiculata* was moderately abundant with a cover of 18%, similar to recent years. No sea star wasting disease was observed.

Similar to previous years, *Haliotis* spp. were not observed at the site. *Cypraea spadicea* was moderately abundant with density of 0.71/m^2, similar to previous years. *Megastraea undosa* was common at 0.13/m^2. Juvenile *M. undosa* were observed at the site, though rare. *Astraea gibberosa* was not observed at the site. *Tegula regina* was moderately abundant and had a density of 0.13/m^2. *Kelletia kelletii* density continued to decrease to 0.0097/m^2. *Megathura crenulata* was abundant at 0.35/m^2, the highest recorded at this site. Mean size of *M. crenulata* decreased from 61 mm last year to 48 mm. *Crassedoma giganteum* was common, with many size classes present, at a density of 0.021/m^2. *Aplysia californica* was abundant with a density of 0.16/m^2, and consisted mostly of small individuals. *Panulirus interruptus* was rare and none were observed on band transects.

Fish abundance and diversity appeared lower than last year. *Coryphopterus nicholsii* had a density of 0.63/m^2, a decrease from past years. *Alloclinus holderi* was not observed on 1m^2 quadrats. *Lythrypnus dalli* was not observed. Roving diver fish counts were conducted on August 31st by six divers observing 19 species. Figures summarizing RDFC data can be found in Appendix C.

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
2011 sampling dates: 7/14
2011 status: Dominated by *Ophiothrix spiculata*

This site continued to be dominated by *Ophiothrix spiculata*. The developing *Macrocystis pyrifera* forest present at the east end of the transect last year has disappeared along with nearly all other macroalgae at the site. Canopy cover of *M. pyrifera* was estimated at 0.0%. Adult and juvenile *M. pyrifera* were rare and not observed during sampling, although two unhealthy subadults were observed at the site. *Eisenia arborea* was rare at the site and not observed during sampling. No *Pterygophora californica, Laminaria farlowii, Cystoseira* spp. or *Desmarestia* spp. were observed at the site. No *Sargassum horneri* was observed. Miscellaneous brown algae were rare with none observed during RPCs. Miscellaneous red algae cover was rare at 2.8%, the lowest cover recorded at this site. This category consisted mostly of *Laurencia pacifica*. No *Gelidium* spp. or *Gigartina* spp. were observed during sampling. Green algae were rare with a cover of 0.17%. Miscellaneous plants cover, consisting of filamentous diatoms, was 3.8%, similar to previous years. Encrusting coralline algae were abundant at a cover of 67%. Articulated coralline algae cover was 0.83%. Bare substrate cover was 17%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 3.2% and consisted mostly of *Spirobranchus spinosus*. Tunicates were rare with 2.2% cover. *Styela montereyensis* was not observed. Sponges were moderately abundant at a cover of 2.5%, the highest recorded at this site. *Tethya aurantia* was moderately abundant with a density of 0.094/m², the highest on record for this site. Miscellaneous bryozoans were rare at 3.7% cover. *Diaperoecia californica* was common at a cover of 0.17%. *Diopatra ornata* and *Serpulorbis squamigerus* were present at the site but not observed during sampling. *Phragmatopoma californica* was not observed. *Urticina lofotensis* was not observed. *Corynactis californica* was common and cover increased to 7.2%, the highest on record for this site. *Astrangia lajollaensis* was common and *Balanophyllia elegans* was rare at the site, but neither were recorded during RPCs. *Lophogorgia chilensis*, *Muricea fruticosa* and *Muricea californica* were present with densities of 0.0056/m², 0.0028/m² and 0.0014/m², respectively, similar to past years. Most of the gorgonians appeared unhealthy, which was possibly due to *Ophiothrix spiculata* covering many of them.

Adult *Strongylocentrotus franciscanus* were common and juveniles were rare with a density of 2.1/m². Mean size of *S. franciscanus* was 32 mm, same as last year. *Strongylocentrotus purpuratus* adults were moderately abundant and juveniles were common with a density of 23/m². Mean size of *S. purpuratus* increased slightly to 25 mm. *Centrostephanus coronatus* was common with a density of 0.46/m². *Lytechinus anamesus* was rare with a density of 0.0028/m^2 and only two individuals were observed at the site. One *L. anamesus* was small and the other was approximately 15 mm. This low density of *L. anamesus* could be due to the abundant *Ophiothrix spiculata* covering the substrate. No sea urchin wasting disease was observed.

Pisaster giganteus was rare at the site and sampled on 5 m^2 and 1 m^2 quadrats. Density of *P. giganteus* on 5 m^2 quadrats was 0.025/m², while none were observed during 1 m^2 quadrats for the first time since 2006. Only eleven *P. giganteus* were located for size frequencies and measured at a mean size of 174 mm. *Patiria miniata* was rare with a density of 0.17/m². *Ophiothrix spiculata* was more abundant than in recent years at 84% cover. *Pycnopodia helianthoides* was not observed at the site. *Pachythyone rubra* was not observed. *Parastichopus parvimensis* was moderately abundant with a density of 1.8/m². No sea star wasting disease was observed.

No *Haliotis* spp. or fresh shells were observed at the site. *Cypraea spadicea* was common at a density of 0.21/m². *Megastraea undosa* was rare at the site and not observed on 1 m^2 quadrats for the first time since sampling began in 2005. Juvenile *M. undosa* were rare with five observed at the site. *Astraea gibberosa* was not observed at the site, similar to past years. *Tegula regina* was rare with a density of 0.13/m². *Kelletia kelletii* was rare and not observed during sampling. *Megathura crenulata* was rare at a density of 0.011/m² with both small and large individuals present. *Crassedoma giganteum* was rare with a density of 0.013/m², similar to last year. *Aplysia californica* was not observed during sampling, similar to past years. *Panulirus interruptus* was common at density of 0.014/m².

Fish were abundant and diverse, similar to last year. *Coryphopterus nicholsii* remained abundant with a density of 3.1/m², the highest density recorded for this site. *Alloclinus holderi* was moderately abundant at 0.21/m², with large individuals present. *Lythrypnus dalli* was common with a density of 0.083/m². One large giant black sea bass, *Stereolepis gigas,* was observed at the site. One *Scorpaena guttata,* California scorpionfish, and a *Gymnothorax mordax,* California

Morey Eel, were also observed at the site. Roving diver fish counts were conducted on July 14th by four divers observing up to 25 species. Figures summarizing RDFC data can be found in Appendix C.

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
2011 sampling dates: 6/1, 10/7
2011 status: Dominated by *Strongylocentrotus* spp.

This site was similar to last year and was mostly devoid of brown macroalgae except for a few adult *Eisenia arborea* and several subadult *Macrocystis pyrifera* that were observed growing on the tops of large rocks. *Macrocystis pyrifera* was rare with no adults or subadults observed on 5 m quadrats. Juvenile *M. pyrifera* had a density of 0.21/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 *Laminaria farlowii* was recorded during sampling, although one juvenile was observed at the site. No *Pterygophora californica, Cystoseira* spp. or *Sargassum horneri* were observed at the site. *Desmarestia* spp. were rare and not observed on RPCs. Miscellaneous brown algae were also rare and not recorded during sampling, same as last year. Miscellaneous green algae were rare at a cover of 0.50%. Neither *Gelidium* spp. nor *Gigartina* spp. were observed at the site. Miscellaneous red algae were rare with a cover of 3.2%, similar to recent years. Miscellaneous plants, mostly consisting of filamentous diatoms, were common, though not observed on RPCs. Articulated coralline algae cover was 0.33%. Encrusting coralline algae cover increased to 61%, the highest cover recorded at this site. Bare substrate cover decreased from 33% last year to 19% this year.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover decreased from last year to 10%, the lowest recorded cover at this site. The dominant invertebrates in this category were gorgonians, specifically *Muricea californica*. The high density of barnacles that were present last year due to a recruitment event appears to have mostly disappeared. Tunicates were rare and not observed on RPCs. *Styela montereyensis* was not observed. Sponges were rare at 0.67% cover. *Tethya aurantia* was common at a density of 0.074/m². *Phragmatopoma californica* was rare with a cover of 0.33%, similar to recent years. *Diopatra ornata* was common and had a cover of 1.2%, similar to last year. Miscellaneous bryozoans were rare and not observed on RPCs. *Diaperoecia californica* was present at the site but not observed on RPCs. There seemed to be a considerable amount of appropriate habitat, vertical side portions of rocks, for this species. *Urticina lofotensis* was not observed. *Corynactis californica* was abundant with a cover of 10%, the highest recorded at this site. This is similar to what has been observed at several other KFM sites. *Serpulorbis squamigerus* was rare with a cover of 0.17%. *Astrangia lajollaensis* was common, although not observed on RPCs. *Balanophyllia elegans* was rare and also not observed on RPCs. All gorgonian species remained abundant with *Muricea californica* being the most common at a density of 0.27/m², similar to recent years. *Lophogorgia chilensis* density was 0.081/m², similar to recent years. *Muricea fruticosa* density was 0.017/m².

Strongylocentrotus spp. dominated the site, similar to last year. *Strongylocentrotus franciscanus* and *S. purpuratus* were mostly small with densities of 7.9/m² and 79/m², respectively. Juvenile *S. franciscanus* and *S. purpuratus* were rare. *Centrostephanus coronatus* was common with a density of 0.21/m². Both large and small *Lytechinus anamesus* were common and observed on band transects and 1 m^2 quadrats with densities of 0.08/m² and 0.46/m^2, respectively. Sea urchin wasting disease was observed in approximately 1% of both *S. franciscanus* and *S. purpuratus* during the June 1st visit.

Pisaster giganteus was sampled on 5 m^2 quadrats and 1 m^2 quadrats with densities of 0.080/m² and 0.042/m², respectively. *Patiria miniata* was common at a density of 2.0/m², the highest recorded at this site. *Ophiothrix spiculata* was not observed on RPCs. *Pycnopodia helianthoides* was rare and not observed on band transects. *Pisaster ochraceus,* though not an indicator species, was sampled on 5 m^2 quadrats. *Pachythyone rubra* was not observed. *Parastichopus parvimensis* density was 0.67/m². Density was 0.005/m² with at least eight observed throughout the site. No sea star wasting disease was observed.

No live *Haliotis* spp. or fresh shells were observed at the site. *Cypraea spadicea* were moderately abundant at a density of 0.54/m². *Megastraea undosa* was common at a density of 0.54/m². *Astraea gibberosa* was not observed at the site. *Tegula regina* was rare with a density of 0.083/m², the first recorded density since 2007. *Kelletia kelletii* abundance continued to decrease for the fourth consecutive year. None were observed on band transects. *Megathura crenulata* density was 0.074/m², similar to last year. *Crassedoma giganteum* density remained low compared to 2005 at 0.0069/m². *Aplysia californica* was common, and consisted mostly of small individuals, with a density of 0.049/m², same as last year. *Panulirus interruptus* was not observed at the site.

Fish abundance and diversity were relatively low. *Coryphopterus nicholsii* density was 0.17/m², the lowest recorded density for this site. *Alloclinus holderi* and *Lythrypnus dalli* were not observed. One small *Ophiodon elongatus,* lingcod, and one small *Scorpaenichthys marmoratus,* cabezon, were observed at the site. Roving diver fish counts were conducted on October 7th by five divers observing 20 species. Figures summarizing RDFC data can be found in Appendix C.

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
2011 sampling dates: 6/13
2011 status: Dominated by *Strongylocentrotus* spp. and *Ophiothrix spiculata*.

This site continued to be dominated by *Strongylocentrotus* spp. and *Ophiothrix spiculata*. Much of the low-lying areas remained devoid of macroalgae and mostly covered by encrusting algae. However, there was notably more *Desmarestia* spp., as well as filamentous and foliose red algae than in recent years. No *Macrocystis pyrifera, Pterygophora californica* or *Laminaria farlowii* were observed during sampling, although juvenile *M. pyrifera* was observed at the site. *Eisenia arborea* adults and juveniles were rare with densities of 0.0/m^2 and 0.083/m², respectively. Percent cover for *E. arborea* was 0.0%. Similar to past years, *E. arborea* was present mostly on

high relief areas. No *Cystoseira* spp. were observed at the site. *Desmarestia* spp. were present in patches throughout the transect with a cover of 12%, the highest recorded for this site. No *Sargassum horneri* was observed. Miscellaneous brown algae cover was 0.17%, the same as last year. Green algae cover was 1.8%, a decrease from last year when it was notably abundant, and consisted mostly of *Codium setchellii/hubbsii*. Miscellaneous red algae cover increased to 23%. Miscellaneous plant cover, consisting mainly of filamentous diatoms, was 1.0%. Articulated coralline algae cover was 0.50%. Encrusting coralline algae was moderately abundant at 68% cover, similar to last year. Bare substrate cover remained similar to last year at 9.5%.

Areas with moderate to high relief had an abundance of encrusting invertebrates. Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was observed at 8.5%. This category consisted mostly of *Myxicola infundibulum* and amphipod tube mats. *Myxicola infundibulum* appeared less abundant than in recent years. Tunicates were common with a cover of 1.8%. *Styela montereyensis* was not observed. Sponges were moderately abundant with a cover of 0.50%. For a Santa Barbara Island site, tunicates and sponges were diverse. *Tethya aurantia* continued to be rare with a density of 0.0056/m². There appeared to be fewer than 10 *T. aurantia* at the site, with most found from 50-100 m on the south side of the transect. *Phragmatopoma californica* was not observed. *Serpulorbis squamigerus* was common at a cover of 0.17%. *Diopatra ornata* was rare and not observed on RPCs. *Diaperoecia californica* was common with a cover of 0.33%. Miscellaneous bryozoans were common and cover remained similar to last year at 2.5%. *Urticina lofotensis* was not observed. *Corynactis californica* was moderately abundant at 5.5% cover, similar to last year. *Balanophyllia elegans* appeared notably abundant this year and cover was 0.67%. *Astrangia lajollaensis* was common with a 0.17% cover. *Lophogorgia chilensis* and *Muricea californica* were present with densities of 0.0083/m² and 0.0042/m², respectively. *Muricea fruticosa* was present, but not observed on band transects.

Strongylocentrotus purpuratus was moderately abundant with a density of 52/m², similar to the past two years, and juveniles were common. Mean size of *S. purpuratus* was 19 mm, similar to past years. *Strongylocentrotus franciscanus* was common with a density of 7.0/m² and juveniles were also common. The mean size of *S. franciscanus* was 35 mm, same as last year. *Lytechinus anamesus* was rare with a density of 0.0014/m², the same as last year. *Centrostephanus coronatus* was rare at 0.33/m². Fresh urchin tests were common at the site. No sea urchin wasting disease was observed.

Pisaster giganteus was moderately abundant and most individuals were large. *Pisaster giganteum* were sampled on both 5 m^2 quadrats and 1 m^2 quadrats with densities of 0.15/m² and 0.13/m², respectively, and both similar to last year. *Patiria miniata* was abundant with a density of 2.2/m², similar to past years. *Pycnopodia helianthoides* was common for a Santa Barbara Island site and had a density of 0.017/m², an increase from last year. All *P. helianthoides* observed were large in size. One *P. helianthoides* was observed feeding on *Orthasterias* sp. *Ophiothrix spiculata* was moderately abundant but appeared less so than in recent years. *Ophiothrix spiculata* cover remained similar to last year at 13%. *Pachythyone rubra* was not observed. *Parastichopus parvimensis* was common at a density of 0.13/m². No sea star wasting disease was observed.

No *Haliotis* spp. were observed at the site. *Cypraea spadicea* was common at a density of 0.63/m², similar to past years. *Megastraea undosa* was moderately abundant with a density of

0.29/m². Mean size of *M. undosa* was 77 mm, and many size classes were present. *Astraea gibberosa* was rare with a density of 0.042/m², similar to past years. *Tegula regina* was common with a density of 0.29/m² and both large and small individuals were observed. *Kelletia kelletii* was not observed at the site. *Megathura crenulata* was moderately abundant along the western half of the transect, and had a density of 0.15/m², similar to past years. *Crassedoma giganteum* continued to be rare with a density of 0.0097/m². *Aplysia californica* was moderately abundant at 0.064/m², a decrease from last year. *Panulirus interruptus* was rare with a density of 0.0014/m². Only two *P. interruptus* were observed at the site. Several *Octopus* sp. were observed. One observer counted eight *Bursa californica* with eggs while sampling 1 m^2 quadrats. The *B. californica* were laying their eggs in empty clam and scallop shells.

Similar to last year, fish were low in abundance and diversity. *Coryphopterus nicholsii* was rare on 1 m^2 quadrats at 0.083/m². *Alloclinus holderi* density was 0.0/m². *Lythrynpnus dalli* was not observed. Two of what we think were pelagic/juvenile cabezon, *Scorpaenichthys marmoratus,* were observed. One recruited to a mesh bag hanging at the end of the current line on the surface and the other recruited to a diver during their safety stop. These juveniles recruited within two hours of each other. Roving diver fish counts were conducted on June 13th by six divers observing 24 species. Figures summarizing RDFC data can be found in Appendix C.

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
2011 sampling dates: 6/15
2011 status: Dominated by *Strongylocentrotus* spp. and *Ophiothrix spiculata*

Despite the appearance of juvenile algae last year, this site continued to be dominated by *Ophiothrix spiculata* and *Strongylocentrotus* spp. No adult or juvenile *Macrocystis pyrifera* were observed during sampling, but several juveniles were observed growing on gorgonians. Adult and juvenile *Eisenia arborea* were not observed during sampling, but several juveniles were observed at the southeast end of the transect. No *Pterygophora californica* or *Laminaria farlowii* were observed at the site, similar to past years. *Desmarestia* spp. were rare with a cover of 0.17%. No *Cystoseira* spp. were observed at the site. No miscellaneous brown algae were observed during sampling. The invasive brown alga *Sargassum horneri* was not observed at the site, unlike last year when juveniles were observed during 1 m^2 quadrats. Miscellaneous red algae were common with a cover of 9.3%. *Gelidium* spp. were rare with a cover of 0.83%. No *Gigartina* spp. were observed at the site. Miscellaneous plants, consisting of filamentous diatoms, were common but not observed on RPCs. Encrusting coralline algae cover was 41% and articulated coralline algae cover was 0.17%, both similar to last year. Bare substrate cover remained high at 40%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata*, cover was 15%. The most common taxa in this category were sea anemones, consisting mostly of *Tealia coriacea*, *Sagartia* spp. and *Cactosoma* spp. Tunicate cover was 0.5%, similar to last year, and mostly consisted of *Pycnoclavella* sp. *Styela montereyensis* was not observed. Sponges were common and had a cover of 0.5%. T*ethya aurantia* was moderately abundant at 0.088/m², similar to last year.

Diopatra ornata was rare and not observed on RPCs. *Phragmatopoma californica* was not observed at the site. Miscellaneous bryozoans were rare with a cover of 0.33%. *Diaperoecia californica* was rare and was not observed on RPCs. *Urticina lofotensis* was not observed. *Corynactis californica* was common with a cover of 5.3%. *Balanophyllia elegans* was rare and was not observed during sampling. *Astrangia lajollaensis* was rare with a cover of 0.17%. Similar to last year, *Lophogorgia chilensis* and *Muricea californica* were common, with densities of 0.039/m² and 0.026/m², respectively. *Muricea fruticosa* was rare and not observed during sampling.

Strongylocentrotus franciscanus density was 2.8/m², similar to last year. *Strongylocentrotus purpuratus* was moderately abundant at 54/m², the highest density recorded at this site. Mean sizes of *S. franciscanus* and *S. purpuratus* was 46 mm and 19 mm, respectively. Both *S. franciscanus* and *S. purpuratus* juveniles were common. *Centrostephanus coronatus* was rare with a density of 0.042/m², similar to recent years. *Lytechinus anamesus* was rare and not observed during sampling. Wasting disease was observed in approximately 2% of both *S. franciscanus* and *S. purpuratus*.

Pisaster giganteus was common and sampled on both 5 m^2 quadrats and 1 m^2 quadrats with densities of 0.025/m² and 0.0/m^2, respectively. *Patiria miniata* was common with a density of 0.54/m². Mean size of *P. miniata* was 63 mm. No *Pycnopodia helianthoides* were observed at the site, similar to past years. *Ophiothrix spiculata* was the most dominant invertebrate with a cover of 35%, similar to past years. *Pachythyone rubra* was not observed. *Parastichopus parvimensis* was rare at 0.083/m², same as last year. No sea star wasting disease was observed.

No live *Haliotis* spp. or fresh shells were observed at the site. *Cypraea spadicea* was rare and not observed during 1 m^2 quadrats. *Megastraea undosa* was rare and not observed on 1 m^2 quadrats. *Astraea gibberosa* was not observed. Neither *Tegula regina* nor *Kelletia kelletii* were observed at the site. *Megathura crenulata* was not observed at the site. *Crassedoma giganteum* was rare with a density of 0.0028/m^2. *Aplysia californica* was moderately abundant with a density of 0.16/m² and individuals were mostly small. *Panulirus interruptus* was not observed at the site.

Overall, this site had very few fish and low diversity. *Coryphopterus nicholsii* density was 0.50/m². No *Lythrypnus dalli* were observed, similar to past years. *Alloclinus holderi* were not observed on 1 m^2 quadrats, but they were observed during the roving diver fish count. Three large male *Semicossyphus pulcher* were observed after the RDFC was completed. Roving diver fish counts were conducted on June 15th with seven divers observing 16 species. Figures summarizing RDFC data can be found in Appendix C.

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

Comments: There was a remarkable abundance of the pelagic tunicate species, *Pyrosoma atlanticum,* throughout the water column at the site.

Location: Southeast Reef, Santa Barbara Island
Site #37, SBSER
Year sampling began: 2005
2011 sampling dates: 7/26
2011 status: Mature kelp forest

There was a notable increase in macroalgae this year. Since monitoring began at this site the kelp forest was limited to the eastern half of the transect, with the western half dominated by *Strongylocentrotus* spp. This site now has a more uniform density of mature, widely-spaced *Macrocystis pyrifera* over the entire length of the transect, with the western half no longer dominated by *Strongylocentrotus* spp. Canopy cover was estimated at 25%. *Macrocystis pyrifera* adults and subadults were moderately abundant with densities of 0.21/m² and 0.94/m², respectively, both the highest densities recorded at this site. *Macrocystis pyrifera* juveniles were moderately abundant at 2.3/m², a decrease from last year's high. Cover for *M. pyrifera* was 38%, the highest recorded for this site. Adult *Eisenia arborea* were moderately abundant at 0.33/m². Juvenile *E. arborea* were common, but not observed on quadrats. Cover of *E. arborea* was 14%, the highest recorded at this site. No *Pterygophora californica* was observed at the site. *Laminaria farlowii* was rare, with adult and juvenile densities of 0.13/m^2 and 0.042/m^2, respectively. Cover of *L. farlowii* was 0.50%. *Desmarestia* spp. were moderately abundant, covering large areas of the site, and had 9.3% cover. *Cystoseira* spp. were moderately abundant, with many large, reproductive individuals present, with a cover of 7.7%. Miscellaneous brown algae were moderately abundant with a cover of 11% and consisted mostly of *Dictyota* spp. and *Pachydictyon* spp. *Sargassum horneri* was rare, with several (7-10) reproductive plants observed along the transect. Densities of adult *S. horneri* on band transects, 5 m^2 quadrats and 1 m^2 quadrats, were 0.011/m^2, 0.0050/m^2, and 0.0/m^2, respectively. Densities of juvenile *S. horneri* on band transects, 5 m^2 quadrats and 1 m^2 quadrats, were 0.000/m^2, 0.0050/m^2 and 0.042/m^2, , respectively. Cover of *S. horneri* was 0.0%. Miscellaneous red algae were moderately abundant with a cover of 48%, the highest recorded at this site. *Gelidium* spp. wasrare and had a cover of 1.3%. *Gigartina* spp. were common and had a cover of 1.0%. Other green algae were common at 0.67% and consisted mainly of *Codium setchellii, Codium fragile,* and *Halicystis ovalis*. Miscellaneous plants, consisting of filamentous diatoms, were common with a cover of 2.3%. Encrusting coralline algae cover was moderately abundant at 37%, a decrease from past years. Articulated coralline algae cover was 9.5%. Bare substrate cover was low at 2.2%.

Miscellaneous invertebrates, excluding *Ophiothrix spiculata,* cover was 15%, similar to past years. This category consisted mostly of small anemones and hydroids. Tunicates were abundant and diverse with 19% cover, the highest cover recorded, and included the encrusting tunicate *Aplidium* spp. *Styela montereyensis* was not observed. Sponges were common with a cover of 3.8%. *Tethya aurantia* remained rare at a density of 0.0056/m², similar to previous years. *Phragmatopoma californica* was moderately abundant with 10% cover, the highest recorded at this site. *Serpulorbis squamigerus* was common, but was not observed on RPCs. *Diopatra ornata* remained common in low lying areas with a cover of 0.50%, similar to recent years. Miscellaneous bryozoans cover continued to steadily increase, and was recorded at 34% and included *Bugula* spp., *Thalamoporella californica,* as well as encrusting species. *Diaperoecia californica* and had a cover of 0.17%. *Urticina lofotensis* was not observed. *Corynactis californica* remained rare with no cover observed on RPCs. *Astrangia lajollaensis* and *Balanophyllia elegans* had covers of 0.50% and 0.0%, respectively. Gorgonians were common

with *Lophogorgia chilensis*, *Muricea californica* and *M. fruticosa* densities at 0.0056/m², 0.0097/m² and 0.0/m², respectively.

Strongylocentrotus spp. were abundant in patches around the site, creating localized urchin barrens. Juveniles of both *S. franciscanus* and *S. purpuratus* were moderately abundant, which may result in an expansion of the barren patches in the near future. Another notable observation was the presence of many large *S. franciscanus* tests, indicative of recent predation likely by sheephead, or possibly by lobster. *Strongylocentrotus franciscanus* was moderately abundant with a density of 7.9/m², similar to recent years. Mean size of *S. franciscanus* was 34 mm, a decrease from 62 mm last year, and the lowest recorded at this site. *Strongylocentrotus purpuratus* was moderately abundant with a density of 9.0/m^2, an increase from last year. Mean size for *S. purpuratus* was 14 mm, a decrease from 20 mm last year, and the lowest recorded at this site. *Centrostephanus coronatus* was moderately abundant and density increased to 0.38/m². *Lytechinus anamesus* was not observed at the site. No sea urchin wasting disease was observed.

Pisaster giganteus was common and had densities on 5 m^2 and 1 m^2 quadrats of 0.075/m² and 0.042/m², respectively. *Patiria miniata* and *Pycnopodia helianthoides* were not observed at the site, similar to previous years. *Ophiothrix spiculata* was common, andfound mostly in *Macrocystis pyrifera* holdfasts, but was not observed on RPCs. *Pachythyone rubra* was not observed at the site. Density of *Parastichopus parvimensis* was 0.96/m², and consisted mostly of medium-sized individuals. No sea star wasting disease was observed.

No live *Haliotis* spp. were observed. One fresh *H. corrugata* shell was found, which measured 40 mm. *Cypraea spadicea* was common, similar to past years, with a density of 0.13/m². *Megastraea undosa* was also common with a density of 0.083/m², same as last year. *Astraea gibberosa* was not observed. *Tegula regina* adults and juveniles were moderately abundant, and had a density of 0.083/m², similar to past years. Mean size of *T. regina* was similar to last year at 45 mm. *Kelletia kelletii* was not observed. *Megathura crenulata* was rare, and had a density of 0.015/m². *Crassedoma giganteum* was common, with most being small individuals, at 0.044/m², an increase from last year. Mean size for *C. giganteum* was 64 mm, a decrease from last year's high of 88 mm. *Aplysia californica* was moderately abundant, consisting mostly of small individuals, and had a density of 0.14/m², the highest recorded at this site. *Panulirus interruptus* was common and had a density of 0.011/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 0.17/m², similar to recent years. *Alloclinus holderi* density was 0.083/m^2. *Lythrypnus dalli* were not observed. Roving diver fish counts were performed on July 26th with six divers observing 26 species. Figures summarizing RDFC data can be found in Appendix C.

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

Appendix B. 1 Meter Quadrat Data

2011 1-M QUADRAT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
San Miguel Island - Wyckoff Ledge			
Macrocystis pyrifera, adult	0.3333	0.5774	12
Macrocystis pyrifera, juvenile, juvenile	0.0833	0.1946	12
Macrocystis pyrifera stipes for plants >1m	4.8750	6.3929	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.0000	0.0000	12
Pterygophora californica, adult	0.8750	0.7111	12
Pterygophora californica, juvenile	0.0833	0.1946	12
Laminaria farlowii, adult	0.0000	0.0000	12
Laminaria farlowii, juvenile	0.0000	0.0000	12
Dictyoneuropsis reticulata/Agarum fimbriatum, adult	4.0833	5.6159	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.0000	0.0000	12
Kelletia kelletii	0.9167	0.7334	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.1667	0.4438	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	2.6250	1.1894	12
Pisaster giganteus	0.0833	0.1946	12
Strongylocentrotus franciscanus	1.0000	3.3098	12
Strongylocentrotus purpuratus	0.3333	0.5365	12
Parastichopus parvimensis	0.1667	0.4438	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.3333	0.4924	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.0000	0.0000	12
Alloclinus holderi	0.0000	0.0000	12
San Miguel Island - Hare Rock			
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	0.5833	0.7638	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.3333	0.6155	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	6.0833	3.7769	12
Pisaster giganteus	0.2500	0.3371	12
Strongylocentrotus franciscanus	15.4583	6.6451	12
Strongylocentrotus purpuratus	0.2083	0.2575	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	0.4583	0.5823	12
Alloclinus holderi	0.0000	0.0000	12

2011 1-M QUADRAT DATA: MEAN NUMBER PER M_2

Species	Mean	Std. Dev.	n
Santa Rosa Island - Johnson's Lee North			
Macrocystis pyrifera, adult	0.6667	0.6513	12
Macrocystis pyrifera, juvenile, juvenile	4.2917	4.6194	12
Macrocystis pyrifera stipes for plants >1m	5.2500	5.4959	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.2500	0.6216	12
Pterygophora californica, adult	0.4583	0.4981	12
Pterygophora californica, juvenile	0.2500	0.5000	12
Laminaria farlowii, adult	0.3750	0.6440	12
Laminaria farlowii, juvenile	2.1667	4.6188	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.2083	0.2575	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	1.3750	0.9799	12
Pisaster giganteus	0.2500	0.5000	12
Strongylocentrotus franciscanus	0.5833	1.5787	12
Strongylocentrotus purpuratus	0.2500	0.5000	12
Parastichopus parvimensis	0.0833	0.1946	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	3.1250	1.3838	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.0417	0.1443	12
Alloclinus holderi	0.0000	0.0000	12
Santa Rosa Island - Johnson's Lee South			
Macrocystis pyrifera, adult	0.0833	0.1946	12
Macrocystis pyrifera, juvenile, juvenile	2.5833	3.2532	12
Macrocystis pyrifera stipes for plants >1m	0.4167	1.1645	12
Eisenia arborea, adult	0.0833	0.2887	12
Eisenia arborea, juvenile	0.0000	0.0000	12
Pterygophora californica, adult	0.0417	0.1443	12
Pterygophora californica, juvenile	0.1667	0.4438	12
Laminaria farlowii, adult	0.8750	1.2636	12
Laminaria farlowii, juvenile	1.1667	1.7753	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Cypraea spadicea	0.2917	0.3965	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	5.7917	2.2508	12
Pisaster giganteus	0.1667	0.3257	12
Strongylocentrotus franciscanus	0.9167	1.5349	12
Strongylocentrotus purpuratus	3.9583	6.8273	12
Parastichopus parvimensis	0.0000	0.0000	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	2.8333	2.9413	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.5000	0.6742	12
Alloclinus holderi	0.0000	0.0000	12

2011 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	0.2083	0.4502	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.0417	0.1443	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	5.7083	3.0634	12
Pisaster giganteus	0.1667	0.3257	12
Lytechinus anamesus	0.1667	0.5774	12
Strongylocentrotus franciscanus	7.4583	4.1695	12
Strongylocentrotus purpuratus	0.2500	0.7230	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	0.0833	0.1946	12
Alloclinus holderi	0.0000	0.0000	12
Santa Cruz Island - Gull Island South			
Macrocystis pyrifera, adult	0.1250	0.2261	12
Macrocystis pyrifera, juvenile, juvenile	0.3750	0.6440	12
Macrocystis pyrifera stipes for plants >1m	1.0833	2.4199	12
Eisenia arborea, adult	0.2917	0.3343	12
Eisenia arborea, juvenile	0.3333	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	0.0417	0.1443	12
Dictyoneuropsis reticulata/Agarum fimbriatum, adult	0.2500	0.3371	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	1.1667	1.1146	12
Megastraea undosa	0.0417	0.1443	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	3.7500	1.6720	12
Pisaster giganteus	0.2500	0.3371	12
Strongylocentrotus franciscanus	6.2500	3.5323	12
Strongylocentrotus purpuratus	36.7917	35.0100	12
Parastichopus parvimensis	0.2917	0.3343	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.3333	0.4438	12
Alloclinus holderi	0.0000	0.0000	12

2011 1-M QUADRAT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
Santa Cruz Island - Fry's Harbor			
Macrocystis pyrifera, adult	0.2083	0.2575	12
Macrocystis pyrifera, juvenile, juvenile	0.2500	0.5000	12
Macrocystis pyrifera stipes for plants >1m	1.0417	2.1686	12
Eisenia arborea, adult	0.7917	1.1766	12
Eisenia arborea, juvenile	0.2917	0.5823	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	0.8750	0.8292	12
Megastraea undosa	0.0417	0.1443	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	4.4167	2.9064	12
Pisaster giganteus	0.1667	0.3257	12
Strongylocentrotus franciscanus	2.2917	3.5192	12
Strongylocentrotus purpuratus	3.4167	4.3214	12
Parastichopus parvimensis	0.0417	0.1443	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0833	0.1946	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	2.0417	1.6440	12
Alloclinus holderi	0.0417	0.1443	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	0.0417	0.1443	12
Megastraea undosa	0.0417	0.1443	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	0.7500	0.9170	12
Pisaster giganteus	0.3333	0.4924	12
Lytechinus anamesus	0.7500	0.8394	12
Strongylocentrotus franciscanus	4.0417	2.7341	12
Strongylocentrotus purpuratus	22.6250	16.3681	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	2.7500	1.9129	12
Alloclinus holderi	0.0000	0.0000	12

2011 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	0.1250	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	0.5417	0.4981	12
Pisaster giganteus	0.3750	0.5276	12
Lytechinus anamesus	0.1250	0.4330	12
Strongylocentrotus franciscanus	6.7917	2.4905	12
Strongylocentrotus purpuratus	62.0000	33.1121	12
Parastichopus parvimensis	0.6250	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	1.9583	0.9160	12
Alloclinus holderi	0.0000	0.0000	12
Santa Cruz Island - Yellow Banks			
Macrocystis pyrifera, adult	0.0417	0.1443	12
Macrocystis pyrifera, juvenile, juvenile	0.0417	0.1443	12
Macrocystis pyrifera stipes for plants >1m	0.0833	0.2887	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	0.0833	0.2887	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	0.2462	12
Megastraea undosa	0.6667	0.7785	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	2.5417	1.4994	12
Pisaster giganteus	0.1250	0.2261	12
Lytechinus anamesus	0.0000	0.0000	12
Strongylocentrotus franciscanus	8.4583	8.0070	12
Strongylocentrotus purpuratus	27.5833	22.6232	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	1.2083	0.9643	12
Alloclinus holderi	0.0000	0.0000	12

2011 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	0.0833	0.1946	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	1.7917	1.3561	12
Pisaster giganteus	0.0417	0.1443	12
Lytechinus anamesus	0.0833	0.1946	12
Strongylocentrotus franciscanus	7.6667	6.6241	12
Strongylocentrotus purpuratus	7.5000	4.3849	12
Parastichopus parvimensis	0.5000	1.0225	12
Centrostephanus coronatus	0.5417	0.6557	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.3333	0.3892	12
Alloclinus holderi	0.0000	0.0000	12
Anacapa Island - Cathedral Cove			
Macrocystis pyrifera, adult	1.0417	1.1766	12
Macrocystis pyrifera, juvenile, juvenile	15.5000	10.0068	12
Macrocystis pyrifera stipes for plants >1m	3.5417	6.1661	12
Eisenia arborea, adult	0.2083	0.3343	12
Eisenia arborea, juvenile	0.1250	0.2261	12
Pterygophora californica, adult	0.0000	0.0000	12
Pterygophora californica, juvenile	0.0417	0.1443	12
Laminaria farlowii, adult	8.7083	3.7686	12
Laminaria farlowii, juvenile	33.4167	15.2864	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	0.1667	0.3257	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	4.3750	4.4524	12
Strongylocentrotus purpuratus	2.5833	2.6615	12
Parastichopus parvimensis	1.1667	0.9129	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.1250	0.2261	12
Alloclinus holderi	0.0000	0.0000	12

2011 1-M QUADRAT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
Anacapa Island - Landing Cove			
Macrocystis pyrifera, adult	0.0833	0.2887	12
Macrocystis pyrifera, juvenile, juvenile	21.8750	16.5819	12
Macrocystis pyrifera stipes for plants >1m	0.2500	0.8660	12
Eisenia arborea, adult	1.6250	1.9438	12
Eisenia arborea, juvenile	1.8750	2.2975	12
Pterygophora californica, adult	1.9167	2.3821	12
Pterygophora californica, juvenile	10.7083	15.1979	12
Laminaria farlowii, adult	5.8333	3.7558	12
Laminaria farlowii, juvenile	27.8750	19.0097	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	0.0833	0.1946	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	4.2917	4.5199	12
Strongylocentrotus purpuratus	8.0417	11.0030	12
Parastichopus parvimensis	0.4167	0.7017	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 - 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	0.0000	0.0000	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.2500	0.5000	12
Patiria miniata	1.2917	0.9160	12
Pisaster giganteus	0.0000	0.0000	12
Strongylocentrotus franciscanus	4.7917	4.8216	12
Strongylocentrotus purpuratus	47.7500	17.7412	12
Parastichopus parvimensis	0.2500	0.3989	12
Centrostephanus coronatus	0.2917	0.3965	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	1.1667	0.6513	12
Alloclinus holderi	0.0000	0.0000	12

2011 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	0.2917	0.4502	12
Megastraea undosa	0.1250	0.3108	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.2917	0.6201	12
Patiria miniata	3.2500	2.1052	12
Pisaster giganteus	0.0000	0.0000	12
Strongylocentrotus franciscanus	5.9583	1.7640	12
Strongylocentrotus purpuratus	136.7500	57.3979	12
Parastichopus parvimensis	0.0833	0.2887	12
Centrostephanus coronatus	0.2500	0.3371	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.7917	1.9938	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	0.0000	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	0.0417	0.1443	12
Megastraea undosa	0.8750	1.0252	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.4167	0.7017	12
Patiria miniata	0.1667	0.3892	12
Pisaster giganteus	0.0417	0.1443	12
Strongylocentrotus franciscanus	11.3333	3.0327	12
Strongylocentrotus purpuratus	79.7083	28.0830	12
Parastichopus parvimensis	0.2083	0.4502	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.0833	0.1946	12
Alloclinus holderi	0.0417	0.1443	12

2011 1-M QUADRAT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
San Miguel Island - Miracle Mile			
Macrocystis pyrifera, adult	0.5417	0.7217	12
Macrocystis pyrifera, juvenile, juvenile	1.0000	1.2792	12
Macrocystis pyrifera stipes for plants >1m	5.9167	8.8468	12
Eisenia arborea, adult	0.2083	0.3343	12
Eisenia arborea, juvenile	0.0833	0.1946	12
Pterygophora californica, adult	0.6667	0.8876	12
Pterygophora californica, juvenile	2.3750	6.8362	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
Haliotis rufescens	0.4167	0.5149	12
Cypraea spadicea	0.0000	0.0000	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.5000	0.4767	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	3.2917	2.3204	12
Pisaster giganteus	0.4583	0.6201	12
Strongylocentrotus franciscanus	1.8333	2.9181	12
Strongylocentrotus purpuratus	0.1250	0.3108	12
Parastichopus parvimensis	0.0833	0.1946	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.1250	0.3108	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.0000	0.0000	12
Alloclinus holderi	0.0000	0.0000	12
Santa Rosa Island - Cluster Point			
Macrocystis pyrifera, adult	0.0417	0.1443	12
Macrocystis pyrifera, juvenile, juvenile	0.4167	0.7017	12
Macrocystis pyrifera stipes for plants >1m	0.1667	0.5774	12
Eisenia arborea, adult	0.3750	0.6077	12
Eisenia arborea, juvenile	0.0833	0.1946	12
Pterygophora californica, adult	1.3750	1.7073	12
Pterygophora californica, juvenile	0.5833	1.5787	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	0.2083	0.4502	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	5.0417	3.4143	12
Pisaster giganteus	0.0833	0.1946	12
Strongylocentrotus franciscanus	5.9583	8.0833	12
Strongylocentrotus purpuratus	8.2500	9.4880	12
Parastichopus parvimensis	0.1667	0.3257	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	1.1667	1.9579	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.0833	0.1946	12
Alloclinus holderi	0.0000	0.0000	12

2011 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	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	0.9167	0.9495	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	3.3750	2.2576	12
Pisaster giganteus	0.6667	0.8348	12
Strongylocentrotus franciscanus	12.3333	5.2107	12
Strongylocentrotus purpuratus	9.1250	7.3272	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	0.1667	0.2462	12
Alloclinus holderi	0.0000	0.0000	12
Santa Rosa Island - Chickasaw			
Macrocystis pyrifera, adult	0.2500	0.3989	12
Macrocystis pyrifera, juvenile, juvenile	0.8333	1.2851	12
Macrocystis pyrifera stipes for plants >1m	3.4167	7.1282	12
Eisenia arborea, adult	0.0417	0.1443	12
Eisenia arborea, juvenile	0.0000	0.0000	12
Pterygophora californica, adult	0.3333	0.8876	12
Pterygophora californica, juvenile	0.0833	0.1946	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	0.0000	0.0000	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	2.3750	1.1506	12
Pisaster giganteus	0.0833	0.1946	12
Strongylocentrotus franciscanus	3.2083	4.2558	12
Strongylocentrotus purpuratus	2.0000	3.3912	12
Parastichopus parvimensis	0.1250	0.3108	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.7917	1.0967	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.0417	0.1443	12
Alloclinus holderi	0.0000	0.0000	12

2011 1-M QUADRAT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
Santa Rosa Island - South Point			
Macrocystis pyrifera, adult	0.2917	0.4502	12
Macrocystis pyrifera, juvenile, juvenile	1.4583	1.9124	12
Macrocystis pyrifera stipes for plants >1m	3.7917	5.4583	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.0833	0.1946	12
Pterygophora californica, adult	0.7083	0.7821	12
Pterygophora californica, juvenile	1.2500	1.2703	12
Laminaria farlowii, adult	1.1250	1.0472	12
Laminaria farlowii, juvenile	0.3750	1.2990	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	0.0000	0.0000	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	2.8750	1.3336	12
Pisaster giganteus	0.0000	0.0000	12
Strongylocentrotus franciscanus	1.5833	4.0047	12
Strongylocentrotus purpuratus	10.8750	12.4062	12
Parastichopus parvimensis	0.1250	0.2261	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	2.2083	1.3728	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.2083	0.3343	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	0.0417	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	0.4583	0.6201	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	0.0000	0.0000	12
Tegula regina	0.0417	0.1443	12
Patiria miniata	0.9583	0.5823	12
Pisaster giganteus	0.2917	0.4502	12
Strongylocentrotus franciscanus	3.5000	1.9656	12
Strongylocentrotus purpuratus	11.0833	6.1932	12
Parastichopus parvimensis	0.4583	0.5823	12
Centrostephanus coronatus	0.1667	0.3257	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

2011 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	0.0833	0.2887	12
Macrocystis pyrifera stipes for plants >1m	0.0000	0.0000	12
Eisenia arborea, adult	0.1250	0.4330	12
Eisenia arborea, juvenile	0.3333	1.1547	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	0.2083	0.5823	12
Megastraea undosa	0.2917	0.5418	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.1250	0.3108	12
Patiria miniata	1.9167	1.6214	12
Pisaster giganteus	0.1667	0.2462	12
Lytechinus anamesus	0.3750	1.1506	12
Strongylocentrotus franciscanus	4.0000	2.7052	12
Strongylocentrotus purpuratus	40.2917	29.1146	12
Parastichopus parvimensis	1.0000	0.7977	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.9167	0.7017	12
Alloclinus holderi	0.1250	0.2261	12
Santa Cruz Island - Cavern Point			
Macrocystis pyrifera, adult	0.7083	0.6201	12
Macrocystis pyrifera, juvenile, juvenile	4.7917	4.9335	12
Macrocystis pyrifera stipes for plants >1m	5.7917	6.2175	12
Eisenia arborea, adult	1.2083	1.2873	12
Eisenia arborea, juvenile	2.0000	2.5937	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	0.0417	0.1443	12
Sargassum horneri, adult	7.5417	9.1191	12
Sargassum horneri, juvenile	3.2500	5.3534	12
Cypraea spadicea	0.0833	0.2887	12
Megastraea undosa	0.0417	0.1443	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	0.5000	0.4767	12
Pisaster giganteus	0.0000	0.0000	12
Lytechinus anamesus	0.0417	0.1443	12
Strongylocentrotus franciscanus	1.1667	1.2673	12
Strongylocentrotus purpuratus	17.5417	15.1364	12
Parastichopus parvimensis	1.5833	1.1839	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.6250	0.7111	12
Alloclinus holderi	0.0417	0.1443	12

2011 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	0.0000	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	0.1250	0.2261	12
Megastraea undosa	0.1667	0.3257	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.1250	0.3108	12
Patiria miniata	2.4167	1.5349	12
Pisaster giganteus	0.1667	0.2462	12
Lytechinus anamesus	2.4583	4.3247	12
Strongylocentrotus franciscanus	9.6667	4.5444	12
Strongylocentrotus purpuratus	24.6667	25.8170	12
Parastichopus parvimensis	0.3333	0.5365	12
Centrostephanus coronatus	0.0000	0.0000	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	4.0417	3.2715	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	0.0000	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	0.7083	0.9405	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	1.0833	1.2216	12
Pisaster giganteus	0.1667	0.2462	12
Lytechinus anamesus	4.1667	3.6139	12
Strongylocentrotus franciscanus	24.2083	13.5235	12
Strongylocentrotus purpuratus	133.8750	52.8136	12
Parastichopus parvimensis	0.1250	0.3108	12
Centrostephanus coronatus	0.0417	0.1443	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	3.3333	2.4152	12
Alloclinus holderi	0.0000	0.0000	12

2011 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	0.0417	0.1443	12
Megastraea undosa	0.7083	0.4502	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0833	0.1946	12
Patiria miniata	2.4167	1.5497	12
Pisaster giganteus	0.2083	0.3343	12
Lytechinus anamesus	5.9583	5.3490	12
Strongylocentrotus franciscanus	10.7500	5.1720	12
Strongylocentrotus purpuratus	55.7083	19.5174	12
Parastichopus parvimensis	1.0833	0.9252	12
Centrostephanus coronatus	0.4167	0.4174	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0417	0.1443	12
Coryphopterus nicholsi	4.6250	2.1651	12
Alloclinus holderi	0.0417	0.1443	12
Anacapa Island - East Fish Camp			
Macrocystis pyrifera, adult	0.0000	0.0000	12
Macrocystis pyrifera, juvenile, juvenile	0.1667	0.3257	12
Macrocystis pyrifera stipes for plants >1m	0.0000	0.0000	12
Eisenia arborea, adult	0.0000	0.0000	12
Eisenia arborea, juvenile	0.2917	0.6201	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	0.7083	0.8382	12
Megastraea undosa	0.1250	0.3108	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.1250	0.4330	12
Patiria miniata	1.2917	0.8107	12
Pisaster giganteus	0.1250	0.3108	12
Lytechinus anamesus	0.2500	0.5000	12
Strongylocentrotus franciscanus	16.5000	7.0485	12
Strongylocentrotus purpuratus	114.2083	58.3304	12
Parastichopus parvimensis	0.3333	0.3257	12
Centrostephanus coronatus	0.7083	0.8908	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.6250	0.5276	12
Alloclinus holderi	0.0000	0.0000	12

2011 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	0.0000	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	0.2083	0.3965	12
Megastraea undosa	0.0000	0.0000	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.1250	0.3108	12
Patiria miniata	0.1667	0.4438	12
Pisaster giganteus	0.0000	0.0000	12
Strongylocentrotus franciscanus	2.0833	2.4664	12
Strongylocentrotus purpuratus	23.2917	12.7198	12
Parastichopus parvimensis	1.7500	2.1479	12
Centrostephanus coronatus	0.4583	0.7217	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0833	0.1946	12
Coryphopterus nicholsi	3.1250	1.7073	12
Alloclinus holderi	0.2083	0.4502	12
Anacapa Island - Lighthouse			
Macrocystis pyrifera, adult	0.0000	0.0000	12
Macrocystis pyrifera, juvenile, juvenile	0.2083	0.4502	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	0.5417	1.0326	12
Megastraea undosa	0.5417	0.6557	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0833	0.1946	12
Patiria miniata	2.0000	1.3143	12
Pisaster giganteus	0.0417	0.1443	12
Lytechinus anamesus	0.4583	0.4981	12
Strongylocentrotus franciscanus	7.9167	2.4572	12
Strongylocentrotus purpuratus	78.9167	22.9444	12
Parastichopus parvimensis	0.6667	0.7785	12
Centrostephanus coronatus	0.2083	0.3965	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

2011 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	0.0000	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	0.0833	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	0.6250	0.6784	12
Megastraea undosa	0.2917	0.4981	12
Lithopoma gibberosa	0.0417	0.1443	12
Tegula regina	0.2917	0.3343	12
Patiria miniata	2.1667	1.4196	12
Pisaster giganteus	0.1250	0.2261	12
Strongylocentrotus franciscanus	7.0417	4.4285	12
Strongylocentrotus purpuratus	52.0000	46.4068	12
Parastichopus parvimensis	0.1250	0.3108	12
Centrostephanus coronatus	0.3333	0.7177	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.0833	0.2887	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	0.0000	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	0.0000	0.0000	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0000	0.0000	12
Patiria miniata	0.5417	0.6557	12
Pisaster giganteus	0.0000	0.0000	12
Strongylocentrotus franciscanus	2.7917	2.9883	12
Strongylocentrotus purpuratus	53.8750	48.6416	12
Parastichopus parvimensis	0.0833	0.1946	12
Centrostephanus coronatus	0.0417	0.1443	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.5000	0.9293	12
Alloclinus holderi	0.0000	0.0000	12

2011 1-M QUADRAT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
Santa Barbara Island - Southeast Reef			
Macrocystis pyrifera, adult	1.0417	1.2147	12
Macrocystis pyrifera, juvenile, juvenile	2.2917	2.3302	12
Macrocystis pyrifera stipes for plants >1m	2.5000	3.0000	12
Eisenia arborea, adult	0.3333	0.4924	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	0.1250	0.4330	12
Laminaria farlowii, juvenile	0.0417	0.1443	12
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0417	0.1443	12
Cypraea spadicea	0.1250	0.4330	12
Megastraea undosa	0.0833	0.2887	12
Lithopoma gibberosa	0.0000	0.0000	12
Tegula regina	0.0833	0.2887	12
Patiria miniata	0.0000	0.0000	12
Pisaster giganteus	0.0417	0.1443	12
Strongylocentrotus franciscanus	7.9167	6.4238	12
Strongylocentrotus purpuratus	9.0417	9.2821	12
Parastichopus parvimensis	0.9583	1.2695	12
Centrostephanus coronatus	0.3750	0.8013	12
Styela montereyensis	0.0000	0.0000	12
Lythrypnus dalli	0.0000	0.0000	12
Coryphopterus nicholsi	0.1667	0.3257	12
Alloclinus holderi	0.0833	0.1946	12

Appendix C. 5 Meter Quadrat Data

2011 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	0.2350	0.2788	40
Macrocystis pyrifera, subadult	0.0250	0.0670	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.0550	0.1753	40
San Miguel Island - Hare Rock			
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	0.3250	0.4590	40
Santa Rosa Island - Johnson's Lee North			
Macrocystis pyrifera, adult	0.4200	0.2554	40
Macrocystis pyrifera, subadult	0.4150	0.5172	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.1700	0.2623	40
Santa Rosa Island - Johnson's Lee South			
Macrocystis pyrifera, adult	0.0900	0.1429	40
Macrocystis pyrifera, subadult	0.0950	0.1280	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.1400	0.2318	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	0.3100	0.3169	40
Santa Cruz Island - Gull Island South			
Macrocystis pyrifera, adult	0.0700	0.1604	40
Macrocystis pyrifera, subadult	0.1150	0.2070	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.2000	0.2481	40
Santa Cruz Island - Fry's Harbor			
Macrocystis pyrifera, adult	0.0900	0.1566	40
Macrocystis pyrifera, subadult	0.1100	0.2262	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.3150	0.3505	40

2011 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 - 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	0.3700	0.4140	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	0.2650	0.2455	40
Santa Cruz Island - Yellow Banks			
Macrocystis pyrifera, adult	0.0000	0.0000	40
Macrocystis pyrifera, subadult	0.0250	0.0670	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.0850	0.1424	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	0.0900	0.1630	40
Anacapa Island - Cathedral Cove			
Macrocystis pyrifera, adult	0.2750	0.2426	40
Macrocystis pyrifera, subadult	0.9750	1.3429	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.0050	0.0316	40
Anacapa Island - Landing Cove			
Macrocystis pyrifera, adult	0.0500	0.1340	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	0.0050	0.0316	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	0.0250	0.0670	40

2011 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 - 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	0.1500	0.1797	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	0.1450	0.1867	40
San Miguel Island - Miracle Mile			
Macrocystis pyrifera, adult	0.2450	0.3021	40
Macrocystis pyrifera, subadult	0.1400	0.1985	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.1900	0.2863	40
Santa Rosa Island - Cluster Point			
Macrocystis pyrifera, adult	0.0300	0.0853	40
Macrocystis pyrifera, subadult	0.0500	0.1340	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.1050	0.2124	40
Santa Rosa Island - Trancion 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	0.4300	0.4762	40
Santa Rosa Island - Chickasaw			
Macrocystis pyrifera, adult	0.1600	0.2085	40
Macrocystis pyrifera, subadult	0.0450	0.1061	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.1450	0.2264	40
Santa Rosa Island - South Point			
Macrocystis pyrifera, adult	0.1050	0.1694	40
Macrocystis pyrifera, subadult	0.1050	0.1694	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.0350	0.1189	40

2011 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 - 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	0.2800	0.2514	40
Santa Cruz Island - Potato Pasture			
Macrocystis pyrifera, adult	0.0150	0.0533	40
Macrocystis pyrifera, subadult	0.0450	0.1999	40
Sargassum horneri, adult	0.0000	0.0000	40
Sargassum horneri, juvenile	0.0000	0.0000	40
Pisaster giganteus	0.1700	0.2053	40
Santa Cruz Island - Cavern Point			
Macrocystis pyrifera, adult	0.2550	0.2717	40
Macrocystis pyrifera, subadult	0.2500	0.2961	40
Sargassum horneri, adult	5.2750	7.4361	40
Sargassum horneri, juvenile	5.9350	6.2835	40
Pisaster giganteus	0.1000	0.1502	40
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	0.1700	0.2198	40
Santa Cruz Island - Pedro Reef			
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	0.1400	0.1707	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	0.0900	0.1194	40
Anacapa Island - East Fish Camp			
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	0.0500	0.0877	40

2011 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 - Black Sea Bass 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	0.0250	0.0670	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	0.0800	0.1344	40
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	0.1500	0.2160	40
Santa Barbara Island - Graveyard 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	0.0250	0.0809	40
Santa Barbara Island - Southeast Reef			
Macrocystis pyrifera, adult	0.2050	0.2660	40
Macrocystis pyrifera, subadult	0.9350	0.6919	40
Sargassum horneri, adult	0.0050	0.0316	40
Sargassum horneri, juvenile	0.0050	0.0316	40
Pisaster giganteus	0.0750	0.1256	40

Appendix D. Band Transect Data

2011 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	0.2056	0.1067	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.3639	0.2133	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	0.1236	0.1171	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.6181	0.2772	12
Megathura crenulata	0.0042	0.0075	12
Crassedoma giganteum	0.0125	0.0161	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0264	0.0261	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	0.0486	0.0429	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0264	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	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0222	0.0514	12
Megathura crenulata	0.0028	0.0096	12
Crassedoma giganteum	0.0194	0.0186	12
Aplysia californica	0.0014	0.0048	12
Pycnopodia helianthoides	0.1806	0.0615	12
Lytechinus anamesus	0.0000	0.0000	12

2011 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	0.1347	0.0812	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0194	0.0300	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	0.0250	0.0379	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.0181	0.0166	12
Crassedoma giganteum	0.0125	0.0226	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0792	0.0303	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	0.2958	0.1073	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.1847	0.1334	12
Lophogorgia chilensis	0.0472	0.0244	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0000	0.0000	12
Haliotis rufescens	0.0069	0.0132	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0014	0.0048	12
Megathura crenulata	0.0069	0.0086	12
Crassedoma giganteum	0.0347	0.0372	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0917	0.0469	12
Lytechinus anamesus	0.0000	0.0000	12

2011 BAND TRANSECT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
Santa Rosa Island - Rodes Reef			
Sargassum horneri, adult	0.0014	0.0048	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.3028	0.1174	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0875	0.0427	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	0.0000	0.0000	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0236	0.0351	12
Megathura crenulata	0.0250	0.0297	12
Crassedoma giganteum	0.0486	0.0579	12
Aplysia californica	0.0000	0.0000	12
Haliotis assimilis	0.0014	0.0048	12
Pycnopodia helianthoides	0.5292	0.1552	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	0.3694	0.1955	12
Stylaster californicus	0.1125	0.1653	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0472	0.0300	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	0.0075	12
Megathura crenulata	0.0139	0.0172	12
Crassedoma giganteum	0.0278	0.0269	12
Aplysia californica	0.0014	0.0048	12
Pycnopodia helianthoides	0.0153	0.0194	12
Lytechinus anamesus	0.0000	0.0000	12

2011 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	0.2306	0.1277	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.1944	0.1538	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	0.0111	0.0205	12
Megathura crenulata	0.0694	0.0497	12
Crassedoma giganteum	0.0139	0.0172	12
Aplysia californica	0.0028	0.0065	12
Pycnopodia helianthoides	0.0194	0.0139	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	0.0639	0.0623	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.1611	0.1812	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	0.0028	0.0065	12
Megathura crenulata	0.0028	0.0065	12
Crassedoma giganteum	0.0250	0.0261	12
Aplysia californica	0.0111	0.0287	12
Pycnopodia helianthoides	0.0097	0.0132	12
Lytechinus anamesus	0.1708	0.1328	12

2011 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	0.0514	0.0694	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	0.0000	0.0000	12
Panulirus interruptus	0.0181	0.0194	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	0.3097	0.0928	12
Crassedoma giganteum	0.0264	0.0297	12
Aplysia californica	0.0125	0.0144	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0069	0.0132	12
Santa Cruz Island - Yellow Banks			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.2347	0.1242	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0417	0.0429	12
Muricea fruticosa	0.0028	0.0065	12
Muricea californica	0.0194	0.0264	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	0.0458	0.0377	12
Megathura crenulata	0.0111	0.0192	12
Crassedoma giganteum	0.0014	0.0048	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0278	0.0217	12
Lytechinus anamesus	0.5681	0.5085	12

2011 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	0.0014	0.0048	12
Tethya aurantia	0.0597	0.0575	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0597	0.0399	12
Muricea fruticosa	0.0056	0.0148	12
Muricea californica	0.0361	0.0324	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	0.0014	0.0048	12
Megathura crenulata	0.4431	0.3558	12
Crassedoma giganteum	0.0139	0.0186	12
Aplysia californica	0.0083	0.0133	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0042	0.0104	12
Anacapa Island - Cathedral Cove			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0014	0.0048	12
Tethya aurantia	0.0042	0.0104	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0000	0.0000	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0583	0.1497	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	0.0000	0.0000	12
Crassedoma giganteum	0.0097	0.0132	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0000	0.0000	12

2011 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	0.0194	0.0244	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	0.0014	0.0048	12
Panulirus interruptus	0.0333	0.0560	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	0.0222	0.0217	12
Crassedoma giganteum	0.0458	0.0303	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	0.1819	0.0680	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.1028	0.0752	12
Muricea fruticosa	0.0014	0.0048	12
Muricea californica	0.0264	0.0207	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	0.0028	0.0065	12
Crassedoma giganteum	0.0097	0.0150	12
Aplysia californica	0.0014	0.0048	12
Pycnopodia helianthoides	0.0014	0.0048	12
Lytechinus anamesus	0.0028	0.0065	12

2011 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	0.0042	0.0144	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	0.0083	0.0151	12
Aplysia californica	0.1583	0.0709	12
Pycnopodia helianthoides	0.0014	0.0048	12
Lytechinus anamesus	0.2375	0.4303	12
Santa Barbara Island - Cat Canyon			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.0083	0.0241	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0000	0.0000	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0014	0.0048	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	0.0083	0.0087	12
Crassedoma giganteum	0.0111	0.0148	12
Aplysia californica	0.3583	0.2523	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0014	0.0048	12

2011 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	0.2847	0.1033	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.2583	0.1362	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	0.7500	0.3874	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0236	0.0219	12
Megathura crenulata	0.0278	0.0278	12
Crassedoma giganteum	0.0208	0.0237	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0236	0.0207	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	0.3819	0.1395	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0778	0.0484	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	0.0167	0.0188	12
Megathura crenulata	0.0347	0.0344	12
Crassedoma giganteum	0.0264	0.0297	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0208	0.0161	12
Lytechinus anamesus	0.0000	0.0000	12

2011 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	0.2667	0.1124	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.2153	0.0931	12
Lophogorgia chilensis	0.0000	0.0000	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0000	0.0000	12
Panulirus interruptus	0.0014	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	0.0764	0.0515	12
Crassedoma giganteum	0.0264	0.0219	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0472	0.0234	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	0.1403	0.0691	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.1597	0.0588	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	0.0150	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0000	0.0000	12
Megathura crenulata	0.0153	0.0132	12
Crassedoma giganteum	0.0361	0.0300	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0125	0.0203	12
Lytechinus anamesus	0.0000	0.0000	12

2011 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	0.0492	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0722	0.0637	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	0.1111	0.0802	12
Haliotis corrugata	0.0000	0.0000	12
Haliotis fulgens	0.0000	0.0000	12
Kelletia kelletii	0.0014	0.0048	12
Megathura crenulata	0.0069	0.0111	12
Crassedoma giganteum	0.0097	0.0166	12
Aplysia californica	0.0014	0.0048	12
Pycnopodia helianthoides	0.0153	0.0181	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	0.1556	0.1099	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.1236	0.1944	12
Muricea fruticosa	0.0028	0.0096	12
Muricea californica	0.0056	0.0082	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	0.5861	0.2072	12
Crassedoma giganteum	0.0403	0.0423	12
Aplysia californica	0.0222	0.0259	12
Pycnopodia helianthoides	0.0056	0.0109	12
Lytechinus anamesus	0.0014	0.0048	12

2011 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	0.1208	0.0409	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.1514	0.0970	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0042	0.0075	12
Panulirus interruptus	0.0097	0.0111	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	0.0164	12
Megathura crenulata	0.0403	0.0392	12
Crassedoma giganteum	0.0750	0.0911	12
Aplysia californica	0.0514	0.0605	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.1514	0.2183	12
Santa Cruz Island - Cavern Point			
Sargassum horneri, adult	1.9681	1.7694	12
Sargassum horneri, juvenile	4.8250	3.2862	12
Tethya aurantia	0.1403	0.0909	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.2167	0.1432	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0042	0.0104	12
Panulirus interruptus	0.0069	0.0111	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	0.0639	0.0585	12
Crassedoma giganteum	0.1611	0.1264	12
Aplysia californica	0.0153	0.0351	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0111	0.0336	12

2011 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	0.0528	0.0401	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.1028	0.1073	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	0.0111	12
Megathura crenulata	0.4278	0.3156	12
Crassedoma giganteum	0.0292	0.0203	12
Aplysia californica	0.0083	0.0167	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	1.4792	1.4099	12
Santa Cruz Island - Pedro Reef			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.1500	0.1153	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.2861	0.2214	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0069	0.0150	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	0.0083	0.0167	12
Megathura crenulata	0.0722	0.0398	12
Crassedoma giganteum	0.0347	0.0452	12
Aplysia californica	0.0847	0.0702	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	1.2069	0.9822	12

2011 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	0.2000	0.0682	12
Muricea fruticosa	0.0014	0.0048	12
Muricea californica	0.0292	0.0267	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	0.0069	0.0111	12
Megathura crenulata	0.0597	0.0698	12
Crassedoma giganteum	0.0361	0.0382	12
Aplysia californica	0.0014	0.0048	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	3.0528	1.8821	12
Anacapa Island - East Fish Camp			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.0458	0.0483	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0097	0.0166	12
Muricea fruticosa	0.0056	0.0109	12
Muricea californica	0.0083	0.0112	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	0.0097	0.0111	12
Megathura crenulata	0.3528	0.1817	12
Crassedoma giganteum	0.0208	0.0176	12
Aplysia californica	0.1569	0.0802	12
Pycnopodia helianthoides	0.0042	0.0075	12
Lytechinus anamesus	0.2014	0.2059	12

2011 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	0.0000	0.0000	12
Tethya aurantia	0.0944	0.0451	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0056	0.0109	12
Muricea fruticosa	0.0028	0.0065	12
Muricea californica	0.0014	0.0048	12
Panulirus interruptus	0.0139	0.0223	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	0.0111	0.0164	12
Crassedoma giganteum	0.0125	0.0144	12
Aplysia californica	0.0000	0.0000	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0028	0.0065	12
Anacapa Island - Lighthouse			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.0736	0.0463	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0806	0.0454	12
Muricea fruticosa	0.0167	0.0201	12
Muricea californica	0.2708	0.1453	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	0.0736	0.0399	12
Crassedoma giganteum	0.0069	0.0086	12
Aplysia californica	0.0486	0.0251	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0833	0.0816	12

2011 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	0.0056	0.0082	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0083	0.0167	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0042	0.0075	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	0.1528	0.1647	12
Crassedoma giganteum	0.0097	0.0150	12
Aplysia californica	0.0639	0.0611	12
Pycnopodia helianthoides	0.0167	0.0225	12
Lytechinus anamesus	0.0014	0.0048	12
Santa Barbara Island - Graveyard Canyon			
Sargassum horneri, adult	0.0000	0.0000	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.0875	0.0789	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0389	0.0365	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0264	0.0297	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	0.0028	0.0065	12
Aplysia californica	0.1639	0.1540	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0000	0.0000	12

2011 BAND TRANSECT DATA: MEAN NUMBER PER M^2

Species	Mean	Std. Dev.	n
Santa Barbara Island - Southeast Reef			
Sargassum horneri, adult	0.0111	0.0336	12
Sargassum horneri, juvenile	0.0000	0.0000	12
Tethya aurantia	0.0056	0.0148	12
Stylaster californicus	0.0000	0.0000	12
Urticina lofotensis	0.0000	0.0000	12
Lophogorgia chilensis	0.0056	0.0082	12
Muricea fruticosa	0.0000	0.0000	12
Muricea californica	0.0097	0.0166	12
Panulirus interruptus	0.0111	0.0192	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	0.0153	0.0166	12
Crassedoma giganteum	0.0444	0.0404	12
Aplysia californica	0.1431	0.2033	12
Pycnopodia helianthoides	0.0000	0.0000	12
Lytechinus anamesus	0.0000	0.0000	12

Appendix E. Random Point Contact Data

2011 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	6.0000	12.4571	15
Desmarestia spp.	3.0000	6.9565	15
Cystoseira spp.	0.3333	1.2910	15
Macrocystis pyrifera	20.3333	17.1877	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	16.8333	15.0139	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	31.5000	11.0921	15
Articulated Coralline	7.6667	7.0373	15
Encrusting Coralline	13.8333	9.0073	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	0.5000	1.9365	15
Balanophyllia elegans	0.3333	0.8797	15
Astrangia lajollaensis	0.3333	1.2910	15
Diopatra ornata	9.0000	6.8007	15
Phragmatopoma	4.0000	4.2046	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	16.5000	11.0921	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	5.8333	8.1650	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	29.3333	10.3280	15
Bare	25.6667	18.9092	15
Rock	68.1667	23.0773	15
Cobble	0.1667	0.6455	15
Sand	31.6667	23.0036	15

2011 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
San Miguel Island - Hare Rock			
Green Algae	5.8333	13.8766	15
Other Brown Algae	0.5000	1.0351	15
Desmarestia spp.	0.5000	1.4015	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	3.5000	3.7559	15
Articulated Coralline	1.1667	1.8581	15
Encrusting Coralline	51.5000	16.8184	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	6.8333	8.5287	15
Balanophyllia elegans	4.6667	4.2117	15
Astrangia lajollaensis	1.8333	2.9073	15
Diopatra ornata	0.5000	1.0351	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.1667	0.6455	15
Bryozoans, other	1.3333	2.0845	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	6.5000	7.2457	15
Bare	22.8333	20.8709	15
Rock	76.5000	26.9557	15
Cobble	20.0000	25.1779	15
Sand	3.5000	4.7056	15

2011 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Rosa Island - Johnson's Lee North			
Green Algae	0.1667	0.6455	15
Other Brown Algae	2.3333	6.2297	15
Desmarestia spp.	0.3333	1.2910	15
Cystoseira spp.	0.3333	0.8797	15
Macrocystis pyrifera	38.5000	12.2036	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	16.3333	19.6820	15
Laminaria farlowii	16.8333	18.5758	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	76.8333	11.4356	15
Articulated Coralline	8.5000	5.3285	15
Encrusting Coralline	13.3333	9.4334	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	20.5000	9.2678	15
Misc. Plant (i.e. diatom film)	0.1667	0.6455	15
Sponges	3.0000	3.4330	15
Corynactis californica	2.5000	4.2258	15
Balanophyllia elegans	1.0000	1.2677	15
Astrangia lajollaensis	0.8333	2.2493	15
Diopatra ornata	4.0000	6.2536	15
Phragmatopoma	11.6667	7.7152	15
Serpulorbis	0.1667	0.6455	15
Bryozoans, other	44.8333	11.5907	15
Diaperoecia californica	0.8333	1.5430	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.1667	0.6455	15
Tunicates	11.5000	6.2536	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	14.6667	10.0386	15
Bare	1.5000	2.2756	15
Rock	96.6667	6.8574	15
Cobble	0.3333	0.8797	15
Sand	3.0000	6.9565	15

2011 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	1.3333	2.6502	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.8333	2.6163	15
Macrocystis pyrifera	8.6667	11.2942	15
Eisenia arborea	1.6667	3.3630	15
Pterygophora	0.6667	1.7593	15
Laminaria farlowii	14.8333	17.9151	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	76.1667	10.8918	15
Articulated Coralline	6.5000	5.7321	15
Encrusting Coralline	23.0000	10.9054	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	11.8333	9.9762	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	1.3333	1.8581	15
Corynactis californica	3.6667	5.9662	15
Balanophyllia elegans	2.6667	3.4675	15
Astrangia lajollaensis	1.6667	3.8576	15
Diopatra ornata	13.0000	13.6343	15
Phragmatopoma	1.0000	2.2756	15
Serpulorbis	0.1667	0.6455	15
Bryozoans, other	40.3333	14.9065	15
Diaperoecia californica	1.0000	1.5811	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	8.5000	6.3246	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	15.0000	9.8198	15
Bare	11.1667	13.2243	15
Rock	79.8333	22.8244	15
Cobble	2.0000	3.1623	15
Sand	18.1667	21.8858	15

2011 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	7.5000	4.3301	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	76.6667	7.2989	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	0.1667	0.6455	15
Corynactis californica	0.0000	0.0000	15
Balanophyllia elegans	0.6667	1.1443	15
Astrangia lajollaensis	6.8333	6.3010	15
Diopatra ornata	0.6667	1.4840	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	1.1667	1.8581	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	0.6667	1.1443	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	5.0000	3.2733	15
Bare	10.1667	9.8410	15
Rock	84.6667	20.8281	15
Cobble	9.1667	14.2261	15
Sand	6.1667	8.9576	15

2011 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Cruz Island - Gull Island South			
Green Algae	0.0000	0.0000	15
Other Brown Algae	2.3333	4.8612	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.5000	1.9365	15
Macrocystis pyrifera	4.3333	6.6458	15
Eisenia arborea	4.1667	5.6432	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	46.6667	19.7680	15
Articulated Coralline	1.6667	2.2493	15
Encrusting Coralline	25.3333	16.0598	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.6667	2.5820	15
Misc. Plant (i.e. diatom film)	0.3333	0.8797	15
Sponges	2.5000	2.9881	15
Corynactis californica	2.5000	4.1188	15
Balanophyllia elegans	2.3333	2.2093	15
Astrangia lajollaensis	0.5000	1.0351	15
Diopatra ornata	7.3333	12.0069	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	20.8333	18.4601	15
Diaperoecia californica	1.3333	2.0845	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	4.5000	4.1404	15
Tunicates	0.5000	1.0351	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	3.5000	3.1053	15
Bare	9.6667	9.7223	15
Rock	92.8333	12.5665	15
Cobble	0.6667	1.9970	15
Sand	6.5000	11.3311	15

2011 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Cruz Island - Fry's Harbor			
Green Algae	0.3333	1.2910	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	5.0000	8.1284	15
Eisenia arborea	22.1667	28.7052	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	36.0000	13.9130	15
Articulated Coralline	0.5000	1.0351	15
Encrusting Coralline	30.8333	11.4824	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.6667	2.5820	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	0.5000	1.0351	15
Corynactis californica	0.1667	0.6455	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	15.1667	5.5474	15
Diopatra ornata	6.3333	6.8051	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	38.1667	12.1914	15
Diaperoecia californica	4.6667	4.7119	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	3.8333	3.8807	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	13.0000	7.2086	15
Bare	5.8333	6.0257	15
Rock	85.1667	10.8342	15
Cobble	4.1667	5.1467	15
Sand	10.6667	9.8863	15

2011 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	0.6667	1.4840	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	21.8333	14.1253	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	8.8333	6.6726	15
Sponges	0.3333	0.8797	15
Corynactis californica	1.3333	3.2550	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	12.0000	10.4881	15
Diopatra ornata	4.5000	5.2780	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	0.6667	1.1443	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	3.8333	3.9940	15
Bare	54.5000	19.3003	15
Rock	41.6667	25.1010	15
Cobble	17.0000	19.2075	15
Sand	41.3333	26.8738	15

2011 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Cruz Island - Scorpion Anchorage			
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	0.1667	0.6455	15
Other Reds	1.6667	3.3630	15
Articulated Coralline	0.6667	1.1443	15
Encrusting Coralline	47.1667	13.7862	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	1.5000	5.1582	15
Sponges	0.0000	0.0000	15
Corynactis californica	0.5000	1.4015	15
Balanophyllia elegans	1.3333	2.0845	15
Astrangia lajollaensis	2.3333	2.7495	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	11.3333	7.6687	15
Bare	34.5000	20.8567	15
Rock	80.0000	15.5265	15
Cobble	5.6667	6.2297	15
Sand	14.3333	16.7563	15

2011 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Cruz Island - Yellow Banks			
Green Algae	0.0000	0.0000	15
Other Brown Algae	0.5000	1.0351	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	5.5000	11.0680	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	1.6667	5.2327	15
Pterygophora	1.3333	3.6433	15
Laminaria farlowii	0.6667	1.9970	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	7.0000	9.3159	15
Articulated Coralline	4.5000	3.3004	15
Encrusting Coralline	56.3333	12.7779	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	6.1667	6.3293	15
Sponges	1.3333	1.5999	15
Corynactis californica	0.1667	0.6455	15
Balanophyllia elegans	1.1667	2.6502	15
Astrangia lajollaensis	2.6667	2.7495	15
Diopatra ornata	0.1667	0.6455	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	1.6667	1.8094	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	1.1667	2.2887	15
Tunicates	1.6667	2.0412	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	8.3333	6.7259	15
Bare	27.0000	14.3676	15
Rock	71.6667	27.7532	15
Cobble	21.1667	20.9563	15
Sand	7.1667	8.7048	15

2011 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	0.0000	0.0000	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	1.1667	2.2887	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	8.0000	6.7612	15
Articulated Coralline	0.3333	0.8797	15
Encrusting Coralline	60.8333	13.4519	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	14.3333	17.4864	15
Sponges	0.6667	1.1443	15
Corynactis californica	7.0000	8.1941	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	1.5000	2.4640	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	0.3333	0.8797	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	49.8333	36.1355	15
Tunicates	0.8333	1.2199	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	21.8333	10.6682	15
Bare	19.5000	14.2741	15
Rock	90.6667	16.0765	15
Cobble	1.5000	2.4640	15
Sand	7.8333	14.6649	15

2011 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Anacapa Island - Cathedral Cove			
Green Algae	0.3333	0.8797	15
Other Brown Algae	3.0000	3.5607	15
Desmarestia spp.	0.1667	0.6455	15
Cystoseira spp.	19.0000	21.0611	15
Macrocystis pyrifera	49.3333	26.7172	15
Eisenia arborea	7.6667	9.6115	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	41.8333	20.3642	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	30.6667	11.8949	15
Articulated Coralline	20.1667	8.2628	15
Encrusting Coralline	6.0000	6.8661	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	0.0000	0.0000	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.3333	0.8797	15
Diopatra ornata	3.8333	5.4171	15
Phragmatopoma	3.8333	4.8058	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	25.0000	11.2995	15
Diaperoecia californica	1.0000	1.2677	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	15.5000	12.2911	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	15.0000	8.0733	15
Bare	14.0000	10.9707	15
Rock	77.8333	18.2460	15
Cobble	7.6667	5.7061	15
Sand	14.5000	15.3297	15

2011 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Anacapa Island - Landing Cove			
Green Algae	0.6667	1.4840	15
Other Brown Algae	1.5000	3.3806	15
Desmarestia spp.	2.8333	6.6054	15
Cystoseira spp.	3.0000	4.7434	15
Macrocystis pyrifera	13.0000	11.6190	15
Eisenia arborea	29.0000	28.4385	15
Pterygophora	27.6667	28.0858	15
Laminaria farlowii	32.3333	27.0328	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	52.5000	17.0084	15
Articulated Coralline	13.5000	6.3246	15
Encrusting Coralline	12.5000	9.3541	15
Gelidium spp.	10.6667	19.4905	15
Gigartina spp.	0.3333	1.2910	15
Misc. Plant (i.e. diatom film)	0.5000	1.9365	15
Sponges	2.5000	4.4320	15
Corynactis californica	3.5000	6.6009	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.8333	1.5430	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	2.3333	4.6739	15
Serpulorbis	0.5000	1.0351	15
Bryozoans, other	9.0000	9.2486	15
Diaperoecia californica	4.5000	7.6298	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.6667	1.9970	15
Tunicates	8.1667	11.3965	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	18.1667	15.2499	15
Bare	16.1667	19.0128	15
Rock	65.6667	39.3640	15
Cobble	30.1667	33.4005	15
Sand	4.1667	7.5396	15

2011 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	0.8333	2.0412	15
Articulated Coralline	0.1667	0.6455	15
Encrusting Coralline	74.3333	13.8701	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	1.0000	1.5811	15
Corynactis californica	1.1667	2.2887	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	0.0000	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	84.3333	13.8056	15
Tunicates	0.3333	0.8797	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	6.1667	5.8909	15
Bare	18.6667	16.5795	15
Rock	80.3333	20.4823	15
Cobble	5.3333	7.1256	15
Sand	14.3333	17.0206	15

2011 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Barbara Island - Arch Point			
Green Algae	0.3333	0.8797	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	10.6667	4.7684	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	43.1667	14.2824	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	14.0000	12.5285	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	1.5000	5.1582	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	10.0000	5.9761	15
Bare	34.1667	14.9901	15
Rock	87.8333	12.7078	15
Cobble	9.5000	11.4642	15
Sand	2.6667	4.3780	15

2011 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Barbara Island - Cat Canyon			
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	2.5000	3.1339	15
Articulated Coralline	0.5000	1.4015	15
Encrusting Coralline	41.1667	13.5576	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	0.1667	0.6455	15
Corynactis californica	1.0000	3.2459	15
Balanophyllia elegans	1.3333	2.2887	15
Astrangia lajollaensis	0.5000	1.0351	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	8.5000	10.9707	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	1.3333	2.6502	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	0.6667	1.1443	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	19.1667	7.7728	15
Bare	24.8333	10.5841	15
Rock	86.1667	13.9472	15
Cobble	7.3333	8.8875	15
Sand	6.5000	9.7651	15

2011 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
San Miguel Island - Miracle Mile			
Green Algae	0.1667	0.6455	15
Other Brown Algae	2.6667	4.4788	15
Desmarestia spp.	6.6667	14.0365	15
Cystoseira spp.	0.5000	1.4015	15
Macrocystis pyrifera	10.3333	11.5676	15
Eisenia arborea	4.1667	8.2736	15
Pterygophora	3.0000	8.9742	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	59.0000	15.8340	15
Articulated Coralline	19.1667	12.3443	15
Encrusting Coralline	23.0000	10.0534	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	3.6667	4.4186	15
Corynactis californica	0.5000	1.4015	15
Balanophyllia elegans	1.3333	2.4761	15
Astrangia lajollaensis	0.0000	0.0000	15
Diopatra ornata	0.3333	0.8797	15
Phragmatopoma	0.6667	1.4840	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	12.6667	8.0991	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	19.8333	13.8701	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	15.1667	7.0373	15
Bare	18.5000	19.0582	15
Rock	80.1667	23.0773	15
Cobble	7.6667	12.0811	15
Sand	12.1667	14.4193	15

2011 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	1.8333	3.0570	15
Desmarestia spp.	1.6667	2.7817	15
Cystoseira spp.	0.5000	1.0351	15
Macrocystis pyrifera	4.6667	6.9351	15
Eisenia arborea	4.5000	7.6881	15
Pterygophora	16.6667	16.0542	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	65.1667	18.0145	15
Articulated Coralline	2.5000	4.8181	15
Encrusting Coralline	25.5000	14.8264	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	1.1667	3.3894	15
Misc. Plant (i.e. diatom film)	0.1667	0.6455	15
Sponges	7.1667	5.9662	15
Corynactis californica	0.0000	0.0000	15
Balanophyllia elegans	1.3333	1.8581	15
Astrangia lajollaensis	0.1667	0.6455	15
Diopatra ornata	10.8333	16.4931	15
Phragmatopoma	5.1667	8.2628	15
Serpulorbis	0.1667	0.6455	15
Bryozoans, other	6.0000	8.0067	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.3333	1.2910	15
Ophiothrix spiculata	0.1667	0.6455	15
Tunicates	5.3333	4.4186	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	19.6667	10.3883	15
Bare	12.8333	12.4236	15
Rock	79.0000	28.5638	15
Cobble	11.8333	18.7433	15
Sand	9.1667	11.7133	15

2011 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Rosa Island - Trancion Canyon			
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	10.0000	9.7285	15
Articulated Coralline	2.0000	3.3004	15
Encrusting Coralline	42.6667	20.1660	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.8333	2.6163	15
Misc. Plant (i.e. diatom film)	0.8333	1.8094	15
Sponges	1.3333	1.8581	15
Corynactis californica	1.5000	3.9866	15
Balanophyllia elegans	7.0000	4.8366	15
Astrangia lajollaensis	3.8333	4.6162	15
Diopatra ornata	8.6667	11.6828	15
Phragmatopoma	0.5000	1.0351	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	0.3333	0.8797	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	0.3333	1.2910	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	9.3333	3.7161	15
Bare	25.5000	19.7348	15
Rock	76.1667	26.6905	15
Cobble	6.8333	5.9362	15
Sand	17.0000	25.1815	15

2011 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	0.3333	0.8797	15
Desmarestia spp.	0.6667	2.5820	15
Cystoseira spp.	1.1667	1.5999	15
Macrocystis pyrifera	13.3333	17.5679	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	3.5000	9.1515	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	57.1667	20.7206	15
Articulated Coralline	6.6667	9.5275	15
Encrusting Coralline	7.8333	6.9991	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	2.5000	4.0089	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	3.5000	3.6351	15
Corynactis californica	0.3333	0.8797	15
Balanophyllia elegans	1.6667	1.5430	15
Astrangia lajollaensis	0.0000	0.0000	15
Diopatra ornata	7.6667	9.8410	15
Phragmatopoma	13.3333	13.0475	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	7.8333	8.4972	15
Diaperoecia californica	0.8333	3.2275	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	3.0000	3.1623	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	4.8333	3.9491	15
Bare	17.3333	9.3764	15
Rock	86.8333	14.8043	15
Cobble	0.3333	0.8797	15
Sand	12.8333	14.7560	15

2011 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	0.3333	1.2910	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	10.0000	11.4564	15
Eisenia arborea	0.0000	0.0000	15
Pterygophora	15.6667	17.7399	15
Laminaria farlowii	7.8333	8.1759	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	76.1667	11.2942	15
Articulated Coralline	11.8333	7.5277	15
Encrusting Coralline	16.6667	8.3808	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	6.3333	5.2497	15
Corynactis californica	0.0000	0.0000	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.0000	0.0000	15
Diopatra ornata	4.3333	6.5783	15
Phragmatopoma	14.6667	16.6333	15
Serpulorbis	0.8333	2.6163	15
Bryozoans, other	4.6667	3.8807	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	1.0000	3.2459	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	3.8333	4.4186	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	31.5000	14.6629	15
Bare	9.6667	11.1350	15
Rock	91.5000	10.4710	15
Cobble	0.0000	0.0000	15
Sand	8.5000	10.4710	15

2011 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	0.1667	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	17.8333	7.1256	15
Articulated Coralline	0.1667	0.6455	15
Encrusting Coralline	64.8333	15.2499	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	1.3333	1.8581	15
Sponges	1.1667	1.8581	15
Corynactis californica	0.5000	1.4015	15
Balanophyllia elegans	0.1667	0.6455	15
Astrangia lajollaensis	3.6667	2.6502	15
Diopatra ornata	0.5000	1.4015	15
Phragmatopoma	0.3333	1.2910	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	5.6667	4.7684	15
Diaperoecia californica	6.0000	9.2486	15
Pachythyone rubra	0.8333	2.0412	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	3.0000	3.9188	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	21.5000	11.3311	15
Bare	4.0000	3.2459	15
Rock	91.3333	8.4445	15
Cobble	5.8333	5.9512	15
Sand	2.8333	3.5187	15

2011 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Cruz Island - Potato Pasture			
Green Algae	0.6667	1.1443	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	2.8333	7.3719	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	9.8333	9.7955	15
Articulated Coralline	0.1667	0.6455	15
Encrusting Coralline	39.1667	16.9207	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	2.3333	3.0570	15
Sponges	0.0000	0.0000	15
Corynactis californica	4.5000	5.9911	15
Balanophyllia elegans	0.5000	1.0351	15
Astrangia lajollaensis	4.3333	6.0847	15
Diopatra ornata	0.3333	0.8797	15
Phragmatopoma	0.1667	0.6455	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	3.0000	3.8032	15
Diaperoecia californica	5.1667	7.8186	15
Pachythyone rubra	2.1667	8.3915	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	0.5000	1.4015	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	10.5000	5.9911	15
Bare	22.5000	15.4400	15
Rock	85.1667	19.6047	15
Cobble	10.0000	17.1912	15
Sand	4.8333	6.1577	15

2011 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Cruz Island - Cavern Point			
Green Algae	0.1667	0.6455	15
Other Brown Algae	9.1667	8.0549	15
Desmarestia spp.	0.0000	0.0000	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	76.1667	21.7508	15
Eisenia arborea	13.5000	16.0301	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.0000	0.0000	15
Sargassum horneri	14.8333	18.5035	15
Other Reds	13.1667	9.2324	15
Articulated Coralline	1.1667	2.2887	15
Encrusting Coralline	28.0000	13.2017	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	0.5000	1.4015	15
Balanophyllia elegans	0.3333	0.8797	15
Astrangia lajollaensis	2.1667	2.9681	15
Diopatra ornata	1.3333	2.0845	15
Phragmatopoma	0.1667	0.6455	15
Serpulorbis	0.1667	0.6455	15
Bryozoans, other	20.5000	7.3314	15
Diaperoecia californica	5.5000	5.9911	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.1667	0.6455	15
Tunicates	19.5000	12.0712	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	22.6667	10.0653	15
Bare	9.8333	14.9543	15
Rock	85.8333	18.0690	15
Cobble	5.3333	5.8146	15
Sand	8.8333	15.2323	15

2011 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	3.5000	3.3806	15
Articulated Coralline	0.1667	0.6455	15
Encrusting Coralline	39.5000	7.7460	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	0.3333	1.2910	15
Corynactis californica	1.3333	2.8137	15
Balanophyllia elegans	0.1667	0.6455	15
Astrangia lajollaensis	10.5000	8.8741	15
Diopatra ornata	0.1667	0.6455	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	1.8333	2.7495	15
Diaperoecia californica	0.8333	1.5430	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	0.0000	0.0000	15
Tunicates	0.8333	1.5430	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	13.6667	6.6726	15
Bare	27.8333	12.4236	15
Rock	74.8333	19.3064	15
Cobble	21.3333	15.6658	15
Sand	3.8333	4.6162	15

2011 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Cruz Island - Pedro Reef			
Green Algae	0.0000	0.0000	15
Other Brown Algae	0.5000	1.9365	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	5.0000	5.4281	15
Articulated Coralline	0.3333	0.8797	15
Encrusting Coralline	25.5000	11.3468	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	26.8333	25.2393	15
Balanophyllia elegans	0.6667	1.1443	15
Astrangia lajollaensis	2.3333	3.1997	15
Diopatra ornata	4.6667	7.8982	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	0.5000	1.0351	15
Ophiothrix spiculata	0.3333	0.8797	15
Tunicates	0.0000	0.0000	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	12.5000	6.9437	15
Bare	33.6667	19.7047	15
Rock	77.6667	30.6254	15
Cobble	5.1667	7.7613	15
Sand	17.1667	26.0300	15

2011 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	1.3333	2.2887	15
Articulated Coralline	0.1667	0.6455	15
Encrusting Coralline	50.8333	12.9789	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	0.8333	2.0412	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	3.5000	3.5102	15
Diopatra ornata	1.5000	2.8031	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	0.5000	1.4015	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	1.4015	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	20.8333	10.6765	15
Bare	37.1667	12.0958	15
Rock	79.1667	17.7449	15
Cobble	10.0000	9.3541	15
Sand	10.8333	11.5984	15

2011 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Anacapa Island - East Fish Camp			
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	1.6667	2.2493	15
Articulated Coralline	0.0000	0.0000	15
Encrusting Coralline	36.0000	16.3336	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	1.3333	2.2887	15
Sponges	0.0000	0.0000	15
Corynactis californica	22.6667	17.4353	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.5000	1.0351	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	17.5000	20.6588	15
Tunicates	0.1667	0.6455	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	1.1667	1.5999	15
Bare	38.3333	17.8202	15
Rock	85.0000	18.4439	15
Cobble	3.5000	5.2440	15
Sand	11.5000	15.7208	15

2011 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Anacapa Island - Black Sea Bass Reef			
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	2.8333	1.5999	15
Articulated Coralline	0.8333	3.2275	15
Encrusting Coralline	66.5000	15.7491	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	3.8333	6.6054	15
Sponges	2.5000	3.5355	15
Corynactis californica	7.1667	5.3341	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	3.6667	2.2887	15
Diaperoecia californica	0.1667	0.6455	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	83.6667	16.9523	15
Tunicates	2.1667	2.4761	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	3.1667	3.7161	15
Bare	16.5000	10.2991	15
Rock	92.0000	6.8269	15
Cobble	6.8333	5.4663	15
Sand	1.1667	2.4761	15

2011 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Anacapa Island - Lighthouse			
Green Algae	0.5000	1.0351	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	2.5820	15
Articulated Coralline	0.3333	0.8797	15
Encrusting Coralline	61.0000	10.5982	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	1.4840	15
Corynactis californica	10.0000	14.0471	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.0000	0.0000	15
Diopatra ornata	1.1667	1.2910	15
Phragmatopoma	0.3333	0.8797	15
Serpulorbis	0.1667	0.6455	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	10.1667	8.2628	15
Bare	19.1667	10.4654	15
Rock	80.0000	10.8972	15
Cobble	11.5000	9.9911	15
Sand	8.5000	6.6009	15

2011 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Barbara Island - Webster's Arch			
Green Algae	1.8333	3.9491	15
Other Brown Algae	0.1667	0.6455	15
Desmarestia spp.	11.8333	18.8620	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	23.3333	9.0960	15
Articulated Coralline	0.5000	1.4015	15
Encrusting Coralline	68.1667	16.5957	15
Gelidium spp.	0.0000	0.0000	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	1.0000	2.0702	15
Sponges	0.5000	1.4015	15
Corynactis californica	5.5000	7.6881	15
Balanophyllia elegans	0.6667	1.4840	15
Astrangia lajollaensis	0.1667	0.6455	15
Diopatra ornata	0.0000	0.0000	15
Phragmatopoma	0.0000	0.0000	15
Serpulorbis	0.1667	0.6455	15
Bryozoans, other	2.5000	2.6726	15
Diaperoecia californica	0.3333	1.2910	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	12.8333	13.0885	15
Tunicates	1.8333	2.4029	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	8.5000	5.6537	15
Bare	9.5000	6.1383	15
Rock	97.0000	4.0311	15
Cobble	3.0000	4.0311	15
Sand	0.0000	0.0000	15

2011 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Barbara Island - Graveyard Canyon			
Green Algae	0.0000	0.0000	15
Other Brown Algae	0.0000	0.0000	15
Desmarestia spp.	0.1667	0.6455	15
Cystoseira spp.	0.0000	0.0000	15
Macrocystis pyrifera	0.0000	0.0000	15
Eisenia arborea	0.0000	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	9.3333	11.2784	15
Articulated Coralline	0.1667	0.6455	15
Encrusting Coralline	40.5000	26.8627	15
Gelidium spp.	0.8333	3.2275	15
Gigartina spp.	0.0000	0.0000	15
Misc. Plant (i.e. diatom film)	0.0000	0.0000	15
Sponges	0.5000	1.4015	15
Corynactis californica	5.3333	8.1211	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	0.3333	0.8797	15
Diaperoecia californica	0.0000	0.0000	15
Pachythyone rubra	0.0000	0.0000	15
Ophiothrix spiculata	35.1667	37.5531	15
Tunicates	0.5000	1.4015	15
Miscellaneous Invertebrates w/o Ophiothrix spiculata	15.1667	18.7671	15
Bare	40.1667	33.4272	15
Rock	67.5000	36.6815	15
Cobble	3.0000	4.1404	15
Sand	29.5000	37.3951	15

2011 RANDOM POINT CONTACT DATA: MEAN PERCENT COVER

Species	Mean	Std. Dev.	n
Santa Barbara Island - Southeast Reef			
Green Algae	0.6667	1.4840	15
Other Brown Algae	11.3333	9.3954	15
Desmarestia spp.	9.3333	14.7438	15
Cystoseira spp.	7.6667	15.8527	15
Macrocystis pyrifera	38.0000	28.8190	15
Eisenia arborea	13.6667	20.9776	15
Pterygophora	0.0000	0.0000	15
Laminaria farlowii	0.5000	1.9365	15
Sargassum horneri	0.0000	0.0000	15
Other Reds	47.5000	23.3376	15
Articulated Coralline	9.5000	8.5670	15
Encrusting Coralline	36.8333	17.1252	15
Gelidium spp.	1.3333	5.1640	15
Gigartina spp.	1.0000	2.2756	15
Misc. Plant (i.e. diatom film)	2.3333	3.1997	15
Sponges	3.8333	6.9351	15
Corynactis californica	0.0000	0.0000	15
Balanophyllia elegans	0.0000	0.0000	15
Astrangia lajollaensis	0.5000	1.0351	15
Diopatra ornata	0.5000	1.9365	15
Phragmatopoma	10.3333	13.9472	15
Serpulorbis	0.0000	0.0000	15
Bryozoans, other	33.5000	19.8161	15
Diaperoecia californica	0.1667	0.6455	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	0.0000	0.0000	15
Bare	0.0000	0.0000	15
Rock	91.5000	12.0564	15
Cobble	7.1667	10.2150	15
Sand	1.3333	2.6502	15

Appendix F. Fish Transect Data

2011 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
San Miguel Island - Wyckoff Ledge				
Chromis punctipinnis, adult	9/15/2011	0.0000	0.0000	4
Chromis punctipinnis, juvenile	9/15/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	9/15/2011	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	9/15/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	9/15/2011	0.2500	0.5000	4
Embiotoca lateralis, juvenile	9/15/2011	0.0000	0.0000	4
Girella nigricans, adult	9/15/2011	0.0000	0.0000	4
Girella nigricans, juvenile	9/15/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	9/15/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	9/15/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	9/15/2011	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	9/15/2011	0.0000	0.0000	4
Oxyjulis californica, adult	9/15/2011	2.0000	2.3094	4
Oxyjulis californica, juvenile	9/15/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	9/15/2011	0.0000	0.0000	4
Paralabrax clathratus, juvenile	9/15/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	9/15/2011	0.0000	0.0000	4
Rhacochilus vacca, juvenile	9/15/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	9/15/2011	0.5000	0.5774	4
Sebastes atrovirens, juvenile	9/15/2011	0.0000	0.0000	4
Sebastes mystinus, adult	9/15/2011	0.7500	0.9574	4
Sebastes mystinus, juvenile	9/15/2011	0.0000	0.0000	4
Sebastes serranoides, adult	9/15/2011	0.0000	0.0000	4
Sebastes serranoides, juvenile	9/15/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	9/15/2011	0.2500	0.5000	4
Semicossyphus pulcher, juvenile	9/15/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	9/15/2011	0.0000	0.0000	4
San Miguel Island - Hare Rock				
Chromis punctipinnis, adult	9/14/2011	0.2500	0.5000	4
Chromis punctipinnis, juvenile	9/14/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	9/14/2011	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	9/14/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	9/14/2011	0.2500	0.5000	4
Embiotoca lateralis, juvenile	9/14/2011	0.5000	0.5774	4
Girella nigricans, adult	9/14/2011	0.0000	0.0000	4
Girella nigricans, juvenile	9/14/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	9/14/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	9/14/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	9/14/2011	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	9/14/2011	0.0000	0.0000	4
Oxyjulis californica, adult	9/14/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	9/14/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	9/14/2011	0.0000	0.0000	4
Paralabrax clathratus, juvenile	9/14/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	9/14/2011	0.0000	0.0000	4
Rhacochilus vacca, juvenile	9/14/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	9/14/2011	0.5000	0.5774	4
Sebastes atrovirens, juvenile	9/14/2011	0.2500	0.5000	4
Sebastes mystinus, adult	9/14/2011	1.5000	1.9149	4
Sebastes mystinus, juvenile	9/14/2011	0.0000	0.0000	4
Sebastes serranoides, adult	9/14/2011	0.2500	0.5000	4
Sebastes serranoides, juvenile	9/14/2011	0.2500	0.5000	4
Semicossyphus pulcher, female	9/14/2011	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	9/14/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	9/14/2011	0.2500	0.5000	4

2011 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	8/16/2011	0.0000	0.0000	4
Chromis punctipinnis, juvenile	8/16/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	8/16/2011	0.2500	0.5000	4
Embiotoca jacksoni, juvenile	8/16/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	8/16/2011	0.2500	0.5000	4
Embiotoca lateralis, juvenile	8/16/2011	0.0000	0.0000	4
Girella nigricans, adult	8/16/2011	0.0000	0.0000	4
Girella nigricans, juvenile	8/16/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	8/16/2011	0.2500	0.5000	4
Halichoeres semicinctus, male	8/16/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	8/16/2011	0.5000	0.5774	4
Hypsypops rubicundus, juvenile	8/16/2011	0.0000	0.0000	4
Oxyjulis californica, adult	8/16/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	8/16/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	8/16/2011	0.0000	0.0000	4
Paralabrax clathratus, juvenile	8/16/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	8/16/2011	0.2500	0.5000	4
Rhacochilus vacca, juvenile	8/16/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	8/16/2011	0.0000	0.0000	4
Sebastes atrovirens, juvenile	8/16/2011	0.0000	0.0000	4
Sebastes mystinus, adult	8/16/2011	0.0000	0.0000	4
Sebastes mystinus, juvenile	8/16/2011	0.0000	0.0000	4
Sebastes serranoides, adult	8/16/2011	0.2500	0.5000	4
Sebastes serranoides, juvenile	8/16/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	8/16/2011	0.2500	0.5000	4
Semicossyphus pulcher, juvenile	8/16/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	8/16/2011	0.0000	0.0000	4
Santa Rosa Island - Johnson's Lee South				
Chromis punctipinnis, adult	10/17/2011	0.0000	0.0000	4
Chromis punctipinnis, juvenile	10/17/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	10/17/2011	0.7500	0.5000	4
Embiotoca jacksoni, juvenile	10/17/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	10/17/2011	0.2500	0.5000	4
Embiotoca lateralis, juvenile	10/17/2011	0.0000	0.0000	4
Girella nigricans, adult	10/17/2011	0.0000	0.0000	4
Girella nigricans, juvenile	10/17/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	10/17/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	10/17/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	10/17/2011	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	10/17/2011	0.0000	0.0000	4
Oxyjulis californica, adult	10/17/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	10/17/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	10/17/2011	0.0000	0.0000	4
Paralabrax clathratus, juvenile	10/17/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	10/17/2011	1.0000	0.8165	4
Rhacochilus vacca, juvenile	10/17/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	10/17/2011	1.0000	1.4142	4
Sebastes atrovirens, juvenile	10/17/2011	0.0000	0.0000	4
Sebastes mystinus, adult	10/17/2011	1.2500	2.5000	4
Sebastes mystinus, juvenile	10/17/2011	0.7500	0.9574	4
Sebastes serranoides, adult	10/17/2011	0.0000	0.0000	4
Sebastes serranoides, juvenile	10/17/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	10/17/2011	0.5000	0.5774	4
Semicossyphus pulcher, juvenile	10/17/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	10/17/2011	0.7500	0.9574	4

2011 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Rosa Island - Rodes Reef				
Chromis punctipinnis, adult	9/12/2011	0.0000	0.0000	4
Chromis punctipinnis, juvenile	9/12/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	9/12/2011	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	9/12/2011	1.2500	0.9574	4
Embiotoca lateralis, adult	9/12/2011	0.2500	0.5000	4
Embiotoca lateralis, juvenile	9/12/2011	0.2500	0.5000	4
Girella nigricans, adult	9/12/2011	0.0000	0.0000	4
Girella nigricans, juvenile	9/12/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	9/12/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	9/12/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	9/12/2011	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	9/12/2011	0.0000	0.0000	4
Oxyjulis californica, adult	9/12/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	9/12/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	9/12/2011	0.0000	0.0000	4
Paralabrax clathratus, juvenile	9/12/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	9/12/2011	0.2500	0.5000	4
Rhacochilus vacca, juvenile	9/12/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	9/12/2011	0.7500	0.9574	4
Sebastes atrovirens, juvenile	9/12/2011	0.0000	0.0000	4
Sebastes mystinus, adult	9/12/2011	0.7500	1.5000	4
Sebastes mystinus, juvenile	9/12/2011	0.0000	0.0000	4
Sebastes serranoides, adult	9/12/2011	0.2500	0.5000	4
Sebastes serranoides, juvenile	9/12/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	9/12/2011	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	9/12/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	9/12/2011	0.0000	0.0000	4
Santa Cruz Island - Gull Island South				
Chromis punctipinnis, adult	8/15/2011	0.2500	0.5000	4
Chromis punctipinnis, juvenile	8/15/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	8/15/2011	0.5000	0.5774	4
Embiotoca jacksoni, juvenile	8/15/2011	1.5000	1.2910	4
Embiotoca lateralis, adult	8/15/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	8/15/2011	0.5000	0.5774	4
Girella nigricans, adult	8/15/2011	0.0000	0.0000	4
Girella nigricans, juvenile	8/15/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	8/15/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	8/15/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	8/15/2011	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	8/15/2011	0.0000	0.0000	4
Oxyjulis californica, adult	8/15/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	8/15/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	8/15/2011	0.0000	0.0000	4
Paralabrax clathratus, juvenile	8/15/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	8/15/2011	0.0000	0.0000	4
Rhacochilus vacca, juvenile	8/15/2011	0.2500	0.5000	4
Sebastes atrovirens, adult	8/15/2011	1.2500	0.9574	4
Sebastes atrovirens, juvenile	8/15/2011	0.0000	0.0000	4
Sebastes mystinus, adult	8/15/2011	0.2500	0.5000	4
Sebastes mystinus, juvenile	8/15/2011	0.2500	0.5000	4
Sebastes serranoides, adult	8/15/2011	0.5000	0.5774	4
Sebastes serranoides, juvenile	8/15/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	8/15/2011	2.5000	1.2910	4
Semicossyphus pulcher, juvenile	8/15/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	8/15/2011	0.5000	0.5774	4

2011 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Cruz Island - Fry's Harbor				
Chromis punctipinnis, adult	7/12/2011	16.5000	11.6190	4
Chromis punctipinnis, juvenile	7/12/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	7/12/2011	0.7500	1.5000	4
Embiotoca jacksoni, juvenile	7/12/2011	0.2500	0.5000	4
Embiotoca lateralis, adult	7/12/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	7/12/2011	0.5000	1.0000	4
Girella nigricans, adult	7/12/2011	0.2500	0.5000	4
Girella nigricans, juvenile	7/12/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	7/12/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	7/12/2011	0.5000	0.5774	4
Hypsypops rubicundus, adult	7/12/2011	0.2500	0.5000	4
Hypsypops rubicundus, juvenile	7/12/2011	0.0000	0.0000	4
Oxyjulis californica, adult	7/12/2011	4.0000	3.7417	4
Oxyjulis californica, juvenile	7/12/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	7/12/2011	0.0000	0.0000	4
Paralabrax clathratus, juvenile	7/12/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	7/12/2011	0.7500	0.9574	4
Rhacochilus vacca, juvenile	7/12/2011	0.2500	0.5000	4
Sebastes atrovirens, adult	7/12/2011	0.7500	0.9574	4
Sebastes atrovirens, juvenile	7/12/2011	0.0000	0.0000	4
Sebastes mystinus, adult	7/12/2011	0.0000	0.0000	4
Sebastes mystinus, juvenile	7/12/2011	0.0000	0.0000	4
Sebastes serranoides, adult	7/12/2011	0.0000	0.0000	4
Sebastes serranoides, juvenile	7/12/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	7/12/2011	1.0000	0.0000	4
Semicossyphus pulcher, juvenile	7/12/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	7/12/2011	0.0000	0.0000	4
Santa Cruz Island - Pelican Bay				
Chromis punctipinnis, adult	9/1/2011	0.0000	0.0000	4
Chromis punctipinnis, juvenile	9/1/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	9/1/2011	5.5000	3.1091	4
Embiotoca jacksoni, juvenile	9/1/2011	0.2500	0.5000	4
Embiotoca lateralis, adult	9/1/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	9/1/2011	0.0000	0.0000	4
Girella nigricans, adult	9/1/2011	0.0000	0.0000	4
Girella nigricans, juvenile	9/1/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	9/1/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	9/1/2011	0.5000	1.0000	4
Hypsypops rubicundus, adult	9/1/2011	0.2500	0.5000	4
Hypsypops rubicundus, juvenile	9/1/2011	0.0000	0.0000	4
Oxyjulis californica, adult	9/1/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	9/1/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	9/1/2011	1.0000	0.8165	4
Paralabrax clathratus, juvenile	9/1/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	9/1/2011	0.7500	0.9574	4
Rhacochilus vacca, juvenile	9/1/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	9/1/2011	2.7500	3.5940	4
Sebastes atrovirens, juvenile	9/1/2011	0.0000	0.0000	4
Sebastes mystinus, adult	9/1/2011	0.0000	0.0000	4
Sebastes mystinus, juvenile	9/1/2011	0.0000	0.0000	4
Sebastes serranoides, adult	9/1/2011	0.0000	0.0000	4
Sebastes serranoides, juvenile	9/1/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	9/1/2011	0.7500	0.5000	4
Semicossyphus pulcher, juvenile	9/1/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	9/1/2011	0.0000	0.0000	4

2011 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Cruz Island - Scorpion Anchorage				
Chromis punctipinnis, adult	8/19/2011	16.5000	18.7350	4
Chromis punctipinnis, juvenile	8/19/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	8/19/2011	2.2500	1.5000	4
Embiotoca jacksoni, juvenile	8/19/2011	0.5000	1.0000	4
Embiotoca lateralis, adult	8/19/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	8/19/2011	0.0000	0.0000	4
Girella nigricans, adult	8/19/2011	0.0000	0.0000	4
Girella nigricans, juvenile	8/19/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	8/19/2011	0.5000	0.5774	4
Halichoeres semicinctus, male	8/19/2011	0.2500	0.5000	4
Hypsypops rubicundus, adult	8/19/2011	0.2500	0.5000	4
Hypsypops rubicundus, juvenile	8/19/2011	0.0000	0.0000	4
Oxyjulis californica, adult	8/19/2011	2.7500	2.5000	4
Oxyjulis californica, juvenile	8/19/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	8/19/2011	0.2500	0.5000	4
Paralabrax clathratus, juvenile	8/19/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	8/19/2011	0.0000	0.0000	4
Rhacochilus vacca, juvenile	8/19/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	8/19/2011	1.5000	1.9149	4
Sebastes atrovirens, juvenile	8/19/2011	0.0000	0.0000	4
Sebastes mystinus, adult	8/19/2011	0.0000	0.0000	4
Sebastes mystinus, juvenile	8/19/2011	0.0000	0.0000	4
Sebastes serranoides, adult	8/19/2011	0.0000	0.0000	4
Sebastes serranoides, juvenile	8/19/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	8/19/2011	0.2500	0.5000	4
Semicossyphus pulcher, juvenile	8/19/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	8/19/2011	0.2500	0.5000	4
Santa Cruz Island - Yellow Banks				
Chromis punctipinnis, adult	8/29/2011	1.0000	1.4142	4
Chromis punctipinnis, juvenile	8/29/2011	0.2500	0.5000	4
Embiotoca jacksoni, adult	8/29/2011	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	8/29/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	8/29/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	8/29/2011	0.0000	0.0000	4
Girella nigricans, adult	8/29/2011	0.0000	0.0000	4
Girella nigricans, juvenile	8/29/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	8/29/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	8/29/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	8/29/2011	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	8/29/2011	0.0000	0.0000	4
Oxyjulis californica, adult	8/29/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	8/29/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	8/29/2011	0.5000	0.5774	4
Paralabrax clathratus, juvenile	8/29/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	8/29/2011	0.0000	0.0000	4
Rhacochilus vacca, juvenile	8/29/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	8/29/2011	0.2500	0.5000	4
Sebastes atrovirens, juvenile	8/29/2011	0.0000	0.0000	4
Sebastes mystinus, adult	8/29/2011	0.2500	0.5000	4
Sebastes mystinus, juvenile	8/29/2011	0.0000	0.0000	4
Sebastes serranoides, adult	8/29/2011	0.5000	1.0000	4
Sebastes serranoides, juvenile	8/29/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	8/29/2011	1.7500	0.5000	4
Semicossyphus pulcher, juvenile	8/29/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	8/29/2011	0.0000	0.0000	4

2011 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Anacapa Island - Admiral's Reef				
Chromis punctipinnis, adult	7/25/2011	12.5000	7.5939	4
Chromis punctipinnis, juvenile	7/25/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	7/25/2011	1.0000	0.8165	4
Embiotoca jacksoni, juvenile	7/25/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	7/25/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	7/25/2011	0.0000	0.0000	4
Girella nigricans, adult	7/25/2011	0.0000	0.0000	4
Girella nigricans, juvenile	7/25/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	7/25/2011	0.5000	0.5774	4
Halichoeres semicinctus, male	7/25/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	7/25/2011	0.5000	0.5774	4
Hypsypops rubicundus, juvenile	7/25/2011	0.0000	0.0000	4
Oxyjulis californica, adult	7/25/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	7/25/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	7/25/2011	0.0000	0.0000	4
Paralabrax clathratus, juvenile	7/25/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	7/25/2011	0.0000	0.0000	4
Rhacochilus vacca, juvenile	7/25/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	7/25/2011	0.7500	0.5000	4
Sebastes atrovirens, juvenile	7/25/2011	0.0000	0.0000	4
Sebastes mystinus, adult	7/25/2011	4.0000	3.2660	4
Sebastes mystinus, juvenile	7/25/2011	0.7500	1.5000	4
Sebastes serranoides, adult	7/25/2011	0.0000	0.0000	4
Sebastes serranoides, juvenile	7/25/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	7/25/2011	2.0000	1.8257	4
Semicossyphus pulcher, juvenile	7/25/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	7/25/2011	0.0000	0.0000	4
Anacapa Island - Cathedral Cove				
Chromis punctipinnis, adult	5/19/2011	47.7500	40.5822	4
Chromis punctipinnis, juvenile	5/19/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	5/19/2011	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	5/19/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	5/19/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	5/19/2011	0.0000	0.0000	4
Girella nigricans, adult	5/19/2011	7.7500	6.9940	4
Girella nigricans, juvenile	5/19/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	5/19/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	5/19/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	5/19/2011	0.7500	0.9574	4
Hypsypops rubicundus, juvenile	5/19/2011	0.0000	0.0000	4
Oxyjulis californica, adult	5/19/2011	4.5000	6.1373	4
Oxyjulis californica, juvenile	5/19/2011	0.7500	1.5000	4
Paralabrax clathratus, adult	5/19/2011	1.2500	1.2583	4
Paralabrax clathratus, juvenile	5/19/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	5/19/2011	0.2500	0.5000	4
Rhacochilus vacca, juvenile	5/19/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	5/19/2011	1.0000	1.4142	4
Sebastes atrovirens, juvenile	5/19/2011	0.0000	0.0000	4
Sebastes mystinus, adult	5/19/2011	0.2500	0.5000	4
Sebastes mystinus, juvenile	5/19/2011	0.0000	0.0000	4
Sebastes serranoides, adult	5/19/2011	0.5000	0.5774	4
Sebastes serranoides, juvenile	5/19/2011	3.0000	6.0000	4
Semicossyphus pulcher, female	5/19/2011	2.2500	1.5000	4
Semicossyphus pulcher, juvenile	5/19/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	5/19/2011	0.2500	0.5000	4

2011 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Anacapa Island - Landing Cove				
Chromis punctipinnis, adult	6/17/2011	2.0000	2.8284	4
Chromis punctipinnis, juvenile	6/17/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	6/17/2011	0.5000	1.0000	4
Embiotoca jacksoni, juvenile	6/17/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	6/17/2011	0.2500	0.5000	4
Embiotoca lateralis, juvenile	6/17/2011	0.0000	0.0000	4
Girella nigricans, adult	6/17/2011	0.7500	0.9574	4
Girella nigricans, juvenile	6/17/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	6/17/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	6/17/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	6/17/2011	1.2500	1.2583	4
Hypsypops rubicundus, juvenile	6/17/2011	0.0000	0.0000	4
Oxyjulis californica, adult	6/17/2011	0.2500	0.5000	4
Oxyjulis californica, juvenile	6/17/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	6/17/2011	0.5000	0.5774	4
Paralabrax clathratus, juvenile	6/17/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	6/17/2011	0.0000	0.0000	4
Rhacochilus vacca, juvenile	6/17/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	6/17/2011	0.0000	0.0000	4
Sebastes atrovirens, juvenile	6/17/2011	0.0000	0.0000	4
Sebastes mystinus, adult	6/17/2011	0.0000	0.0000	4
Sebastes mystinus, juvenile	6/17/2011	0.0000	0.0000	4
Sebastes serranoides, adult	6/17/2011	0.0000	0.0000	4
Sebastes serranoides, juvenile	6/17/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	6/17/2011	0.7500	0.9574	4
Semicossyphus pulcher, juvenile	6/17/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	6/17/2011	0.0000	0.0000	4
Santa Barbara Island - SE Sea Lion Rookery				
Chromis punctipinnis, adult	5/17/2011	0.0000	0.0000	4
Chromis punctipinnis, juvenile	5/17/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	5/17/2011	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	5/17/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	5/17/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	5/17/2011	0.0000	0.0000	4
Girella nigricans, adult	5/17/2011	0.0000	0.0000	4
Girella nigricans, juvenile	5/17/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	5/17/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	5/17/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	5/17/2011	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	5/17/2011	0.0000	0.0000	4
Oxyjulis californica, adult	5/17/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	5/17/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	5/17/2011	0.0000	0.0000	4
Paralabrax clathratus, juvenile	5/17/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	5/17/2011	0.0000	0.0000	4
Rhacochilus vacca, juvenile	5/17/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	5/17/2011	0.0000	0.0000	4
Sebastes atrovirens, juvenile	5/17/2011	0.0000	0.0000	4
Sebastes mystinus, adult	5/17/2011	1.0000	1.4142	4
Sebastes mystinus, juvenile	5/17/2011	0.0000	0.0000	4
Sebastes serranoides, adult	5/17/2011	0.0000	0.0000	4
Sebastes serranoides, juvenile	5/17/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	5/17/2011	0.7500	0.9574	4
Semicossyphus pulcher, juvenile	5/17/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	5/17/2011	0.0000	0.0000	4

2011 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Barbara Island - Arch Point				
Chromis punctipinnis, adult	5/16/2011	6.5000	7.5498	4
Chromis punctipinnis, juvenile	5/16/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	5/16/2011	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	5/16/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	5/16/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	5/16/2011	0.0000	0.0000	4
Girella nigricans, adult	5/16/2011	0.0000	0.0000	4
Girella nigricans, juvenile	5/16/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	5/16/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	5/16/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	5/16/2011	1.0000	1.4142	4
Hypsypops rubicundus, juvenile	5/16/2011	0.0000	0.0000	4
Oxyjulis californica, adult	5/16/2011	0.7500	1.5000	4
Oxyjulis californica, juvenile	5/16/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	5/16/2011	0.0000	0.0000	4
Paralabrax clathratus, juvenile	5/16/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	5/16/2011	0.0000	0.0000	4
Rhacochilus vacca, juvenile	5/16/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	5/16/2011	0.0000	0.0000	4
Sebastes atrovirens, juvenile	5/16/2011	0.0000	0.0000	4
Sebastes mystinus, adult	5/16/2011	3.0000	3.1623	4
Sebastes mystinus, juvenile	5/16/2011	0.0000	0.0000	4
Sebastes serranoides, adult	5/16/2011	0.0000	0.0000	4
Sebastes serranoides, juvenile	5/16/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	5/16/2011	1.0000	1.4142	4
Semicossyphus pulcher, juvenile	5/16/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	5/16/2011	0.0000	0.0000	4
Santa Barbara Island - Cat Canyon				
Chromis punctipinnis, adult	6/14/2011	6.5000	9.4340	4
Chromis punctipinnis, juvenile	6/14/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	6/14/2011	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	6/14/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	6/14/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	6/14/2011	0.0000	0.0000	4
Girella nigricans, adult	6/14/2011	0.0000	0.0000	4
Girella nigricans, juvenile	6/14/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	6/14/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	6/14/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	6/14/2011	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	6/14/2011	0.0000	0.0000	4
Oxyjulis californica, adult	6/14/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	6/14/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	6/14/2011	0.0000	0.0000	4
Paralabrax clathratus, juvenile	6/14/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	6/14/2011	0.0000	0.0000	4
Rhacochilus vacca, juvenile	6/14/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	6/14/2011	0.0000	0.0000	4
Sebastes atrovirens, juvenile	6/14/2011	0.0000	0.0000	4
Sebastes mystinus, adult	6/14/2011	0.0000	0.0000	4
Sebastes mystinus, juvenile	6/14/2011	0.0000	0.0000	4
Sebastes serranoides, adult	6/14/2011	0.2500	0.5000	4
Sebastes serranoides, juvenile	6/14/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	6/14/2011	0.5000	0.5774	4
Semicossyphus pulcher, juvenile	6/14/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	6/14/2011	0.2500	0.5000	4

2011 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
San Miguel Island - Miracle Mile				
Chromis punctipinnis, adult	10/5/2011	0.0000	0.0000	4
Chromis punctipinnis, juvenile	10/5/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	10/5/2011	0.2500	0.5000	4
Embiotoca jacksoni, juvenile	10/5/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	10/5/2011	1.0000	1.1547	4
Embiotoca lateralis, juvenile	10/5/2011	2.0000	1.4142	4
Girella nigricans, adult	10/5/2011	0.0000	0.0000	4
Girella nigricans, juvenile	10/5/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	10/5/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	10/5/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	10/5/2011	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	10/5/2011	0.0000	0.0000	4
Oxyjulis californica, adult	10/5/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	10/5/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	10/5/2011	0.0000	0.0000	4
Paralabrax clathratus, juvenile	10/5/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	10/5/2011	0.0000	0.0000	4
Rhacochilus vacca, juvenile	10/5/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	10/5/2011	1.0000	0.8165	4
Sebastes atrovirens, juvenile	10/5/2011	0.0000	0.0000	4
Sebastes mystinus, adult	10/5/2011	0.5000	1.0000	4
Sebastes mystinus, juvenile	10/5/2011	0.7500	0.5000	4
Sebastes serranoides, adult	10/5/2011	0.0000	0.0000	4
Sebastes serranoides, juvenile	10/5/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	10/5/2011	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	10/5/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	10/5/2011	0.0000	0.0000	4
Santa Rosa Island - Cluster Point				
Chromis punctipinnis, adult	7/28/2011	0.0000	0.0000	4
Chromis punctipinnis, juvenile	7/28/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	7/28/2011	0.5000	1.0000	4
Embiotoca jacksoni, juvenile	7/28/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	7/28/2011	2.0000	2.1602	4
Embiotoca lateralis, juvenile	7/28/2011	0.0000	0.0000	4
Girella nigricans, adult	7/28/2011	0.2500	0.5000	4
Girella nigricans, juvenile	7/28/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	7/28/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	7/28/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	7/28/2011	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	7/28/2011	0.0000	0.0000	4
Oxyjulis californica, adult	7/28/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	7/28/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	7/28/2011	0.0000	0.0000	4
Paralabrax clathratus, juvenile	7/28/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	7/28/2011	0.2500	0.5000	4
Rhacochilus vacca, juvenile	7/28/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	7/28/2011	0.0000	0.0000	4
Sebastes atrovirens, juvenile	7/28/2011	0.0000	0.0000	4
Sebastes mystinus, adult	7/28/2011	0.7500	0.9574	4
Sebastes mystinus, juvenile	7/28/2011	0.0000	0.0000	4
Sebastes serranoides, adult	7/28/2011	0.2500	0.5000	4
Sebastes serranoides, juvenile	7/28/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	7/28/2011	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	7/28/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	7/28/2011	0.0000	0.0000	4

2011 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Rosa Island - Trancion Canyon				
Chromis punctipinnis, adult	10/4/2011	0.0000	0.0000	4
Chromis punctipinnis, juvenile	10/4/2011	2.5000	2.0817	4
Embiotoca jacksoni, adult	10/4/2011	0.2500	0.5000	4
Embiotoca jacksoni, juvenile	10/4/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	10/4/2011	0.5000	0.5774	4
Embiotoca lateralis, juvenile	10/4/2011	0.5000	0.5774	4
Girella nigricans, adult	10/4/2011	0.0000	0.0000	4
Girella nigricans, juvenile	10/4/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	10/4/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	10/4/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	10/4/2011	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	10/4/2011	0.0000	0.0000	4
Oxyjulis californica, adult	10/4/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	10/4/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	10/4/2011	0.0000	0.0000	4
Paralabrax clathratus, juvenile	10/4/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	10/4/2011	0.2500	0.5000	4
Rhacochilus vacca, juvenile	10/4/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	10/4/2011	0.7500	0.9574	4
Sebastes atrovirens, juvenile	10/4/2011	0.0000	0.0000	4
Sebastes mystinus, adult	10/4/2011	0.2500	0.5000	4
Sebastes mystinus, juvenile	10/4/2011	3.2500	2.6300	4
Sebastes serranoides, adult	10/4/2011	0.5000	0.5774	4
Sebastes serranoides, juvenile	10/4/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	10/4/2011	0.5000	0.5774	4
Semicossyphus pulcher, juvenile	10/4/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	10/4/2011	0.2500	0.5000	4
Santa Rosa Island - Chickasaw				
Chromis punctipinnis, adult	10/3/2011	0.0000	0.0000	4
Chromis punctipinnis, juvenile	10/3/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	10/3/2011	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	10/3/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	10/3/2011	0.2500	0.5000	4
Embiotoca lateralis, juvenile	10/3/2011	0.0000	0.0000	4
Girella nigricans, adult	10/3/2011	0.0000	0.0000	4
Girella nigricans, juvenile	10/3/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	10/3/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	10/3/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	10/3/2011	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	10/3/2011	0.0000	0.0000	4
Oxyjulis californica, adult	10/3/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	10/3/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	10/3/2011	0.0000	0.0000	4
Paralabrax clathratus, juvenile	10/3/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	10/3/2011	1.5000	3.0000	4
Rhacochilus vacca, juvenile	10/3/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	10/3/2011	1.5000	1.0000	4
Sebastes atrovirens, juvenile	10/3/2011	0.0000	0.0000	4
Sebastes mystinus, adult	10/3/2011	1.2500	1.5000	4
Sebastes mystinus, juvenile	10/3/2011	1.5000	2.3805	4
Sebastes serranoides, adult	10/3/2011	1.0000	1.4142	4
Sebastes serranoides, juvenile	10/3/2011	0.7500	0.9574	4
Semicossyphus pulcher, female	10/3/2011	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	10/3/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	10/3/2011	0.0000	0.0000	4

2011 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Rosa Island - South Point				
Chromis punctipinnis, adult	7/27/2011	0.0000	0.0000	4
Chromis punctipinnis, juvenile	7/27/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	7/27/2011	1.7500	0.9574	4
Embiotoca jacksoni, juvenile	7/27/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	7/27/2011	1.2500	1.8930	4
Embiotoca lateralis, juvenile	7/27/2011	0.7500	0.9574	4
Girella nigricans, adult	7/27/2011	0.0000	0.0000	4
Girella nigricans, juvenile	7/27/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	7/27/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	7/27/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	7/27/2011	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	7/27/2011	0.0000	0.0000	4
Oxyjulis californica, adult	7/27/2011	7.2500	5.1881	4
Oxyjulis californica, juvenile	7/27/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	7/27/2011	0.0000	0.0000	4
Paralabrax clathratus, juvenile	7/27/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	7/27/2011	0.7500	0.5000	4
Rhacochilus vacca, juvenile	7/27/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	7/27/2011	1.0000	1.1547	4
Sebastes atrovirens, juvenile	7/27/2011	0.0000	0.0000	4
Sebastes mystinus, adult	7/27/2011	1.0000	1.4142	4
Sebastes mystinus, juvenile	7/27/2011	0.0000	0.0000	4
Sebastes serranoides, adult	7/27/2011	0.0000	0.0000	4
Sebastes serranoides, juvenile	7/27/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	7/27/2011	2.2500	0.9574	4
Semicossyphus pulcher, juvenile	7/27/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	7/27/2011	0.2500	0.5000	4
Santa Cruz Island - Devil's Peak Member				
Chromis punctipinnis, adult	5/20/2011	10.5000	12.2338	4
Chromis punctipinnis, juvenile	5/20/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	5/20/2011	1.5000	1.2910	4
Embiotoca jacksoni, juvenile	5/20/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	5/20/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	5/20/2011	0.0000	0.0000	4
Girella nigricans, adult	5/20/2011	0.5000	0.5774	4
Girella nigricans, juvenile	5/20/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	5/20/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	5/20/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	5/20/2011	0.7500	0.9574	4
Hypsypops rubicundus, juvenile	5/20/2011	0.0000	0.0000	4
Oxyjulis californica, adult	5/20/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	5/20/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	5/20/2011	0.2500	0.5000	4
Paralabrax clathratus, juvenile	5/20/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	5/20/2011	1.7500	1.5000	4
Rhacochilus vacca, juvenile	5/20/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	5/20/2011	0.0000	0.0000	4
Sebastes atrovirens, juvenile	5/20/2011	0.0000	0.0000	4
Sebastes mystinus, adult	5/20/2011	0.2500	0.5000	4
Sebastes mystinus, juvenile	5/20/2011	0.0000	0.0000	4
Sebastes serranoides, adult	5/20/2011	0.0000	0.0000	4
Sebastes serranoides, juvenile	5/20/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	5/20/2011	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	5/20/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	5/20/2011	0.0000	0.0000	4

2011 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Cruz Island - Potato Pasture				
Chromis punctipinnis, adult	8/30/2011	0.0000	0.0000	4
Chromis punctipinnis, juvenile	8/30/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	8/30/2011	2.0000	1.1547	4
Embiotoca jacksoni, juvenile	8/30/2011	1.2500	1.8930	4
Embiotoca lateralis, adult	8/30/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	8/30/2011	0.0000	0.0000	4
Girella nigricans, adult	8/30/2011	0.0000	0.0000	4
Girella nigricans, juvenile	8/30/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	8/30/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	8/30/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	8/30/2011	0.5000	0.5774	4
Hypsypops rubicundus, juvenile	8/30/2011	0.0000	0.0000	4
Oxyjulis californica, adult	8/30/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	8/30/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	8/30/2011	1.2500	0.9574	4
Paralabrax clathratus, juvenile	8/30/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	8/30/2011	1.0000	0.8165	4
Rhacochilus vacca, juvenile	8/30/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	8/30/2011	0.0000	0.0000	4
Sebastes atrovirens, juvenile	8/30/2011	0.0000	0.0000	4
Sebastes mystinus, adult	8/30/2011	0.0000	0.0000	4
Sebastes mystinus, juvenile	8/30/2011	1.7500	3.5000	4
Sebastes serranoides, adult	8/30/2011	0.0000	0.0000	4
Sebastes serranoides, juvenile	8/30/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	8/30/2011	0.2500	0.5000	4
Semicossyphus pulcher, juvenile	8/30/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	8/30/2011	0.0000	0.0000	4
Santa Cruz Island - Cavern Point				
Chromis punctipinnis, adult	6/28/2011	1.7500	3.5000	4
Chromis punctipinnis, juvenile	6/28/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	6/28/2011	0.7500	1.5000	4
Embiotoca jacksoni, juvenile	6/28/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	6/28/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	6/28/2011	0.0000	0.0000	4
Girella nigricans, adult	6/28/2011	3.0000	3.5590	4
Girella nigricans, juvenile	6/28/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	6/28/2011	0.2500	0.5000	4
Halichoeres semicinctus, male	6/28/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	6/28/2011	0.5000	0.5774	4
Hypsypops rubicundus, juvenile	6/28/2011	0.0000	0.0000	4
Oxyjulis californica, adult	6/28/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	6/28/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	6/28/2011	0.5000	0.5774	4
Paralabrax clathratus, juvenile	6/28/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	6/28/2011	2.7500	1.7078	4
Rhacochilus vacca, juvenile	6/28/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	6/28/2011	0.2500	0.5000	4
Sebastes atrovirens, juvenile	6/28/2011	0.0000	0.0000	4
Sebastes mystinus, adult	6/28/2011	0.0000	0.0000	4
Sebastes mystinus, juvenile	6/28/2011	1.2500	2.5000	4
Sebastes serranoides, adult	6/28/2011	0.2500	0.5000	4
Sebastes serranoides, juvenile	6/28/2011	0.5000	0.5774	4
Semicossyphus pulcher, female	6/28/2011	0.7500	0.5000	4
Semicossyphus pulcher, juvenile	6/28/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	6/28/2011	0.7500	0.9574	4

2011 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Cruz Island - Little Scorpion				
Chromis punctipinnis, adult	6/27/2011	0.7500	0.9574	4
Chromis punctipinnis, juvenile	6/27/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	6/27/2011	1.0000	1.1547	4
Embiotoca jacksoni, juvenile	6/27/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	6/27/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	6/27/2011	0.0000	0.0000	4
Girella nigricans, adult	6/27/2011	0.0000	0.0000	4
Girella nigricans, juvenile	6/27/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	6/27/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	6/27/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	6/27/2011	0.2500	0.5000	4
Hypsypops rubicundus, juvenile	6/27/2011	0.0000	0.0000	4
Oxyjulis californica, adult	6/27/2011	1.5000	3.0000	4
Oxyjulis californica, juvenile	6/27/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	6/27/2011	0.5000	0.5774	4
Paralabrax clathratus, juvenile	6/27/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	6/27/2011	0.0000	0.0000	4
Rhacochilus vacca, juvenile	6/27/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	6/27/2011	0.2500	0.5000	4
Sebastes atrovirens, juvenile	6/27/2011	0.0000	0.0000	4
Sebastes mystinus, adult	6/27/2011	3.2500	6.5000	4
Sebastes mystinus, juvenile	6/27/2011	0.5000	0.5774	4
Sebastes serranoides, adult	6/27/2011	0.2500	0.5000	4
Sebastes serranoides, juvenile	6/27/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	6/27/2011	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	6/27/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	6/27/2011	0.0000	0.0000	4
Santa Cruz Island - Pedro Reef				
Chromis punctipinnis, adult	6/29/2011	2.2500	4.5000	4
Chromis punctipinnis, juvenile	6/29/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	6/29/2011	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	6/29/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	6/29/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	6/29/2011	0.0000	0.0000	4
Girella nigricans, adult	6/29/2011	0.0000	0.0000	4
Girella nigricans, juvenile	6/29/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	6/29/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	6/29/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	6/29/2011	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	6/29/2011	0.0000	0.0000	4
Oxyjulis californica, adult	6/29/2011	7.2500	1.2583	4
Oxyjulis californica, juvenile	6/29/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	6/29/2011	0.5000	1.0000	4
Paralabrax clathratus, juvenile	6/29/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	6/29/2011	0.5000	0.5774	4
Rhacochilus vacca, juvenile	6/29/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	6/29/2011	0.0000	0.0000	4
Sebastes atrovirens, juvenile	6/29/2011	0.0000	0.0000	4
Sebastes mystinus, adult	6/29/2011	0.0000	0.0000	4
Sebastes mystinus, juvenile	6/29/2011	0.0000	0.0000	4
Sebastes serranoides, adult	6/29/2011	0.0000	0.0000	4
Sebastes serranoides, juvenile	6/29/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	6/29/2011	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	6/29/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	6/29/2011	0.0000	0.0000	4

2011 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Anacapa Island - Keyhole				
Chromis punctipinnis, adult	6/30/2011	10.7500	11.3248	4
Chromis punctipinnis, juvenile	6/30/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	6/30/2011	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	6/30/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	6/30/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	6/30/2011	0.0000	0.0000	4
Girella nigricans, adult	6/30/2011	0.0000	0.0000	4
Girella nigricans, juvenile	6/30/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	6/30/2011	0.5000	0.5774	4
Halichoeres semicinctus, male	6/30/2011	0.2500	0.5000	4
Hypsypops rubicundus, adult	6/30/2011	0.2500	0.5000	4
Hypsypops rubicundus, juvenile	6/30/2011	0.0000	0.0000	4
Oxyjulis californica, adult	6/30/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	6/30/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	6/30/2011	0.0000	0.0000	4
Paralabrax clathratus, juvenile	6/30/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	6/30/2011	0.0000	0.0000	4
Rhacochilus vacca, juvenile	6/30/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	6/30/2011	0.2500	0.5000	4
Sebastes atrovirens, juvenile	6/30/2011	0.0000	0.0000	4
Sebastes mystinus, adult	6/30/2011	0.2500	0.5000	4
Sebastes mystinus, juvenile	6/30/2011	0.2500	0.5000	4
Sebastes serranoides, adult	6/30/2011	0.0000	0.0000	4
Sebastes serranoides, juvenile	6/30/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	6/30/2011	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	6/30/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	6/30/2011	0.0000	0.0000	4
Anacapa Island - East Fish Camp				
Chromis punctipinnis, adult	5/31/2011	0.0000	0.0000	4
Chromis punctipinnis, juvenile	5/31/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	5/31/2011	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	5/31/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	5/31/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	5/31/2011	0.0000	0.0000	4
Girella nigricans, adult	5/31/2011	0.0000	0.0000	4
Girella nigricans, juvenile	5/31/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	5/31/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	5/31/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	5/31/2011	1.5000	0.5774	4
Hypsypops rubicundus, juvenile	5/31/2011	0.0000	0.0000	4
Oxyjulis californica, adult	5/31/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	5/31/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	5/31/2011	0.0000	0.0000	4
Paralabrax clathratus, juvenile	5/31/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	5/31/2011	0.0000	0.0000	4
Rhacochilus vacca, juvenile	5/31/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	5/31/2011	0.0000	0.0000	4
Sebastes atrovirens, juvenile	5/31/2011	0.0000	0.0000	4
Sebastes mystinus, adult	5/31/2011	0.0000	0.0000	4
Sebastes mystinus, juvenile	5/31/2011	0.0000	0.0000	4
Sebastes serranoides, adult	5/31/2011	0.0000	0.0000	4
Sebastes serranoides, juvenile	5/31/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	5/31/2011	1.0000	1.1547	4
Semicossyphus pulcher, juvenile	5/31/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	5/31/2011	0.0000	0.0000	4

2011 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Anacapa Island - Black Sea Bass Reef				
Chromis punctipinnis, adult	7/14/2011	12.7500	7.8049	4
Chromis punctipinnis, juvenile	7/14/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	7/14/2011	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	7/14/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	7/14/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	7/14/2011	0.0000	0.0000	4
Girella nigricans, adult	7/14/2011	0.2500	0.5000	4
Girella nigricans, juvenile	7/14/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	7/14/2011	0.2500	0.5000	4
Halichoeres semicinctus, male	7/14/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	7/14/2011	1.0000	1.1547	4
Hypsypops rubicundus, juvenile	7/14/2011	0.0000	0.0000	4
Oxyjulis californica, adult	7/14/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	7/14/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	7/14/2011	2.5000	1.7321	4
Paralabrax clathratus, juvenile	7/14/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	7/14/2011	0.0000	0.0000	4
Rhacochilus vacca, juvenile	7/14/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	7/14/2011	0.2500	0.5000	4
Sebastes atrovirens, juvenile	7/14/2011	0.0000	0.0000	4
Sebastes mystinus, adult	7/14/2011	1.0000	1.4142	4
Sebastes mystinus, juvenile	7/14/2011	1.0000	2.0000	4
Sebastes serranoides, adult	7/14/2011	0.0000	0.0000	4
Sebastes serranoides, juvenile	7/14/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	7/14/2011	1.0000	1.4142	4
Semicossyphus pulcher, juvenile	7/14/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	7/14/2011	0.0000	0.0000	4
Anacapa Island - Lighthouse				
Chromis punctipinnis, adult	10/7/2011	1.0000	1.4142	4
Chromis punctipinnis, juvenile	10/7/2011	0.7500	0.9574	4
Embiotoca jacksoni, adult	10/7/2011	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	10/7/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	10/7/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	10/7/2011	0.0000	0.0000	4
Girella nigricans, adult	10/7/2011	0.0000	0.0000	4
Girella nigricans, juvenile	10/7/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	10/7/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	10/7/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	10/7/2011	0.7500	0.9574	4
Hypsypops rubicundus, juvenile	10/7/2011	0.0000	0.0000	4
Oxyjulis californica, adult	10/7/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	10/7/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	10/7/2011	0.2500	0.5000	4
Paralabrax clathratus, juvenile	10/7/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	10/7/2011	0.0000	0.0000	4
Rhacochilus vacca, juvenile	10/7/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	10/7/2011	0.0000	0.0000	4
Sebastes atrovirens, juvenile	10/7/2011	0.0000	0.0000	4
Sebastes mystinus, adult	10/7/2011	0.0000	0.0000	4
Sebastes mystinus, juvenile	10/7/2011	0.0000	0.0000	4
Sebastes serranoides, adult	10/7/2011	0.0000	0.0000	4
Sebastes serranoides, juvenile	10/7/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	10/7/2011	0.5000	1.0000	4
Semicossyphus pulcher, juvenile	10/7/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	10/7/2011	0.0000	0.0000	4

2011 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Barbara Island - Webster's Arch				
Chromis punctipinnis, adult	6/13/2011	1.2500	2.5000	4
Chromis punctipinnis, juvenile	6/13/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	6/13/2011	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	6/13/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	6/13/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	6/13/2011	0.0000	0.0000	4
Girella nigricans, adult	6/13/2011	0.0000	0.0000	4
Girella nigricans, juvenile	6/13/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	6/13/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	6/13/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	6/13/2011	0.5000	0.5774	4
Hypsypops rubicundus, juvenile	6/13/2011	0.0000	0.0000	4
Oxyjulis californica, adult	6/13/2011	0.2500	0.5000	4
Oxyjulis californica, juvenile	6/13/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	6/13/2011	0.0000	0.0000	4
Paralabrax clathratus, juvenile	6/13/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	6/13/2011	0.0000	0.0000	4
Rhacochilus vacca, juvenile	6/13/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	6/13/2011	0.0000	0.0000	4
Sebastes atrovirens, juvenile	6/13/2011	0.0000	0.0000	4
Sebastes mystinus, adult	6/13/2011	0.5000	1.0000	4
Sebastes mystinus, juvenile	6/13/2011	0.0000	0.0000	4
Sebastes serranoides, adult	6/13/2011	0.0000	0.0000	4
Sebastes serranoides, juvenile	6/13/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	6/13/2011	2.7500	2.0616	4
Semicossyphus pulcher, juvenile	6/13/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	6/13/2011	0.2500	0.5000	4
Santa Barbara Island - Graveyard Canyon				
Chromis punctipinnis, adult	6/15/2011	0.0000	0.0000	4
Chromis punctipinnis, juvenile	6/15/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	6/15/2011	0.0000	0.0000	4
Embiotoca jacksoni, juvenile	6/15/2011	0.0000	0.0000	4
Embiotoca lateralis, adult	6/15/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	6/15/2011	0.0000	0.0000	4
Girella nigricans, adult	6/15/2011	0.0000	0.0000	4
Girella nigricans, juvenile	6/15/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	6/15/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	6/15/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	6/15/2011	0.0000	0.0000	4
Hypsypops rubicundus, juvenile	6/15/2011	0.0000	0.0000	4
Oxyjulis californica, adult	6/15/2011	0.0000	0.0000	4
Oxyjulis californica, juvenile	6/15/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	6/15/2011	0.0000	0.0000	4
Paralabrax clathratus, juvenile	6/15/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	6/15/2011	0.0000	0.0000	4
Rhacochilus vacca, juvenile	6/15/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	6/15/2011	0.0000	0.0000	4
Sebastes atrovirens, juvenile	6/15/2011	0.0000	0.0000	4
Sebastes mystinus, adult	6/15/2011	0.0000	0.0000	4
Sebastes mystinus, juvenile	6/15/2011	0.0000	0.0000	4
Sebastes serranoides, adult	6/15/2011	0.0000	0.0000	4
Sebastes serranoides, juvenile	6/15/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	6/15/2011	0.0000	0.0000	4
Semicossyphus pulcher, juvenile	6/15/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	6/15/2011	0.0000	0.0000	4

2011 FISH TRANSECT DATA: MEAN NUMBER PER 300 M 3

Species	Date	Mean	Std. Dev.	n
Santa Barbara Island - Southeast Reef				
Chromis punctipinnis, adult	7/26/2011	9.0000	8.0416	4
Chromis punctipinnis, juvenile	7/26/2011	0.0000	0.0000	4
Embiotoca jacksoni, adult	7/26/2011	1.0000	0.8165	4
Embiotoca jacksoni, juvenile	7/26/2011	0.5000	1.0000	4
Embiotoca lateralis, adult	7/26/2011	0.0000	0.0000	4
Embiotoca lateralis, juvenile	7/26/2011	0.0000	0.0000	4
Girella nigricans, adult	7/26/2011	1.5000	1.0000	4
Girella nigricans, juvenile	7/26/2011	0.0000	0.0000	4
Halichoeres semicinctus, female	7/26/2011	0.0000	0.0000	4
Halichoeres semicinctus, male	7/26/2011	0.0000	0.0000	4
Hypsypops rubicundus, adult	7/26/2011	3.2500	0.5000	4
Hypsypops rubicundus, juvenile	7/26/2011	0.2500	0.5000	4
Oxyjulis californica, adult	7/26/2011	3.2500	1.7078	4
Oxyjulis californica, juvenile	7/26/2011	0.0000	0.0000	4
Paralabrax clathratus, adult	7/26/2011	0.0000	0.0000	4
Paralabrax clathratus, juvenile	7/26/2011	0.0000	0.0000	4
Rhacochilus vacca, adult	7/26/2011	0.0000	0.0000	4
Rhacochilus vacca, juvenile	7/26/2011	0.0000	0.0000	4
Sebastes atrovirens, adult	7/26/2011	0.0000	0.0000	4
Sebastes atrovirens, juvenile	7/26/2011	0.0000	0.0000	4
Sebastes mystinus, adult	7/26/2011	0.0000	0.0000	4
Sebastes mystinus, juvenile	7/26/2011	0.0000	0.0000	4
Sebastes serranoides, adult	7/26/2011	0.0000	0.0000	4
Sebastes serranoides, juvenile	7/26/2011	0.0000	0.0000	4
Semicossyphus pulcher, female	7/26/2011	1.5000	0.5774	4
Semicossyphus pulcher, juvenile	7/26/2011	0.0000	0.0000	4
Semicossyphus pulcher, male	7/26/2011	0.2500	0.5000	4

Appendix G. Fish Size Frequency Data

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Wyckoff Ledge

Embiotoca lateralis	
< 5	0.0 %
5 - 9	15.4 %
10 - 14	7.7 %
15 - 19	7.7 %
20 - 24	23.1 %
25 - 29	38.5 %
30 - 34	0.0 %
35 - 39	7.7 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	13
mean	21
min size (mm)	8
max size (mm)	37

Sebastes atrovirens	
< 5	0.0 %
5 - 9	73.9 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	2.2 %
25 - 29	10.9 %
30 - 34	10.9 %
35 - 39	2.2 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	46
mean	27
min size (mm)	6
max size (mm)	35

Semicossyphus pulcher	
< 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

Ophiodon elongatus	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	33.3 %
40 - 49	0.0 %
50 - 59	33.3 %
60 - 69	0.0 %
70 - 79	33.3 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	3
mean	54
min size (mm)	35
max size (mm)	72

Sebastes mystinus	
< 5	0.0 %
5 - 9	21.4 %
10 - 14	0.0 %
15 - 19	14.3 %
20 - 24	21.4 %
25 - 29	7.1 %
30 - 34	14.3 %
35 - 39	21.4 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	14
mean	23
min size (mm)	8
max size (mm)	36

Sebastes carnatus	
< 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

Oxyjulis californica	
< 5	0.0 %
5 - 9	13.3 %
10 - 14	40.0 %
15 - 19	46.7 %
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 =	15
mean	12
min size (mm)	8
max size (mm)	15

Sebastes serranoides	
< 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

Sebastes caurinus	
< 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	50.0 %
40 - 44	16.7 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	6
mean	36
min size (mm)	30
max size (mm)	40

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Wyckoff Ledge

Sebastes miniatus

<10	33.3 %
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	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	3
mean	32
min size (mm)	6
max size (mm)	51

Sebastes serriceps

< 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)	30

Sebastes chrysomelas

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	11.1 %
25 - 29	77.8 %
30 - 34	11.1 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	9
mean	27
min size (mm)	24
max size (mm)	30

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Hare Rock

Chromis punctipinnis

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	75.0 %
20 - 24	25.0 %
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 =	16
mean	21
min size (mm)	18
max size (mm)	24

Embiotoca lateralis

< 5	0.0 %
5 - 9	4.3 %
10 - 14	73.9 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	4.3 %
30 - 34	0.0 %
35 - 39	17.4 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	23
mean	19
min size (mm)	9
max size (mm)	37

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	62
min size (mm)	62
max size (mm)	62

Sebastes atrovirens

< 5	0.0 %
5 - 9	26.7 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	13.3 %
25 - 29	0.0 %
30 - 34	46.7 %
35 - 39	13.3 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	15
mean	25
min size (mm)	6
max size (mm)	35

Sebastes atrovirens/carnatus/caurinus/chrysomelas

< 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 =	2
mean	8
min size (mm)	8
max size (mm)	8

Sebastes chrysomelas/carnatus

< 2	0.0 %
2	0.0 %
3	0.0 %
4	0.0 %
5	0.0 %
6	33.3 %
7	66.7 %
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 =	3
mean	7
min size (mm)	6
max size (mm)	7

Sebastes mystinus

< 5	0.0 %
5 - 9	20.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	26.7 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	40.0 %
40 - 44	13.3 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	15
mean	29
min size (mm)	9
max size (mm)	40

Sebastes serranoides

< 5	0.0 %
5 - 9	50.0 %
10 - 14	0.0 %
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)	7
max size (mm)	20

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Hare Rock

Semicossyphus pulcher

< 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

Sebastes serriceps

< 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	28
min size (mm)	25
max size (mm)	32

Scorpaenichthys marmoratus

< 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	0.0 %
45 - 49	0.0 %
> 49	66.7 %
(Cases) N =	3
mean	48
min size (mm)	35
max size (mm)	55

Sebastes chrysomelas

< 5	0.0 %
5 - 9	0.0 %
10 - 14	18.2 %
15 - 19	9.1 %
20 - 24	27.3 %
25 - 29	45.5 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	11
mean	21
min size (mm)	10
max size (mm)	29

Sebastes caurinus

< 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	0.0 %
35 - 39	0.0 %
40 - 44	50.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	4
mean	34
min size (mm)	24
max size (mm)	43

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee North

Chromis punctipinnis	
< 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)	23
max size (mm)	25

Oxyjulis californica	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	60.0 %
25 - 29	40.0 %
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)	22
max size (mm)	26

Rhacochilus vacca	
< 5	0.0 %
5 - 9	54.5 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	36.4 %
35 - 39	9.1 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	11
mean	22
min size (mm)	7
max size (mm)	35

Embiotoca jacksoni	
< 5	0.0 %
5 - 9	16.7 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	8.3 %
30 - 34	25.0 %
35 - 39	50.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	12
mean	30
min size (mm)	8
max size (mm)	37

Paralabrax clathratus	
< 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

Sebastes atrovirens	
< 5	0.0 %
5 - 9	8.6 %
10 - 14	11.4 %
15 - 19	17.1 %
20 - 24	8.6 %
25 - 29	28.6 %
30 - 34	20.0 %
35 - 39	5.7 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	35
mean	23
min size (mm)	9
max size (mm)	35

Embiotoca lateralis	
< 5	0.0 %
5 - 9	25.0 %
10 - 14	0.0 %
15 - 19	41.7 %
20 - 24	8.3 %
25 - 29	8.3 %
30 - 34	8.3 %
35 - 39	8.3 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	12
mean	21
min size (mm)	9
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	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

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee North

Sebastes atrovirens/carnatus/caurinus/chrysomelas		(Cases) N =	93	(Cases) N =	1
		mean	24	mean	23
		min size (mm)	9	min size (mm)	23
< 2	0.0 %				
20.0	%max size (mm)		45	max size (mm)	23
30.0	%				
40.0	%				
50.0	%***Semicossyphus pulcher***		***Hypsypops rubicundus***		
60.0	%< 5	0.0	%< 5	0.0	%
7100.0	%5 - 9	0.0	%5 - 9	0.0	%
80.0	%10 - 14	0.0	%10 - 14	0.0	%
90.0	%15 - 19	20.0	%15 - 19	0.0	%
10	0.0 %	20 - 24	20.0 %	20 - 24	0.0 %
11	0.0 %	25 - 29	60.0 %	25 - 29	100.0 %
12	0.0 %	30 - 34	0.0 %	30 - 34	0.0 %
13	0.0 %	35 - 39	0.0 %	35 - 39	0.0 %
14	0.0 %	40 - 44	0.0 %	40 - 44	0.0 %
15	0.0 %	45 - 49	0.0 %	45 - 49	0.0 %
>15	0.0 %	> 49	0.0 %	> 49	0.0 %
(Cases) N =	4	(Cases) N =	5	(Cases) N =	4
mean	7	mean	24	mean	26
min size (mm)	7	min size (mm)	19	min size (mm)	26
max size (mm)	7	max size (mm)	29	max size (mm)	26

Sebastes mystinus		***Halichoeres semicinctus***		***Scorpaenichthys marmoratus***	
< 5	0.0 %	< 5	0.0 %	< 5	0.0 %
5 - 9	89.7 %	5 - 9	0.0 %	5 - 9	0.0 %
10 - 14	0.0 %	10 - 14	0.0 %	10 - 14	0.0 %
15 - 19	6.9 %	15 - 19	0.0 %	15 - 19	0.0 %
20 - 24	0.0 %	20 - 24	0.0 %	20 - 24	100.0 %
25 - 29	0.0 %	25 - 29	100.0 %	25 - 29	0.0 %
30 - 34	3.4 %	30 - 34	0.0 %	30 - 34	0.0 %
35 - 39	0.0 %	35 - 39	0.0 %	35 - 39	0.0 %
40 - 44	0.0 %	40 - 44	0.0 %	40 - 44	0.0 %
45 - 49	0.0 %	45 - 49	0.0 %	45 - 49	0.0 %
> 49	0.0 %	> 49	0.0 %	> 49	0.0 %
(Cases) N =	29	(Cases) N =	1	(Cases) N =	1
mean	19	mean	29	mean	22
min size (mm)	8	min size (mm)	29	min size (mm)	22
max size (mm)	30	max size (mm)	29	max size (mm)	22

Sebastes serranoides		***Halichoeres semicinctus***	
< 5	0.0 %	< 5	0.0 %
5 - 9	2.2 %	5 - 9	0.0 %
10 - 14	26.9 %	10 - 14	0.0 %
15 - 19	4.3 %	15 - 19	0.0 %
20 - 24	1.1 %	20 - 24	100.0 %
25 - 29	0.0 %	25 - 29	0.0 %
30 - 34	0.0 %	30 - 34	0.0 %
35 - 39	10.8 %	35 - 39	0.0 %
40 - 44	1.1 %	40 - 44	0.0 %
45 - 49	53.8 %	45 - 49	0.0 %
> 49	0.0 %	> 49	0.0 %

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee North

Sebastes paucispinis

< 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	9
min size (mm)	8
max size (mm)	9

Sebastes serriceps

< 5	0.0 %
5 - 9	20.0 %
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	0.0 %
(Cases) N =	5
mean	25
min size (mm)	7
max size (mm)	35

Sebastes chrysomelas

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	30.0 %
25 - 29	70.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	10
mean	25
min size (mm)	22
max size (mm)	27

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee South

Chromis punctipinnis	
< 5	20.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	72.5 %
25 - 29	7.5 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	40
mean	19
min size (mm)	4
max size (mm)	27

Hypsurus caryi	
< 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	7
min size (mm)	7
max size (mm)	7

Paralabrax clathratus	
< 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	43
min size (mm)	43
max size (mm)	43

Embiotoca jacksoni	
< 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	34
min size (mm)	30
max size (mm)	37

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	95
min size (mm)	95
max size (mm)	95

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	85.7 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	7
mean	36
min size (mm)	33
max size (mm)	39

Embiotoca lateralis	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	28.6 %
15 - 19	0.0 %
20 - 24	42.9 %
25 - 29	14.3 %
30 - 34	14.3 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	7
mean	23
min size (mm)	12
max size (mm)	32

Oxyjulis californica	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	13.0 %
15 - 19	43.5 %
20 - 24	43.5 %
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 =	23
mean	18
min size (mm)	12
max size (mm)	22

Rhacochilus vacca	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	44.4 %
30 - 34	22.2 %
35 - 39	33.3 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	9
mean	31
min size (mm)	25
max size (mm)	37

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee South

Sebastes atrovirens	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	5.9 %
20 - 24	11.8 %
25 - 29	41.2 %
30 - 34	23.5 %
35 - 39	17.6 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	17
mean	27
min size (mm)	15
max size (mm)	35

Semicossyphus pulcher	
< 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	61
min size (mm)	50
max size (mm)	70

Sebastes mystinus	
< 5	0.0 %
5 - 9	1.2 %
10 - 14	36.0 %
15 - 19	22.1 %
20 - 24	0.0 %
25 - 29	7.0 %
30 - 34	18.6 %
35 - 39	12.8 %
40 - 44	2.3 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	86
mean	25
min size (mm)	8
max size (mm)	40

Semicossyphus pulcher	
< 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	12.5 %
35 - 39	12.5 %
40 - 44	25.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	8
mean	32
min size (mm)	20
max size (mm)	44

Sebastes serranoides	
< 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	22
min size (mm)	17
max size (mm)	27

Sebastes chrysomelas	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	33.3 %
15 - 19	0.0 %
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)	13
max size (mm)	27

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Rodes Reef

Chromis punctipinnis	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	16.7 %
15 - 19	0.0 %
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	22
min size (mm)	13
max size (mm)	26

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	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	
< 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	
< 5	0.0 %
5 - 9	70.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	10.0 %
25 - 29	10.0 %
30 - 34	10.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	10
mean	19
min size (mm)	8
max size (mm)	30

Paralabrax clathratus	
< 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	33.3 %
45 - 49	33.3 %
> 49	33.3 %
(Cases) N =	3
mean	47
min size (mm)	40
max size (mm)	55

Sebastes atrovirens	
< 5	0.0 %
5 - 9	22.7 %
10 - 14	0.0 %
15 - 19	4.5 %
20 - 24	4.5 %
25 - 29	27.3 %
30 - 34	40.9 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	22
mean	23
min size (mm)	6
max size (mm)	33

Embiotoca lateralis	
< 5	0.0 %
5 - 9	25.0 %
10 - 14	60.0 %
15 - 19	0.0 %
20 - 24	5.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	10.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	20
mean	16
min size (mm)	8
max size (mm)	37

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 =	2
mean	40
min size (mm)	40
max size (mm)	40

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Rodes Reef

Sebastes atrovirens/carnatus/caurinus/chrysomelas

(Cases) N =	9
mean	25
min size (mm)	9
max size (mm)	50

< 2	0.0 %
20.0	%
30.0	%
40.0	%
50.0	%
650.0	%
750.0	%
80.0	%
90.0	%
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	7
min size (mm)	6
max size (mm)	7

Semicossyphus pulcher

< 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	14.3 %
45 - 49	0.0 %
> 49	85.7 %
(Cases) N =	7
mean	61
min size (mm)	40
max size (mm)	75

Scorpaenichthys marmoratus

< 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 mystinus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	7.3 %
15 - 19	29.3 %
20 - 24	31.7 %
25 - 29	2.4 %
30 - 34	9.8 %
35 - 39	17.1 %
40 - 44	2.4 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	41
mean	25
min size (mm)	10
max size (mm)	40

Semicossyphus pulcher

< 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	33.3 %
45 - 49	16.7 %
> 49	33.3 %
(Cases) N =	6
mean	42
min size (mm)	35
max size (mm)	50

Sebastes caurinus

< 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	33.3 %
45 - 49	33.3 %
> 49	0.0 %
(Cases) N =	3
mean	40
min size (mm)	29
max size (mm)	47

Sebastes serranoides

< 5	0.0 %
5 - 9	11.1 %
10 - 14	11.1 %
15 - 19	11.1 %
20 - 24	33.3 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	11.1 %
40 - 44	11.1 %
45 - 49	0.0 %
> 49	11.1 %

Caulolatilus princeps

<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	50.0 %
70 - 79	16.7 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Rodes Reef

Sebastes melanops

< 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 =	3
mean	25
min size (mm)	25
max size (mm)	25

Sebastes miniatus

<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 %
> 99	0.0 %
(Cases) N =	1
mean	15
min size (mm)	15
max size (mm)	15

Sebastes chrysomelas

< 5	0.0 %
5 - 9	33.3 %
10 - 14	0.0 %
15 - 19	0.0 %
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	19
min size (mm)	7
max size (mm)	25

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

Chromis punctipinnis

< 5	0.0 %
5 - 9	0.0 %
10 - 14	28.9 %
15 - 19	66.4 %
20 - 24	4.7 %
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 =	128
mean	17
min size (mm)	14
max size (mm)	20

Ophiodon elongatus

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	33.3 %
40 - 49	0.0 %
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	49
min size (mm)	35
max size (mm)	62

Sebastes atrovirens

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	66.7 %
25 - 29	0.0 %
30 - 34	33.3 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	6
mean	26
min size (mm)	20
max size (mm)	33

Embiotoca jacksoni

< 5	0.0 %
5 - 9	50.0 %
10 - 14	10.0 %
15 - 19	10.0 %
20 - 24	10.0 %
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 =	10
mean	16
min size (mm)	7
max size (mm)	33

Oxyjulis californica

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	5.6 %
20 - 24	94.4 %
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 =	215
mean	20
min size (mm)	18
max size (mm)	22

Sebastes mystinus

< 5	0.0 %
5 - 9	64.9 %
10 - 14	2.7 %
15 - 19	29.7 %
20 - 24	0.0 %
25 - 29	2.7 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	37
mean	16
min size (mm)	8
max size (mm)	27

Embiotoca lateralis

< 5	0.0 %
5 - 9	33.3 %
10 - 14	58.3 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	8.3 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	12
mean	14
min size (mm)	8
max size (mm)	33

Paralabrax clathratus

< 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 serranoides

< 5	0.0 %
5 - 9	11.5 %
10 - 14	15.4 %
15 - 19	11.5 %
20 - 24	19.2 %
25 - 29	0.0 %
30 - 34	3.8 %
35 - 39	34.6 %
40 - 44	3.8 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	26
mean	26
min size (mm)	8
max size (mm)	42

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

Semicossyphus pulcher	
< 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	0.0 %
> 49	87.5 %
(Cases) N =	8
mean	58
min size (mm)	40
max size (mm)	72

Sebastes carnatus	
< 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 =	6
mean	25
min size (mm)	23
max size (mm)	27

Sebastes chrysomelas	
< 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

Semicossyphus pulcher	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	22.2 %
20 - 24	16.7 %
25 - 29	16.7 %
30 - 34	27.8 %
35 - 39	11.1 %
40 - 44	5.6 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	18
mean	29
min size (mm)	17
max size (mm)	40

Sebastes caurinus	
< 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

Scorpaenichthys marmoratus	
< 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	0.0 %
40 - 44	50.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	31
min size (mm)	21
max size (mm)	40

Sebastes serriceps	
< 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

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Fry's Harbor

Chromis punctipinnis

< 5	0.0 %
5 - 9	5.3 %
10 - 14	49.3 %
15 - 19	13.3 %
20 - 24	32.0 %
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 =	375
mean	16
min size (mm)	8
max size (mm)	24

Oxyjulis californica

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.8 %
15 - 19	16.5 %
20 - 24	82.6 %
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 =	242
mean	19
min size (mm)	12
max size (mm)	22

Rhacochilus vacca

< 5	0.0 %
5 - 9	25.0 %
10 - 14	0.0 %
15 - 19	25.0 %
20 - 24	25.0 %
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	18
min size (mm)	7
max size (mm)	26

Embiotoca jacksoni

< 5	0.0 %
5 - 9	47.1 %
10 - 14	0.0 %
15 - 19	11.8 %
20 - 24	17.6 %
25 - 29	23.5 %
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)	7
max size (mm)	28

Paralabrax clathratus

< 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 atrovirens

< 5	0.0 %
5 - 9	52.0 %
10 - 14	0.0 %
15 - 19	8.0 %
20 - 24	28.0 %
25 - 29	10.0 %
30 - 34	2.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	50
mean	20
min size (mm)	7
max size (mm)	30

Embiotoca lateralis

< 5	0.0 %
5 - 9	66.7 %
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	0.0 %
(Cases) N =	6
mean	21
min size (mm)	9
max size (mm)	27

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	66.7 %
40 - 44	33.3 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	37
min size (mm)	35
max size (mm)	40

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Fry's Harbor

Sebastes atrovirens/carnatus/caurinus/chrysomelas					
		(Cases) N =	2	(Cases) N =	4
		mean	17	mean	24
		min size (mm)	7	min size (mm)	18
< 2	0.0 %				
20.0	%max size (mm)		27	max size (mm)	30
30.0	%				
40.0	%				
558.3	%***Semicossyphus pulcher***		***Halichoeres semicinctus***		
637.8	%< 5	0.0	%< 5	0.0	%
70.0	%5 - 9	0.0	%5 - 9	0.0	%
81.7	%10 - 14	0.0	%10 - 14	0.0	%
90.0	%15 - 19	0.0	%15 - 19	0.0	%
10	2.2 %	20 - 24	0.0 %	20 - 24	0.0 %
11	0.0 %	25 - 29	0.0 %	25 - 29	100.0 %
12	0.0 %	30 - 34	0.0 %	30 - 34	0.0 %
13	0.0 %	35 - 39	0.0 %	35 - 39	0.0 %
14	0.0 %	40 - 44	0.0 %	40 - 44	0.0 %
15	0.0 %	45 - 49	0.0 %	45 - 49	0.0 %
>15	0.0 %	> 49	100.0 %	> 49	0.0 %
(Cases) N =	180	(Cases) N =	1	(Cases) N =	1
mean	7	mean	65	mean	27
min size (mm)	5	min size (mm)	65	min size (mm)	27
max size (mm)	10	max size (mm)	65	max size (mm)	27

Sebastes mystinus		***Semicossyphus pulcher***		***Hypsypops rubicundus***	
< 5	0.0 %	< 5	0.0 %	< 5	0.0 %
5 - 9	100.0 %	5 - 9	0.0 %	5 - 9	0.0 %
10 - 14	0.0 %	10 - 14	0.0 %	10 - 14	0.0 %
15 - 19	0.0 %	15 - 19	0.0 %	15 - 19	0.0 %
20 - 24	0.0 %	20 - 24	44.4 %	20 - 24	0.0 %
25 - 29	0.0 %	25 - 29	55.6 %	25 - 29	100.0 %
30 - 34	0.0 %	30 - 34	0.0 %	30 - 34	0.0 %
35 - 39	0.0 %	35 - 39	0.0 %	35 - 39	0.0 %
40 - 44	0.0 %	40 - 44	0.0 %	40 - 44	0.0 %
45 - 49	0.0 %	45 - 49	0.0 %	45 - 49	0.0 %
> 49	0.0 %	> 49	0.0 %	> 49	0.0 %
(Cases) N =	18	(Cases) N =	9	(Cases) N =	7
mean	8	mean	24	mean	26
min size (mm)	8	min size (mm)	20	min size (mm)	26
max size (mm)	8	max size (mm)	27	max size (mm)	26

Sebastes serranoides		***Halichoeres semicinctus***	
< 5	0.0 %	< 5	0.0 %
5 - 9	50.0 %	5 - 9	0.0 %
10 - 14	0.0 %	10 - 14	0.0 %
15 - 19	0.0 %	15 - 19	25.0 %
20 - 24	0.0 %	20 - 24	25.0 %
25 - 29	50.0 %	25 - 29	25.0 %
30 - 34	0.0 %	30 - 34	25.0 %
35 - 39	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 %	> 49	0.0 %

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Fry's Harbor

Scorpaenichthys marmoratus

< 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

< 5	0.0 %
5 - 9	16.7 %
10 - 14	0.0 %
15 - 19	0.0 %
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	25
min size (mm)	6
max size (mm)	32

Sebastes chrysomelas

< 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

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pelican Bay

Chromis punctipinnis

< 5	0.0 %
5 - 9	0.0 %
10 - 14	31.1 %
15 - 19	55.4 %
20 - 24	13.5 %
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 =	74
mean	15
min size (mm)	11
max size (mm)	20

Paralabrax clathratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	3.8 %
15 - 19	30.8 %
20 - 24	42.3 %
25 - 29	11.5 %
30 - 34	7.7 %
35 - 39	3.8 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	26
mean	22
min size (mm)	14
max size (mm)	37

Sebastes atrovirens

< 5	0.0 %
5 - 9	8.3 %
10 - 14	0.0 %
15 - 19	16.7 %
20 - 24	16.7 %
25 - 29	41.7 %
30 - 34	16.7 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	24
mean	25
min size (mm)	6
max size (mm)	32

Embiotoca jacksoni

< 5	0.0 %
5 - 9	9.8 %
10 - 14	26.2 %
15 - 19	21.3 %
20 - 24	23.0 %
25 - 29	16.4 %
30 - 34	3.3 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	61
mean	20
min size (mm)	8
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	100.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	2
mean	31
min size (mm)	31
max size (mm)	31

Sebastes atrovirens/carnatus/caurinus/chrysomelas

< 2	0.0 %
2	0.0 %
3	0.0 %
4	0.0 %
5	0.0 %
6	100.0 %
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 =	3
mean	6
min size (mm)	6
max size (mm)	6

Oxyjulis californica

< 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	19
min size (mm)	18
max size (mm)	19

Rhacochilus vacca

< 5	0.0 %
5 - 9	0.0 %
10 - 14	10.0 %
15 - 19	20.0 %
20 - 24	60.0 %
25 - 29	10.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	10
mean	22
min size (mm)	13
max size (mm)	29

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pelican Bay

Sebastes serranoides	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	40.0 %
20 - 24	60.0 %
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	21
min size (mm)	17
max size (mm)	24

Halichoeres semicinctus	
< 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)	23
max size (mm)	25

Scorpaenichthys marmoratus	
< 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	30
min size (mm)	27
max size (mm)	31

Semicossyphus pulcher	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	22.2 %
25 - 29	22.2 %
30 - 34	55.6 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	9
mean	28
min size (mm)	20
max size (mm)	33

Caulolatilus princeps	
<10	0.0 %
10 - 19	0.0 %
20 - 29	40.0 %
30 - 39	33.3 %
40 - 49	13.3 %
50 - 59	6.7 %
60 - 69	6.7 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	15
mean	35
min size (mm)	22
max size (mm)	65

Sebastes rastrelliger	
< 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)	33

Halichoeres semicinctus	
< 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 =	4
mean	29
min size (mm)	25
max size (mm)	33

Hypsypops rubicundus	
< 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 =	13
mean	28
min size (mm)	26
max size (mm)	29

Sebastes serriceps	
< 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

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pelican Bay

	Sebastes chrysomelas
< 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

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Scorpion Anchorage

Chromis punctipinnis	
< 5	0.0 %
5 - 9	2.6 %
10 - 14	87.0 %
15 - 19	10.4 %
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 =	77
mean	12
min size (mm)	5
max size (mm)	18

Paralabrax clathratus	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	10.0 %
20 - 24	40.0 %
25 - 29	0.0 %
30 - 34	10.0 %
35 - 39	20.0 %
40 - 44	0.0 %
45 - 49	10.0 %
> 49	10.0 %
(Cases) N =	10
mean	31
min size (mm)	17
max size (mm)	50

Sebastes mystinus	
< 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)	17
max size (mm)	17

Embiotoca jacksoni	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	13.3 %
15 - 19	20.0 %
20 - 24	46.7 %
25 - 29	6.7 %
30 - 34	13.3 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	15
mean	23
min size (mm)	10
max size (mm)	33

Rhacochilus vacca	
< 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)	21
max size (mm)	33

Sebastes serranoides	
< 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 =	4
mean	12
min size (mm)	8
max size (mm)	15

Oxyjulis californica	
< 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 =	12
mean	23
min size (mm)	22
max size (mm)	24

Sebastes atrovirens	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	25.0 %
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	25
min size (mm)	20
max size (mm)	27

Semicossyphus pulcher	
< 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	0.0 %
35 - 39	0.0 %
40 - 44	33.3 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	31
min size (mm)	24
max size (mm)	43

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Scorpion Anchorage

Halichoeres semicinctus	
< 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 auriculatus	
< 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	11
min size (mm)	6
max size (mm)	15

Halichoeres semicinctus	
< 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

Sebastes serriceps	
< 5	0.0 %
5 - 9	66.7 %
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	0.0 %
(Cases) N =	3
mean	17
min size (mm)	7
max size (mm)	27

Hypsypops rubicundus	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	87.5 %
30 - 34	12.5 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	8
mean	29
min size (mm)	27
max size (mm)	30

Sebastes chrysomelas	
< 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

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

Cephaloscyllium ventriosum

< 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

Chromis punctipinnis

< 5	0.0 %
5 - 9	0.0 %
10 - 14	50.0 %
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	14
min size (mm)	13
max size (mm)	15

Embiotoca jacksoni

< 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

Paralabrax clathratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	22.2 %
30 - 34	66.7 %
35 - 39	11.1 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	9
mean	32
min size (mm)	27
max size (mm)	35

Sebastes atrovirens

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	50.0 %
20 - 24	20.0 %
25 - 29	20.0 %
30 - 34	10.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	10
mean	22
min size (mm)	16
max size (mm)	32

Sebastes atrovirens/carnatus/caurinus/chrysomelas

< 2	0.0 %
2	0.0 %
3	0.0 %
4	0.0 %
5	0.0 %
6	100.0 %
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 =	15
mean	6
min size (mm)	6
max size (mm)	6

Sebastes mystinus

< 5	0.0 %
5 - 9	84.6 %
10 - 14	7.7 %
15 - 19	7.7 %
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 =	13
mean	11
min size (mm)	7
max size (mm)	17

Sebastes serranoides

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	85.7 %
20 - 24	14.3 %
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 =	7
mean	18
min size (mm)	17
max size (mm)	20

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

Semicossyphus pulcher	
< 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	60
min size (mm)	60
max size (mm)	60

Sebastes caurinus	
< 5	0.0 %
5 - 9	77.2 %
10 - 14	21.1 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	1.8 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	114
mean	13
min size (mm)	6
max size (mm)	37

Sebastes chrysomelas	
< 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)	26

Semicossyphus pulcher	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	13.3 %
20 - 24	40.0 %
25 - 29	30.0 %
30 - 34	16.7 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	30
mean	26
min size (mm)	15
max size (mm)	34

Sebastes miniatus	
<10	72.2 %
10 - 19	27.8 %
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 =	18
mean	9
min size (mm)	7
max size (mm)	13

Sebastes carnatus	
< 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

Sebastes serriceps	
< 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)	26
max size (mm)	27

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Admiral's Reef

Chromis punctipinnis	
< 5	0.0 %
5 - 9	20.7 %
10 - 14	65.7 %
15 - 19	7.1 %
20 - 24	6.4 %
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 =	776
mean	13
min size (mm)	5
max size (mm)	23

Rhacochilus vacca	
< 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

Semicossyphus pulcher	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	10.0 %
20 - 24	60.0 %
25 - 29	10.0 %
30 - 34	20.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	10
mean	23
min size (mm)	18
max size (mm)	30

Embiotoca jacksoni	
< 5	0.0 %
5 - 9	40.0 %
10 - 14	0.0 %
15 - 19	26.7 %
20 - 24	20.0 %
25 - 29	13.3 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	15
mean	18
min size (mm)	8
max size (mm)	26

Sebastes atrovirens	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	66.7 %
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 =	12
mean	24
min size (mm)	20
max size (mm)	28

Halichoeres semicinctus	
< 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 =	4
mean	25
min size (mm)	20
max size (mm)	28

Paralabrax clathratus	
< 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	35
min size (mm)	29
max size (mm)	41

Sebastes mystinus	
< 5	0.0 %
5 - 9	35.6 %
10 - 14	0.0 %
15 - 19	64.4 %
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 =	132
mean	11
min size (mm)	7
max size (mm)	18

Hypsypops rubicundus	
< 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	26
min size (mm)	26
max size (mm)	26

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Admiral's Reef

Sebastes serriceps

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	28.6 %
30 - 34	42.9 %
35 - 39	28.6 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	7
mean	31
min size (mm)	26
max size (mm)	37

Sebastes chrysomelas

< 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)	23
max size (mm)	27

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Cathedral Cove

Chromis punctipinnis	
< 5	0.0 %
5 - 9	0.5 %
10 - 14	18.9 %
15 - 19	62.5 %
20 - 24	18.1 %
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 =	408
mean	15
min size (mm)	8
max size (mm)	22

Girella nigricans	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	61.0 %
25 - 29	36.6 %
30 - 34	2.4 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	41
mean	28
min size (mm)	24
max size (mm)	33

Rhacochilus vacca	
< 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)	24
max size (mm)	25

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

Oxyjulis californica	
< 5	0.0 %
5 - 9	71.4 %
10 - 14	9.5 %
15 - 19	19.0 %
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 =	21
mean	12
min size (mm)	7
max size (mm)	18

Sebastes atrovirens	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	30.0 %
25 - 29	30.0 %
30 - 34	30.0 %
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

Embiotoca lateralis	
< 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

Paralabrax clathratus	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	14.3 %
25 - 29	42.9 %
30 - 34	28.6 %
35 - 39	14.3 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	7
mean	30
min size (mm)	22
max size (mm)	38

Sebastes mystinus	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	7.7 %
15 - 19	92.3 %
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 =	13
mean	16
min size (mm)	13
max size (mm)	19

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Cathedral Cove

Sebastes serranoides

< 5	0.0 %
5 - 9	93.8 %
10 - 14	6.3 %
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 =	16
mean	10
min size (mm)	6
max size (mm)	13

Halichoeres semicinctus

< 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

Scorpaena guttata

< 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	13
min size (mm)	12
max size (mm)	14

Semicossyphus pulcher

< 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

Caulolatilus princeps

<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	63
min size (mm)	60
max size (mm)	65

Sebastes caurinus

< 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

Semicossyphus pulcher

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	60.0 %
25 - 29	10.0 %
30 - 34	20.0 %
35 - 39	10.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	10
mean	26
min size (mm)	20
max size (mm)	36

Hypsypops rubicundus

< 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	26
min size (mm)	24
max size (mm)	27

Sebastes paucispinis

< 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	8
min size (mm)	8
max size (mm)	8

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove

Chromis punctipinnis

< 5	0.0 %
5 - 9	13.5 %
10 - 14	48.8 %
15 - 19	34.6 %
20 - 24	3.1 %
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 =	260
mean	15
min size (mm)	8
max size (mm)	22

Oxyjulis californica

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	86.6 %
20 - 24	13.4 %
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 =	179
mean	19
min size (mm)	16
max size (mm)	22

Sebastes mystinus

< 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

Embiotoca jacksoni

< 5	0.0 %
5 - 9	36.4 %
10 - 14	0.0 %
15 - 19	36.4 %
20 - 24	9.1 %
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	21
min size (mm)	7
max size (mm)	31

Paralabrax clathratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	13.3 %
25 - 29	33.3 %
30 - 34	13.3 %
35 - 39	20.0 %
40 - 44	13.3 %
45 - 49	6.7 %
> 49	0.0 %
(Cases) N =	15
mean	32
min size (mm)	20
max size (mm)	45

Sebastes serranoides

< 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 lateralis

< 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

Sebastes atrovirens

< 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	26
min size (mm)	22
max size (mm)	30

Semicossyphus pulcher

< 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	60
min size (mm)	50
max size (mm)	70

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove

Semicossyphus pulcher	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	9.1 %
20 - 24	45.5 %
25 - 29	9.1 %
30 - 34	18.2 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	18.2 %
> 49	0.0 %
(Cases) N =	11
mean	29
min size (mm)	15
max size (mm)	48

Sebastes rastrelliger	
< 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

Halichoeres semicinctus	
< 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)	24
max size (mm)	25

Sebastes serriceps	
< 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)	26
max size (mm)	32

Hypsypops rubicundus	
< 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	26
min size (mm)	26
max size (mm)	26

Sebastes chrysomelas	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	25.0 %
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	25
min size (mm)	22
max size (mm)	27

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - SE Sea Lion Rookery

Chromis punctipinnis

< 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 =	26
mean	12
min size (mm)	10
max size (mm)	14

Paralabrax clathratus

< 5	0.0 %
5 - 9	50.0 %
10 - 14	50.0 %
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	9
min size (mm)	8
max size (mm)	10

Sebastes atrovirens/carnatus/caurinus/chrysomelas

< 2	0.0 %
20.0	%max size (mm)
30.0	%(Cases) N =
40.0	%mean
5100.0	%***Semicossyphus pulcher*** mean
60.0	%< 5 0.0
70.0	%5 - 9 0.0
80.0	%10 - 14 20.0 %
90.0	%15 - 19 60.0 %
10	0.0 % 20 - 24 0.0 %
11	0.0 % 25 - 29 0.0 %
12	0.0 % 30 - 34 0.0 %
13	0.0 % 35 - 39 20.0 %
14	0.0 % 40 - 44 0.0 %
15	0.0 % 45 - 49 0.0 %
>15	0.0 % > 49 0.0 %

(Cases) N =	1
mean	5
min size (mm)	5
max size (mm)	5

Sebastes mystinus

< 5	0.0 %
5 - 9	33.3 %
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	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	6
mean	10
min size (mm)	6
max size (mm)	14

Sebastes serranoides

< 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	19
min size (mm)	16
22	%max size (mm)
	%(Cases) N =
	%mean
	%***Semicossyphus pulcher*** mean
	%min size (mm) 15
	%max size (mm) 15

(Cases) N =	5
mean	20
min size (mm)	13
max size (mm)	37

Semicossyphus pulcher

< 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

Sebastes caurinus

< 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 %
45 - 49	0.0 %
> 49	0.0 %
1	
15	
15	

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - SE Sea Lion Rookery

Sebastes miniatus

<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 =	12
mean	7
min size (mm)	7
max size (mm)	7

Stereolepis gigas

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

Sebastes saxicola

	0.0 %
(Cases) N =	3
mean	5
min size (mm)	5
max size (mm)	5

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Arch Point

Chromis punctipinnis	
< 5	0.0 %
5 - 9	8.5 %
10 - 14	43.2 %
15 - 19	46.6 %
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 =	236
mean	14
min size (mm)	8
max size (mm)	22

Paralabrax clathratus	
< 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)	25
max size (mm)	37

Semicossyphus pulcher	
< 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

Girella nigricans	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	51.7 %
30 - 34	27.6 %
35 - 39	20.7 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	29
mean	33
min size (mm)	28
max size (mm)	38

Sebastes atrovirens	
< 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

Semicossyphus pulcher	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	8.3 %
20 - 24	25.0 %
25 - 29	16.7 %
30 - 34	25.0 %
35 - 39	25.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	12
mean	27
min size (mm)	17
max size (mm)	37

Oxyjulis californica	
< 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

Sebastes mystinus	
< 5	0.0 %
5 - 9	18.8 %
10 - 14	25.0 %
15 - 19	50.0 %
20 - 24	6.3 %
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 =	16
mean	15
min size (mm)	7
max size (mm)	20

Hypsypops rubicundus	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	6.3 %
25 - 29	93.8 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	32
mean	25
min size (mm)	23
max size (mm)	26

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Arch Point

Medialuna californiensis

< 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 =	72
mean	36
min size (mm)	35
max size (mm)	37

Sebastes caurinus

< 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 rastrelliger

< 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

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Cat Canyon

Chromis punctipinnis

< 5	0.0 %
5 - 9	7.2 %
10 - 14	53.2 %
15 - 19	36.0 %
20 - 24	3.6 %
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 =	139
mean	15
min size (mm)	6
max size (mm)	24

Oxyjulis californica

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	46.9 %
20 - 24	53.1 %
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 =	32
mean	20
min size (mm)	16
max size (mm)	24

Paralabrax clathratus

< 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

Sebastes atrovirens

< 5	0.0 %
5 - 9	0.0 %
10 - 14	33.3 %
15 - 19	66.7 %
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 =	3
mean	14
min size (mm)	13
max size (mm)	15

Sebastes mystinus

< 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)	16
max size (mm)	17

Sebastes serranoides

< 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

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	120
min size (mm)	120
max size (mm)	120

Semicossyphus pulcher

< 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	35
min size (mm)	30
max size (mm)	40

Semicossyphus pulcher

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	25.0 %
20 - 24	58.3 %
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	22
min size (mm)	17
max size (mm)	26

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Cat Canyon

Hypsypops rubicundus

< 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	26
min size (mm)	26
max size (mm)	26

Sebastes rastrelliger

< 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	33.3 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	34
min size (mm)	33
max size (mm)	35

Scorpaenichthys marmoratus

< 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	38
min size (mm)	38
max size (mm)	38

Sebastes caurinus

< 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

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Miracle Mile

Cephaloscyllium ventriosum

< 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	90
min size (mm)	90
max size (mm)	90

Embiotoca jacksoni

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	40.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	60.0 %
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)	33

Embiotoca lateralis

< 5	0.0 %
5 - 9	27.3 %
10 - 14	9.1 %
15 - 19	30.3 %
20 - 24	12.1 %
25 - 29	15.2 %
30 - 34	3.0 %
35 - 39	3.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	33
mean	20
min size (mm)	8
max size (mm)	35

Ophiodon elongatus

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	50.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	50.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	2
mean	55
min size (mm)	40
max size (mm)	70

Oxyjulis californica

< 5	0.0 %
5 - 9	0.0 %
10 - 14	11.1 %
15 - 19	16.7 %
20 - 24	66.7 %
25 - 29	5.6 %
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)	14
max size (mm)	25

Sebastes atrovirens

< 5	0.0 %
5 - 9	4.5 %
10 - 14	0.0 %
15 - 19	4.5 %
20 - 24	9.1 %
25 - 29	59.1 %
30 - 34	22.7 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	22
mean	25
min size (mm)	7
max size (mm)	33

Sebastes atrovirens/carnatus/caurinus/chrysomelas

< 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 =	2
mean	8
min size (mm)	8
max size (mm)	8

Sebastes mystinus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	47.4 %
15 - 19	26.3 %
20 - 24	0.0 %
25 - 29	10.5 %
30 - 34	10.5 %
35 - 39	5.3 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	19
mean	25
min size (mm)	10
max size (mm)	35

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Miracle Mile

Sebastes serranoides

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	50.0 %
20 - 24	25.0 %
25 - 29	0.0 %
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)	18
max size (mm)	35

Sebastes melanops

< 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

Sebastes chrysomelas

< 5	0.0 %
5 - 9	14.3 %
10 - 14	28.6 %
15 - 19	0.0 %
20 - 24	57.1 %
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 =	7
mean	16
min size (mm)	8
max size (mm)	24

Semicossyphus pulcher

< 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	43
min size (mm)	43
max size (mm)	43

Sebastes miniatus

<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	23
min size (mm)	23
max size (mm)	23

Scorpaenichthys marmoratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	25.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	75.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	4
mean	28
min size (mm)	20
max size (mm)	36

Sebastes serriceps

< 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

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Cluster Point

Chromis punctipinnis

< 5	0.0 %
5 - 9	6.9 %
10 - 14	65.5 %
15 - 19	0.0 %
20 - 24	24.1 %
25 - 29	3.4 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	29
mean	17
min size (mm)	8
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	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	58
min size (mm)	55
max size (mm)	60

Rhacochilus vacca

< 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

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	15.4 %
20 - 24	15.4 %
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	28
min size (mm)	15
max size (mm)	37

Oxyjulis californica

< 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 =	16
mean	22
min size (mm)	20
max size (mm)	23

Sebastes atrovirens

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	7.1 %
25 - 29	35.7 %
30 - 34	28.6 %
35 - 39	28.6 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	14
mean	30
min size (mm)	23
max size (mm)	37

Embiotoca lateralis

< 5	0.0 %
5 - 9	13.0 %
10 - 14	8.7 %
15 - 19	21.7 %
20 - 24	4.3 %
25 - 29	30.4 %
30 - 34	13.0 %
35 - 39	8.7 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	23
mean	22
min size (mm)	9
max size (mm)	38

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 =	1
mean	29
min size (mm)	29
max size (mm)	29

Sebastes mystinus

< 5	0.0 %
5 - 9	6.0 %
10 - 14	0.0 %
15 - 19	85.8 %
20 - 24	2.2 %
25 - 29	3.7 %
30 - 34	0.7 %
35 - 39	1.5 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	134
mean	25
min size (mm)	8
max size (mm)	37

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Cluster Point

Sebastes serranoides	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	13.3 %
20 - 24	80.0 %
25 - 29	6.7 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	15
mean	21
min size (mm)	17
max size (mm)	28

Sebastes melanops	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	6.3 %
20 - 24	0.0 %
25 - 29	81.3 %
30 - 34	12.5 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	16
mean	25
min size (mm)	17
max size (mm)	32

Sebastes chrysomelas	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	60.0 %
15 - 19	0.0 %
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 =	5
mean	16
min size (mm)	10
max size (mm)	23

Semicossyphus pulcher	
< 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	60
min size (mm)	55
max size (mm)	65

Sebastes miniatus	
<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

Semicossyphus pulcher	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	11.1 %
30 - 34	11.1 %
35 - 39	33.3 %
40 - 44	11.1 %
45 - 49	22.2 %
> 49	11.1 %
(Cases) N =	9
mean	39
min size (mm)	25
max size (mm)	52

Sebastes serriceps	
< 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

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Trancion Canyon

Chromis punctipinnis

< 5	6.7 %
5 - 9	15.0 %
10 - 14	0.0 %
15 - 19	23.3 %
20 - 24	55.0 %
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	12
min size (mm)	4
max size (mm)	22

Ophiodon elongatus

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	25.0 %
40 - 49	50.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	25.0 %
(Cases) N =	4
mean	55
min size (mm)	32
max size (mm)	100

Rhacochilus vacca

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	12.5 %
25 - 29	25.0 %
30 - 34	50.0 %
35 - 39	12.5 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	8
mean	30
min size (mm)	22
max size (mm)	37

Embiotoca jacksoni

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	13.3 %
25 - 29	26.7 %
30 - 34	33.3 %
35 - 39	26.7 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	15
mean	31
min size (mm)	23
max size (mm)	39

Oxyjulis californica

< 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 =	20
mean	21
min size (mm)	20
max size (mm)	22

Sebastes atrovirens

< 5	0.0 %
5 - 9	8.1 %
10 - 14	0.0 %
15 - 19	2.7 %
20 - 24	10.8 %
25 - 29	51.4 %
30 - 34	27.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	37
mean	24
min size (mm)	8
max size (mm)	33

Embiotoca lateralis

< 5	0.0 %
5 - 9	39.1 %
10 - 14	17.4 %
15 - 19	13.0 %
20 - 24	13.0 %
25 - 29	8.7 %
30 - 34	4.3 %
35 - 39	4.3 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	23
mean	20
min size (mm)	9
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	0.0 %
35 - 39	0.0 %
40 - 44	100.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	1
mean	43
min size (mm)	43
max size (mm)	43

Sebastes mystinus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	52.0 %
15 - 19	43.2 %
20 - 24	1.4 %
25 - 29	1.4 %
30 - 34	0.7 %
35 - 39	1.4 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	148
mean	24
min size (mm)	10
max size (mm)	37

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Trancion Canyon

Sebastes serranoides

< 5	0.0 %
5 - 9	28.6 %
10 - 14	28.6 %
15 - 19	28.6 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	14.3 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	7
mean	19
min size (mm)	9
max size (mm)	43

Squatina californica

< 50	0.0 %
50 - 99	100.0 %
100 - 149	0.0 %
150 - 199	0.0 %
200 - 249	0.0 %
250 - 299	0.0 %
>299	0.0 %
(Cases) N =	1
mean	90
min size (mm)	90
max size (mm)	90

Semicossyphus pulcher

< 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 =	6
mean	63
min size (mm)	50
max size (mm)	75

Semicossyphus pulcher

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	11.1 %
25 - 29	22.2 %
30 - 34	22.2 %
35 - 39	11.1 %
40 - 44	11.1 %
45 - 49	22.2 %
> 49	0.0 %
(Cases) N =	9
mean	33
min size (mm)	23
max size (mm)	45

Scorpaenichthys marmoratus

< 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	60.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	39
min size (mm)	33
max size (mm)	43

Sebastes caurinus

< 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 melanops

< 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	27
min size (mm)	25
max size (mm)	30

Sebastes serriceps

< 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	16
min size (mm)	7
max size (mm)	25

Sebastes chrysomelas

< 5	0.0 %
5 - 9	0.0 %
10 - 14	14.3 %
15 - 19	0.0 %
20 - 24	71.4 %
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	21
min size (mm)	14
max size (mm)	25

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Chickasaw

Chromis punctipinnis

< 5	100.0 %
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	0.0 %
(Cases) N =	11
mean	4
min size (mm)	4
max size (mm)	4

Ophiodon elongatus

<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	0.0 %
70 - 79	33.3 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	33.3 %
(Cases) N =	3
mean	87
min size (mm)	55
max size (mm)	130

Sebastes atrovirens

< 5	0.0 %
5 - 9	18.4 %
10 - 14	0.0 %
15 - 19	2.0 %
20 - 24	10.2 %
25 - 29	32.7 %
30 - 34	32.7 %
35 - 39	4.1 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	49
mean	24
min size (mm)	6
max size (mm)	35

Embiotoca jacksoni

< 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	38
min size (mm)	35
max size (mm)	40

Oxyjulis californica

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	70.0 %
20 - 24	30.0 %
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 =	10
mean	19
min size (mm)	17
max size (mm)	20

Sebastes atrovirens/carnatus/caurinus/chrysomelas

< 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 =	2
mean	8
min size (mm)	8
max size (mm)	8

Embiotoca lateralis

< 5	0.0 %
5 - 9	45.5 %
10 - 14	9.1 %
15 - 19	0.0 %
20 - 24	18.2 %
25 - 29	0.0 %
30 - 34	18.2 %
35 - 39	9.1 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	11
mean	21
min size (mm)	8
max size (mm)	37

Rhacochilus vacca

< 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	0.0 %
35 - 39	75.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	4
mean	33
min size (mm)	27
max size (mm)	37

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Chickasaw

Sebastes mystinus

< 5	0.0 %
5 - 9	8.8 %
10 - 14	67.5 %
15 - 19	20.0 %
20 - 24	0.0 %
25 - 29	1.3 %
30 - 34	1.3 %
35 - 39	1.3 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	80
mean	18
min size (mm)	8
max size (mm)	38

Semicossyphus pulcher

< 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	25.0 %
45 - 49	25.0 %
> 49	0.0 %
(Cases) N =	4
mean	40
min size (mm)	35
max size (mm)	47

Sebastes chrysomelas

< 5	0.0 %
5 - 9	40.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	60.0 %
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)	8
max size (mm)	24

Sebastes serranoides

< 5	0.0 %
5 - 9	0.0 %
10 - 14	33.3 %
15 - 19	22.2 %
20 - 24	0.0 %
25 - 29	3.7 %
30 - 34	7.4 %
35 - 39	7.4 %
40 - 44	14.8 %
45 - 49	11.1 %
> 49	0.0 %
(Cases) N =	27
mean	28
min size (mm)	10
max size (mm)	47

Sebastes melanops

< 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)	34
max size (mm)	36

Semicossyphus pulcher

< 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	75
min size (mm)	75
max size (mm)	75

Sebastes serriceps

< 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	8
min size (mm)	8
max size (mm)	8

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - South Point

Chromis punctipinnis

< 5	0.0 %
5 - 9	0.0 %
10 - 14	4.8 %
15 - 19	57.1 %
20 - 24	38.1 %
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 =	21
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	50.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	50.0 %
> 99	0.0 %
(Cases) N =	2
mean	70
min size (mm)	50
max size (mm)	90

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	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

Embiotoca jacksoni

< 5	0.0 %
5 - 9	9.1 %
10 - 14	0.0 %
15 - 19	18.2 %
20 - 24	18.2 %
25 - 29	0.0 %
30 - 34	36.4 %
35 - 39	18.2 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	11
mean	26
min size (mm)	8
max size (mm)	37

Oxyjulis californica

< 5	0.0 %
5 - 9	0.0 %
10 - 14	18.5 %
15 - 19	59.8 %
20 - 24	21.7 %
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 =	92
mean	18
min size (mm)	12
max size (mm)	22

Rhacochilus vacca

< 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

Embiotoca lateralis

< 5	0.0 %
5 - 9	47.8 %
10 - 14	4.3 %
15 - 19	4.3 %
20 - 24	8.7 %
25 - 29	8.7 %
30 - 34	8.7 %
35 - 39	17.4 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	23
mean	21
min size (mm)	7
max size (mm)	37

Paralabrax clathratus

< 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	75.0 %
45 - 49	0.0 %
> 49	25.0 %
(Cases) N =	4
mean	50
min size (mm)	42
max size (mm)	57

Sebastes atrovirens

< 5	0.0 %
5 - 9	0.0 %
10 - 14	4.9 %
15 - 19	9.8 %
20 - 24	17.1 %
25 - 29	26.8 %
30 - 34	26.8 %
35 - 39	14.6 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	41
mean	27
min size (mm)	13
max size (mm)	37

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - South Point

Sebastes mystinus	
< 5	0.0 %
5 - 9	74.0 %
10 - 14	0.0 %
15 - 19	17.6 %
20 - 24	1.5 %
25 - 29	0.0 %
30 - 34	0.8 %
35 - 39	5.3 %
40 - 44	0.8 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	131
mean	24
min size (mm)	6
max size (mm)	40

Semicossyphus pulcher	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	18.2 %
20 - 24	9.1 %
25 - 29	0.0 %
30 - 34	9.1 %
35 - 39	9.1 %
40 - 44	27.3 %
45 - 49	27.3 %
> 49	0.0 %
(Cases) N =	11
mean	35
min size (mm)	18
max size (mm)	49

Sebastes paucispinis	
< 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 =	4
mean	8
min size (mm)	8
max size (mm)	8

Sebastes serranoides	
< 5	0.0 %
5 - 9	6.5 %
10 - 14	3.2 %
15 - 19	12.9 %
20 - 24	6.5 %
25 - 29	3.2 %
30 - 34	3.2 %
35 - 39	0.0 %
40 - 44	54.8 %
45 - 49	3.2 %
> 49	6.5 %
(Cases) N =	31
mean	28
min size (mm)	8
max size (mm)	53

Scorpaenichthys marmoratus	
< 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	0.0 %
45 - 49	20.0 %
> 49	0.0 %
(Cases) N =	5
mean	34
min size (mm)	22
max size (mm)	49

Sebastes serriceps	
< 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

Semicossyphus pulcher	
< 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 =	5
mean	61
min size (mm)	50
max size (mm)	70

Sebastes melanops	
< 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

Sebastes chrysomelas	
< 5	0.0 %
5 - 9	42.9 %
10 - 14	14.3 %
15 - 19	14.3 %
20 - 24	0.0 %
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	18
min size (mm)	7
max size (mm)	27

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Devil's Peak Member

Chromis punctipinnis	
< 5	0.0 %
5 - 9	12.0 %
10 - 14	60.0 %
15 - 19	28.0 %
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 =	625
mean	13
min size (mm)	8
max size (mm)	19

Ophiodon elongatus	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	50.0 %
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	50
min size (mm)	37
max size (mm)	62

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	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	6.7 %
15 - 19	46.7 %
20 - 24	20.0 %
25 - 29	13.3 %
30 - 34	13.3 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	30
mean	21
min size (mm)	12
max size (mm)	32

Oxyjulis californica	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	44.8 %
15 - 19	55.2 %
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 =	145
mean	16
min size (mm)	13
max size (mm)	18

Rhacochilus vacca	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	18.2 %
15 - 19	36.4 %
20 - 24	9.1 %
25 - 29	36.4 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	11
mean	20
min size (mm)	14
max size (mm)	27

Embiotoca lateralis	
< 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

Paralabrax clathratus	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	27.3 %
25 - 29	36.4 %
30 - 34	9.1 %
35 - 39	9.1 %
40 - 44	18.2 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	11
mean	31
min size (mm)	20
max size (mm)	43

Sebastes atrovirens	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	20.0 %
25 - 29	60.0 %
30 - 34	20.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	27
min size (mm)	24
max size (mm)	30

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Devil's Peak Member

Sebastes mystinus	
< 5	0.0 %
5 - 9	29.4 %
10 - 14	17.6 %
15 - 19	52.9 %
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 =	17
mean	12
min size (mm)	5
max size (mm)	15

Hypsypops rubicundus	
< 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 =	15
mean	26
min size (mm)	26
max size (mm)	26

Sebastes serriceps	
< 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 =	4
mean	28
min size (mm)	25
max size (mm)	32

Sebastes serranoides	
< 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

Scorpaenichthys marmoratus	
< 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	37
min size (mm)	30
max size (mm)	43

Semicossyphus pulcher	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	16.7 %
20 - 24	66.7 %
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 =	6
mean	22
min size (mm)	17
max size (mm)	25

Sebastes carnatus	
< 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

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Potato Pasture

Chromis punctipinnis

< 5	2.5 %
5 - 9	0.0 %
10 - 14	55.8 %
15 - 19	41.7 %
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 =	240
mean	12
min size (mm)	4
max size (mm)	17

Oxyjulis californica

< 5	0.0 %
5 - 9	0.0 %
10 - 14	15.4 %
15 - 19	48.7 %
20 - 24	35.9 %
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 =	39
mean	17
min size (mm)	13
max size (mm)	22

Rhacochilus vacca

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	7.1 %
25 - 29	64.3 %
30 - 34	14.3 %
35 - 39	14.3 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	14
mean	29
min size (mm)	22
max size (mm)	37

Embiotoca jacksoni

< 5	0.0 %
5 - 9	10.2 %
10 - 14	2.0 %
15 - 19	2.0 %
20 - 24	40.8 %
25 - 29	40.8 %
30 - 34	2.0 %
35 - 39	2.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	49
mean	23
min size (mm)	8
max size (mm)	37

Paralabrax clathratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	2.0 %
25 - 29	32.7 %
30 - 34	38.8 %
35 - 39	16.3 %
40 - 44	8.2 %
45 - 49	0.0 %
> 49	2.0 %
(Cases) N =	49
mean	33
min size (mm)	22
max size (mm)	50

Sebastes atrovirens/carnatus/caurinus/chrysomelas

< 2	0.0 %
2	0.0 %
3	0.0 %
4	0.0 %
5	0.0 %
6	100.0 %
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 =	3
mean	6
min size (mm)	6
max size (mm)	6

Ophiodon elongatus

<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 =	2
mean	53
min size (mm)	50
max size (mm)	55

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	35
min size (mm)	30
max size (mm)	42

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Potato Pasture

Sebastes mystinus	
< 5	0.0 %
5 - 9	85.0 %
10 - 14	0.0 %
15 - 19	10.0 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	5.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	20
mean	17
min size (mm)	8
max size (mm)	35

Semicossyphus pulcher	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	8.7 %
25 - 29	43.5 %
30 - 34	43.5 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	4.3 %
(Cases) N =	23
mean	29
min size (mm)	22
max size (mm)	50

Caulolatilus princeps	
<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 =	2
mean	44
min size (mm)	40
max size (mm)	47

Sebastes serranoides	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	50.0 %
20 - 24	25.0 %
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	21
min size (mm)	18
max size (mm)	27

Halichoeres semicinctus	
< 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	26
min size (mm)	25
max size (mm)	26

Hypsypops rubicundus	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	92.3 %
30 - 34	7.7 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	13
mean	27
min size (mm)	25
max size (mm)	30

Semicossyphus pulcher	
< 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	0.0 %
45 - 49	33.3 %
> 49	33.3 %
(Cases) N =	3
mean	52
min size (mm)	36
max size (mm)	75

Halichoeres semicinctus	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	66.7 %
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	24
min size (mm)	22
max size (mm)	26

Scorpaenichthys marmoratus	
< 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)	31

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Potato Pasture

Sebastes auriculatus

< 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	37
min size (mm)	33
max size (mm)	44

Sebastes carnatus

< 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)	26
max size (mm)	28

Sebastes serriceps

< 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)	25
max size (mm)	33

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Cavern Point

Chromis punctipinnis

< 5	0.0 %
5 - 9	14.6 %
10 - 14	73.8 %
15 - 19	11.7 %
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 =	103
mean	14
min size (mm)	8
max size (mm)	19

Embiotoca jacksoni

< 5	0.0 %
5 - 9	7.7 %
10 - 14	0.0 %
15 - 19	53.8 %
20 - 24	19.2 %
25 - 29	7.7 %
30 - 34	11.5 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	26
mean	22
min size (mm)	7
max size (mm)	33

Ophiodon elongatus

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	20.0 %
60 - 69	60.0 %
70 - 79	0.0 %
80 - 89	20.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	5
mean	66
min size (mm)	52
max size (mm)	85

Oxyjulis californica

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	84.6 %
20 - 24	15.4 %
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 =	13
mean	20
min size (mm)	18
max size (mm)	22

Paralabrax clathratus

< 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	50.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	4
mean	27
min size (mm)	23
max size (mm)	30

Phanerodon atripes

< 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	0.0 %
13	0.0 %
14	0.0 %
15	0.0 %
>15	100.0 %

(Cases) N =	1
mean	17
min size (mm)	17
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	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

Rhacochilus vacca

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	90.0 %
20 - 24	5.0 %
25 - 29	5.0 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	20
mean	21
min size (mm)	15
max size (mm)	27

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Cavern Point

Sebastes atrovirens

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	75.0 %
25 - 29	12.5 %
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)	22
max size (mm)	32

Sebastes atrovirens/carnatus/caurinus/chrysomelas

< 2	0.0 %
20.0	%
30.0	%
461.5	%
53.8	%
60.0	%
715.4	%
815.4	%
93.8	%
10	0.0 %
11	0.0 %
12	0.0 %
13	0.0 %
14	0.0 %
15	0.0 %
>15	0.0 %
(Cases) N =	26
mean	7
min size (mm)	4
max size (mm)	9

Sebastes mystinus

< 5	0.0 %
5 - 9	57.5 %
10 - 14	0.0 %
15 - 19	42.5 %
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	13
min size (mm)	7
max size (mm)	17

Sebastes serranoides

< 5	0.0 %
5 - 9	85.2 %
10 - 14	0.0 %
15 - 19	14.8 %
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	11
min size (mm)	6
max size (mm)	17

Semicossyphus pulcher

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	60.0 %
30 - 34	0.0 %
35 - 39	20.0 %
40 - 44	0.0 %
45 - 49	20.0 %
> 49	0.0 %

< 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	63
min size (mm)	63
max size (mm)	63

Halichoeres semicinctus

< 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

Halichoeres semicinctus

< 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

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Cavern Point

Hypsypops rubicundus	
< 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	26
min size (mm)	26
max size (mm)	26

Sebastes paucispinis	
< 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	9
min size (mm)	8
max size (mm)	9

Sebastes carnatus	
< 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 =	5
mean	22
min size (mm)	20
max size (mm)	23

Sebastes serriceps	
< 5	0.0 %
5 - 9	20.0 %
10 - 14	20.0 %
15 - 19	0.0 %
20 - 24	0.0 %
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	21
min size (mm)	7
max size (mm)	33

Sebastes caurinus	
< 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	
< 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	21
min size (mm)	17
max size (mm)	25

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Little Scorpion

Chromis punctipinnis

< 5	0.0 %
5 - 9	1.5 %
10 - 14	37.9 %
15 - 19	26.2 %
20 - 24	34.4 %
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 =	401
mean	17
min size (mm)	9
max size (mm)	24

Paralabrax clathratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	14.3 %
30 - 34	14.3 %
35 - 39	42.9 %
40 - 44	14.3 %
45 - 49	14.3 %
> 49	0.0 %
(Cases) N =	7
mean	36
min size (mm)	28
max size (mm)	47

Sebastes atrovirens

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	44.4 %
25 - 29	55.6 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	9
mean	25
min size (mm)	22
max size (mm)	27

Embiotoca jacksoni

< 5	0.0 %
5 - 9	0.0 %
10 - 14	8.3 %
15 - 19	58.3 %
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	20
min size (mm)	14
max size (mm)	29

Oxyjulis californica

< 5	0.0 %
5 - 9	0.0 %
10 - 14	3.4 %
15 - 19	34.5 %
20 - 24	62.1 %
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 =	29
mean	19
min size (mm)	12
max size (mm)	24

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	32
min size (mm)	32
max size (mm)	32

Rhacochilus vacca

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	97.1 %
20 - 24	0.0 %
25 - 29	0.0 %
30 - 34	2.9 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	34
mean	24
min size (mm)	18
max size (mm)	30

Sebastes atrovirens/carnatus/caurinus/chrysomelas

Sebastes

< 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 =	2
mean	5
min size (mm)	5
max size (mm)	5

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Little Scorpion

Sebastes mystinus	
< 5	0.0 %
5 - 9	22.7 %
10 - 14	9.1 %
15 - 19	68.2 %
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 =	22
mean	11
min size (mm)	5
max size (mm)	17

Halichoeres semicinctus	
< 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)	25
max size (mm)	28

Hypsypops rubicundus	
< 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 =	18
mean	26
min size (mm)	26
max size (mm)	26

Sebastes serranoides	
< 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

Halichoeres semicinctus	
< 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

Scorpaenichthys marmoratus	
< 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

Semicossyphus pulcher	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	8.3 %
20 - 24	25.0 %
25 - 29	58.3 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	8.3 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	12
mean	26
min size (mm)	17
max size (mm)	40

Caulolatilus princeps	
<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	21
min size (mm)	21
max size (mm)	21

Sebastes caurinus	
< 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

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Little Scorpion

Sebastes serriceps

< 5	0.0 %
5 - 9	0.0 %
10 - 14	9.1 %
15 - 19	9.1 %
20 - 24	54.5 %
25 - 29	18.2 %
30 - 34	9.1 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	11
mean	23
min size (mm)	12
max size (mm)	33

Sebastes chrysomelas

< 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 =	3
mean	23
min size (mm)	22
max size (mm)	24

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pedro Reef

Chromis punctipinnis

< 5	0.0 %
5 - 9	0.0 %
10 - 14	19.7 %
15 - 19	80.3 %
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 =	137
mean	15
min size (mm)	11
max size (mm)	18

Embiotoca jacksoni

< 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	31
min size (mm)	31
max size (mm)	31

Oxyjulis californica

< 5	7.1 %
5 - 9	8.8 %
10 - 14	0.0 %
15 - 19	38.1 %
20 - 24	43.4 %
25 - 29	2.7 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	113
mean	17
min size (mm)	4
max size (mm)	26

Paralabrax clathratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	11.1 %
25 - 29	22.2 %
30 - 34	33.3 %
35 - 39	33.3 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	9
mean	32
min size (mm)	24
max size (mm)	39

Rhacochilus vacca

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	60.0 %
20 - 24	0.0 %
25 - 29	20.0 %
30 - 34	0.0 %
35 - 39	20.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	26
min size (mm)	17
max size (mm)	35

Sebastes atrovirens/carnatus/caurinus/chrysomelas

< 2	0.0 %
2	0.0 %
3	0.0 %
4	0.0 %
5	0.0 %
6	100.0 %
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 =	1
mean	6
min size (mm)	6
max size (mm)	6

Sebastes mystinus

< 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

Semicossyphus pulcher

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	4.8 %
20 - 24	19.0 %
25 - 29	42.9 %
30 - 34	28.6 %
35 - 39	4.8 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	21
mean	28
min size (mm)	19
max size (mm)	36

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pedro Reef

Caulolatilus princeps

<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	40
min size (mm)	40
max size (mm)	40

Sebastes miniatus

<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	8
min size (mm)	8
max size (mm)	8

Hypsypops rubicundus

< 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

Scorpaenichthys marmoratus

< 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

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Keyhole

Chromis punctipinnis

< 5	0.0 %
5 - 9	6.6 %
10 - 14	48.2 %
15 - 19	43.4 %
20 - 24	0.6 %
25 - 29	1.2 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	166
mean	15
min size (mm)	6
max size (mm)	25

Embiotoca jacksoni

< 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	27
min size (mm)	22
max size (mm)	32

Paralabrax clathratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	12.5 %
25 - 29	0.0 %
30 - 34	25.0 %
35 - 39	37.5 %
40 - 44	12.5 %
45 - 49	12.5 %
> 49	0.0 %
(Cases) N =	8
mean	36
min size (mm)	24
max size (mm)	49

Sebastes atrovirens

< 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 =	3
mean	22
min size (mm)	20
max size (mm)	24

Sebastes atrovirens/carnatus/caurinus/chrysomelas

< 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 =	1
mean	4
min size (mm)	4
max size (mm)	4

Sebastes mystinus

< 5	0.0 %
5 - 9	20.0 %
10 - 14	6.7 %
15 - 19	73.3 %
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)	6
max size (mm)	18

Sebastes serranoides

< 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

Semicossyphus pulcher

< 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 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	100.0 %
(Cases) N =	2
mean	62
min size (mm)	58
max size (mm)	65

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Keyhole

Semicossyphus pulcher	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	14.3 %
15 - 19	0.0 %
20 - 24	42.9 %
25 - 29	0.0 %
30 - 34	0.0 %
35 - 39	14.3 %
40 - 44	14.3 %
45 - 49	0.0 %
> 49	14.3 %
(Cases) N =	7
mean	31
min size (mm)	11
max size (mm)	55

Hypsypops rubicundus	
< 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	26
min size (mm)	26
max size (mm)	26

Halichoeres semicinctus	
< 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	28
min size (mm)	25
max size (mm)	33

Scorpaena guttata	
< 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

Halichoeres semicinctus	
< 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)	27

Sebastes serriceps	
< 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

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - East Fish Camp

Chromis punctipinnis

< 5	0.0 %
5 - 9	0.0 %
10 - 14	25.0 %
15 - 19	75.0 %
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	16
min size (mm)	13
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	40.0 %
60 - 69	20.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	5
mean	53
min size (mm)	41
max size (mm)	65

Paralabrax clathratus

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

Sebastes atrovirens

< 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 =	3
mean	27
min size (mm)	25
max size (mm)	28

Sebastes atrovirens/carnatus/caurinus/chrysomelas

< 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 =	1
mean	4
min size (mm)	4
max size (mm)	4

Sebastes mystinus

< 5	14.3 %
5 - 9	0.0 %
10 - 14	14.3 %
15 - 19	71.4 %
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 =	7
mean	14
min size (mm)	4
max size (mm)	17

Semicossyphus pulcher

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	5.0 %
20 - 24	25.0 %
25 - 29	50.0 %
30 - 34	20.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	20
mean	26
min size (mm)	19
max size (mm)	33

Caulolatilus princeps

<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 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	2
mean	44
min size (mm)	42
max size (mm)	45

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - East Fish Camp

Hypsypops rubicundus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	9.4 %
25 - 29	90.6 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	32
mean	26
min size (mm)	24
max size (mm)	28

Sebastes serriceps

< 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

Scorpaenichthys marmoratus

< 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

< 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 carnatus

< 5	100.0 %
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	0.0 %
(Cases) N =	1
mean	4
min size (mm)	4
max size (mm)	4

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Black Sea Bass Reef

Chromis punctipinnis

< 5	0.0 %
5 - 9	8.5 %
10 - 14	56.3 %
15 - 19	17.6 %
20 - 24	17.6 %
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 =	284
mean	15
min size (mm)	6
max size (mm)	24

Paralabrax clathratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	3.0 %
20 - 24	15.2 %
25 - 29	48.5 %
30 - 34	21.2 %
35 - 39	9.1 %
40 - 44	3.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	33
mean	29
min size (mm)	17
max size (mm)	42

Sebastes atrovirens/carnatus/caurinus/chrysomelas

< 2	0.0 %
2	0.0 %
3	0.0 %
4	0.0 %
5	0.0 %
6	0.0 %
7	33.3 %
8	33.3 %
9	33.3 %
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	8
min size (mm)	7
max size (mm)	9

Embiotoca jacksoni

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	75.0 %
20 - 24	25.0 %
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	18
min size (mm)	16
max size (mm)	20

Rhacochilus vacca

< 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	75.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	4
mean	30
min size (mm)	27
max size (mm)	33

Sebastes mystinus

< 5	0.0 %
5 - 9	46.7 %
10 - 14	0.0 %
15 - 19	53.3 %
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 =	30
mean	13
min size (mm)	8
max size (mm)	18

Oxyjulis californica

< 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)	22

Sebastes atrovirens

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	20.0 %
25 - 29	60.0 %
30 - 34	20.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	5
mean	27
min size (mm)	22
max size (mm)	33

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Black Sea Bass Reef

Semicossyphus pulcher	
< 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	66.7 %
> 49	33.3 %
(Cases) N =	3
mean	52
min size (mm)	45
max size (mm)	65

Halichoeres semicinctus	
< 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	33.3 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	27
min size (mm)	24
max size (mm)	30

Sebastes carnatus	
< 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

Semicossyphus pulcher	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	15.8 %
20 - 24	15.8 %
25 - 29	26.3 %
30 - 34	15.8 %
35 - 39	10.5 %
40 - 44	5.3 %
45 - 49	10.5 %
> 49	0.0 %
(Cases) N =	19
mean	32
min size (mm)	17
max size (mm)	47

Caulolatilus princeps	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	33.3 %
40 - 49	66.7 %
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	40
min size (mm)	35
max size (mm)	45

Sebastes serriceps	
< 5	0.0 %
5 - 9	40.0 %
10 - 14	0.0 %
15 - 19	40.0 %
20 - 24	20.0 %
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	16
min size (mm)	7
max size (mm)	23

Halichoeres semicinctus	
< 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	
< 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	26
min size (mm)	26
max size (mm)	26

Sebastes chrysomelas	
< 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

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Black Sea Bass Reef

Sebastes saxicola	
	0.0 %
(Cases) N =	6
mean	6
min size (mm)	6
max size (mm)	6

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Lighthouse

Chromis punctipinnis	
< 5	18.2 %
5 - 9	0.0 %
10 - 14	15.0 %
15 - 19	40.1 %
20 - 24	26.7 %
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 =	187
mean	14
min size (mm)	4
max size (mm)	22

Paralabrax clathratus	
< 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	56.7 %
35 - 39	20.0 %
40 - 44	3.3 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	30
mean	33
min size (mm)	25
max size (mm)	40

Semicossyphus pulcher	
< 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	0.0 %
35 - 39	25.0 %
40 - 44	12.5 %
45 - 49	12.5 %
> 49	0.0 %
(Cases) N =	8
mean	33
min size (mm)	23
max size (mm)	45

Embiotoca jacksoni	
< 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 =	4
mean	30
min size (mm)	27
max size (mm)	33

Rhacochilus vacca	
< 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	26
min size (mm)	22
max size (mm)	32

Caulolatilus princeps	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	75.0 %
50 - 59	25.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	4
mean	47
min size (mm)	43
max size (mm)	51

Oxyjulis californica	
< 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 =	13
mean	20
min size (mm)	20
max size (mm)	20

Sebastes mystinus	
< 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	14
min size (mm)	9
max size (mm)	18

Hypsypops rubicundus	
< 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)	27
max size (mm)	27

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Lighthouse

Medialuna californiensis

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	15.1 %
30 - 34	0.0 %
35 - 39	84.9 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	53
mean	32
min size (mm)	28
max size (mm)	35

Scorpaena guttata

< 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

Scorpaenichthys marmoratus

< 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

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Webster's Arch

Brachyistius frenatus	
< 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	14
min size (mm)	14
max size (mm)	14

Pleuronichthys coenosus	
< 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

Semicossyphus pulcher	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	3.8 %
15 - 19	30.8 %
20 - 24	30.8 %
25 - 29	15.4 %
30 - 34	7.7 %
35 - 39	7.7 %
40 - 44	3.8 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	26
mean	25
min size (mm)	13
max size (mm)	40

Chromis punctipinnis	
< 5	0.0 %
5 - 9	20.8 %
10 - 14	45.5 %
15 - 19	33.8 %
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 =	154
mean	12
min size (mm)	6
max size (mm)	18

Sebastes mystinus	
< 5	0.0 %
5 - 9	74.2 %
10 - 14	12.9 %
15 - 19	12.9 %
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 =	31
mean	12
min size (mm)	6
max size (mm)	17

Hypsypops rubicundus	
< 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	26
min size (mm)	26
max size (mm)	26

Oxyjulis californica	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	17.4 %
15 - 19	53.6 %
20 - 24	29.0 %
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 =	69
mean	18
min size (mm)	14
max size (mm)	22

Semicossyphus pulcher	
< 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	66.7 %
45 - 49	33.3 %
> 49	0.0 %
(Cases) N =	3
mean	43
min size (mm)	40
max size (mm)	45

Scorpaena guttata	
< 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

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Webster's Arch

Scorpaenichthys marmoratus	
< 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	36
min size (mm)	36
max size (mm)	36

Sebastes chrysomelas	
< 5	0.0 %
5 - 9	33.3 %
10 - 14	33.3 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	16.7 %
30 - 34	16.7 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	6
mean	18
min size (mm)	9
max size (mm)	30

Sebastes carnatus	
< 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

Sebastes serriceps	
< 5	0.0 %
5 - 9	50.0 %
10 - 14	25.0 %
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	0.0 %
> 49	0.0 %
(Cases) N =	4
mean	15
min size (mm)	8
max size (mm)	30

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Graveyard Canyon

Sebastes atrovirens/carnatus/caurinus/chrysomelas

< 2	0.0 %
20.0	%> 49
30.0	%(Cases) N =
40.0	%mean
514.3	%
642.9	%
735.7	%max size (mm)
87.1	%
90.0	%
10	0.0 %
11	0.0 %
12	0.0 %
13	0.0 %
14	0.0 %
15	0.0 %
>15	0.0 %
(Cases) N =	14
mean	7
min size (mm)	5
max size (mm)	8

30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	100.0
(Cases) N =	4
mean	56
min size (mm)	50
max size (mm)	65

Semicossyphus pulcher

< 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)	34
max size (mm)	36

Caulolatilus princeps

%< 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	22
min size (mm)	22
max size (mm)	22

Sebastes miniatus

<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 =	4
mean	7
min size (mm)	6
max size (mm)	7

Sebastes paucispinis

0.0	%
100.0	%
0.0	%
0.0	%
0.0	%
0.0	%
0.0	%
0.0	%
0.0	%
0.0	%
0.0	%
0.0	%
0.0	%
0.0	%
0.0	%
0.0	%
0.0	%
1	
8	
8	
8	

Semicossyphus pulcher

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %

Scorpaenichthys marmoratus

< 5	0.0 %
5 - 9	50.0 %
10 - 14	50.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	0.0 %

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Southeast Reef

Chromis punctipinnis	
< 5	2.8 %
5 - 9	18.0 %
10 - 14	55.3 %
15 - 19	20.7 %
20 - 24	3.2 %
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 =	217
mean	13
min size (mm)	4
max size (mm)	23

Paralabrax clathratus	
< 5	0.0 %
5 - 9	0.0 %
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	66.7 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	3
mean	26
min size (mm)	12
max size (mm)	40

Sebastes mystinus	
< 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	16
min size (mm)	16
max size (mm)	16

Embiotoca jacksoni	
< 5	0.0 %
5 - 9	42.9 %
10 - 14	0.0 %
15 - 19	7.1 %
20 - 24	7.1 %
25 - 29	35.7 %
30 - 34	7.1 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	14
mean	18
min size (mm)	6
max size (mm)	30

Rhacochilus vacca	
< 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

Semicossyphus pulcher	
< 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	66.7 %
45 - 49	33.3 %
> 49	0.0 %
(Cases) N =	3
mean	42
min size (mm)	40
max size (mm)	45

Oxyjulis californica	
< 5	0.0 %
5 - 9	21.1 %
10 - 14	18.4 %
15 - 19	34.2 %
20 - 24	26.3 %
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 =	38
mean	15
min size (mm)	6
max size (mm)	22

Sebastes atrovirens	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	53.3 %
15 - 19	20.0 %
20 - 24	6.7 %
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 =	15
mean	16
min size (mm)	10
max size (mm)	27

Semicossyphus pulcher	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	22.2 %
20 - 24	33.3 %
25 - 29	33.3 %
30 - 34	0.0 %
35 - 39	11.1 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	9
mean	24
min size (mm)	16
max size (mm)	35

2011 FISH SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Southeast Reef

Hypsypops rubicundus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	3.7 %
20 - 24	3.7 %
25 - 29	92.6 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	27
mean	21
min size (mm)	15
max size (mm)	26

Sebastes chrysomelas

< 5	0.0 %
5 - 9	0.0 %
10 - 14	62.5 %
15 - 19	0.0 %
20 - 24	0.0 %
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 =	8
mean	20
min size (mm)	11
max size (mm)	28

Scorpaenichthys marmoratus

< 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)	25
max size (mm)	33

Sebastes serriceps

< 5	0.0 %
5 - 9	57.1 %
10 - 14	14.3 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	14.3 %
30 - 34	0.0 %
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)	35

Appendix H. Roving Diver Fish Count Data

2011 ROVING DIVER FISH COUNT

Island	Site Name	Date	# of Observer	# of Species Observed
San Miguel Island	Wyckoff Ledge	9/15/2011	4	27
San Miguel Island	Hare Rock	9/14/2011	6	26
Santa Rosa Island	Johnson's Lee North	8/16/2011	7	31
Santa Rosa Island	Johnson's Lee South	10/17/201	6	29
Santa Rosa Island	Rodes Reef	9/12/2011	4	24
Santa Cruz Island	Gull Island South	8/15/2011	5	28
Santa Cruz Island	Fry's Harbor	7/12/2011	4	29
Santa Cruz Island	Pelican Bay	9/1/2011	8	25
Santa Cruz Island	Scorpion Anchorage	8/19/2011	6	25
Santa Cruz Island	Yellow Banks	8/29/2011	6	22
Anacapa Island	Admiral's Reef	7/25/2011	7	23
Anacapa Island	Cathedral Cove	5/19/2011	6	26
Anacapa Island	Landing Cove	6/17/2011	7	35
Santa Barbara Island	SE Sea Lion Rookery	5/17/2011	4	16
Santa Barbara Island	Arch Point	5/16/2011	7	24
Santa Barbara Island	Cat Canyon	6/14/2011	7	24
San Miguel Island	Miracle Mile	10/5/2011	6	23
Santa Rosa Island	Cluster Point	7/28/2011	5	28
Santa Rosa Island	Trancion Canyon	10/4/2011	6	26
Santa Rosa Island	Chickasaw	10/3/2011	8	29
Santa Rosa Island	South Point	7/27/2011	5	27
Santa Cruz Island	Devil's Peak Member	5/20/2011	5	28
Santa Cruz Island	Potato Pasture	8/30/2011	7	27
Santa Cruz Island	Cavern Point	6/28/2011	5	36
Santa Cruz Island	Little Scorpion	6/27/2011	5	22
Santa Cruz Island	Pedro Reef	6/29/2011	4	18
Anacapa Island	Keyhole	6/30/2011	5	20
Anacapa Island	East Fish Camp	5/31/2011	6	19
Anacapa Island	Black Sea Bass Reef	7/14/2011	4	25
Anacapa Island	Lighthouse	10/7/2011	5	20
Santa Barbara Island	Webster's Arch	6/13/2011	6	24
Santa Barbara Island	Graveyard Canyon	6/15/2011	7	16
Santa Barbara Island	Southeast Reef	7/26/2011	6	26

2011 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	9/15/2011	4	4	9.75	0.50	2.50	0.58	13.00	6.06
black and yellow/gopher rockfish, juvenile	9/15/2011	4	1	9.00		2.00		2.00	
black surfperch, all	9/15/2011	4	1	8.00		0.50	1.00	0.50	1.00
black surfperch, juvenile	9/15/2011	4	1	8.00		0.50	1.00	0.50	1.00
blackeye goby	9/15/2011	4	4	8.25	2.06	2.00	0.00	3.25	0.96
blue rockfish, adult	9/15/2011	4	4	7.50	0.58	3.00	0.00	13.50	3.11
blue rockfish, all	9/15/2011	4	4	8.75	0.96	3.00	0.00	17.75	4.35
blue rockfish, juvenile	9/15/2011	4	4	8.75	0.96	2.00	0.00	4.25	2.63
cabezon, adult	9/15/2011	4	2	8.00	0.00	1.00	0.00	1.00	0.00
California sheephead, female	9/15/2011	4	2	6.00	1.41	0.50	0.58	0.50	0.58
California sheephead, male	9/15/2011	4	1	7.00		0.25	0.50	0.25	0.50
copper rockfish, adult	9/15/2011	4	4	9.00	1.15	2.00	0.00	6.00	1.63
copper rockfish, juvenile	9/15/2011	4	1	8.00		2.00		2.00	
coralline sculpin	9/15/2011	4	1	7.00		1.00		1.00	
gopher rockfish, adult	9/15/2011	4	2	7.50	2.12	1.50	0.71	3.50	3.54
kelp rockfish, adult	9/15/2011	4	4	9.00	0.82	3.00	0.00	16.25	4.92
kelp rockfish, all	9/15/2011	4	4	9.50	1.00	3.00	0.00	36.50	7.85
kelp rockfish, juvenile	9/15/2011	4	4	9.50	1.00	3.00	0.00	20.25	9.22
kelp surfperch	9/15/2011	4	1	10.00		2.00		6.00	
KGB	9/15/2011	4	3	9.00	1.73	2.33	0.58	7.00	4.00
lingcod, adult	9/15/2011	4	3	7.00	1.73	1.33	0.58	1.33	0.58
olive rockfish, adult	9/15/2011	4	2	8.00	1.41	0.75	0.96	1.75	2.87
olive rockfish, all	9/15/2011	4	3	7.33	1.53	1.00	0.82	2.25	3.20
olive/yellowtail rockfish, juvenile	9/15/2011	4	2	7.00	1.41	0.50	0.58	0.50	0.58
painted greenling	9/15/2011	4	4	9.50	0.58	3.00	0.00	16.00	1.63
rainbow surfperch	9/15/2011	4	1	10.00		2.00		2.00	
sculpin spp.	9/15/2011	4	1	10.00		1.00		1.00	
seporita, adult	9/15/2011	4	3	9.33	0.58	1.75	1.26	7.00	5.35
seporita, all	9/15/2011	4	3	9.33	0.58	1.75	1.26	8.00	6.98
seporita, juvenile	9/15/2011	4	1	10.00		0.50	1.00	1.00	2.00
snubnose sculpin	9/15/2011	4	1	7.00		2.00		3.00	
speckled sanddab	9/15/2011	4	1	7.00		2.00		7.00	
striped surfperch, adult	9/15/2011	4	4	9.00	0.82	2.25	0.50	11.00	9.02
striped surfperch, all	9/15/2011	4	4	9.75	0.50	2.75	0.50	16.50	11.36
striped surfperch, juvenile	9/15/2011	4	4	9.75	0.50	2.00	0.00	5.50	3.00
surfperch spp., juvenile	9/15/2011	4	3	9.00	0.00	2.33	0.58	21.33	30.89
treefish, adult	9/15/2011	4	3	7.33	1.15	1.00	0.82	1.00	0.82
tubesnout, adult	9/15/2011	4	4	9.75	0.50	4.00	0.00	558.75	228.49
vermillion rockfish, adult	9/15/2011	4	3	7.33	0.58	1.33	0.58	1.33	0.58
vermillion rockfish, juvenile	9/15/2011	4	1	8.00		1.00		1.00	

2011 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	9/14/2011	6	6	9.17	1.33	2.00	0.00	6.00	3.16
black and yellow/gopher rockfish, juvenile	9/14/2011	6	3	9.67	0.58	2.00	0.00	4.33	0.58
black surfperch, adult	9/14/2011	6	3	8.00	1.00	0.50	0.55	0.50	0.55
black surfperch, all	9/14/2011	6	3	8.67	0.58	0.67	0.82	0.83	1.17
black surfperch, juvenile	9/14/2011	6	1	9.00		0.33	0.82	0.33	0.82
blackeye goby	9/14/2011	6	6	10.00	0.00	3.00	0.00	63.83	17.71
blacksmith, adult	9/14/2011	6	6	7.67	1.75	2.33	0.52	7.50	5.92
blacksmith, all	9/14/2011	6	6	7.67	1.75	2.33	0.52	7.50	5.92
blue rockfish, adult	9/14/2011	6	6	9.50	0.84	2.67	0.52	11.00	4.47
blue rockfish, all	9/14/2011	6	6	9.50	0.84	2.67	0.52	12.00	4.56
blue rockfish, juvenile	9/14/2011	6	3	8.00	1.73	0.83	0.98	1.00	1.26
cabezon, adult	9/14/2011	6	6	9.50	0.55	1.83	0.41	2.33	0.82
California sheephead, female	9/14/2011	6	1	10.00		0.17	0.41	0.17	0.41
California sheephead, male	9/14/2011	6	5	8.00	1.41	1.00	0.63	1.00	0.63
copper rockfish, adult	9/14/2011	6	5	6.80	1.10	1.60	0.55	2.60	1.82
copper rockfish, juvenile	9/14/2011	6	4	9.00	1.41	2.00	0.00	6.00	3.56
coralline sculpin	9/14/2011	6	1	9.00		1.00		1.00	
gopher rockfish, adult	9/14/2011	6	1	7.00		2.00		2.00	
kelp rockfish, adult	9/14/2011	6	6	10.00	0.00	2.50	0.55	11.50	4.46
kelp rockfish, all	9/14/2011	6	6	10.00	0.00	2.67	0.52	12.67	4.27
kelp rockfish, juvenile	9/14/2011	6	3	8.33	1.53	0.83	0.98	1.17	1.60
kelp surfperch	9/14/2011	6	1	8.00		1.00		1.00	
kelpfish spp.	9/14/2011	6	1	8.00		1.00		1.00	
KGB	9/14/2011	6	4	10.00	0.00	2.50	0.58	12.00	9.90
lingcod, adult	9/14/2011	6	5	9.60	0.55	1.00	0.00	1.00	0.00
olive rockfish, adult	9/14/2011	6	3	9.33	1.15	0.67	0.82	0.67	0.82
olive rockfish, all	9/14/2011	6	4	9.00	1.15	1.00	0.89	1.00	0.89
olive/yellowtail rockfish, juvenile	9/14/2011	6	2	9.00	1.41	0.33	0.52	0.33	0.52
painted greenling	9/14/2011	6	6	10.00	0.00	3.00	0.00	30.50	5.21
pile perch, adult	9/14/2011	6	3	7.00	0.00	0.50	0.55	0.50	0.55
pile perch, all	9/14/2011	6	3	7.00	0.00	0.50	0.55	0.50	0.55
ronquil spp.	9/14/2011	6	1	7.00		2.00		3.00	
sculpin spp.	9/14/2011	6	2	8.00	2.83	1.50	0.71	3.00	2.83
seporita, adult	9/14/2011	6	1	8.00		0.50	1.22	3.33	8.16
seporita, all	9/14/2011	6	1	8.00		0.50	1.22	3.33	8.16
snubnose sculpin	9/14/2011	6	3	10.00	0.00	2.00	0.00	4.00	0.00
striped surfperch, adult	9/14/2011	6	6	9.17	1.33	1.83	0.41	5.33	2.58
striped surfperch, all	9/14/2011	6	6	9.67	0.82	2.83	0.41	17.50	5.54
striped surfperch, juvenile	9/14/2011	6	6	9.50	1.22	2.50	0.55	12.17	4.62
treefish, adult	9/14/2011	6	4	8.75	1.26	1.33	1.03	2.17	1.72

2011 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	8/16/2011	7	7	8.00	1.41	2.14	0.38	7.00	2.65
black surfperch, adult	8/16/2011	7	7	9.86	0.38	2.00	0.00	7.29	2.43
black surfperch, all	8/16/2011	7	7	9.86	0.38	2.57	0.53	11.14	3.44
black surfperch, juvenile	8/16/2011	7	7	8.57	1.51	1.86	0.38	3.86	1.95
blackeye goby	8/16/2011	7	7	8.57	1.27	2.43	0.53	11.57	8.72
blacksmith, adult	8/16/2011	7	5	9.20	1.79	1.14	1.07	3.00	5.77
blacksmith, all	8/16/2011	7	5	9.20	1.79	1.14	1.07	3.00	5.77
blue rockfish, adult	8/16/2011	7	4	9.00	0.82	1.00	1.00	1.29	1.38
blue rockfish, all	8/16/2011	7	7	9.00	0.82	2.71	0.49	16.86	7.63
blue rockfish, juvenile	8/16/2011	7	7	8.86	0.69	2.71	0.49	15.57	7.81
bocaccio, juvenile	8/16/2011	7	4	8.25	0.96	1.25	0.50	1.25	0.50
cabezon, adult	8/16/2011	7	2	8.00	1.41	1.50	0.71	1.50	0.71
California sheephead, female	8/16/2011	7	7	9.00	0.58	2.14	0.38	8.29	2.43
coralline sculpin	8/16/2011	7	1	7.00		1.00		1.00	
garibaldi, adult	8/16/2011	7	7	9.00	0.82	2.00	0.00	4.00	0.58
giant kelpfish, adult	8/16/2011	7	1	9.00		1.00		1.00	
giant kelpfish, juvenile	8/16/2011	7	2	10.00	0.00	1.00	0.00	1.00	0.00
gopher rockfish, adult	8/16/2011	7	2	6.50	0.71	1.50	0.71	2.00	1.41
halfmoon, adult	8/16/2011	7	1	10.00		2.00		3.00	
kelp bass, adult	8/16/2011	7	3	8.00	1.00	0.57	0.79	0.57	0.79
kelp bass, all	8/16/2011	7	3	8.00	1.00	0.57	0.79	0.57	0.79
kelp rockfish, adult	8/16/2011	7	7	9.71	0.76	3.00	0.00	24.71	10.27
kelp rockfish, all	8/16/2011	7	7	10.00	0.00	3.00	0.00	28.57	12.77
kelp rockfish, juvenile	8/16/2011	7	4	8.00	2.45	1.29	1.25	3.86	4.74
kelp surfperch	8/16/2011	7	5	10.00	0.00	2.40	0.89	8.40	5.18
kelpfish spp.	8/16/2011	7	3	9.00	1.73	1.00	0.00	1.00	0.00
KGB	8/16/2011	7	6	7.67	1.86	2.00	0.00	3.67	1.86
olive rockfish, adult	8/16/2011	7	7	9.43	1.13	2.14	0.69	14.71	23.10
olive rockfish, all	8/16/2011	7	7	9.43	1.13	2.29	0.49	16.43	22.61
olive/yellowtail rockfish, juvenile	8/16/2011	7	5	7.00	1.58	1.29	0.95	1.71	1.50
opaleye, adult	8/16/2011	7	2	6.00	1.41	0.57	0.98	0.86	1.46
painted greenling	8/16/2011	7	7	9.71	0.49	3.00	0.00	24.43	6.92
pile perch, adult	8/16/2011	7	7	9.57	0.79	2.00	0.00	6.29	2.29
pile perch, all	8/16/2011	7	7	9.71	0.49	2.29	0.49	8.00	3.16
pile perch, juvenile	8/16/2011	7	5	7.80	1.79	1.00	0.82	1.71	2.14
rainbow surfperch	8/16/2011	7	5	7.60	1.67	1.60	0.55	2.00	1.00
rock wrasse, female	8/16/2011	7	4	6.75	2.36	0.57	0.53	0.57	0.53
rock wrasse, male	8/16/2011	7	3	7.00	2.00	0.43	0.53	0.43	0.53
rubberlip surfperch	8/16/2011	7	5	6.20	1.79	1.40	0.55	1.80	1.30
seporita, adult	8/16/2011	7	7	9.57	0.79	2.29	0.76	10.14	8.73
seporita, all	8/16/2011	7	7	9.57	0.79	2.29	0.76	10.14	8.73
snubnose sculpin	8/16/2011	7	2	6.00	0.00	1.00	0.00	1.00	0.00
striped surfperch, adult	8/16/2011	7	7	9.86	0.38	2.43	0.53	11.00	5.35
striped surfperch, all	8/16/2011	7	7	9.86	0.38	2.71	0.49	14.86	6.99
striped surfperch, juvenile	8/16/2011	7	6	8.50	1.22	1.57	0.79	3.86	2.54
top smelt	8/16/2011	7	1	10.00		3.00		44.00	
treefish, adult	8/16/2011	7	6	7.50	1.52	1.57	0.79	2.86	1.86
treefish, juvenile	8/16/2011	7	5	6.40	1.14	0.71	0.49	0.71	0.49

2011 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	10/17/2011	6	6	8.33	2.25	2.00	0.00	3.50	1.64
black rockfish, adult	10/17/2011	6	1	7.00		1.00		1.00	
black surfperch, adult	10/17/2011	6	6	9.33	1.63	2.33	0.52	6.83	4.54
black surfperch, all	10/17/2011	6	6	9.33	1.63	2.50	0.55	9.00	4.29
black surfperch, juvenile	10/17/2011	6	4	8.50	1.29	1.00	0.89	2.17	3.06
blackeye goby	10/17/2011	6	6	9.67	0.82	3.00	0.00	35.67	15.41
blacksmith, adult	10/17/2011	6	5	7.00	1.87	2.33	1.21	22.00	20.00
blacksmith, all	10/17/2011	6	6	8.00	0.89	2.67	0.82	29.67	22.30
blacksmith, juvenile	10/17/2011	6	6	7.83	0.98	2.00	0.63	7.67	4.46
blue rockfish, adult	10/17/2011	6	6	9.00	1.10	3.00	0.00	27.00	10.33
blue rockfish, all	10/17/2011	6	6	9.50	0.55	3.00	0.00	59.83	25.13
blue rockfish, juvenile	10/17/2011	6	5	9.40	0.55	2.50	1.22	32.83	21.42
cabezon, adult	10/17/2011	6	1	5.00		1.00		1.00	
California sheephead, female	10/17/2011	6	6	8.83	1.83	2.17	0.41	9.67	1.86
California sheephead, male	10/17/2011	6	6	10.00	0.00	2.00	0.00	4.67	1.37
copper rockfish, adult	10/17/2011	6	1	9.00		1.00		1.00	
coralline sculpin	10/17/2011	6	2	6.00	1.41	1.00	0.00	1.00	0.00
gopher rockfish, adult	10/17/2011	6	1	8.00		2.00		2.00	
halfmoon, adult	10/17/2011	6	1	8.00		1.00		1.00	
kelp bass, adult	10/17/2011	6	3	9.00	1.73	1.00	1.26	7.67	17.33
kelp bass, all	10/17/2011	6	3	9.00	1.73	1.00	1.26	7.67	17.33
kelp rockfish, adult	10/17/2011	6	6	9.67	0.82	2.83	0.41	19.50	9.01
kelp rockfish, all	10/17/2011	6	6	10.00	0.00	3.00	0.00	24.00	13.04
kelp rockfish, juvenile	10/17/2011	6	4	9.50	1.00	1.50	1.22	4.50	4.68
kelp surfperch	10/17/2011	6	4	7.50	1.91	1.50	0.58	2.00	1.41
kelpfish spp.	10/17/2011	6	2	6.00	0.00	1.50	0.71	2.50	2.12
lingcod, adult	10/17/2011	6	5	8.00	0.71	1.40	0.55	1.40	0.55
olive rockfish, adult	10/17/2011	6	5	7.60	1.52	1.50	0.84	1.83	1.33
olive rockfish, all	10/17/2011	6	5	7.60	1.52	1.50	0.84	1.83	1.33
opaleye, adult	10/17/2011	6	4	7.25	1.26	1.00	0.89	1.17	1.17
painted greenling	10/17/2011	6	6	10.00	0.00	3.00	0.00	38.67	13.14
pile perch, adult	10/17/2011	6	6	9.83	0.41	2.33	0.52	11.00	3.95
pile perch, all	10/17/2011	6	6	9.83	0.41	2.50	0.55	11.83	3.87
pile perch, juvenile	10/17/2011	6	3	8.00	1.00	0.67	0.82	0.83	1.17
rainbow surfperch	10/17/2011	6	3	7.00	2.65	1.67	0.58	3.00	2.00
rubberlip surfperch	10/17/2011	6	5	9.20	0.45	1.80	0.45	4.00	2.45
seporita, adult	10/17/2011	6	6	9.83	0.41	3.50	0.55	162.67	165.01
seporita, all	10/17/2011	6	6	9.83	0.41	3.50	0.55	162.67	165.01
snubnose sculpin	10/17/2011	6	1	5.00		1.00		1.00	
striped surfperch, adult	10/17/2011	6	6	9.67	0.82	2.33	0.52	8.17	2.48
striped surfperch, all	10/17/2011	6	6	9.67	0.82	2.67	0.52	12.83	5.64
striped surfperch, juvenile	10/17/2011	6	5	9.60	0.55	1.67	1.03	4.67	4.37
top smelt	10/17/2011	6	3	6.67	2.89	3.33	0.58	183.33	189.30
treefish, adult	10/17/2011	6	2	6.50	0.71	0.33	0.52	0.33	0.52
treefish, juvenile	10/17/2011	6	2	6.50	0.71	0.33	0.52	0.33	0.52
tubesnout, adult	10/17/2011	6	1	8.00		3.00		40.00	

2011 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	9/12/2011	4	3	8.67	1.53	1.67	0.58	3.33	3.21
black and yellow/gopher rockfish, juvenile	9/12/2011	4	2	9.00	1.41	1.50	0.71	1.50	0.71
black rockfish, adult	9/12/2011	4	2	9.00	0.00	1.50	0.71	2.00	1.41
black surfperch, adult	9/12/2011	4	2	9.50	0.71	1.00	1.15	2.00	2.45
black surfperch, all	9/12/2011	4	4	9.00	1.15	2.25	0.50	10.00	8.04
black surfperch, juvenile	9/12/2011	4	4	9.00	1.15	2.25	0.50	8.00	5.83
blackeye goby	9/12/2011	4	4	9.75	0.50	2.50	0.58	12.75	4.86
blacksmith, adult	9/12/2011	4	2	9.00	1.41	1.00	1.15	3.00	3.46
blacksmith, all	9/12/2011	4	2	9.00	1.41	1.00	1.15	3.00	3.46
blue rockfish, adult	9/12/2011	4	4	10.00	0.00	3.00	0.00	30.25	12.45
blue rockfish, all	9/12/2011	4	4	10.00	0.00	3.00	0.00	31.50	12.82
blue rockfish, juvenile	9/12/2011	4	2	9.00	1.41	1.00	1.15	1.25	1.50
cabezon, adult	9/12/2011	4	2	6.00	0.00	1.00	0.00	1.00	0.00
California sheephead, female	9/12/2011	4	4	9.75	0.50	2.00	0.00	6.75	0.96
California sheephead, male	9/12/2011	4	4	8.00	1.83	1.50	0.58	1.50	0.58
copper rockfish, adult	9/12/2011	4	4	9.75	0.50	2.00	0.00	6.00	3.16
copper rockfish, juvenile	9/12/2011	4	1	10.00		1.00		1.00	
coralline sculpin	9/12/2011	4	1	10.00		1.00		1.00	
kelp bass, adult	9/12/2011	4	3	7.00	1.73	1.25	0.96	1.50	1.29
kelp bass, all	9/12/2011	4	3	7.00	1.73	1.25	0.96	1.50	1.29
kelp greenling	9/12/2011	4	2	7.00	0.00	1.00	0.00	1.00	0.00
kelp rockfish, adult	9/12/2011	4	4	10.00	0.00	3.00	0.00	23.50	17.18
kelp rockfish, all	9/12/2011	4	4	10.00	0.00	3.00	0.00	27.75	19.12
kelp rockfish, juvenile	9/12/2011	4	4	8.00	0.82	1.75	0.50	4.25	2.50
KGB	9/12/2011	4	3	8.33	2.08	2.00	0.00	2.67	1.15
olive rockfish, adult	9/12/2011	4	4	8.25	2.06	2.00	0.82	5.25	4.35
olive rockfish, all	9/12/2011	4	4	8.75	1.50	2.00	0.82	6.00	4.40
olive/yellowtail rockfish, juvenile	9/12/2011	4	2	9.00	1.41	0.75	0.96	0.75	0.96
painted greenling	9/12/2011	4	4	10.00	0.00	3.00	0.00	32.25	9.00
pile perch, adult	9/12/2011	4	4	8.00	1.41	2.00	0.00	5.75	2.75
pile perch, all	9/12/2011	4	4	8.00	1.41	2.00	0.00	5.75	2.75
ronquil spp.	9/12/2011	4	4	7.25	0.96	1.50	0.58	2.00	1.15
rubberlip surfperch	9/12/2011	4	3	6.67	1.53	2.00	0.00	2.33	0.58
seporita, adult	9/12/2011	4	1	5.00		0.50	1.00	2.50	5.00
seporita, all	9/12/2011	4	1	5.00		0.50	1.00	2.50	5.00
snubnose sculpin	9/12/2011	4	4	8.50	1.29	1.75	0.50	2.50	1.29
striped surfperch, adult	9/12/2011	4	4	9.75	0.50	2.25	0.50	8.25	3.10
striped surfperch, all	9/12/2011	4	4	10.00	0.00	2.75	0.50	19.25	8.02
striped surfperch, juvenile	9/12/2011	4	3	9.67	0.58	2.00	1.41	11.00	8.04

2011 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	8/15/2011	5	3	8.33	1.53	1.33	0.58	1.67	1.15
black surfperch, adult	8/15/2011	5	5	9.60	0.89	2.00	0.00	3.80	0.84
black surfperch, all	8/15/2011	5	5	9.60	0.89	2.00	0.00	8.40	0.89
black surfperch, juvenile	8/15/2011	5	5	9.60	0.89	2.00	0.00	4.60	0.55
blackeye goby	8/15/2011	5	5	9.80	0.45	3.20	0.45	52.20	29.69
blacksmith, adult	8/15/2011	5	5	7.20	2.59	3.40	0.89	76.40	59.21
blacksmith, all	8/15/2011	5	5	7.20	2.59	3.40	0.89	76.40	59.21
blue rockfish, adult	8/15/2011	5	5	9.40	0.55	2.40	0.55	20.60	26.11
blue rockfish, all	8/15/2011	5	5	9.40	0.55	2.80	0.45	34.80	30.86
blue rockfish, juvenile	8/15/2011	5	5	9.00	1.00	2.60	0.55	14.20	8.17
cabezon, adult	8/15/2011	5	3	6.33	1.53	1.00	0.00	1.00	0.00
California sheephead, female	8/15/2011	5	5	10.00	0.00	2.80	0.45	14.40	2.88
California sheephead, male	8/15/2011	5	4	10.00	0.00	1.60	0.89	3.60	2.30
copper rockfish, adult	8/15/2011	5	2	10.00	0.00	2.00	0.00	3.00	1.41
copper rockfish, juvenile	8/15/2011	5	2	7.00	1.41	1.00	0.00	1.00	0.00
coralline sculpin	8/15/2011	5	2	10.00	0.00	1.50	0.71	1.50	0.71
gopher rockfish, adult	8/15/2011	5	4	8.75	1.26	2.00	0.00	6.00	0.82
halfmoon, adult	8/15/2011	5	1	5.00		1.00		1.00	
kelp bass, adult	8/15/2011	5	1	8.00		0.40	0.89	0.40	0.89
kelp bass, all	8/15/2011	5	1	8.00		0.40	0.89	0.40	0.89
kelp rockfish, adult	8/15/2011	5	5	9.40	0.89	2.20	0.45	7.00	3.16
kelp rockfish, all	8/15/2011	5	5	9.40	0.89	2.20	0.45	7.00	3.16
kelp surfperch	8/15/2011	5	2	10.00	0.00	2.00	0.00	3.50	0.71
KGB	8/15/2011	5	3	8.67	2.31	2.00	0.00	3.00	1.00
lingcod, adult	8/15/2011	5	5	7.40	1.34	1.60	0.55	2.00	1.00
olive rockfish, adult	8/15/2011	5	5	8.00	1.58	2.20	0.45	8.40	3.65
olive rockfish, all	8/15/2011	5	5	8.00	1.58	2.40	0.55	9.20	4.92
olive/yellowtail rockfish, juvenile	8/15/2011	5	2	7.00	1.41	0.60	0.89	0.80	1.30
opaleye, adult	8/15/2011	5	1	10.00		0.40	0.89	0.40	0.89
painted greenling	8/15/2011	5	5	10.00	0.00	3.00	0.00	33.80	8.64
pile perch, adult	8/15/2011	5	2	6.50	0.71	0.40	0.55	0.40	0.55
pile perch, all	8/15/2011	5	3	7.00	1.00	1.00	1.00	2.60	4.22
pile perch, juvenile	8/15/2011	5	2	7.50	0.71	0.80	1.10	2.20	3.90
rubberlip surfperch	8/15/2011	5	3	8.00	2.00	1.33	0.58	1.33	0.58
seporita, adult	8/15/2011	5	5	7.40	2.41	3.40	0.55	127.00	55.94
seporita, all	8/15/2011	5	5	7.40	2.41	3.40	0.55	127.00	55.94
snubnose sculpin	8/15/2011	5	2	6.00	0.00	1.50	0.71	1.50	0.71
striped surfperch, adult	8/15/2011	5	4	7.75	0.96	1.40	0.89	2.20	1.79
striped surfperch, all	8/15/2011	5	5	8.80	0.84	2.60	0.55	8.80	5.45
striped surfperch, juvenile	8/15/2011	5	5	8.80	0.84	2.20	0.45	6.60	4.04
swell shark	8/15/2011	5	4	10.00	0.00	2.25	0.50	6.25	5.91
top smelt	8/15/2011	5	3	8.33	2.89	3.00	0.00	19.67	9.07
treefish, adult	8/15/2011	5	3	7.67	2.08	1.00	1.00	1.00	1.00

2011 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	7/12/2011	4	2	8.00	1.41	2.00	0.00	2.00	0.00
black surfperch, adult	7/12/2011	4	4	9.75	0.50	2.25	0.50	10.25	3.95
black surfperch, all	7/12/2011	4	4	9.75	0.50	3.00	0.00	18.25	2.75
black surfperch, juvenile	7/12/2011	4	4	9.00	0.82	2.25	0.50	8.00	2.45
blackeye goby	7/12/2011	4	4	10.00	0.00	3.50	0.58	117.50	92.24
blacksmith, adult	7/12/2011	4	4	9.25	0.96	4.00	0.00	257.00	80.55
blacksmith, all	7/12/2011	4	4	9.25	0.96	4.00	0.00	257.00	80.55
blue rockfish, adult	7/12/2011	4	2	9.00	0.00	1.00	1.15	2.00	2.83
blue rockfish, all	7/12/2011	4	4	8.75	1.26	2.25	0.50	7.25	7.37
blue rockfish, juvenile	7/12/2011	4	2	8.50	2.12	1.25	1.50	5.25	8.62
blue-banded goby	7/12/2011	4	3	7.33	2.08	1.00	0.82	1.50	1.73
California sheephead, female	7/12/2011	4	4	10.00	0.00	2.00	0.00	7.25	2.75
copper rockfish, juvenile	7/12/2011	4	2	7.50	2.12	1.50	0.71	2.50	2.12
garibaldi, adult	7/12/2011	4	4	7.75	0.50	2.00	0.00	4.50	2.38
gopher rockfish, adult	7/12/2011	4	2	6.00	0.00	1.50	0.71	1.50	0.71
island kelpfish	7/12/2011	4	1	10.00		0.25	0.50	0.25	0.50
jack mackerel	7/12/2011	4	2	7.50	0.71	4.00	0.00	650.00	212.13
kelp bass, adult	7/12/2011	4	2	8.00	2.83	0.50	0.58	0.50	0.58
kelp bass, all	7/12/2011	4	2	8.00	2.83	0.50	0.58	0.50	0.58
kelp rockfish, adult	7/12/2011	4	4	9.50	1.00	2.50	0.58	14.25	10.21
kelp rockfish, all	7/12/2011	4	4	9.50	1.00	2.75	0.50	28.25	19.26
kelp rockfish, juvenile	7/12/2011	4	4	8.75	0.96	2.50	1.00	14.00	10.23
kelp surfperch	7/12/2011	4	2	8.00	2.83	2.00	1.41	21.00	28.28
kelpfish spp.	7/12/2011	4	1	6.00		1.00		1.00	
KGB	7/12/2011	4	4	10.00	0.00	3.75	0.50	115.50	45.49
olive rockfish, adult	7/12/2011	4	1	6.00		0.25	0.50	0.25	0.50
olive rockfish, all	7/12/2011	4	3	6.67	1.15	0.75	0.50	0.75	0.50
olive/yellowtail rockfish, juvenile	7/12/2011	4	2	7.00	1.41	0.50	0.58	0.50	0.58
opaleye, adult	7/12/2011	4	1	8.00		0.25	0.50	0.25	0.50
painted greenling	7/12/2011	4	4	10.00	0.00	3.00	0.00	35.75	15.48
pile perch, adult	7/12/2011	4	4	9.75	0.50	2.00	0.00	6.75	2.63
pile perch, all	7/12/2011	4	4	9.75	0.50	2.25	0.50	7.50	2.89
pile perch, juvenile	7/12/2011	4	2	7.50	3.54	0.75	0.96	0.75	0.96
rock wrasse, female	7/12/2011	4	4	8.75	0.96	1.00	0.00	1.00	0.00
rock wrasse, male	7/12/2011	4	3	8.00	2.65	1.25	0.96	2.00	1.83
rubberlip surfperch	7/12/2011	4	2	9.00	1.41	2.00	0.00	4.00	1.41
seporita, adult	7/12/2011	4	4	10.00	0.00	3.25	0.50	81.50	107.21
seporita, all	7/12/2011	4	4	10.00	0.00	3.25	0.50	81.50	107.21
striped surfperch, adult	7/12/2011	4	3	8.67	1.15	1.25	0.96	1.75	1.71
striped surfperch, all	7/12/2011	4	4	8.75	1.50	1.75	0.50	4.50	3.11
striped surfperch, juvenile	7/12/2011	4	3	9.00	1.73	1.50	1.00	2.75	1.89
surfperch spp., adult	7/12/2011	4	1	10.00		1.00		1.00	
swell shark	7/12/2011	4	1	5.00		2.00		2.00	
treefish, adult	7/12/2011	4	4	8.25	2.36	1.75	0.50	3.50	1.91
treefish, juvenile	7/12/2011	4	2	6.50	2.12	0.50	0.58	0.50	0.58

2011 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/gopher rockfish, juvenile	9/1/2011	8	1	5.00		1.00		1.00	
black surfperch, adult	9/1/2011	8	8	10.00	0.00	3.00	0.00	29.88	6.83
black surfperch, all	9/1/2011	8	8	10.00	0.00	3.00	0.00	37.63	8.63
black surfperch, juvenile	9/1/2011	8	7	9.71	0.76	2.13	0.99	7.75	4.89
blackeye goby	9/1/2011	8	8	10.00	0.00	3.88	0.35	187.50	113.77
blacksmith, adult	9/1/2011	8	8	9.38	0.92	2.88	0.35	30.38	14.38
blacksmith, all	9/1/2011	8	8	9.38	0.92	2.88	0.35	30.38	14.38
blue rockfish, adult	9/1/2011	8	1	8.00		0.13	0.35	0.13	0.35
blue rockfish, all	9/1/2011	8	1	8.00		0.13	0.35	0.13	0.35
blue-banded goby	9/1/2011	8	4	8.00	0.82	0.88	0.99	1.25	1.58
brown rockfish, adult	9/1/2011	8	1	7.00		1.00		1.00	
brown rockfish, juvenile	9/1/2011	8	2	6.50	0.71	1.00	0.00	1.00	0.00
cabezon, adult	9/1/2011	8	5	8.80	1.10	1.40	0.55	1.60	0.89
California sheephead, female	9/1/2011	8	8	9.25	0.71	2.13	0.35	6.88	2.53
copper rockfish, juvenile	9/1/2011	8	3	6.00	1.00	1.00	0.00	1.00	0.00
fringehead spp.	9/1/2011	8	2	8.50	0.71	1.50	0.71	2.00	1.41
garibaldi, adult	9/1/2011	8	8	9.25	1.04	2.00	0.00	7.25	1.75
halfmoon, adult	9/1/2011	8	1	6.00		2.00		2.00	
kelp bass, adult	9/1/2011	8	8	10.00	0.00	2.88	0.35	16.00	6.28
kelp bass, all	9/1/2011	8	8	10.00	0.00	2.88	0.35	16.00	6.28
kelp rockfish, adult	9/1/2011	8	8	9.75	0.46	2.75	0.46	13.75	5.80
kelp rockfish, all	9/1/2011	8	8	9.75	0.46	2.75	0.46	14.38	6.07
kelp rockfish, juvenile	9/1/2011	8	3	8.00	1.73	0.63	0.92	0.63	0.92
KGB	9/1/2011	8	4	8.50	1.73	1.75	0.50	2.25	0.96
ocean whitefish, adult	9/1/2011	8	8	8.13	2.10	2.00	0.53	4.63	3.25
olive rockfish, adult	9/1/2011	8	7	7.57	1.72	1.25	0.71	1.50	1.20
olive rockfish, all	9/1/2011	8	7	7.57	1.72	1.25	0.71	1.50	1.20
opaleye, adult	9/1/2011	8	1	8.00		0.25	0.71	0.25	0.71
painted greenling	9/1/2011	8	8	10.00	0.00	2.88	0.35	19.13	6.29
pile perch, adult	9/1/2011	8	8	9.38	0.74	1.88	0.35	4.25	1.49
pile perch, all	9/1/2011	8	8	9.38	0.74	1.88	0.35	4.25	1.49
rock wrasse, female	9/1/2011	8	8	8.88	0.64	1.88	0.35	2.63	1.30
rock wrasse, male	9/1/2011	8	8	9.00	1.07	1.38	0.52	1.50	0.76
rubberlip surfperch	9/1/2011	8	7	7.43	1.40	1.29	0.49	1.43	0.79
seporita, adult	9/1/2011	8	8	7.13	2.10	1.50	0.53	2.25	1.58
seporita, all	9/1/2011	8	8	7.13	2.10	1.50	0.53	2.25	1.58
treefish, adult	9/1/2011	8	2	7.00	0.00	0.25	0.46	0.25	0.46

2011 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
bat ray	8/19/2011	6	2	8.00	2.83	1.00	0.00	1.00	0.00
black and yellow rockfish, adult	8/19/2011	6	6	7.00	1.90	1.50	0.55	1.67	0.82
black and yellow/gopher rockfish, juvenile	8/19/2011	6	3	6.33	1.53	1.33	0.58	1.33	0.58
black surfperch, adult	8/19/2011	6	6	10.00	0.00	3.00	0.00	16.50	3.62
black surfperch, all	8/19/2011	6	6	10.00	0.00	3.00	0.00	17.83	4.26
black surfperch, juvenile	8/19/2011	6	4	8.00	1.41	1.17	0.98	1.33	1.21
blackeye goby	8/19/2011	6	6	10.00	0.00	3.83	0.41	201.00	80.38
blacksmith, adult	8/19/2011	6	6	9.83	0.41	3.67	0.52	121.33	29.59
blacksmith, all	8/19/2011	6	6	9.83	0.41	3.67	0.52	121.83	28.99
blacksmith, juvenile	8/19/2011	6	2	7.50	0.71	0.50	0.84	0.50	0.84
blue rockfish, adult	8/19/2011	6	6	8.00	2.10	1.83	0.41	3.50	1.87
blue rockfish, all	8/19/2011	6	6	8.17	2.14	1.83	0.41	4.33	2.88
blue rockfish, juvenile	8/19/2011	6	3	9.00	0.00	0.67	0.82	0.83	1.17
brown rockfish, adult	8/19/2011	6	1	7.00		1.00		1.00	
California scorpionfish, adult	8/19/2011	6	1	6.00		1.00		1.00	
California sheephead, female	8/19/2011	6	6	8.83	1.33	2.00	0.00	3.33	1.75
coralline sculpin	8/19/2011	6	2	6.00	1.41	1.00	0.00	1.00	0.00
garibaldi, adult	8/19/2011	6	6	9.33	1.63	1.83	0.41	5.83	2.56
horn shark	8/19/2011	6	2	8.50	2.12	1.00	0.00	1.00	0.00
kelp bass, adult	8/19/2011	6	6	10.00	0.00	2.50	0.55	11.00	4.00
kelp bass, all	8/19/2011	6	6	10.00	0.00	2.50	0.55	11.00	4.00
kelp rockfish, adult	8/19/2011	6	6	8.83	1.47	2.00	0.00	5.17	1.17
kelp rockfish, all	8/19/2011	6	6	8.83	1.47	2.00	0.00	5.17	1.17
olive rockfish, adult	8/19/2011	6	3	8.00	1.73	0.83	0.98	1.50	2.07
olive rockfish, all	8/19/2011	6	3	8.67	1.53	0.83	0.98	1.83	2.48
olive/yellowtail rockfish, juvenile	8/19/2011	6	1	9.00		0.33	0.82	0.33	0.82
opaleye, adult	8/19/2011	6	4	8.00	1.41	1.33	1.21	10.17	19.66
painted greenling	8/19/2011	6	6	10.00	0.00	3.00	0.00	23.67	7.50
pile perch, adult	8/19/2011	6	6	7.67	1.51	1.83	0.41	2.83	1.72
pile perch, all	8/19/2011	6	6	7.67	1.51	1.83	0.41	2.83	1.72
rock wrasse, female	8/19/2011	6	5	8.40	1.52	1.00	0.63	1.00	0.63
rock wrasse, male	8/19/2011	6	2	8.50	2.12	0.33	0.52	0.33	0.52
rubberlip surfperch	8/19/2011	6	2	7.50	0.71	1.50	0.71	1.50	0.71
seporita, adult	8/19/2011	6	6	9.33	0.52	3.00	0.00	14.67	4.37
seporita, all	8/19/2011	6	6	9.33	0.52	3.00	0.00	14.67	4.37
snubnose sculpin	8/19/2011	6	1	5.00		1.00		1.00	
treefish, adult	8/19/2011	6	3	6.33	0.58	0.50	0.55	0.50	0.55
treefish, juvenile	8/19/2011	6	2	5.50	0.71	0.33	0.52	0.33	0.52

2011 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	8/29/2011	6	1	7.00		1.00		1.00	
black and yellow rockfish, adult	8/29/2011	6	5	6.60	2.19	1.40	0.55	1.60	0.89
black surfperch, adult	8/29/2011	6	1	7.00		0.17	0.41	0.17	0.41
black surfperch, all	8/29/2011	6	1	7.00		0.17	0.41	0.17	0.41
blackeye goby	8/29/2011	6	6	10.00	0.00	4.00	0.00	319.00	125.55
blacksmith, adult	8/29/2011	6	6	7.83	1.33	1.50	0.55	2.00	1.26
blacksmith, all	8/29/2011	6	6	8.17	1.17	1.67	0.52	3.50	2.17
blacksmith, juvenile	8/29/2011	6	4	7.50	0.58	1.17	0.98	1.50	1.38
blue rockfish, adult	8/29/2011	6	3	7.33	2.08	0.83	0.98	1.17	1.60
blue rockfish, all	8/29/2011	6	5	9.00	1.00	2.00	1.10	7.50	4.46
blue rockfish, juvenile	8/29/2011	6	5	8.80	1.30	1.83	0.98	6.33	3.83
California scorpionfish, adult	8/29/2011	6	1	10.00		1.00		1.00	
California sheephead, female	8/29/2011	6	6	10.00	0.00	3.00	0.00	15.33	2.73
copper rockfish, adult	8/29/2011	6	4	7.25	0.96	1.25	0.50	1.25	0.50
copper rockfish, juvenile	8/29/2011	6	6	9.83	0.41	3.00	0.00	53.00	23.41
giant kelpfish, juvenile	8/29/2011	6	1	5.00		1.00		1.00	
gopher rockfish, adult	8/29/2011	6	1	9.00		1.00		1.00	
horn shark	8/29/2011	6	1	8.00		1.00		1.00	
kelp bass, adult	8/29/2011	6	5	8.40	1.14	1.17	0.75	3.00	3.63
kelp bass, all	8/29/2011	6	5	8.40	1.14	1.17	0.75	3.00	3.63
kelp rockfish, adult	8/29/2011	6	6	8.83	0.41	2.00	0.00	6.33	3.27
kelp rockfish, all	8/29/2011	6	6	8.83	0.41	2.00	0.00	6.33	3.27
KGB	8/29/2011	6	3	9.33	1.15	2.33	0.58	10.00	4.36
olive rockfish, adult	8/29/2011	6	6	8.83	0.41	1.67	0.52	2.33	1.51
olive rockfish, all	8/29/2011	6	6	8.83	0.41	1.67	0.52	2.33	1.51
opaleye, adult	8/29/2011	6	1	5.00		0.17	0.41	0.17	0.41
painted greenling	8/29/2011	6	6	10.00	0.00	3.00	0.00	25.83	10.34
striped surfperch, all	8/29/2011	6	1	7.00		0.17	0.41	0.17	0.41
striped surfperch, juvenile	8/29/2011	6	1	7.00		0.17	0.41	0.17	0.41
swell shark	8/29/2011	6	4	7.00	1.63	1.00	0.00	1.00	0.00
treefish, adult	8/29/2011	6	4	8.00	1.15	1.00	0.89	1.00	0.89
vermillion rockfish, adult	8/29/2011	6	2	9.50	0.71	1.50	0.71	1.50	0.71
vermillion rockfish, juvenile	8/29/2011	6	5	9.40	0.55	2.00	0.71	6.40	6.88

2011 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	7/25/2011	7	7	7.71	1.50	1.86	0.38	3.43	1.72
black surfperch, adult	7/25/2011	7	7	9.57	1.13	2.29	0.49	8.71	4.64
black surfperch, all	7/25/2011	7	7	9.57	1.13	2.57	0.53	11.43	5.22
black surfperch, juvenile	7/25/2011	7	6	9.17	1.60	1.71	0.76	2.71	2.06
blackeye goby	7/25/2011	7	7	10.00	0.00	3.86	0.38	216.57	109.04
blacksmith, adult	7/25/2011	7	7	9.86	0.38	4.00	0.00	529.43	203.00
blacksmith, all	7/25/2011	7	7	10.00	0.00	4.00	0.00	552.29	215.93
blacksmith, juvenile	7/25/2011	7	7	8.57	1.40	2.71	0.49	22.86	14.35
blue rockfish, adult	7/25/2011	7	7	9.71	0.49	3.00	0.00	41.57	30.04
blue rockfish, all	7/25/2011	7	7	9.86	0.38	3.14	0.38	67.14	35.53
blue rockfish, juvenile	7/25/2011	7	7	9.57	0.79	3.00	0.00	25.57	10.74
blue-banded goby	7/25/2011	7	6	8.50	1.38	1.57	0.79	1.86	1.07
California sheephead, female	7/25/2011	7	7	10.00	0.00	2.71	0.49	12.57	2.99
copper rockfish, juvenile	7/25/2011	7	1	7.00		1.00		1.00	
garibaldi, adult	7/25/2011	7	7	9.43	0.79	2.00	0.00	6.43	2.07
gopher rockfish, adult	7/25/2011	7	2	5.50	0.71	1.00	0.00	1.00	0.00
island kelpfish	7/25/2011	7	2	8.00	1.41	0.29	0.49	0.29	0.49
jack mackerel	7/25/2011	7	1	6.00		4.00		200.00	
kelp bass, adult	7/25/2011	7	6	8.83	1.60	1.71	0.76	2.14	1.21
kelp bass, all	7/25/2011	7	6	8.83	1.60	1.71	0.76	2.14	1.21
kelp rockfish, adult	7/25/2011	7	7	9.86	0.38	2.14	0.38	7.00	2.94
kelp rockfish, all	7/25/2011	7	7	9.86	0.38	2.14	0.38	7.00	2.94
KGB	7/25/2011	7	5	7.60	1.52	1.80	0.45	2.40	1.14
opaleye, adult	7/25/2011	7	7	6.86	1.68	1.43	0.53	1.71	1.11
painted greenling	7/25/2011	7	7	10.00	0.00	3.00	0.00	41.29	18.56
pile perch, adult	7/25/2011	7	4	9.00	0.82	0.57	0.53	0.57	0.53
pile perch, all	7/25/2011	7	4	9.00	0.82	0.57	0.53	0.57	0.53
rock wrasse, female	7/25/2011	7	7	9.43	0.79	2.00	0.00	4.43	1.90
rock wrasse, male	7/25/2011	7	4	8.75	1.50	1.00	1.00	1.43	1.62
rockfish spp.	7/25/2011	7	1	5.00		1.00		1.00	
seporita, adult	7/25/2011	7	6	7.67	1.63	1.86	1.21	32.14	40.62
seporita, all	7/25/2011	7	6	7.67	1.63	1.86	1.21	32.14	40.62
treefish, adult	7/25/2011	7	7	9.57	0.79	2.29	0.49	9.14	2.85
treefish, juvenile	7/25/2011	7	2	8.50	2.12	0.29	0.49	0.29	0.49
zebra goby	7/25/2011	7	2	9.00	1.41	1.50	0.71	1.50	0.71

2011 ROVING DIVER FISH COUNT

Anacapa Island - Cathedral Cove

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
black surfperch, adult	5/19/2011	6	5	7.40	2.30	1.33	0.82	2.50	2.26
black surfperch, all	5/19/2011	6	5	7.40	2.30	1.33	0.82	2.50	2.26
blackeye goby	5/19/2011	6	5	8.80	1.10	1.50	0.84	2.50	2.43
blacksmith, adult	5/19/2011	6	6	10.00	0.00	3.83	0.41	184.67	114.60
blacksmith, all	5/19/2011	6	6	10.00	0.00	3.83	0.41	184.67	114.60
blue rockfish, adult	5/19/2011	6	5	9.20	1.79	1.67	1.03	4.33	4.76
blue rockfish, all	5/19/2011	6	6	9.33	1.63	1.83	0.75	5.00	4.69
blue rockfish, juvenile	5/19/2011	6	3	7.67	2.52	0.67	0.82	0.67	0.82
bocaccio, juvenile	5/19/2011	6	2	8.00	1.41	2.50	0.71	11.50	9.19
California scorpionfish, adult	5/19/2011	6	1	9.00		2.00		2.00	
California sheephead, female	5/19/2011	6	6	10.00	0.00	2.50	0.55	11.17	2.23
California sheephead, male	5/19/2011	6	3	7.33	0.58	0.67	0.82	0.83	1.17
copper rockfish, adult	5/19/2011	6	1	5.00		1.00		1.00	
garibaldi, adult	5/19/2011	6	6	9.33	1.03	2.00	0.00	5.00	1.90
kelp bass, adult	5/19/2011	6	6	9.67	0.52	2.50	0.55	10.33	2.16
kelp bass, all	5/19/2011	6	6	9.67	0.52	2.50	0.55	10.33	2.16
kelp rockfish, adult	5/19/2011	6	6	10.00	0.00	2.33	0.52	11.17	6.05
kelp rockfish, all	5/19/2011	6	6	10.00	0.00	2.33	0.52	11.33	5.99
kelp rockfish, juvenile	5/19/2011	6	1	6.00		0.17	0.41	0.17	0.41
kelp surfperch	5/19/2011	6	5	8.20	1.30	2.00	0.00	6.40	2.88
kelpfish spp.	5/19/2011	6	1	6.00		2.00		2.00	
KGB	5/19/2011	6	2	9.00	1.41	1.50	0.71	2.50	2.12
larval fish spp.	5/19/2011	6	2	7.50	3.54	4.00	0.00	2600.00	3394.11
ocean whitefish, adult	5/19/2011	6	3	6.33	0.58	1.33	0.58	1.33	0.58
olive rockfish, adult	5/19/2011	6	4	7.75	1.71	1.00	0.89	1.33	1.51
olive rockfish, all	5/19/2011	6	4	8.00	1.83	1.67	1.37	10.00	14.97
olive/yellowtail rockfish, juvenile	5/19/2011	6	2	8.00	1.41	1.00	1.55	8.67	15.12
opaleye, adult	5/19/2011	6	6	9.33	0.82	2.83	0.41	28.33	14.64
painted greenling	5/19/2011	6	6	9.50	0.84	2.00	0.00	5.33	1.86
pile perch, adult	5/19/2011	6	5	8.40	1.95	1.50	0.84	1.83	1.17
pile perch, all	5/19/2011	6	5	8.40	1.95	1.50	0.84	1.83	1.17
rock wrasse, female	5/19/2011	6	3	6.00	1.00	0.50	0.55	0.50	0.55
rockfish spp., juvenile	5/19/2011	6	2	9.00	1.41	3.00	0.00	36.00	11.31
seporita, adult	5/19/2011	6	6	8.50	1.64	2.83	0.41	28.00	16.72
seporita, all	5/19/2011	6	6	8.50	1.64	3.00	0.00	33.00	12.87
seporita, juvenile	5/19/2011	6	2	8.00	2.83	1.00	1.55	5.00	7.75
striped surfperch, adult	5/19/2011	6	1	10.00		0.33	0.82	0.33	0.82
striped surfperch, all	5/19/2011	6	3	6.67	2.89	0.67	0.82	0.67	0.82
striped surfperch, juvenile	5/19/2011	6	2	5.00	0.00	0.33	0.52	0.33	0.52
top smelt	5/19/2011	6	3	8.50	1.91	4.00	0.00	516.67	76.38

2011 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	6/17/2011	7	5	7.40	1.34	1.40	0.55	1.80	1.30
black surfperch, adult	6/17/2011	7	6	8.86	1.21	2.00	0.00	6.83	1.47
black surfperch, all	6/17/2011	7	6	9.29	0.95	2.29	0.49	9.00	2.19
black surfperch, juvenile	6/17/2011	7	5	9.60	0.89	1.14	0.90	2.17	1.94
blackeye goby	6/17/2011	7	6	9.57	0.79	2.43	0.53	19.17	15.60
blacksmith, adult	6/17/2011	7	6	9.43	1.51	3.57	0.53	200.33	105.42
blacksmith, all	6/17/2011	7	6	9.43	1.51	3.57	0.53	200.33	105.42
blue rockfish, adult	6/17/2011	7	2	7.50	2.12	0.43	0.79	0.50	0.84
blue rockfish, all	6/17/2011	7	6	8.17	1.17	1.29	0.76	2.33	1.75
blue rockfish, juvenile	6/17/2011	7	5	8.00	1.22	1.14	0.90	1.83	1.72
blue-banded goby	6/17/2011	7	4	9.25	1.50	1.00	1.00	3.33	3.78
cabezon, adult	6/17/2011	7	3	8.67	1.15	1.00	0.00	1.00	0.00
California moray eel	6/17/2011	7	1	7.00		1.00		1.00	
California sheephead, female	6/17/2011	7	6	10.00	0.00	2.14	0.38	7.83	2.04
California sheephead, male	6/17/2011	7	4	6.80	1.48	1.29	0.95	1.33	1.21
copper rockfish, juvenile	6/17/2011	7	1	10.00		2.00		2.00	
coralline sculpin	6/17/2011	7	2	6.00	0.00	1.00	0.00	1.00	0.00
garibaldi, adult	6/17/2011	7	6	10.00	0.00	2.71	0.49	13.00	4.38
giant kelpfish, adult	6/17/2011	7	1	6.00		1.00		1.00	
grass rockfish, adult	6/17/2011	7	4	8.75	1.50	1.00	0.00	1.00	0.00
halfmoon, adult	6/17/2011	7	2	7.50	2.12	1.50	0.71	2.50	2.12
horn shark	6/17/2011	7	1	7.00		1.00		1.00	
island kelpfish	6/17/2011	7	1	9.00		0.14	0.38	0.17	0.41
kelp bass, adult	6/17/2011	7	6	8.86	1.21	2.43	0.53	10.67	5.79
kelp bass, all	6/17/2011	7	6	8.86	1.21	2.43	0.53	10.67	5.79
kelp rockfish, adult	6/17/2011	7	6	9.14	1.21	2.29	0.49	8.67	5.01
kelp rockfish, all	6/17/2011	7	6	9.14	1.21	2.29	0.49	8.67	5.01
kelp surfperch	6/17/2011	7	5	7.00	1.87	1.60	0.55	3.40	3.29
kelpfish spp.	6/17/2011	7	1	7.00		1.00		1.00	
KGB	6/17/2011	7	3	8.00	1.00	1.33	0.58	1.33	0.58
lavender sculpin	6/17/2011	7	2	7.50	2.12	1.00	0.00	1.00	0.00
olive rockfish, adult	6/17/2011	7	3	8.00	0.00	0.57	0.79	0.67	0.82
olive rockfish, all	6/17/2011	7	4	7.50	1.00	0.71	0.76	0.83	0.75
olive/yellowtail rockfish, juvenile	6/17/2011	7	1	6.00		0.14	0.38	0.17	0.41
opaleye, adult	6/17/2011	7	6	9.29	1.25	2.86	0.38	19.83	13.44
painted greenling	6/17/2011	7	6	9.71	0.49	2.86	0.38	19.00	6.32
pile perch, adult	6/17/2011	7	2	8.00	1.41	0.43	0.79	0.50	0.84
pile perch, all	6/17/2011	7	2	8.00	1.41	0.43	0.79	0.50	0.84
rock wrasse, female	6/17/2011	7	3	6.75	0.96	0.86	0.90	0.83	0.98
rock wrasse, male	6/17/2011	7	4	7.20	1.10	1.14	0.90	1.50	1.52
seporita, adult	6/17/2011	7	6	9.86	0.38	3.57	0.53	135.17	56.70
seporita, all	6/17/2011	7	6	9.86	0.38	3.57	0.53	135.17	56.70
speckled sanddab	6/17/2011	7	2	9.00	0.00	2.00	1.41	6.00	7.07
striped surfperch, adult	6/17/2011	7	5	9.20	1.10	1.29	0.95	3.50	2.88
striped surfperch, all	6/17/2011	7	5	9.20	1.10	1.29	0.95	3.50	2.88
swell shark	6/17/2011	7	1	8.00		1.00		1.00	
treefish, adult	6/17/2011	7	6	7.83	1.72	1.14	0.69	1.50	0.84
zebra goby	6/17/2011	7	3	7.67	2.08	2.00	1.00	5.67	6.43

2011 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	5/17/2011	4	4	10.00	0.00	3.25	0.50	80.00	33.18
blacksmith, adult	5/17/2011	4	4	8.50	0.58	2.75	0.50	15.25	8.30
blacksmith, all	5/17/2011	4	4	8.50	0.58	2.75	0.50	15.25	8.30
blue rockfish, adult	5/17/2011	4	4	7.25	1.71	2.00	0.00	3.50	1.91
blue rockfish, all	5/17/2011	4	4	7.75	0.96	2.00	0.00	5.75	1.50
blue rockfish, juvenile	5/17/2011	4	4	6.75	1.71	1.50	0.58	2.25	1.89
California moray eel	5/17/2011	4	1	9.00		1.00		1.00	
California sheephead, female	5/17/2011	4	4	8.00	1.41	2.00	0.00	3.75	2.36
copper rockfish, adult	5/17/2011	4	1	9.00		1.00		1.00	
coralline sculpin	5/17/2011	4	1	9.00		2.00		2.00	
garibaldi, adult	5/17/2011	4	4	7.75	1.26	1.50	0.58	1.50	0.58
gopher rockfish, adult	5/17/2011	4	1	10.00		2.00		2.00	
island kelpfish	5/17/2011	4	1	7.00		0.25	0.50	0.25	0.50
kelp bass, adult	5/17/2011	4	3	8.33	1.53	1.50	1.00	3.25	2.99
kelp bass, all	5/17/2011	4	3	8.33	1.53	1.50	1.00	3.25	2.99
olive rockfish, adult	5/17/2011	4	3	7.00	1.00	1.25	0.96	1.25	0.96
olive rockfish, all	5/17/2011	4	3	7.00	1.00	1.25	0.96	1.25	0.96
painted greenling	5/17/2011	4	4	8.75	0.96	2.25	0.50	6.75	4.27
sculpin spp.	5/17/2011	4	1	9.00		1.00		1.00	
stripetail rockfish, juvenile	5/17/2011	4	2	9.00	0.00	2.00	0.00	2.50	0.71
vermillion rockfish, juvenile	5/17/2011	4	4	6.75	1.71	2.50	0.58	9.50	2.38

2011 ROVING DIVER FISH COUNT

Santa Barbara Island - Arch Point

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	5/16/2011	7	7	9.29	1.11	3.00	0.82	67.71	47.83
blacksmith, adult	5/16/2011	7	7	10.00	0.00	4.00	0.00	247.71	162.85
blacksmith, all	5/16/2011	7	7	10.00	0.00	4.00	0.00	247.71	162.85
blue rockfish, adult	5/16/2011	7	6	8.33	2.07	2.29	1.11	12.43	9.74
blue rockfish, all	5/16/2011	7	7	8.14	2.04	2.71	0.49	15.43	8.10
blue rockfish, juvenile	5/16/2011	7	6	7.50	1.87	1.29	0.95	3.00	4.93
California moray eel	5/16/2011	7	1	9.00		1.00		1.00	
California sheephead, female	5/16/2011	7	7	9.86	0.38	2.29	0.49	8.71	2.29
California sheephead, male	5/16/2011	7	4	6.75	1.71	1.00	1.00	1.14	1.21
c-o turbot	5/16/2011	7	1	10.00		1.00		1.00	
copper rockfish, adult	5/16/2011	7	1	10.00		1.00		1.00	
coralline sculpin	5/16/2011	7	2	6.50	0.71	1.50	0.71	2.00	1.41
garibaldi, adult	5/16/2011	7	7	9.71	0.76	3.00	0.00	19.43	7.28
gopher rockfish, adult	5/16/2011	7	1	6.00		1.00		1.00	
grass rockfish, adult	5/16/2011	7	4	8.50	1.00	1.25	0.50	1.25	0.50
halfmoon, adult	5/16/2011	7	7	8.86	0.90	2.86	0.38	38.43	24.45
horn shark	5/16/2011	7	1	5.00		1.00		1.00	
kelp bass, adult	5/16/2011	7	3	9.00	1.73	0.57	0.79	0.57	0.79
kelp bass, all	5/16/2011	7	3	9.00	1.73	0.57	0.79	0.57	0.79
KGB	5/16/2011	7	4	8.00	1.83	2.25	0.96	8.50	5.57
larval fish spp.	5/16/2011	7	2	7.00	0.00	4.00	0.00	20000.00	0.00
ocean whitefish, adult	5/16/2011	7	1	6.00		2.00		2.00	
olive rockfish, adult	5/16/2011	7	2	9.00	1.41	0.29	0.49	0.29	0.49
olive rockfish, all	5/16/2011	7	2	9.00	1.41	0.29	0.49	0.29	0.49
opaleye, adult	5/16/2011	7	7	9.14	1.07	2.14	0.38	8.14	11.88
painted greenling	5/16/2011	7	7	9.86	0.38	3.00	0.00	28.29	11.43
seporita, adult	5/16/2011	7	7	9.00	1.41	2.00	0.82	6.29	5.88
seporita, all	5/16/2011	7	7	9.00	1.41	2.00	0.82	6.71	6.32
seporita, juvenile	5/16/2011	7	3	7.33	2.31	0.43	0.53	0.43	0.53
snubnose sculpin	5/16/2011	7	1	7.00		2.00		2.00	
swell shark	5/16/2011	7	2	5.00	0.00	2.00	0.00	3.00	0.00
treefish, adult	5/16/2011	7	2	7.00	0.00	0.29	0.49	0.29	0.49

2011 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 and yellow rockfish, adult	6/14/2011	7	1	9.00		2.00		2.00	
black surfperch, adult	6/14/2011	7	1	6.00		0.14	0.38	0.17	0.41
black surfperch, all	6/14/2011	7	1	6.00		0.14	0.38	0.17	0.41
blackeye goby	6/14/2011	7	6	10.00	0.00	2.86	0.38	30.17	6.71
blacksmith, adult	6/14/2011	7	6	10.00	0.00	4.00	0.00	159.33	32.43
blacksmith, all	6/14/2011	7	6	10.00	0.00	4.00	0.00	159.33	32.43
blue rockfish, adult	6/14/2011	7	5	8.80	0.84	1.29	0.95	1.83	1.33
blue rockfish, all	6/14/2011	7	5	8.80	0.84	1.29	0.95	1.83	1.33
cabezon, adult	6/14/2011	7	2	8.50	0.71	1.00	0.00	1.00	0.00
California moray eel	6/14/2011	7	2	7.00	0.00	1.00	0.00	1.00	0.00
California sheephead, female	6/14/2011	7	6	10.00	0.00	2.71	0.49	13.67	3.44
California sheephead, male	6/14/2011	7	1	9.00		0.14	0.38	0.17	0.41
c-o turbot	6/14/2011	7	2	7.67	1.15	1.00	0.00	1.00	0.00
copper rockfish, adult	6/14/2011	7	1	10.00		1.00		1.00	
coralline sculpin	6/14/2011	7	4	8.00	2.31	1.50	0.58	1.75	0.96
garibaldi, adult	6/14/2011	7	6	10.00	0.00	2.43	0.53	10.00	1.79
gopher rockfish, adult	6/14/2011	7	1	10.00		2.00		2.00	
grass rockfish, adult	6/14/2011	7	4	9.25	0.96	1.50	0.58	2.00	1.15
island kelpfish	6/14/2011	7	3	8.67	1.15	0.57	0.79	0.67	0.82
kelp bass, adult	6/14/2011	7	4	8.00	1.83	0.86	0.90	1.00	0.89
kelp bass, all	6/14/2011	7	5	8.00	1.87	1.14	0.90	1.67	1.37
kelp bass, juvenile	6/14/2011	7	3	7.00	1.73	0.57	0.79	0.67	0.82
kelp rockfish, adult	6/14/2011	7	6	7.50	1.52	1.43	0.79	2.33	1.21
kelp rockfish, all	6/14/2011	7	6	7.50	1.52	1.43	0.79	2.33	1.21
larval fish spp.	6/14/2011	7	1	6.00		3.00		20.00	
olive rockfish, adult	6/14/2011	7	6	9.14	1.86	1.57	0.53	1.67	0.82
olive rockfish, all	6/14/2011	7	6	9.14	1.86	1.57	0.53	1.67	0.82
opaleye, adult	6/14/2011	7	4	9.00	1.41	1.00	1.00	3.00	3.46
Pacific angel shark	6/14/2011	7	1	8.00		1.00		1.00	
painted greenling	6/14/2011	7	6	10.00	0.00	2.71	0.49	17.00	5.10
seporita, adult	6/14/2011	7	6	9.57	0.79	2.86	0.38	25.17	9.28
seporita, all	6/14/2011	7	6	9.57	0.79	2.86	0.38	25.17	9.28
snubnose sculpin	6/14/2011	7	1	7.00		2.00		3.00	

2011 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	10/5/2011	6	5	8.40	2.07	1.60	0.55	2.80	2.17
black and yellow/gopher rockfish, juvenile	10/5/2011	6	3	6.33	1.15	1.33	0.58	1.67	1.15
black rockfish, adult	10/5/2011	6	6	8.33	1.63	1.50	0.55	1.67	0.82
black surfperch, adult	10/5/2011	6	6	9.83	0.41	2.17	0.41	6.17	3.43
black surfperch, all	10/5/2011	6	6	9.83	0.41	2.17	0.41	7.83	4.17
black surfperch, juvenile	10/5/2011	6	5	7.80	1.79	1.33	0.82	1.67	1.21
blackeye goby	10/5/2011	6	6	7.83	1.72	1.67	0.52	2.17	1.17
blue rockfish, adult	10/5/2011	6	6	9.50	1.22	2.33	0.52	10.50	5.68
blue rockfish, all	10/5/2011	6	6	9.83	0.41	2.67	0.52	15.33	8.64
blue rockfish, juvenile	10/5/2011	6	5	8.80	1.64	1.50	0.84	4.83	3.66
cabezon, adult	10/5/2011	6	4	8.50	1.29	1.50	0.58	1.75	0.96
California sheephead, female	10/5/2011	6	5	6.60	1.34	1.17	0.75	1.17	0.75
gopher rockfish, adult	10/5/2011	6	1	5.00		1.00		1.00	
kelp greenling	10/5/2011	6	1	7.00		1.00		1.00	
kelp rockfish, adult	10/5/2011	6	6	10.00	0.00	2.67	0.52	15.17	6.77
kelp rockfish, all	10/5/2011	6	6	10.00	0.00	2.67	0.52	15.33	6.56
kelp rockfish, juvenile	10/5/2011	6	1	6.00		0.17	0.41	0.17	0.41
kelp surfperch	10/5/2011	6	6	7.33	1.75	1.67	0.52	4.33	3.20
kelpfish spp.	10/5/2011	6	3	8.00	1.73	1.67	0.58	2.00	1.00
KGB	10/5/2011	6	1	10.00		1.00		1.00	
lingcod, adult	10/5/2011	6	3	6.33	1.53	1.33	0.58	1.33	0.58
monkeyface prickleback	10/5/2011	6	2	9.00	0.00	1.00	0.00	1.00	0.00
olive rockfish, adult	10/5/2011	6	5	8.00	2.12	1.50	0.84	2.00	1.41
olive rockfish, all	10/5/2011	6	5	8.00	2.12	1.50	0.84	2.00	1.41
painted greenling	10/5/2011	6	6	9.83	0.41	2.50	0.55	9.33	3.83
pile perch, adult	10/5/2011	6	4	7.25	0.96	0.67	0.52	0.67	0.52
pile perch, all	10/5/2011	6	4	8.00	0.82	0.83	0.75	0.83	0.75
pile perch, juvenile	10/5/2011	6	1	9.00		0.17	0.41	0.17	0.41
seporita, adult	10/5/2011	6	6	9.00	1.55	2.50	0.55	14.00	13.87
seporita, all	10/5/2011	6	6	9.00	1.55	2.50	0.55	14.00	13.87
striped surfperch, adult	10/5/2011	6	6	10.00	0.00	3.00	0.00	21.17	4.62
striped surfperch, all	10/5/2011	6	6	10.00	0.00	3.00	0.00	28.00	6.78
striped surfperch, juvenile	10/5/2011	6	5	9.80	0.45	2.00	1.10	6.83	4.79
tubesnout, adult	10/5/2011	6	3	7.67	2.08	3.67	0.58	176.00	162.57
vermillion rockfish, adult	10/5/2011	6	1	9.00		1.00		1.00	

2011 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	7/28/2011	5	5	9.20	1.30	2.00	0.00	4.80	2.17
black rockfish, adult	7/28/2011	5	5	8.60	2.07	2.60	0.55	10.20	5.12
black surfperch, adult	7/28/2011	5	4	8.75	1.89	1.80	1.30	5.80	5.89
black surfperch, all	7/28/2011	5	4	8.75	1.89	1.80	1.30	5.80	5.89
blackeye goby	7/28/2011	5	4	9.75	0.50	1.60	0.89	5.00	4.00
blacksmith, adult	7/28/2011	5	2	9.00	1.41	1.00	1.41	6.60	12.64
blacksmith, all	7/28/2011	5	2	9.00	1.41	1.00	1.41	6.60	12.64
blue rockfish, adult	7/28/2011	5	5	10.00	0.00	3.20	0.45	64.80	46.01
blue rockfish, all	7/28/2011	5	5	10.00	0.00	3.20	0.45	69.80	48.85
blue rockfish, juvenile	7/28/2011	5	4	9.25	0.96	1.60	0.89	5.00	3.16
cabezon, adult	7/28/2011	5	1	8.00		1.00		1.00	
California moray eel	7/28/2011	5	2	7.00	0.00	1.00	0.00	1.00	0.00
California sheephead, female	7/28/2011	5	5	10.00	0.00	2.00	0.00	7.40	2.88
California sheephead, male	7/28/2011	5	5	8.40	1.14	2.00	0.00	2.60	0.89
clingfish spp.	7/28/2011	5	1	10.00		1.00		1.00	
copper rockfish, adult	7/28/2011	5	3	7.00	1.00	1.00	0.00	1.00	0.00
gopher rockfish, adult	7/28/2011	5	2	8.50	2.12	1.00	0.00	1.00	0.00
kelp rockfish, adult	7/28/2011	5	5	9.80	0.45	2.80	0.45	16.80	8.11
kelp rockfish, all	7/28/2011	5	5	9.80	0.45	2.80	0.45	16.80	8.11
kelpfish spp.	7/28/2011	5	1	8.00		1.00		1.00	
KGB	7/28/2011	5	2	9.50	0.71	2.00	0.00	3.00	0.00
lingcod, adult	7/28/2011	5	2	8.00	2.83	1.50	0.71	1.50	0.71
olive rockfish, adult	7/28/2011	5	5	8.20	1.10	2.40	0.55	10.00	3.81
olive rockfish, all	7/28/2011	5	5	8.20	1.10	2.40	0.55	10.40	3.65
olive/yellowtail rockfish, juvenile	7/28/2011	5	2	6.50	0.71	0.40	0.55	0.40	0.55
opaleye, adult	7/28/2011	5	2	7.00	1.41	0.40	0.55	0.40	0.55
painted greenling	7/28/2011	5	5	10.00	0.00	2.80	0.45	15.20	5.02
pile perch, adult	7/28/2011	5	5	7.60	1.82	1.80	0.45	3.20	2.17
pile perch, all	7/28/2011	5	5	7.60	1.82	1.80	0.45	3.20	2.17
rubberlip surfperch	7/28/2011	5	1	9.00		1.00		1.00	
seporita, adult	7/28/2011	5	1	10.00		0.60	1.34	3.20	7.16
seporita, all	7/28/2011	5	1	10.00		0.60	1.34	3.20	7.16
striped surfperch, adult	7/28/2011	5	5	10.00	0.00	3.00	0.00	27.80	15.01
striped surfperch, all	7/28/2011	5	5	10.00	0.00	3.00	0.00	31.60	15.68
striped surfperch, juvenile	7/28/2011	5	4	9.25	0.50	1.40	0.89	3.80	3.35
treefish, adult	7/28/2011	5	1	7.00		0.20	0.45	0.20	0.45
treefish, juvenile	7/28/2011	5	1	9.00		0.20	0.45	0.20	0.45
tubesnout, adult	7/28/2011	5	4	8.25	1.26	3.00	0.00	28.75	18.45
vermillion rockfish, adult	7/28/2011	5	4	8.25	2.36	1.50	0.58	1.75	0.96
wolf eel	7/28/2011	5	2	6.50	0.71	1.00	0.00	1.00	0.00

2011 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
black and yellow rockfish, adult	10/4/2011	6	5	9.60	0.55	2.20	0.45	7.60	4.16
black and yellow/gopher rockfish, juvenile	10/4/2011	6	2	9.50	0.71	2.00	0.00	3.00	1.41
black rockfish, adult	10/4/2011	6	5	7.80	0.84	1.80	0.45	2.40	0.89
black surfperch, adult	10/4/2011	6	6	9.67	0.52	2.50	0.55	10.17	3.13
black surfperch, all	10/4/2011	6	6	9.67	0.52	2.50	0.55	10.17	3.13
blackeye goby	10/4/2011	6	6	7.50	1.52	1.67	0.52	5.00	3.79
blacksmith, adult	10/4/2011	6	5	7.40	1.34	2.50	1.22	33.00	23.07
blacksmith, all	10/4/2011	6	6	8.50	0.84	2.83	0.41	43.17	26.12
blacksmith, juvenile	10/4/2011	6	6	8.33	1.03	2.50	0.55	10.17	3.92
blue rockfish, adult	10/4/2011	6	6	9.33	0.82	2.50	0.55	24.67	26.74
blue rockfish, all	10/4/2011	6	6	10.00	0.00	3.17	0.41	70.67	45.79
blue rockfish, juvenile	10/4/2011	6	6	9.83	0.41	3.00	0.00	46.00	25.30
cabezon, adult	10/4/2011	6	4	7.00	0.82	1.50	0.58	2.50	1.91
California sheephead, female	10/4/2011	6	6	9.67	0.52	2.50	0.55	10.50	2.07
California sheephead, male	10/4/2011	6	6	10.00	0.00	2.00	0.00	3.83	1.17
copper rockfish, adult	10/4/2011	6	1	7.00		1.00		1.00	
kelp rockfish, adult	10/4/2011	6	6	9.83	0.41	3.00	0.00	28.17	10.26
kelp rockfish, all	10/4/2011	6	6	9.83	0.41	3.00	0.00	28.67	10.67
kelp rockfish, juvenile	10/4/2011	6	1	10.00		0.33	0.82	0.50	1.22
kelp surfperch	10/4/2011	6	1	9.00		2.00		5.00	
KGB	10/4/2011	6	1	9.00		2.00		2.00	
lingcod, adult	10/4/2011	6	2	9.00	1.41	2.00	0.00	4.00	0.00
olive rockfish, adult	10/4/2011	6	5	9.20	1.79	1.83	0.98	4.17	4.17
olive rockfish, all	10/4/2011	6	6	8.67	2.07	2.00	0.63	5.67	3.78
olive/yellowtail rockfish, juvenile	10/4/2011	6	4	7.25	1.89	1.00	0.89	1.50	1.64
opaleye, adult	10/4/2011	6	4	9.00	1.41	1.00	0.89	1.00	0.89
painted greenling	10/4/2011	6	6	10.00	0.00	3.00	0.00	36.33	5.13
pile perch, adult	10/4/2011	6	4	8.25	1.26	1.50	1.22	4.50	5.13
pile perch, all	10/4/2011	6	4	8.25	1.26	1.50	1.22	4.50	5.13
rubberlip surfperch	10/4/2011	6	4	6.75	0.50	1.25	0.50	1.25	0.50
seporita, adult	10/4/2011	6	2	9.50	0.71	0.67	1.21	3.50	8.09
seporita, all	10/4/2011	6	2	9.50	0.71	0.67	1.21	3.50	8.09
snubnose sculpin	10/4/2011	6	4	7.75	2.06	1.00	0.00	1.00	0.00
speckled sanddab	10/4/2011	6	1	9.00		2.00		3.00	
striped surfperch, adult	10/4/2011	6	6	10.00	0.00	3.00	0.00	19.67	6.86
striped surfperch, all	10/4/2011	6	6	10.00	0.00	3.00	0.00	25.83	5.15
striped surfperch, juvenile	10/4/2011	6	5	8.80	1.10	1.67	1.03	6.17	4.88
surfperch spp., juvenile	10/4/2011	6	1	6.00		1.00		1.00	
treefish, adult	10/4/2011	6	2	8.50	0.71	0.33	0.52	0.33	0.52
treefish, juvenile	10/4/2011	6	3	6.33	1.15	0.50	0.55	0.50	0.55

2011 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	10/3/2011	8	7	8.14	1.68	1.71	0.49	2.43	1.40
black and yellow/gopher rockfish, juvenile	10/3/2011	8	6	9.00	0.89	1.83	0.75	4.50	4.72
black rockfish, adult	10/3/2011	8	6	6.67	1.37	1.67	0.52	1.67	0.52
black surfperch, adult	10/3/2011	8	8	8.25	1.58	1.75	0.46	3.00	1.69
black surfperch, all	10/3/2011	8	8	8.25	1.58	1.88	0.35	3.88	1.96
black surfperch, juvenile	10/3/2011	8	4	9.00	1.41	0.88	0.99	0.88	0.99
blackeye goby	10/3/2011	8	8	9.88	0.35	2.38	0.52	10.00	4.96
blacksmith, all	10/3/2011	8	6	8.50	1.97	2.00	1.31	8.38	5.73
blacksmith, juvenile	10/3/2011	8	6	8.50	1.97	2.00	1.31	8.38	5.73
blue rockfish, adult	10/3/2011	8	8	9.88	0.35	3.00	0.00	47.75	32.74
blue rockfish, all	10/3/2011	8	8	9.88	0.35	3.25	0.46	85.25	32.40
blue rockfish, juvenile	10/3/2011	8	8	9.75	0.46	3.00	0.00	38.25	12.65
cabezon, adult	10/3/2011	8	5	9.40	0.55	1.40	0.55	1.40	0.55
California sheephead, female	10/3/2011	8	8	9.38	0.92	1.63	0.52	1.88	0.99
California sheephead, male	10/3/2011	8	8	7.88	1.96	1.00	0.00	1.00	0.00
coralline sculpin	10/3/2011	8	4	6.75	2.22	1.25	0.50	1.25	0.50
giant black sea bass, adult	10/3/2011	8	1	5.00		1.00		1.00	
giant kelpfish, juvenile	10/3/2011	8	1	6.00		1.00		1.00	
gopher rockfish, juvenile	10/3/2011	8	1	6.00		1.00		1.00	
kelp bass, adult	10/3/2011	8	1	5.00		0.13	0.35	0.13	0.35
kelp bass, all	10/3/2011	8	1	5.00		0.13	0.35	0.13	0.35
kelp rockfish, adult	10/3/2011	8	8	9.75	0.46	3.00	0.00	38.38	7.01
kelp rockfish, all	10/3/2011	8	8	9.88	0.35	3.00	0.00	47.38	6.63
kelp rockfish, juvenile	10/3/2011	8	8	9.38	0.74	2.25	0.46	9.00	3.89
kelp surfperch	10/3/2011	8	7	8.43	1.40	2.00	0.58	4.00	3.37
kelpfish spp.	10/3/2011	8	2	8.00	1.41	2.00	0.00	3.00	0.00
KGB	10/3/2011	8	4	9.50	0.58	2.50	0.58	10.50	7.55
lingcod, adult	10/3/2011	8	6	9.00	1.10	1.67	0.52	2.33	1.21
olive rockfish, adult	10/3/2011	8	8	9.25	0.89	2.88	0.35	21.38	7.42
olive rockfish, all	10/3/2011	8	8	9.25	0.89	2.88	0.35	31.13	10.34
olive/yellowtail rockfish, juvenile	10/3/2011	8	7	8.43	1.27	2.25	1.04	9.75	4.77
opaleye, adult	10/3/2011	8	2	5.50	0.71	0.25	0.46	0.25	0.46
painted greenling	10/3/2011	8	8	9.63	0.74	2.75	0.46	15.25	6.88
pile perch, adult	10/3/2011	8	7	6.86	1.07	1.50	0.76	2.38	1.77
pile perch, all	10/3/2011	8	8	6.75	1.04	1.63	0.52	2.50	1.60
pile perch, juvenile	10/3/2011	8	1	6.00		0.13	0.35	0.13	0.35
rubberlip surfperch	10/3/2011	8	1	7.00		2.00		2.00	
sculpin spp.	10/3/2011	8	1	8.00		1.00		1.00	
seporita, adult	10/3/2011	8	1	6.00		0.25	0.71	1.25	3.54
seporita, all	10/3/2011	8	1	6.00		0.25	0.71	1.25	3.54
striped surfperch, adult	10/3/2011	8	8	10.00	0.00	2.25	0.46	7.63	3.74
striped surfperch, all	10/3/2011	8	8	10.00	0.00	2.50	0.53	10.63	2.97
striped surfperch, juvenile	10/3/2011	8	6	8.33	1.63	1.38	0.92	3.00	2.67
treefish, juvenile	10/3/2011	8	5	7.40	1.82	0.88	0.83	1.25	1.49

2011 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	7/27/2011	5	5	9.40	0.55	1.80	0.45	5.20	3.27
black and yellow/gopher rockfish, juvenile	7/27/2011	5	3	6.67	2.08	2.00	0.00	4.67	2.08
black rockfish, adult	7/27/2011	5	3	7.33	1.53	1.33	0.58	1.33	0.58
black surfperch, adult	7/27/2011	5	5	10.00	0.00	2.20	0.45	8.40	3.85
black surfperch, all	7/27/2011	5	5	10.00	0.00	2.40	0.55	8.80	3.96
black surfperch, juvenile	7/27/2011	5	2	10.00	0.00	0.40	0.55	0.40	0.55
blackeye goby	7/27/2011	5	5	8.60	1.34	2.20	0.45	8.80	10.89
blacksmith, adult	7/27/2011	5	5	8.80	1.30	3.00	0.00	24.60	8.44
blacksmith, all	7/27/2011	5	5	8.80	1.30	3.00	0.00	24.60	8.44
blue rockfish, adult	7/27/2011	5	5	10.00	0.00	3.00	0.00	33.20	4.76
blue rockfish, all	7/27/2011	5	5	10.00	0.00	3.40	0.55	98.80	20.22
blue rockfish, juvenile	7/27/2011	5	5	9.80	0.45	3.00	0.00	65.60	18.37
bocaccio, juvenile	7/27/2011	5	3	7.00	2.00	2.00	0.00	4.00	1.00
cabezon, adult	7/27/2011	5	2	8.00	1.41	1.50	0.71	2.00	1.41
California sheephead, female	7/27/2011	5	5	9.40	0.89	2.40	0.55	7.40	4.56
California sheephead, male	7/27/2011	5	5	9.40	0.89	2.20	0.45	6.20	3.03
kelp bass, adult	7/27/2011	5	5	7.60	2.07	1.60	0.55	2.00	1.22
kelp bass, all	7/27/2011	5	5	7.60	2.07	1.60	0.55	2.00	1.22
kelp rockfish, adult	7/27/2011	5	5	10.00	0.00	3.00	0.00	33.80	6.83
kelp rockfish, all	7/27/2011	5	5	10.00	0.00	3.00	0.00	33.80	6.83
kelp surfperch	7/27/2011	5	3	9.00	1.00	2.00	0.00	2.33	0.58
kelpfish spp.	7/27/2011	5	1	5.00		1.00		1.00	
KGB	7/27/2011	5	4	7.75	2.06	2.00	0.00	5.50	1.29
lingcod, adult	7/27/2011	5	3	8.00	1.73	1.00	0.00	1.00	0.00
olive rockfish, adult	7/27/2011	5	5	9.80	0.45	2.80	0.45	29.80	11.95
olive rockfish, all	7/27/2011	5	5	9.80	0.45	3.00	0.00	38.60	18.06
olive/yellowtail rockfish, juvenile	7/27/2011	5	5	8.20	1.79	2.00	0.71	8.80	13.10
opaleye, adult	7/27/2011	5	5	8.40	1.52	2.20	0.45	9.40	10.60
painted greenling	7/27/2011	5	5	9.80	0.45	2.80	0.45	19.80	7.12
pile perch, adult	7/27/2011	5	5	8.60	1.95	1.80	0.45	5.40	3.21
pile perch, all	7/27/2011	5	5	8.60	1.95	1.80	0.45	5.40	3.21
rainbow surfperch	7/27/2011	5	3	8.33	1.15	1.67	0.58	1.67	0.58
rubberlip surfperch	7/27/2011	5	4	7.25	1.26	2.00	0.00	4.25	1.71
seporita, adult	7/27/2011	5	5	10.00	0.00	3.60	0.55	110.40	36.65
seporita, all	7/27/2011	5	5	10.00	0.00	3.60	0.55	110.40	36.65
snubnose sculpin	7/27/2011	5	1	8.00		1.00		1.00	
striped surfperch, adult	7/27/2011	5	5	9.80	0.45	2.80	0.45	13.20	4.44
striped surfperch, all	7/27/2011	5	5	9.80	0.45	3.00	0.00	20.00	5.05
striped surfperch, juvenile	7/27/2011	5	5	9.60	0.89	2.20	0.45	6.80	2.49
tubesnout, adult	7/27/2011	5	3	6.67	1.53	1.67	1.15	29.00	48.50

2011 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 surfperch, adult	5/20/2011	5	5	10.00	0.00	3.00	0.00	46.00	14.21
black surfperch, all	5/20/2011	5	5	10.00	0.00	3.00	0.00	46.00	14.21
blackeye goby	5/20/2011	5	5	9.60	0.55	2.80	0.45	22.60	14.24
blacksmith, adult	5/20/2011	5	5	9.80	0.45	4.00	0.00	463.80	149.39
blacksmith, all	5/20/2011	5	5	9.80	0.45	4.00	0.00	463.80	149.39
blue rockfish, adult	5/20/2011	5	5	8.80	1.30	2.80	0.45	16.20	12.11
blue rockfish, all	5/20/2011	5	5	9.40	0.55	2.80	0.45	20.00	14.05
blue rockfish, juvenile	5/20/2011	5	5	8.40	0.89	1.80	0.45	3.80	2.28
blue-banded goby	5/20/2011	5	4	8.00	1.41	1.40	0.89	2.00	1.58
cabezon, adult	5/20/2011	5	2	8.50	2.12	1.50	0.71	2.00	1.41
California sheephead, female	5/20/2011	5	5	9.80	0.45	2.20	0.45	10.40	6.58
California sheephead, male	5/20/2011	5	1	9.00		0.20	0.45	0.20	0.45
coralline sculpin	5/20/2011	5	3	8.67	1.15	1.00	0.00	1.00	0.00
garibaldi, adult	5/20/2011	5	5	10.00	0.00	3.00	0.00	20.80	6.83
gopher rockfish, adult	5/20/2011	5	2	8.00	2.83	1.00	0.00	1.00	0.00
halfmoon, adult	5/20/2011	5	4	7.00	0.82	1.75	0.50	3.00	2.71
horn shark	5/20/2011	5	1	5.00		1.00		1.00	
island kelpfish	5/20/2011	5	1	10.00		0.40	0.89	0.40	0.89
kelp bass, adult	5/20/2011	5	5	9.20	1.10	2.40	0.55	8.80	4.32
kelp bass, all	5/20/2011	5	5	9.20	1.10	2.40	0.55	8.80	4.32
kelp rockfish, adult	5/20/2011	5	4	9.25	0.96	1.60	0.89	3.20	2.77
kelp rockfish, all	5/20/2011	5	4	9.25	0.96	1.60	0.89	3.20	2.77
larval fish spp.	5/20/2011	5	1	6.00		3.00		100.00	
lingcod, adult	5/20/2011	5	4	8.00	1.63	1.50	0.58	1.50	0.58
olive rockfish, adult	5/20/2011	5	1	10.00		0.20	0.45	0.20	0.45
olive rockfish, all	5/20/2011	5	1	10.00		0.20	0.45	0.20	0.45
opaleye, adult	5/20/2011	5	4	7.75	0.96	1.40	0.89	2.40	2.30
painted greenling	5/20/2011	5	5	10.00	0.00	3.00	0.00	29.80	10.89
pile perch, adult	5/20/2011	5	5	10.00	0.00	2.60	0.55	13.60	9.89
pile perch, all	5/20/2011	5	5	10.00	0.00	2.60	0.55	13.60	9.89
plainfin midshipman	5/20/2011	5	1	10.00		1.00		1.00	
rubberlip surfperch	5/20/2011	5	4	8.00	1.15	1.75	0.50	2.00	0.82
seporita, adult	5/20/2011	5	5	9.60	0.89	4.00	0.00	134.00	20.94
seporita, all	5/20/2011	5	5	9.60	0.89	4.00	0.00	134.00	20.94
striped surfperch, adult	5/20/2011	5	1	9.00		0.20	0.45	0.20	0.45
striped surfperch, all	5/20/2011	5	1	9.00		0.20	0.45	0.20	0.45
swell shark	5/20/2011	5	1	8.00		1.00		1.00	
treefish, adult	5/20/2011	5	5	8.80	1.30	2.00	0.00	2.60	0.89
zebra goby	5/20/2011	5	1	9.00		1.00		1.00	

2011 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 surfperch, adult	8/30/2011	7	7	10.00	0.00	2.86	0.38	21.57	7.79
black surfperch, all	8/30/2011	7	7	10.00	0.00	3.00	0.00	24.86	7.06
black surfperch, juvenile	8/30/2011	7	6	8.67	1.21	1.71	0.76	3.29	1.98
blackeye goby	8/30/2011	7	7	10.00	0.00	3.43	0.53	106.29	41.21
blacksmith, adult	8/30/2011	7	7	7.86	1.57	3.71	0.49	130.86	65.57
blacksmith, all	8/30/2011	7	7	9.00	1.41	3.71	0.49	133.57	66.19
blacksmith, juvenile	8/30/2011	7	6	9.00	1.55	1.71	0.76	2.71	1.80
blue rockfish, adult	8/30/2011	7	6	7.50	1.87	1.57	0.79	3.57	2.82
blue rockfish, all	8/30/2011	7	7	8.29	1.25	2.43	0.53	10.71	2.87
blue rockfish, juvenile	8/30/2011	7	6	7.67	1.03	1.71	0.76	7.14	3.34
blue-banded goby	8/30/2011	7	3	6.67	2.08	0.71	0.95	1.00	1.53
brown rockfish, adult	8/30/2011	7	6	8.50	1.38	1.17	0.41	1.17	0.41
cabezon, adult	8/30/2011	7	4	6.75	0.50	1.25	0.50	1.50	1.00
California sheephead, female	8/30/2011	7	7	9.86	0.38	2.14	0.38	9.29	2.93
California sheephead, male	8/30/2011	7	3	8.67	1.15	0.71	0.95	0.71	0.95
copper rockfish, juvenile	8/30/2011	7	2	6.00	0.00	1.50	0.71	1.50	0.71
coralline sculpin	8/30/2011	7	1	9.00		1.00		1.00	
garibaldi, adult	8/30/2011	7	7	8.86	1.21	2.14	0.38	7.57	2.30
gopher rockfish, adult	8/30/2011	7	6	7.00	1.41	1.17	0.41	1.33	0.82
halfmoon, adult	8/30/2011	7	6	8.33	1.51	2.17	0.75	11.17	15.03
kelp bass, adult	8/30/2011	7	7	9.86	0.38	2.71	0.49	20.43	8.90
kelp bass, all	8/30/2011	7	7	9.86	0.38	2.71	0.49	20.43	8.90
KGB	8/30/2011	7	5	6.20	1.10	1.40	0.55	1.80	1.10
lingcod, adult	8/30/2011	7	5	9.00	1.22	2.00	0.00	2.20	0.45
ocean whitefish, adult	8/30/2011	7	2	6.00	0.00	2.00	0.00	2.00	0.00
olive rockfish, adult	8/30/2011	7	4	7.25	1.26	1.00	1.00	1.57	1.72
olive rockfish, all	8/30/2011	7	4	7.25	1.26	1.00	1.00	1.57	1.72
opaleye, adult	8/30/2011	7	5	8.60	1.52	1.57	1.27	8.00	9.47
painted greenling	8/30/2011	7	7	10.00	0.00	3.00	0.00	26.29	9.71
pile perch, adult	8/30/2011	7	7	9.71	0.76	2.00	0.00	5.00	1.83
pile perch, all	8/30/2011	7	7	9.71	0.76	2.00	0.00	5.00	1.83
rock wrasse, female	8/30/2011	7	5	9.60	0.55	1.29	0.95	1.43	1.13
rock wrasse, male	8/30/2011	7	5	8.60	1.52	1.14	0.90	1.14	0.90
rubberlip surfperch	8/30/2011	7	7	9.14	0.90	1.71	0.49	4.14	2.91
sculpin spp.	8/30/2011	7	1	8.00		1.00		1.00	
seporita, adult	8/30/2011	7	7	8.71	1.25	2.43	0.79	12.29	7.06
seporita, all	8/30/2011	7	7	8.71	1.25	2.43	0.79	12.29	7.06
snubnose sculpin	8/30/2011	7	1	7.00		2.00		2.00	
treefish, adult	8/30/2011	7	7	8.14	1.21	1.43	0.53	1.71	1.11

2011 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	6/28/2011	5	2	8.50	0.71	1.50	0.71	1.50	0.71
black rockfish, adult	6/28/2011	5	1	8.00		1.00		1.00	
black surfperch, adult	6/28/2011	5	5	10.00	0.00	3.00	0.00	24.00	6.44
black surfperch, all	6/28/2011	5	5	10.00	0.00	3.00	0.00	24.80	6.61
black surfperch, juvenile	6/28/2011	5	3	8.00	2.00	0.80	0.84	0.80	0.84
blackeye goby	6/28/2011	5	5	9.80	0.45	2.60	0.55	22.40	18.06
blacksmith, adult	6/28/2011	5	5	10.00	0.00	4.00	0.00	161.00	81.24
blacksmith, all	6/28/2011	5	5	10.00	0.00	4.00	0.00	161.00	81.24
blue rockfish, adult	6/28/2011	5	5	9.80	0.45	2.60	0.55	15.00	8.46
blue rockfish, all	6/28/2011	5	5	9.80	0.45	3.00	0.00	33.80	12.64
blue rockfish, juvenile	6/28/2011	5	5	8.20	1.64	3.00	0.00	18.80	7.16
blue-banded goby	6/28/2011	5	2	7.00	0.00	0.60	0.89	0.60	0.89
bocaccio, juvenile	6/28/2011	5	1	9.00		3.00		30.00	
cabezon, adult	6/28/2011	5	1	7.00		1.00		1.00	
California sheephead, female	6/28/2011	5	5	9.80	0.45	2.40	0.55	9.20	3.35
California sheephead, male	6/28/2011	5	5	7.20	1.79	1.00	0.00	1.00	0.00
copper rockfish, adult	6/28/2011	5	1	7.00		1.00		1.00	
copper rockfish, juvenile	6/28/2011	5	3	8.33	0.58	1.67	0.58	3.33	3.21
coralline sculpin	6/28/2011	5	1	5.00		1.00		1.00	
garibaldi, adult	6/28/2011	5	5	9.40	0.89	2.20	0.45	8.20	2.28
gopher rockfish, adult	6/28/2011	5	3	8.33	1.15	1.67	0.58	3.00	2.00
horn shark	6/28/2011	5	2	10.00	0.00	1.50	0.71	1.50	0.71
island kelpfish	6/28/2011	5	2	7.00	0.00	0.60	0.89	0.60	0.89
kelp bass, adult	6/28/2011	5	5	9.80	0.45	1.80	0.45	3.20	1.30
kelp bass, all	6/28/2011	5	5	9.80	0.45	1.80	0.45	3.20	1.30
kelp rockfish, adult	6/28/2011	5	5	9.60	0.55	2.00	0.00	4.60	2.07
kelp rockfish, all	6/28/2011	5	5	9.60	0.55	2.00	0.00	5.20	2.17
kelp rockfish, juvenile	6/28/2011	5	2	7.50	3.54	0.60	0.89	0.60	0.89
kelp surfperch	6/28/2011	5	2	10.00	0.00	2.00	0.00	7.00	1.41
KGB	6/28/2011	5	4	8.50	1.73	2.50	0.58	13.25	14.22
larval fish spp.	6/28/2011	5	2	8.00	2.83	3.50	0.71	162.50	194.45
lingcod, adult	6/28/2011	5	2	7.50	2.12	1.00	0.00	1.00	0.00
ocean whitefish, adult	6/28/2011	5	2	9.00	0.00	2.00	0.00	2.00	0.00
olive rockfish, adult	6/28/2011	5	5	10.00	0.00	2.20	0.45	5.80	3.83
olive rockfish, all	6/28/2011	5	5	10.00	0.00	2.40	0.55	18.60	24.49
olive/yellowtail rockfish, juvenile	6/28/2011	5	5	7.60	1.82	2.00	0.71	12.80	20.87
opaleye, adult	6/28/2011	5	4	7.75	2.06	1.60	1.14	14.00	24.85
painted greenling	6/28/2011	5	5	9.60	0.55	3.00	0.00	36.00	14.70
pile perch, adult	6/28/2011	5	5	9.60	0.89	3.00	0.00	21.00	5.39
pile perch, all	6/28/2011	5	5	9.60	0.89	3.00	0.00	21.00	5.39
rock wrasse, female	6/28/2011	5	3	7.67	0.58	0.80	0.84	0.80	0.84
rock wrasse, male	6/28/2011	5	5	8.20	1.48	1.00	0.00	1.00	0.00
rubberlip surfperch	6/28/2011	5	4	7.50	2.08	1.50	0.58	2.75	2.36
seporita, adult	6/28/2011	5	5	10.00	0.00	2.40	0.89	15.60	12.97
seporita, all	6/28/2011	5	5	10.00	0.00	2.40	0.89	15.60	12.97
sharpnose surfperch	6/28/2011	5	3	8.67	1.15	2.00	1.00	14.33	22.23
snubnose sculpin	6/28/2011	5	1	8.00		2.00		2.00	
surfperch spp.	6/28/2011	5	2	8.50	2.12	2.00	1.41	15.50	20.51
treefish, adult	6/28/2011	5	5	8.80	1.10	1.80	0.45	3.20	1.48
treefish, juvenile	6/28/2011	5	3	8.67	1.53	0.60	0.55	0.60	0.55
tubesnout, adult	6/28/2011	5	2	5.00	0.00	2.50	0.71	9.50	6.36

2011 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
black and yellow rockfish, adult	6/27/2011	5	5	7.00	0.00	1.60	0.55	1.60	0.55
black surfperch, adult	6/27/2011	5	5	10.00	0.00	2.80	0.45	14.00	3.81
black surfperch, all	6/27/2011	5	5	10.00	0.00	2.80	0.45	14.00	3.81
blackeye goby	6/27/2011	5	5	10.00	0.00	4.00	0.00	286.20	94.49
blacksmith, adult	6/27/2011	5	5	10.00	0.00	4.00	0.00	281.20	129.94
blacksmith, all	6/27/2011	5	5	10.00	0.00	4.00	0.00	281.20	129.94
blue rockfish, adult	6/27/2011	5	5	8.20	2.17	2.80	0.45	21.00	9.57
blue rockfish, all	6/27/2011	5	5	9.40	1.34	2.80	0.45	24.20	11.05
blue rockfish, juvenile	6/27/2011	5	4	9.75	0.50	1.40	0.89	3.20	2.59
blue-banded goby	6/27/2011	5	5	8.20	1.10	2.20	0.45	6.60	3.85
brown rockfish, juvenile	6/27/2011	5	1	6.00		1.00		1.00	
California sheephead, female	6/27/2011	5	5	10.00	0.00	2.60	0.55	10.20	1.64
copper rockfish, juvenile	6/27/2011	5	3	7.33	1.53	1.00	0.00	1.00	0.00
garibaldi, adult	6/27/2011	5	5	10.00	0.00	3.00	0.00	14.60	2.70
gopher rockfish, adult	6/27/2011	5	1	9.00		1.00		1.00	
horn shark	6/27/2011	5	4	7.25	1.50	1.00	0.00	1.00	0.00
kelp bass, adult	6/27/2011	5	5	8.80	1.10	2.20	0.45	6.60	3.91
kelp bass, all	6/27/2011	5	5	8.80	1.10	2.20	0.45	6.60	3.91
kelp rockfish, adult	6/27/2011	5	5	9.20	0.84	2.40	0.55	9.20	3.11
kelp rockfish, all	6/27/2011	5	5	9.20	0.84	2.40	0.55	9.20	3.11
KGB	6/27/2011	5	3	7.67	1.53	1.67	0.58	2.00	1.00
olive rockfish, adult	6/27/2011	5	4	8.25	1.26	1.20	0.84	1.20	0.84
olive rockfish, all	6/27/2011	5	4	8.25	1.26	1.20	0.84	1.20	0.84
opaleye, adult	6/27/2011	5	2	7.50	3.54	0.40	0.55	0.40	0.55
painted greenling	6/27/2011	5	5	10.00	0.00	3.00	0.00	58.80	16.53
pile perch, adult	6/27/2011	5	4	8.00	1.41	1.60	0.89	2.00	1.22
pile perch, all	6/27/2011	5	4	8.00	1.41	1.60	0.89	2.00	1.22
rock wrasse, female	6/27/2011	5	3	6.67	0.58	0.80	0.84	0.80	0.84
rock wrasse, male	6/27/2011	5	4	7.00	0.82	1.40	0.89	1.40	0.89
seporita, adult	6/27/2011	5	5	10.00	0.00	3.00	0.00	26.40	8.11
seporita, all	6/27/2011	5	5	10.00	0.00	3.00	0.00	26.40	8.11
treefish, adult	6/27/2011	5	5	8.40	1.82	2.00	0.00	6.40	2.97

2011 ROVING DIVER FISH COUNT

Santa Cruz Island - Pedro Reef

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
bat ray	6/29/2011	4	2	7.00	1.41	1.50	0.71	3.00	2.83
black and yellow/gopher rockfish, juvenile	6/29/2011	4	1	10.00		2.00		7.00	
black surfperch, adult	6/29/2011	4	4	7.75	0.50	1.50	0.58	2.50	1.91
black surfperch, all	6/29/2011	4	4	7.75	0.50	1.50	0.58	2.50	1.91
blackeye goby	6/29/2011	4	4	10.00	0.00	4.00	0.00	258.50	51.24
blacksmith, adult	6/29/2011	4	4	9.00	0.82	4.00	0.00	158.00	23.42
blacksmith, all	6/29/2011	4	4	9.00	0.82	4.00	0.00	158.00	23.42
blue rockfish, all	6/29/2011	4	3	8.00	1.00	1.25	0.96	1.25	0.96
blue rockfish, juvenile	6/29/2011	4	3	8.00	1.00	1.25	0.96	1.25	0.96
cabezon, adult	6/29/2011	4	2	9.00	1.41	2.00	0.00	2.00	0.00
California sheephead, female	6/29/2011	4	4	9.25	0.96	3.00	0.00	15.00	4.00
garibaldi, adult	6/29/2011	4	4	6.75	0.50	1.25	0.50	1.25	0.50
halfmoon, adult	6/29/2011	4	4	7.00	0.82	1.50	0.58	3.00	3.37
kelp bass, adult	6/29/2011	4	4	8.75	0.96	2.00	0.00	5.50	2.52
kelp bass, all	6/29/2011	4	4	8.75	0.96	2.00	0.00	5.50	2.52
KGB	6/29/2011	4	3	10.00	0.00	1.67	0.58	2.33	1.15
opaleye, adult	6/29/2011	4	3	7.33	0.58	1.50	1.00	2.00	1.41
painted greenling	6/29/2011	4	4	10.00	0.00	3.00	0.00	40.25	10.37
pile perch, adult	6/29/2011	4	4	9.00	0.82	2.25	0.50	6.00	3.74
pile perch, all	6/29/2011	4	4	9.00	0.82	2.25	0.50	6.00	3.74
seporita, adult	6/29/2011	4	4	10.00	0.00	3.50	0.58	122.00	46.20
seporita, all	6/29/2011	4	4	10.00	0.00	3.75	0.50	129.50	46.80
seporita, juvenile	6/29/2011	4	3	7.67	2.08	1.75	1.26	7.50	7.72
speckled sanddab	6/29/2011	4	2	10.00	0.00	1.50	0.71	1.50	0.71
vermillion rockfish, juvenile	6/29/2011	4	1	7.00		1.00		1.00	

2011 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 and yellow/gopher rockfish, juvenile	6/30/2011	5	1	9.00		2.00		2.00	
black surfperch, adult	6/30/2011	5	5	9.00	1.22	2.00	0.00	3.40	1.34
black surfperch, all	6/30/2011	5	5	9.00	1.22	2.00	0.00	3.60	1.67
black surfperch, juvenile	6/30/2011	5	1	8.00		0.20	0.45	0.20	0.45
blackeye goby	6/30/2011	5	5	10.00	0.00	4.00	0.00	404.20	229.41
blacksmith, adult	6/30/2011	5	5	10.00	0.00	4.00	0.00	196.00	41.25
blacksmith, all	6/30/2011	5	5	10.00	0.00	4.00	0.00	196.00	41.25
blue rockfish, adult	6/30/2011	5	5	9.40	0.89	2.80	0.45	13.40	4.93
blue rockfish, all	6/30/2011	5	5	9.40	0.89	2.80	0.45	15.00	5.15
blue rockfish, juvenile	6/30/2011	5	4	8.50	1.29	1.40	0.89	1.60	1.14
blue-banded goby	6/30/2011	5	4	8.25	1.71	1.60	0.89	4.20	2.59
California moray eel	6/30/2011	5	1	6.00		1.00		1.00	
California scorpionfish, adult	6/30/2011	5	1	7.00		1.00		1.00	
California sheephead, female	6/30/2011	5	5	8.40	2.07	1.80	0.45	5.00	2.65
garibaldi, adult	6/30/2011	5	5	9.40	1.34	2.00	0.00	6.00	1.87
halfmoon, adult	6/30/2011	5	1	10.00		1.00		1.00	
island kelpfish	6/30/2011	5	5	7.40	1.82	1.60	0.55	2.60	2.07
kelp bass, adult	6/30/2011	5	5	9.60	0.55	1.80	0.45	2.60	1.14
kelp bass, all	6/30/2011	5	5	9.60	0.55	1.80	0.45	2.60	1.14
kelp rockfish, adult	6/30/2011	5	4	8.50	1.29	1.40	0.89	2.00	1.58
kelp rockfish, all	6/30/2011	5	4	8.50	1.29	1.40	0.89	2.00	1.58
KGB	6/30/2011	5	3	7.67	2.08	1.00	0.00	1.00	0.00
painted greenling	6/30/2011	5	5	10.00	0.00	3.00	0.00	40.60	12.38
rock wrasse, female	6/30/2011	5	5	9.60	0.55	2.20	0.45	5.60	3.21
rock wrasse, male	6/30/2011	5	5	8.40	2.07	1.60	0.55	2.80	1.79
seporita, adult	6/30/2011	5	3	10.00	0.00	1.20	1.10	3.20	4.15
seporita, all	6/30/2011	5	3	10.00	0.00	1.20	1.10	3.20	4.15
treefish, adult	6/30/2011	5	3	6.67	2.89	0.80	0.84	0.80	0.84
zebra goby	6/30/2011	5	5	7.20	1.10	1.80	0.45	2.60	1.52

2011 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	5/31/2011	6	2	7.00	0.00	1.00	0.00	1.00	0.00
blackeye goby	5/31/2011	6	6	10.00	0.00	3.50	0.55	96.50	25.42
blacksmith, adult	5/31/2011	6	6	8.67	1.03	2.00	0.00	3.00	1.67
blacksmith, all	5/31/2011	6	6	8.67	1.03	2.00	0.00	3.00	1.67
blue rockfish, adult	5/31/2011	6	4	9.50	1.00	1.17	0.98	1.67	1.63
blue rockfish, all	5/31/2011	6	6	9.00	1.67	1.67	0.52	2.50	1.52
blue rockfish, juvenile	5/31/2011	6	5	7.80	2.05	0.83	0.41	0.83	0.41
cabezon, adult	5/31/2011	6	1	8.00		1.00		1.00	
California sheephead, female	5/31/2011	6	6	8.50	1.05	2.17	0.41	7.00	4.15
coralline sculpin	5/31/2011	6	1	7.00		1.00		1.00	
garibaldi, adult	5/31/2011	6	6	9.83	0.41	2.83	0.41	13.67	2.73
gopher rockfish, juvenile	5/31/2011	6	1	5.00		1.00		1.00	
kelp bass, adult	5/31/2011	6	6	7.67	1.21	1.67	0.52	2.00	0.89
kelp bass, all	5/31/2011	6	6	7.67	1.21	1.67	0.52	2.00	0.89
kelp rockfish, adult	5/31/2011	6	5	7.60	0.55	1.67	0.82	2.50	1.38
kelp rockfish, all	5/31/2011	6	5	7.60	0.55	1.67	0.82	2.50	1.38
KGB	5/31/2011	6	4	7.75	2.63	1.50	0.58	2.50	1.91
larval fish spp.	5/31/2011	6	2	9.50	0.71	3.00	0.00	57.50	24.75
lingcod, adult	5/31/2011	6	4	7.00	0.82	2.00	0.00	2.00	0.00
opaleye, adult	5/31/2011	6	5	7.40	0.89	1.33	0.82	1.33	0.82
painted greenling	5/31/2011	6	6	10.00	0.00	3.00	0.00	24.00	3.52
scalyhead sculpin	5/31/2011	6	1	5.00		1.00		1.00	
speckled sanddab	5/31/2011	6	1	8.00		1.00		1.00	
stripetail rockfish, juvenile	5/31/2011	6	2	5.50	0.71	1.50	0.71	2.00	1.41

2011 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
black and yellow rockfish, adult	7/14/2011	4	1	7.00		1.00		1.00	
black surfperch, adult	7/14/2011	4	4	9.50	1.00	1.75	0.50	3.75	2.50
black surfperch, all	7/14/2011	4	4	9.50	1.00	1.75	0.50	3.75	2.50
blackeye goby	7/14/2011	4	4	10.00	0.00	4.00	0.00	477.50	150.91
blacksmith, adult	7/14/2011	4	4	10.00	0.00	4.00	0.00	235.75	63.57
blacksmith, all	7/14/2011	4	4	10.00	0.00	4.00	0.00	235.75	63.57
blue rockfish, adult	7/14/2011	4	4	10.00	0.00	2.75	0.50	14.00	2.83
blue rockfish, all	7/14/2011	4	4	10.00	0.00	3.00	0.00	29.75	2.63
blue rockfish, juvenile	7/14/2011	4	4	10.00	0.00	3.00	0.00	15.75	3.86
blue-banded goby	7/14/2011	4	4	9.75	0.50	2.25	0.50	11.00	3.37
calico rockfish, juvenile	7/14/2011	4	2	9.00	0.00	1.00	0.00	1.00	0.00
California sheephead, female	7/14/2011	4	4	10.00	0.00	3.00	0.00	18.50	8.35
California sheephead, male	7/14/2011	4	4	9.50	1.00	1.75	0.50	3.25	2.06
copper rockfish, adult	7/14/2011	4	2	9.50	0.71	1.00	1.00	1.00	1.00
copper rockfish, juvenile	7/14/2011	4	3	8.00	2.65	1.67	0.58	3.33	2.08
garibaldi, adult	7/14/2011	4	4	9.50	0.58	2.00	0.00	6.00	1.41
giant black sea bass, adult	7/14/2011	4	1	10.00		1.00		1.00	
gopher rockfish, adult	7/14/2011	4	1	9.00		1.00		1.00	
island kelpfish	7/14/2011	4	4	7.75	0.50	1.75	0.50	3.25	1.71
kelp bass, adult	7/14/2011	4	4	10.00	0.00	3.00	0.00	37.75	6.95
kelp bass, all	7/14/2011	4	4	10.00	0.00	3.00	0.00	37.75	6.95
kelp rockfish, adult	7/14/2011	4	4	9.25	0.50	1.75	0.50	3.50	2.38
kelp rockfish, all	7/14/2011	4	4	9.25	0.50	1.75	0.50	3.50	2.38
KGB	7/14/2011	4	4	7.00	0.82	1.75	0.50	2.75	1.71
ocean whitefish, adult	7/14/2011	4	3	9.00	0.00	2.00	0.00	2.33	0.58
opaleye, adult	7/14/2011	4	4	7.75	2.06	2.00	0.00	3.25	0.96
painted greenling	7/14/2011	4	4	10.00	0.00	3.00	0.00	43.50	24.47
pile perch, adult	7/14/2011	4	2	9.00	0.00	1.00	1.15	1.50	1.91
pile perch, all	7/14/2011	4	2	9.00	0.00	1.00	1.15	1.50	1.91
rock wrasse, female	7/14/2011	4	3	10.00	0.00	1.50	1.00	2.00	1.41
rock wrasse, male	7/14/2011	4	3	8.33	1.53	1.00	0.82	1.00	0.82
seporita, adult	7/14/2011	4	4	9.75	0.50	2.50	0.58	15.00	15.68
seporita, all	7/14/2011	4	4	9.75	0.50	2.50	0.58	15.00	15.68
stripetail rockfish, juvenile	7/14/2011	4	4	7.25	0.96	1.75	0.50	6.00	3.74
treefish, adult	7/14/2011	4	4	9.50	1.00	2.00	0.00	2.75	1.50
treefish, juvenile	7/14/2011	4	4	9.00	0.82	2.00	0.00	3.25	1.50
zebra goby	7/14/2011	4	4	7.50	1.91	1.75	0.50	1.75	0.50

2011 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	10/7/2011	5	4	6.00	0.82	1.00	0.00	1.00	0.00
black surfperch, adult	10/7/2011	5	4	8.50	1.29	1.00	0.71	1.40	1.52
black surfperch, all	10/7/2011	5	4	8.50	1.29	1.00	0.71	1.40	1.52
blackeye goby	10/7/2011	5	5	10.00	0.00	3.00	0.00	48.00	9.54
blacksmith, adult	10/7/2011	5	5	10.00	0.00	3.00	0.71	64.20	55.07
blacksmith, all	10/7/2011	5	5	10.00	0.00	3.20	0.45	89.80	60.69
blacksmith, juvenile	10/7/2011	5	5	9.60	0.89	3.00	0.00	25.60	9.66
blue rockfish, adult	10/7/2011	5	5	7.80	1.48	1.80	0.84	4.00	4.12
blue rockfish, all	10/7/2011	5	5	7.80	1.48	2.00	0.71	4.20	3.96
blue rockfish, juvenile	10/7/2011	5	1	10.00		0.20	0.45	0.20	0.45
cabezon, adult	10/7/2011	5	5	8.40	1.14	1.40	0.55	1.80	1.30
California scorpionfish, adult	10/7/2011	5	1	6.00		1.00		1.00	
California sheephead, female	10/7/2011	5	5	9.20	1.79	2.00	0.00	5.40	2.79
c-o turbot	10/7/2011	5	3	8.67	0.58	1.00	0.00	1.00	0.00
coralline sculpin	10/7/2011	5	1	10.00		1.00		1.00	
garibaldi, adult	10/7/2011	5	5	9.60	0.55	2.20	0.45	9.60	2.51
halfmoon, adult	10/7/2011	5	5	8.00	1.00	2.40	0.55	17.00	20.33
kelp bass, adult	10/7/2011	5	5	10.00	0.00	2.80	0.45	25.40	10.14
kelp bass, all	10/7/2011	5	5	10.00	0.00	2.80	0.45	25.40	10.14
kelp rockfish, adult	10/7/2011	5	1	8.00		0.20	0.45	0.20	0.45
kelp rockfish, all	10/7/2011	5	1	8.00		0.20	0.45	0.20	0.45
ocean whitefish, adult	10/7/2011	5	3	8.67	1.15	1.67	0.58	2.67	1.53
opaleye, adult	10/7/2011	5	3	6.67	1.53	0.80	0.84	2.00	3.39
painted greenling	10/7/2011	5	5	9.80	0.45	3.00	0.00	14.80	4.71
pile perch, adult	10/7/2011	5	1	9.00		0.40	0.89	0.80	1.79
pile perch, all	10/7/2011	5	1	9.00		0.40	0.89	0.80	1.79
seporita, adult	10/7/2011	5	1	6.00		0.60	1.34	2.60	5.81
seporita, all	10/7/2011	5	1	6.00		0.60	1.34	2.60	5.81
treefish, adult	10/7/2011	5	1	7.00		0.20	0.45	0.20	0.45

2011 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	6/13/2011	6	5	9.50	0.84	1.83	0.41	4.20	0.84
black and yellow/gopher rockfish, juvenile	6/13/2011	6	1	8.00		2.00		2.00	
blackeye goby	6/13/2011	6	5	9.83	0.41	2.67	0.52	24.60	18.02
blacksmith, adult	6/13/2011	6	5	9.83	0.41	3.50	0.55	132.40	75.71
blacksmith, all	6/13/2011	6	5	9.83	0.41	3.50	0.55	132.40	75.71
blue rockfish, adult	6/13/2011	6	5	9.17	0.75	2.83	0.41	30.40	18.66
blue rockfish, all	6/13/2011	6	5	9.33	0.82	3.00	0.00	47.40	21.34
blue rockfish, juvenile	6/13/2011	6	5	9.20	0.84	2.17	1.17	17.00	12.08
cabezon, adult	6/13/2011	6	1	9.00		1.00		1.00	
California scorpionfish, adult	6/13/2011	6	1	8.00		1.00		1.00	
California sheephead, female	6/13/2011	6	5	10.00	0.00	3.00	0.00	29.60	8.02
California sheephead, male	6/13/2011	6	5	8.83	1.83	1.83	0.41	2.80	1.48
c-o turbot	6/13/2011	6	2	9.50	0.71	1.00	0.00	1.00	0.00
coralline sculpin	6/13/2011	6	2	6.50	2.12	1.00	0.00	1.00	0.00
garibaldi, adult	6/13/2011	6	5	9.67	0.52	2.00	0.00	5.40	0.55
gopher rockfish, adult	6/13/2011	6	2	7.67	0.58	1.33	0.58	2.00	1.41
gopher rockfish, juvenile	6/13/2011	6	1	8.00		1.00		1.00	
island kelpfish	6/13/2011	6	5	8.40	1.14	1.50	0.84	2.40	1.14
kelp bass, adult	6/13/2011	6	2	8.00	1.41	0.50	0.84	0.80	1.30
kelp bass, all	6/13/2011	6	2	8.00	1.41	0.50	0.84	0.80	1.30
kelp surfperch	6/13/2011	6	4	7.40	1.34	1.60	0.55	2.50	1.29
ocean whitefish, adult	6/13/2011	6	1	7.00		1.00		1.00	
olive rockfish, adult	6/13/2011	6	1	6.00		0.17	0.41	0.20	0.45
olive rockfish, all	6/13/2011	6	1	6.00		0.17	0.41	0.20	0.45
opaleye, adult	6/13/2011	6	5	7.83	1.94	2.00	0.00	4.20	2.49
painted greenling	6/13/2011	6	5	10.00	0.00	3.00	0.00	56.40	16.41
pile perch, adult	6/13/2011	6	1	6.00		0.17	0.41	0.20	0.45
pile perch, all	6/13/2011	6	1	6.00		0.17	0.41	0.20	0.45
seporita, adult	6/13/2011	6	5	9.67	0.52	3.00	0.00	53.00	22.87
seporita, all	6/13/2011	6	5	9.67	0.52	3.00	0.00	53.00	22.87
snubnose sculpin	6/13/2011	6	5	7.20	1.64	1.00	0.00	1.00	0.00
surfperch spp., juvenile	6/13/2011	6	1	7.00		1.00		1.00	
treefish, adult	6/13/2011	6	3	9.67	0.58	1.00	1.10	1.20	1.10
treefish, juvenile	6/13/2011	6	1	9.00		0.33	0.82	0.40	0.89

2011 ROVING DIVER FISH COUNT

Santa Barbara Island - Graveyard Canyon

Common Name	Date	Max # of Observers	# of Observations	Score		Abundance		Count	
				Avg	St Dev	Avg	St Dev	Avg	St Dev
blackeye goby	6/15/2011	7	6	10.00	0.00	3.00	0.00	56.67	20.35
bocaccio, juvenile	6/15/2011	7	2	10.00	0.00	1.00	0.00	1.00	0.00
California sheephead, female	6/15/2011	7	1	5.00		0.29	0.76	0.33	0.82
coralline sculpin	6/15/2011	7	2	7.50	0.71	1.50	0.71	1.50	0.71
island kelpfish	6/15/2011	7	2	8.67	1.53	0.43	0.53	0.33	0.52
KGB	6/15/2011	7	5	9.00	1.41	2.40	0.89	9.80	6.83
ocean whitefish, adult	6/15/2011	7	1	5.00		1.00		1.00	
olive rockfish, all	6/15/2011	7	2	6.00	0.00	0.29	0.49	0.33	0.52
olive/yellowtail rockfish, juvenile	6/15/2011	7	2	6.00	0.00	0.29	0.49	0.33	0.52
painted greenling	6/15/2011	7	4	7.25	0.96	0.71	0.76	1.00	1.10
rockfish spp., juvenile	6/15/2011	7	6	9.33	0.82	2.00	0.63	8.33	5.01
sculpin spp.	6/15/2011	7	1	7.00		1.00		1.00	
snubnose sculpin	6/15/2011	7	1	8.00		1.00		1.00	
speckled sanddab	6/15/2011	7	4	7.75	0.96	2.00	0.00	3.25	1.89
tubesnout, juvenile	6/15/2011	7	1	8.00		2.00		3.00	
vermillion rockfish, juvenile	6/15/2011	7	6	8.71	1.89	1.43	0.53	1.50	0.84

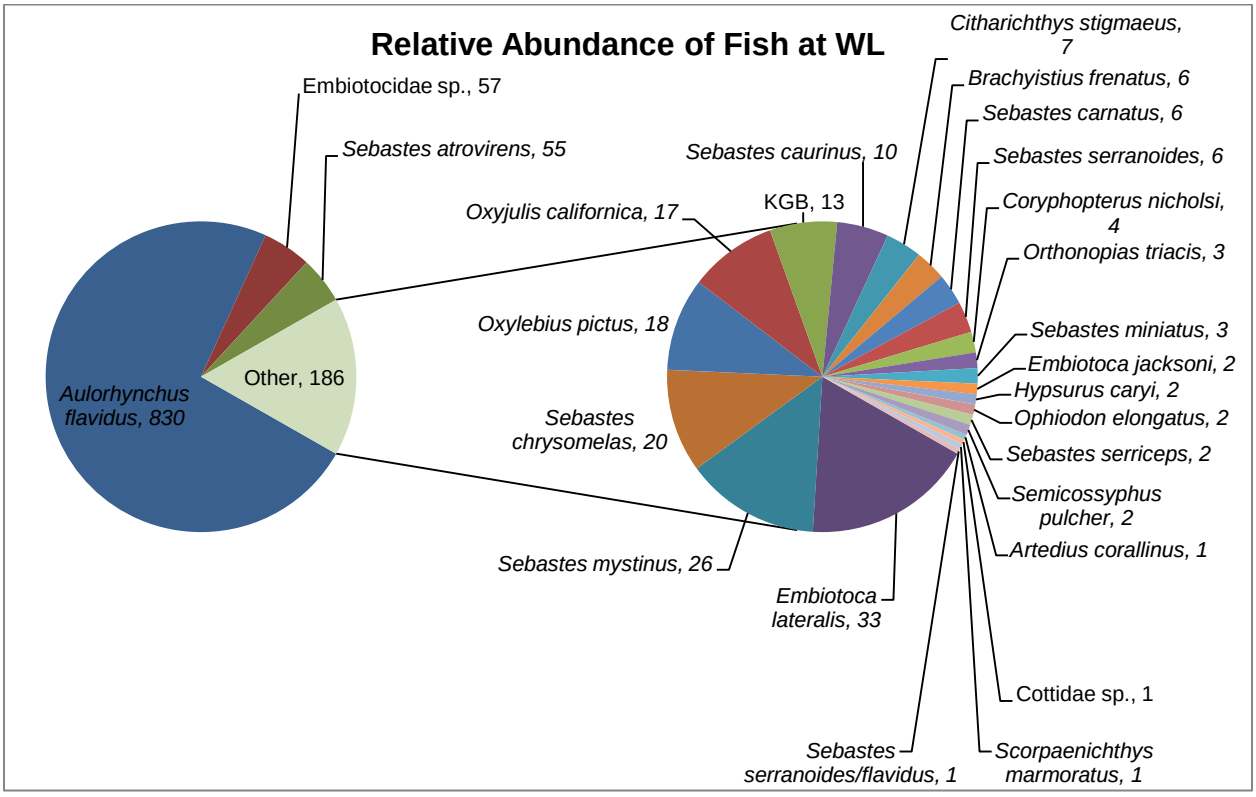
2011 ROVING DIVER FISH COUNT

Santa Barbara Island - Southeast Reef

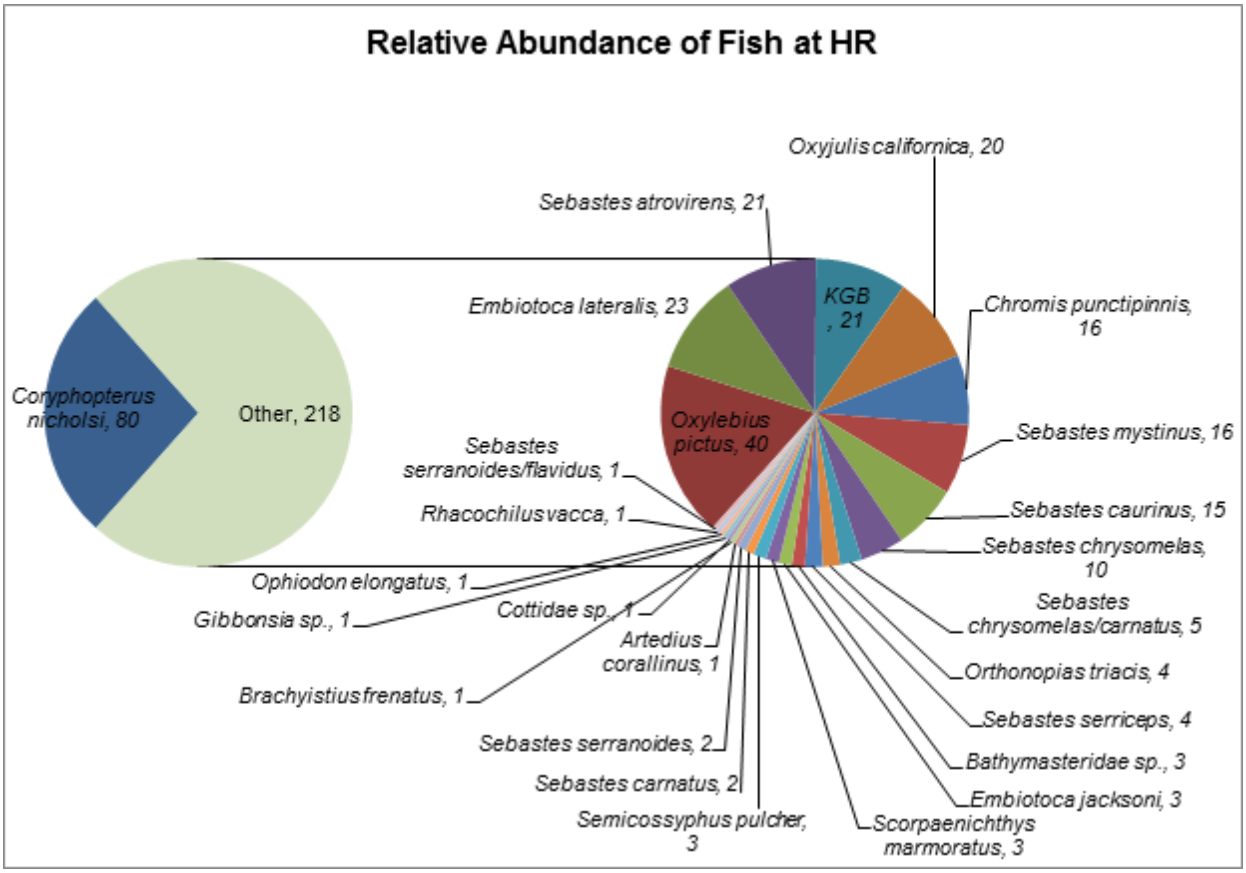
Common Name	Date	Max # of Observers	# of Observations	Score Avg	Score St Dev	Abundance Avg	Abundance St Dev	Count Avg	Count St Dev
black and yellow rockfish, adult	7/26/2011	6	5	8.40	1.52	1.60	0.55	2.20	1.30
black surfperch, adult	7/26/2011	6	6	9.33	0.82	2.33	0.52	11.83	9.11
black surfperch, all	7/26/2011	6	6	9.83	0.41	3.00	0.00	17.83	7.08
black surfperch, juvenile	7/26/2011	6	6	9.17	1.60	1.83	0.41	6.00	2.90
blackeye goby	7/26/2011	6	6	9.33	0.82	2.67	0.52	26.33	21.37
blacksmith, adult	7/26/2011	6	6	9.67	0.82	4.00	0.00	238.17	101.91
blacksmith, all	7/26/2011	6	6	9.67	0.82	4.00	0.00	243.67	107.02
blacksmith, juvenile	7/26/2011	6	4	8.50	2.38	1.67	1.37	5.50	5.65
blue rockfish, adult	7/26/2011	6	2	6.00	1.41	0.50	0.84	0.67	1.21
blue rockfish, all	7/26/2011	6	2	6.00	1.41	0.50	0.84	0.67	1.21
cabezon, adult	7/26/2011	6	1	8.00		2.00		2.00	
California moray eel	7/26/2011	6	3	8.67	1.15	1.33	0.58	1.33	0.58
California sheephead, female	7/26/2011	6	6	10.00	0.00	2.33	0.52	10.33	3.01
California sheephead, male	7/26/2011	6	6	8.67	1.21	1.67	0.52	1.83	0.75
c-o turbot	7/26/2011	6	1	6.00		1.00		1.00	
garibaldi, adult	7/26/2011	6	6	10.00	0.00	3.00	0.00	28.33	2.88
garibaldi, juvenile	7/26/2011	6	2	9.50	0.71	0.33	0.52	0.33	0.52
giant kelpfish, adult	7/26/2011	6	1	8.00		1.00		1.00	
giant kelpfish, juvenile	7/26/2011	6	2	7.50	3.54	1.50	0.71	1.50	0.71
halfmoon, adult	7/26/2011	6	6	9.33	1.03	2.00	0.89	5.67	5.92
island kelpfish	7/26/2011	6	3	7.33	2.08	0.67	0.82	0.83	1.17
kelp bass, adult	7/26/2011	6	3	7.33	0.58	0.67	0.82	0.67	0.82
kelp bass, all	7/26/2011	6	3	7.33	0.58	0.67	0.82	0.67	0.82
kelp rockfish, adult	7/26/2011	6	6	8.83	1.17	2.00	0.00	5.33	1.97
kelp rockfish, all	7/26/2011	6	6	8.83	1.17	2.00	0.00	5.33	1.97
kelp surfperch	7/26/2011	6	6	8.50	1.97	2.00	0.63	8.33	7.31
kelpfish spp.	7/26/2011	6	1	9.00		1.00		1.00	
olive rockfish, adult	7/26/2011	6	3	5.67	1.15	0.67	0.82	0.67	0.82
olive rockfish, all	7/26/2011	6	4	7.25	2.06	0.83	0.75	1.00	1.10
olive/yellowtail rockfish, juvenile	7/26/2011	6	2	8.50	2.12	0.33	0.52	0.33	0.52
opaleye, adult	7/26/2011	6	6	9.33	0.82	3.00	0.00	44.33	16.65
painted greenling	7/26/2011	6	6	9.67	0.52	3.00	0.00	29.33	15.71
pile perch, adult	7/26/2011	6	1	6.00		0.33	0.82	0.50	1.22
pile perch, all	7/26/2011	6	4	6.00	1.41	1.33	1.03	1.50	1.22
pile perch, juvenile	7/26/2011	6	3	6.00	1.73	1.00	1.10	1.00	1.10
seporita, adult	7/26/2011	6	6	10.00	0.00	2.83	0.41	28.17	20.28
seporita, all	7/26/2011	6	6	10.00	0.00	3.00	0.00	32.17	21.05
seporita, juvenile	7/26/2011	6	4	7.75	2.22	1.33	1.21	4.00	5.33
top smelt	7/26/2011	6	3	10.00	0.00	2.67	0.58	21.00	11.53
treefish, adult	7/26/2011	6	3	6.67	0.58	0.67	0.82	0.83	1.17
treefish, juvenile	7/26/2011	6	6	8.17	1.47	1.83	0.41	2.50	1.38
zebra goby	7/26/2011	6	1	8.00		1.00		1.00	

Appendix I. Roving Diver Fish Count Relative Abundance Graphs

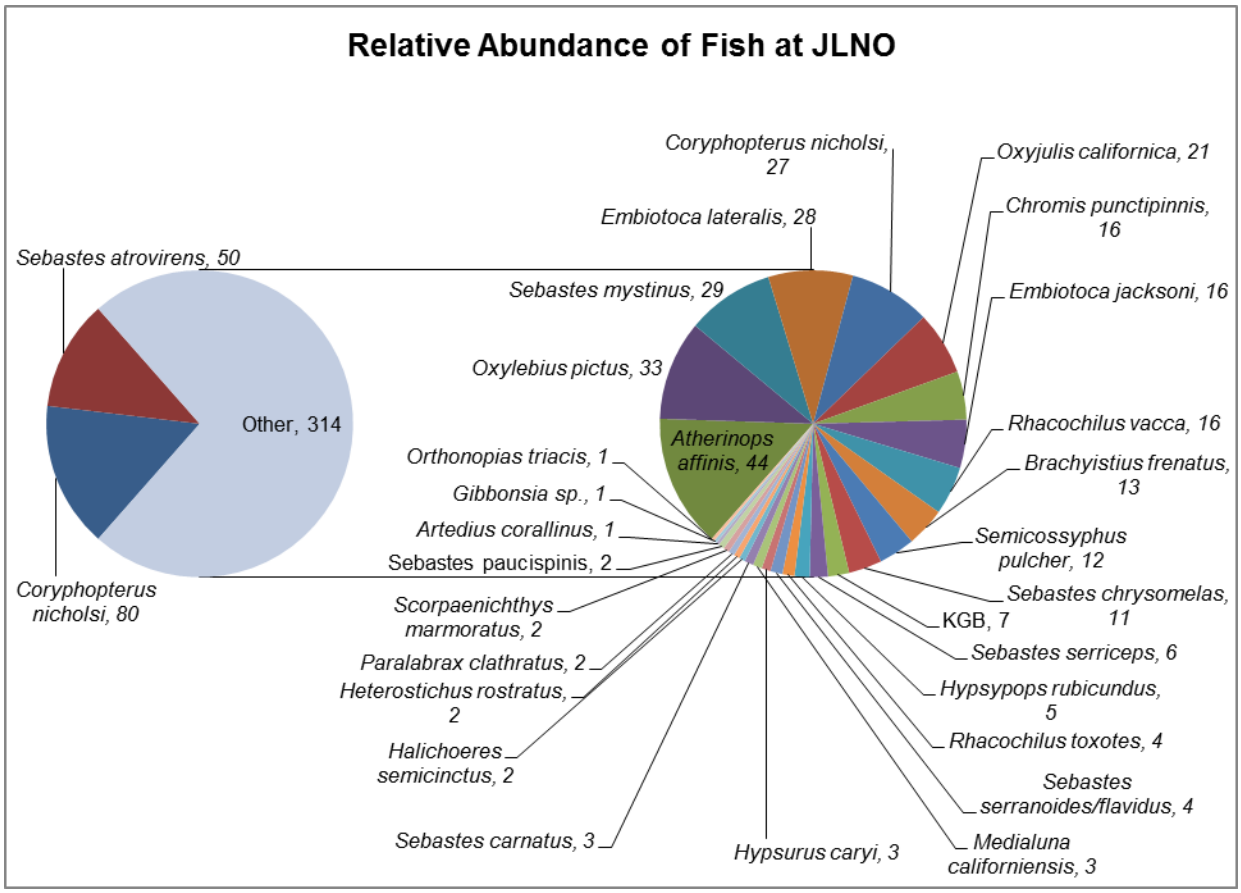
Note: these figures are based on the highest counts observed during RDFC. Larval fish spp. counts were not included in these figures.



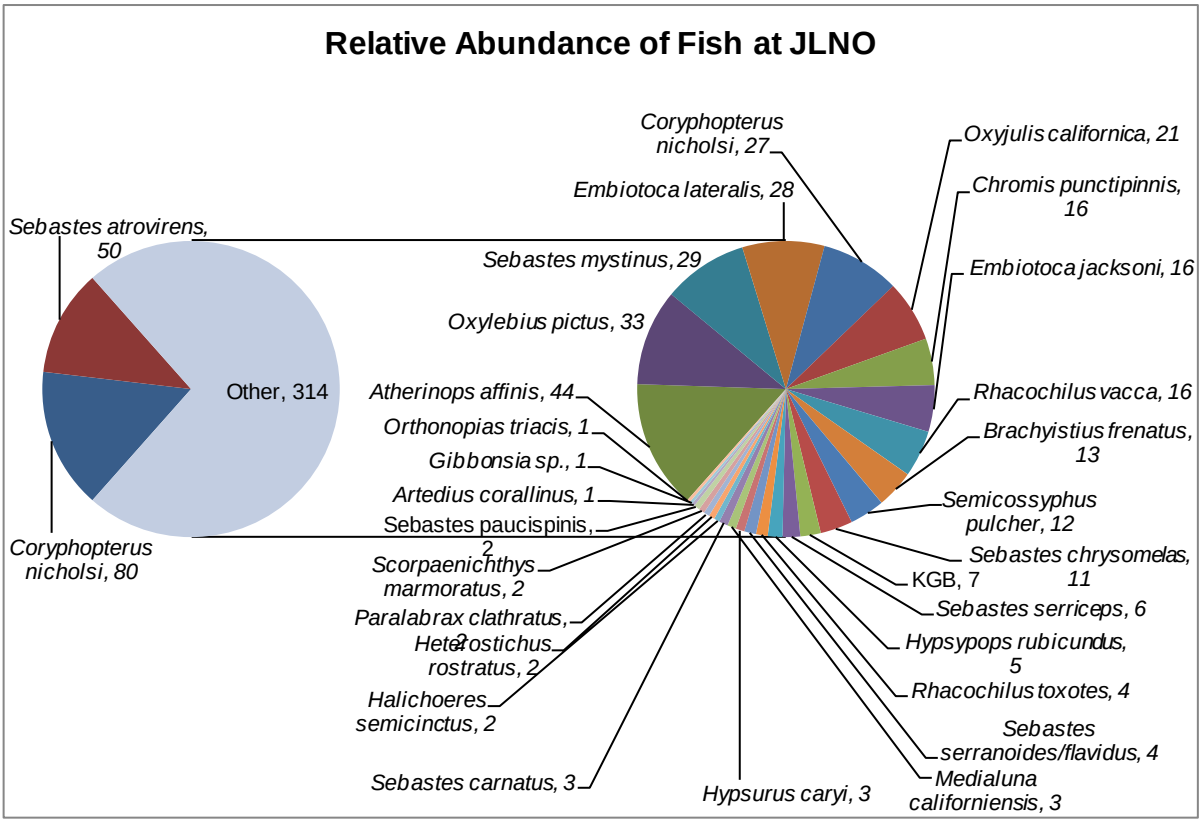
Species	Max Count	Species	Max Count
Artedius corallinus	1	*Scorpaenichthys marmoratus,* adult	1
Aulorhynchus flavidus	830	*Sebastes atrovirens,* adult	21
Brachyistius frenatus	6	*Sebastes atrovirens,* juvenile	34
Citharichthys stigmaeus	7	*Sebastes carnatus,* adult	6
Coryphopterus nicholsi	4	*Sebastes caurinus,* adult	8
Cottidae sp.	1	*Sebastes caurinus,* juvenile	2
Embiotoca jacksoni, juvenile	2	*Sebastes chrysomelas,* adult	20
Embiotoca lateralis, adult	24	*Sebastes chrysomelas/carnatus,* juvenile	2
Embiotoca lateralis, juvenile	9	*Sebastes miniatus,* adult	2
Embiotocidae sp., juvenile	57	*Sebastes miniatus,* juvenile	1
Hypsurus caryi	2	*Sebastes mystinus,* adult	18
KGB	13	*Sebastes mystinus,* juvenile	8
Ophiodon elongatus	2	*Sebastes serranoides,* adult	6
Orthonopias triacis	3	*Sebastes serranoides/flavidus,* juvenile	1
Oxyjulis californica, adult	13	*Sebastes serriceps,* adult	2
Oxyjulis californica, juvenile	4	*Semicossyphus pulcher,* female	1
Oxylebius pictus	18	*Semicossyphus pulcher,* male	1



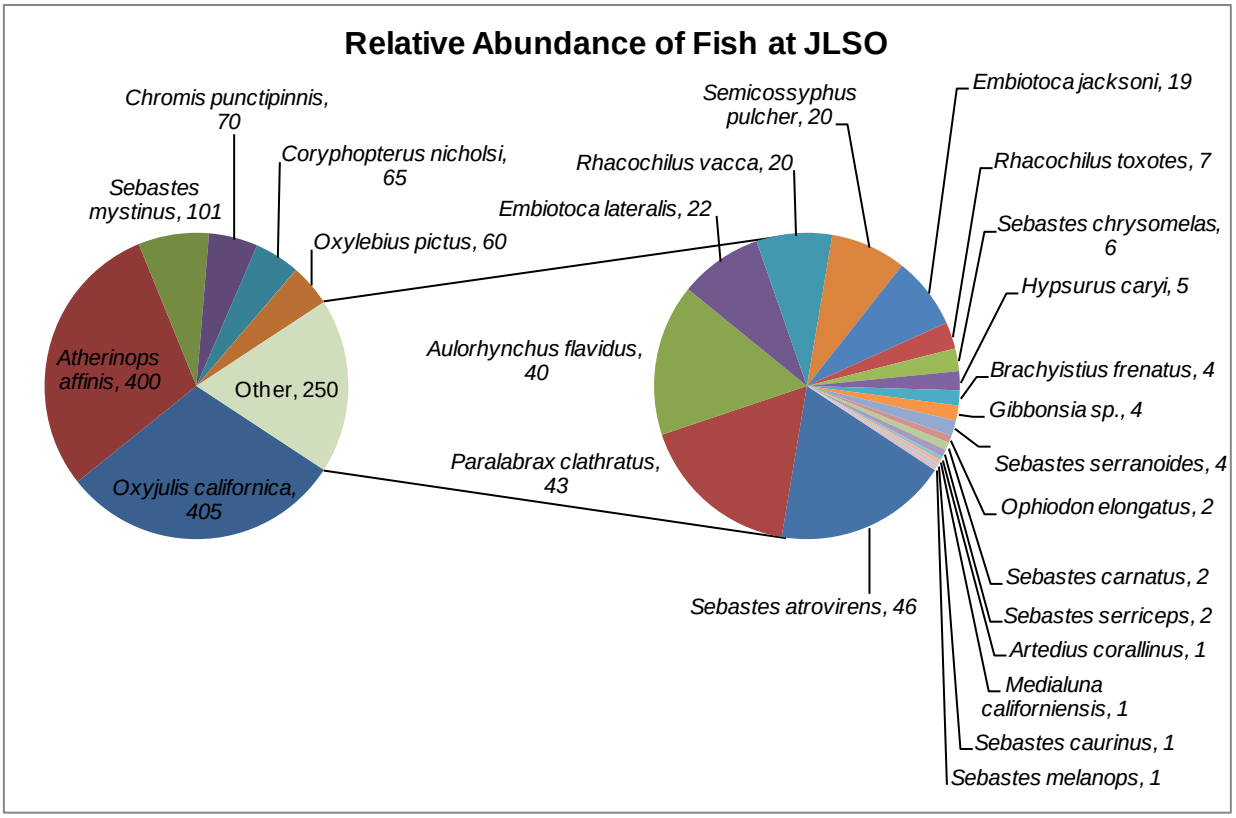
Species	Max Count	Species	Max Count
Artedius corallinus	1	*Rhacochilus vacca,* adult	1
Bathymasteridae sp.	3	*Scorpaenichthys marmoratus,* adult	3
Brachyistius frenatus	1	*Sebastes atrovirens,* adult	17
Chromis punctipinnis, adult	16	*Sebastes atrovirens,* juvenile	4
Coryphopterus nicholsi	80	*Sebastes carnatus,* adult	2
Cottidae sp.	1	*Sebastes caurinus,* adult	5
Embiotoca jacksoni, adult	1	*Sebastes caurinus,* juvenile	10
Embiotoca jacksoni, juvenile	2	*Sebastes chrysomelas,* adult	10
Embiotoca lateralis, adult	8	*Sebastes chrysomelas/carnatus,* juvenile	5
Embiotoca lateralis, juvenile	15	*Sebastes mystinus,* adult	13
Gibbonsia sp.	1	*Sebastes mystinus,* juvenile	3
KGB	21	*Sebastes serranoides,* adult	2
Ophiodon elongatus	1	*Sebastes serranoides/flavidus,* juvenile	1
Orthonopias triacis	4	*Sebastes serriceps,* adult	4
Oxyjulis californica, adult	20	*Semicossyphus pulcher,* female	1
Oxylebius pictus	40	*Semicossyphus pulcher,* male	2



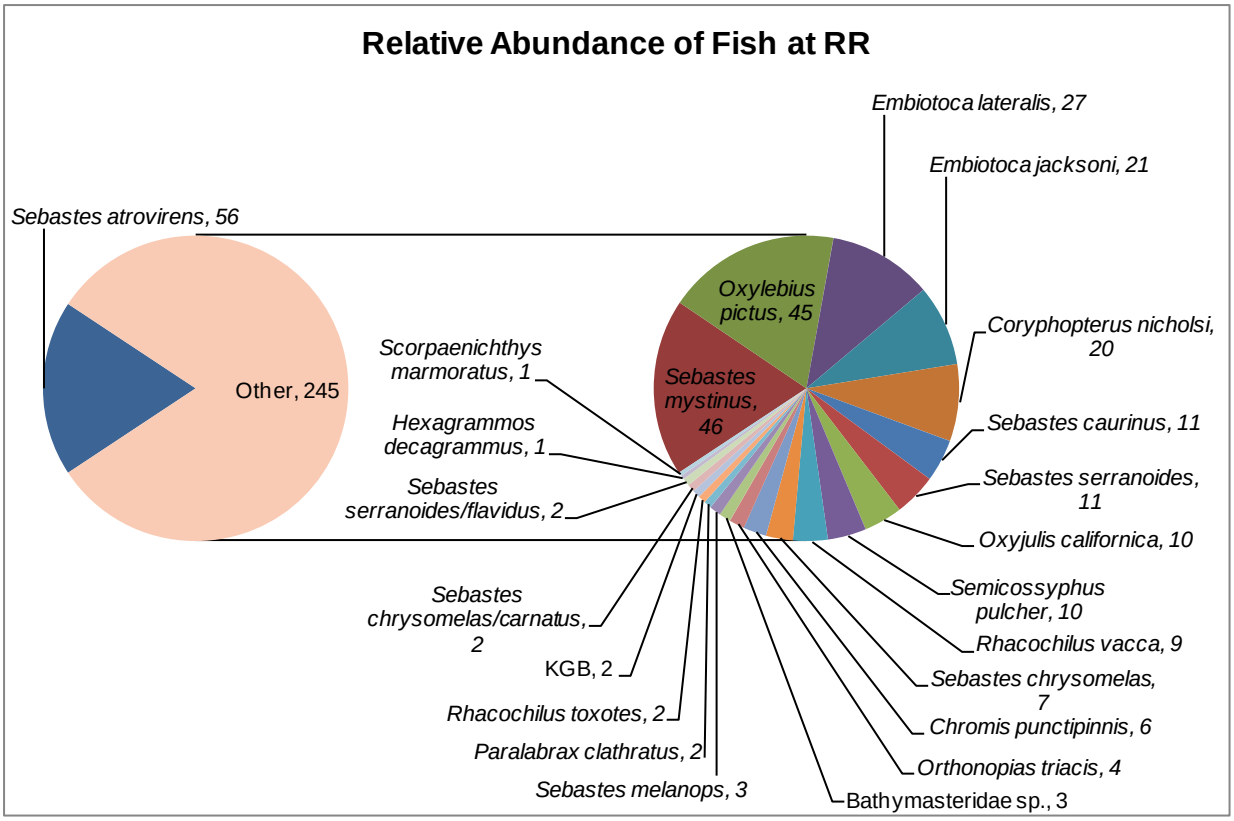
Species	Max Count	Species	Max Count
Artedius corallinus	1	*Oxyjulis californica,* adult	21
Atherinops affinis	44	*Oxylebius pictus*	33
Brachyistius frenatus	13	*Paralabrax clathratus,* adult	2
Chromis punctipinnis, adult	16	*Rhacochilus toxotes*	4
Coryphopterus nicholsi	27	*Rhacochilus vacca,* adult	10
Embiotoca jacksoni, adult	10	*Rhacochilus vacca,* juvenile	6
Embiotoca jacksoni, juvenile	6	*Scorpaenichthys marmoratus*	2
Embiotoca lateralis, adult	22	*Sebastes atrovirens,* adult	37
Embiotoca lateralis, juvenile	6	*Sebastes atrovirens,* juvenile	13
Gibbonsia sp.	1	*Sebastes carnatus,* adult	3
Halichoeres semicinctus, female	1	*Sebastes chrysomelas,* adult	11
Halichoeres semicinctus, male	1	*Sebastes mystinus,* adult	3
Heterostichus rostratus, adult	1	*Sebastes mystinus,* juvenile	26
Heterostichus rostratus, juvenile	1	*Sebastes paucispinis,* juvenile	2
Hypsurus caryi	3	*Sebastes serranoides,* adult	66
Hypsypops rubicundus, adult	5	*Sebastes serranoides/flavidus,* juvenile	4
KGB	7	*Sebastes serriceps,* adult	5
Medialuna californiensis	3	*Sebastes serriceps,* juvenile	1
Orthonopias triacis	1	*Semicossyphus pulcher,* female	12



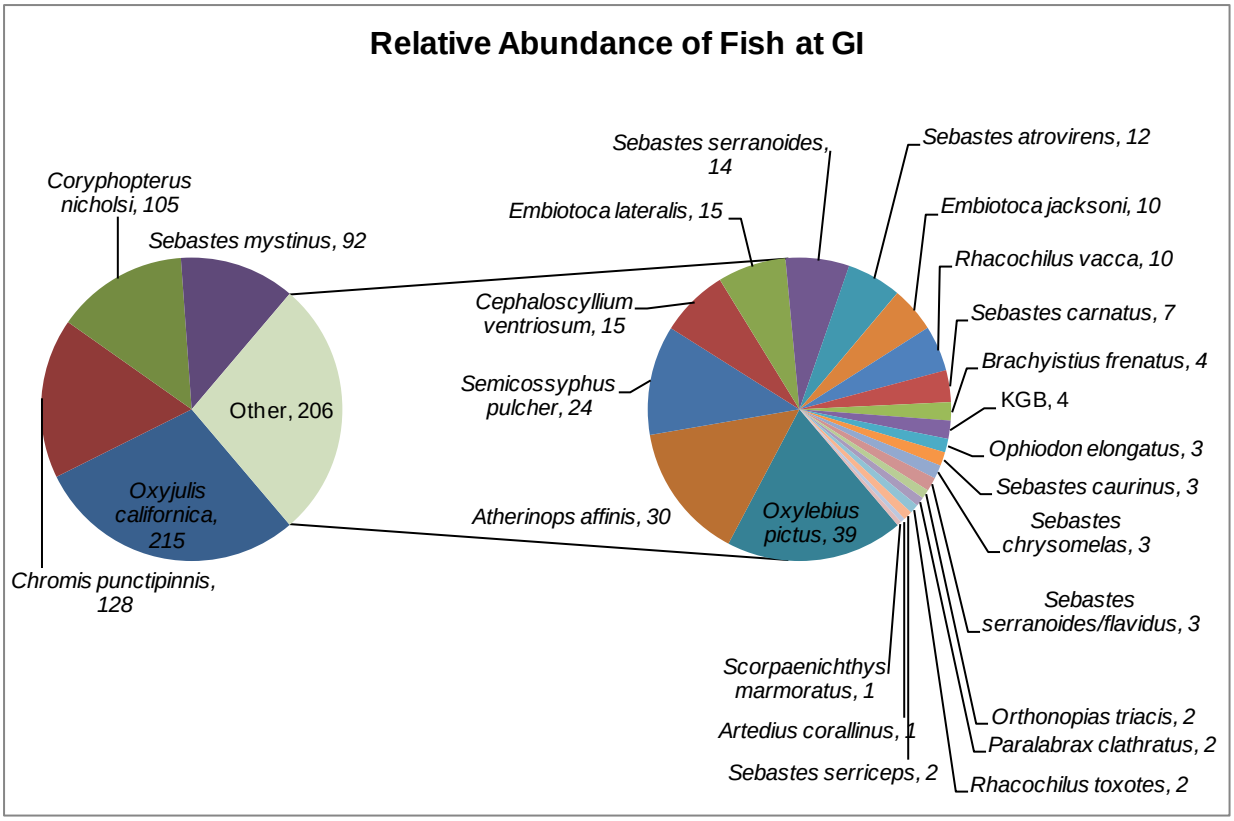
Species	Max Count	Species	Max Count
Artedius corallinus	1	*Oxyjulis californica,* adult	21
Atherinops affinis	44	*Oxylebius pictus*	33
Brachyistius frenatus	13	*Paralabrax clathratus,* adult	2
Chromis punctipinnis, adult	16	*Rhacochilus toxotes*	4
Coryphopterus nicholsi	27	*Rhacochilus vacca,* adult	10
Embiotoca jacksoni, adult	10	*Rhacochilus vacca,* juvenile	6
Embiotoca jacksoni, juvenile	6	*Scorpaenichthys marmoratus*	2
Embiotoca lateralis, adult	22	*Sebastes atrovirens,* adult	37
Embiotoca lateralis, juvenile	6	*Sebastes atrovirens,* juvenile	13
Gibbonsia sp.	1	*Sebastes carnatus,* adult	3
Halichoeres semicinctus, female	1	*Sebastes chrysomelas,* adult	11
Halichoeres semicinctus, male	1	*Sebastes mystinus,* adult	3
Heterostichus rostratus, adult	1	*Sebastes mystinus,* juvenile	26
Heterostichus rostratus, juvenile	1	*Sebastes paucispinis,* juvenile	2
Hypsurus caryi	3	*Sebastes serranoides,* adult	66
Hypsypops rubicundus, adult	5	*Sebastes serranoides/flavidus,* juvenile	4
KGB	7	*Sebastes serriceps,* adult	5
Medialuna californiensis	3	*Sebastes serriceps,* juvenile	1
Orthonopias triacis	1	*Semicossyphus pulcher,* female	12



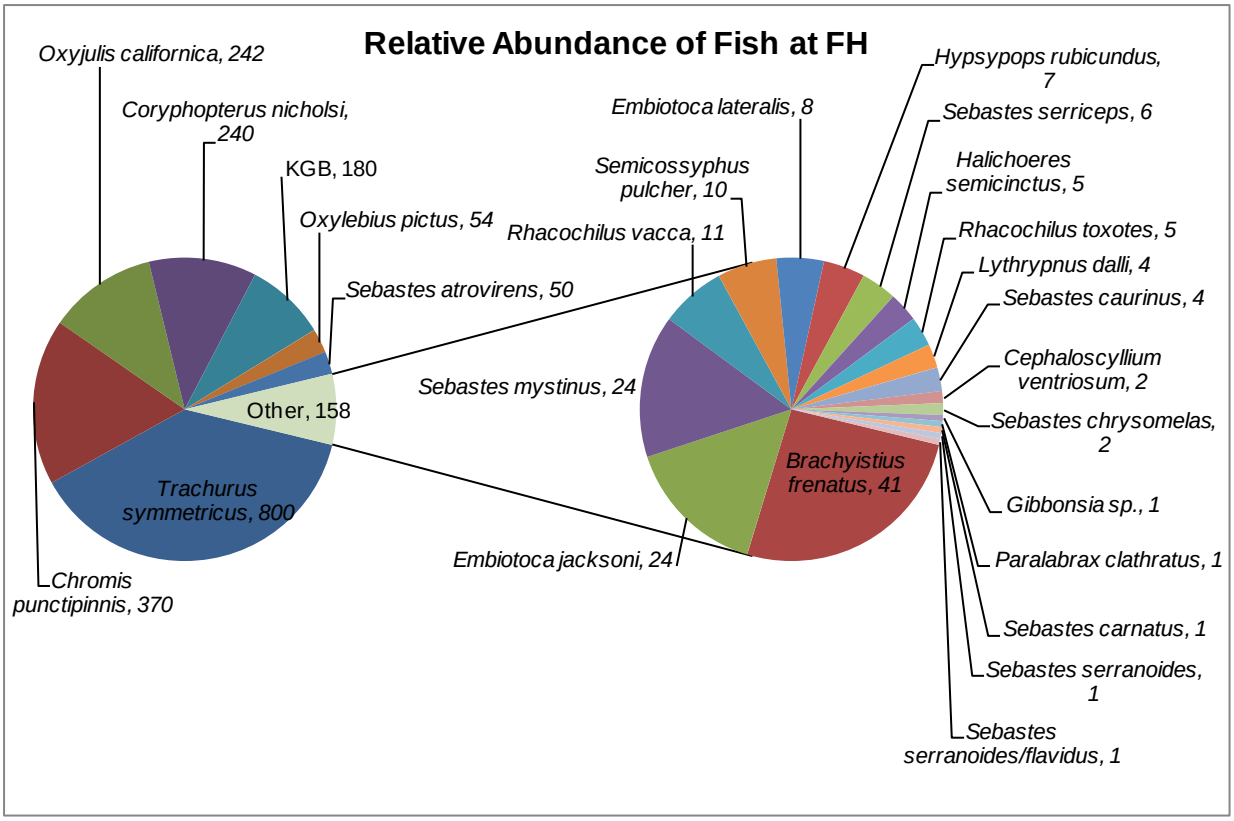
Species	Max Count	Species	Max Count
Artedius corallinus	1	*Paralabrax clathratus,* adult	43
Atherinops affinis	400	*Rhacochilus toxotes*	7
Aulorhynchus flavidus	40	*Rhacochilus vacca,* adult	17
Brachyistius frenatus	4	*Rhacochilus vacca,* juvenile	3
Chromis punctipinnis, adult	55	*Sebastes atrovirens,* adult	35
Chromis punctipinnis, juvenile	15	*Sebastes atrovirens,* juvenile	11
Coryphopterus nicholsi	65	*Sebastes carnatus,* adult	2
Embiotoca jacksoni, adult	11	*Sebastes caurinus,* adult	1
Embiotoca jacksoni, juvenile	8	*Sebastes chrysomelas,* adult	6
Embiotoca lateralis, adult	11	*Sebastes melanops,* adult	1
Embiotoca lateralis, juvenile	11	*Sebastes mystinus,* adult	40
Gibbonsia spp.	4	*Sebastes mystinus,* juvenile	61
Hypsurus caryi	5	*Sebastes serranoides,* adult	4
Medialuna californiensis, adult	1	*Sebastes serriceps,* adult	1
Ophiodon elongatus	2	*Sebastes serriceps,* juvenile	1
Oxyjulis californica, adult	405	*Semicossyphus pulcher,* female	13
Oxylebius pictus	60	*Semicossyphus pulcher,* male	7



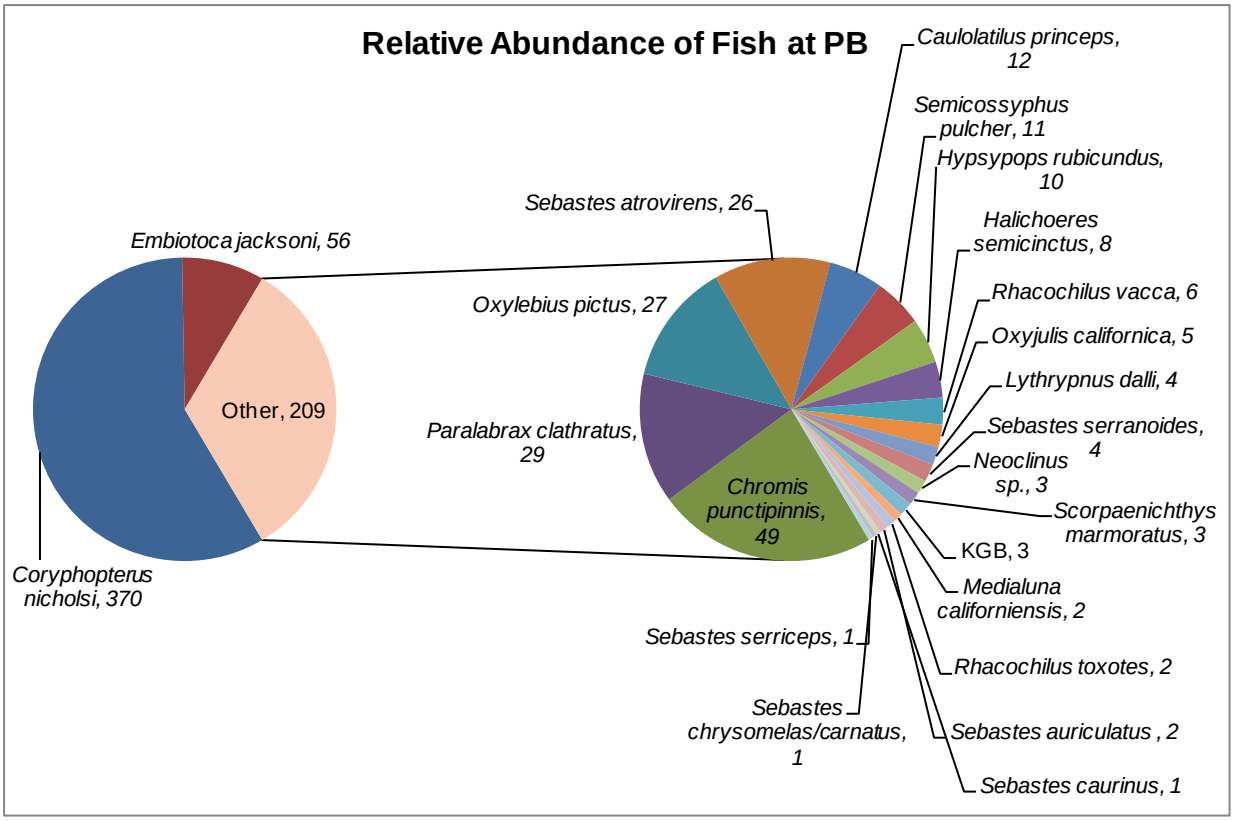
Species	Max Count	Species	Max Count
Bathymasteridae sp.	3	*Scorpaenichthys marmoratus,* adult	1
Chromis punctipinnis, adult	6	*Sebastes atrovirens,* adult	49
Coryphopterus nicholsi	20	*Sebastes atrovirens,* juvenile	7
Embiotoca jacksoni, adult	5	*Sebastes caurinus,* adult	10
Embiotoca jacksoni, juvenile	16	*Sebastes caurinus,* juvenile	1
Embiotoca lateralis, adult	10	*Sebastes chrysomelas,* adult	7
Embiotoca lateralis, juvenile	17	*Sebastes chrysomelas/carnatus,* juvenile	2
Hexagrammos decagrammus	1	*Sebastes melanops,* adult	3
KGB	2	*Sebastes mystinus,* adult	43
Orthonopias triacis	4	*Sebastes mystinus,* juvenile	3
Oxyjulis californica, adult	10	*Sebastes serranoides,* adult	11
Oxylebius pictus	45	*Sebastes serranoides/flavidus,* juvenile	2
Paralabrax clathratus, adult	2	*Semicossyphus pulcher,* female	8
Rhacochilus toxotes	2	*Semicossyphus pulcher,* male	2



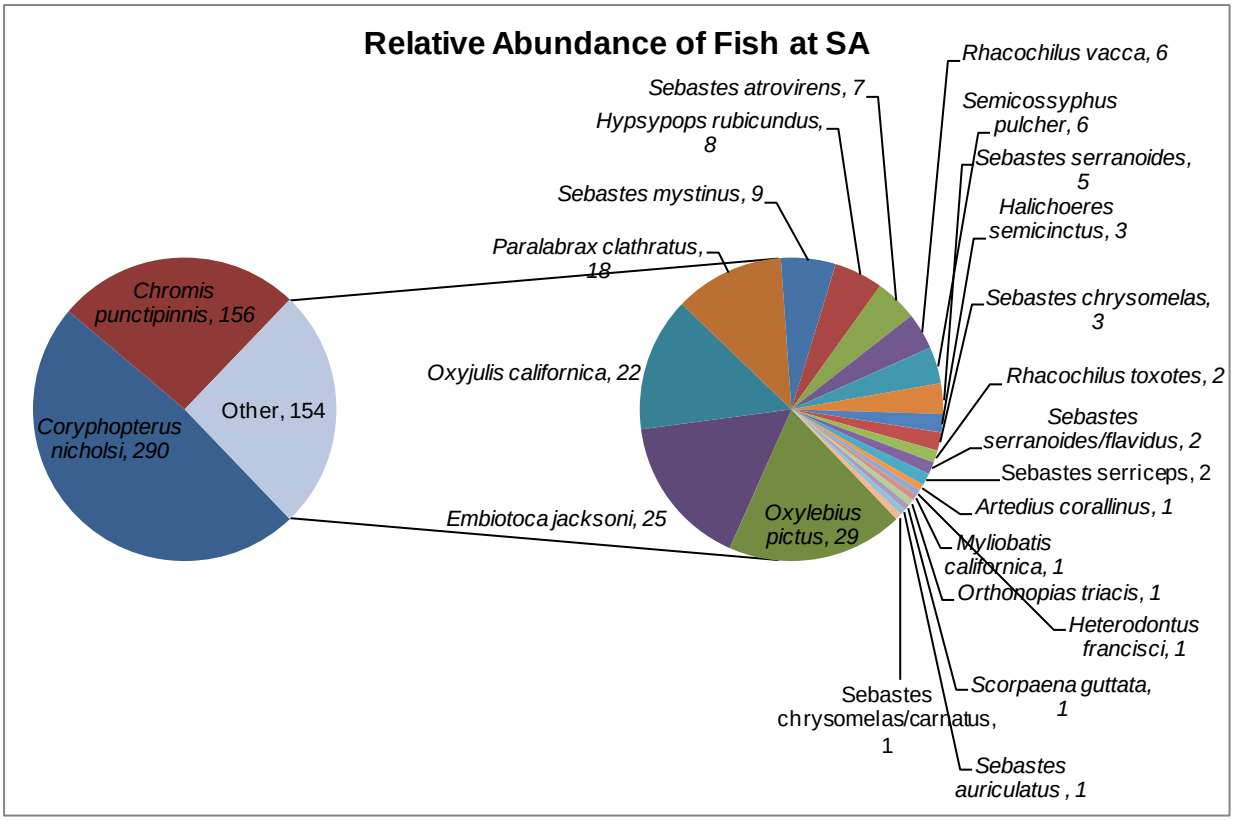
Species	Max Count	Species	Max Count
Artedius corallinus	1	*Rhacochilus toxotes*	2
Atherinops affinis	30	*Rhacochilus vacca,* adult	1
Brachyistius frenatus	4	*Rhacochilus vacca,* juvenile	9
Cephaloscyllium ventriosum	15	*Scorpaenichthys marmoratus*	1
Chromis punctipinnis, adult	128	*Sebastes atrovirens,* adult	12
Coryphopterus nicholsi	105	*Sebastes carnatus,* adult	7
Embiotoca jacksoni, adult	5	*Sebastes caurinus,* adult	2
Embiotoca jacksoni, juvenile	5	*Sebastes caurinus,* juvenile	1
Embiotoca lateralis, adult	4	*Sebastes chrysomelas,* adult	3
Embiotoca lateralis, juvenile	11	*Sebastes mystinus,* adult	67
KGB	4	*Sebastes mystinus,* juvenile	25
Ophiodon elongatus	3	*Sebastes serranoides,* adult	14
Orthonopias triacis	2	*Sebastes serranoides/flavidus,* juvenile	3
Oxyjulis californica, adult	215	*Sebastes serriceps,* adult	2
Oxylebius pictus	39	*Semicossyphus pulcher,* female	18
Paralabrax clathratus, adult	2	*Semicossyphus pulcher,* male	6



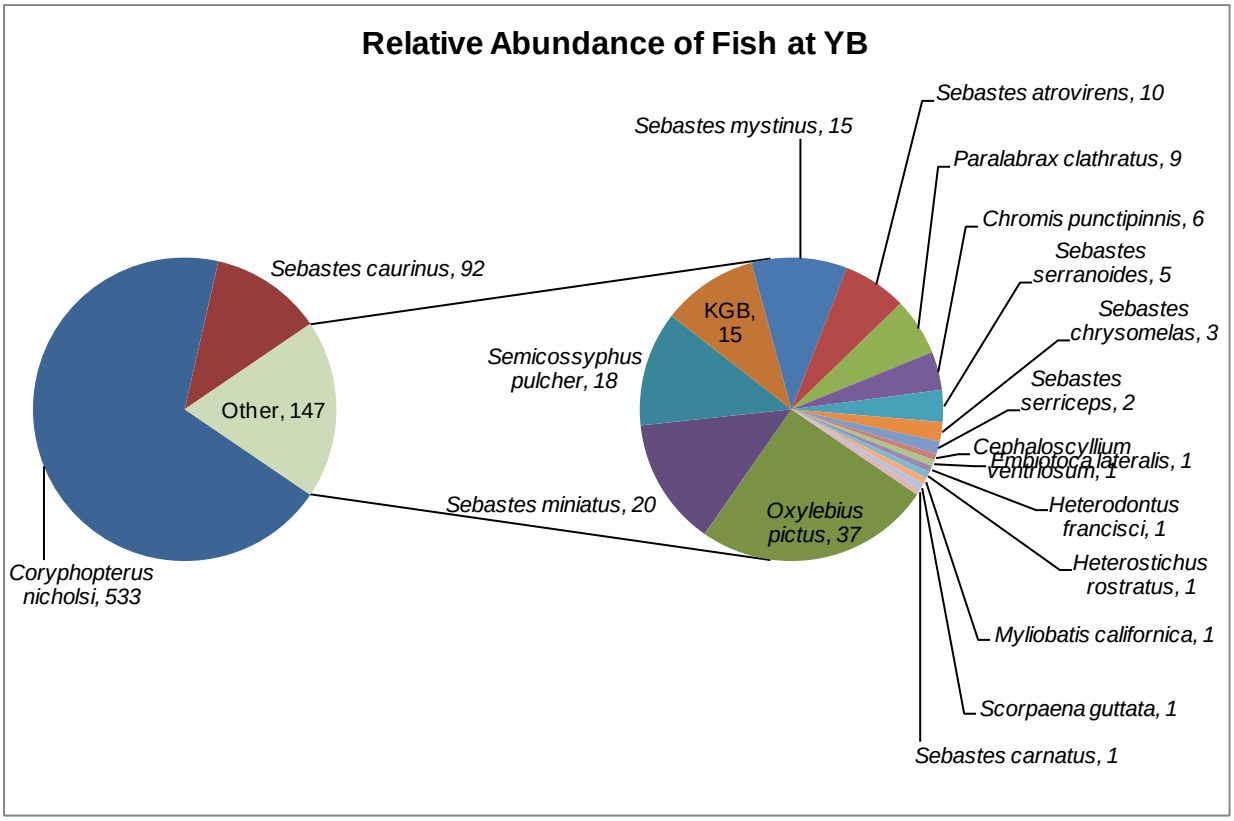
Species	Max Count	Species	Max Count
Brachyistius frenatus	41	*Rhacochilus toxotes*	5
Cephaloscyllium ventriosum	2	*Rhacochilus vacca,* adult	9
Chromis punctipinnis, adult	370	*Rhacochilus vacca,* juvenile	2
Coryphopterus nicholsi	240	*Sebastes atrovirens,* adult	24
Embiotoca jacksoni, adult	16	*Sebastes atrovirens,* juvenile	26
Embiotoca jacksoni, juvenile	8	*Sebastes carnatus,* adult	1
Embiotoca lateralis, adult	4	*Sebastes caurinus,* juvenile	4
Embiotoca lateralis, juvenile	4	*Sebastes chrysomelas,* adult	2
Gibbonsia sp.	1	*Sebastes mystinus,* adult	6
Halichoeres semicinctus, female	1	*Sebastes mystinus,* juvenile	18
Halichoeres semicinctus, male	4	*Sebastes serranoides,* adult	1
Hypsypops rubicundus, adult	7	*Sebastes serranoides/flavidus,* juvenile	1
KGB	180	*Sebastes serriceps,* adult	5
Lythrypnus dalli	4	*Sebastes serriceps,* juvenile	1
Oxyjulis californica, adult	242	*Semicossyphus pulcher,* female	10
Oxylebius pictus	54	*Trachurus symmetricus*	800
Paralabrax clathratus, adult	1		



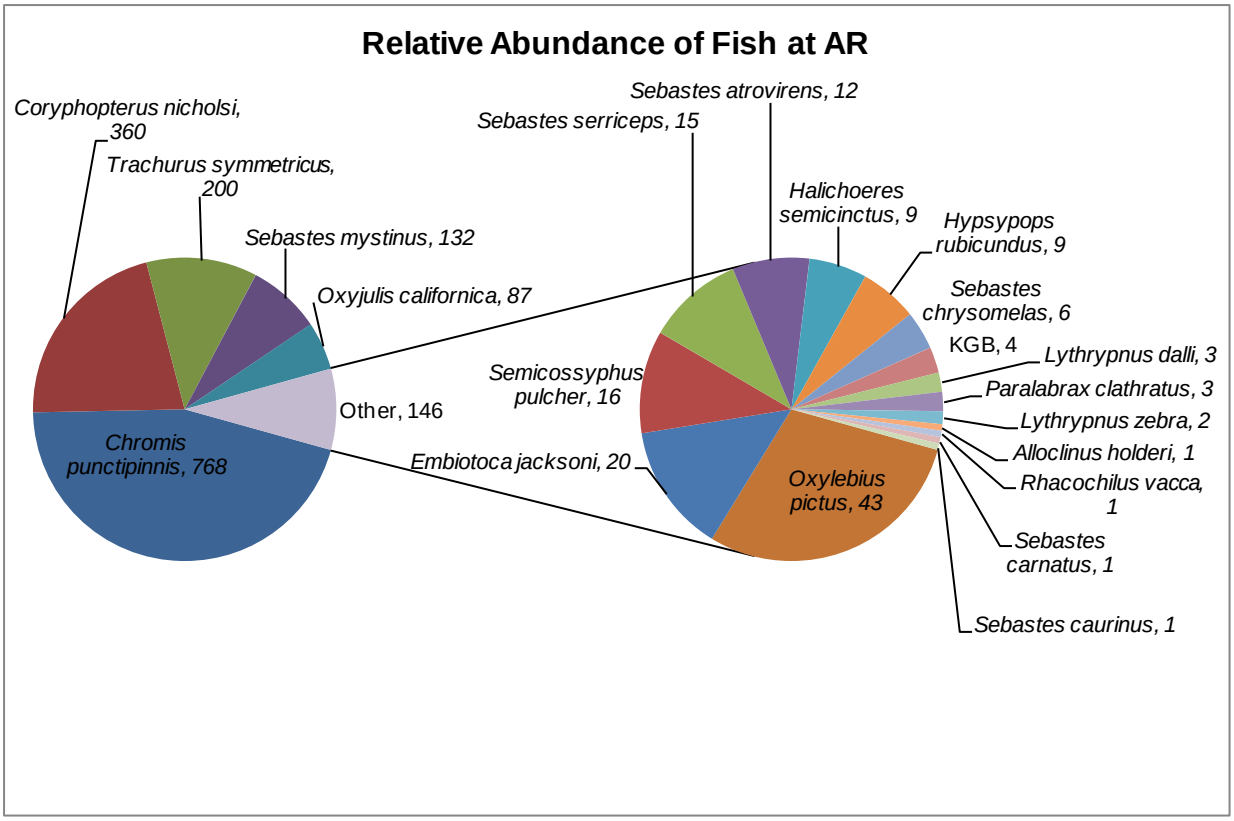
Species	Max Count	Species	Max Count
Caulolatilus princeps, adult	12	*Paralabrax clathratus,* adult	29
Chromis punctipinnis, adult	49	*Rhacochilus toxotes*	2
Coryphopterus nicholsi	370	*Rhacochilus vacca,* adult	6
Embiotoca jacksoni, adult	42	*Scorpaenichthys marmoratus,* adult	3
Embiotoca jacksoni, juvenile	14	*Sebastes atrovirens,* adult	24
Halichoeres semicinctus, female	5	*Sebastes atrovirens,* juvenile	2
Halichoeres semicinctus, male	3	*Sebastes auriculatus,* adult	1
Hypsypops rubicundus, adult	10	*Sebastes auriculatus,* juvenile	1
KGB	3	*Sebastes caurinus,* juvenile	1
Lythrypnus dalli	4	*Sebastes chrysomelas/carnatus,* juvenile	1
Medialuna californiensis, adult	2	*Sebastes serranoides,* adult	4
Neoclinus sp.	3	*Sebastes serriceps,* adult	1
Oxyjulis californica, adult	5	*Semicossyphus pulcher,* female	11
Oxylebius pictus	27		



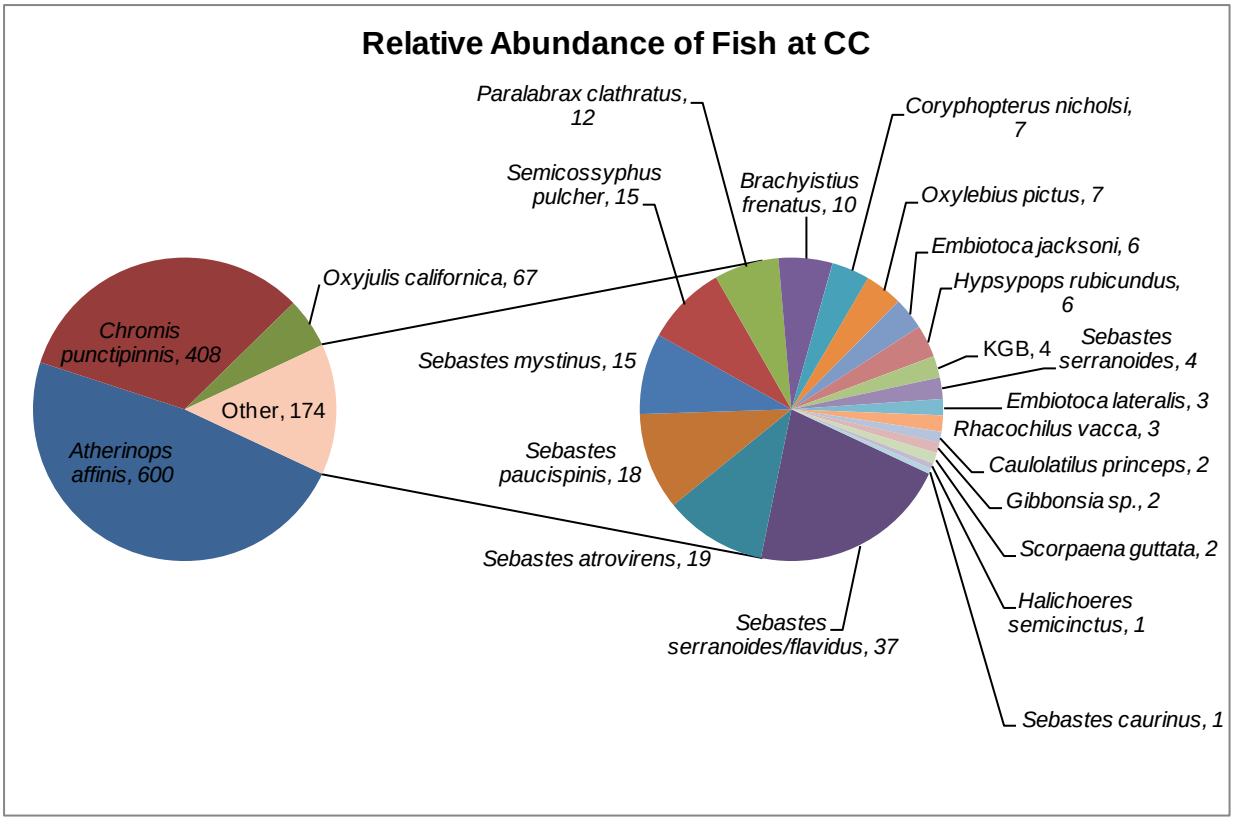
Species	Max Count	Species	Max Count
Artedius corallinus	1	*Rhacochilus toxotes*	2
Chromis punctipinnis, adult	154	*Rhacochilus vacca,* adult	6
Chromis punctipinnis, juvenile	2	*Scorpaena guttata,* adult	1
Coryphopterus nicholsi	290	*Sebastes atrovirens,* adult	7
Embiotoca jacksoni, adult	22	*Sebastes auriculatus,* adult	1
Embiotoca jacksoni, juvenile	3	*Sebastes chrysomelas,* adult	3
Halichoeres semicinctus, female	2	*Sebastes chrysomelas/carnatus,* juvenile	1
Halichoeres semicinctus, male	1	*Sebastes mystinus,* adult	6
Heterodontus francisci	1	*Sebastes mystinus,* juvenile	3
Hypsypops rubicundus, adult	8	*Sebastes serranoides,* adult	5
Myliobatis californica	1	*Sebastes serranoides/flavidus,* juvenile	2
Orthonopias triacis	1	*Sebastes serriceps,* adult	1
Oxyjulis californica, adult	22	*Sebastes serriceps,* juvenile	1
Oxylebius pictus	29	*Semicossyphus pulcher,* female	6



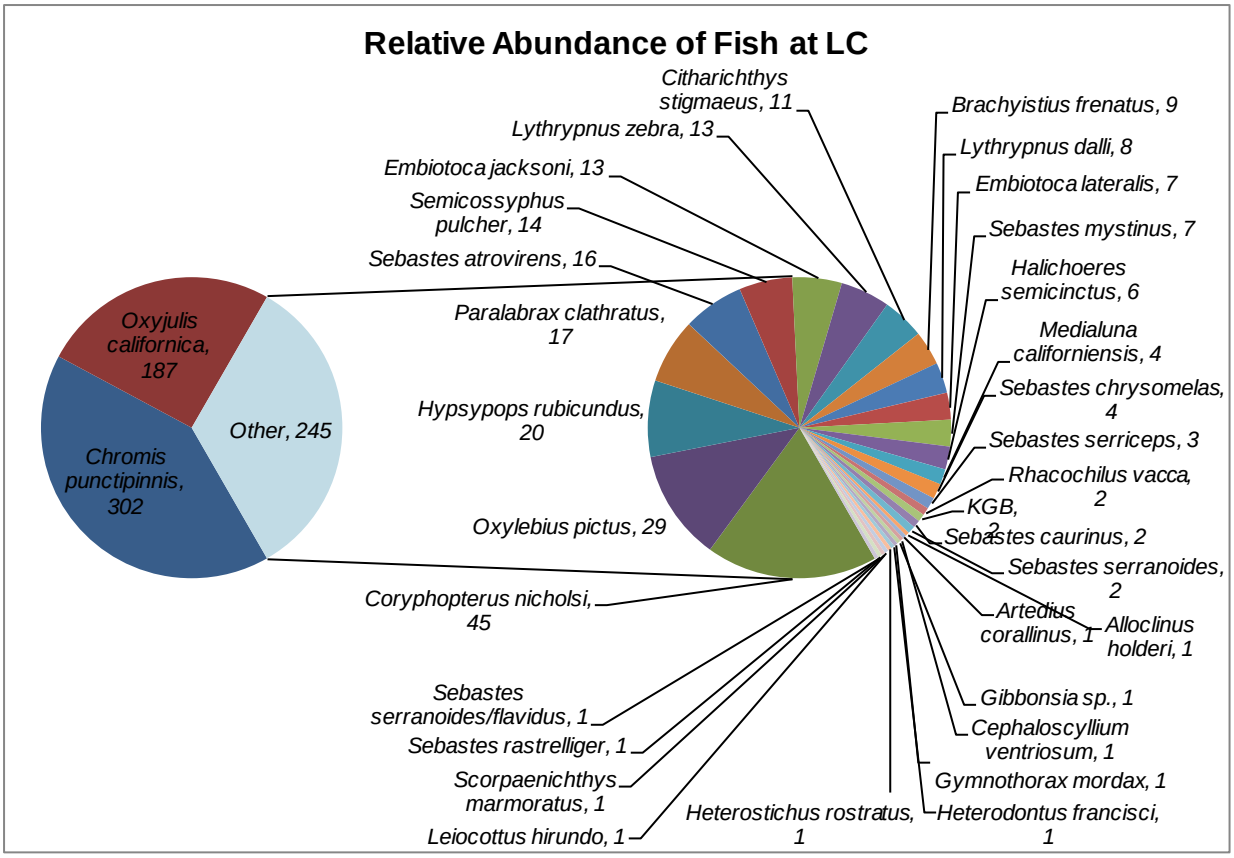
Species	Max Count	Species	Max Count
Cephaloscyllium ventriosum	1	*Sebastes atrovirens,* adult	10
Chromis punctipinnis, adult	3	*Sebastes carnatus,* adult	1
Chromis punctipinnis, juvenile	3	*Sebastes caurinus,* adult	2
Coryphopterus nicholsi	533	*Sebastes caurinus,* juvenile	90
Embiotoca lateralis, juvenile	1	*Sebastes chrysomelas,* adult	3
Heterodontus francisci	1	*Sebastes miniatus,* adult	2
Heterostichus rostratus, juvenile	1	*Sebastes miniatus,* juvenile	18
KGB	15	*Sebastes mystinus,* adult	4
Myliobatis californica	1	*Sebastes mystinus,* juvenile	11
Oxylebius pictus	37	*Sebastes serranoides,* adult	5
Paralabrax clathratus, adult	9	*Sebastes serriceps,* adult	2
Scorpaena guttata, adult	1	*Semicossyphus pulcher,* female	18



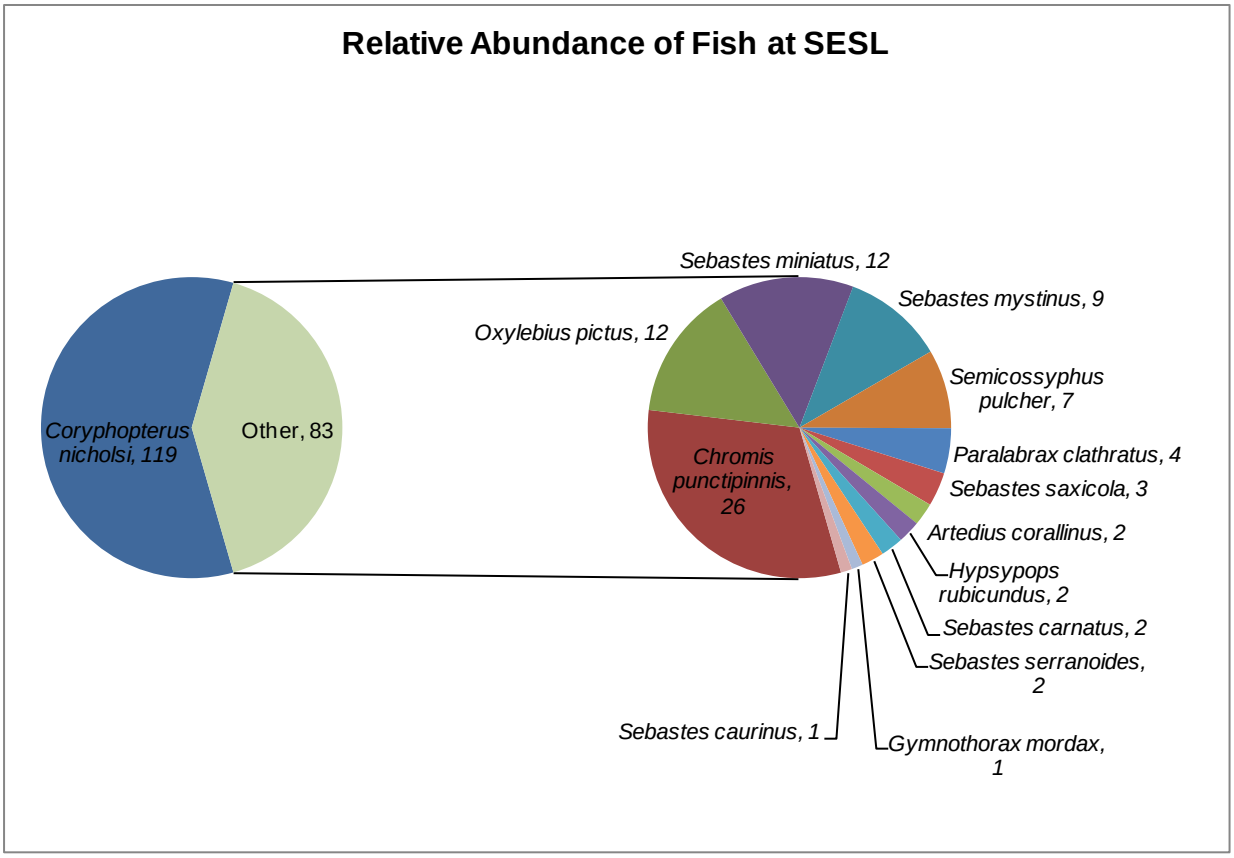
Species	Max Count	Species	Max Count
Alloclinus holderi	1	*Oxylebius pictus*	43
Chromis punctipinnis, adult	721	*Paralabrax clathratus,* adult	3
Chromis punctipinnis, juvenile	47	*Rhacochilus vacca,* adult	1
Coryphopterus nicholsi	360	*Sebastes atrovirens,* adult	12
Embiotoca jacksoni, adult	14	*Sebastes carnatus,* adult	1
Embiotoca jacksoni, juvenile	6	*Sebastes caurinus,* juvenile	1
Halichoeres semicinctus, female	5	*Sebastes chrysomelas,* adult	6
Halichoeres semicinctus, male	4	*Sebastes mystinus,* adult	85
Hypsypops rubicundus, adult	9	*Sebastes mystinus,* juvenile	47
KGB	4	*Sebastes serriceps,* adult	14
Lythrypnus dalli	3	*Sebastes serriceps,* juvenile	1
Lythrypnus zebra	2	*Semicossyphus pulcher,* female	16
Oxyjulis californica, adult	87	*Trachurus symmetricus*	200



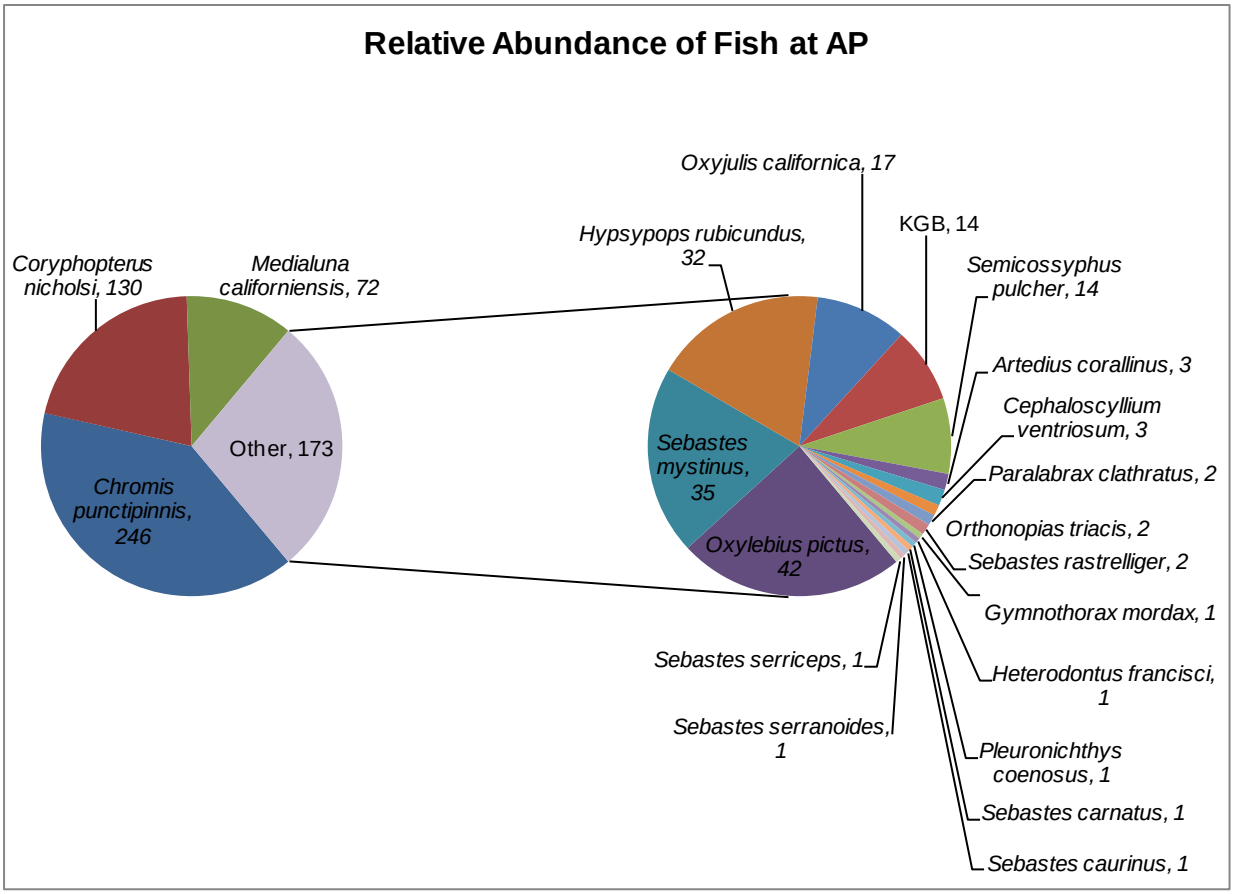
Species	Max Count	Species	Max Count
Atherinops affinis	600	*Oxylebius pictus*	7
Brachyistius frenatus	10	*Paralabrax clathratus,* adult	12
Caulolatilus princeps	2	*Rhacochilus vacca,* adult	3
Chromis punctipinnis, adult	408	*Scorpaena guttata*	2
Coryphopterus nicholsi	7	*Sebastes atrovirens,* adult	19
Embiotoca jacksoni, adult	6	*Sebastes caurinus,* adult	1
Embiotoca lateralis, adult	2	*Sebastes mystinus,* adult	13
Embiotoca lateralis, juvenile	1	*Sebastes mystinus,* juvenile	2
Gibbonsia sp.	2	*Sebastes paucispinis,* juvenile	18
Halichoeres semicinctus, female	1	*Sebastes serranoides,* adult	4
Hypsypops rubicundus, adult	6	*Sebastes serranoides/flavidus,* juvenile	37
KGB	4	*Semicossyphus pulcher,* female	14
Oxyjulis californica, adult	52	*Semicossyphus pulcher,* male	1
Oxyjulis californica, juvenile	15		



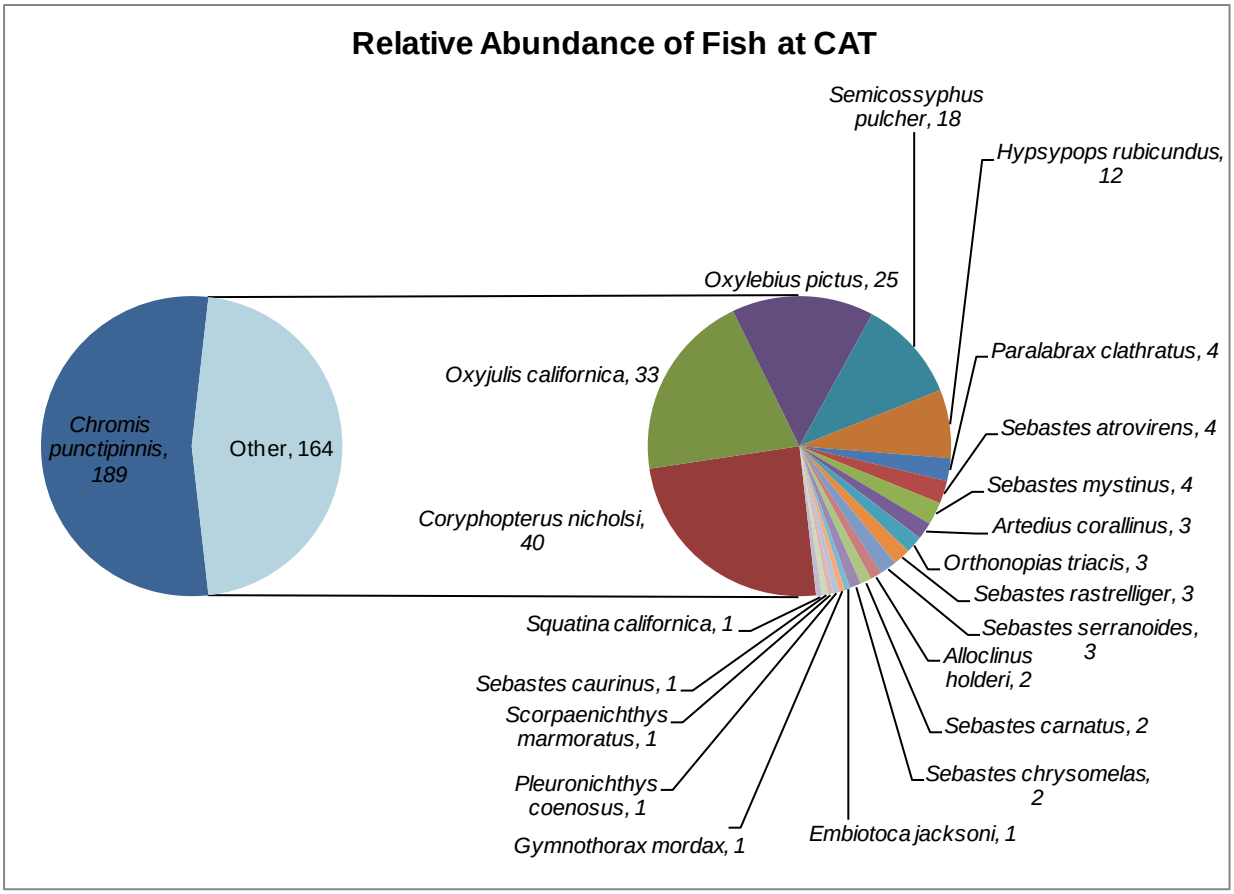
Species	Max Count	Species	Max Count
Alloclinus holderi	1	*Lythrypnus dalli*	8
Artedius corallinus	1	*Lythrypnus zebra*	13
Brachyistius frenatus	9	*Medialuna californiensis,* adult	4
Cephaloscyllium ventriosum	1	*Oxyjulis californica,* adult	187
Chromis punctipinnis, adult	302	*Oxylebius pictus*	29
Citharichthys stigmaeus	11	*Paralabrax clathratus,* adult	17
Coryphopterus nicholsi	45	*Rhacochilus vacca,* adult	2
Embiotoca jacksoni, adult	8	*Scorpaenichthys marmoratus,* adult	1
Embiotoca jacksoni, juvenile	5	*Sebastes atrovirens,* adult	16
Embiotoca lateralis, adult	7	*Sebastes caurinus,* juvenile	2
Gibbonsia sp.	1	*Sebastes chrysomelas,* adult	4
Gymnothorax mordax	1	*Sebastes mystinus,* adult	2
Halichoeres semicinctus, female	2	*Sebastes mystinus,* juvenile	5
Halichoeres semicinctus, male	4	*Sebastes rastrelliger,* adult	1
Heterodontus francisci	1	*Sebastes serranoides,* adult	2
Heterostichus rostratus, adult	1	*Sebastes serranoides/flavidus,* juvenile	1
Hypsypops rubicundus, adult	20	*Sebastes serriceps,* adult	3
KGB	2	*Semicossyphus pulcher,* female	11
Leiocottus hirundo	1	*Semicossyphus pulcher,* male	3



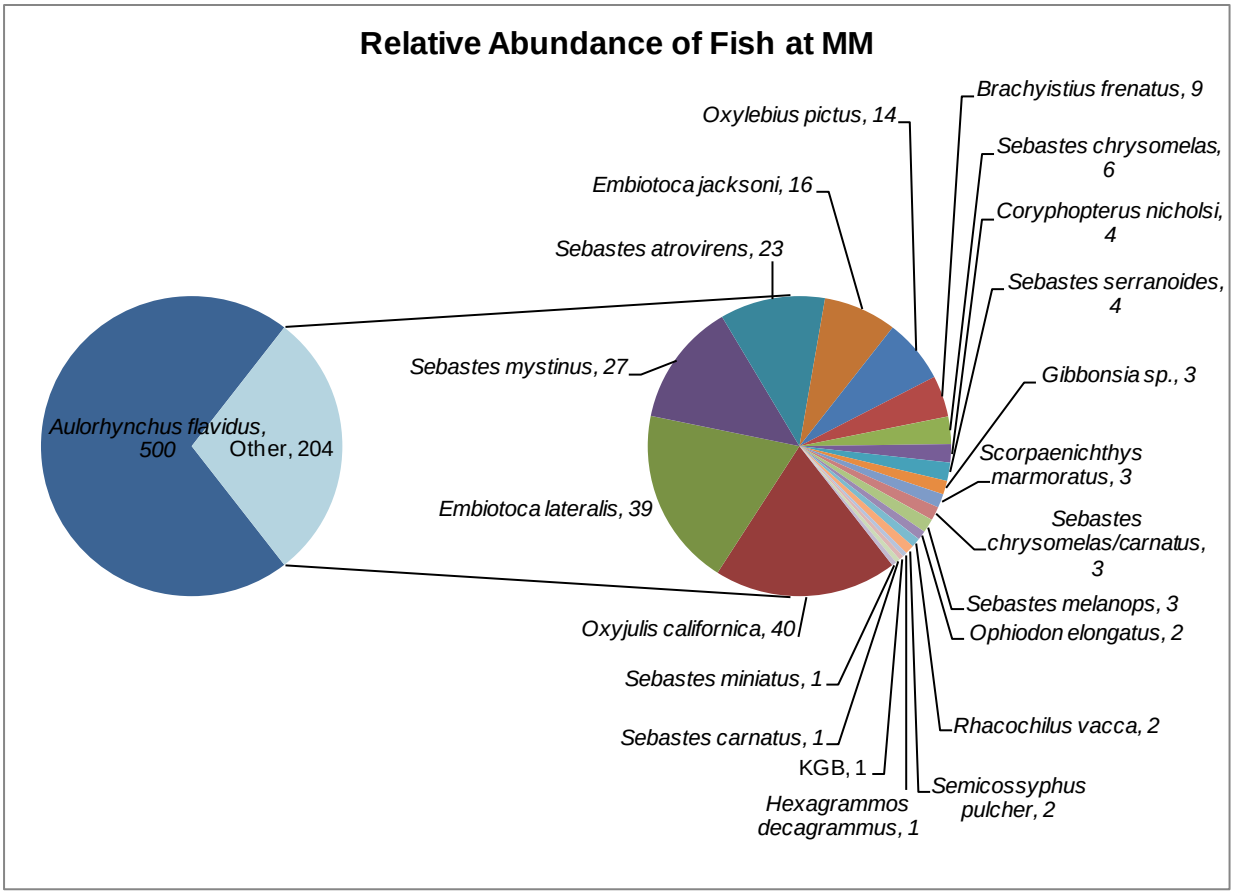
Species	Max Count	Species	Max Count
Artedius corallinus	2	*Sebastes caurinus,* adult	1
Chromis punctipinnis, adult	26	*Sebastes miniatus,* juvenile	12
Coryphopterus nicholsi	119	*Sebastes mystinus,* adult	4
Gymnothorax mordax	1	*Sebastes mystinus,* juvenile	5
Hypsypops rubicundus, adult	2	*Sebastes saxicola,* juvenile	3
Oxylebius pictus	12	*Sebastes serranoides,* adult	2
Paralabrax clathratus, adult	4	*Semicossyphus pulcher,* female	7
Sebastes carnatus, adult	2		



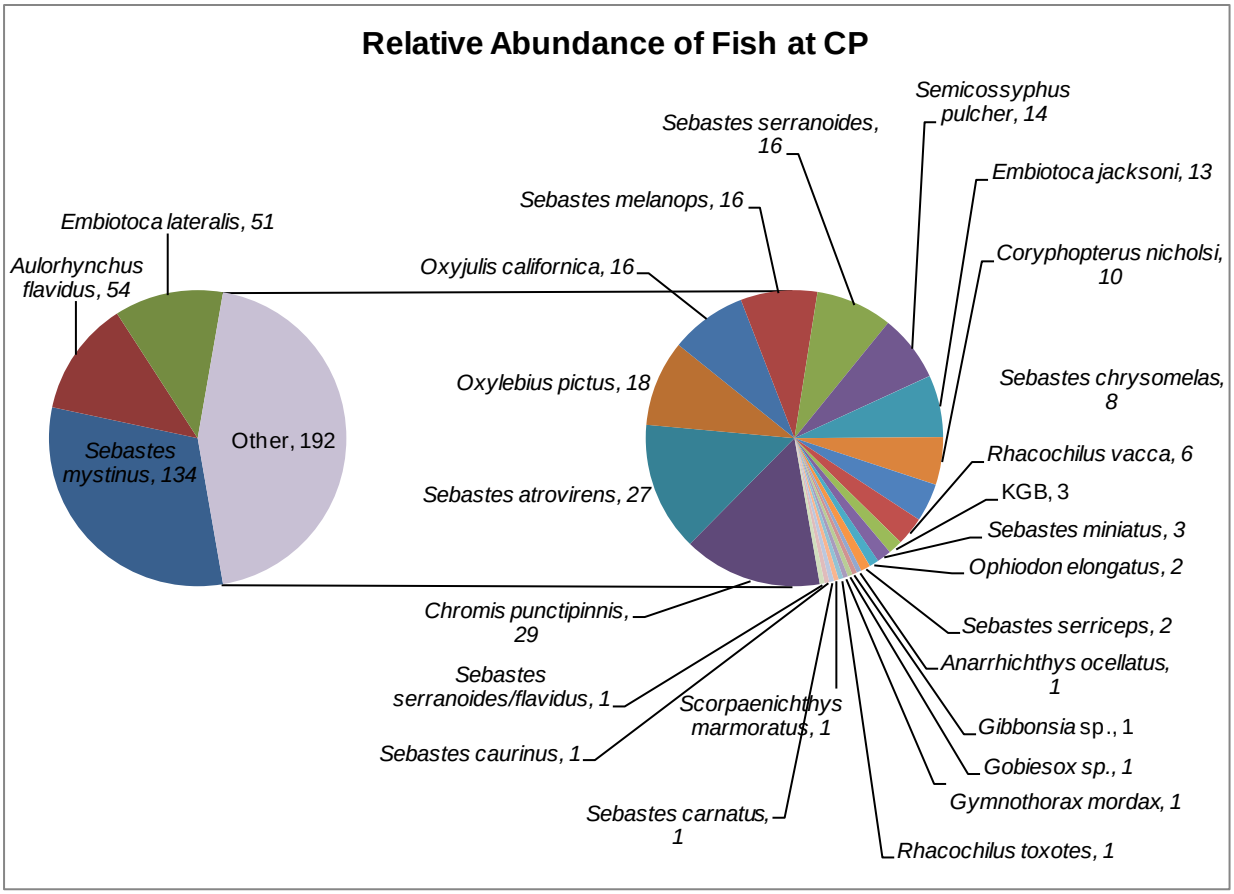
Species	Max Count	Species	Max Count
Artedius corallinus	3	*Oxylebius pictus*	42
Cephaloscyllium ventriosum	3	*Paralabrax clathratus,* adult	2
Chromis punctipinnis, adult	246	*Pleuronichthys coenosus*	1
Coryphopterus nicholsi	130	*Sebastes carnatus,* adult	1
Gymnothorax mordax	1	*Sebastes caurinus,* adult	1
Heterodontus francisci	1	*Sebastes mystinus,* adult	32
Hypsypops rubicundus, adult	32	*Sebastes mystinus,* juvenile	3
KGB	14	*Sebastes rastrelliger,* adult	2
Medialuna californiensis	72	*Sebastes serranoides,* adult	1
Orthonopias triacis	2	*Sebastes serriceps,* adult	1
Oxyjulis californica, adult	16	*Semicossyphus pulcher,* female	12
Oxyjulis californica, juvenile	1	*Semicossyphus pulcher,* male	2



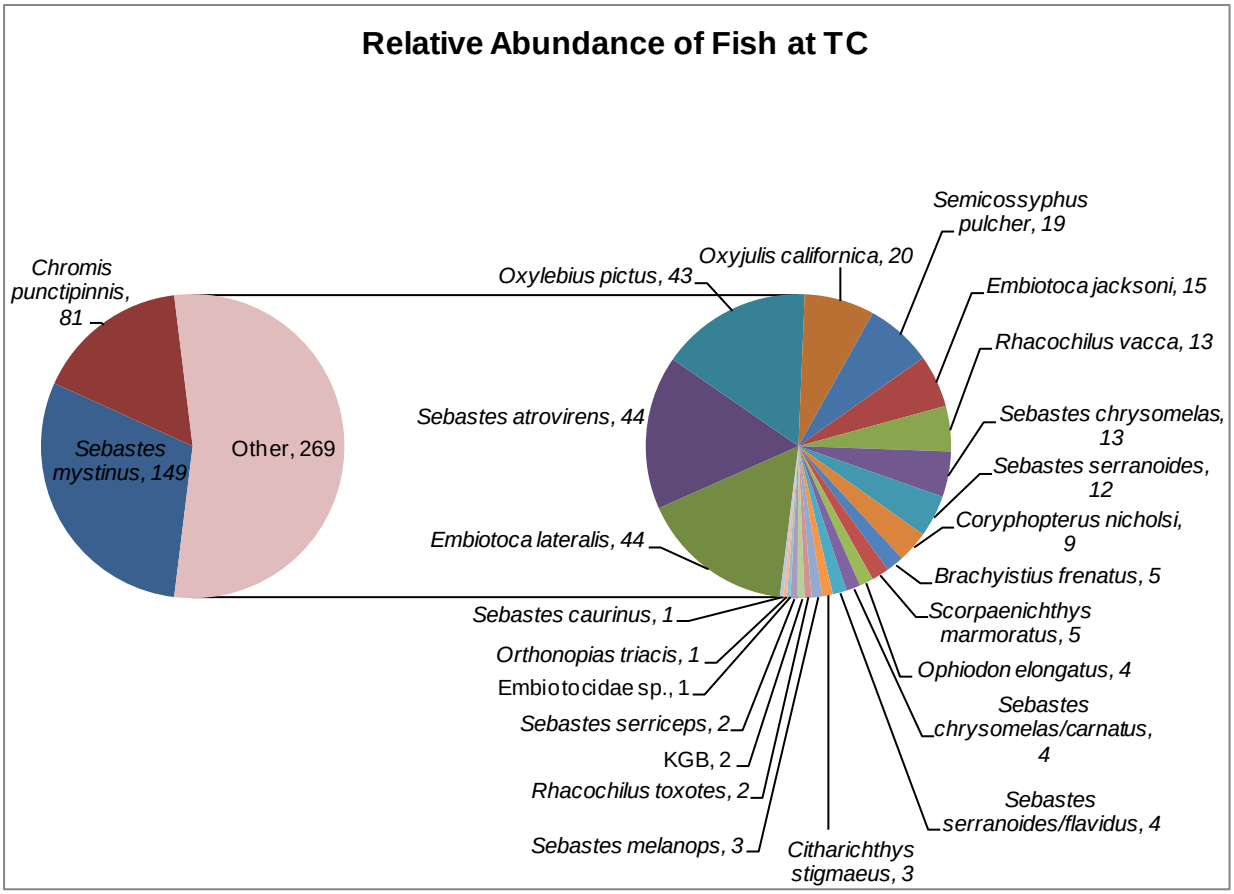
Species	Max Count	Species	Max Count
Alloclinus holderi	2	*Pleuronichthys coenosus*	1
Artedius corallinus	3	*Scorpaenichthys marmoratus*	1
Chromis punctipinnis, adult	189	*Sebastes atrovirens,* adult	4
Coryphopterus nicholsi	40	*Sebastes carnatus,* adult	2
Embiotoca jacksoni, adult	1	*Sebastes caurinus,* adult	1
Gymnothorax mordax	1	*Sebastes chrysomelas,* adult	2
Hypsypops rubicundus, adult	12	*Sebastes mystinus,* adult	4
Orthonopias triacis	3	*Sebastes rastrelliger,* adult	3
Oxyjulis californica, adult	33	*Sebastes serranoides,* adult	3
Oxylebius pictus	25	*Semicossyphus pulcher,* female	17
Paralabrax clathratus, adult	2	*Semicossyphus pulcher,* male	1
Paralabrax clathratus, juvenile	2	*Squatina californica*	1



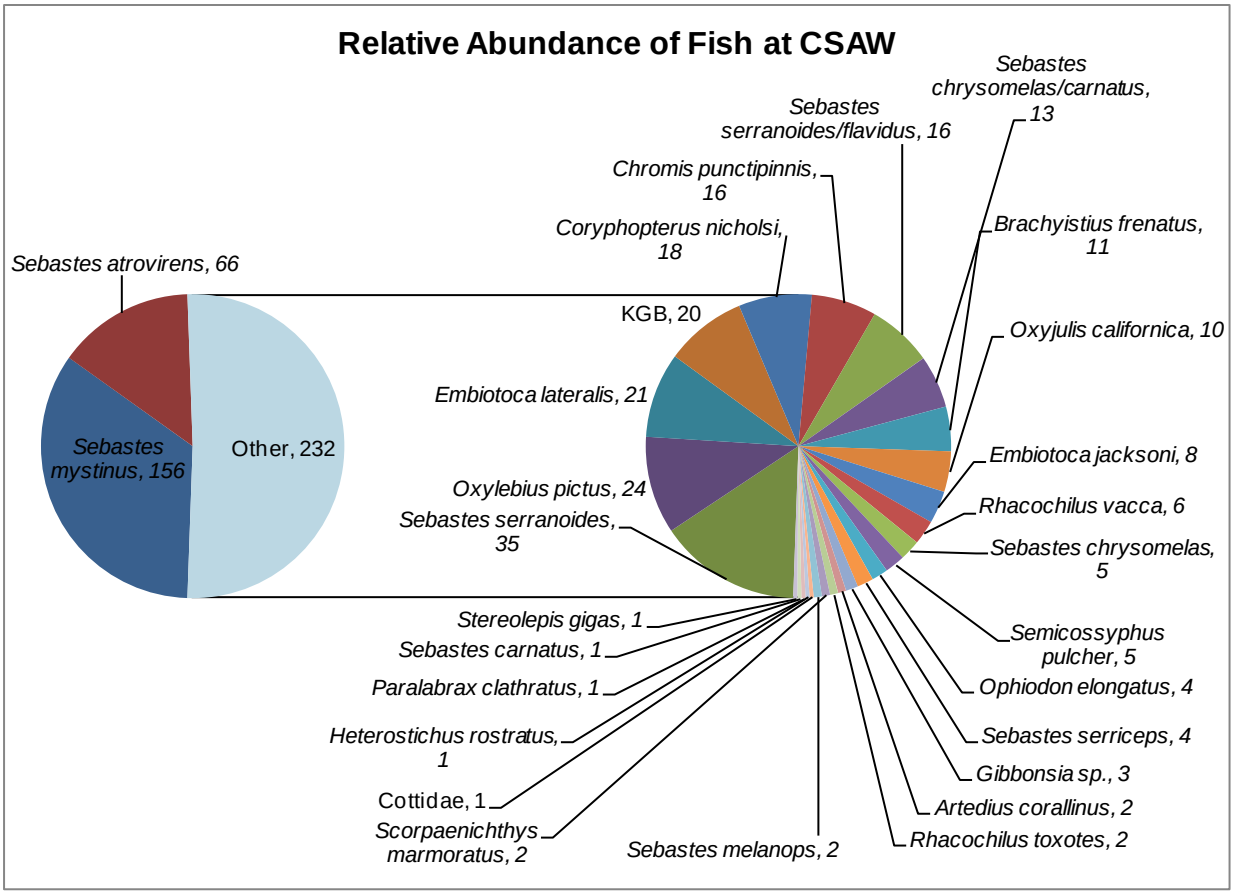
Species	Max Count	Species	Max Count
Aulorhynchus flavidus, adult	150	*Rhacochilus vacca,* adult	1
Aulorhynchus flavidus	350	*Rhacochilus vacca,* juvenile	1
Brachyistius frenatus	9	*Scorpaenichthys marmoratus,* adult	3
Coryphopterus nicholsi	4	*Sebastes atrovirens,* adult	22
Embiotoca jacksoni, adult	13	*Sebastes atrovirens,* juvenile	1
Embiotoca jacksoni, juvenile	3	*Sebastes carnatus,* adult	1
Embiotoca lateralis, adult	26	*Sebastes chrysomelas,* adult	6
Embiotoca lateralis, juvenile	13	*Sebastes chrysomelas/carnatus,* juvenile	3
Gibbonsia sp.	3	*Sebastes melanops,* adult	3
Hexagrammos decagrammus	1	*Sebastes miniatus,* adult	1
KGB	1	*Sebastes mystinus,* adult	18
Ophiodon elongatus	2	*Sebastes mystinus,* juvenile	9
Oxyjulis californica, adult	40	*Sebastes serranoides,* adult	4
Oxylebius pictus	14	*Semicossyphus pulcher,* female	2



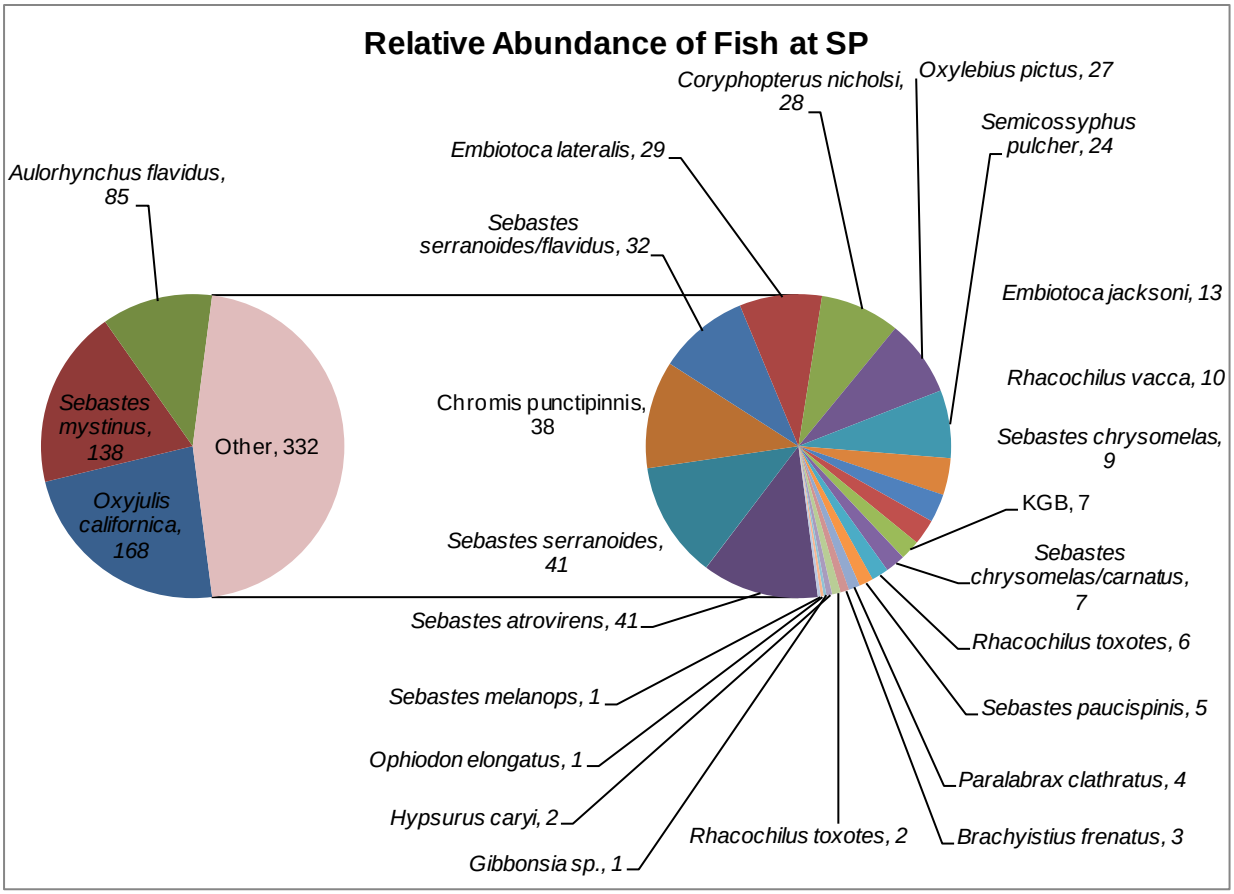
Species	Max Count	Species	Max Count
Anarrhichthys ocellatus	1	*Scorpaenichthys marmoratus*	1
Aulorhynchus flavidus	54	*Sebastes atrovirens,* adult	27
Chromis punctipinnis, adult	29	*Sebastes carnatus,* adult	1
Coryphopterus nicholsi	10	*Sebastes caurinus,* adult	1
Embiotoca jacksoni, adult	13	*Sebastes chrysomelas,* adult	8
Embiotoca lateralis, adult	43	*Sebastes melanops,* adult	16
Embiotoca lateralis, juvenile	8	*Sebastes miniatus,* adult	3
Gibbonsia sp.	1	*Sebastes mystinus,* adult	126
Gobiesox sp.	1	*Sebastes mystinus,* juvenile	8
Gymnothorax mordax	1	*Sebastes serranoides,* adult	16
KGB	3	*Sebastes serranoides/flavidus,* juvenile	1
Ophiodon elongatus	2	*Sebastes serriceps,* adult	1
Oxyjulis californica, adult	16	*Sebastes serriceps,* juvenile	1
Oxylebius pictus	18	*Semicossyphus pulcher,* female	10
Rhacochilus toxotes	1	*Semicossyphus pulcher,* male	4
Rhacochilus vacca, adult	6		



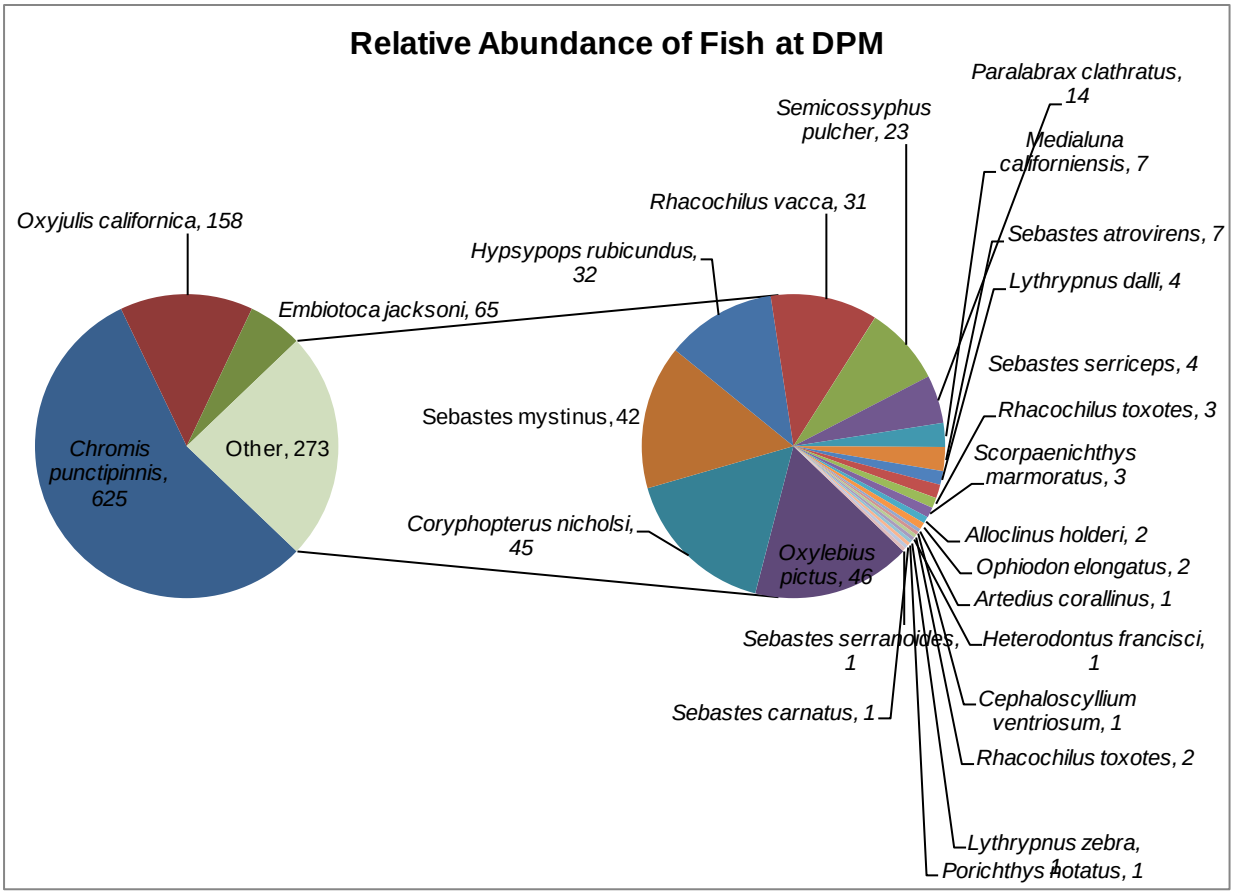
Species	Max Count	Species	Max Count
Brachyistius frenatus	5	*Scorpaenichthys marmoratus,* adult	5
Chromis punctipinnis, adult	67	*Sebastes atrovirens,* adult	41
Chromis punctipinnis, juvenile	14	*Sebastes atrovirens,* juvenile	3
Citharichthys stigmaeus	3	*Sebastes caurinus,* adult	1
Coryphopterus nicholsi	9	*Sebastes chrysomelas,* adult	13
Embiotoca jacksoni, adult	15	*Sebastes chrysomelas/carnatus,* juvenile	4
Embiotoca lateralis, adult	31	*Sebastes melanops,* adult	3
Embiotoca lateralis, juvenile	13	*Sebastes mystinus,* adult	72
Embiotocidae, juvenile	1	*Sebastes mystinus,* juvenile	77
KGB	2	*Sebastes serranoides,* adult	12
Ophiodon elongatus	4	*Sebastes serranoides/flavidus,* juvenile	4
Orthonopias triacis	1	*Sebastes serriceps,* adult	1
Oxyjulis californica, adult	20	*Sebastes serriceps,* juvenile	1
Oxylebius pictus	43	*Semicossyphus pulcher,* female	13
Rhacochilus toxotes	2	*Semicossyphus pulcher,* male	6



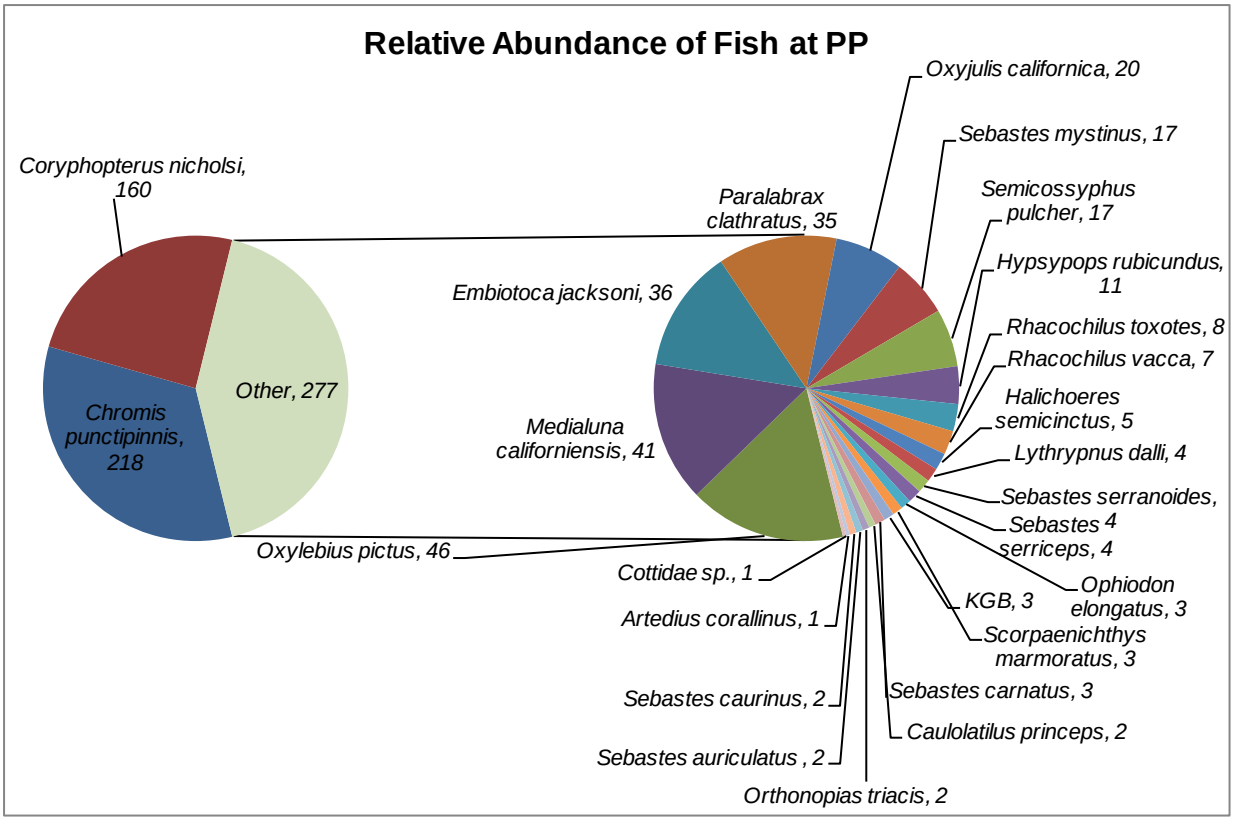
Species	Max Count	Species	Max Count
Artedius corallinus	2	*Rhacochilus vacca,* adult	5
Brachyistius frenatus	11	*Rhacochilus vacca,* juvenile	1
Chromis punctipinnis, juvenile	16	*Scorpaenichthys marmoratus,* adult	2
Coryphopterus nicholsi	18	*Sebastes atrovirens,* adult	51
Cottidae sp.	1	*Sebastes atrovirens,* juvenile	15
Embiotoca jacksoni, adult	6	*Sebastes carnatus,* juvenile	1
Embiotoca jacksoni, juvenile	2	*Sebastes chrysomelas,* adult	5
Embiotoca lateralis, adult	14	*Sebastes chrysomelas/carnatus,* juvenile	13
Embiotoca lateralis, juvenile	7	*Sebastes melanops,* adult	2
Gibbonsia sp.	3	*Sebastes mystinus,* adult	96
Heterostichus rostratus, juvenile	1	*Sebastes mystinus,* juvenile	60
KGB	20	*Sebastes serranoides,* adult	35
Ophiodon elongatus	4	*Sebastes serranoides/flavidus,* juvenile	16
Oxyjulis californica, adult	10	*Sebastes serriceps,* juvenile	4
Oxylebius pictus	24	*Semicossyphus pulcher,* female	4
Paralabrax clathratus, adult	1	*Semicossyphus pulcher,* male	1
Rhacochilus toxotes	2	*Stereolepis gigas,* adult	1



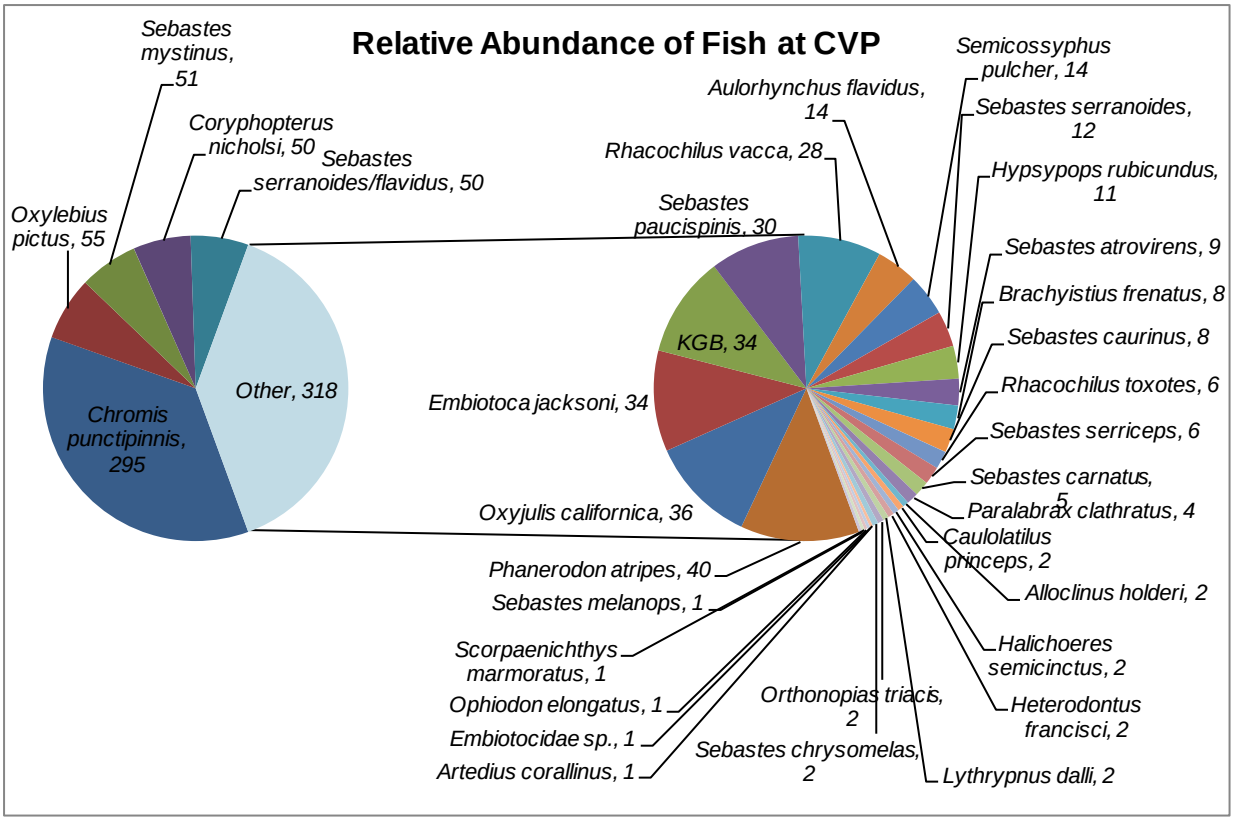
Species	Max Count	Species	Max Count
Aulorhynchus flavidus	85	*Rhacochilus toxotes*	6
Brachyistius frenatus	3	*Rhacochilus vacca,* adult	10
Chromis punctipinnis, adult	38	*Scorpaenichthys marmoratus*	3
Coryphopterus nicholsi	28	*Sebastes atrovirens,* adult	41
Embiotoca jacksoni, adult	12	*Sebastes chrysomelas,* adult	9
Embiotoca jacksoni, juvenile	1	*Sebastes chrysomelas/carnatus,* juvenile	7
Embiotoca lateralis, adult	18	*Sebastes melanops,* adult	1
Embiotoca lateralis, juvenile	11	*Sebastes mystinus,* adult	41
Gibbonsia spp.	1	*Sebastes mystinus,* juvenile	97
Hypsurus caryi	2	*Sebastes paucispinis,* juvenile	5
KGB	7	*Sebastes serranoides,* adult	41
Ophiodon elongatus	1	*Sebastes serranoides/flavidus,* juvenile	32
Oxyjulis californica, adult	168	*Semicossyphus pulcher,* female	13
Oxylebius pictus	27	*Semicossyphus pulcher,* male	11
Paralabrax clathratus, adult	4		



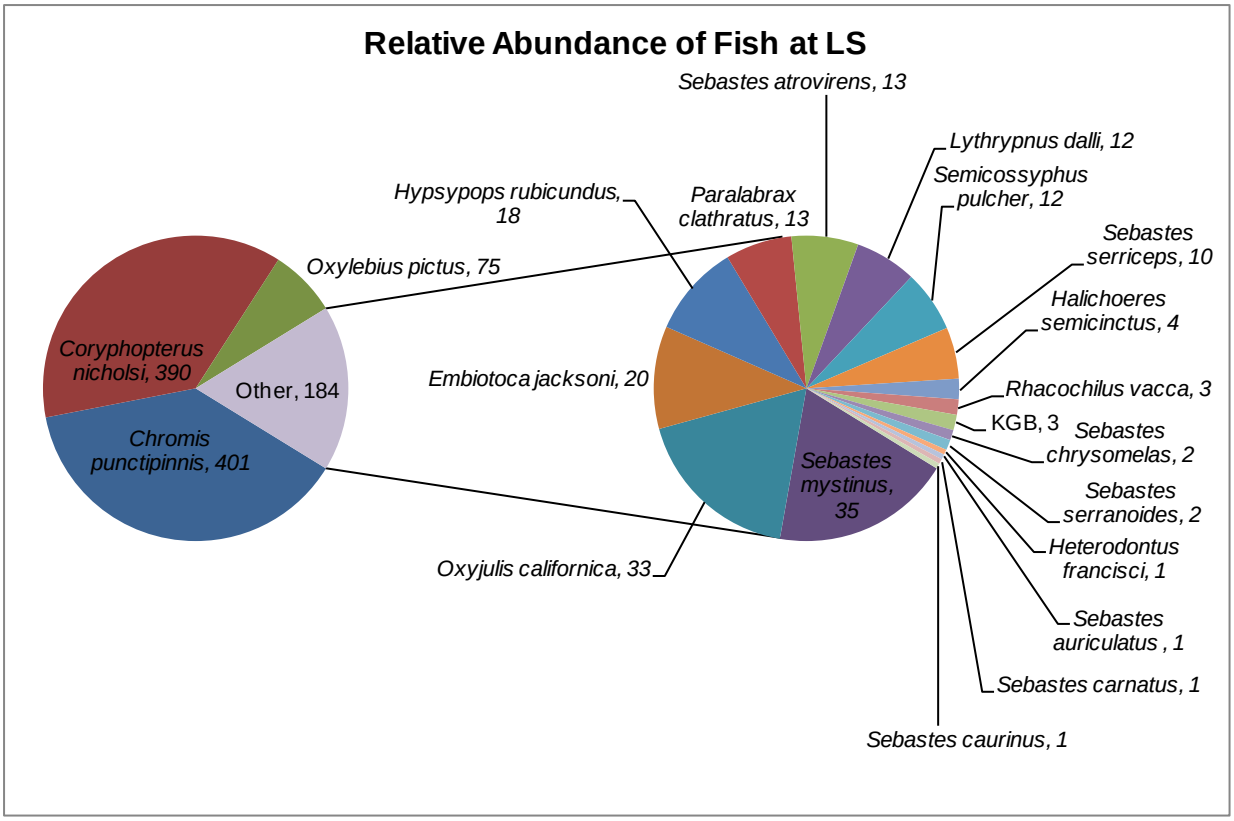
Species	Max Count	Species	Max Count
Alloclinus holderi	2	*Oxylebius pictus*	46
Artedius corallinus	1	*Paralabrax clathratus,* adult	14
Cephaloscyllium ventriosum	1	*Porichthys notatus*	1
Chromis punctipinnis, adult	625	*Rhacochilus toxotes*	3
Coryphopterus nicholsi	45	*Rhacochilus vacca,* adult	31
Embiotoca jacksoni, adult	65	*Scorpaenichthys marmoratus*	3
Embiotoca lateralis, adult	1	*Sebastes atrovirens,* adult	7
Heterodontus francisci	1	*Sebastes carnatus,* adult	1
Hypsypops rubicundus, adult	32	*Sebastes mystinus,* adult	35
Lythrypnus dalli	4	*Sebastes mystinus,* juvenile	7
Lythrypnus zebra	1	*Sebastes serranoides,* adult	1
Medialuna californiensis	7	*Sebastes serriceps,* adult	4
Ophiodon elongatus	2	*Semicossyphus pulcher,* female	22
Oxyjulis californica, adult	158	*Semicossyphus pulcher,* male	1



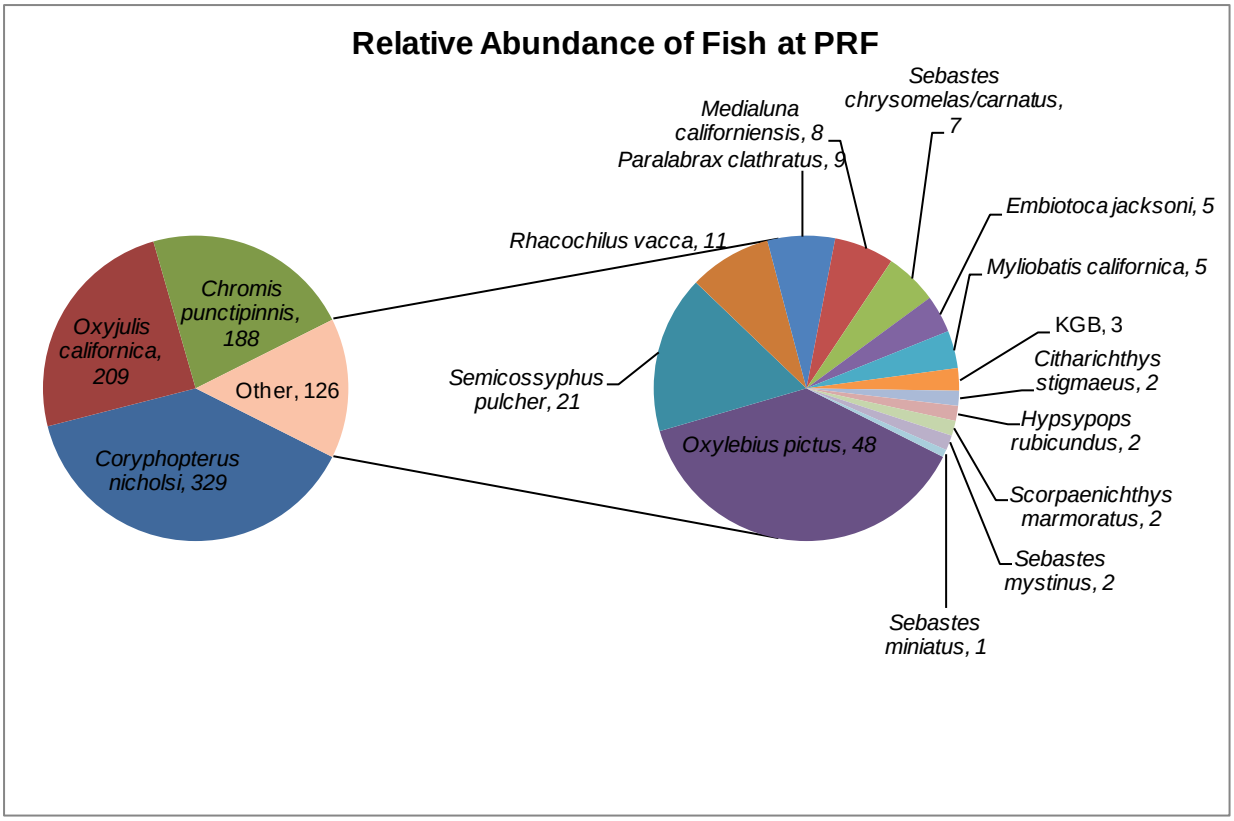
Species	Max Count	Species	Max Count
Artedius corallinus	1	*Oxyjulis californica,* adult	20
Caulolatilus princeps, adult	2	*Oxylebius pictus*	46
Chromis punctipinnis, adult	212	*Paralabrax clathratus,* adult	35
Chromis punctipinnis, juvenile	6	*Rhacochilus toxotes*	8
Coryphopterus nicholsi	160	*Rhacochilus vacca,* adult	7
Cottidae sp.	1	*Scorpaenichthys marmoratus,* adult	3
Embiotoca jacksoni, adult	30	*Sebastes auriculatus,* adult	2
Embiotoca jacksoni, juvenile	6	*Sebastes carnatus,* adult	3
Halichoeres semicinctus, female	3	*Sebastes caurinus,* juvenile	2
Halichoeres semicinctus, male	2	*Sebastes mystinus,* adult	7
Hypsypops rubicundus, adult	11	*Sebastes mystinus,* juvenile	10
KGB	3	*Sebastes serranoides,* adult	4
Lythrypnus dalli	4	*Sebastes serriceps,* adult	4
Medialuna californiensis, adult	41	*Semicossyphus pulcher,* female	15
Ophiodon elongatus	3	*Semicossyphus pulcher,* male	2
Orthonopias triacis	2		



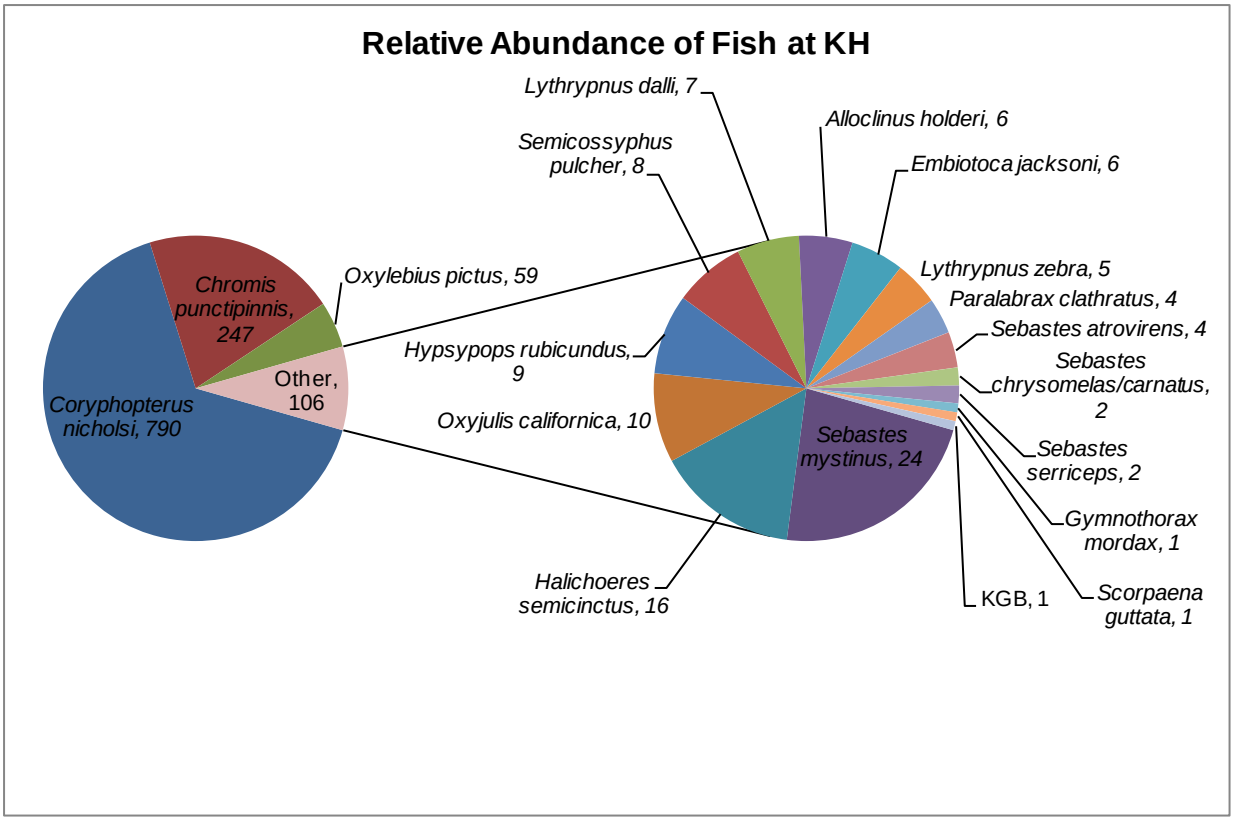
Species	Max Count	Species	Max Count
Alloclinus holderi	2	*Phanerodon atripes*	40
Artedius corallinus	1	*Rhacochilus toxotes*	6
Aulorhynchus flavidus	14	*Rhacochilus vacca,* adult	28
Brachyistius frenatus	8	*Scorpaenichthys marmoratus*	1
Caulolatilus princeps	2	*Sebastes atrovirens,* adult	8
Chromis punctipinnis, adult	295	*Sebastes atrovirens,* juvenile	1
Coryphopterus nicholsi	50	*Sebastes carnatus,* adult	5
Embiotoca jacksoni, adult	32	*Sebastes caurinus,* adult	1
Embiotoca jacksoni, juvenile	2	*Sebastes caurinus,* juvenile	7
Embiotocidae sp.	1	*Sebastes chrysomelas,* adult	2
Halichoeres semicinctus, female	1	*Sebastes melanops,* adult	1
Halichoeres semicinctus, male	1	*Sebastes mystinus,* adult	26
Heterodontus francisci	2	*Sebastes mystinus,* juvenile	25
Hypsypops rubicundus, adult	11	*Sebastes paucispinis,* juvenile	30
KGB	34	*Sebastes serranoides,* adult	12
Lythrypnus dalli	2	*Sebastes serranoides/flavidus,* juvenile	50
Ophiodon elongatus	1	*Sebastes serriceps,* adult	5
Orthonopias triacis	2	*Sebastes serriceps,* juvenile	1
Oxyjulis californica, adult	36	*Semicossyphus pulcher,* female	13
Oxylebius pictus	55	*Semicossyphus pulcher,* male	1
Paralabrax clathratus, adult	4		



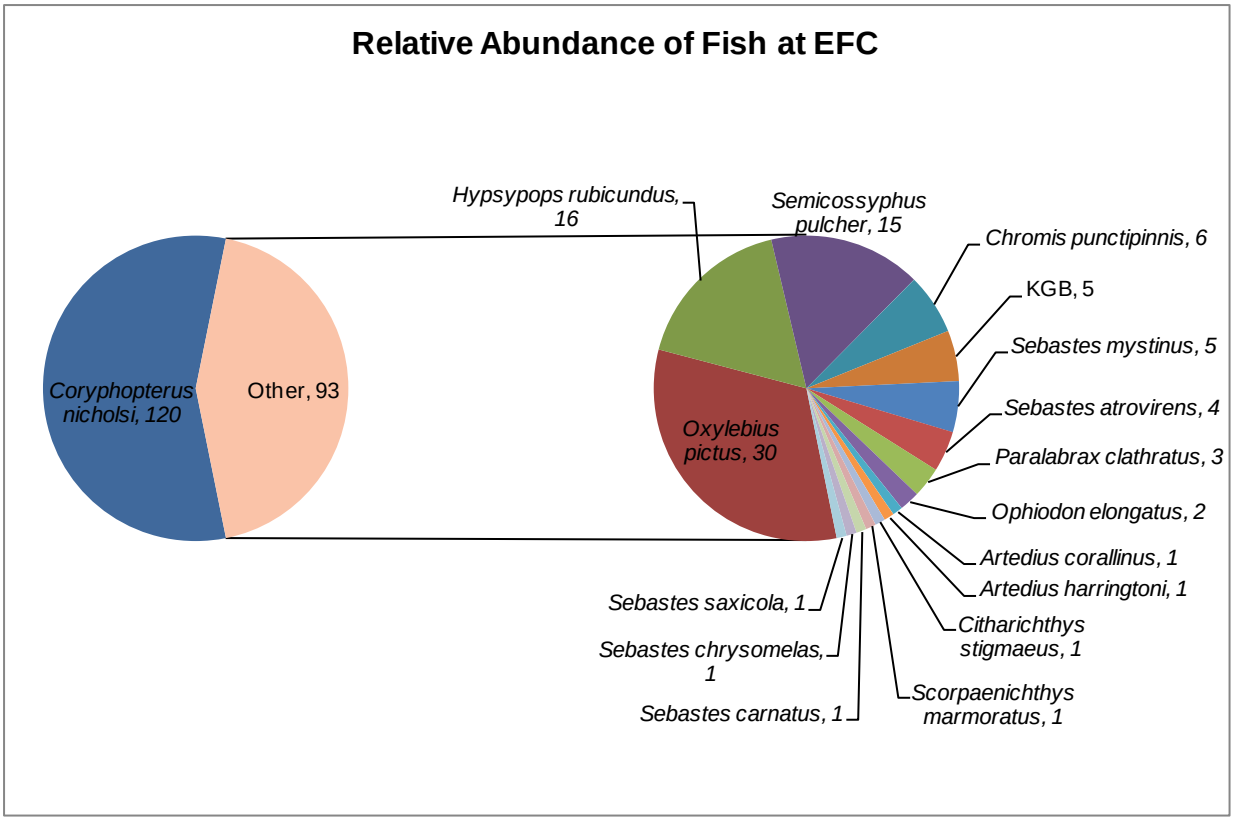
Species	Max Count	Species	Max Count
Chromis punctipinnis, adult	401	*Rhacochilus vacca,* adult	3
Coryphopterus nicholsi	390	*Sebastes atrovirens,* adult	13
Embiotoca jacksoni, adult	20	*Sebastes auriculatus,* juvenile	1
Halichoeres semicinctus, female	2	*Sebastes carnatus,* adult	1
Halichoeres semicinctus, male	2	*Sebastes caurinus,* juvenile	1
Heterodontus francisci	1	*Sebastes chrysomelas,* adult	2
Hypsypops rubicundus, adult	18	*Sebastes mystinus,* adult	29
KGB	3	*Sebastes mystinus,* juvenile	6
Lythrypnus dalli	12	*Sebastes serranoides,* adult	2
Oxyjulis californica, adult	33	*Sebastes serriceps,* adult	10
Oxylebius pictus	75	*Semicossyphus pulcher,* female	12
Paralabrax clathratus, adult	13		



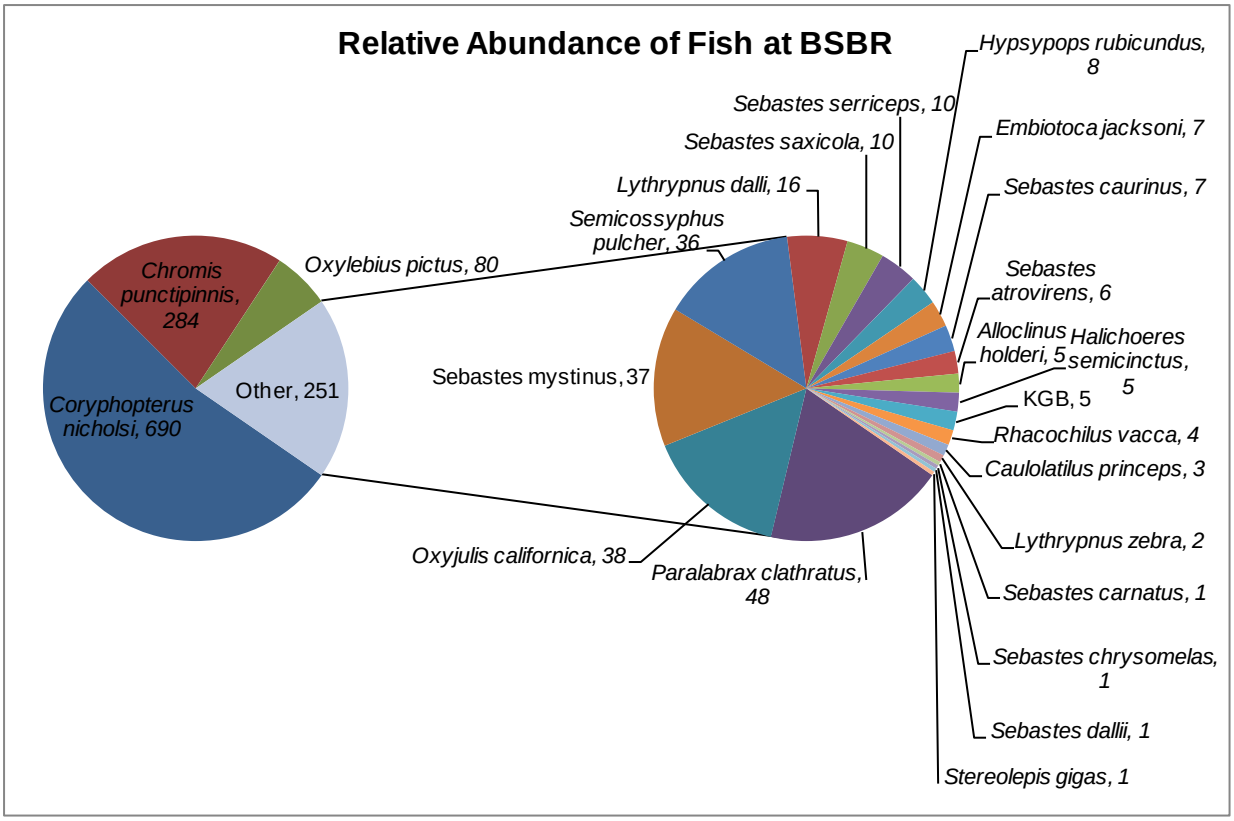
Species	Max Count	Species	Max Count
Chromis punctipinnis, adult	188	*Oxyjulis californica,* juvenile	18
Citharichthys stigmaeus	2	*Oxylebius pictus*	48
Coryphopterus nicholsi	329	*Paralabrax clathratus,* adult	9
Embiotoca jacksoni, adult	5	*Rhacochilus vacca,* adult	11
Hypsypops rubicundus, adult	2	*Scorpaenichthys marmoratus*	2
KGB	3	*Sebastes chrysomelas/carnatus,* juvenile	7
Medialuna californiensis	8	*Sebastes miniatus,* juvenile	1
Myliobatis californica	5	*Sebastes mystinus,* juvenile	2
Oxyjulis californica, adult	191	*Semicossyphus pulcher,* female	21



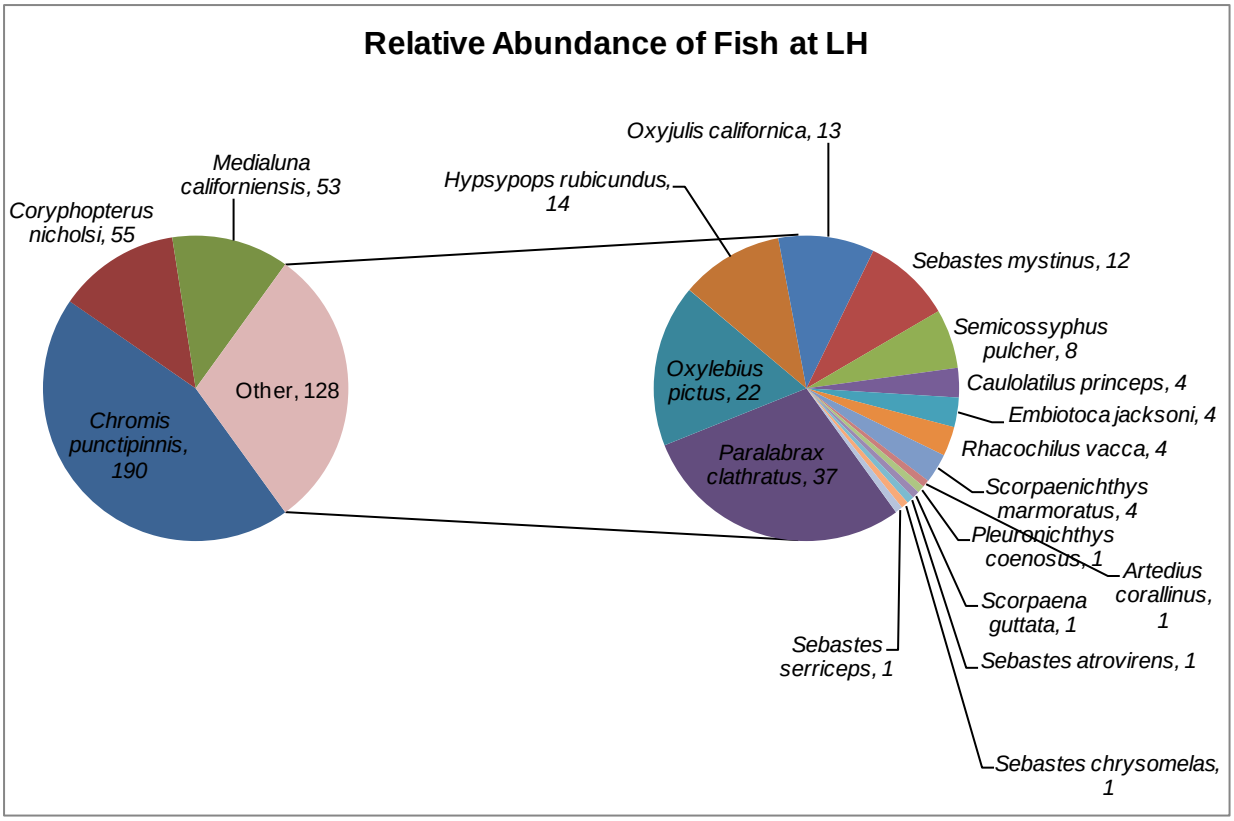
Species	Max Count	Species	Max Count
Alloclinus holderi	6	Lythrypnus zebra	5
Chromis punctipinnis, adult	247	Oxyjulis californica, adult	10
Coryphopterus nicholsi	790	Oxylebius pictus	59
Embiotoca jacksoni, adult	5	Paralabrax clathratus, adult	4
Embiotoca jacksoni, juvenile	1	Scorpaena guttata, all	1
Gymnothorax mordax	1	Sebastes atrovirens, adult	4
Halichoeres semicinctus, female	11	Sebastes chrysomelas/carnatus, juvenile	2
Halichoeres semicinctus, male	5	Sebastes mystinus, adult	21
Hypsypops rubicundus, adult	9	Sebastes mystinus, juvenile	3
KGB	1	Sebastes serriceps, adult	2
Lythrypnus dalli	7	Semicossyphus pulcher, female	8



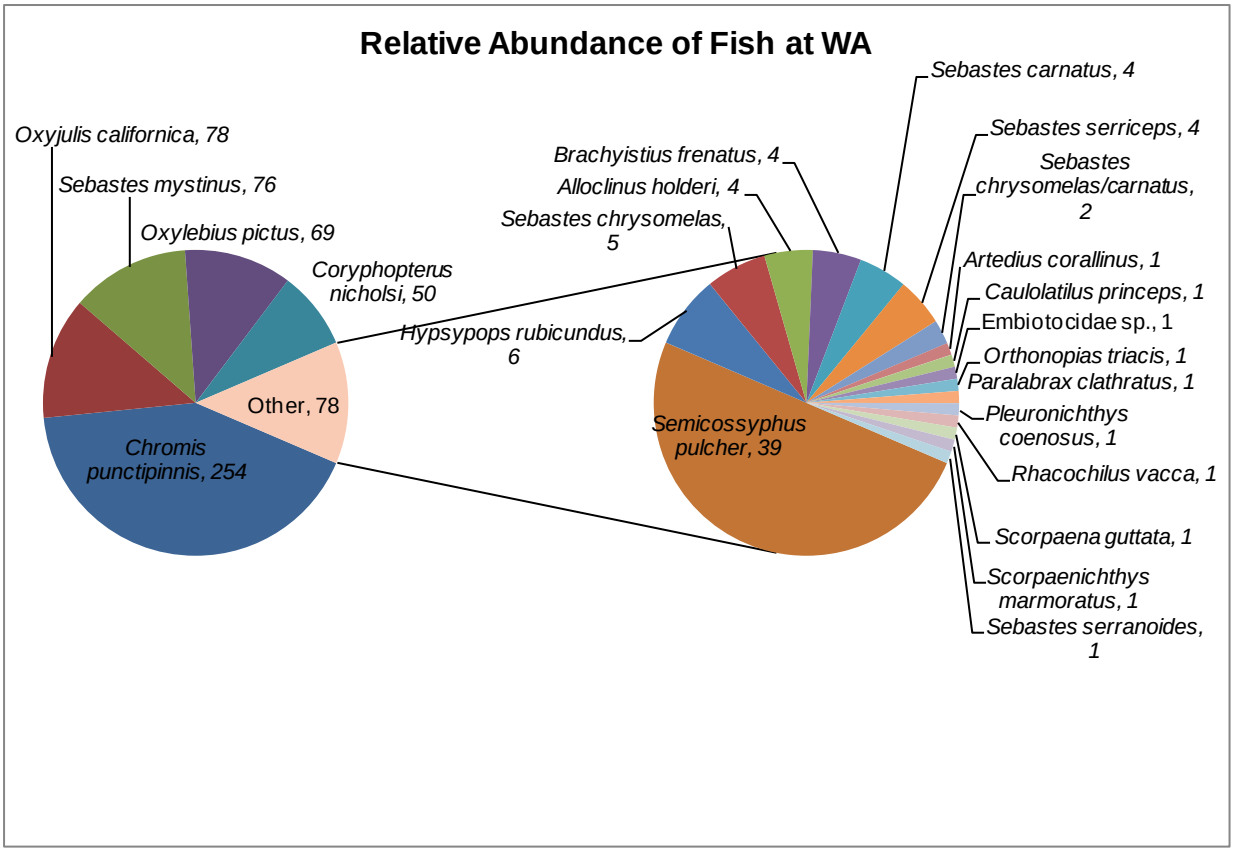
Species	Max Count	Species	Max Count
Artedius corallinus	1	*Paralabrax clathratus,* adult	3
Artedius harringtoni	1	*Scorpaenichthys marmoratus*	1
Chromis punctipinnis, adult	6	*Sebastes atrovirens,* adult	4
Citharichthys stigmaeus	1	*Sebastes carnatus,* juvenile	1
Coryphopterus nicholsi	120	*Sebastes chrysomelas,* adult	1
Hypsypops rubicundus, adult	16	*Sebastes mystinus,* adult	4
KGB	5	*Sebastes mystinus,* juvenile	1
Ophiodon elongatus	2	*Sebastes saxicola,* juvenile	1
Oxylebius pictus	30	*Semicossyphus pulcher,* female	15



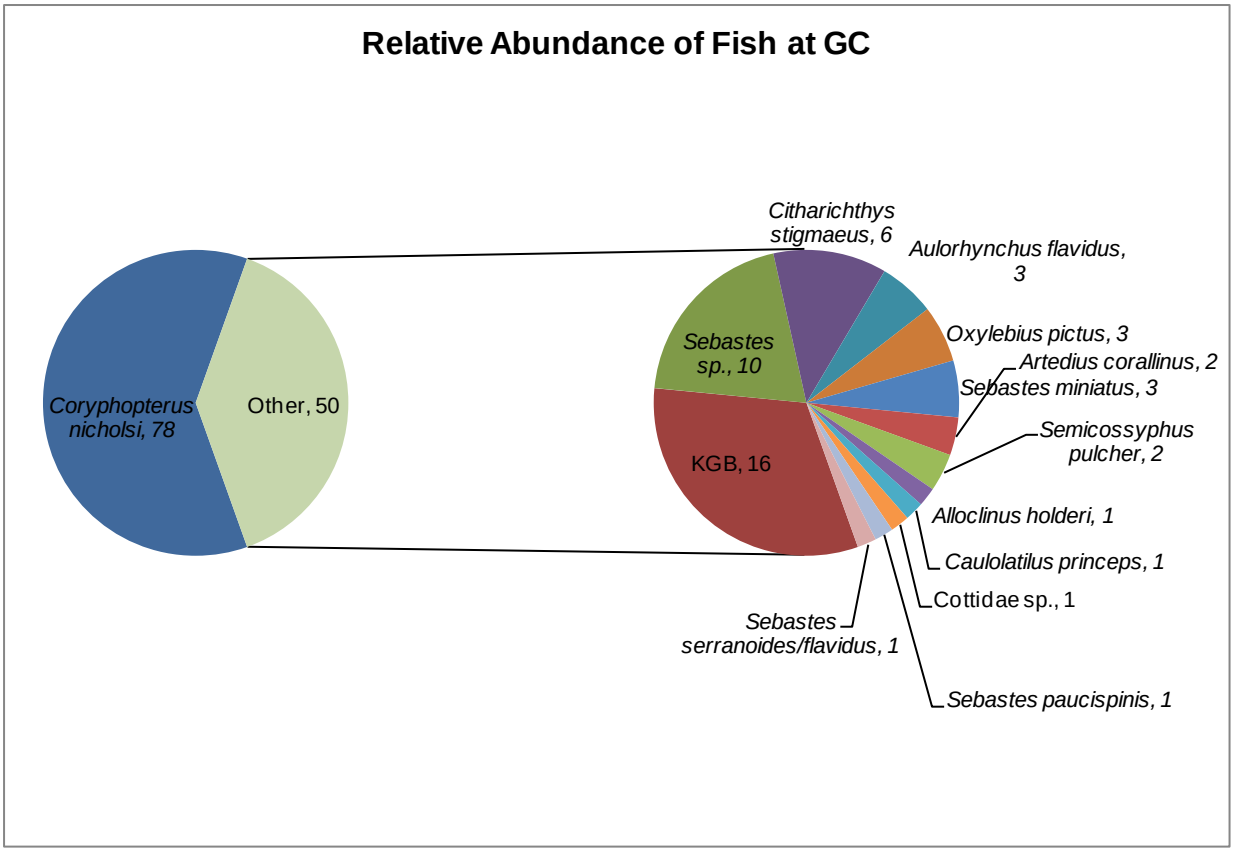
Species	Max Count	Species	Max Count
Alloclinus holderi	5	*Sebastes atrovirens,* adult	6
Caulolatilus princeps	3	*Sebastes carnatus,* adult	1
Chromis punctipinnis, adult	284	*Sebastes caurinus,* adult	2
Coryphopterus nicholsi	690	*Sebastes caurinus,* juvenile	5
Embiotoca jacksoni, adult	7	*Sebastes chrysomelas,* adult	1
Halichoeres semicinctus, female	3	*Sebastes dallii,* juvenile	1
Halichoeres semicinctus, male	2	*Sebastes mystinus,* adult	16
Hypsypops rubicundus, adult	8	*Sebastes mystinus,* juvenile	21
KGB	5	*Sebastes saxicola,* juvenile	10
Lythrypnus dalli	16	*Sebastes serriceps,* adult	5
Lythrypnus zebra	2	*Sebastes serriceps,* juvenile	5
Oxyjulis californica, adult	38	*Semicossyphus pulcher,* female	30
Oxylebius pictus	80	*Semicossyphus pulcher,* male	6
Paralabrax clathratus, adult	48	*Stereolepis gigas*	1
Rhacochilus vacca, adult	4		



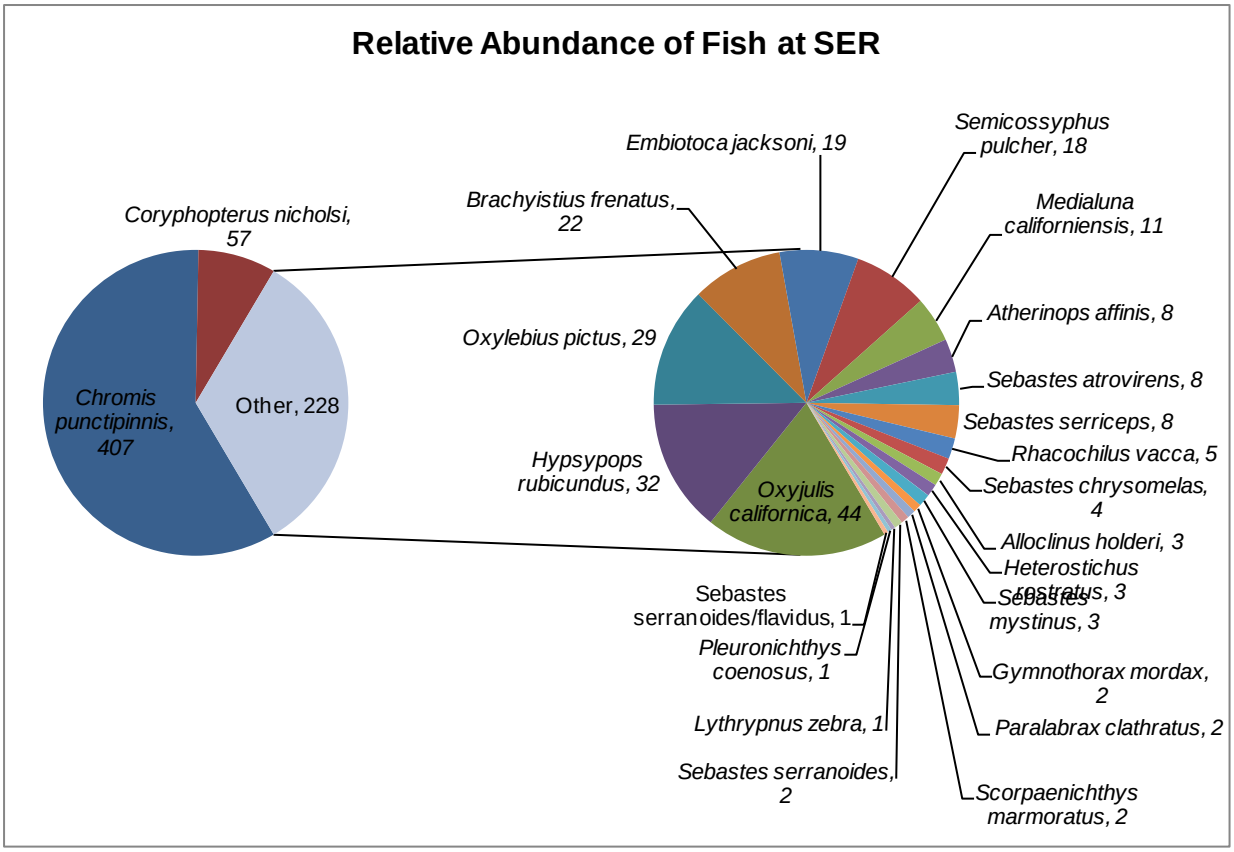
Species	Max Count	Species	Max Count
Artedius corallinus	1	*Pleuronichthys coenosus*	1
Caulolatilus princeps, adult	4	*Rhacochilus vacca,* adult	4
Chromis punctipinnis, adult	153	*Scorpaena guttata,* adult	1
Chromis punctipinnis, juvenile	37	*Scorpaenichthys marmoratus,* adult	4
Coryphopterus nicholsi	55	*Sebastes atrovirens,* adult	1
Embiotoca jacksoni, adult	4	*Sebastes chrysomelas,* adult	1
Hypsypops rubicundus, adult	14	*Sebastes mystinus,* adult	11
Medialuna californiensis, adult	53	*Sebastes mystinus,* juvenile	1
Oxyjulis californica, adult	13	*Sebastes serriceps,* adult	1
Oxylebius pictus	22	*Semicossyphus pulcher,* female	8
Paralabrax clathratus, adult	37		



Species	MaxCount	Species	MaxCount
Alloclinus holderi	4	*Scorpaena guttata*	1
Artedius corallinus	1	*Scorpaenichthys marmoratus*	1
Brachyistius frenatus	4	*Sebastes carnatus,* adult	3
Caulolatilus princeps	1	*Sebastes carnatus,* juvenile	1
Chromis punctipinnis, adult	254	*Sebastes chrysomelas,* adult	5
Coryphopterus nicholsi	50	*Sebastes chrysomelas/carnatus,* juvenile	2
Embiotocidae sp., juvenile	1	*Sebastes mystinus,* adult	41
Hypsypops rubicundus, adult	6	*Sebastes mystinus,* juvenile	35
Orthonopias triacis	1	*Sebastes serranoides,* adult	1
Oxyjulis californica, adult	78	*Sebastes serriceps,* adult	2
Oxylebius pictus	69	*Sebastes serriceps,* juvenile	2
Paralabrax clathratus, adult	1	*Semicossyphus pulcher,* female	36
Pleuronichthys coenosus	1	*Semicossyphus pulcher,* male	3
Rhacochilus vacca, adult	1		



Species	Max Count	Species	Max Count
Alloclinus holderi	1	KGB	16
Artedius corallinus	2	*Oxylebius pictus*	3
Aulorhynchus flavidus, juvenile	3	*Sebastes miniatus,* juvenile	3
Caulolatilus princeps	1	*Sebastes paucispinis,* juvenile	1
Citharichthys stigmaeus	6	*Sebastes serranoides/flavidus,* juvenile	1
Coryphopterus nicholsi	78	*Sebastes* sp., juvenile	10
Cottidae sp.	1	*Semicossyphus pulcher,* female	2



Species	Max Count	Species	Max Count
Alloclinus holderi	3	*Oxyjulis californica,* juvenile	13
Atherinops affinis	8	*Oxylebius pictus*	29
Brachyistius frenatus	22	*Paralabrax clathratus,* adult	2
Chromis punctipinnis, adult	395	*Pleuronichthys coenosus*	1
Chromis punctipinnis, juvenile	12	*Rhacochilus vacca,* adult	3
Coryphopterus nicholsi	57	*Rhacochilus vacca,* juvenile	2
Embiotoca jacksoni, adult	9	*Scorpaenichthys marmoratus,* adult	2
Embiotoca jacksoni, juvenile	10	*Sebastes atrovirens,* adult	8
Gymnothorax mordax	2	*Sebastes chrysomelas,* adult	4
Heterostichus rostratus	1	*Sebastes mystinus,* adult	3
Heterostichus rostratus, juvenile	2	*Sebastes serranoides,* adult	2
Hypsypops rubicundus, adult	31	*Sebastes serranoides/flavidus,* juvenile	1
Hypsypops rubicundus, juvenile	1	*Sebastes serriceps,* adult	3
Lythrypnus zebra	1	*Sebastes serriceps,* juvenile	5
Medialuna californiensis	11	*Semicossyphus pulcher,* female	15
Oxyjulis californica, adult	31	*Semicossyphus pulcher,* male	3

Appendix J. Natural Habitat Size Frequencies Distributions

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Wyckoff Ledge

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	1.7 %
30 - 39	10.0 %
40 - 49	8.3 %
50 - 59	8.3 %
60 - 69	13.3 %
70 - 79	13.3 %
80 - 89	11.7 %
90 - 99	8.3 %
> 99	25.0 %
(Cases) N =	60
mean	80
min size (mm)	28
max size (mm)	152

Kelletia kelletii

< 40	0.0 %
40 - 49	1.6 %
50 - 59	0.0 %
60 - 69	3.1 %
70 - 79	7.8 %
80 - 89	39.1 %
90 - 99	35.9 %
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 =	64
mean	87
min size (mm)	40
max size (mm)	108

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	0.0 %
110 - 119	75.0 %
> 119	25.0 %
(Cases) N =	8
mean	121
min size (mm)	114
max size (mm)	142

Haliotis rufescens

<25	0.6 %
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	1.2 %
125 - 134	0.6 %
135 - 144	0.6 %
145 - 154	3.0 %
155 - 164	4.2 %
165 - 174	12.7 %
175 - 184	15.7 %
185 - 194	18.1 %
>195	42.2 %
(Cases) N =	166
mean	189
min size (mm)	20
max size (mm)	244

Lithopoma gibberosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	2.3 %
50 - 59	59.1 %
60 - 69	38.6 %
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 =	44
mean	59
min size (mm)	49
max size (mm)	69

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	5.3 %
40 - 49	0.0 %
50 - 59	5.3 %
60 - 69	21.1 %
70 - 79	21.1 %
80 - 89	15.8 %
90 - 99	5.3 %
100 - 109	5.3 %
110 - 119	15.8 %
120 - 129	0.0 %
130 - 139	5.3 %
> 139	0.0 %
(Cases) N =	19
mean	82
min size (mm)	34
max size (mm)	136

2011 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	6.7 %
50 - 59	5.0 %
60 - 69	31.7 %
70 - 79	35.0 %
80 - 89	16.7 %
90 - 99	5.0 %
> 99	0.0 %
(Cases) N =	60
mean	71
min size (mm)	41
max size (mm)	94

Pisaster giganteus

< 20	0.0 %
20 - 39	1.7 %
40 - 59	6.7 %
60 - 79	11.7 %
80 - 99	25.0 %
100 - 119	30.0 %
120 - 139	13.3 %
140 - 159	1.7 %
160 - 179	0.0 %
180 - 199	5.0 %
200 - 219	5.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	60
mean	107
min size (mm)	24
max size (mm)	212

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	0.0 %
40 - 59	14.3 %
60 - 79	14.3 %
80 - 99	57.1 %
100 - 119	0.0 %
120 - 139	0.0 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	14.3 %
220 - 239	0.0 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	7
mean	98
min size (mm)	54
max size (mm)	212

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	1.9 %
20 - 24	8.2 %
25 - 29	10.6 %
30 - 34	6.8 %
35 - 39	3.9 %
40 - 44	5.8 %
45 - 49	3.4 %
50 - 54	6.3 %
55 - 59	8.7 %
60 - 64	4.3 %
65 - 69	4.3 %
70 - 74	6.8 %
75 - 79	5.3 %
80 - 84	3.4 %
85 - 89	7.2 %
90 - 94	4.8 %
95 - 99	2.4 %
100 - 104	2.4 %
105 - 109	0.0 %
> 109	3.4 %
(Cases) N =	207
mean	60
min size (mm)	15
max size (mm)	127

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	2.3 %
15 - 19	9.3 %
20 - 24	17.4 %
25 - 29	14.0 %
30 - 34	11.0 %
35 - 39	14.5 %
40 - 44	10.5 %
45 - 49	7.6 %
50 - 54	5.2 %
55 - 59	1.7 %
60 - 64	3.5 %
65 - 69	1.7 %
70 - 74	1.2 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	172
mean	36
min size (mm)	12
max size (mm)	70

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Hare Rock

Tethya aurantia

<10	0.0 %
10 - 19	1.7 %
20 - 29	10.2 %
30 - 39	13.6 %
40 - 49	5.1 %
50 - 59	15.3 %
60 - 69	22.0 %
70 - 79	15.3 %
80 - 89	13.6 %
90 - 99	1.7 %
> 99	1.7 %
(Cases) N =	59
mean	57
min size (mm)	16
max size (mm)	100

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	22
min size (mm)	20
max size (mm)	23

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	8.3 %
70 - 79	16.7 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	16.7 %
110 - 119	58.3 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	12
mean	101
min size (mm)	63
max size (mm)	119

Lithopoma gibberosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	1.4 %
40 - 49	2.8 %
50 - 59	46.5 %
60 - 69	49.3 %
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 =	71
mean	58
min size (mm)	34
max size (mm)	67

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	20.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	20.0 %
110 - 119	20.0 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	40.0 %
(Cases) N =	5
mean	121
min size (mm)	77
max size (mm)	156

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	4.5 %
30 - 39	12.1 %
40 - 49	13.6 %
50 - 59	12.1 %
60 - 69	33.3 %
70 - 79	18.2 %
80 - 89	6.1 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	66
mean	57
min size (mm)	22
max size (mm)	87

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Hare Rock

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	1.6 %
60 - 79	8.1 %
80 - 99	14.5 %
100 - 119	37.1 %
120 - 139	30.6 %
140 - 159	6.5 %
160 - 179	0.0 %
180 - 199	1.6 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	62
mean	112
min size (mm)	58
max size (mm)	193

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	6.8 %
40 - 59	11.9 %
60 - 79	11.9 %
80 - 99	18.6 %
100 - 119	15.3 %
120 - 139	20.3 %
140 - 159	5.1 %
160 - 179	0.0 %
180 - 199	5.1 %
200 - 219	3.4 %
220 - 239	1.7 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	59
mean	107
min size (mm)	23
max size (mm)	220

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.4 %
10 - 14	6.1 %
15 - 19	5.2 %
20 - 24	5.7 %
25 - 29	3.9 %
30 - 34	5.7 %
35 - 39	3.5 %
40 - 44	10.9 %
45 - 49	7.0 %
50 - 54	3.1 %
55 - 59	3.9 %
60 - 64	5.7 %
65 - 69	7.0 %
70 - 74	9.2 %
75 - 79	7.0 %
80 - 84	3.1 %
85 - 89	4.8 %
90 - 94	2.6 %
95 - 99	3.1 %
100 - 104	1.7 %
105 - 109	0.0 %
> 109	0.4 %
(Cases) N =	229
mean	54
min size (mm)	8
max size (mm)	112

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	6.4 %
10 - 14	10.3 %
15 - 19	11.6 %
20 - 24	18.9 %
25 - 29	24.5 %
30 - 34	13.3 %
35 - 39	4.7 %
40 - 44	4.7 %
45 - 49	2.6 %
50 - 54	0.9 %
55 - 59	0.4 %
60 - 64	1.3 %
65 - 69	0.4 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	233
mean	28
min size (mm)	5
max size (mm)	65

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee North

Tethya aurantia

<10	0.0 %
10 - 19	7.4 %
20 - 29	8.8 %
30 - 39	7.4 %
40 - 49	5.9 %
50 - 59	5.9 %
60 - 69	10.3 %
70 - 79	11.8 %
80 - 89	25.0 %
90 - 99	7.4 %
> 99	10.3 %
(Cases) N =	68
mean	66
min size (mm)	13
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	8.0 %
70 - 79	0.0 %
80 - 89	12.0 %
90 - 99	36.0 %
100 - 109	24.0 %
110 - 119	16.0 %
> 119	4.0 %
(Cases) N =	25
mean	97
min size (mm)	63
max size (mm)	122

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	1.7 %
40 - 49	3.3 %
50 - 59	13.3 %
60 - 69	28.3 %
70 - 79	30.0 %
80 - 89	16.7 %
90 - 99	3.3 %
> 99	3.3 %
(Cases) N =	60
mean	70
min size (mm)	32
max size (mm)	106

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	2.4 %
95 - 104	2.4 %
105 - 114	2.4 %
115 - 124	2.4 %
125 - 134	2.4 %
135 - 144	4.9 %
145 - 154	0.0 %
155 - 164	9.8 %
165 - 174	7.3 %
175 - 184	2.4 %
185 - 194	7.3 %
>195	46.3 %
(Cases) N =	41
mean	177
min size (mm)	88
max size (mm)	220

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	13.0 %
50 - 59	26.1 %
60 - 69	21.7 %
70 - 79	13.0 %
80 - 89	4.3 %
90 - 99	4.3 %
100 - 109	0.0 %
110 - 119	13.0 %
120 - 129	4.3 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	23
mean	71
min size (mm)	44
max size (mm)	126

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	2.3 %
60 - 79	14.0 %
80 - 99	53.5 %
100 - 119	18.6 %
120 - 139	7.0 %
140 - 159	2.3 %
160 - 179	2.3 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	43
mean	96
min size (mm)	52
max size (mm)	163

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee North

Pycnopodia helianthoides	
< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	2.9 %
80 - 99	16.2 %
100 - 119	27.9 %
120 - 139	14.7 %
140 - 159	16.2 %
160 - 179	10.3 %
180 - 199	7.4 %
200 - 219	2.9 %
220 - 239	1.5 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	68
mean	129
min size (mm)	67
max size (mm)	220

Strongylocentrotus purpuratus	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	3.2 %
15 - 19	3.7 %
20 - 24	11.7 %
25 - 29	11.2 %
30 - 34	11.7 %
35 - 39	11.2 %
40 - 44	20.7 %
45 - 49	13.8 %
50 - 54	7.4 %
55 - 59	2.7 %
60 - 64	2.1 %
65 - 69	0.5 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	188
mean	37
min size (mm)	11
max size (mm)	65

Strongylocentrotus franciscanus	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.4 %
15 - 19	0.0 %
20 - 24	0.4 %
25 - 29	1.8 %
30 - 34	4.5 %
35 - 39	1.8 %
40 - 44	3.1 %
45 - 49	4.0 %
50 - 54	3.6 %
55 - 59	4.9 %
60 - 64	2.7 %
65 - 69	7.2 %
70 - 74	6.3 %
75 - 79	6.7 %
80 - 84	9.9 %
85 - 89	9.4 %
90 - 94	7.2 %
95 - 99	6.7 %
100 - 104	6.3 %
105 - 109	5.4 %
> 109	7.6 %
(Cases) N =	223
mean	75
min size (mm)	12
max size (mm)	131

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee South

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	3.1 %
30 - 39	0.0 %
40 - 49	6.3 %
50 - 59	1.6 %
60 - 69	21.9 %
70 - 79	26.6 %
80 - 89	21.9 %
90 - 99	7.8 %
> 99	10.9 %
(Cases) N =	64
mean	76
min size (mm)	27
max size (mm)	116

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	20.0 %
110 - 119	20.0 %
120 - 129	40.0 %
130 - 139	20.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	5
mean	118
min size (mm)	108
max size (mm)	130

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	14.3 %
80 - 89	0.0 %
90 - 99	28.6 %
100 - 109	42.9 %
110 - 119	0.0 %
> 119	14.3 %
(Cases) N =	7
mean	99
min size (mm)	78
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	0.0 %
105 - 114	0.0 %
115 - 124	14.3 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	14.3 %
155 - 164	0.0 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	14.3 %
>195	57.1 %
(Cases) N =	7
mean	194
min size (mm)	123
max size (mm)	265

Lithopoma gibberosa

<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 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	1
mean	71
min size (mm)	71
max size (mm)	71

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	5.3 %
40 - 49	21.1 %
50 - 59	21.1 %
60 - 69	26.3 %
70 - 79	0.0 %
80 - 89	5.3 %
90 - 99	0.0 %
100 - 109	5.3 %
110 - 119	5.3 %
120 - 129	5.3 %
130 - 139	0.0 %
> 139	5.3 %
(Cases) N =	19
mean	71
min size (mm)	39
max size (mm)	142

2011 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	1.7 %
40 - 49	1.7 %
50 - 59	23.3 %
60 - 69	41.7 %
70 - 79	25.0 %
80 - 89	6.7 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	60
mean	63
min size (mm)	31
max size (mm)	81

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	1.7 %
60 - 79	11.7 %
80 - 99	16.7 %
100 - 119	26.7 %
120 - 139	23.3 %
140 - 159	13.3 %
160 - 179	1.7 %
180 - 199	1.7 %
200 - 219	1.7 %
220 - 239	0.0 %
> 239	1.7 %
(Cases) N =	60
mean	118
min size (mm)	58
max size (mm)	280

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	7.0 %
100 - 119	11.6 %
120 - 139	34.9 %
140 - 159	20.9 %
160 - 179	9.3 %
180 - 199	2.3 %
200 - 219	4.7 %
220 - 239	2.3 %
240 - 259	2.3 %
260 - 279	4.7 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	43
mean	156
min size (mm)	88
max size (mm)	270

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	1.3 %
15 - 19	3.8 %
20 - 24	10.1 %
25 - 29	8.8 %
30 - 34	9.7 %
35 - 39	5.5 %
40 - 44	8.0 %
45 - 49	4.2 %
50 - 54	6.7 %
55 - 59	3.4 %
60 - 64	5.9 %
65 - 69	5.9 %
70 - 74	4.2 %
75 - 79	3.8 %
80 - 84	4.6 %
85 - 89	3.8 %
90 - 94	1.3 %
95 - 99	0.8 %
100 - 104	0.8 %
105 - 109	2.9 %
> 109	4.6 %
(Cases) N =	238
mean	56
min size (mm)	11
max size (mm)	126

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	1.3 %
15 - 19	4.4 %
20 - 24	5.3 %
25 - 29	6.2 %
30 - 34	7.1 %
35 - 39	10.7 %
40 - 44	20.4 %
45 - 49	11.6 %
50 - 54	16.4 %
55 - 59	11.6 %
60 - 64	1.8 %
65 - 69	1.3 %
70 - 74	1.3 %
75 - 79	0.4 %
> 79	0.0 %
(Cases) N =	225
mean	41
min size (mm)	12
max size (mm)	76

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Rodes Reef

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	10.9 %
30 - 39	1.6 %
40 - 49	9.4 %
50 - 59	14.1 %
60 - 69	26.6 %
70 - 79	9.4 %
80 - 89	17.2 %
90 - 99	1.6 %
> 99	9.4 %
(Cases) N =	64
mean	64
min size (mm)	20
max size (mm)	107

Kelletia kelletii

< 40	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 %
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 =	6
mean	69
min size (mm)	64
max size (mm)	75

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	3.3 %
80 - 89	16.7 %
90 - 99	40.0 %
100 - 109	33.3 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	30
mean	91
min size (mm)	60
max size (mm)	108

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	19
min size (mm)	19
max size (mm)	19

Lithopoma gibberosa

<10	20.0 %
10 - 19	59.1 %
20 - 29	2.7 %
30 - 39	1.8 %
40 - 49	4.5 %
50 - 59	9.1 %
60 - 69	1.8 %
70 - 79	0.9 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	110
mean	30
min size (mm)	6
max size (mm)	72

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	4.7 %
40 - 49	2.3 %
50 - 59	2.3 %
60 - 69	9.3 %
70 - 79	18.6 %
80 - 89	16.3 %
90 - 99	11.6 %
100 - 109	18.6 %
110 - 119	4.7 %
120 - 129	2.3 %
130 - 139	9.3 %
> 139	0.0 %
(Cases) N =	43
mean	86
min size (mm)	30
max size (mm)	132

2011 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	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	65
min size (mm)	65
max size (mm)	65

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	1.6 %
30 - 39	6.3 %
40 - 49	30.2 %
50 - 59	38.1 %
60 - 69	19.0 %
70 - 79	3.2 %
80 - 89	1.6 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	63
mean	54
min size (mm)	23
max size (mm)	83

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	1.7 %
60 - 79	1.7 %
80 - 99	16.7 %
100 - 119	40.0 %
120 - 139	26.7 %
140 - 159	10.0 %
160 - 179	3.3 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	60
mean	113
min size (mm)	40
max size (mm)	175

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	21.2 %
40 - 59	19.7 %
60 - 79	21.2 %
80 - 99	15.2 %
100 - 119	7.6 %
120 - 139	7.6 %
140 - 159	3.0 %
160 - 179	1.5 %
180 - 199	1.5 %
200 - 219	0.0 %
220 - 239	1.5 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	66
mean	84
min size (mm)	25
max size (mm)	220

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.4 %
10 - 14	2.3 %
15 - 19	6.9 %
20 - 24	5.0 %
25 - 29	7.3 %
30 - 34	6.9 %
35 - 39	1.9 %
40 - 44	2.7 %
45 - 49	5.3 %
50 - 54	5.0 %
55 - 59	6.5 %
60 - 64	8.4 %
65 - 69	13.0 %
70 - 74	6.9 %
75 - 79	5.7 %
80 - 84	3.4 %
85 - 89	1.9 %
90 - 94	3.1 %
95 - 99	2.7 %
100 - 104	1.9 %
105 - 109	0.0 %
> 109	3.1 %
(Cases) N =	262
mean	59
min size (mm)	6
max size (mm)	116

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	6.4 %
10 - 14	36.2 %
15 - 19	36.2 %
20 - 24	14.9 %
25 - 29	0.0 %
30 - 34	2.1 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	2.1 %
50 - 54	2.1 %
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 =	47
mean	19
min size (mm)	9
max size (mm)	51

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

Tethya aurantia

<10	0.0 %
10 - 19	1.3 %
20 - 29	3.8 %
30 - 39	17.7 %
40 - 49	7.6 %
50 - 59	7.6 %
60 - 69	15.2 %
70 - 79	12.7 %
80 - 89	10.1 %
90 - 99	8.9 %
> 99	15.2 %
(Cases) N =	79
mean	71
min size (mm)	19
max size (mm)	156

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	63.6 %
70 - 79	9.1 %
80 - 89	0.0 %
90 - 99	18.2 %
100 - 109	9.1 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	11
mean	76
min size (mm)	60
max size (mm)	103

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	8.3 %
40 - 49	19.4 %
50 - 59	19.4 %
60 - 69	30.6 %
70 - 79	16.7 %
80 - 89	5.6 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	72
mean	61
min size (mm)	32
max size (mm)	86

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	33.3 %
110 - 119	66.7 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	3
mean	109
min size (mm)	105
max size (mm)	112

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	12.5 %
40 - 49	12.5 %
50 - 59	25.0 %
60 - 69	0.0 %
70 - 79	12.5 %
80 - 89	0.0 %
90 - 99	25.0 %
100 - 109	12.5 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	8
mean	69
min size (mm)	35
max size (mm)	106

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	1.3 %
60 - 79	5.1 %
80 - 99	14.1 %
100 - 119	38.5 %
120 - 139	26.9 %
140 - 159	9.0 %
160 - 179	5.1 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	78
mean	114
min size (mm)	42
max size (mm)	168

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	5.6 %
50 - 59	0.0 %
60 - 69	2.8 %
70 - 79	19.4 %
80 - 89	8.3 %
90 - 99	8.3 %
100 - 109	5.6 %
110 - 119	27.8 %
> 119	22.2 %
(Cases) N =	36
mean	99
min size (mm)	45
max size (mm)	137

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

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	27.3 %
220 - 239	27.3 %
240 - 259	18.2 %
260 - 279	0.0 %
280 - 299	27.3 %
> 299	0.0 %
(Cases) N =	11
mean	248
min size (mm)	210
max size (mm)	296

Strongylocentrotus purpuratus	
< 5	0.4 %
5 - 9	4.4 %
10 - 14	9.2 %
15 - 19	10.8 %
20 - 24	13.2 %
25 - 29	14.0 %
30 - 34	15.6 %
35 - 39	18.4 %
40 - 44	6.4 %
45 - 49	4.0 %
50 - 54	2.4 %
55 - 59	0.8 %
60 - 64	0.4 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	250
mean	30
min size (mm)	4
max size (mm)	64

Strongylocentrotus franciscanus	
< 5	0.0 %
5 - 9	2.2 %
10 - 14	0.9 %
15 - 19	7.0 %
20 - 24	9.2 %
25 - 29	11.8 %
30 - 34	7.9 %
35 - 39	7.9 %
40 - 44	6.1 %
45 - 49	5.2 %
50 - 54	2.6 %
55 - 59	3.9 %
60 - 64	2.2 %
65 - 69	2.2 %
70 - 74	3.1 %
75 - 79	1.3 %
80 - 84	2.2 %
85 - 89	4.8 %
90 - 94	3.1 %
95 - 99	5.2 %
100 - 104	3.5 %
105 - 109	1.7 %
> 109	6.1 %
(Cases) N =	229
mean	63
min size (mm)	6
max size (mm)	129

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Fry's Harbor

Tethya aurantia

<10	0.0 %
10 - 19	1.2 %
20 - 29	16.5 %
30 - 39	11.8 %
40 - 49	29.4 %
50 - 59	20.0 %
60 - 69	16.5 %
70 - 79	1.2 %
80 - 89	3.5 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	85
mean	47
min size (mm)	12
max size (mm)	86

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	50.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	50.0 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	2
mean	95
min size (mm)	79
max size (mm)	111

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	25.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	25.0 %
90 - 99	0.0 %
100 - 109	50.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	4
mean	82
min size (mm)	37
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	17.5 %
60 - 69	10.0 %
70 - 79	15.0 %
80 - 89	22.5 %
90 - 99	35.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	40
mean	77
min size (mm)	50
max size (mm)	98

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	33.3 %
50 - 59	66.7 %
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 =	3
mean	52
min size (mm)	41
max size (mm)	58

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	7.4 %
50 - 59	9.3 %
60 - 69	22.2 %
70 - 79	46.3 %
80 - 89	13.0 %
90 - 99	1.9 %
> 99	0.0 %
(Cases) N =	54
mean	68
min size (mm)	42
max size (mm)	91

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	30.5 %
60 - 79	25.4 %
80 - 99	8.5 %
100 - 119	22.0 %
120 - 139	6.8 %
140 - 159	1.7 %
160 - 179	3.4 %
180 - 199	1.7 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	59
mean	86
min size (mm)	44
max size (mm)	194

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Fry's Harbor

Pycnopodia helianthoides	
< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	0.0 %
100 - 119	6.7 %
120 - 139	0.0 %
140 - 159	0.0 %
160 - 179	6.7 %
180 - 199	20.0 %
200 - 219	20.0 %
220 - 239	20.0 %
240 - 259	6.7 %
260 - 279	6.7 %
280 - 299	6.7 %
> 299	6.7 %
(Cases) N =	15
mean	219
min size (mm)	116
max size (mm)	310

Strongylocentrotus purpuratus	
< 5	0.0 %
5 - 9	7.1 %
10 - 14	10.2 %
15 - 19	14.2 %
20 - 24	15.7 %
25 - 29	16.2 %
30 - 34	11.2 %
35 - 39	10.7 %
40 - 44	7.1 %
45 - 49	3.0 %
50 - 54	3.6 %
55 - 59	1.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	197
mean	29
min size (mm)	5
max size (mm)	57

Strongylocentrotus franciscanus	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	7.9 %
15 - 19	5.4 %
20 - 24	14.8 %
25 - 29	13.8 %
30 - 34	13.3 %
35 - 39	7.4 %
40 - 44	3.4 %
45 - 49	3.4 %
50 - 54	3.4 %
55 - 59	2.5 %
60 - 64	3.0 %
65 - 69	1.0 %
70 - 74	1.5 %
75 - 79	1.0 %
80 - 84	3.0 %
85 - 89	1.5 %
90 - 94	1.5 %
95 - 99	3.0 %
100 - 104	1.0 %
105 - 109	3.4 %
> 109	4.9 %
(Cases) N =	203
mean	57
min size (mm)	10
max size (mm)	126

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pelican Bay

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	8.6 %
30 - 39	17.1 %
40 - 49	25.7 %
50 - 59	17.1 %
60 - 69	14.3 %
70 - 79	14.3 %
80 - 89	0.0 %
90 - 99	2.9 %
> 99	0.0 %
(Cases) N =	35
mean	51
min size (mm)	24
max size (mm)	97

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	0.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	50.0 %
> 149	0.0 %
(Cases) N =	2
mean	116
min size (mm)	89
max size (mm)	143

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	10.0 %
70 - 79	20.0 %
80 - 89	60.0 %
90 - 99	10.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	10
mean	82
min size (mm)	60
max size (mm)	93

Haliotis corrugata

<25	0.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	100.0 %
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	45
min size (mm)	45
max size (mm)	45

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	57
min size (mm)	24
max size (mm)	90

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	3.7 %
40 - 49	11.1 %
50 - 59	18.5 %
60 - 69	0.0 %
70 - 79	3.7 %
80 - 89	7.4 %
90 - 99	3.7 %
100 - 109	7.4 %
110 - 119	7.4 %
120 - 129	7.4 %
130 - 139	22.2 %
> 139	7.4 %
(Cases) N =	27
mean	95
min size (mm)	37
max size (mm)	168

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pelican Bay

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 =	4
mean	56
min size (mm)	55
max size (mm)	57

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	7.9 %
30 - 39	9.5 %
40 - 49	9.5 %
50 - 59	25.4 %
60 - 69	17.5 %
70 - 79	17.5 %
80 - 89	11.1 %
90 - 99	1.6 %
> 99	0.0 %
(Cases) N =	63
mean	59
min size (mm)	25
max size (mm)	92

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	21.7 %
60 - 79	56.7 %
80 - 99	3.3 %
100 - 119	3.3 %
120 - 139	1.7 %
140 - 159	5.0 %
160 - 179	8.3 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	60
mean	83
min size (mm)	45
max size (mm)	163

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	0.0 %
40 - 59	11.1 %
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	33.3 %
240 - 259	33.3 %
260 - 279	0.0 %
280 - 299	22.2 %
> 299	0.0 %
(Cases) N =	9
mean	222
min size (mm)	40
max size (mm)	282

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	1.9 %
15 - 19	4.6 %
20 - 24	6.9 %
25 - 29	9.3 %
30 - 34	11.1 %
35 - 39	5.6 %
40 - 44	8.3 %
45 - 49	10.2 %
50 - 54	3.7 %
55 - 59	12.5 %
60 - 64	6.5 %
65 - 69	7.9 %
70 - 74	4.6 %
75 - 79	3.7 %
80 - 84	2.8 %
85 - 89	0.0 %
90 - 94	0.5 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	216
mean	47
min size (mm)	11
max size (mm)	90

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.9 %
10 - 14	1.9 %
15 - 19	8.5 %
20 - 24	19.4 %
25 - 29	11.8 %
30 - 34	21.3 %
35 - 39	23.2 %
40 - 44	7.1 %
45 - 49	3.3 %
50 - 54	1.9 %
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	30
min size (mm)	5
max size (mm)	55

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Scorpion Anchorage

Tethya aurantia

<10	0.0 %
10 - 19	3.6 %
20 - 29	8.9 %
30 - 39	16.1 %
40 - 49	30.4 %
50 - 59	25.0 %
60 - 69	8.9 %
70 - 79	5.4 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	1.8 %
(Cases) N =	56
mean	47
min size (mm)	13
max size (mm)	101

Megastraea undosa

<10	0.0 %
10 - 19	11.8 %
20 - 29	33.3 %
30 - 39	3.9 %
40 - 49	2.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	3.9 %
80 - 89	15.7 %
90 - 99	23.5 %
100 - 109	3.9 %
110 - 119	2.0 %
> 119	0.0 %
(Cases) N =	51
mean	56
min size (mm)	10
max size (mm)	110

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.7 %
40 - 49	5.2 %
50 - 59	24.6 %
60 - 69	21.6 %
70 - 79	29.1 %
80 - 89	17.2 %
90 - 99	1.5 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	134
mean	67
min size (mm)	39
max size (mm)	92

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	4.3 %
50 - 59	4.3 %
60 - 69	8.7 %
70 - 79	4.3 %
80 - 89	8.7 %
90 - 99	8.7 %
100 - 109	13.0 %
110 - 119	8.7 %
120 - 129	13.0 %
130 - 139	17.4 %
> 139	8.7 %
(Cases) N =	23
mean	104
min size (mm)	47
max size (mm)	148

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 =	1
mean	59
min size (mm)	59
max size (mm)	59

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	1.9 %
30 - 39	7.4 %
40 - 49	7.4 %
50 - 59	5.6 %
60 - 69	29.6 %
70 - 79	16.7 %
80 - 89	18.5 %
90 - 99	11.1 %
> 99	1.9 %
(Cases) N =	54
mean	68
min size (mm)	27
max size (mm)	101

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	9.7 %
60 - 79	8.1 %
80 - 99	17.7 %
100 - 119	45.2 %
120 - 139	17.7 %
140 - 159	0.0 %
160 - 179	0.0 %
180 - 199	1.6 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	62
mean	97
min size (mm)	40
max size (mm)	182

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Scorpion Anchorage

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	0.0 %
220 - 239	0.0 %
240 - 259	100.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	1
mean	240
min size (mm)	240
max size (mm)	240

Lytechinus anamesus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	12.5 %
15 - 19	37.5 %
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 =	8
mean	18
min size (mm)	11
max size (mm)	21

Strongylocentrotus franciscanus

< 5	0.4 %
5 - 9	24.7 %
10 - 14	18.7 %
15 - 19	4.7 %
20 - 24	0.0 %
25 - 29	0.4 %
30 - 34	0.4 %
35 - 39	1.7 %
40 - 44	3.0 %
45 - 49	7.2 %
50 - 54	8.1 %
55 - 59	7.2 %
60 - 64	5.5 %
65 - 69	4.3 %
70 - 74	5.1 %
75 - 79	2.6 %
80 - 84	2.1 %
85 - 89	1.7 %
90 - 94	0.4 %
95 - 99	0.0 %
100 - 104	0.4 %
105 - 109	0.9 %
> 109	0.4 %
(Cases) N =	235
mean	47
min size (mm)	4
max size (mm)	110

Strongylocentrotus purpuratus

< 5	0.8 %
5 - 9	36.7 %
10 - 14	15.5 %
15 - 19	2.4 %
20 - 24	3.7 %
25 - 29	3.3 %
30 - 34	7.8 %
35 - 39	11.8 %
40 - 44	7.3 %
45 - 49	4.1 %
50 - 54	4.1 %
55 - 59	1.2 %
60 - 64	0.8 %
65 - 69	0.0 %
70 - 74	0.4 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	245
mean	30
min size (mm)	3
max size (mm)	70

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

Tethya aurantia

<10	0.0 %
10 - 19	3.3 %
20 - 29	5.0 %
30 - 39	16.7 %
40 - 49	18.3 %
50 - 59	13.3 %
60 - 69	15.0 %
70 - 79	10.0 %
80 - 89	11.7 %
90 - 99	3.3 %
> 99	3.3 %
(Cases) N =	60
mean	57
min size (mm)	15
max size (mm)	106

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	5.4 %
70 - 79	2.7 %
80 - 89	13.5 %
90 - 99	21.6 %
100 - 109	29.7 %
110 - 119	16.2 %
120 - 129	10.8 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	37
mean	100
min size (mm)	64
max size (mm)	124

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	1.4 %
30 - 39	14.9 %
40 - 49	31.1 %
50 - 59	12.2 %
60 - 69	4.1 %
70 - 79	6.8 %
80 - 89	9.5 %
90 - 99	9.5 %
100 - 109	2.7 %
110 - 119	0.0 %
> 119	8.1 %
(Cases) N =	74
mean	64
min size (mm)	27
max size (mm)	136

Lithopoma gibberosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	16.7 %
40 - 49	50.0 %
50 - 59	16.7 %
60 - 69	16.7 %
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 =	6
mean	46
min size (mm)	36
max size (mm)	60

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	20.0 %
50 - 59	13.3 %
60 - 69	46.7 %
70 - 79	6.7 %
80 - 89	13.3 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	15
mean	63
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	0.0 %
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	33.3 %
> 139	33.3 %
(Cases) N =	3
mean	122
min size (mm)	85
max size (mm)	143

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	100.0 %
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	49
min size (mm)	49
max size (mm)	49

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

Patiria miniata

<10	0.9 %
10 - 19	1.8 %
20 - 29	6.1 %
30 - 39	8.8 %
40 - 49	10.5 %
50 - 59	11.4 %
60 - 69	18.4 %
70 - 79	25.4 %
80 - 89	12.3 %
90 - 99	4.4 %
> 99	0.0 %
(Cases) N =	114
mean	56
min size (mm)	9
max size (mm)	93

Pisaster giganteus

< 20	0.0 %
20 - 39	2.9 %
40 - 59	22.9 %
60 - 79	25.7 %
80 - 99	20.0 %
100 - 119	14.3 %
120 - 139	5.7 %
140 - 159	2.9 %
160 - 179	2.9 %
180 - 199	2.9 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	35
mean	84
min size (mm)	37
max size (mm)	192

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	0.0 %
220 - 239	2.5 %
240 - 259	2.5 %
260 - 279	2.5 %
280 - 299	12.5 %
> 299	80.0 %
(Cases) N =	40
mean	303
min size (mm)	220
max size (mm)	370

Lytechinus anamesus

< 5	2.8 %
5 - 9	39.9 %
10 - 14	26.8 %
15 - 19	15.0 %
20 - 24	13.6 %
25 - 29	1.9 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	213
mean	15
min size (mm)	3
max size (mm)	27

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.5 %
10 - 14	0.8 %
15 - 19	3.3 %
20 - 24	8.4 %
25 - 29	10.9 %
30 - 34	13.6 %
35 - 39	13.6 %
40 - 44	15.2 %
45 - 49	11.4 %
50 - 54	12.2 %
55 - 59	5.4 %
60 - 64	1.4 %
65 - 69	1.4 %
70 - 74	0.0 %
75 - 79	0.5 %
80 - 84	0.3 %
85 - 89	0.0 %
90 - 94	0.3 %
95 - 99	0.3 %
100 - 104	0.0 %
105 - 109	0.3 %
> 109	0.3 %
(Cases) N =	368
mean	43
min size (mm)	9
max size (mm)	111

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	1.0 %
10 - 14	3.1 %
15 - 19	11.6 %
20 - 24	19.8 %
25 - 29	26.3 %
30 - 34	16.7 %
35 - 39	13.3 %
40 - 44	3.4 %
45 - 49	1.7 %
50 - 54	1.7 %
55 - 59	0.7 %
60 - 64	0.7 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	293
mean	31
min size (mm)	6
max size (mm)	60

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Admiral's Reef

Tethya aurantia

<10	0.0 %
10 - 19	1.6 %
20 - 29	3.2 %
30 - 39	6.5 %
40 - 49	9.7 %
50 - 59	16.1 %
60 - 69	24.2 %
70 - 79	14.5 %
80 - 89	14.5 %
90 - 99	4.8 %
> 99	4.8 %
(Cases) N =	62
mean	64
min size (mm)	17
max size (mm)	102

Kelletia kelletii

< 40	3.3 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	6.7 %
80 - 89	40.0 %
90 - 99	33.3 %
100 - 109	13.3 %
110 - 119	3.3 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	30
mean	89
min size (mm)	25
max size (mm)	110

Megastraea undosa

<10	0.0 %
10 - 19	8.3 %
20 - 29	0.0 %
30 - 39	8.3 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	8.3 %
80 - 89	50.0 %
90 - 99	16.7 %
100 - 109	8.3 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	12
mean	76
min size (mm)	18
max size (mm)	100

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.7 %
40 - 49	1.4 %
50 - 59	19.6 %
60 - 69	32.2 %
70 - 79	29.4 %
80 - 89	11.2 %
90 - 99	4.9 %
100 - 109	0.7 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	143
mean	69
min size (mm)	32
max size (mm)	102

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	100.0 %
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	62
min size (mm)	62
max size (mm)	62

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	40.0 %
55 - 59	60.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	35
mean	55
min size (mm)	52
max size (mm)	59

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	11.1 %
40 - 49	15.9 %
50 - 59	27.0 %
60 - 69	25.4 %
70 - 79	14.3 %
80 - 89	6.3 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	63
mean	56
min size (mm)	31
max size (mm)	82

2011 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	9.0 %
120 - 139	26.9 %
140 - 159	25.4 %
160 - 179	20.9 %
180 - 199	13.4 %
200 - 219	4.5 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	67
mean	153
min size (mm)	104
max size (mm)	212

Strongylocentrotus franciscanus	
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.9 %
20 - 24	7.0 %
25 - 29	8.5 %
30 - 34	7.5 %
35 - 39	9.9 %
40 - 44	16.4 %
45 - 49	23.0 %
50 - 54	13.1 %
55 - 59	3.3 %
60 - 64	4.2 %
65 - 69	2.8 %
70 - 74	2.3 %
75 - 79	0.9 %
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 =	213
mean	44
min size (mm)	18
max size (mm)	78

Strongylocentrotus purpuratus	
< 5	0.0 %
5 - 9	1.0 %
10 - 14	0.5 %
15 - 19	7.6 %
20 - 24	27.1 %
25 - 29	34.3 %
30 - 34	18.1 %
35 - 39	7.6 %
40 - 44	1.9 %
45 - 49	1.9 %
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 =	210
mean	28
min size (mm)	5
max size (mm)	46

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Cathedral Cove

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	100.0 %
155 - 164	0.0 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	1
mean	146
min size (mm)	146
max size (mm)	146

Strongylocentrotus purpuratus	
< 5	0.0 %
5 - 9	4.6 %
10 - 14	8.5 %
15 - 19	7.4 %
20 - 24	7.4 %
25 - 29	8.5 %
30 - 34	5.6 %
35 - 39	5.3 %
40 - 44	10.6 %
45 - 49	10.2 %
50 - 54	10.9 %
55 - 59	11.3 %
60 - 64	6.3 %
65 - 69	2.1 %
70 - 74	0.4 %
75 - 79	0.0 %
> 79	1.1 %
(Cases) N =	284
mean	38
min size (mm)	6
max size (mm)	85

Strongylocentrotus franciscanus	
< 5	0.0 %
5 - 9	1.5 %
10 - 14	2.2 %
15 - 19	1.5 %
20 - 24	3.4 %
25 - 29	0.7 %
30 - 34	1.1 %
35 - 39	1.9 %
40 - 44	1.9 %
45 - 49	1.1 %
50 - 54	1.1 %
55 - 59	0.4 %
60 - 64	1.5 %
65 - 69	2.2 %
70 - 74	1.9 %
75 - 79	4.5 %
80 - 84	5.2 %
85 - 89	6.3 %
90 - 94	10.8 %
95 - 99	11.2 %
100 - 104	9.0 %
105 - 109	10.4 %
> 109	20.1 %
(Cases) N =	268
mean	81
min size (mm)	7
max size (mm)	133

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove

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	0.0 %
155 - 164	0.0 %
165 - 174	0.0 %
175 - 184	100.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	1
mean	175
min size (mm)	175
max size (mm)	175

Strongylocentrotus purpuratus	
< 5	0.9 %
5 - 9	7.7 %
10 - 14	16.2 %
15 - 19	18.3 %
20 - 24	17.4 %
25 - 29	8.1 %
30 - 34	6.0 %
35 - 39	6.0 %
40 - 44	4.7 %
45 - 49	3.4 %
50 - 54	5.1 %
55 - 59	3.4 %
60 - 64	0.9 %
65 - 69	0.9 %
70 - 74	1.3 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	235
mean	30
min size (mm)	4
max size (mm)	73

Strongylocentrotus franciscanus	
< 5	0.0 %
5 - 9	3.3 %
10 - 14	6.0 %
15 - 19	9.3 %
20 - 24	9.8 %
25 - 29	1.4 %
30 - 34	1.9 %
35 - 39	1.4 %
40 - 44	0.9 %
45 - 49	0.9 %
50 - 54	1.9 %
55 - 59	1.9 %
60 - 64	0.0 %
65 - 69	3.3 %
70 - 74	3.3 %
75 - 79	2.3 %
80 - 84	6.0 %
85 - 89	3.7 %
90 - 94	9.8 %
95 - 99	6.5 %
100 - 104	7.9 %
105 - 109	5.1 %
> 109	13.5 %
(Cases) N =	215
mean	68
min size (mm)	7
max size (mm)	127

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - SE Sea Lion Rookery

Tethya aurantia

<10	0.0 %
10 - 19	4.2 %
20 - 29	5.6 %
30 - 39	9.7 %
40 - 49	5.6 %
50 - 59	15.3 %
60 - 69	16.7 %
70 - 79	16.7 %
80 - 89	16.7 %
90 - 99	6.9 %
> 99	2.8 %
(Cases) N =	72
mean	64
min size (mm)	13
max size (mm)	110

Megastraea undosa

<10	0.0 %
10 - 19	14.3 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	14.3 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	42.9 %
80 - 89	28.6 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	7
mean	65
min size (mm)	19
max size (mm)	82

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	42
min size (mm)	42
max size (mm)	42

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	100.0 %
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	64
min size (mm)	64
max size (mm)	64

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	0.0 %
120 - 129	37.5 %
130 - 139	12.5 %
> 139	50.0 %
(Cases) N =	8
mean	136
min size (mm)	120
max size (mm)	159

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	4.9 %
40 - 44	17.1 %
45 - 49	56.1 %
50 - 54	19.5 %
55 - 59	2.4 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	41
mean	47
min size (mm)	38
max size (mm)	59

Patiria miniata

<10	0.0 %
10 - 19	1.6 %
20 - 29	3.2 %
30 - 39	7.9 %
40 - 49	17.5 %
50 - 59	6.3 %
60 - 69	17.5 %
70 - 79	22.2 %
80 - 89	12.7 %
90 - 99	7.9 %
> 99	3.2 %
(Cases) N =	63
mean	64
min size (mm)	16
max size (mm)	109

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - SE Sea Lion Rookery

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	12.5 %
100 - 119	25.0 %
120 - 139	31.3 %
140 - 159	12.5 %
160 - 179	6.3 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	6.3 %
> 239	6.3 %
(Cases) N =	16
mean	138
min size (mm)	80
max size (mm)	242

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	0.0 %
220 - 239	0.0 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	100.0 %
(Cases) N =	1
mean	330
min size (mm)	330
max size (mm)	330

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	4.2 %
15 - 19	5.8 %
20 - 24	3.7 %
25 - 29	8.5 %
30 - 34	5.8 %
35 - 39	9.0 %
40 - 44	13.2 %
45 - 49	12.2 %
50 - 54	12.2 %
55 - 59	15.3 %
60 - 64	6.3 %
65 - 69	2.6 %
70 - 74	1.1 %
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 =	189
mean	41
min size (mm)	10
max size (mm)	70

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	9.4 %
15 - 19	29.2 %
20 - 24	26.9 %
25 - 29	15.1 %
30 - 34	12.7 %
35 - 39	4.2 %
40 - 44	2.4 %
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 =	212
mean	27
min size (mm)	12
max size (mm)	42

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Arch Point

Megastraea undosa

<10	0.0 %
10 - 19	2.9 %
20 - 29	2.9 %
30 - 39	2.9 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	11.8 %
90 - 99	47.1 %
100 - 109	23.5 %
110 - 119	8.8 %
> 119	0.0 %
(Cases) N =	34
mean	90
min size (mm)	17
max size (mm)	113

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	20.0 %
80 - 89	0.0 %
90 - 99	20.0 %
100 - 109	40.0 %
110 - 119	20.0 %
> 119	0.0 %
(Cases) N =	5
mean	99
min size (mm)	72
max size (mm)	112

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	5.9 %
40 - 49	0.0 %
50 - 59	5.9 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	23.5 %
90 - 99	11.8 %
100 - 109	0.0 %
110 - 119	11.8 %
120 - 129	29.4 %
130 - 139	11.8 %
> 139	0.0 %
(Cases) N =	17
mean	102
min size (mm)	32
max size (mm)	132

Tegula regina

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	0.0 %
25 - 29	3.1 %
30 - 34	3.1 %
35 - 39	3.1 %
40 - 44	28.1 %
45 - 49	34.4 %
50 - 54	28.1 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	32
mean	43
min size (mm)	26
max size (mm)	52

Patiria miniata

<10	1.7 %
10 - 19	8.3 %
20 - 29	11.7 %
30 - 39	20.0 %
40 - 49	11.7 %
50 - 59	15.0 %
60 - 69	8.3 %
70 - 79	15.0 %
80 - 89	5.0 %
90 - 99	3.3 %
> 99	0.0 %
(Cases) N =	60
mean	48
min size (mm)	5
max size (mm)	95

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	3.7 %
60 - 79	14.6 %
80 - 99	17.1 %
100 - 119	35.4 %
120 - 139	22.0 %
140 - 159	7.3 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	82
mean	105
min size (mm)	50
max size (mm)	158

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Arch Point

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	100.0 %
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	189
min size (mm)	189
max size (mm)	189

Lytechinus anamesus

< 5	0.0 %
5 - 9	4.0 %
10 - 14	31.0 %
15 - 19	38.0 %
20 - 24	10.0 %
25 - 29	10.5 %
30 - 34	6.5 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	200
mean	20
min size (mm)	7
max size (mm)	34

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	5.5 %
10 - 14	15.6 %
15 - 19	10.1 %
20 - 24	4.0 %
25 - 29	3.0 %
30 - 34	7.0 %
35 - 39	5.5 %
40 - 44	11.1 %
45 - 49	9.0 %
50 - 54	6.0 %
55 - 59	7.0 %
60 - 64	6.0 %
65 - 69	4.0 %
70 - 74	1.5 %
75 - 79	2.5 %
80 - 84	0.5 %
85 - 89	1.5 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	199
mean	44
min size (mm)	6
max size (mm)	88

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	7.9 %
10 - 14	34.3 %
15 - 19	31.4 %
20 - 24	13.7 %
25 - 29	6.9 %
30 - 34	4.3 %
35 - 39	0.7 %
40 - 44	0.4 %
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 =	277
mean	23
min size (mm)	7
max size (mm)	50

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Cat Canyon

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	60.0 %
30 - 39	0.0 %
40 - 49	20.0 %
50 - 59	20.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	5
mean	35
min size (mm)	23
max size (mm)	55

Haliotis corrugata

<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 =	4
mean	30
min size (mm)	27
max size (mm)	32

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	1.7 %
30 - 39	16.7 %
40 - 49	12.5 %
50 - 59	22.5 %
60 - 69	25.0 %
70 - 79	7.5 %
80 - 89	9.2 %
90 - 99	5.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	120
mean	58
min size (mm)	28
max size (mm)	99

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	14.3 %
30 - 39	0.0 %
40 - 49	14.3 %
50 - 59	28.6 %
60 - 69	21.4 %
70 - 79	7.1 %
80 - 89	14.3 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	14
mean	58
min size (mm)	25
max size (mm)	89

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	36.4 %
60 - 69	0.0 %
70 - 79	9.1 %
80 - 89	0.0 %
90 - 99	18.2 %
100 - 109	9.1 %
110 - 119	9.1 %
120 - 129	9.1 %
130 - 139	0.0 %
> 139	9.1 %
(Cases) N =	11
mean	90
min size (mm)	52
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	1.8 %
30 - 34	0.9 %
35 - 39	1.8 %
40 - 44	14.0 %
45 - 49	39.5 %
50 - 54	36.8 %
55 - 59	4.4 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.9 %
> 75	0.0 %
(Cases) N =	114
mean	48
min size (mm)	27
max size (mm)	70

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Cat Canyon

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	1.8 %
30 - 39	17.9 %
40 - 49	14.3 %
50 - 59	28.6 %
60 - 69	17.9 %
70 - 79	14.3 %
80 - 89	1.8 %
90 - 99	1.8 %
> 99	1.8 %
(Cases) N =	56
mean	58
min size (mm)	28
max size (mm)	106

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	1.6 %
60 - 79	13.1 %
80 - 99	39.3 %
100 - 119	26.2 %
120 - 139	14.8 %
140 - 159	4.9 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	61
mean	101
min size (mm)	51
max size (mm)	152

Lytechinus anamesus

< 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

Strongylocentrotus franciscanus

< 5	0.5 %
5 - 9	2.7 %
10 - 14	5.0 %
15 - 19	11.3 %
20 - 24	5.9 %
25 - 29	7.2 %
30 - 34	10.9 %
35 - 39	11.8 %
40 - 44	9.0 %
45 - 49	12.7 %
50 - 54	12.7 %
55 - 59	5.9 %
60 - 64	2.7 %
65 - 69	0.9 %
70 - 74	0.9 %
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 =	221
mean	37
min size (mm)	4
max size (mm)	74

Strongylocentrotus purpuratus

< 5	3.7 %
5 - 9	15.1 %
10 - 14	20.8 %
15 - 19	15.5 %
20 - 24	12.7 %
25 - 29	9.4 %
30 - 34	9.8 %
35 - 39	7.8 %
40 - 44	5.3 %
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 - 79	0.0 %
> 79	0.0 %
(Cases) N =	245
mean	23
min size (mm)	3
max size (mm)	44

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Miracle Mile

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	3.3 %
30 - 39	0.0 %
40 - 49	3.3 %
50 - 59	11.7 %
60 - 69	13.3 %
70 - 79	10.0 %
80 - 89	13.3 %
90 - 99	13.3 %
> 99	31.7 %
(Cases) N =	60
mean	81
min size (mm)	26
max size (mm)	129

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	33.3 %
100 - 109	66.7 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	3
mean	100
min size (mm)	95
max size (mm)	104

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	6.7 %
80 - 89	6.7 %
90 - 99	6.7 %
100 - 109	46.7 %
110 - 119	20.0 %
> 119	13.3 %
(Cases) N =	15
mean	105
min size (mm)	70
max size (mm)	134

Haliotis rufescens

<25	0.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	1.1 %
65 - 74	0.6 %
75 - 84	0.6 %
85 - 94	0.6 %
95 - 104	1.1 %
105 - 114	0.6 %
115 - 124	1.1 %
125 - 134	1.7 %
135 - 144	3.9 %
145 - 154	3.4 %
155 - 164	3.9 %
165 - 174	7.3 %
175 - 184	10.7 %
185 - 194	22.5 %
>195	37.6 %
(Cases) N =	178
mean	179
min size (mm)	59
max size (mm)	265

Lithopoma gibberosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	3.4 %
50 - 59	62.1 %
60 - 69	31.0 %
70 - 79	3.4 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	58
mean	58
min size (mm)	49
max size (mm)	73

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	28.6 %
50 - 59	14.3 %
60 - 69	14.3 %
70 - 79	14.3 %
80 - 89	14.3 %
90 - 99	14.3 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	7
mean	67
min size (mm)	45
max size (mm)	92

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Miracle Mile

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	3.3 %
30 - 39	8.3 %
40 - 49	11.7 %
50 - 59	38.3 %
60 - 69	35.0 %
70 - 79	1.7 %
80 - 89	1.7 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	60
mean	52
min size (mm)	21
max size (mm)	81

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	55.9 %
80 - 99	40.7 %
100 - 119	3.4 %
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 =	59
mean	82
min size (mm)	62
max size (mm)	106

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	0.0 %
40 - 59	11.1 %
60 - 79	33.3 %
80 - 99	22.2 %
100 - 119	11.1 %
120 - 139	11.1 %
140 - 159	11.1 %
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	93
min size (mm)	59
max size (mm)	140

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	1.0 %
10 - 14	4.8 %
15 - 19	1.9 %
20 - 24	3.8 %
25 - 29	3.4 %
30 - 34	1.4 %
35 - 39	0.5 %
40 - 44	1.0 %
45 - 49	1.4 %
50 - 54	4.3 %
55 - 59	1.4 %
60 - 64	3.8 %
65 - 69	1.4 %
70 - 74	7.7 %
75 - 79	6.3 %
80 - 84	7.2 %
85 - 89	9.1 %
90 - 94	9.6 %
95 - 99	12.0 %
100 - 104	9.6 %
105 - 109	3.4 %
> 109	4.8 %
(Cases) N =	208
mean	75
min size (mm)	6
max size (mm)	127

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	4.9 %
10 - 14	19.5 %
15 - 19	13.4 %
20 - 24	14.6 %
25 - 29	11.0 %
30 - 34	1.2 %
35 - 39	12.2 %
40 - 44	2.4 %
45 - 49	3.7 %
50 - 54	3.7 %
55 - 59	3.7 %
60 - 64	4.9 %
65 - 69	0.0 %
70 - 74	1.2 %
75 - 79	2.4 %
> 79	1.2 %
(Cases) N =	82
mean	33
min size (mm)	5
max size (mm)	100

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Cluster Point

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	1.7 %
30 - 39	5.0 %
40 - 49	5.0 %
50 - 59	10.0 %
60 - 69	6.7 %
70 - 79	20.0 %
80 - 89	15.0 %
90 - 99	18.3 %
> 99	18.3 %
(Cases) N =	60
mean	76
min size (mm)	27
max size (mm)	119

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	12
min size (mm)	12
max size (mm)	12

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	9.1 %
100 - 109	54.5 %
110 - 119	9.1 %
120 - 129	27.3 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	11
mean	110
min size (mm)	93
max size (mm)	121

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	3.0 %
60 - 69	0.0 %
70 - 79	6.1 %
80 - 89	9.1 %
90 - 99	18.2 %
100 - 109	51.5 %
110 - 119	12.1 %
> 119	0.0 %
(Cases) N =	33
mean	98
min size (mm)	59
max size (mm)	115

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	5.9 %
40 - 49	5.9 %
50 - 59	5.9 %
60 - 69	35.3 %
70 - 79	5.9 %
80 - 89	5.9 %
90 - 99	11.8 %
100 - 109	11.8 %
110 - 119	0.0 %
120 - 129	5.9 %
130 - 139	5.9 %
> 139	0.0 %
(Cases) N =	17
mean	80
min size (mm)	33
max size (mm)	135

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	5.0 %
30 - 39	13.3 %
40 - 49	13.3 %
50 - 59	31.7 %
60 - 69	26.7 %
70 - 79	8.3 %
80 - 89	1.7 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	60
mean	54
min size (mm)	23
max size (mm)	82

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Cluster Point

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	4.9 %
60 - 79	19.7 %
80 - 99	57.4 %
100 - 119	9.8 %
120 - 139	4.9 %
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 =	61
mean	92
min size (mm)	50
max size (mm)	148

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	4.5 %
100 - 119	0.0 %
120 - 139	9.1 %
140 - 159	4.5 %
160 - 179	22.7 %
180 - 199	27.3 %
200 - 219	13.6 %
220 - 239	13.6 %
240 - 259	4.5 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	22
mean	183
min size (mm)	80
max size (mm)	250

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.5 %
10 - 14	2.0 %
15 - 19	5.9 %
20 - 24	5.4 %
25 - 29	5.4 %
30 - 34	4.5 %
35 - 39	5.4 %
40 - 44	5.0 %
45 - 49	2.5 %
50 - 54	3.0 %
55 - 59	2.0 %
60 - 64	3.5 %
65 - 69	4.5 %
70 - 74	3.5 %
75 - 79	4.0 %
80 - 84	6.9 %
85 - 89	6.4 %
90 - 94	7.9 %
95 - 99	5.9 %
100 - 104	5.0 %
105 - 109	4.5 %
> 109	6.4 %
(Cases) N =	202
mean	63
min size (mm)	6
max size (mm)	120

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	1.8 %
10 - 14	4.1 %
15 - 19	5.5 %
20 - 24	7.8 %
25 - 29	6.4 %
30 - 34	7.3 %
35 - 39	6.0 %
40 - 44	14.2 %
45 - 49	16.1 %
50 - 54	12.8 %
55 - 59	10.6 %
60 - 64	5.5 %
65 - 69	1.4 %
70 - 74	0.5 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	218
mean	38
min size (mm)	5
max size (mm)	72

2011 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	1.7 %
40 - 49	1.7 %
50 - 59	3.3 %
60 - 69	10.0 %
70 - 79	16.7 %
80 - 89	23.3 %
90 - 99	10.0 %
> 99	33.3 %
(Cases) N =	60
mean	89
min size (mm)	36
max size (mm)	124

Kelletia kelletii

< 40	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 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	1
mean	52
min size (mm)	52
max size (mm)	52

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	3.4 %
60 - 69	3.4 %
70 - 79	6.9 %
80 - 89	8.6 %
90 - 99	8.6 %
100 - 109	22.4 %
110 - 119	36.2 %
> 119	10.3 %
(Cases) N =	58
mean	101
min size (mm)	54
max size (mm)	126

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	66.7 %
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	33.3 %
> 139	0.0 %
(Cases) N =	3
mean	81
min size (mm)	51
max size (mm)	138

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	1.2 %
40 - 49	6.2 %
50 - 59	16.0 %
60 - 69	37.0 %
70 - 79	33.3 %
80 - 89	6.2 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	81
mean	64
min size (mm)	34
max size (mm)	83

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	17.3 %
80 - 99	45.7 %
100 - 119	27.2 %
120 - 139	4.9 %
140 - 159	2.5 %
160 - 179	1.2 %
180 - 199	0.0 %
200 - 219	1.2 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	81
mean	99
min size (mm)	64
max size (mm)	215

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	6.4 %
160 - 179	17.0 %
180 - 199	23.4 %
200 - 219	21.3 %
220 - 239	23.4 %
240 - 259	4.3 %
260 - 279	0.0 %
280 - 299	4.3 %
> 299	0.0 %
(Cases) N =	47
mean	206
min size (mm)	146
max size (mm)	293

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Trancion Canyon

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	2.5 %
10 - 14	3.6 %
15 - 19	8.1 %
20 - 24	6.6 %
25 - 29	4.1 %
30 - 34	3.0 %
35 - 39	4.6 %
40 - 44	1.5 %
45 - 49	2.0 %
50 - 54	1.5 %
55 - 59	3.0 %
60 - 64	2.5 %
65 - 69	3.6 %
70 - 74	1.0 %
75 - 79	4.1 %
80 - 84	7.6 %
85 - 89	4.1 %
90 - 94	7.1 %
95 - 99	6.1 %
100 - 104	7.1 %
105 - 109	6.1 %
> 109	10.2 %
(Cases) N =	197
mean	65
min size (mm)	7
max size (mm)	130

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	1.3 %
10 - 14	2.6 %
15 - 19	6.6 %
20 - 24	16.2 %
25 - 29	9.6 %
30 - 34	13.6 %
35 - 39	15.8 %
40 - 44	17.5 %
45 - 49	11.8 %
50 - 54	3.1 %
55 - 59	0.9 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.9 %
> 79	0.0 %
(Cases) N =	228
mean	34
min size (mm)	7
max size (mm)	77

Tethya aurantia

<10	0.0 %
10 - 19	1.4 %
20 - 29	0.0 %
30 - 39	2.7 %
40 - 49	8.2 %
50 - 59	8.2 %
60 - 69	17.8 %
70 - 79	11.0 %
80 - 89	16.4 %
90 - 99	17.8 %
> 99	16.4 %
(Cases) N =	73
mean	76
min size (mm)	17
max size (mm)	128

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	5.7 %
105 - 114	1.9 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	1.9 %
155 - 164	1.9 %
165 - 174	0.0 %
175 - 184	17.0 %
185 - 194	20.8 %
>195	50.9 %
(Cases) N =	53
mean	189
min size (mm)	98
max size (mm)	221

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Chickasaw

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	8.3 %
100 - 109	58.3 %
110 - 119	16.7 %
> 119	16.7 %
(Cases) N =	12
mean	113
min size (mm)	96
max size (mm)	148

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	4.5 %
30 - 39	4.5 %
40 - 49	22.7 %
50 - 59	31.8 %
60 - 69	13.6 %
70 - 79	13.6 %
80 - 89	4.5 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	4.5 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	22
mean	59
min size (mm)	23
max size (mm)	125

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	3.4 %
30 - 39	13.6 %
40 - 49	40.7 %
50 - 59	23.7 %
60 - 69	13.6 %
70 - 79	1.7 %
80 - 89	1.7 %
90 - 99	0.0 %
> 99	1.7 %
(Cases) N =	59
mean	53
min size (mm)	26
max size (mm)	110

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	33.3 %
80 - 99	31.9 %
100 - 119	26.1 %
120 - 139	2.9 %
140 - 159	4.3 %
160 - 179	1.4 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	69
mean	96
min size (mm)	63
max size (mm)	161

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	0.0 %
100 - 119	7.7 %
120 - 139	7.7 %
140 - 159	0.0 %
160 - 179	23.1 %
180 - 199	46.2 %
200 - 219	7.7 %
220 - 239	7.7 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	13
mean	179
min size (mm)	115
max size (mm)	220

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.4 %
10 - 14	0.0 %
15 - 19	2.6 %
20 - 24	0.9 %
25 - 29	3.1 %
30 - 34	3.5 %
35 - 39	1.8 %
40 - 44	4.4 %
45 - 49	0.4 %
50 - 54	2.6 %
55 - 59	1.8 %
60 - 64	2.6 %
65 - 69	0.9 %
70 - 74	5.3 %
75 - 79	4.8 %
80 - 84	8.8 %
85 - 89	5.7 %
90 - 94	9.2 %
95 - 99	7.5 %
100 - 104	7.5 %
105 - 109	5.7 %
> 109	20.6 %
(Cases) N =	228
mean	82
min size (mm)	9
max size (mm)	134

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Chickasaw

Strongylocentrotus purpuratus	
< 5	0.0 %
5 - 9	1.6 %
10 - 14	4.1 %
15 - 19	9.3 %
20 - 24	14.6 %
25 - 29	11.0 %
30 - 34	11.8 %
35 - 39	12.6 %
40 - 44	12.2 %
45 - 49	8.5 %
50 - 54	6.1 %
55 - 59	4.5 %
60 - 64	1.2 %
65 - 69	1.2 %
70 - 74	1.2 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	246
mean	35
min size (mm)	8
max size (mm)	74

Tethya aurantia	
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	1.6 %
40 - 49	1.6 %
50 - 59	6.5 %
60 - 69	4.8 %
70 - 79	3.2 %
80 - 89	16.1 %
90 - 99	24.2 %
> 99	41.9 %
(Cases) N =	62
mean	89
min size (mm)	37
max size (mm)	128

Haliotis rufescens	
<25	0.0 %
25 - 34	0.0 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.6 %
75 - 84	0.6 %
85 - 94	1.3 %
95 - 104	0.6 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	1.3 %
135 - 144	2.5 %
145 - 154	3.1 %
155 - 164	3.8 %
165 - 174	11.9 %
175 - 184	10.0 %
185 - 194	23.8 %
>195	39.4 %
(Cases) N =	160
mean	179
min size (mm)	65
max size (mm)	225

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - South Point

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
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 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	50.0 %
(Cases) N =	2
mean	81
min size (mm)	33
max size (mm)	129

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	16.7 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	33.3 %
60 - 69	16.7 %
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	0.0 %
(Cases) N =	6
mean	68
min size (mm)	28
max size (mm)	105

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	3.4 %
60 - 79	15.3 %
80 - 99	32.2 %
100 - 119	28.8 %
120 - 139	16.9 %
140 - 159	1.7 %
160 - 179	1.7 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	59
mean	100
min size (mm)	58
max size (mm)	172

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	16.7 %
100 - 109	50.0 %
110 - 119	16.7 %
> 119	0.0 %
(Cases) N =	6
mean	100
min size (mm)	87
max size (mm)	110

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	3.3 %
40 - 49	11.7 %
50 - 59	21.7 %
60 - 69	30.0 %
70 - 79	26.7 %
80 - 89	6.7 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	60
mean	61
min size (mm)	31
max size (mm)	85

Pycnopodia helianthoides

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	0.0 %
100 - 119	3.4 %
120 - 139	3.4 %
140 - 159	3.4 %
160 - 179	17.2 %
180 - 199	17.2 %
200 - 219	20.7 %
220 - 239	10.3 %
240 - 259	20.7 %
260 - 279	3.4 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	29
mean	205
min size (mm)	110
max size (mm)	266

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - South Point

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	1.4 %
15 - 19	1.9 %
20 - 24	8.7 %
25 - 29	12.5 %
30 - 34	6.3 %
35 - 39	5.3 %
40 - 44	2.9 %
45 - 49	1.9 %
50 - 54	3.4 %
55 - 59	3.4 %
60 - 64	2.9 %
65 - 69	6.7 %
70 - 74	4.3 %
75 - 79	4.8 %
80 - 84	3.8 %
85 - 89	4.8 %
90 - 94	4.8 %
95 - 99	4.8 %
100 - 104	2.9 %
105 - 109	3.8 %
> 109	8.7 %
(Cases) N =	208
mean	68
min size (mm)	14
max size (mm)	138

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.5 %
10 - 14	6.0 %
15 - 19	6.5 %
20 - 24	10.5 %
25 - 29	17.0 %
30 - 34	15.0 %
35 - 39	13.0 %
40 - 44	13.5 %
45 - 49	11.0 %
50 - 54	3.5 %
55 - 59	2.5 %
60 - 64	1.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	200
mean	33
min size (mm)	9
max size (mm)	61

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	12.8 %
30 - 39	25.6 %
40 - 49	17.9 %
50 - 59	30.8 %
60 - 69	10.3 %
70 - 79	2.6 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	39
mean	44
min size (mm)	20
max size (mm)	74

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	50.0 %
90 - 99	50.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	4
mean	89
min size (mm)	81
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	5.5 %
60 - 69	14.5 %
70 - 79	36.4 %
80 - 89	38.2 %
90 - 99	5.5 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	55
mean	76
min size (mm)	56
max size (mm)	91

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Devil's Peak Member

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	6.1 %
50 - 59	3.0 %
60 - 69	9.1 %
70 - 79	12.1 %
80 - 89	15.2 %
90 - 99	18.2 %
100 - 109	3.0 %
110 - 119	9.1 %
120 - 129	9.1 %
130 - 139	15.2 %
> 139	0.0 %
(Cases) N =	33
mean	97
min size (mm)	44
max size (mm)	135

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	4.2 %
50 - 54	37.5 %
55 - 59	50.0 %
60 - 64	8.3 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	24
mean	55
min size (mm)	49
max size (mm)	61

Patiria miniata

<10	0.0 %
10 - 19	1.5 %
20 - 29	7.5 %
30 - 39	17.9 %
40 - 49	17.9 %
50 - 59	7.5 %
60 - 69	25.4 %
70 - 79	19.4 %
80 - 89	1.5 %
90 - 99	0.0 %
> 99	1.5 %
(Cases) N =	67
mean	53
min size (mm)	13
max size (mm)	103

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	8.3 %
100 - 119	29.2 %
120 - 139	34.7 %
140 - 159	16.7 %
160 - 179	6.9 %
180 - 199	0.0 %
200 - 219	1.4 %
220 - 239	0.0 %
> 239	2.8 %
(Cases) N =	72
mean	135
min size (mm)	82
max size (mm)	290

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	6.3 %
160 - 179	12.5 %
180 - 199	12.5 %
200 - 219	18.8 %
220 - 239	6.3 %
240 - 259	18.8 %
260 - 279	12.5 %
280 - 299	12.5 %
> 299	0.0 %
(Cases) N =	16
mean	222
min size (mm)	145
max size (mm)	290

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	1.4 %
15 - 19	2.4 %
20 - 24	6.3 %
25 - 29	2.9 %
30 - 34	1.0 %
35 - 39	1.9 %
40 - 44	2.4 %
45 - 49	14.4 %
50 - 54	28.8 %
55 - 59	21.2 %
60 - 64	12.0 %
65 - 69	2.9 %
70 - 74	1.4 %
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 =	208
mean	45
min size (mm)	10
max size (mm)	80

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Devil's Peak Member

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.4 %
15 - 19	2.2 %
20 - 24	2.7 %
25 - 29	12.1 %
30 - 34	42.2 %
35 - 39	33.6 %
40 - 44	6.3 %
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 =	223
mean	30
min size (mm)	13
max size (mm)	46

Tethya aurantia

<10	0.0 %
10 - 19	2.0 %
20 - 29	14.0 %
30 - 39	24.0 %
40 - 49	34.0 %
50 - 59	14.0 %
60 - 69	10.0 %
70 - 79	2.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	50
mean	43
min size (mm)	10
max size (mm)	74

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	8.3 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	33.3 %
90 - 99	8.3 %
100 - 109	25.0 %
110 - 119	16.7 %
120 - 129	8.3 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	12
mean	93
min size (mm)	51
max size (mm)	121

Megastraea undosa

<10	0.0 %
10 - 19	24.1 %
20 - 29	30.4 %
30 - 39	10.1 %
40 - 49	8.9 %
50 - 59	13.9 %
60 - 69	5.1 %
70 - 79	5.1 %
80 - 89	2.5 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	79
mean	40
min size (mm)	13
max size (mm)	86

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Potato Pasture

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	18
min size (mm)	16
max size (mm)	20

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	3.0 %
50 - 59	0.0 %
60 - 69	3.0 %
70 - 79	12.1 %
80 - 89	30.3 %
90 - 99	39.4 %
100 - 109	12.1 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	33
mean	87
min size (mm)	47
max size (mm)	106

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	8.3 %
50 - 59	3.3 %
60 - 69	3.3 %
70 - 79	5.0 %
80 - 89	1.7 %
90 - 99	5.0 %
100 - 109	6.7 %
110 - 119	15.0 %
120 - 129	10.0 %
130 - 139	16.7 %
> 139	25.0 %
(Cases) N =	60
mean	116
min size (mm)	42
max size (mm)	180

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	1.8 %
40 - 44	5.3 %
45 - 49	29.8 %
50 - 54	59.6 %
55 - 59	3.5 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	57
mean	49
min size (mm)	37
max size (mm)	55

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	5.0 %
30 - 39	10.0 %
40 - 49	11.7 %
50 - 59	13.3 %
60 - 69	28.3 %
70 - 79	28.3 %
80 - 89	3.3 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	60
mean	52
min size (mm)	23
max size (mm)	85

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	1.7 %
80 - 99	3.3 %
100 - 119	8.3 %
120 - 139	23.3 %
140 - 159	15.0 %
160 - 179	23.3 %
180 - 199	11.7 %
200 - 219	5.0 %
220 - 239	5.0 %
> 239	3.3 %
(Cases) N =	60
mean	158
min size (mm)	74
max size (mm)	295

Lytechinus anamesus

< 5	0.0 %
5 - 9	7.6 %
10 - 14	39.7 %
15 - 19	26.7 %
20 - 24	22.1 %
25 - 29	3.8 %
30 - 34	0.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	131
mean	17
min size (mm)	7
max size (mm)	27

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Potato Pasture

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	15.7 %
10 - 14	15.7 %
15 - 19	3.3 %
20 - 24	0.5 %
25 - 29	0.5 %
30 - 34	1.4 %
35 - 39	0.5 %
40 - 44	3.8 %
45 - 49	10.0 %
50 - 54	19.0 %
55 - 59	17.6 %
60 - 64	8.1 %
65 - 69	1.9 %
70 - 74	0.5 %
75 - 79	0.5 %
80 - 84	1.0 %
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 =	210
mean	41
min size (mm)	5
max size (mm)	81

Strongylocentrotus purpuratus

< 5	0.0 %
5 - 9	4.4 %
10 - 14	23.4 %
15 - 19	20.5 %
20 - 24	6.3 %
25 - 29	5.9 %
30 - 34	19.0 %
35 - 39	14.6 %
40 - 44	4.9 %
45 - 49	1.0 %
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 =	205
mean	26
min size (mm)	6
max size (mm)	47

Tethya aurantia

<10	0.0 %
10 - 19	1.1 %
20 - 29	7.4 %
30 - 39	14.9 %
40 - 49	21.3 %
50 - 59	18.1 %
60 - 69	12.8 %
70 - 79	18.1 %
80 - 89	5.3 %
90 - 99	1.1 %
> 99	0.0 %
(Cases) N =	94
mean	53
min size (mm)	18
max size (mm)	99

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	40.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	20.0 %
90 - 99	20.0 %
100 - 109	20.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	5
mean	69
min size (mm)	30
max size (mm)	100

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	2.1 %
50 - 59	2.1 %
60 - 69	8.5 %
70 - 79	10.6 %
80 - 89	17.0 %
90 - 99	40.4 %
100 - 109	19.1 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	47
mean	85
min size (mm)	48
max size (mm)	108

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Cavern Point

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	1.7 %
30 - 39	8.3 %
40 - 49	6.7 %
50 - 59	5.0 %
60 - 69	3.3 %
70 - 79	5.0 %
80 - 89	3.3 %
90 - 99	1.7 %
100 - 109	8.3 %
110 - 119	10.0 %
120 - 129	15.0 %
130 - 139	8.3 %
> 139	23.3 %
(Cases) N =	60
mean	102
min size (mm)	28
max size (mm)	167

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	100.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	9
mean	53
min size (mm)	51
max size (mm)	54

Patiria miniata

<10	1.5 %
10 - 19	3.1 %
20 - 29	6.2 %
30 - 39	12.3 %
40 - 49	12.3 %
50 - 59	10.8 %
60 - 69	26.2 %
70 - 79	13.8 %
80 - 89	12.3 %
90 - 99	0.0 %
> 99	1.5 %
(Cases) N =	65
mean	55
min size (mm)	9
max size (mm)	104

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	6.6 %
80 - 99	16.4 %
100 - 119	14.8 %
120 - 139	16.4 %
140 - 159	19.7 %
160 - 179	18.0 %
180 - 199	3.3 %
200 - 219	1.6 %
220 - 239	0.0 %
> 239	3.3 %
(Cases) N =	61
mean	138
min size (mm)	64
max size (mm)	281

Lytechinus anamesus

< 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

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	5.2 %
10 - 14	2.3 %
15 - 19	6.9 %
20 - 24	8.6 %
25 - 29	4.6 %
30 - 34	4.0 %
35 - 39	2.9 %
40 - 44	0.0 %
45 - 49	1.1 %
50 - 54	1.7 %
55 - 59	1.7 %
60 - 64	9.8 %
65 - 69	10.9 %
70 - 74	17.8 %
75 - 79	10.9 %
80 - 84	6.9 %
85 - 89	2.3 %
90 - 94	0.6 %
95 - 99	0.6 %
100 - 104	0.6 %
105 - 109	0.6 %
> 109	0.0 %
(Cases) N =	174
mean	53
min size (mm)	6
max size (mm)	107

Strongylocentrotus purpuratus

< 5	3.9 %
5 - 9	11.4 %
10 - 14	8.8 %
15 - 19	7.9 %
20 - 24	9.2 %
25 - 29	6.6 %
30 - 34	4.8 %
35 - 39	1.8 %
40 - 44	10.1 %
45 - 49	17.5 %
50 - 54	14.5 %
55 - 59	3.5 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	228
mean	30
min size (mm)	3
max size (mm)	59

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Little Scorpion

Tethya aurantia

<10	0.0 %
10 - 19	2.6 %
20 - 29	2.6 %
30 - 39	15.4 %
40 - 49	10.3 %
50 - 59	17.9 %
60 - 69	20.5 %
70 - 79	15.4 %
80 - 89	7.7 %
90 - 99	7.7 %
> 99	0.0 %
(Cases) N =	39
mean	60
min size (mm)	19
max size (mm)	94

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	22.2 %
80 - 89	11.1 %
90 - 99	44.4 %
100 - 109	22.2 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	9
mean	92
min size (mm)	72
max size (mm)	108

Megastraea undosa

<10	0.0 %
10 - 19	13.0 %
20 - 29	17.4 %
30 - 39	30.4 %
40 - 49	26.1 %
50 - 59	4.3 %
60 - 69	0.0 %
70 - 79	4.3 %
80 - 89	4.3 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	23
mean	38
min size (mm)	14
max size (mm)	80

Lithopoma gibberosa

<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	45
min size (mm)	39
max size (mm)	51

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	2.2 %
40 - 49	7.8 %
50 - 59	17.8 %
60 - 69	27.8 %
70 - 79	25.6 %
80 - 89	16.7 %
90 - 99	2.2 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	90
mean	67
min size (mm)	37
max size (mm)	94

Crassedoma giganteum

<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	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	50.0 %
> 139	0.0 %
(Cases) N =	2
mean	82
min size (mm)	26
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	0.0 %
40 - 44	0.0 %
45 - 49	3.8 %
50 - 54	69.2 %
55 - 59	19.2 %
60 - 64	7.7 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	26
mean	54
min size (mm)	49
max size (mm)	62

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Little Scorpion

Patiria miniata

<10	0.0 %
10 - 19	1.0 %
20 - 29	7.2 %
30 - 39	21.6 %
40 - 49	20.6 %
50 - 59	15.5 %
60 - 69	17.5 %
70 - 79	10.3 %
80 - 89	6.2 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	97
mean	51
min size (mm)	17
max size (mm)	89

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	1.3 %
80 - 99	1.3 %
100 - 119	13.2 %
120 - 139	17.1 %
140 - 159	31.6 %
160 - 179	11.8 %
180 - 199	13.2 %
200 - 219	7.9 %
220 - 239	2.6 %
> 239	0.0 %
(Cases) N =	76
mean	153
min size (mm)	72
max size (mm)	234

Lytechinus anamesus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	2.0 %
15 - 19	8.5 %
20 - 24	69.5 %
25 - 29	18.0 %
30 - 34	2.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	200
mean	21
min size (mm)	10
max size (mm)	31

Strongylocentrotus franciscanus

< 5	0.5 %
5 - 9	6.8 %
10 - 14	1.5 %
15 - 19	2.4 %
20 - 24	16.1 %
25 - 29	5.4 %
30 - 34	6.3 %
35 - 39	7.3 %
40 - 44	7.3 %
45 - 49	7.3 %
50 - 54	10.7 %
55 - 59	8.3 %
60 - 64	8.8 %
65 - 69	7.3 %
70 - 74	2.4 %
75 - 79	0.5 %
80 - 84	0.5 %
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	44
min size (mm)	4
max size (mm)	89

Strongylocentrotus purpuratus

< 5	1.4 %
5 - 9	9.9 %
10 - 14	3.3 %
15 - 19	12.7 %
20 - 24	16.0 %
25 - 29	20.7 %
30 - 34	15.5 %
35 - 39	7.5 %
40 - 44	3.8 %
45 - 49	3.8 %
50 - 54	3.3 %
55 - 59	1.4 %
60 - 64	0.9 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	213
mean	32
min size (mm)	4
max size (mm)	61

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pedro Reef

Tethya aurantia

<10	0.0 %
10 - 19	4.2 %
20 - 29	6.9 %
30 - 39	8.3 %
40 - 49	25.0 %
50 - 59	22.2 %
60 - 69	13.9 %
70 - 79	9.7 %
80 - 89	9.7 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	72
mean	53
min size (mm)	12
max size (mm)	88

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	75.0 %
90 - 99	25.0 %
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 =	4
mean	85
min size (mm)	80
max size (mm)	92

Megastraea undosa

<10	4.9 %
10 - 19	70.5 %
20 - 29	9.8 %
30 - 39	1.6 %
40 - 49	1.6 %
50 - 59	1.6 %
60 - 69	3.3 %
70 - 79	3.3 %
80 - 89	1.6 %
90 - 99	1.6 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	61
mean	30
min size (mm)	8
max size (mm)	94

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	4.4 %
40 - 49	13.3 %
50 - 59	17.8 %
60 - 69	20.0 %
70 - 79	35.6 %
80 - 89	6.7 %
90 - 99	2.2 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	45
mean	63
min size (mm)	33
max size (mm)	92

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	20.0 %
50 - 59	0.0 %
60 - 69	20.0 %
70 - 79	20.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	20.0 %
120 - 129	20.0 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	5
mean	85
min size (mm)	49
max size (mm)	127

Tegula regina

< 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	0.0 %
45 - 49	0.0 %
50 - 54	50.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	2
mean	39
min size (mm)	25
max size (mm)	52

Patiria miniata

<10	0.0 %
10 - 19	1.6 %
20 - 29	3.1 %
30 - 39	9.4 %
40 - 49	7.8 %
50 - 59	17.2 %
60 - 69	15.6 %
70 - 79	25.0 %
80 - 89	15.6 %
90 - 99	4.7 %
> 99	0.0 %
(Cases) N =	64
mean	63
min size (mm)	18
max size (mm)	99

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pedro Reef

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	3.1 %
80 - 99	25.0 %
100 - 119	20.3 %
120 - 139	15.6 %
140 - 159	14.1 %
160 - 179	14.1 %
180 - 199	6.3 %
200 - 219	1.6 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	64
mean	129
min size (mm)	77
max size (mm)	212

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	50.0 %
220 - 239	50.0 %
240 - 259	0.0 %
260 - 279	0.0 %
280 - 299	0.0 %
> 299	0.0 %
(Cases) N =	2
mean	217
min size (mm)	213
max size (mm)	220

Lytechinus anamesus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	4.0 %
15 - 19	1.3 %
20 - 24	34.0 %
25 - 29	50.7 %
30 - 34	10.0 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	150
mean	23
min size (mm)	10
max size (mm)	33

Strongylocentrotus franciscanus

< 5	0.9 %
5 - 9	5.7 %
10 - 14	6.5 %
15 - 19	14.8 %
20 - 24	16.5 %
25 - 29	8.7 %
30 - 34	11.7 %
35 - 39	17.0 %
40 - 44	10.0 %
45 - 49	6.1 %
50 - 54	1.7 %
55 - 59	0.4 %
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 =	230
mean	28
min size (mm)	4
max size (mm)	57

Strongylocentrotus purpuratus

< 5	1.4 %
5 - 9	11.0 %
10 - 14	12.4 %
15 - 19	27.2 %
20 - 24	42.4 %
25 - 29	4.6 %
30 - 34	1.1 %
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 =	283
mean	16
min size (mm)	3
max size (mm)	31

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Keyhole

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	50.0 %
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)	32
max size (mm)	60

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	97
min size (mm)	97
max size (mm)	97

Megastraea undosa

<10	3.1 %
10 - 19	29.7 %
20 - 29	10.9 %
30 - 39	21.9 %
40 - 49	17.2 %
50 - 59	12.5 %
60 - 69	1.6 %
70 - 79	1.6 %
80 - 89	0.0 %
90 - 99	1.6 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	64
mean	34
min size (mm)	7
max size (mm)	92

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	3.4 %
40 - 49	3.4 %
50 - 59	20.7 %
60 - 69	44.8 %
70 - 79	10.3 %
80 - 89	13.8 %
90 - 99	1.7 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	1.7 %
(Cases) N =	58
mean	66
min size (mm)	30
max size (mm)	125

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	8.7 %
30 - 39	8.7 %
40 - 49	17.4 %
50 - 59	21.7 %
60 - 69	4.3 %
70 - 79	4.3 %
80 - 89	0.0 %
90 - 99	4.3 %
100 - 109	0.0 %
110 - 119	4.3 %
120 - 129	4.3 %
130 - 139	8.7 %
> 139	13.0 %
(Cases) N =	23
mean	83
min size (mm)	25
max size (mm)	210

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	1.9 %
45 - 49	20.8 %
50 - 54	67.9 %
55 - 59	9.4 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	53
mean	50
min size (mm)	42
max size (mm)	55

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	2.9 %
30 - 39	23.2 %
40 - 49	11.6 %
50 - 59	24.6 %
60 - 69	14.5 %
70 - 79	15.9 %
80 - 89	5.8 %
90 - 99	1.4 %
> 99	0.0 %
(Cases) N =	69
mean	57
min size (mm)	29
max size (mm)	95

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Keyhole

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	1.7 %
60 - 79	3.3 %
80 - 99	11.7 %
100 - 119	36.7 %
120 - 139	21.7 %
140 - 159	11.7 %
160 - 179	5.0 %
180 - 199	1.7 %
200 - 219	3.3 %
220 - 239	0.0 %
> 239	3.3 %
(Cases) N =	60
mean	127
min size (mm)	57
max size (mm)	259

Lytechinus anamesus

< 5	0.0 %
5 - 9	1.2 %
10 - 14	3.6 %
15 - 19	8.0 %
20 - 24	12.4 %
25 - 29	50.4 %
30 - 34	23.6 %
35 - 39	0.8 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	250
mean	23
min size (mm)	7
max size (mm)	37

Strongylocentrotus franciscanus

< 5	0.9 %
5 - 9	3.6 %
10 - 14	8.9 %
15 - 19	28.4 %
20 - 24	24.4 %
25 - 29	9.3 %
30 - 34	4.4 %
35 - 39	4.4 %
40 - 44	1.8 %
45 - 49	2.2 %
50 - 54	1.8 %
55 - 59	0.9 %
60 - 64	1.8 %
65 - 69	1.8 %
70 - 74	2.7 %
75 - 79	1.3 %
80 - 84	0.0 %
85 - 89	0.9 %
90 - 94	0.4 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	225
mean	35
min size (mm)	4
max size (mm)	90

Strongylocentrotus purpuratus

< 5	2.9 %
5 - 9	11.2 %
10 - 14	21.6 %
15 - 19	20.3 %
20 - 24	17.8 %
25 - 29	9.1 %
30 - 34	8.3 %
35 - 39	5.0 %
40 - 44	3.3 %
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 =	241
mean	22
min size (mm)	3
max size (mm)	47

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - East Fish Camp

Tethya aurantia

<10	0.0 %
10 - 19	1.6 %
20 - 29	11.3 %
30 - 39	14.5 %
40 - 49	16.1 %
50 - 59	19.4 %
60 - 69	11.3 %
70 - 79	12.9 %
80 - 89	4.8 %
90 - 99	1.6 %
> 99	6.5 %
(Cases) N =	62
mean	55
min size (mm)	19
max size (mm)	112

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	57.1 %
80 - 89	14.3 %
90 - 99	28.6 %
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 =	7
mean	82
min size (mm)	70
max size (mm)	97

Megastraea undosa

<10	0.0 %
10 - 19	5.9 %
20 - 29	5.9 %
30 - 39	21.6 %
40 - 49	19.6 %
50 - 59	23.5 %
60 - 69	9.8 %
70 - 79	11.8 %
80 - 89	2.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	51
mean	48
min size (mm)	12
max size (mm)	87

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	3.3 %
30 - 39	29.5 %
40 - 49	27.9 %
50 - 59	16.4 %
60 - 69	13.1 %
70 - 79	8.2 %
80 - 89	1.6 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	61
mean	50
min size (mm)	29
max size (mm)	86

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	25.0 %
50 - 59	0.0 %
60 - 69	25.0 %
70 - 79	25.0 %
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	25.0 %
(Cases) N =	4
mean	80
min size (mm)	49
max size (mm)	140

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	5.9 %
45 - 49	17.6 %
50 - 54	52.9 %
55 - 59	23.5 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	17
mean	52
min size (mm)	43
max size (mm)	59

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	1.5 %
40 - 49	13.8 %
50 - 59	15.4 %
60 - 69	35.4 %
70 - 79	18.5 %
80 - 89	12.3 %
90 - 99	3.1 %
> 99	0.0 %
(Cases) N =	65
mean	66
min size (mm)	30
max size (mm)	96

2011 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	0.0 %
80 - 99	3.7 %
100 - 119	16.7 %
120 - 139	13.0 %
140 - 159	38.9 %
160 - 179	14.8 %
180 - 199	9.3 %
200 - 219	3.7 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	54
mean	148
min size (mm)	95
max size (mm)	202

Lytechinus anamesus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	5.5 %
15 - 19	8.3 %
20 - 24	52.5 %
25 - 29	29.8 %
30 - 34	3.9 %
35 - 39	0.0 %
40 - 44	0.0 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	181
mean	22
min size (mm)	10
max size (mm)	34

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.0 %
10 - 14	1.7 %
15 - 19	12.9 %
20 - 24	9.1 %
25 - 29	30.3 %
30 - 34	37.6 %
35 - 39	7.0 %
40 - 44	1.0 %
45 - 49	0.0 %
50 - 54	0.0 %
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 =	287
mean	27
min size (mm)	12
max size (mm)	55

Strongylocentrotus purpuratus

< 5	0.2 %
5 - 9	4.1 %
10 - 14	18.4 %
15 - 19	39.5 %
20 - 24	29.9 %
25 - 29	7.4 %
30 - 34	0.5 %
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 =	418
mean	18
min size (mm)	4
max size (mm)	32

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Black Sea Bass Reef

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	10.5 %
30 - 39	18.4 %
40 - 49	10.5 %
50 - 59	7.9 %
60 - 69	13.2 %
70 - 79	21.1 %
80 - 89	15.8 %
90 - 99	2.6 %
> 99	0.0 %
(Cases) N =	38
mean	59
min size (mm)	20
max size (mm)	92

Kelletia kelletii

< 40	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 %
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 =	2
mean	78
min size (mm)	69
max size (mm)	86

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	100.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	1
mean	70
min size (mm)	70
max size (mm)	70

Megathura crenulata

<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	0.0 %
90 - 99	25.0 %
100 - 109	25.0 %
110 - 119	25.0 %
> 119	0.0 %
(Cases) N =	4
mean	92
min size (mm)	56
max size (mm)	117

Crassedoma giganteum

<10	0.0 %
10 - 19	33.3 %
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	33.3 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	33.3 %
(Cases) N =	3
mean	98
min size (mm)	14
max size (mm)	170

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	53.3 %
50 - 54	46.7 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	15
mean	49
min size (mm)	45
max size (mm)	54

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	9.5 %
50 - 59	0.0 %
60 - 69	23.8 %
70 - 79	19.0 %
80 - 89	14.3 %
90 - 99	14.3 %
> 99	19.0 %
(Cases) N =	21
mean	81
min size (mm)	49
max size (mm)	112

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Black Sea Bass 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	9.1 %
140 - 159	27.3 %
160 - 179	45.5 %
180 - 199	9.1 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	9.1 %
(Cases) N =	11
mean	173
min size (mm)	139
max size (mm)	268

Strongylocentrotus franciscanus	
< 5	0.0 %
5 - 9	0.5 %
10 - 14	4.2 %
15 - 19	15.8 %
20 - 24	26.5 %
25 - 29	14.9 %
30 - 34	12.1 %
35 - 39	5.1 %
40 - 44	3.7 %
45 - 49	2.8 %
50 - 54	1.9 %
55 - 59	1.4 %
60 - 64	2.3 %
65 - 69	1.4 %
70 - 74	2.3 %
75 - 79	1.4 %
80 - 84	2.3 %
85 - 89	0.9 %
90 - 94	0.0 %
95 - 99	0.5 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	215
mean	40
min size (mm)	6
max size (mm)	99

Strongylocentrotus purpuratus	
< 5	0.4 %
5 - 9	4.4 %
10 - 14	10.1 %
15 - 19	16.2 %
20 - 24	16.7 %
25 - 29	22.4 %
30 - 34	16.2 %
35 - 39	6.6 %
40 - 44	2.6 %
45 - 49	3.1 %
50 - 54	1.3 %
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 =	228
mean	25
min size (mm)	4
max size (mm)	52

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Lighthouse

Tethya aurantia

<10	0.0 %
10 - 19	2.3 %
20 - 29	4.5 %
30 - 39	13.6 %
40 - 49	17.0 %
50 - 59	22.7 %
60 - 69	17.0 %
70 - 79	14.8 %
80 - 89	3.4 %
90 - 99	3.4 %
> 99	1.1 %
(Cases) N =	88
mean	55
min size (mm)	16
max size (mm)	100

Kelletia kelletii

< 40	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	11.1 %
90 - 99	0.0 %
100 - 109	11.1 %
110 - 119	33.3 %
120 - 129	11.1 %
130 - 139	33.3 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	9
mean	119
min size (mm)	89
max size (mm)	139

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	11.8 %
30 - 39	2.9 %
40 - 49	0.0 %
50 - 59	17.6 %
60 - 69	20.6 %
70 - 79	23.5 %
80 - 89	17.6 %
90 - 99	2.9 %
100 - 109	0.0 %
110 - 119	2.9 %
> 119	0.0 %
(Cases) N =	34
mean	66
min size (mm)	25
max size (mm)	111

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	1.4 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	18.1 %
70 - 79	56.9 %
80 - 89	20.8 %
90 - 99	2.8 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	72
mean	74
min size (mm)	35
max size (mm)	90

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	9.1 %
50 - 59	9.1 %
60 - 69	18.2 %
70 - 79	0.0 %
80 - 89	9.1 %
90 - 99	0.0 %
100 - 109	9.1 %
110 - 119	0.0 %
120 - 129	18.2 %
130 - 139	9.1 %
> 139	18.2 %
(Cases) N =	11
mean	101
min size (mm)	40
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	0.0 %
45 - 49	25.0 %
50 - 54	25.0 %
55 - 59	50.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	4
mean	53
min size (mm)	49
max size (mm)	57

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	4.8 %
30 - 39	6.5 %
40 - 49	19.4 %
50 - 59	17.7 %
60 - 69	29.0 %
70 - 79	16.1 %
80 - 89	6.5 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	62
mean	57
min size (mm)	20
max size (mm)	89

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Lighthouse

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	3.2 %
80 - 99	7.9 %
100 - 119	50.8 %
120 - 139	31.7 %
140 - 159	6.3 %
160 - 179	0.0 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	63
mean	116
min size (mm)	66
max size (mm)	151

Lytechinus anamesus

< 5	0.0 %
5 - 9	4.3 %
10 - 14	19.6 %
15 - 19	4.3 %
20 - 24	28.3 %
25 - 29	34.8 %
30 - 34	6.5 %
35 - 39	0.0 %
40 - 44	2.2 %
45 - 49	0.0 %
> 49	0.0 %
(Cases) N =	46
mean	21
min size (mm)	9
max size (mm)	41

Strongylocentrotus franciscanus

< 5	1.4 %
5 - 9	3.1 %
10 - 14	9.3 %
15 - 19	19.3 %
20 - 24	8.6 %
25 - 29	7.2 %
30 - 34	8.3 %
35 - 39	13.1 %
40 - 44	16.2 %
45 - 49	6.6 %
50 - 54	2.4 %
55 - 59	1.0 %
60 - 64	1.0 %
65 - 69	1.0 %
70 - 74	0.3 %
75 - 79	0.3 %
80 - 84	0.3 %
85 - 89	0.3 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	290
mean	37
min size (mm)	4
max size (mm)	88

Strongylocentrotus purpuratus

< 5	6.1 %
5 - 9	5.5 %
10 - 14	6.9 %
15 - 19	19.6 %
20 - 24	20.4 %
25 - 29	22.3 %
30 - 34	14.9 %
35 - 39	3.9 %
40 - 44	0.3 %
45 - 49	0.0 %
50 - 54	0.3 %
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 =	363
mean	22
min size (mm)	2
max size (mm)	50

2011 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	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	50.0 %
> 99	0.0 %
(Cases) N =	2
mean	72
min size (mm)	53
max size (mm)	91

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	100.0 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	1
mean	120
min size (mm)	120
max size (mm)	120

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	5.5 %
40 - 49	7.3 %
50 - 59	3.6 %
60 - 69	3.6 %
70 - 79	23.6 %
80 - 89	29.1 %
90 - 99	25.5 %
100 - 109	1.8 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	55
mean	75
min size (mm)	34
max size (mm)	105

Lithopoma gibberosa

<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	56
min size (mm)	56
max size (mm)	56

Megathura crenulata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	8.5 %
60 - 69	8.5 %
70 - 79	22.0 %
80 - 89	40.7 %
90 - 99	16.9 %
100 - 109	3.4 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	59
mean	80
min size (mm)	55
max size (mm)	107

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	4.3 %
35 - 39	2.1 %
40 - 44	48.9 %
45 - 49	36.2 %
50 - 54	8.5 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	47
mean	43
min size (mm)	30
max size (mm)	51

Patiria miniata

<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	1.7 %
40 - 49	3.3 %
50 - 59	40.0 %
60 - 69	40.0 %
70 - 79	11.7 %
80 - 89	1.7 %
90 - 99	1.7 %
> 99	0.0 %
(Cases) N =	60
mean	63
min size (mm)	36
max size (mm)	91

2011 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	7.6 %
100 - 119	37.9 %
120 - 139	36.4 %
140 - 159	15.2 %
160 - 179	1.5 %
180 - 199	0.0 %
200 - 219	1.5 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	66
mean	126
min size (mm)	88
max size (mm)	201

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	4.3 %
200 - 219	4.3 %
220 - 239	26.1 %
240 - 259	4.3 %
260 - 279	21.7 %
280 - 299	17.4 %
> 299	21.7 %
(Cases) N =	23
mean	249
min size (mm)	185
max size (mm)	310

Strongylocentrotus franciscanus

< 5	0.0 %
5 - 9	0.4 %
10 - 14	7.3 %
15 - 19	7.7 %
20 - 24	7.3 %
25 - 29	9.0 %
30 - 34	11.5 %
35 - 39	20.1 %
40 - 44	17.1 %
45 - 49	9.8 %
50 - 54	6.4 %
55 - 59	0.4 %
60 - 64	0.4 %
65 - 69	0.4 %
70 - 74	0.9 %
75 - 79	0.4 %
80 - 84	0.0 %
85 - 89	0.0 %
90 - 94	0.0 %
95 - 99	0.4 %
100 - 104	0.4 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	234
mean	35
min size (mm)	5
max size (mm)	103

Strongylocentrotus purpuratus

< 5	1.2 %
5 - 9	1.2 %
10 - 14	7.1 %
15 - 19	42.1 %
20 - 24	40.9 %
25 - 29	7.1 %
30 - 34	0.4 %
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 =	252
mean	18
min size (mm)	3
max size (mm)	30

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Graveyard Canyon

Tethya aurantia

<10	0.0 %
10 - 19	1.0 %
20 - 29	12.4 %
30 - 39	11.3 %
40 - 49	13.4 %
50 - 59	19.6 %
60 - 69	16.5 %
70 - 79	14.4 %
80 - 89	10.3 %
90 - 99	1.0 %
> 99	0.0 %
(Cases) N =	97
mean	55
min size (mm)	17
max size (mm)	93

Megastraea undosa

<10	0.0 %
10 - 19	11.1 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	44.4 %
80 - 89	22.2 %
90 - 99	0.0 %
100 - 109	11.1 %
110 - 119	11.1 %
> 119	0.0 %
(Cases) N =	9
mean	78
min size (mm)	11
max size (mm)	112

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	33.3 %
80 - 89	0.0 %
90 - 99	33.3 %
100 - 109	33.3 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	3
mean	90
min size (mm)	70
max size (mm)	107

Patiria miniata

<10	0.0 %
10 - 19	1.7 %
20 - 29	6.7 %
30 - 39	10.0 %
40 - 49	11.7 %
50 - 59	10.0 %
60 - 69	20.0 %
70 - 79	13.3 %
80 - 89	15.0 %
90 - 99	10.0 %
> 99	1.7 %
(Cases) N =	60
mean	60
min size (mm)	19
max size (mm)	104

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	25.0 %
60 - 79	8.3 %
80 - 99	0.0 %
100 - 119	25.0 %
120 - 139	25.0 %
140 - 159	0.0 %
160 - 179	16.7 %
180 - 199	0.0 %
200 - 219	0.0 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	12
mean	104
min size (mm)	42
max size (mm)	171

Strongylocentrotus franciscanus

< 5	0.5 %
5 - 9	1.6 %
10 - 14	3.7 %
15 - 19	3.7 %
20 - 24	1.6 %
25 - 29	2.1 %
30 - 34	7.4 %
35 - 39	10.6 %
40 - 44	11.6 %
45 - 49	11.6 %
50 - 54	13.2 %
55 - 59	10.1 %
60 - 64	7.9 %
65 - 69	7.9 %
70 - 74	2.6 %
75 - 79	2.6 %
80 - 84	1.1 %
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 =	189
mean	46
min size (mm)	4
max size (mm)	83

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Graveyard Canyon

Strongylocentrotus purpuratus

< 5	1.2 %
5 - 9	16.1 %
10 - 14	14.5 %
15 - 19	18.5 %
20 - 24	24.9 %
25 - 29	15.7 %
30 - 34	6.0 %
35 - 39	2.4 %
40 - 44	0.8 %
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	20
min size (mm)	3
max size (mm)	40

Tethya aurantia

<10	0.0 %
10 - 19	0.0 %
20 - 29	17.6 %
30 - 39	17.6 %
40 - 49	23.5 %
50 - 59	17.6 %
60 - 69	5.9 %
70 - 79	17.6 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	17
mean	47
min size (mm)	24
max size (mm)	77

Megastraea undosa

<10	0.0 %
10 - 19	0.0 %
20 - 29	4.8 %
30 - 39	19.0 %
40 - 49	14.3 %
50 - 59	4.8 %
60 - 69	4.8 %
70 - 79	0.0 %
80 - 89	19.0 %
90 - 99	28.6 %
100 - 109	0.0 %
110 - 119	4.8 %
> 119	0.0 %
(Cases) N =	21
mean	70
min size (mm)	28
max size (mm)	110

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	33.3 %
70 - 79	33.3 %
80 - 89	33.3 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	3
mean	76
min size (mm)	69
max size (mm)	89

2011 NATURAL HABITAT SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Southeast Reef

Crassedoma giganteum

<10	0.0 %
10 - 19	0.0 %
20 - 29	6.5 %
30 - 39	6.5 %
40 - 49	16.1 %
50 - 59	22.6 %
60 - 69	16.1 %
70 - 79	9.7 %
80 - 89	3.2 %
90 - 99	6.5 %
100 - 109	0.0 %
110 - 119	9.7 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	3.2 %
(Cases) N =	31
mean	66
min size (mm)	21
max size (mm)	140

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	5.2 %
35 - 39	7.8 %
40 - 44	29.9 %
45 - 49	42.9 %
50 - 54	14.3 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
> 75	0.0 %
(Cases) N =	77
mean	43
min size (mm)	30
max size (mm)	53

Pisaster giganteus

< 20	0.0 %
20 - 39	0.0 %
40 - 59	2.6 %
60 - 79	7.7 %
80 - 99	16.7 %
100 - 119	19.2 %
120 - 139	23.1 %
140 - 159	9.0 %
160 - 179	12.8 %
180 - 199	5.1 %
200 - 219	3.8 %
220 - 239	0.0 %
> 239	0.0 %
(Cases) N =	78
mean	124
min size (mm)	44
max size (mm)	211

Strongylocentrotus franciscanus

< 5	2.0 %
5 - 9	24.5 %
10 - 14	18.6 %
15 - 19	16.7 %
20 - 24	2.9 %
25 - 29	2.5 %
30 - 34	1.5 %
35 - 39	0.0 %
40 - 44	1.5 %
45 - 49	0.0 %
50 - 54	1.0 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	1.5 %
70 - 74	2.9 %
75 - 79	3.9 %
80 - 84	6.4 %
85 - 89	4.4 %
90 - 94	4.9 %
95 - 99	3.9 %
100 - 104	1.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	204
mean	53
min size (mm)	4
max size (mm)	103

Strongylocentrotus purpuratus

< 5	7.2 %
5 - 9	32.8 %
10 - 14	23.0 %
15 - 19	14.8 %
20 - 24	7.9 %
25 - 29	8.2 %
30 - 34	3.6 %
35 - 39	2.0 %
40 - 44	0.7 %
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 =	305
mean	20
min size (mm)	3
max size (mm)	43

Appendix K. *Macrocystis pyrifera* Size Frequency Distributions

2011 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Wyckoff Ledge

Macrocystis pyrifera Adult (>1m) ***Number of Stipes***	
< 3	6.2 %
3 - 5	6.2 %
6 - 8	15.0 %
9 - 11	10.6 %
12 - 14	11.5 %
15 - 17	17.7 %
18 - 20	11.5 %
21 - 23	8.8 %
24 - 26	6.2 %
27 - 29	4.4 %
30 - 32	1.8 %
33 - 35	0.9 %
36 - 38	0.0 %
39 - 41	0.0 %
42 - 44	0.0 %
> 44	0.9 %
(Cases) N =	113
mean	15
min size (mm)	1
max size (mm)	53

Macrocystis pyrifera Adult (>1m) ***Holdfast Diameter***	
< 6	0.0 %
6 - 11	0.9 %
12 - 17	8.0 %
18 - 23	16.8 %
24 - 29	18.6 %
30 - 35	15.0 %
36 - 41	22.1 %
42 - 47	10.6 %
48 - 53	7.1 %
54 - 59	0.9 %
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 =	113
mean	32
min size (mm)	6
max size (mm)	59

San Miguel Island - Hare Rock

Macrocystis pyrifera Adult (>1m) ***Number of Stipes***	
< 3	71.4 %
3 - 5	0.0 %
6 - 8	28.6 %
9 - 11	0.0 %
12 - 14	0.0 %
15 - 17	0.0 %
18 - 20	0.0 %
21 - 23	0.0 %
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 =	7
mean	3
min size (mm)	1
max size (mm)	7

Macrocystis pyrifera Adult (>1m) ***Holdfast Diameter***	
< 6	0.0 %
6 - 11	28.6 %
12 - 17	14.3 %
18 - 23	0.0 %
24 - 29	28.6 %
30 - 35	28.6 %
36 - 41	0.0 %
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 =	7
mean	21
min size (mm)	6
max size (mm)	30

2011 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	25.9 %	< 6	1.8 %
3 - 5	17.0 %	6 - 11	14.3 %
6 - 8	17.9 %	12 - 17	17.9 %
9 - 11	15.2 %	18 - 23	8.0 %
12 - 14	11.6 %	24 - 29	7.1 %
15 - 17	6.3 %	30 - 35	12.5 %
18 - 20	3.6 %	36 - 41	16.1 %
21 - 23	1.8 %	42 - 47	13.4 %
24 - 26	0.9 %	48 - 53	7.1 %
27 - 29	0.0 %	54 - 59	1.8 %
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 =	112	(Cases) N =	112
mean	8	mean	28
min size (mm)	1	min size (mm)	4
max size (mm)	25	max size (mm)	58

Santa Rosa Island - Johnson's Lee South

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	41.8 %	< 6	8.8 %
3 - 5	9.9 %	6 - 11	26.4 %
6 - 8	9.9 %	12 - 17	11.0 %
9 - 11	4.4 %	18 - 23	4.4 %
12 - 14	4.4 %	24 - 29	0.0 %
15 - 17	11.0 %	30 - 35	12.1 %
18 - 20	9.9 %	36 - 41	19.8 %
21 - 23	3.3 %	42 - 47	7.7 %
24 - 26	4.4 %	48 - 53	8.8 %
27 - 29	0.0 %	54 - 59	1.1 %
30 - 32	1.1 %	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 =	91	(Cases) N =	91
mean	9	mean	25
min size (mm)	1	min size (mm)	4
max size (mm)	32	max size (mm)	55

2011 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Rodes Reef

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	0.0 %	< 6	0.0 %
3 - 5	100.0 %	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	4	mean	7
min size (mm)	4	min size (mm)	7
max size (mm)	4	max size (mm)	7

Santa Cruz Island - Gull Island South

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	15.0 %	< 6	5.0 %
3 - 5	10.0 %	6 - 11	13.0 %
6 - 8	11.0 %	12 - 17	8.0 %
9 - 11	12.0 %	18 - 23	18.0 %
12 - 14	14.0 %	24 - 29	12.0 %
15 - 17	16.0 %	30 - 35	13.0 %
18 - 20	7.0 %	36 - 41	17.0 %
21 - 23	5.0 %	42 - 47	8.0 %
24 - 26	5.0 %	48 - 53	3.0 %
27 - 29	2.0 %	54 - 59	3.0 %
30 - 32	1.0 %	60 - 65	0.0 %
33 - 35	1.0 %	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	0.0 %	> 89	0.0 %
(Cases) N =	100	(Cases) N =	100
mean	12	mean	27
min size (mm)	1	min size (mm)	3
max size (mm)	36	max size (mm)	59

2011 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Fry's Harbor

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	20.0 %	< 6	2.0 %
3 - 5	26.0 %	6 - 11	17.0 %
6 - 8	18.0 %	12 - 17	13.0 %
9 - 11	12.0 %	18 - 23	11.0 %
12 - 14	7.0 %	24 - 29	14.0 %
15 - 17	7.0 %	30 - 35	5.0 %
18 - 20	4.0 %	36 - 41	10.0 %
21 - 23	4.0 %	42 - 47	3.0 %
24 - 26	1.0 %	48 - 53	10.0 %
27 - 29	1.0 %	54 - 59	4.0 %
30 - 32	0.0 %	60 - 65	5.0 %
33 - 35	0.0 %	66 - 71	3.0 %
36 - 38	1.0 %	72 - 77	2.0 %
39 - 41	0.0 %	78 - 83	1.0 %
42 - 44	0.0 %	84 - 89	0.0 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	100	(Cases) N =	100
mean	8	mean	31
min size (mm)	1	min size (mm)	5
max size (mm)	37	max size (mm)	82

Santa Cruz Island - Yellow Banks

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	73.2 %	< 6	0.0 %
3 - 5	24.4 %	6 - 11	12.2 %
6 - 8	2.4 %	12 - 17	29.3 %
9 - 11	0.0 %	18 - 23	29.3 %
12 - 14	0.0 %	24 - 29	19.5 %
15 - 17	0.0 %	30 - 35	7.3 %
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	2.4 %
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 =	41	(Cases) N =	41
mean	2	mean	20
min size (mm)	1	min size (mm)	9
max size (mm)	7	max size (mm)	59

2011 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Cathedral Cove

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	35.8 %	< 6	5.7 %
3 - 5	28.5 %	6 - 11	28.5 %
6 - 8	10.6 %	12 - 17	28.5 %
9 - 11	7.3 %	18 - 23	10.6 %
12 - 14	6.5 %	24 - 29	9.8 %
15 - 17	4.9 %	30 - 35	6.5 %
18 - 20	4.1 %	36 - 41	4.9 %
21 - 23	2.4 %	42 - 47	1.6 %
24 - 26	0.0 %	48 - 53	2.4 %
27 - 29	0.0 %	54 - 59	1.6 %
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 =	123	(Cases) N =	123
mean	6	mean	18
min size (mm)	1	min size (mm)	3
max size (mm)	22	max size (mm)	57

Anacapa Island - Landing Cove

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	20.9 %	< 6	6.2 %
3 - 5	27.9 %	6 - 11	26.4 %
6 - 8	13.2 %	12 - 17	20.2 %
9 - 11	14.0 %	18 - 23	18.6 %
12 - 14	10.9 %	24 - 29	14.7 %
15 - 17	3.1 %	30 - 35	9.3 %
18 - 20	3.1 %	36 - 41	3.9 %
21 - 23	5.4 %	42 - 47	0.8 %
24 - 26	0.8 %	48 - 53	0.0 %
27 - 29	0.8 %	54 - 59	0.0 %
30 - 32	0.0 %	60 - 65	0.0 %
33 - 35	0.8 %	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 =	129	(Cases) N =	129
mean	8	mean	18
min size (mm)	1	min size (mm)	3
max size (mm)	33	max size (mm)	46

2011 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

San Miguel Island - Miracle Mile

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	30.3 %	< 6	3.0 %
3 - 5	10.1 %	6 - 11	14.1 %
6 - 8	14.1 %	12 - 17	23.2 %
9 - 11	8.1 %	18 - 23	9.1 %
12 - 14	4.0 %	24 - 29	11.1 %
15 - 17	1.0 %	30 - 35	5.1 %
18 - 20	3.0 %	36 - 41	2.0 %
21 - 23	5.1 %	42 - 47	6.1 %
24 - 26	3.0 %	48 - 53	13.1 %
27 - 29	4.0 %	54 - 59	4.0 %
30 - 32	4.0 %	60 - 65	4.0 %
33 - 35	4.0 %	66 - 71	3.0 %
36 - 38	1.0 %	72 - 77	0.0 %
39 - 41	2.0 %	78 - 83	1.0 %
42 - 44	0.0 %	84 - 89	1.0 %
> 44	6.1 %	> 89	0.0 %
(Cases) N =	99	(Cases) N =	99
mean	14	mean	30
min size (mm)	1	min size (mm)	3
max size (mm)	68	max size (mm)	87

Santa Rosa Island - Cluster Point

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	33.0 %	< 6	11.3 %
3 - 5	15.1 %	6 - 11	28.3 %
6 - 8	8.5 %	12 - 17	3.8 %
9 - 11	4.7 %	18 - 23	3.8 %
12 - 14	2.8 %	24 - 29	1.9 %
15 - 17	6.6 %	30 - 35	3.8 %
18 - 20	7.5 %	36 - 41	3.8 %
21 - 23	8.5 %	42 - 47	11.3 %
24 - 26	3.8 %	48 - 53	6.6 %
27 - 29	0.9 %	54 - 59	10.4 %
30 - 32	3.8 %	60 - 65	7.5 %
33 - 35	0.9 %	66 - 71	1.9 %
36 - 38	2.8 %	72 - 77	3.8 %
39 - 41	0.9 %	78 - 83	0.0 %
42 - 44	0.0 %	84 - 89	1.9 %
> 44	0.9 %	> 89	0.0 %
(Cases) N =	106	(Cases) N =	106
mean	11	mean	32
min size (mm)	1	min size (mm)	2
max size (mm)	50	max size (mm)	85

2011 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Trancion Canyon

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	40.0 %	< 6	20.0 %
3 - 5	20.0 %	6 - 11	20.0 %
6 - 8	0.0 %	12 - 17	40.0 %
9 - 11	0.0 %	18 - 23	20.0 %
12 - 14	0.0 %	24 - 29	0.0 %
15 - 17	0.0 %	30 - 35	0.0 %
18 - 20	20.0 %	36 - 41	0.0 %
21 - 23	20.0 %	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	9	mean	13
min size (mm)	1	min size (mm)	5
max size (mm)	23	max size (mm)	23

Santa Rosa Island - Chickasaw

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	23.7 %	< 6	2.1 %
3 - 5	13.4 %	6 - 11	18.6 %
6 - 8	6.2 %	12 - 17	5.2 %
9 - 11	6.2 %	18 - 23	8.2 %
12 - 14	9.3 %	24 - 29	3.1 %
15 - 17	8.2 %	30 - 35	6.2 %
18 - 20	10.3 %	36 - 41	7.2 %
21 - 23	8.2 %	42 - 47	23.7 %
24 - 26	4.1 %	48 - 53	8.2 %
27 - 29	3.1 %	54 - 59	6.2 %
30 - 32	3.1 %	60 - 65	6.2 %
33 - 35	3.1 %	66 - 71	3.1 %
36 - 38	1.0 %	72 - 77	1.0 %
39 - 41	1.0 %	78 - 83	1.0 %
42 - 44	0.0 %	84 - 89	0.0 %
> 44	0.0 %	> 89	0.0 %
(Cases) N =	97	(Cases) N =	97
mean	13	mean	35
min size (mm)	1	min size (mm)	4
max size (mm)	39	max size (mm)	80

2011 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - South Point

Macrocystis pyrifera Adult (>1m) Number of Stipes	
< 3	44.7 %
3 - 5	16.0 %
6 - 8	6.0 %
9 - 11	5.3 %
12 - 14	3.3 %
15 - 17	1.3 %
18 - 20	4.0 %
21 - 23	7.3 %
24 - 26	3.3 %
27 - 29	5.3 %
30 - 32	2.0 %
33 - 35	2.0 %
36 - 38	0.0 %
39 - 41	0.7 %
42 - 44	0.0 %
> 44	0.0 %
(Cases) N =	150
mean	9
min size (mm)	1
max size (mm)	41

Macrocystis pyrifera Adult (>1m) Holdfast Diameter	
< 6	3.3 %
6 - 11	34.0 %
12 - 17	16.0 %
18 - 23	8.7 %
24 - 29	2.7 %
30 - 35	2.7 %
36 - 41	1.3 %
42 - 47	7.3 %
48 - 53	6.0 %
54 - 59	8.7 %
60 - 65	5.3 %
66 - 71	3.3 %
72 - 77	0.0 %
78 - 83	0.7 %
84 - 89	0.0 %
> 89	0.0 %
(Cases) N =	150
mean	27
min size (mm)	4
max size (mm)	81

Santa Cruz Island - Potato Pasture

Macrocystis pyrifera Adult (>1m) Number of Stipes	
< 3	45.3 %
3 - 5	33.3 %
6 - 8	9.3 %
9 - 11	8.0 %
12 - 14	1.3 %
15 - 17	0.0 %
18 - 20	0.0 %
21 - 23	1.3 %
24 - 26	1.3 %
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 =	75
mean	4
min size (mm)	1
max size (mm)	25

Macrocystis pyrifera Adult (>1m) Holdfast Diameter	
< 6	0.0 %
6 - 11	32.0 %
12 - 17	32.0 %
18 - 23	18.7 %
24 - 29	10.7 %
30 - 35	4.0 %
36 - 41	2.7 %
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 =	75
mean	16
min size (mm)	6
max size (mm)	37

2011 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Cavern Point

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	21.3 %	< 6	8.3 %
3 - 5	16.7 %	6 - 11	15.7 %
6 - 8	9.3 %	12 - 17	18.5 %
9 - 11	10.2 %	18 - 23	22.2 %
12 - 14	11.1 %	24 - 29	12.0 %
15 - 17	14.8 %	30 - 35	10.2 %
18 - 20	7.4 %	36 - 41	8.3 %
21 - 23	3.7 %	42 - 47	4.6 %
24 - 26	2.8 %	48 - 53	0.0 %
27 - 29	2.8 %	54 - 59	0.0 %
30 - 32	0.0 %	60 - 65	0.0 %
33 - 35	1.9 %	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 =	108	(Cases) N =	108
mean	10	mean	21
min size (mm)	1	min size (mm)	4
max size (mm)	35	max size (mm)	45

Santa Cruz Island - Pedro Reef

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	50.0 %	< 6	0.0 %
3 - 5	50.0 %	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	3	mean	9
min size (mm)	2	min size (mm)	6
max size (mm)	3	max size (mm)	12

2011 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - East Fish Camp

Macrocystis pyrifera Adult (>1m) Number of Stipes		*Macrocystis pyrifera Adult (>1m) Holdfast Diameter*	
< 3	90.0 %	< 6	0.0 %
3 - 5	10.0 %	6 - 11	40.0 %
6 - 8	0.0 %	12 - 17	50.0 %
9 - 11	0.0 %	18 - 23	10.0 %
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 =	10	(Cases) N =	10
mean	2	mean	12
min size (mm)	1	min size (mm)	7
max size (mm)	4	max size (mm)	19

Anacapa Island - Black Sea Bass Reef

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 =	2	(Cases) N =	2
mean	1	mean	11
min size (mm)	1	min size (mm)	10
max size (mm)	1	max size (mm)	11

2011 Macrocystis pyrifera SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Southeast Reef

Macrocystis pyrifera Adult (>1m) *Number of Stipes*	
< 3	37.3 %
3 - 5	20.0 %
6 - 8	12.7 %
9 - 11	11.3 %
12 - 14	8.0 %
15 - 17	6.0 %
18 - 20	4.0 %
21 - 23	0.0 %
24 - 26	0.7 %
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 =	150
mean	6
min size (mm)	1
max size (mm)	25

Macrocystis pyrifera Adult (>1m) *Holdfast Diameter*	
< 6	19.3 %
6 - 11	29.3 %
12 - 17	16.0 %
18 - 23	13.3 %
24 - 29	12.7 %
30 - 35	6.7 %
36 - 41	1.3 %
42 - 47	0.7 %
48 - 53	0.7 %
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 =	150
mean	15
min size (mm)	1
max size (mm)	49

Appendix L. Gorgonian/*Stylaster californica* Size Frequency Distributions

2011 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

Stylaster californicus heights	
< 3	7.0%
3 - 4	25.0%
5 - 6	17.0%
7 - 8	21.0%
9 - 10	13.0%
11 - 12	5.0%
13 - 14	5.0%
15 - 16	3.0%
17 - 18	2.0%
19 - 20	1.0%
21 - 22	0.0%
23 - 24	1.0%
25 - 26	0.0%
27 - 28	0.0%
29 - 30	0.0%
> 30	0.0%
(Cases) N =	100
mean	7
min size (mm)	1
max size (mm)	24

Stylaster californicus widths	
< 3	1.0 %
3 - 4	13.0 %
5 - 6	9.0 %
7 - 8	17.0 %
9 - 10	9.0 %
1 - 12	7.0 %
13 - 14	9.0 %
15 - 16	4.0 %
17 - 18	5.0 %
19 - 20	4.0 %
21 - 22	5.0 %
23 - 24	3.0 %
25 - 26	3.0 %
27 - 28	2.0 %
29 - 30	1.0 %
> 30	8.0 %
(Cases) N =	100
mean	14
min size (mm)	2
max size (mm)	55

Lophogorgia chilensis heights	
< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	8.5%
17 - 20	8.5%
21 - 24	21.3%
25 - 28	25.5%
29 - 32	21.3%
33 - 36	4.3%
37 - 40	6.4%
41 - 44	2.1%
45 - 48	2.1%
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 =	47
mean	27
min size (mm)	13
max size (mm)	48

Lophogorgia chilensis widths	
< 5	0.0 %
5 - 8	2.1 %
9 - 12	10.6 %
13 - 16	23.4 %
17 - 20	25.5 %
21 - 24	17.0 %
24 - 28	10.6 %
29 - 32	6.4 %
33 - 36	2.1 %
37 - 40	2.1 %
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 =	47
mean	20
min size (mm)	6
max size (mm)	37

2011 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pelican Bay

Lophogorgia chilensis heights		*Lophogorgia chilensis widths*	
< 5	0.0%	< 5	0.0 %
5 - 8	1.5%	5 - 8	3.0 %
9 - 12	3.0%	9 - 12	3.0 %
13 - 16	3.0%	13 - 16	9.0 %
17 - 20	3.0%	17 - 20	11.9 %
21 - 24	6.0%	21 - 24	10.4 %
25 - 28	9.0%	24 - 28	11.9 %
29 - 32	19.4%	29 - 32	19.4 %
33 - 36	13.4%	33 - 36	4.5 %
37 - 40	10.4%	37 - 40	9.0 %
41 - 44	11.9%	41 - 44	6.0 %
45 - 48	4.5%	45 - 48	4.5 %
49 - 52	6.0%	49 - 52	3.0 %
53 - 56	3.0%	53 - 56	1.5 %
57 - 60	4.5%	57 - 60	1.5 %
61 - 64	0.0%	61 - 64	0.0 %
65 - 68	1.5%	65 - 68	0.0 %
69 - 72	0.0%	69 - 72	0.0 %
73 - 76	0.0%	73 - 76	1.5 %
77 - 80	0.0%	77 - 80	0.0 %
81 - 84	0.0%	81 - 84	0.0 %
85 - 88	0.0%	85 - 88	0.0 %
89 - 92	0.0%	89 - 92	0.0 %
93 - 96	0.0%	93 - 96	0.0 %
97 - 100	0.0%	97 - 100	0.0 %
> 100	0.0%	> 100	0.0 %
(Cases) N =	67	(Cases) N =	67
mean	35	mean	29
min size (mm)	8	min size (mm)	5
max size (mm)	65	max size (mm)	74

Santa Cruz Island - Scorpion Anchorage

Lophogorgia chilensis heights		*Lophogorgia chilensis widths*	
< 5	0.0%	< 5	50.0 %
5 - 8	0.0%	5 - 8	0.0 %
9 - 12	0.0%	9 - 12	0.0 %
13 - 16	50.0%	13 - 16	50.0 %
17 - 20	0.0%	17 - 20	0.0 %
21 - 24	0.0%	21 - 24	0.0 %
25 - 28	50.0%	24 - 28	0.0 %
29 - 32	0.0%	29 - 32	0.0 %
33 - 36	0.0%	33 - 36	0.0 %
37 - 40	0.0%	37 - 40	0.0 %
41 - 44	0.0%	41 - 44	0.0 %
45 - 48	0.0%	45 - 48	0.0 %
49 - 52	0.0%	49 - 52	0.0 %
53 - 56	0.0%	53 - 56	0.0 %
57 - 60	0.0%	57 - 60	0.0 %
61 - 64	0.0%	61 - 64	0.0 %
65 - 68	0.0%	65 - 68	0.0 %
69 - 72	0.0%	69 - 72	0.0 %
73 - 76	0.0%	73 - 76	0.0 %
77 - 80	0.0%	77 - 80	0.0 %
81 - 84	0.0%	81 - 84	0.0 %
85 - 88	0.0%	85 - 88	0.0 %
89 - 92	0.0%	89 - 92	0.0 %
93 - 96	0.0%	93 - 96	0.0 %
97 - 100	0.0%	97 - 100	0.0 %
> 100	0.0%	> 100	0.0 %
(Cases) N =	2	(Cases) N =	2
mean	19	mean	10
min size (mm)	13	min size (mm)	4
max size (mm)	25	max size (mm)	15

2011 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

Lophogorgia chilensis heights	
< 5	0.0%
5 - 8	0.0%
9 - 12	2.0%
13 - 16	4.0%
17 - 20	8.0%
21 - 24	16.0%
25 - 28	22.0%
29 - 32	10.0%
33 - 36	16.0%
37 - 40	6.0%
41 - 44	6.0%
45 - 48	2.0%
49 - 52	4.0%
53 - 56	2.0%
57 - 60	2.0%
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 =	50
mean	30
min size (mm)	12
max size (mm)	58

Lophogorgia chilensis widths	
< 5	0.0 %
5 - 8	6.0 %
9 - 12	4.0 %
13 - 16	14.0 %
17 - 20	28.0 %
21 - 24	12.0 %
24 - 28	8.0 %
29 - 32	16.0 %
33 - 36	4.0 %
37 - 40	6.0 %
41 - 44	0.0 %
45 - 48	0.0 %
49 - 52	0.0 %
53 - 56	2.0 %
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 =	50
mean	22
min size (mm)	6
max size (mm)	56

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 =	2
mean	18
min size (mm)	16
max size (mm)	20

Muricea fruticosa widths	
< 5	0.0 %
5 - 8	0.0 %
9 - 12	50.0 %
13 - 16	0.0 %
17 - 20	50.0 %
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 =	2
mean	15
min size (mm)	12
max size (mm)	17

2011 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

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	0.0%	17 - 20	0.0 %
21 - 24	4.5%	21 - 24	0.0 %
25 - 28	9.1%	24 - 28	0.0 %
29 - 32	13.6%	29 - 32	0.0 %
33 - 36	18.2%	33 - 36	0.0 %
37 - 40	4.5%	37 - 40	0.0 %
41 - 44	18.2%	41 - 44	13.6 %
45 - 48	4.5%	45 - 48	4.5 %
49 - 52	9.1%	49 - 52	18.2 %
53 - 56	0.0%	53 - 56	22.7 %
57 - 60	9.1%	57 - 60	13.6 %
61 - 64	9.1%	61 - 64	9.1 %
65 - 68	0.0%	65 - 68	9.1 %
69 - 72	0.0%	69 - 72	4.5 %
73 - 76	0.0%	73 - 76	0.0 %
77 - 80	0.0%	77 - 80	4.5 %
81 - 84	0.0%	81 - 84	0.0 %
85 - 88	0.0%	85 - 88	0.0 %
89 - 92	0.0%	89 - 92	0.0 %
93 - 96	0.0%	93 - 96	4.5 %
97 - 100	0.0%	97 - 100	0.0 %
> 100	0.0%	> 100	0.0 %
(Cases) N =	22	(Cases) N =	22
mean	41	mean	58
min size (mm)	22	min size (mm)	41
max size (mm)	63	max size (mm)	96

2011 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Admiral's Reef

Lophogorgia chilensis heights	
< 5	0.0%
5 - 8	0.0%
9 - 12	2.1%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	0.0%
25 - 28	6.3%
29 - 32	2.1%
33 - 36	12.5%
37 - 40	12.5%
41 - 44	10.4%
45 - 48	8.3%
49 - 52	8.3%
53 - 56	20.8%
57 - 60	8.3%
61 - 64	2.1%
65 - 68	6.3%
69 - 72	2.1%
73 - 76	2.1%
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 =	48
mean	47
min size (mm)	12
max size (mm)	76

Lophogorgia chilensis widths	
< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	2.1 %
17 - 20	6.3 %
21 - 24	2.1 %
24 - 28	6.3 %
29 - 32	6.3 %
33 - 36	0.0 %
37 - 40	14.6 %
41 - 44	4.2 %
45 - 48	12.5 %
49 - 52	10.4 %
53 - 56	6.3 %
57 - 60	4.2 %
61 - 64	0.0 %
65 - 68	10.4 %
69 - 72	4.2 %
73 - 76	0.0 %
77 - 80	4.2 %
81 - 84	0.0 %
85 - 88	6.3 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	2.1 %
(Cases) N =	48
mean	49
min size (mm)	15
max size (mm)	110

Muricea fruticosa heights	
< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	20.0%
25 - 28	40.0%
29 - 32	0.0%
33 - 36	20.0%
37 - 40	0.0%
41 - 44	20.0%
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 =	5
mean	30
min size (mm)	23
max size (mm)	41

Muricea fruticosa widths	
< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	0.0 %
21 - 24	20.0 %
24 - 28	0.0 %
29 - 32	20.0 %
33 - 36	0.0 %
37 - 40	0.0 %
41 - 44	0.0 %
45 - 48	20.0 %
49 - 52	0.0 %
53 - 56	40.0 %
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 =	5
mean	42
min size (mm)	24
max size (mm)	55

2011 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Admiral's Reef

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	4.0%	17 - 20	0.0 %
21 - 24	4.0%	21 - 24	0.0 %
25 - 28	4.0%	24 - 28	4.0 %
29 - 32	8.0%	29 - 32	4.0 %
33 - 36	4.0%	33 - 36	0.0 %
37 - 40	12.0%	37 - 40	4.0 %
41 - 44	12.0%	41 - 44	12.0 %
45 - 48	20.0%	45 - 48	0.0 %
49 - 52	16.0%	49 - 52	0.0 %
53 - 56	0.0%	53 - 56	4.0 %
57 - 60	4.0%	57 - 60	16.0 %
61 - 64	0.0%	61 - 64	4.0 %
65 - 68	0.0%	65 - 68	0.0 %
69 - 72	8.0%	69 - 72	12.0 %
73 - 76	0.0%	73 - 76	4.0 %
77 - 80	4.0%	77 - 80	4.0 %
81 - 84	0.0%	81 - 84	0.0 %
85 - 88	0.0%	85 - 88	8.0 %
89 - 92	0.0%	89 - 92	0.0 %
93 - 96	0.0%	93 - 96	4.0 %
97 - 100	0.0%	97 - 100	12.0 %
> 100	0.0%	> 100	8.0 %
(Cases) N =	25	(Cases) N =	25
mean	45	mean	70
min size (mm)	17	min size (mm)	27
max size (mm)	80	max size (mm)	125

2011 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	0.0%
25 - 28	8.3%
29 - 32	5.0%
33 - 36	10.0%
37 - 40	20.0%
41 - 44	25.0%
45 - 48	13.3%
49 - 52	13.3%
53 - 56	5.0%
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	41
min size (mm)	25
max size (mm)	62

Lophogorgia chilensis widths	
< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	0.0 %
17 - 20	8.3 %
21 - 24	16.7 %
24 - 28	16.7 %
29 - 32	20.0 %
33 - 36	10.0 %
37 - 40	18.3 %
41 - 44	3.3 %
45 - 48	5.0 %
49 - 52	1.7 %
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 =	60
mean	31
min size (mm)	18
max size (mm)	49

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	21.1%
41 - 44	26.3%
45 - 48	26.3%
49 - 52	5.3%
53 - 56	5.3%
57 - 60	5.3%
61 - 64	10.5%
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 =	19
mean	47
min size (mm)	37
max size (mm)	62

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	10.5 %
65 - 68	15.8 %
69 - 72	21.1 %
73 - 76	15.8 %
77 - 80	5.3 %
81 - 84	5.3 %
85 - 88	0.0 %
89 - 92	21.1 %
93 - 96	5.3 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	19
mean	76
min size (mm)	61
max size (mm)	96

2011 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	0.0%
17 - 20	2.9%
21 - 24	2.9%
25 - 28	4.4%
29 - 32	11.8%
33 - 36	10.3%
37 - 40	17.6%
41 - 44	13.2%
45 - 48	13.2%
49 - 52	14.7%
53 - 56	5.9%
57 - 60	4.4%
61 - 64	1.5%
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 =	68
mean	41
min size (mm)	19
max size (mm)	62

Lophogorgia chilensis widths	
< 5	0.0 %
5 - 8	0.0 %
9 - 12	1.5 %
13 - 16	1.5 %
17 - 20	4.4 %
21 - 24	7.4 %
24 - 28	5.9 %
29 - 32	16.2 %
33 - 36	8.8 %
37 - 40	11.8 %
41 - 44	11.8 %
45 - 48	10.3 %
49 - 52	8.8 %
53 - 56	2.9 %
57 - 60	4.4 %
61 - 64	2.9 %
65 - 68	0.0 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	1.5 %
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 =	68
mean	38
min size (mm)	12
max size (mm)	80

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	25.0%
33 - 36	0.0%
37 - 40	0.0%
41 - 44	25.0%
45 - 48	50.0%
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	42
min size (mm)	32
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	25.0 %
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	25.0 %
69 - 72	25.0 %
73 - 76	25.0 %
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	62
min size (mm)	39
max size (mm)	74

2011 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Cavern Point

Lophogorgia chilensis heights	
< 5	1.6%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	1.6%
21 - 24	4.9%
25 - 28	1.6%
29 - 32	8.2%
33 - 36	6.6%
37 - 40	14.8%
41 - 44	11.5%
45 - 48	14.8%
49 - 52	8.2%
53 - 56	6.6%
57 - 60	4.9%
61 - 64	4.9%
65 - 68	6.6%
69 - 72	3.3%
73 - 76	0.0%
77 - 80	0.0%
81 - 84	0.0%
85 - 88	0.0%
89 - 92	0.0%
93 - 96	1.6%
97 - 100	0.0%
> 100	0.0%
(Cases) N =	61
mean	45
min size (mm)	4
max size (mm)	96

Lophogorgia chilensis widths	
< 5	0.0 %
5 - 8	1.6 %
9 - 12	0.0 %
13 - 16	1.6 %
17 - 20	1.6 %
21 - 24	11.5 %
24 - 28	13.1 %
29 - 32	19.7 %
33 - 36	13.1 %
37 - 40	14.8 %
41 - 44	3.3 %
45 - 48	4.9 %
49 - 52	3.3 %
53 - 56	3.3 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	1.6 %
69 - 72	3.3 %
73 - 76	1.6 %
77 - 80	0.0 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	1.6 %
> 100	0.0 %
(Cases) N =	61
mean	36
min size (mm)	5
max size (mm)	98

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	100.0%
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	36
min size (mm)	36
max size (mm)	36

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	100.0 %
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	66
min size (mm)	66
max size (mm)	66

2011 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Little Scorpion

Lophogorgia chilensis heights		*Lophogorgia chilensis widths*	
< 5	0.0%	< 5	0.0 %
5 - 8	0.0%	5 - 8	2.9 %
9 - 12	0.0%	9 - 12	1.4 %
13 - 16	0.0%	13 - 16	1.4 %
17 - 20	1.4%	17 - 20	5.7 %
21 - 24	4.3%	21 - 24	4.3 %
25 - 28	4.3%	24 - 28	10.0 %
29 - 32	11.4%	29 - 32	5.7 %
33 - 36	1.4%	33 - 36	7.1 %
37 - 40	4.3%	37 - 40	10.0 %
41 - 44	7.1%	41 - 44	7.1 %
45 - 48	11.4%	45 - 48	10.0 %
49 - 52	11.4%	49 - 52	1.4 %
53 - 56	21.4%	53 - 56	5.7 %
57 - 60	7.1%	57 - 60	8.6 %
61 - 64	8.6%	61 - 64	1.4 %
65 - 68	1.4%	65 - 68	2.9 %
69 - 72	5.7%	69 - 72	4.3 %
73 - 76	0.0%	73 - 76	2.9 %
77 - 80	4.3%	77 - 80	1.4 %
81 - 84	0.0%	81 - 84	1.4 %
85 - 88	0.0%	85 - 88	1.4 %
89 - 92	0.0%	89 - 92	1.4 %
93 - 96	0.0%	93 - 96	2.9 %
97 - 100	0.0%	97 - 100	0.0 %
> 100	0.0%	> 100	0.0 %
(Cases) N =	70	(Cases) N =	70
mean	49	mean	44
min size (mm)	19	min size (mm)	8
max size (mm)	80	max size (mm)	96

2011 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	3.8%
29 - 32	5.0%
33 - 36	8.8%
37 - 40	17.5%
41 - 44	17.5%
45 - 48	21.3%
49 - 52	12.5%
53 - 56	5.0%
57 - 60	7.5%
61 - 64	1.3%
65 - 68	1.3%
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 =	80
mean	44
min size (mm)	27
max size (mm)	68

Lophogorgia chilensis widths	
< 5	0.0 %
5 - 8	0.0 %
9 - 12	1.3 %
13 - 16	0.0 %
17 - 20	5.0 %
21 - 24	2.5 %
24 - 28	8.8 %
29 - 32	11.3 %
33 - 36	13.8 %
37 - 40	12.5 %
41 - 44	12.5 %
45 - 48	10.0 %
49 - 52	5.0 %
53 - 56	7.5 %
57 - 60	2.5 %
61 - 64	3.8 %
65 - 68	2.5 %
69 - 72	0.0 %
73 - 76	2.5 %
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 =	80
mean	40
min size (mm)	12
max size (mm)	75

Muricea californica heights	
< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	14.3%
21 - 24	14.3%
25 - 28	0.0%
29 - 32	14.3%
33 - 36	0.0%
37 - 40	0.0%
41 - 44	42.9%
45 - 48	0.0%
49 - 52	14.3%
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 =	7
mean	35
min size (mm)	19
max size (mm)	49

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	42.9 %
45 - 48	0.0 %
49 - 52	14.3 %
53 - 56	14.3 %
57 - 60	0.0 %
61 - 64	0.0 %
65 - 68	28.6 %
69 - 72	14.3 %
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 =	7
mean	55
min size (mm)	41
max size (mm)	72

2011 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Keyhole

Lophogorgia chilensis heights	
< 5	0.0%
5 - 8	2.5%
9 - 12	1.3%
13 - 16	1.3%
17 - 20	2.5%
21 - 24	5.0%
25 - 28	5.0%
29 - 32	12.5%
33 - 36	15.0%
37 - 40	16.3%
41 - 44	11.3%
45 - 48	12.5%
49 - 52	5.0%
53 - 56	2.5%
57 - 60	5.0%
61 - 64	2.5%
65 - 68	0.0%
69 - 72	1.3%
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 =	80
mean	38
min size (mm)	6
max size (mm)	72

Lophogorgia chilensis widths	
< 5	0.0 %
5 - 8	3.8 %
9 - 12	1.3 %
13 - 16	3.8 %
17 - 20	10.0 %
21 - 24	10.0 %
24 - 28	7.5 %
29 - 32	11.3 %
33 - 36	3.8 %
37 - 40	15.0 %
41 - 44	6.3 %
45 - 48	5.0 %
49 - 52	8.8 %
53 - 56	2.5 %
57 - 60	6.3 %
61 - 64	1.3 %
65 - 68	2.5 %
69 - 72	0.0 %
73 - 76	0.0 %
77 - 80	1.3 %
81 - 84	0.0 %
85 - 88	0.0 %
89 - 92	1.3 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	80
mean	36
min size (mm)	5
max size (mm)	92

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 =	2
mean	18
min size (mm)	16
max size (mm)	19

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	50.0 %
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	34
min size (mm)	27
max size (mm)	41

2011 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Keyhole

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	2.7 %
13 - 16	5.4%	13 - 16	2.7 %
17 - 20	0.0%	17 - 20	0.0 %
21 - 24	0.0%	21 - 24	0.0 %
25 - 28	0.0%	24 - 28	0.0 %
29 - 32	10.8%	29 - 32	0.0 %
33 - 36	18.9%	33 - 36	0.0 %
37 - 40	13.5%	37 - 40	0.0 %
41 - 44	29.7%	41 - 44	0.0 %
45 - 48	13.5%	45 - 48	2.7 %
49 - 52	8.1%	49 - 52	5.4 %
53 - 56	2.7%	53 - 56	16.2 %
57 - 60	0.0%	57 - 60	16.2 %
61 - 64	0.0%	61 - 64	2.7 %
65 - 68	0.0%	65 - 68	0.0 %
69 - 72	0.0%	69 - 72	5.4 %
73 - 76	0.0%	73 - 76	5.4 %
77 - 80	0.0%	77 - 80	13.5 %
81 - 84	0.0%	81 - 84	13.5 %
85 - 88	0.0%	85 - 88	10.8 %
89 - 92	0.0%	89 - 92	0.0 %
93 - 96	0.0%	93 - 96	2.7 %
97 - 100	0.0%	97 - 100	0.0 %
> 100	0.0%	> 100	0.0 %
(Cases) N =	37	(Cases) N =	37
mean	39	mean	66
min size (mm)	14	min size (mm)	12
max size (mm)	52	max size (mm)	96

2011 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	4.0%
21 - 24	2.0%
25 - 28	12.0%
29 - 32	16.0%
33 - 36	10.0%
37 - 40	24.0%
41 - 44	14.0%
45 - 48	10.0%
49 - 52	6.0%
53 - 56	4.0%
57 - 60	2.0%
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 =	50
mean	37
min size (mm)	19
max size (mm)	59

Lophogorgia chilensis widths	
< 5	0.0 %
5 - 8	0.0 %
9 - 12	2.0 %
13 - 16	2.0 %
17 - 20	8.0 %
21 - 24	18.0 %
24 - 28	10.0 %
29 - 32	12.0 %
33 - 36	8.0 %
37 - 40	16.0 %
41 - 44	12.0 %
45 - 48	6.0 %
49 - 52	4.0 %
53 - 56	2.0 %
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 =	50
mean	33
min size (mm)	10
max size (mm)	56

Muricea californica heights	
< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	0.0%
21 - 24	5.0%
25 - 28	5.0%
29 - 32	10.0%
33 - 36	0.0%
37 - 40	20.0%
41 - 44	25.0%
45 - 48	20.0%
49 - 52	5.0%
53 - 56	10.0%
57 - 60	5.0%
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 =	20
mean	42
min size (mm)	23
max size (mm)	59

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	5.0 %
37 - 40	0.0 %
41 - 44	5.0 %
45 - 48	0.0 %
49 - 52	0.0 %
53 - 56	20.0 %
57 - 60	5.0 %
61 - 64	5.0 %
65 - 68	15.0 %
69 - 72	20.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	15.0 %
85 - 88	0.0 %
89 - 92	5.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	5.0 %
(Cases) N =	20
mean	68
min size (mm)	35
max size (mm)	122

2011 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	5.1%
21 - 24	5.1%
25 - 28	15.4%
29 - 32	12.8%
33 - 36	25.6%
37 - 40	17.9%
41 - 44	7.7%
45 - 48	0.0%
49 - 52	5.1%
53 - 56	5.1%
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	35
min size (mm)	20
max size (mm)	55

Lophogorgia chilensis widths	
< 5	0.0 %
5 - 8	0.0 %
9 - 12	2.6 %
13 - 16	0.0 %
17 - 20	2.6 %
21 - 24	2.6 %
24 - 28	7.7 %
29 - 32	10.3 %
33 - 36	25.6 %
37 - 40	23.1 %
41 - 44	7.7 %
45 - 48	5.1 %
49 - 52	2.6 %
53 - 56	2.6 %
57 - 60	2.6 %
61 - 64	2.6 %
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	2.6 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	39
mean	38
min size (mm)	11
max size (mm)	92

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	0.0%
29 - 32	50.0%
33 - 36	50.0%
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 =	2
mean	33
min size (mm)	32
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	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	50.0 %
73 - 76	0.0 %
77 - 80	0.0 %
81 - 84	50.0 %
85 - 88	0.0 %
89 - 92	0.0 %
93 - 96	0.0 %
97 - 100	0.0 %
> 100	0.0 %
(Cases) N =	2
mean	77
min size (mm)	71
max size (mm)	83

2011 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Graveyard Canyon

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	0.0%	17 - 20	0.0 %
21 - 24	0.0%	21 - 24	0.0 %
25 - 28	21.1%	24 - 28	0.0 %
29 - 32	10.5%	29 - 32	0.0 %
33 - 36	0.0%	33 - 36	0.0 %
37 - 40	21.1%	37 - 40	10.5 %
41 - 44	21.1%	41 - 44	0.0 %
45 - 48	15.8%	45 - 48	0.0 %
49 - 52	5.3%	49 - 52	10.5 %
53 - 56	5.3%	53 - 56	10.5 %
57 - 60	0.0%	57 - 60	0.0 %
61 - 64	0.0%	61 - 64	10.5 %
65 - 68	0.0%	65 - 68	21.1 %
69 - 72	0.0%	69 - 72	10.5 %
73 - 76	0.0%	73 - 76	0.0 %
77 - 80	0.0%	77 - 80	10.5 %
81 - 84	0.0%	81 - 84	15.8 %
85 - 88	0.0%	85 - 88	0.0 %
89 - 92	0.0%	89 - 92	0.0 %
93 - 96	0.0%	93 - 96	5.3 %
97 - 100	0.0%	97 - 100	0.0 %
> 100	0.0%	> 100	0.0 %
(Cases) N =	19	(Cases) N =	19
mean	39	mean	66
min size (mm)	25	min size (mm)	39
max size (mm)	55	max size (mm)	95

2011 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Southeast Reef

Lophogorgia chilensis heights	
< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	5.6%
17 - 20	5.6%
21 - 24	16.7%
25 - 28	11.1%
29 - 32	27.8%
33 - 36	16.7%
37 - 40	5.6%
41 - 44	5.6%
45 - 48	5.6%
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 =	18
mean	30
min size (mm)	16
max size (mm)	46

Lophogorgia chilensis widths	
< 5	0.0 %
5 - 8	0.0 %
9 - 12	0.0 %
13 - 16	5.6 %
17 - 20	22.2 %
21 - 24	5.6 %
24 - 28	11.1 %
29 - 32	16.7 %
33 - 36	16.7 %
37 - 40	5.6 %
41 - 44	0.0 %
45 - 48	5.6 %
49 - 52	11.1 %
53 - 56	5.6 %
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 =	18
mean	30
min size (mm)	13
max size (mm)	52

Muricea fruticosa heights	
< 5	0.0%
5 - 8	0.0%
9 - 12	0.0%
13 - 16	0.0%
17 - 20	100.0%
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	19
min size (mm)	19
max size (mm)	19

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	0.0 %
49 - 52	100.0 %
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	49
min size (mm)	49
max size (mm)	49

2011 Gorgonian/Stylaster californica SIZE FREQUENCY DISTRIBUTIONS

Santa Barbara Island - Southeast Reef

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	0.0%	17 - 20	0.0 %
21 - 24	16.7%	21 - 24	0.0 %
25 - 28	8.3%	24 - 28	0.0 %
29 - 32	8.3%	29 - 32	8.3 %
33 - 36	16.7%	33 - 36	0.0 %
37 - 40	25.0%	37 - 40	0.0 %
41 - 44	0.0%	41 - 44	0.0 %
45 - 48	8.3%	45 - 48	0.0 %
49 - 52	8.3%	49 - 52	0.0 %
53 - 56	8.3%	53 - 56	16.7 %
57 - 60	0.0%	57 - 60	16.7 %
61 - 64	8.3%	61 - 64	8.3 %
65 - 68	0.0%	65 - 68	8.3 %
69 - 72	0.0%	69 - 72	0.0 %
73 - 76	0.0%	73 - 76	8.3 %
77 - 80	0.0%	77 - 80	0.0 %
81 - 84	0.0%	81 - 84	8.3 %
85 - 88	0.0%	85 - 88	8.3 %
89 - 92	0.0%	89 - 92	8.3 %
93 - 96	0.0%	93 - 96	8.3 %
97 - 100	0.0%	97 - 100	0.0 %
> 100	0.0%	> 100	0.0 %
(Cases) N =	12	(Cases) N =	12
mean	37	mean	68
min size (mm)	22	min size (mm)	32
max size (mm)	61	max size (mm)	95

Appendix M. Artificial Recruitment Modules Size Frequencies Distributions

2011 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Admiral's Reef

Crassedoma giganteum

Number of ARMs	**6**
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	20.0 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	20.0 %
70 - 79	20.0 %
80 - 89	0.0 %
90 - 99	20.0 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	20.0 %
(Cases) N =	5
mean	83
min size (mm)	33
max size (mm)	152

Cypraea spadicea

Number of ARMs	**6**
<30	0.0 %
30 - 32	0.0 %
33 - 35	0.0 %
36 - 38	0.0 %
39 - 41	0.0 %
42 - 44	0.0 %
45 - 47	33.3 %
48 - 50	66.7 %
51 - 53	0.0 %
54 - 56	0.0 %
>56	0.0 %
(Cases) N =	3
mean	47
min size (mm)	45
max size (mm)	49

Megathura crenulata

Number of ARMs	**6**
<10	0.0 %
10 - 19	33.3 %
20 - 29	0.0 %
30 - 39	66.7 %
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	27
min size (mm)	14
max size (mm)	34

Patiria miniata

Number of ARMs	**6**
<10	3.3 %
10 - 19	33.3 %
20 - 29	32.2 %
30 - 39	17.8 %
40 - 49	10.0 %
50 - 59	0.0 %
60 - 69	3.3 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	90
mean	27
min size (mm)	7
max size (mm)	66

Strongylocentrotus franciscanus

Number of ARMs	**6**
< 5	0.0 %
5 - 9	5.1 %
10 - 14	0.0 %
15 - 19	2.9 %
20 - 24	17.6 %
25 - 29	18.4 %
30 - 34	21.3 %
35 - 39	20.6 %
40 - 44	11.8 %
45 - 49	0.7 %
50 - 54	0.7 %
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 =	136
mean	30
min size (mm)	6
max size (mm)	62

Strongylocentrotus purpuratus

Number of ARMs	**6**
< 5	3.4 %
5 - 9	12.8 %
10 - 14	2.0 %
15 - 19	16.9 %
20 - 24	34.5 %
25 - 29	23.6 %
30 - 34	6.1 %
35 - 39	0.7 %
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 - 79	0.0 %
> 79	0.0 %
(Cases) N =	148
mean	19
min size (mm)	3
max size (mm)	35

2011 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Admiral's Reef

Tegula regina

Number of ARMs	**6**
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.0 %
15 - 19	0.0 %
20 - 24	57.1 %
25 - 29	42.9 %
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	0.0 %
(Cases) N =	7
mean	24
min size (mm)	21
max size (mm)	28

Centrostephanus coronatus

Number of ARMs	**7**
< 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 %
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	23
min size (mm)	23
max size (mm)	23

Crassedoma giganteum

Number of ARMs	**7**
<10	7.1 %
10 - 19	57.1 %
20 - 29	14.3 %
30 - 39	7.1 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	7.1 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	0.0 %
130 - 139	7.1 %
> 139	0.0 %
(Cases) N =	14
mean	34
min size (mm)	7
max size (mm)	136

Cypraea spadicea

Number of ARMs	**7**
<30	1.3 %
30 - 32	3.8 %
33 - 35	11.4 %
36 - 38	16.5 %
39 - 41	22.8 %
42 - 44	26.6 %
45 - 47	12.7 %
48 - 50	3.8 %
51 - 53	1.3 %
54 - 56	0.0 %
>56	0.0 %
(Cases) N =	79
mean	40
min size (mm)	23
max size (mm)	51

Haliotis fulgens

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	12
min size (mm)	12
max size (mm)	12

2011 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Cathedral Cove

Patiria miniata

Number of ARMs	**7**
<10	7.5 %
10 - 19	45.0 %
20 - 29	37.5 %
30 - 39	7.5 %
40 - 49	0.0 %
50 - 59	2.5 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	40
mean	20
min size (mm)	8
max size (mm)	54

Pisaster giganteus

Number of ARMs	**7**
< 20	26.0 %
20 - 39	14.0 %
40 - 59	42.0 %
60 - 79	16.0 %
80 - 99	2.0 %
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 =	50
mean	42
min size (mm)	11
max size (mm)	82

Strongylocentrotus franciscanus

Number of ARMs	**7**
< 5	0.4 %
5 - 9	36.8 %
10 - 14	17.8 %
15 - 19	8.0 %
20 - 24	7.3 %
25 - 29	4.6 %
30 - 34	2.6 %
35 - 39	1.6 %
40 - 44	1.0 %
45 - 49	1.3 %
50 - 54	0.9 %
55 - 59	1.6 %
60 - 64	1.3 %
65 - 69	2.1 %
70 - 74	4.2 %
75 - 79	2.4 %
80 - 84	2.6 %
85 - 89	2.1 %
90 - 94	1.1 %
95 - 99	0.3 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	698
mean	39
min size (mm)	3
max size (mm)	96

Strongylocentrotus purpuratus

Number of ARMs	**7**
< 5	0.0 %
5 - 9	14.3 %
10 - 14	18.3 %
15 - 19	16.4 %
20 - 24	13.2 %
25 - 29	8.4 %
30 - 34	5.0 %
35 - 39	3.7 %
40 - 44	3.3 %
45 - 49	2.4 %
50 - 54	3.7 %
55 - 59	3.5 %
60 - 64	4.3 %
65 - 69	2.4 %
70 - 74	0.9 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	1071
mean	35
min size (mm)	5
max size (mm)	74

Crassedoma giganteum

Number of ARMs	**6**
<10	3.6 %
10 - 19	25.0 %
20 - 29	7.1 %
30 - 39	0.0 %
40 - 49	0.0 %
50 - 59	3.6 %
60 - 69	0.0 %
70 - 79	7.1 %
80 - 89	10.7 %
90 - 99	10.7 %
100 - 109	7.1 %
110 - 119	14.3 %
120 - 129	3.6 %
130 - 139	3.6 %
> 139	3.6 %
(Cases) N =	28
mean	72
min size (mm)	9
max size (mm)	143
max size (mm)	143

Cypraea spadicea
Cypraea spadicea

Number of ARMs	**6**
<30	0.0 %
30 - 32	2.6 %
33 - 35	15.8 %
36 - 38	2.6 %
39 - 41	18.4 %
42 - 44	23.7 %
45 - 47	18.4 %
48 - 50	15.8 %
51 - 53	0.0 %
54 - 56	2.6 %
>56	0.0 %
(Cases) N =	38
mean	42
min size (mm)	31
max size (mm)	54

2011 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove

Haliotis corrugata

Number of ARMs	6
<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	39
min size (mm)	39
max size (mm)	39

Kelletia kelletii

Number of ARMs	6
< 40	33.3 %
40 - 49	33.3 %
50 - 59	16.7 %
60 - 69	0.0 %
70 - 79	16.7 %
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 =	6
mean	48
min size (mm)	30
max size (mm)	70

Megastraea undosa

Number of ARMs	6
<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	49
min size (mm)	49
max size (mm)	49

Megathura crenulata

Number of ARMs	6
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	50.0 %
50 - 59	0.0 %
60 - 69	50.0 %
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	51
min size (mm)	40
max size (mm)	61

Patiria miniata

Number of ARMs	6
<10	5.4 %
10 - 19	43.2 %
20 - 29	35.1 %
30 - 39	13.5 %
40 - 49	2.7 %
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 =	37
mean	21
min size (mm)	7
max size (mm)	40

Pisaster giganteus

Number of ARMs	6
< 20	40.3 %
20 - 39	32.8 %
40 - 59	20.9 %
60 - 79	3.0 %
80 - 99	1.5 %
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 =	67
mean	31
min size (mm)	6
max size (mm)	114

2011 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Anacapa Island - Landing Cove

Strongylocentrotus franciscanus

Number of ARMs	6
< 5	0.1 %
5 - 9	28.8 %
10 - 14	23.4 %
15 - 19	8.0 %
20 - 24	12.8 %
25 - 29	7.0 %
30 - 34	3.6 %
35 - 39	1.9 %
40 - 44	1.8 %
45 - 49	0.7 %
50 - 54	1.2 %
55 - 59	1.0 %
60 - 64	0.7 %
65 - 69	1.3 %
70 - 74	1.6 %
75 - 79	0.9 %
80 - 84	3.0 %
85 - 89	0.7 %
90 - 94	0.9 %
95 - 99	0.1 %
100 - 104	0.1 %
105 - 109	0.1 %
> 109	0.0 %
(Cases) N =	674
mean	35
min size (mm)	4
max size (mm)	106

Strongylocentrotus purpuratus

Number of ARMs	6
< 5	0.8 %
5 - 9	12.7 %
10 - 14	15.8 %
15 - 19	12.4 %
20 - 24	13.6 %
25 - 29	11.8 %
30 - 34	6.9 %
35 - 39	6.2 %
40 - 44	4.9 %
45 - 49	2.8 %
50 - 54	4.1 %
55 - 59	3.5 %
60 - 64	3.1 %
65 - 69	0.7 %
70 - 74	0.4 %
75 - 79	0.3 %
> 79	0.0 %
(Cases) N =	1495
mean	34
min size (mm)	2
max size (mm)	78

Haliotis rufescens

Number of ARMs	6
<25	33.3 %
25 - 34	16.7 %
35 - 44	0.0 %
45 - 54	0.0 %
55 - 64	0.0 %
65 - 74	0.0 %
75 - 84	0.0 %
85 - 94	16.7 %
95 - 104	0.0 %
105 - 114	0.0 %
115 - 124	0.0 %
125 - 134	0.0 %
135 - 144	0.0 %
145 - 154	16.7 %
155 - 164	16.7 %
165 - 174	0.0 %
175 - 184	0.0 %
185 - 194	0.0 %
>195	0.0 %
(Cases) N =	6
mean	80
min size (mm)	19
max size (mm)	164

Patiria miniata

Number of ARMs	6
<10	2.0 %
10 - 19	8.0 %
20 - 29	10.0 %
30 - 39	38.0 %
40 - 49	18.0 %
50 - 59	24.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	50
mean	38
min size (mm)	9
max size (mm)	59

Pisaster giganteus

Number of ARMs	6
< 20	33.3 %
20 - 39	66.7 %
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 %
> 239	0.0 %
(Cases) N =	3
mean	25
min size (mm)	17
max size (mm)	39

Pycnopodia helianthoides

Number of ARMs	6
< 20	0.0 %
20 - 39	0.0 %
40 - 59	50.0 %
60 - 79	50.0 %
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 =	2
mean	62
min size (mm)	59
max size (mm)	65

2011 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	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	10.0 %
70 - 74	0.0 %
75 - 79	0.0 %
80 - 84	0.0 %
85 - 89	0.0 %
90 - 94	40.0 %
95 - 99	20.0 %
100 - 104	10.0 %
105 - 109	20.0 %
> 109	0.0 %
(Cases) N =	10
mean	95
min size (mm)	67
max size (mm)	106

Crassedoma giganteum

Number of ARMs	**5**
<10	0.0 %
10 - 19	0.0 %
20 - 29	6.3 %
30 - 39	6.3 %
40 - 49	18.8 %
50 - 59	12.5 %
60 - 69	0.0 %
70 - 79	6.3 %
80 - 89	6.3 %
90 - 99	0.0 %
100 - 109	6.3 %
110 - 119	0.0 %
120 - 129	12.5 %
130 - 139	6.3 %
> 139	18.8 %
(Cases) N =	16
mean	87
min size (mm)	25
max size (mm)	152

Cypraea spadicea

Number of ARMs	**5**
<30	0.0 %
30 - 32	0.0 %
33 - 35	0.0 %
36 - 38	18.2 %
39 - 41	27.3 %
42 - 44	30.3 %
45 - 47	21.2 %
48 - 50	3.0 %
51 - 53	0.0 %
54 - 56	0.0 %
>56	0.0 %
(Cases) N =	33
mean	42
min size (mm)	36
max size (mm)	49

Kelletia kelletii

Number of ARMs	**5**
< 40	87.5 %
40 - 49	0.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	12.5 %
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 =	8
mean	25
min size (mm)	11
max size (mm)	86

Megathura crenulata

Number of ARMs	**5**
<10	0.0 %
<10	0.0 %
10 - 19	50.0 %
10 - 19	50.0 %
20 - 29	25.0 %
30 - 39	12.5 %
40 - 49	12.5 %
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 =	8
mean	24
min size (mm)	13
max size (mm)	46

2011 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Fry's Harbor

Patiria miniata

Number of ARMs	5
<10	2.9 %
10 - 19	19.1 %
20 - 29	27.9 %
30 - 39	25.0 %
40 - 49	8.8 %
50 - 59	2.9 %
60 - 69	7.4 %
70 - 79	4.4 %
80 - 89	0.0 %
90 - 99	1.5 %
> 99	0.0 %
(Cases) N =	68
mean	35
min size (mm)	9
max size (mm)	90

Pisaster giganteus

Number of ARMs	5
< 20	11.4 %
20 - 39	62.9 %
40 - 59	25.7 %
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 %
> 239	0.0 %
(Cases) N =	35
mean	32
min size (mm)	16
max size (mm)	54

Pycnopodia helianthoides

Number of ARMs	5
< 20	0.0 %
20 - 39	33.3 %
40 - 59	0.0 %
60 - 79	66.7 %
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 =	3
mean	50
min size (mm)	23
max size (mm)	64

Strongylocentrotus franciscanus

Number of ARMs	5
< 5	0.0 %
5 - 9	1.2 %
10 - 14	0.6 %
15 - 19	12.1 %
20 - 24	11.5 %
25 - 29	17.0 %
30 - 34	12.1 %
35 - 39	7.3 %
40 - 44	9.7 %
45 - 49	6.1 %
50 - 54	3.0 %
55 - 59	1.8 %
60 - 64	1.2 %
65 - 69	4.2 %
70 - 74	1.8 %
75 - 79	0.0 %
80 - 84	5.5 %
85 - 89	3.0 %
90 - 94	0.6 %
95 - 99	1.2 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	165
mean	41
min size (mm)	6
max size (mm)	98

Strongylocentrotus purpuratus

Number of ARMs	5
< 5	0.0 %
5 - 9	1.1 %
10 - 14	0.0 %
15 - 19	7.5 %
20 - 24	15.1 %
25 - 29	22.6 %
30 - 34	10.8 %
35 - 39	9.7 %
40 - 44	19.4 %
45 - 49	6.5 %
50 - 54	7.5 %
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 =	93
mean	33
min size (mm)	7
max size (mm)	53

Tegula regina

Number of ARMs	5
< 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 %
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	22
min size (mm)	22
max size (mm)	22

2011 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

Crassedoma giganteum

Number of ARMs	**14**
<10	0.0 %
10 - 19	25.0 %
20 - 29	6.3 %
30 - 39	6.3 %
40 - 49	12.5 %
50 - 59	6.3 %
60 - 69	0.0 %
70 - 79	25.0 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	12.5 %
110 - 119	6.3 %
120 - 129	0.0 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	16
mean	55
min size (mm)	14
max size (mm)	112

Cypraea spadicea

Number of ARMs	**14**
<30	0.0 %
30 - 32	2.0 %
33 - 35	3.0 %
36 - 38	14.0 %
39 - 41	30.0 %
42 - 44	25.0 %
45 - 47	15.0 %
48 - 50	9.0 %
51 - 53	2.0 %
54 - 56	0.0 %
>56	0.0 %
(Cases) N =	100
mean	42
min size (mm)	31
max size (mm)	52

Lithopoma gibberosa

Number of ARMs	**14**
<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	10
min size (mm)	10
max size (mm)	10

Megathura crenulata

Number of ARMs	**14**
<10	0.0 %
10 - 19	22.2 %
20 - 29	33.3 %
30 - 39	22.2 %
40 - 49	22.2 %
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 =	9
mean	29
min size (mm)	15
max size (mm)	47

Patiria miniata

Number of ARMs	**14**
<10	6.7 %
10 - 19	37.1 %
20 - 29	34.8 %
30 - 39	6.7 %
40 - 49	5.6 %
50 - 59	2.2 %
60 - 69	5.6 %
70 - 79	1.1 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	89
mean	25
min size (mm)	7
max size (mm)	74

Pisaster giganteus

Number of ARMs	**14**
< 20	20.7 %
20 - 39	20.7 %
40 - 59	27.6 %
60 - 79	13.8 %
80 - 99	3.4 %
100 - 119	10.3 %
120 - 139	3.4 %
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 =	29
mean	50
min size (mm)	9
max size (mm)	130

2011 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Gull Island South

Strongylocentrotus franciscanus

Number of ARMs	**14**
< 5	0.2 %
5 - 9	2.6 %
10 - 14	6.7 %
15 - 19	14.0 %
20 - 24	18.9 %
25 - 29	15.8 %
30 - 34	11.0 %
35 - 39	10.6 %
40 - 44	7.0 %
45 - 49	5.0 %
50 - 54	3.1 %
55 - 59	2.5 %
60 - 64	1.2 %
65 - 69	0.2 %
70 - 74	0.2 %
75 - 79	0.2 %
80 - 84	0.0 %
85 - 89	0.3 %
90 - 94	0.5 %
95 - 99	0.0 %
100 - 104	0.2 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	644
mean	32
min size (mm)	4
max size (mm)	101

Strongylocentrotus purpuratus

Number of ARMs	**14**
< 5	0.0 %
5 - 9	1.6 %
10 - 14	2.4 %
15 - 19	5.8 %
20 - 24	10.6 %
25 - 29	14.7 %
30 - 34	20.4 %
35 - 39	20.3 %
40 - 44	14.8 %
45 - 49	6.0 %
50 - 54	2.3 %
55 - 59	0.8 %
60 - 64	0.1 %
65 - 69	0.1 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	866
mean	32
min size (mm)	5
max size (mm)	65

Crassedoma giganteum

Number of ARMs	**6**
<10	5.9 %
10 - 19	11.8 %
20 - 29	0.0 %
30 - 39	11.8 %
40 - 49	5.9 %
50 - 59	5.9 %
60 - 69	0.0 %
70 - 79	5.9 %
80 - 89	5.9 %
90 - 99	0.0 %
100 - 109	5.9 %
110 - 119	5.9 %
120 - 129	0.0 %
130 - 139	17.6 %
> 139	17.6 %
(Cases) N =	17
mean	83
min size (mm)	7
max size (mm)	159

Cypraea spadicea

Number of ARMs	**6**
<30	0.0 %
30 - 32	0.0 %
33 - 35	0.0 %
36 - 38	8.7 %
39 - 41	34.8 %
42 - 44	34.8 %
45 - 47	13.0 %
48 - 50	8.7 %
51 - 53	0.0 %
54 - 56	0.0 %
>56	0.0 %
(Cases) N =	23
mean	43
min size (mm)	37
max size (mm)	50

Megathura crenulata

Number of ARMs	**6**
<10	0.0 %
10 - 19	50.0 %
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	0.0 %
100 - 109	0.0 %
110 - 119	0.0 %
> 119	0.0 %
(Cases) N =	2
mean	21
min size (mm)	17
max size (mm)	25

Patiria miniata

Number of ARMs	**6**
<10	3.2 %
<10	3.2 %
10 - 19	36.6 %
10 - 19	36.6 %
20 - 29	38.9 %
30 - 39	16.2 %
40 - 49	3.7 %
50 - 59	0.9 %
60 - 69	0.5 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	216
mean	25
min size (mm)	5
max size (mm)	69

2011 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Pelican Bay

Pisaster giganteus

Number of ARMs	6
< 20	5.8 %
20 - 39	51.9 %
40 - 59	40.4 %
60 - 79	0.0 %
80 - 99	0.0 %
100 - 119	1.9 %
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 =	52
mean	37
min size (mm)	18
max size (mm)	107

Pycnopodia helianthoides

Number of ARMs	6
< 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	50
min size (mm)	50
max size (mm)	50

Strongylocentrotus franciscanus

Number of ARMs	6
< 5	0.0 %
5 - 9	0.0 %
10 - 14	5.3 %
15 - 19	2.0 %
20 - 24	9.3 %
25 - 29	25.8 %
30 - 34	25.2 %
35 - 39	11.9 %
40 - 44	6.6 %
45 - 49	3.3 %
50 - 54	3.3 %
55 - 59	2.6 %
60 - 64	2.6 %
65 - 69	0.7 %
70 - 74	0.0 %
75 - 79	0.0 %
80 - 84	0.7 %
85 - 89	0.0 %
90 - 94	0.7 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
> 109	0.0 %
(Cases) N =	151
mean	34
min size (mm)	10
max size (mm)	91

Strongylocentrotus purpuratus

Number of ARMs	6
< 5	0.0 %
5 - 9	0.0 %
10 - 14	0.8 %
15 - 19	3.3 %
20 - 24	10.6 %
25 - 29	17.9 %
30 - 34	18.7 %
35 - 39	15.9 %
40 - 44	13.4 %
45 - 49	11.8 %
50 - 54	6.9 %
55 - 59	0.8 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	246
mean	35
min size (mm)	10
max size (mm)	57

Crassedoma giganteum

Number of ARMs	6
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	22.2 %
40 - 49	0.0 %
50 - 59	11.1 %
60 - 69	11.1 %
70 - 79	11.1 %
80 - 89	0.0 %
90 - 99	0.0 %
100 - 109	0.0 %
110 - 119	11.1 %
120 - 129	11.1 %
130 - 139	0.0 %
> 139	22.2 %
(Cases) N =	9
mean	90
min size (mm)	31
max size (mm)	165

Cypraea spadicea
Cypraea spadicea

Number of ARMs	6
<30	1.2 %
30 - 32	8.3 %
33 - 35	25.0 %
36 - 38	22.6 %
39 - 41	26.2 %
42 - 44	11.9 %
45 - 47	4.8 %
48 - 50	0.0 %
51 - 53	0.0 %
54 - 56	0.0 %
>56	0.0 %
(Cases) N =	84
mean	38
min size (mm)	29
max size (mm)	47

2011 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Scorpion Anchorage

Haliotis rufescens

Number of ARMs	6
<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	28
min size (mm)	28
max size (mm)	28

Megastraea undosa

Number of ARMs	6
<10	0.0 %
10 - 19	50.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	50.0 %
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	29
min size (mm)	16
max size (mm)	42

Patiria miniata

Number of ARMs	6
<10	0.0 %
10 - 19	20.0 %
20 - 29	30.0 %
30 - 39	30.0 %
40 - 49	15.0 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	5.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	20
mean	33
min size (mm)	14
max size (mm)	73

Pisaster giganteus

Number of ARMs	6
< 20	0.0 %
20 - 39	14.3 %
40 - 59	57.1 %
60 - 79	0.0 %
80 - 99	14.3 %
100 - 119	0.0 %
120 - 139	14.3 %
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	63
min size (mm)	30
max size (mm)	139

Strongylocentrotus franciscanus

Number of ARMs	6
< 5	0.0 %
5 - 9	13.6 %
10 - 14	20.9 %
15 - 19	18.2 %
20 - 24	0.9 %
25 - 29	1.8 %
30 - 34	5.5 %
35 - 39	9.1 %
40 - 44	14.5 %
45 - 49	7.3 %
50 - 54	7.3 %
55 - 59	0.0 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.9 %
75 - 79	0.0 %
80 - 84	0.0 %
85 - 89	0.0 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
100 - 104	0.0 %
105 - 109	0.0 %
105 - 109	0.0 %
> 109	0.0 %
> 109	0.0 %
(Cases) N =	110
mean	29
min size (mm)	7
max size (mm)	70

Strongylocentrotus purpuratus

Number of ARMs	6
< 5	2.2 %
5 - 9	17.8 %
10 - 14	11.9 %
15 - 19	5.4 %
20 - 24	11.9 %
25 - 29	9.2 %
30 - 34	6.5 %
35 - 39	6.5 %
40 - 44	9.2 %
45 - 49	7.6 %
50 - 54	8.1 %
55 - 59	3.8 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	185
mean	29
min size (mm)	3
max size (mm)	59

2011 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

Crassedoma giganteum

Number of ARMs	15
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	0.0 %
40 - 49	7.1 %
50 - 59	21.4 %
60 - 69	7.1 %
70 - 79	0.0 %
80 - 89	14.3 %
90 - 99	14.3 %
100 - 109	14.3 %
110 - 119	14.3 %
120 - 129	7.1 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	14
mean	84
min size (mm)	40
max size (mm)	122

Cypraea spadicea

Number of ARMs	15
<30	0.0 %
30 - 32	0.0 %
33 - 35	10.0 %
36 - 38	24.0 %
39 - 41	30.0 %
42 - 44	20.0 %
45 - 47	10.0 %
48 - 50	0.0 %
51 - 53	4.0 %
54 - 56	2.0 %
>56	0.0 %
(Cases) N =	50
mean	41
min size (mm)	34
max size (mm)	54

Haliotis assimilis

Number of ARMs	15
<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	32
min size (mm)	32
max size (mm)	32

Haliotis corrugata

Number of ARMs	15
<25	33.3 %
25 - 34	33.3 %
35 - 44	33.3 %
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 =	3
mean	29
min size (mm)	24
max size (mm)	38

Haliotis rufescens

Number of ARMs	15
<25	33.3 %
25 - 34	66.7 %
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	26
min size (mm)	22
max size (mm)	29

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	33.3 %
100 - 109	0.0 %
110 - 119	0.0 %
120 - 129	66.7 %
130 - 139	0.0 %
140 - 149	0.0 %
> 149	0.0 %
(Cases) N =	3
mean	114
min size (mm)	90
max size (mm)	126

2011 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

Megastraea undosa

Number of ARMs	15
<10	0.0 %
10 - 19	0.0 %
20 - 29	33.3 %
30 - 39	66.7 %
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)	27
max size (mm)	38

Megathura crenulata

Number of ARMs	15
<10	0.0 %
10 - 19	66.7 %
20 - 29	20.0 %
30 - 39	13.3 %
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 =	15
mean	19
min size (mm)	11
max size (mm)	32

Patiria miniata

Number of ARMs	15
<10	4.9 %
10 - 19	53.3 %
20 - 29	29.5 %
30 - 39	4.9 %
40 - 49	4.9 %
50 - 59	0.0 %
60 - 69	2.5 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	122
mean	20
min size (mm)	7
max size (mm)	69

Pisaster giganteus

Number of ARMs	15
< 20	47.7 %
20 - 39	31.8 %
40 - 59	13.6 %
60 - 79	2.3 %
80 - 99	4.5 %
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	26
min size (mm)	5
max size (mm)	96

Pycnopodia helianthoides

Number of ARMs	15
< 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	46
min size (mm)	46
max size (mm)	46

Strongylocentrotus franciscanus

Number of ARMs	15
< 5	0.0 %
5 - 9	10.8 %
10 - 14	14.1 %
15 - 19	26.1 %
20 - 24	23.4 %
25 - 29	11.3 %
30 - 34	4.5 %
35 - 39	3.0 %
40 - 44	2.5 %
45 - 49	2.0 %
50 - 54	0.8 %
55 - 59	0.8 %
60 - 64	0.0 %
65 - 69	0.0 %
70 - 74	0.0 %
75 - 79	0.0 %
80 - 84	0.3 %
85 - 89	0.0 %
90 - 94	0.0 %
95 - 99	0.0 %
100 - 104	0.0 %
105 - 109	0.5 %
> 109	0.0 %
(Cases) N =	398
mean	22
min size (mm)	5
max size (mm)	107

2011 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Cruz Island - Yellow Banks

Strongylocentrotus purpuratus

Number of ARMs	**15**
< 5	0.5 %
5 - 9	3.0 %
10 - 14	5.2 %
15 - 19	9.1 %
20 - 24	12.7 %
25 - 29	11.6 %
30 - 34	9.9 %
35 - 39	6.8 %
40 - 44	4.9 %
45 - 49	5.4 %
50 - 54	6.8 %
55 - 59	9.5 %
60 - 64	7.8 %
65 - 69	5.2 %
70 - 74	1.4 %
75 - 79	0.3 %
> 79	0.0 %
(Cases) N =	2472
mean	39
min size (mm)	3
max size (mm)	82

Tegula regina

Number of ARMs	**15**
< 5	0.0 %
5 - 9	0.0 %
10 - 14	10.0 %
15 - 19	50.0 %
20 - 24	20.0 %
25 - 29	10.0 %
30 - 34	10.0 %
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	0.0 %
(Cases) N =	10
mean	20
min size (mm)	11
max size (mm)	32

Crassedoma giganteum

Number of ARMs	**7**
<10	0.0 %
10 - 19	0.0 %
20 - 29	0.0 %
30 - 39	14.3 %
40 - 49	14.3 %
50 - 59	0.0 %
60 - 69	0.0 %
70 - 79	0.0 %
80 - 89	0.0 %
90 - 99	14.3 %
100 - 109	14.3 %
110 - 119	28.6 %
120 - 129	14.3 %
130 - 139	0.0 %
> 139	0.0 %
(Cases) N =	7
mean	88
min size (mm)	30
max size (mm)	121

Cypraea spadicea

Number of ARMs	**7**
<30	0.0 %
30 - 32	0.0 %
33 - 35	0.0 %
36 - 38	1.8 %
39 - 41	8.8 %
42 - 44	24.6 %
45 - 47	31.6 %
48 - 50	14.0 %
51 - 53	14.0 %
54 - 56	5.3 %
>56	0.0 %
(Cases) N =	57
mean	46
min size (mm)	37
max size (mm)	55

Megathura crenulata

Number of ARMs	**7**
<10	0.0 %
10 - 19	25.0 %
20 - 29	25.0 %
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	0.0 %
> 119	0.0 %
(Cases) N =	4
mean	35
min size (mm)	19
max size (mm)	58

Patiria miniata

Number of ARMs	**7**
<10	0.0 %
10 - 19	2.3 %
20 - 29	27.3 %
30 - 39	18.2 %
40 - 49	11.4 %
50 - 59	22.7 %
60 - 69	9.1 %
70 - 79	9.1 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	44
mean	44
min size (mm)	11
max size (mm)	77

2011 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee North

Pisaster giganteus

Number of ARMs	**7**
< 20	5.3 %
20 - 39	65.8 %
40 - 59	23.7 %
60 - 79	2.6 %
80 - 99	2.6 %
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 =	38
mean	36
min size (mm)	17
max size (mm)	89

Pycnopodia helianthoides

Number of ARMs	**7**
< 20	0.0 %
20 - 39	0.0 %
40 - 59	25.0 %
60 - 79	0.0 %
80 - 99	25.0 %
100 - 119	0.0 %
120 - 139	25.0 %
140 - 159	0.0 %
160 - 179	25.0 %
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	107
min size (mm)	52
max size (mm)	160

Strongylocentrotus franciscanus

Number of ARMs	**7**
< 5	0.0 %
5 - 9	0.7 %
10 - 14	6.6 %
15 - 19	15.3 %
20 - 24	6.2 %
25 - 29	1.8 %
30 - 34	6.6 %
35 - 39	5.5 %
40 - 44	5.5 %
45 - 49	4.4 %
50 - 54	3.3 %
55 - 59	3.6 %
60 - 64	7.3 %
65 - 69	5.8 %
70 - 74	6.2 %
75 - 79	4.4 %
80 - 84	4.4 %
85 - 89	4.7 %
90 - 94	2.6 %
95 - 99	1.8 %
100 - 104	2.2 %
105 - 109	0.7 %
> 109	0.4 %
(Cases) N =	274
mean	52
min size (mm)	9
max size (mm)	118

Strongylocentrotus purpuratus

Number of ARMs	**7**
< 5	0.0 %
5 - 9	2.5 %
10 - 14	2.5 %
15 - 19	7.4 %
20 - 24	15.6 %
25 - 29	17.2 %
30 - 34	9.8 %
35 - 39	13.1 %
40 - 44	13.9 %
45 - 49	8.2 %
50 - 54	5.7 %
55 - 59	3.3 %
60 - 64	0.0 %
65 - 69	0.8 %
70 - 74	0.0 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	122
mean	33
min size (mm)	9
max size (mm)	67

Crassedoma giganteum

Number of ARMs	**7**
<10	0.0 %
10 - 19	14.3 %
20 - 29	28.6 %
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	14.3 %
120 - 129	14.3 %
130 - 139	14.3 %
> 139	14.3 %
(Cases) N =	7
mean	83
min size (mm)	17
max size (mm)	140

Cypraea spadicea
Cypraea spadicea

Number of ARMs	**7**
<30	0.0 %
30 - 32	0.0 %
33 - 35	0.0 %
36 - 38	0.0 %
39 - 41	13.3 %
42 - 44	10.0 %
45 - 47	20.0 %
48 - 50	36.7 %
51 - 53	16.7 %
54 - 56	3.3 %
>56	0.0 %
(Cases) N =	30
mean	48
min size (mm)	40
max size (mm)	55

2011 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee South

Haliotis rufescens

Number of ARMs	7
<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	100.0 %
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	82
min size (mm)	82
max size (mm)	82

Kelletia kelletii

Number of ARMs	7
< 40	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 %
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 =	2
mean	61
min size (mm)	58
max size (mm)	63

Megathura crenulata

Number of ARMs	7
<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	58
min size (mm)	58
max size (mm)	58

Patiria miniata

Number of ARMs	7
<10	0.0 %
10 - 19	5.3 %
20 - 29	15.8 %
30 - 39	14.0 %
40 - 49	7.0 %
50 - 59	17.5 %
60 - 69	24.6 %
70 - 79	15.8 %
80 - 89	0.0 %
90 - 99	0.0 %
> 99	0.0 %
(Cases) N =	57
mean	49
min size (mm)	12
max size (mm)	79

Pisaster giganteus

Number of ARMs	7
< 20	0.0 %
20 - 39	57.1 %
40 - 59	14.3 %
60 - 79	14.3 %
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	44
min size (mm)	20
max size (mm)	92

Pycnopodia helianthoides

Number of ARMs	7
< 20	0.0 %
20 - 39	0.0 %
40 - 59	0.0 %
60 - 79	0.0 %
80 - 99	16.7 %
100 - 119	66.7 %
120 - 139	0.0 %
140 - 159	16.7 %
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 =	6
mean	113
min size (mm)	89
max size (mm)	152

2011 ARTIFICIAL RECRUITMENT MODULES SIZE FREQUENCY DISTRIBUTIONS

Santa Rosa Island - Johnson's Lee South

Strongylocentrotus franciscanus

Number of ARMs	**7**
< 5	0.0 %
5 - 9	0.6 %
10 - 14	0.6 %
15 - 19	3.3 %
20 - 24	2.8 %
25 - 29	3.9 %
30 - 34	7.2 %
35 - 39	6.7 %
40 - 44	11.7 %
45 - 49	12.8 %
50 - 54	9.4 %
55 - 59	5.0 %
60 - 64	6.7 %
65 - 69	3.3 %
70 - 74	4.4 %
75 - 79	2.2 %
80 - 84	3.9 %
85 - 89	6.1 %
90 - 94	3.3 %
95 - 99	2.8 %
100 - 104	0.6 %
105 - 109	0.6 %
> 109	2.2 %
(Cases) N =	180
mean	54
min size (mm)	8
max size (mm)	122

Strongylocentrotus purpuratus

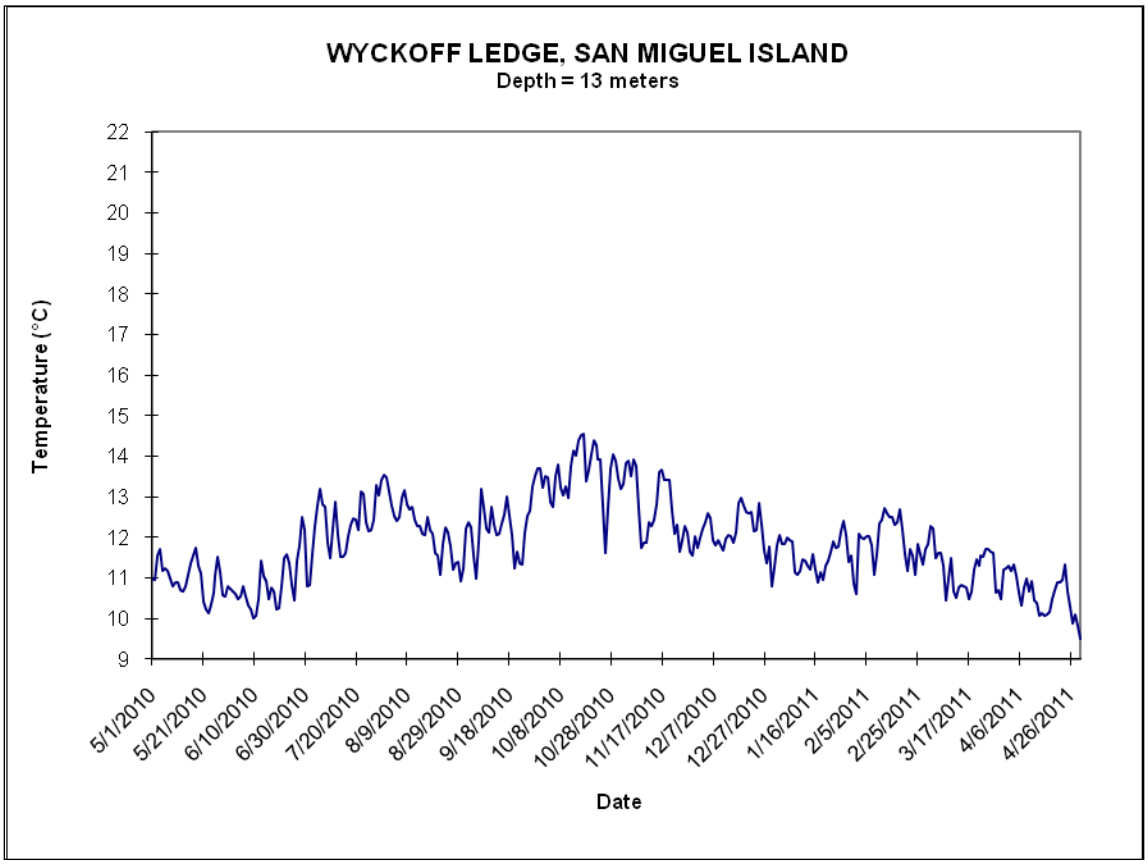
Number of ARMs	**7**
< 5	0.0 %
5 - 9	0.0 %
10 - 14	1.3 %
15 - 19	1.3 %
20 - 24	14.1 %
25 - 29	1.3 %
30 - 34	3.8 %
35 - 39	2.6 %
40 - 44	7.7 %
45 - 49	11.5 %
50 - 54	20.5 %
55 - 59	12.8 %
60 - 64	16.7 %
65 - 69	2.6 %
70 - 74	3.8 %
75 - 79	0.0 %
> 79	0.0 %
(Cases) N =	78
mean	47
min size (mm)	13
max size (mm)	71

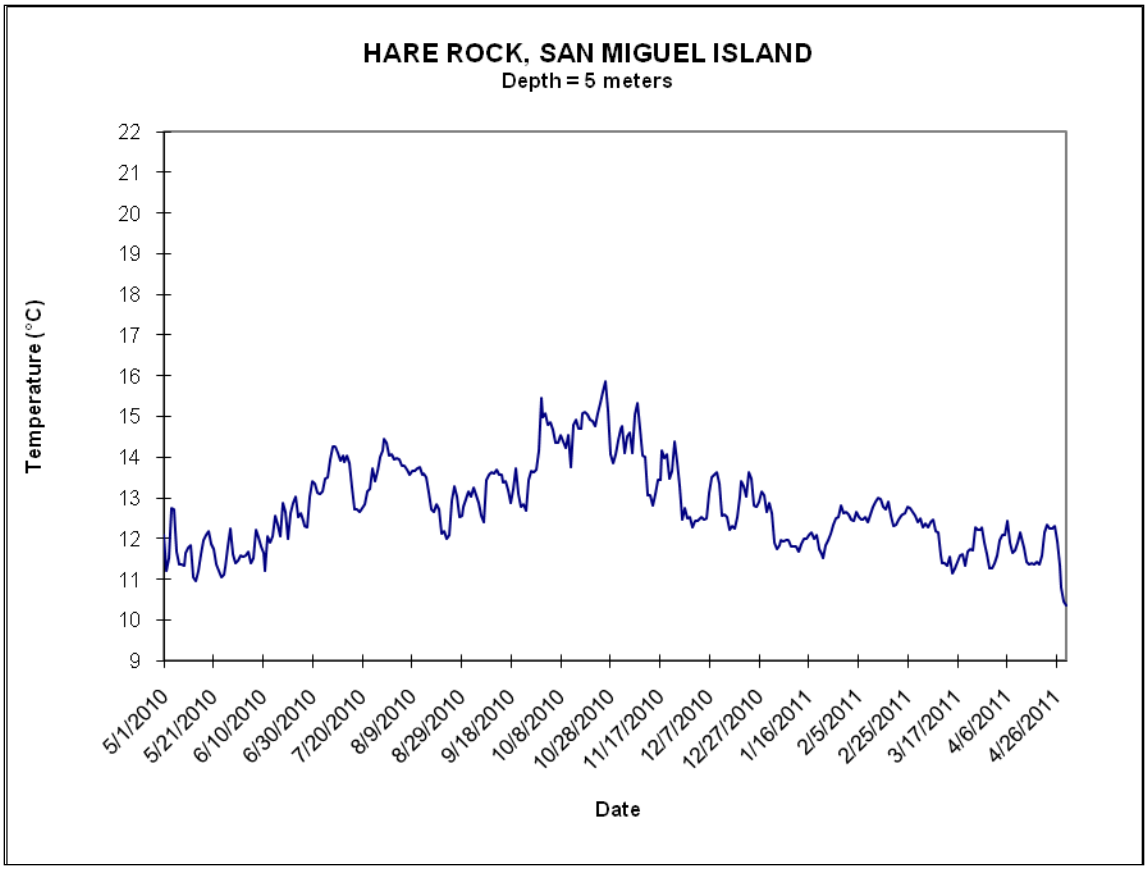
Appendix N. Temperature Data Graphs

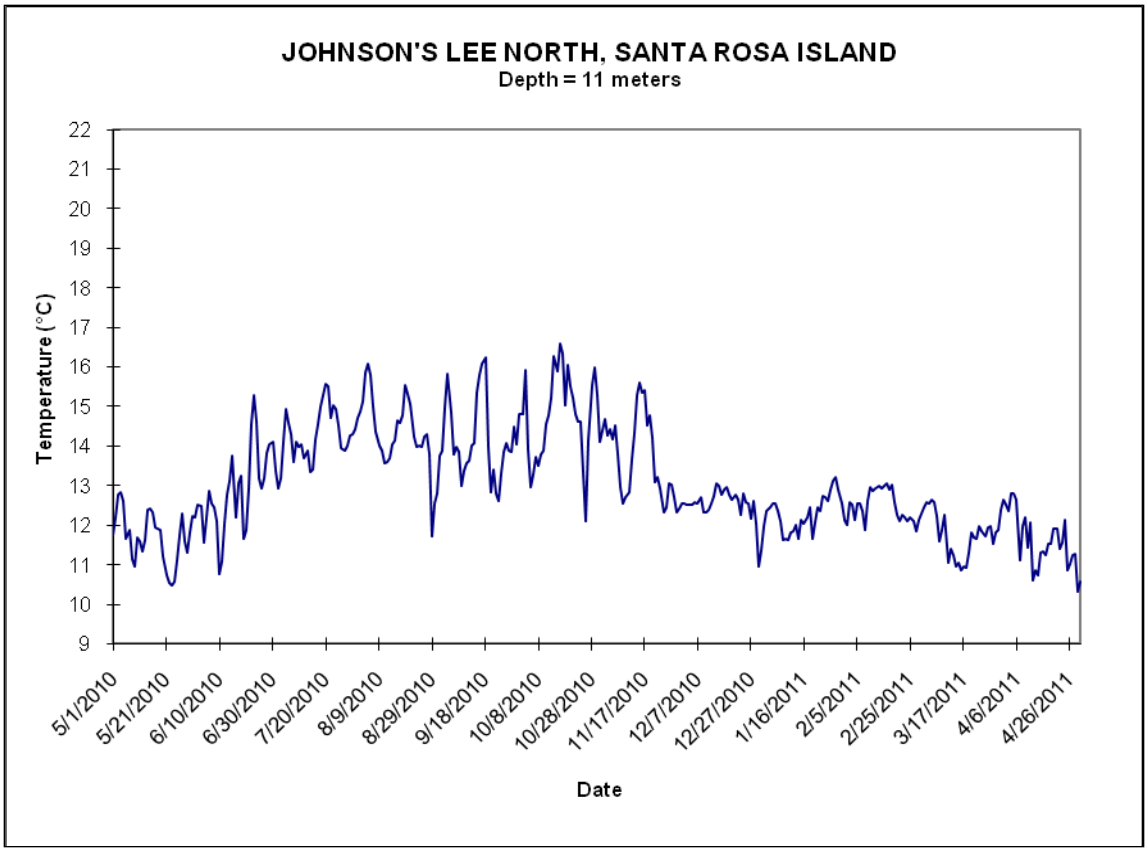
2011 TEMPERATURE DATA GRAPHS

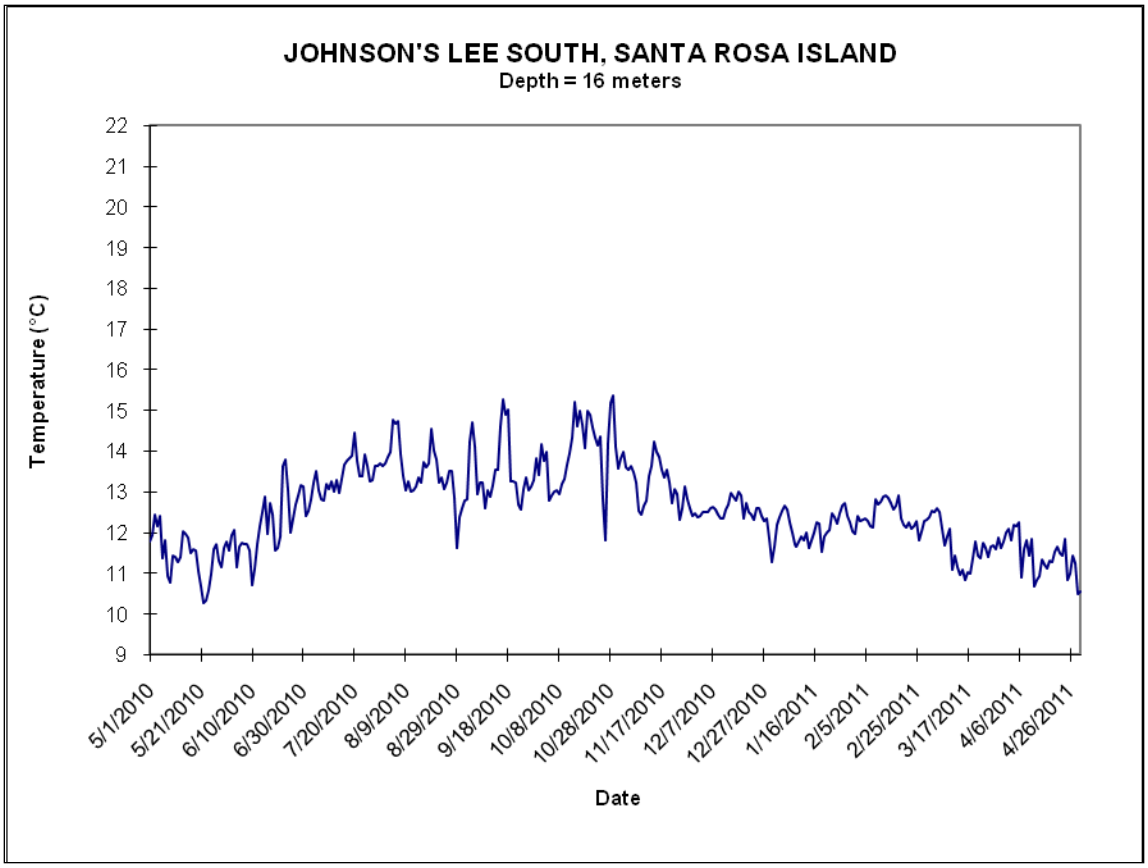
Introduction

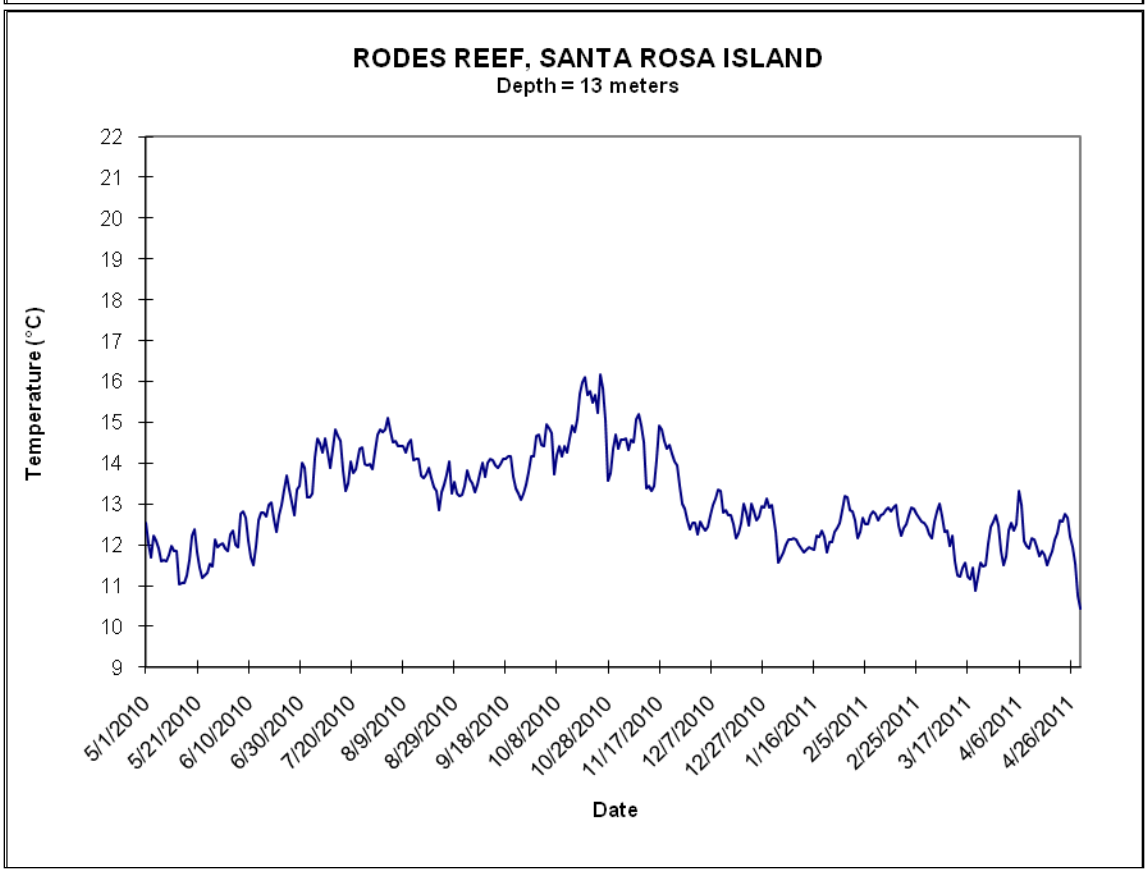
This appendix contains the temperature data (presented graphically) collected by temperature loggers that were deployed at 32 Kelp Forest Monitoring sites. We report the average daily temperatures between May 1, 2010 and April 30, 2011. Technical problems or loss of the temperature units may result in missing data for a site and this information is included in the results section for each site.

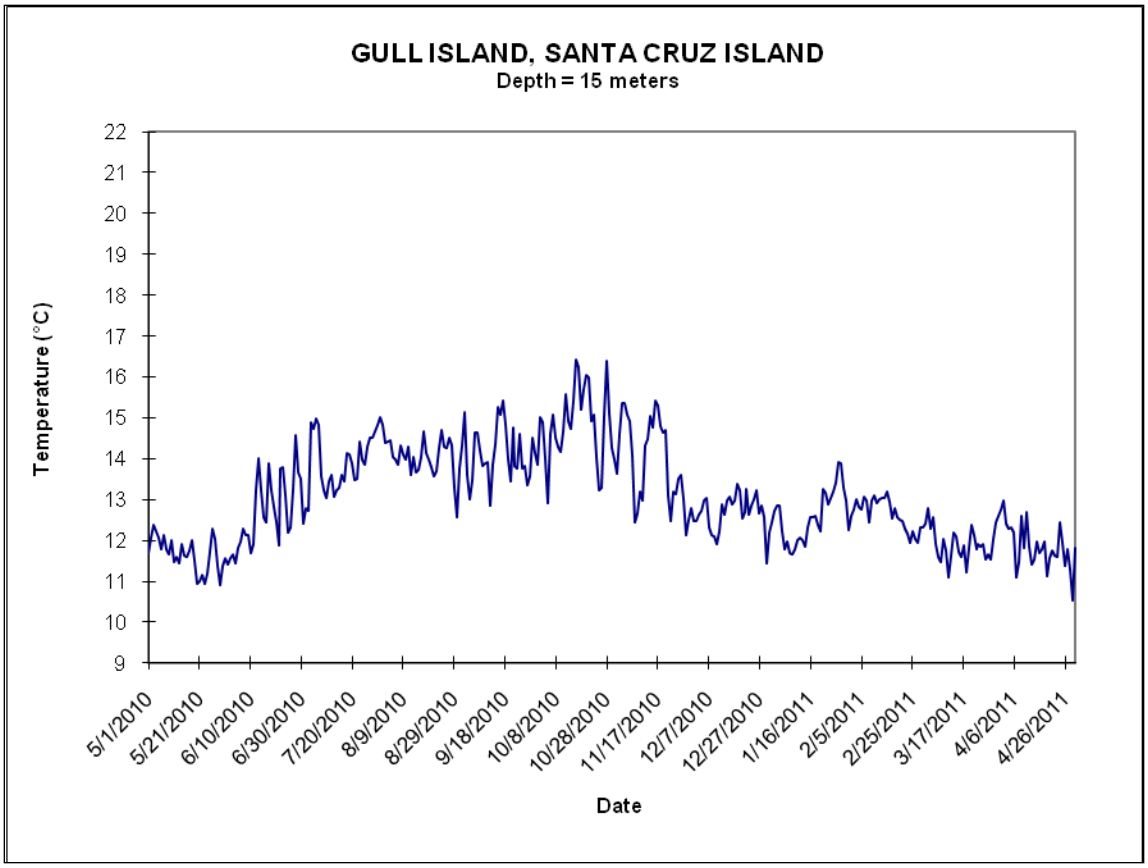


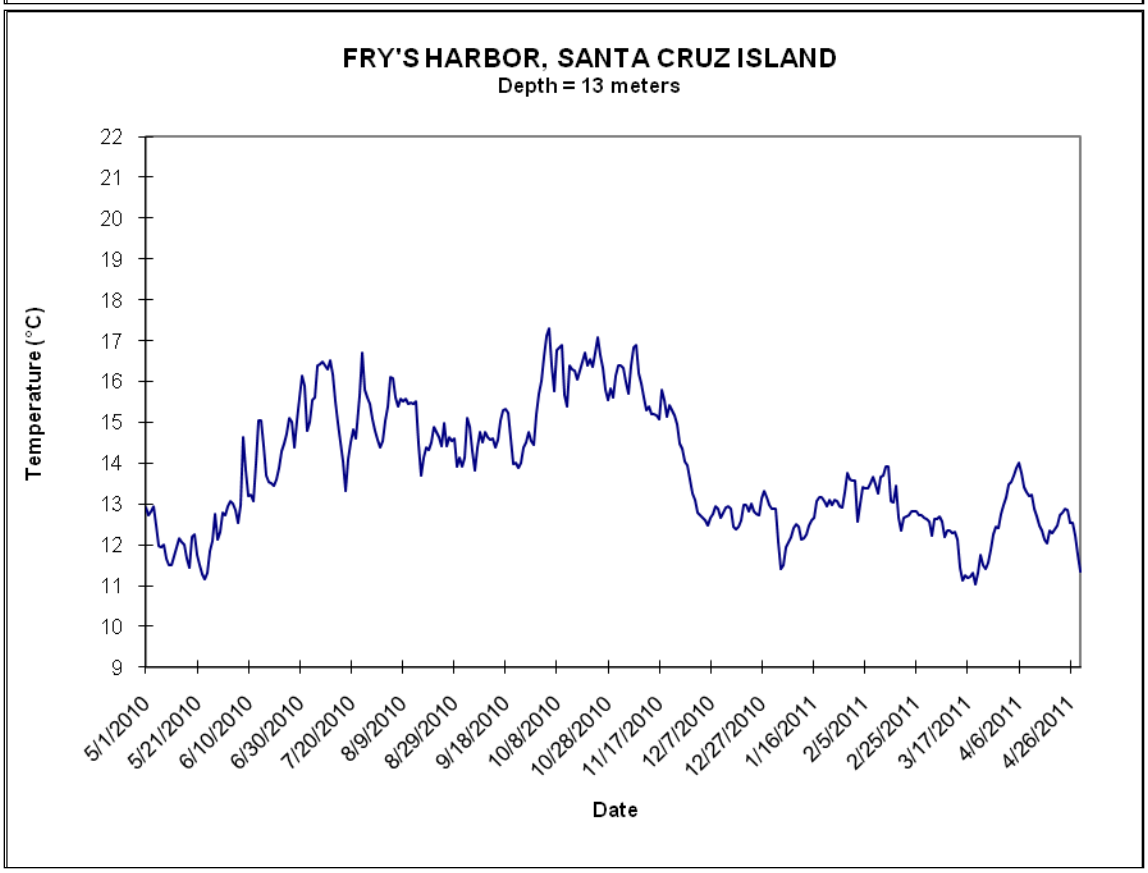

HARE ROCK, SAN MIGUEL ISLAND
Depth = 5 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

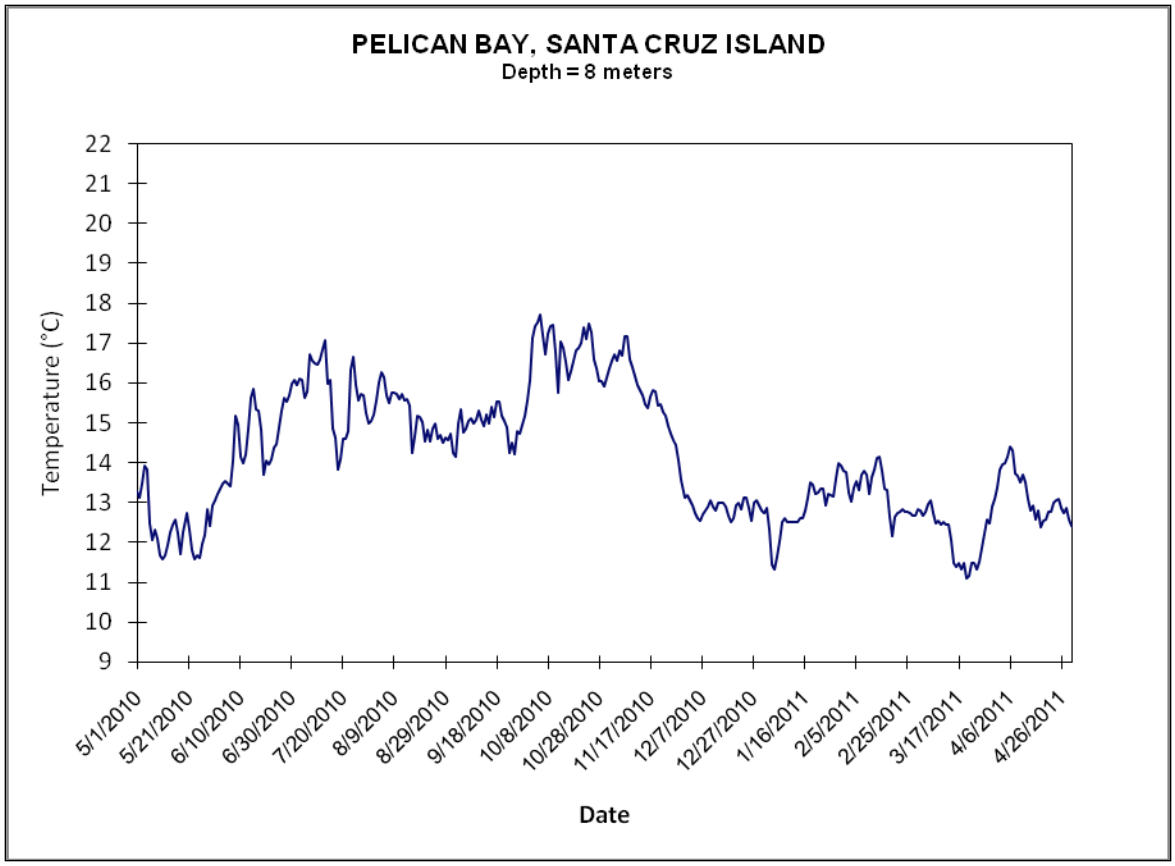

JOHNSON'S LEE NORTH, SANTA ROSA ISLAND
Depth = 11 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

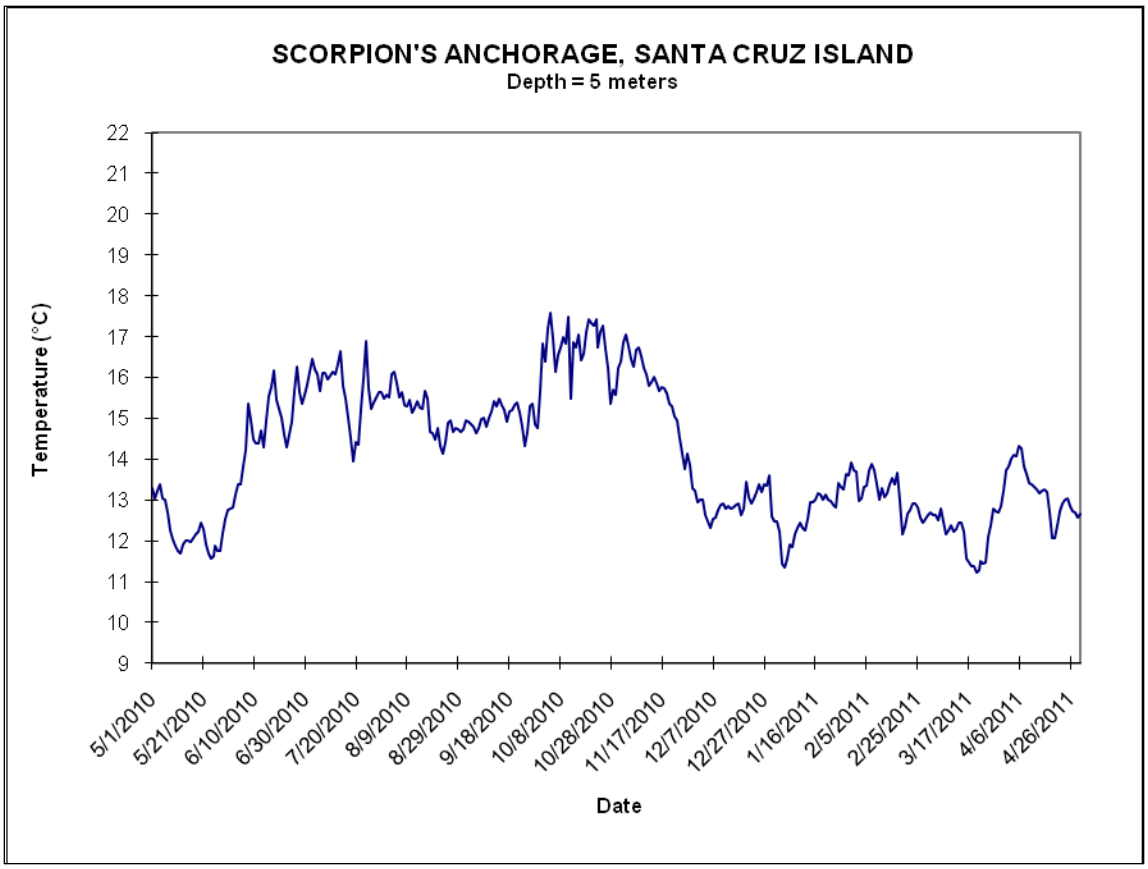

JOHNSON'S LEE SOUTH, SANTA ROSA ISLAND
Depth = 16 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

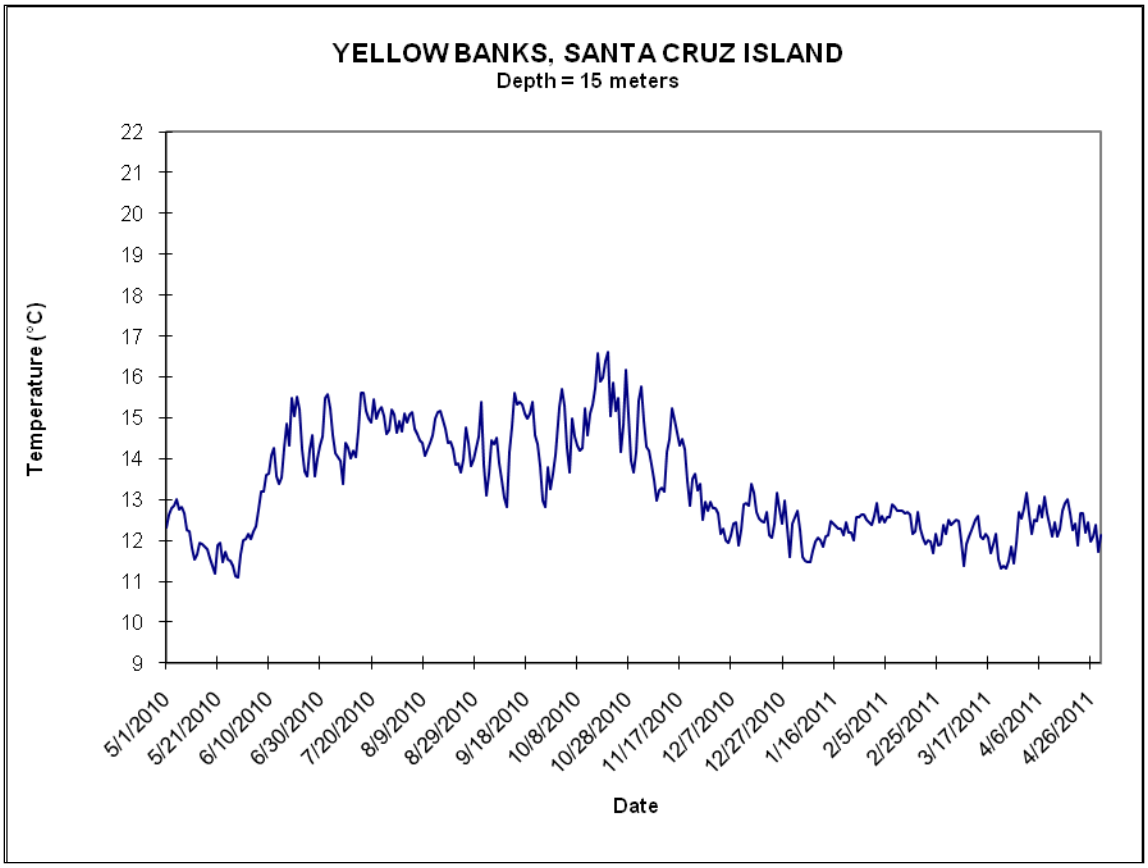

RODES REEF, SANTA ROSA ISLAND
Depth = 13 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

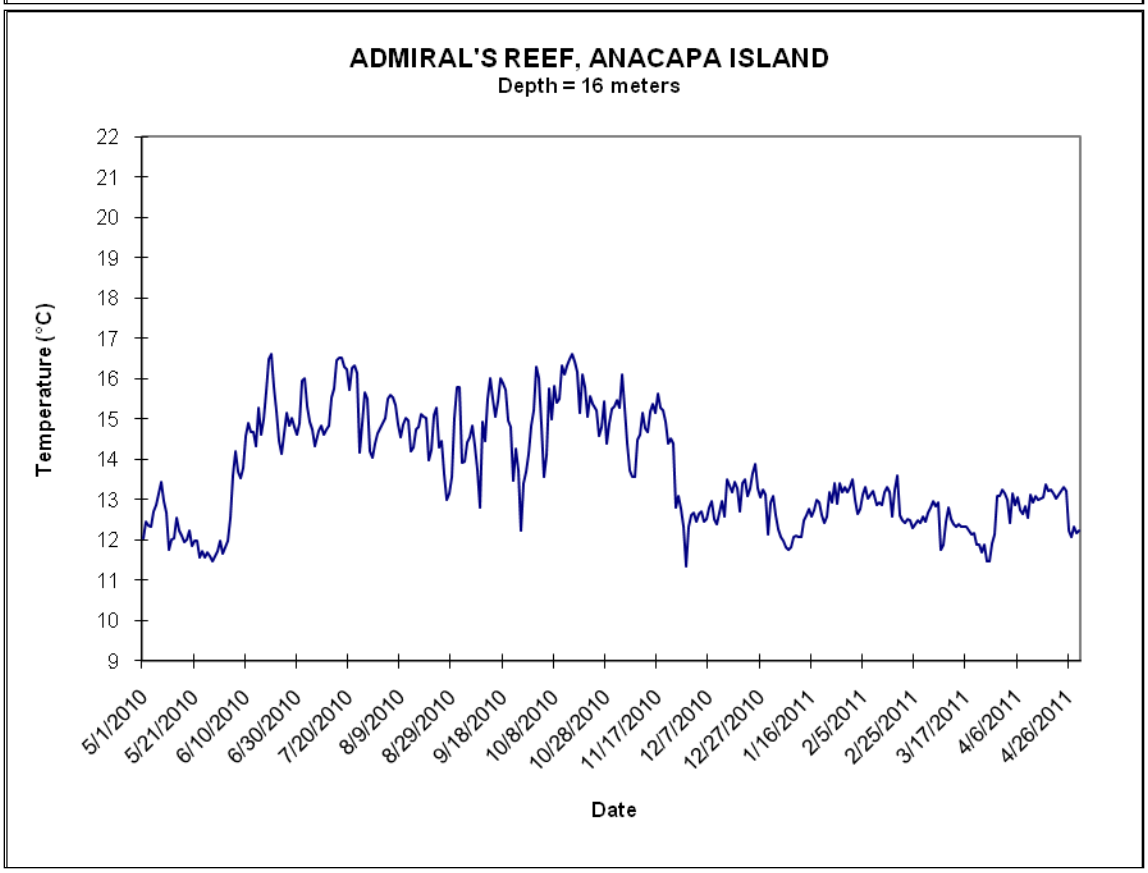

GULL ISLAND, SANTA CRUZ ISLAND
Depth = 15 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

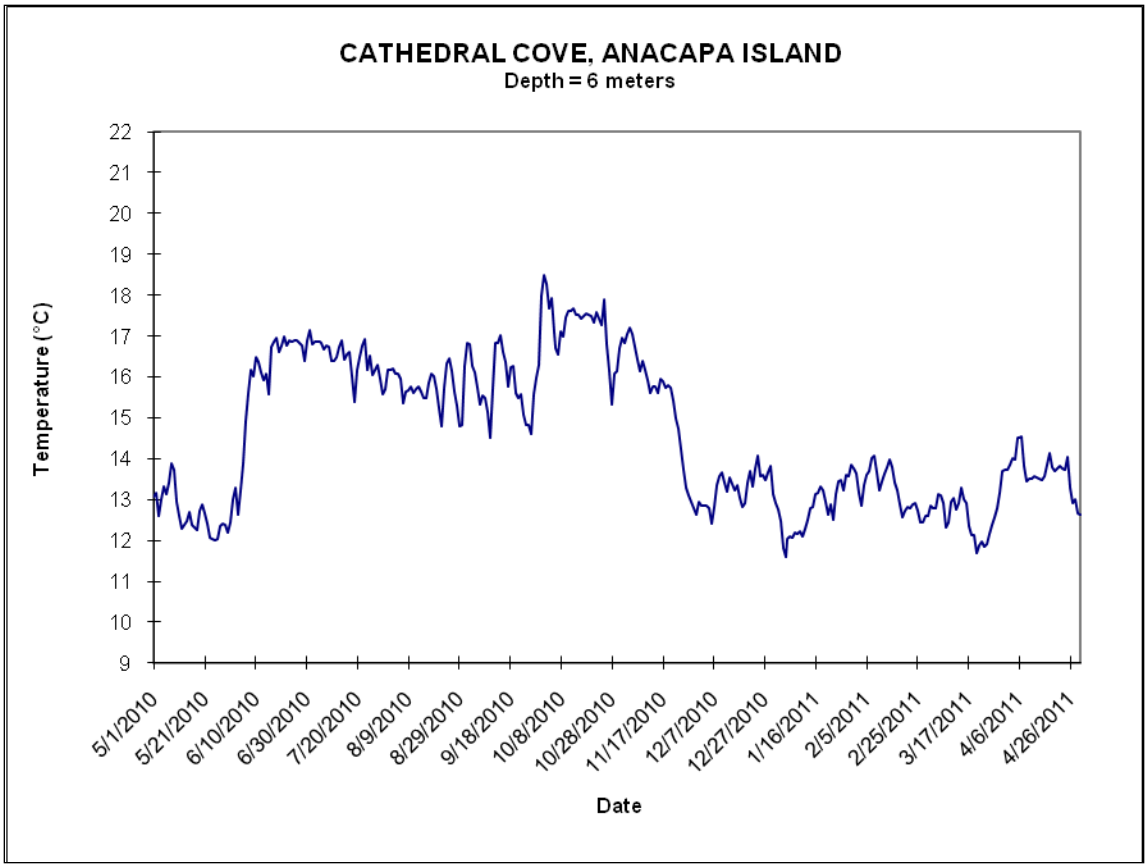

FRY'S HARBOR, SANTA CRUZ ISLAND
Depth = 13 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

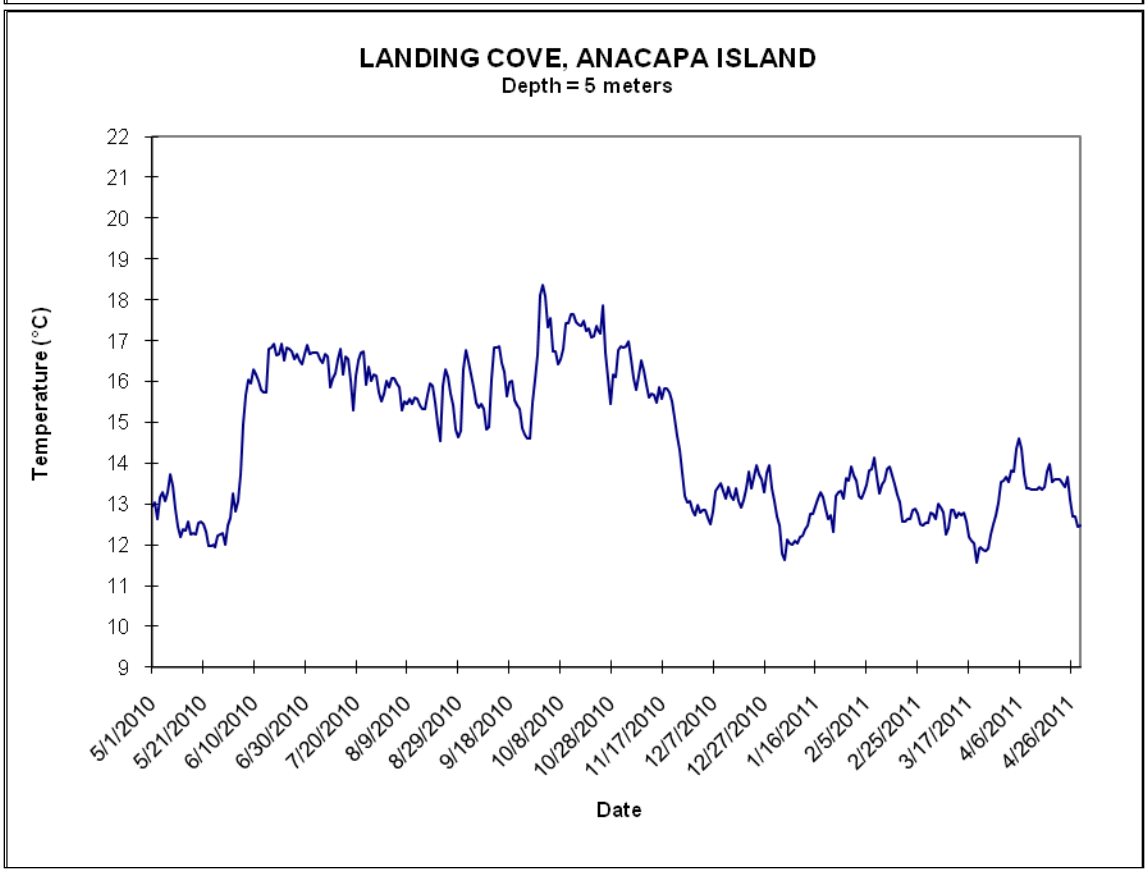

PELICAN BAY, SANTA CRUZ ISLAND
Depth = 8 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

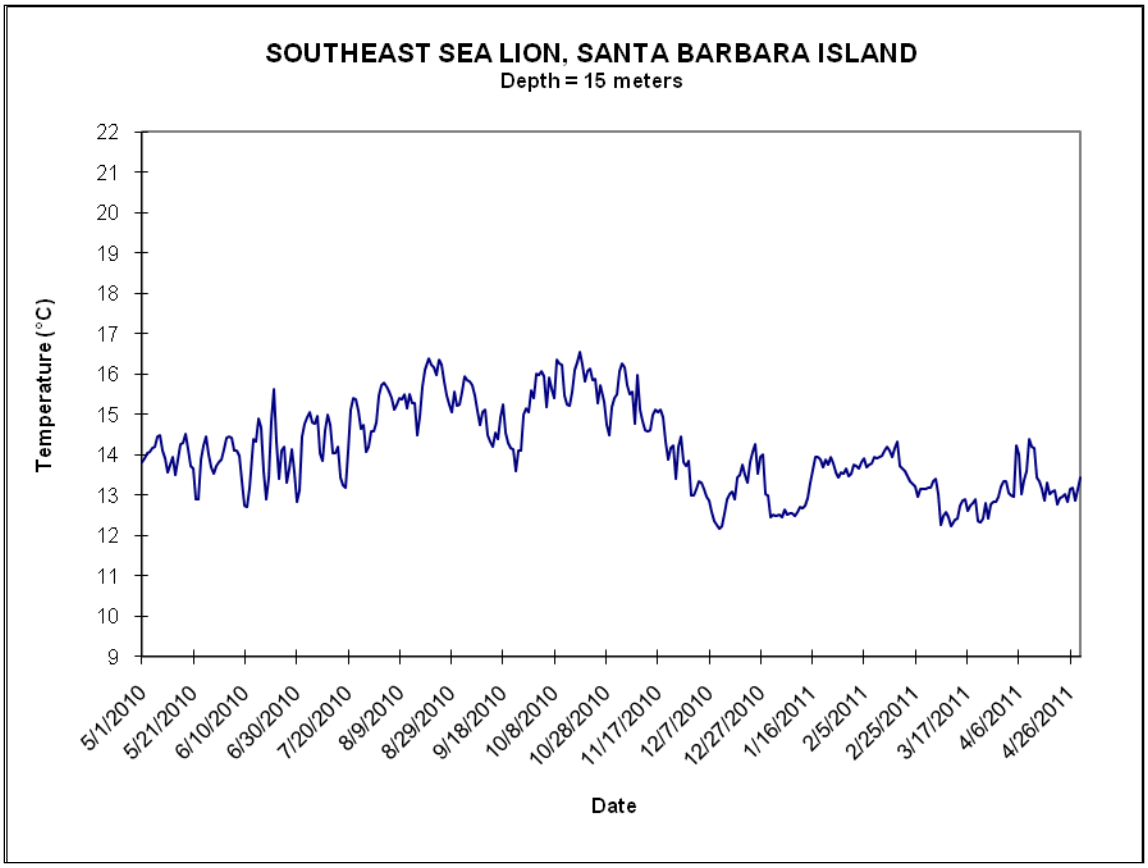

SCORPION'S ANCHORAGE, SANTA CRUZ ISLAND
Depth = 5 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

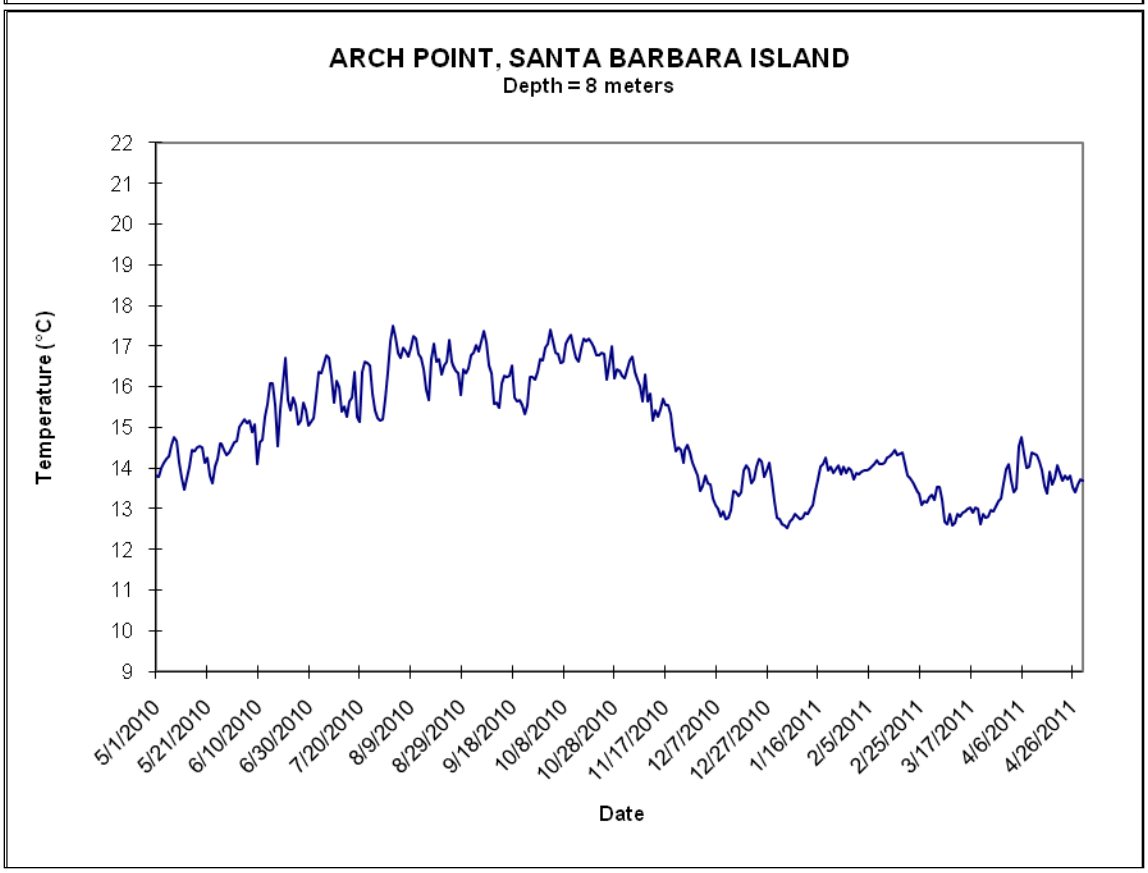

YELLOW BANKS, SANTA CRUZ ISLAND
Depth = 15 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

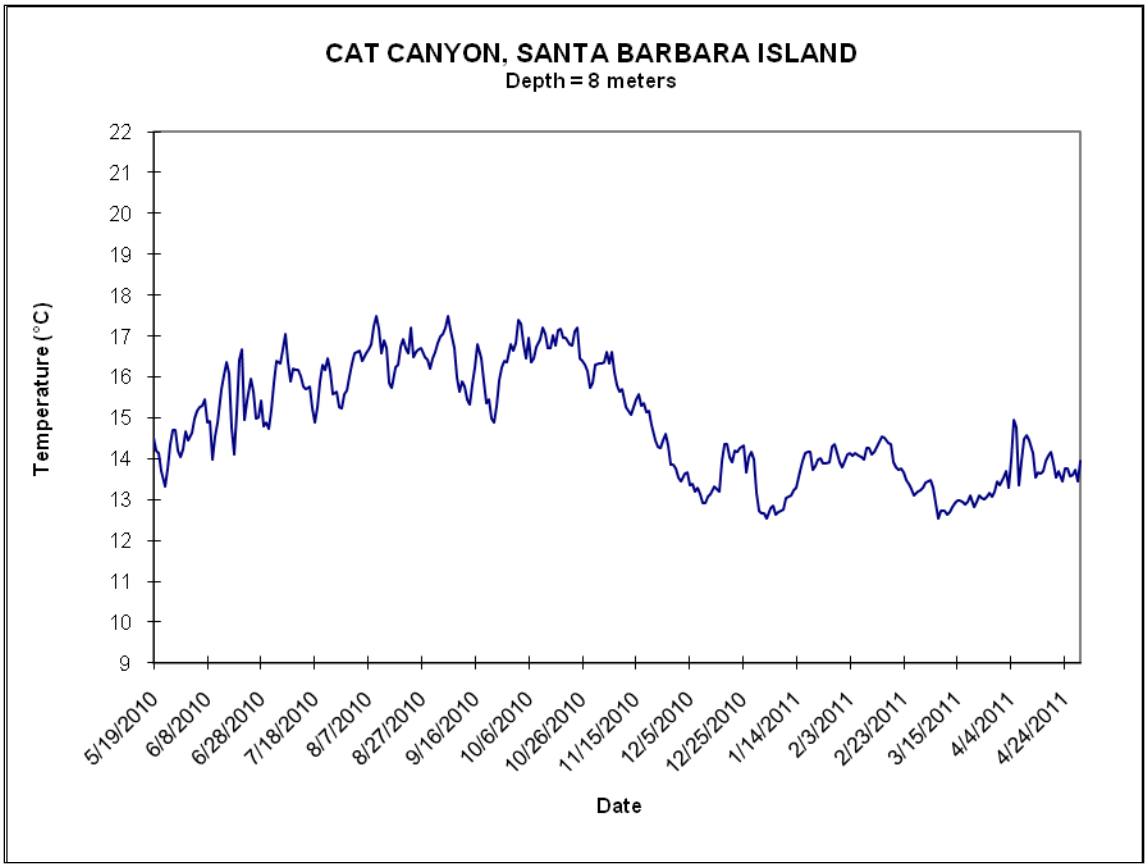

ADMIRAL'S REEF, ANACAPA ISLAND
Depth = 16 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

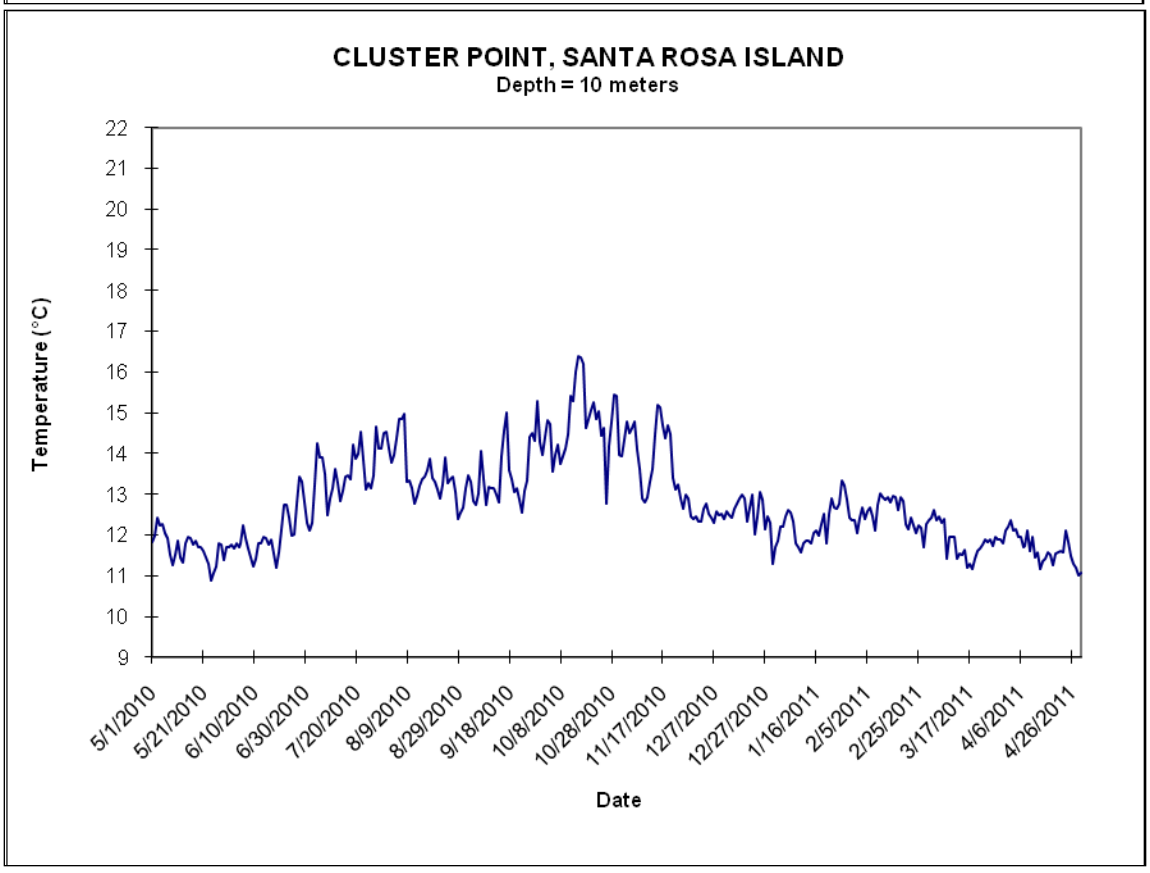

CATHEDRAL COVE, ANACAPA ISLAND
Depth = 6 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

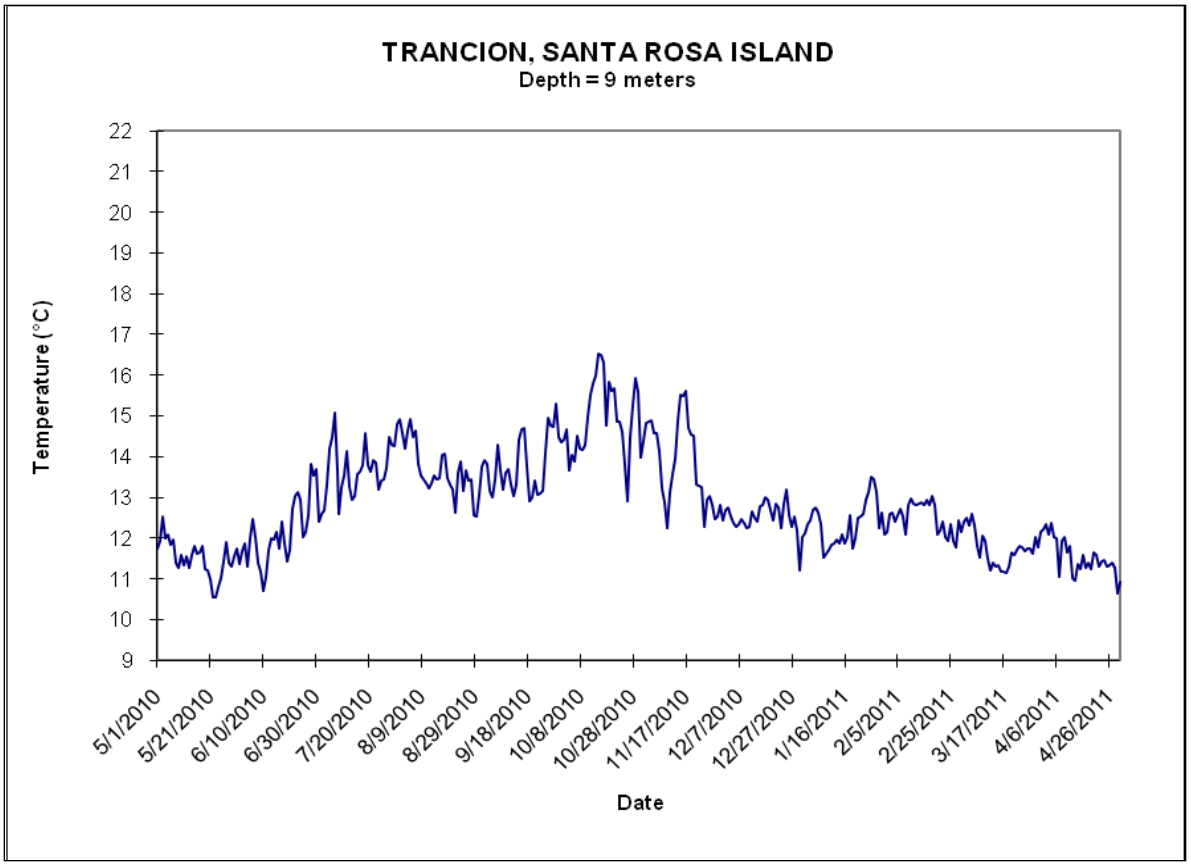

LANDING COVE, ANACAPA ISLAND
Depth = 5 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
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10/28/2010
11/17/2010
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12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

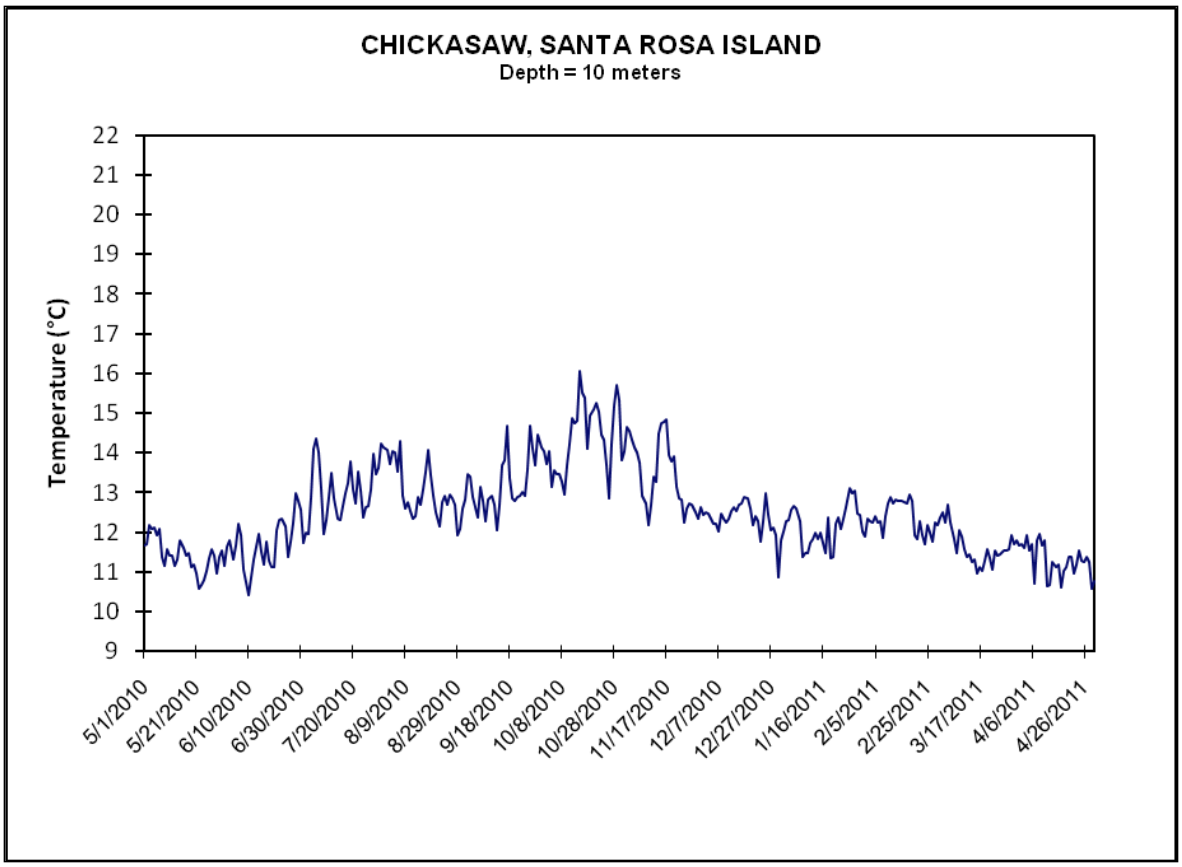

SOUTHEAST SEA LION, SANTA BARBARA ISLAND
Depth = 15 meters
Temperature (°C)
22
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5/1/2010
5/21/2010
6/10/2010
6/30/2010
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8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

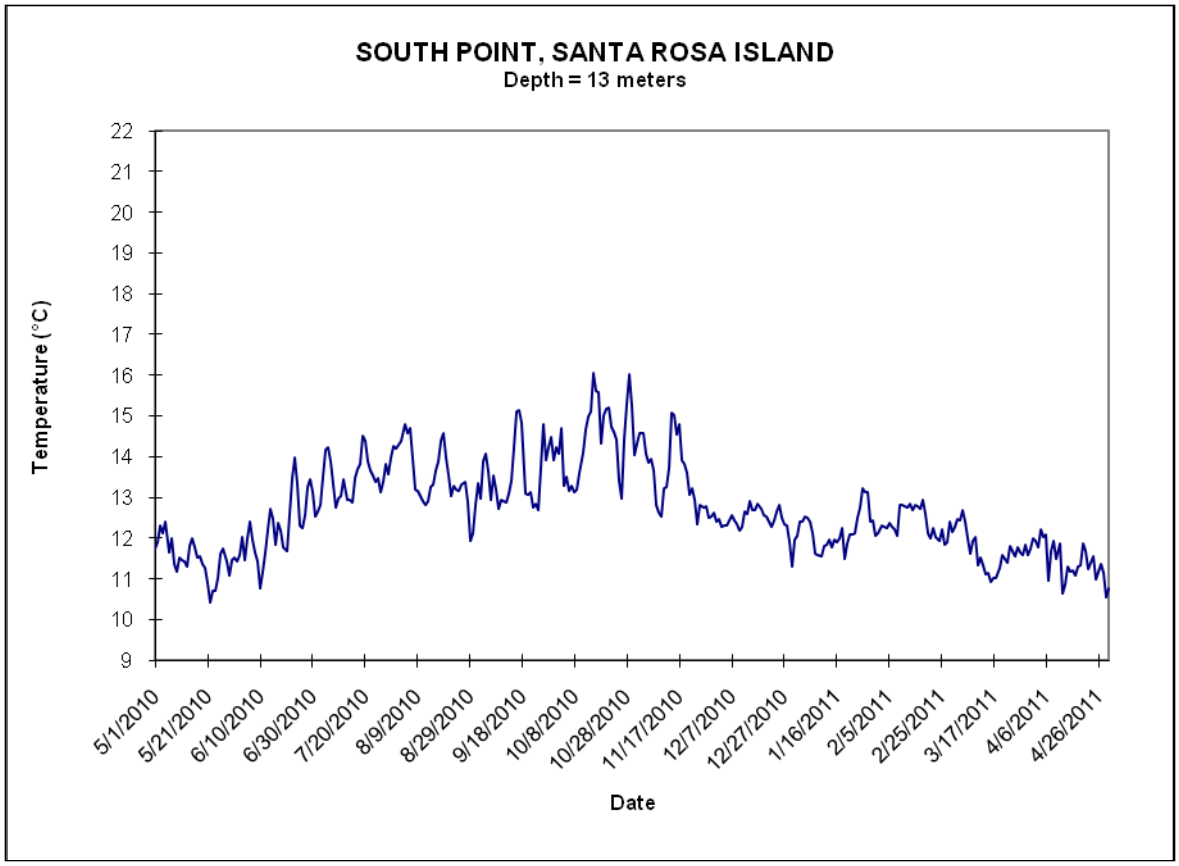

ARCH POINT, SANTA BARBARA ISLAND
Depth = 8 meters
Temperature (°C)
22
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5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

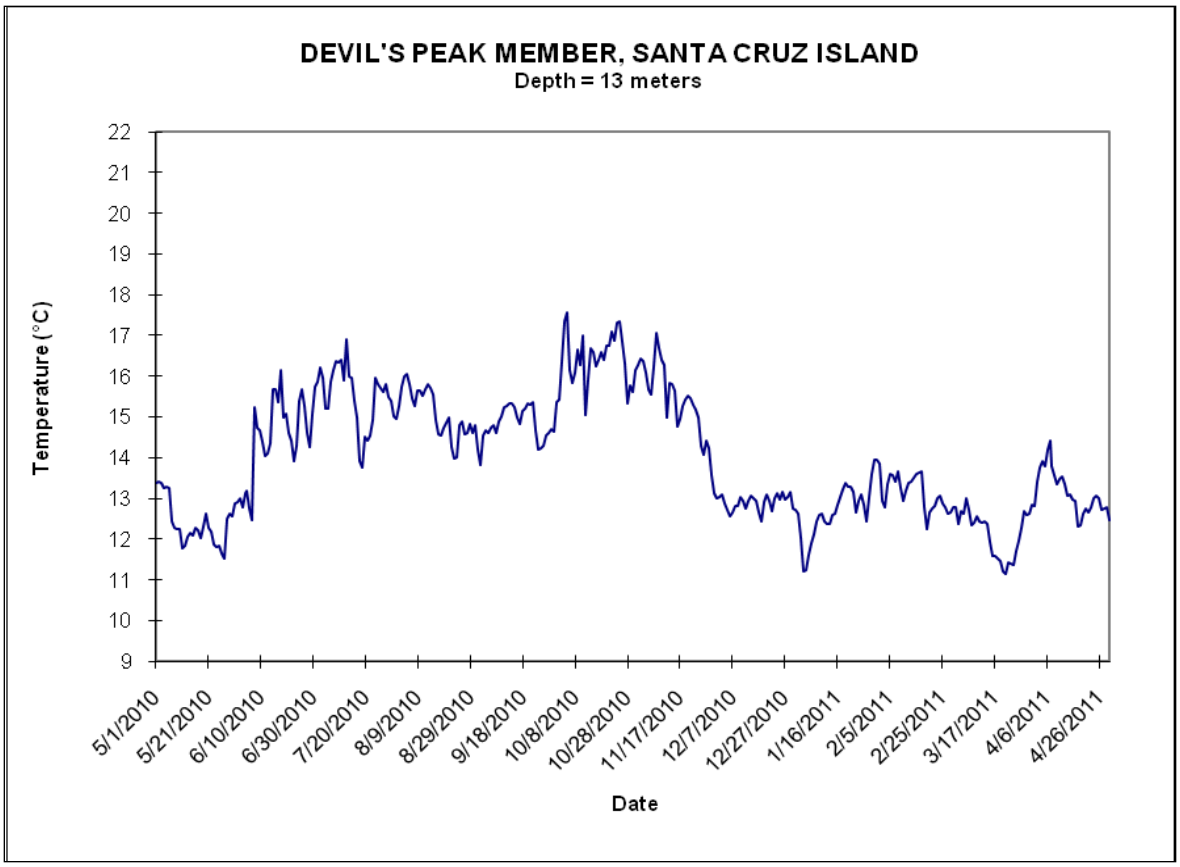

CAT CANYON, SANTA BARBARA ISLAND
Depth = 8 meters
Temperature (°C)
22
21
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5/19/2010
6/8/2010
6/28/2010
7/18/2010
8/7/2010
8/27/2010
9/16/2010
10/6/2010
10/26/2010
11/15/2010
12/5/2010
12/25/2010
1/14/2011
2/3/2011
2/23/2011
3/15/2011
4/4/2011
4/24/2011
Date

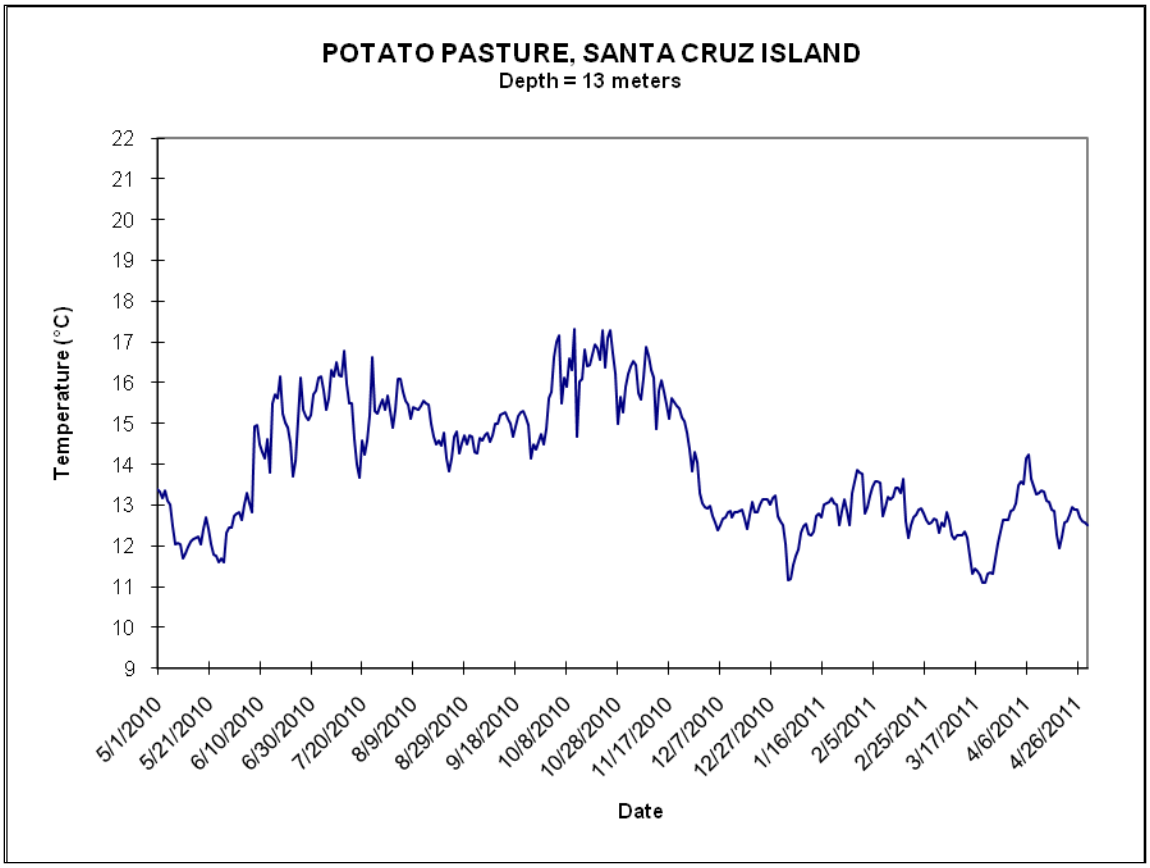

CLUSTER POINT, SANTA ROSA ISLAND
Depth = 10 meters
Temperature (°C)
22
21
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5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

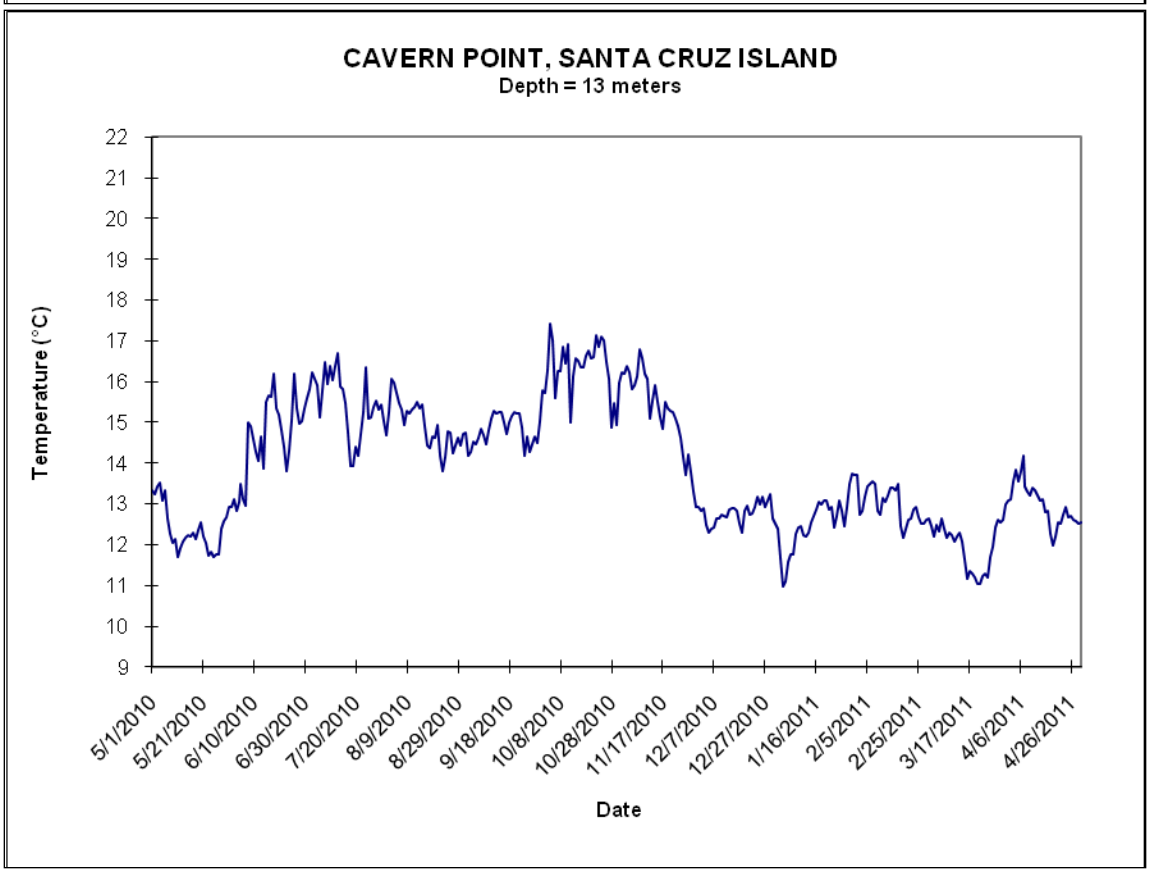

TRANCION, SANTA ROSA ISLAND
Depth = 9 meters
Temperature (°C)
22
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5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

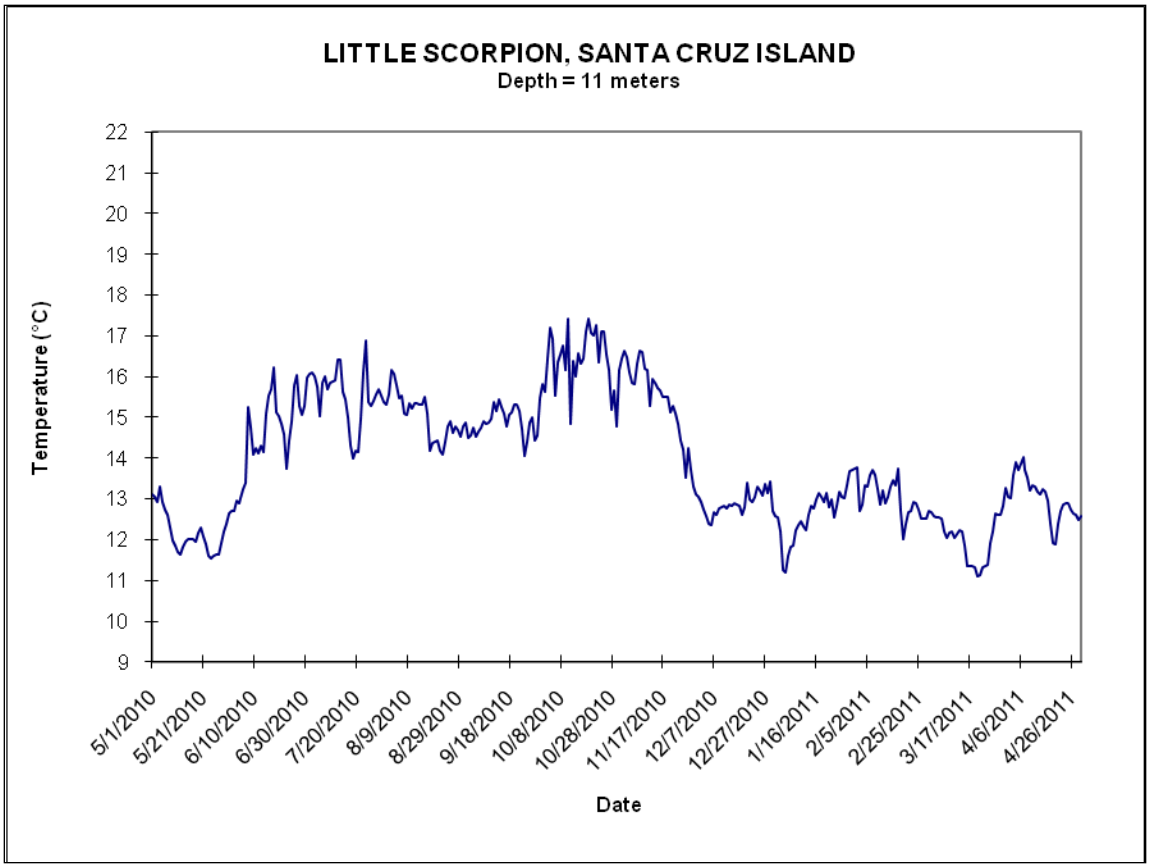

CHICKASAW, SANTA ROSA ISLAND
Depth = 10 meters
Temperature (°C)
22
21
20
19
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5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
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3/17/2011
4/6/2011
4/26/2011

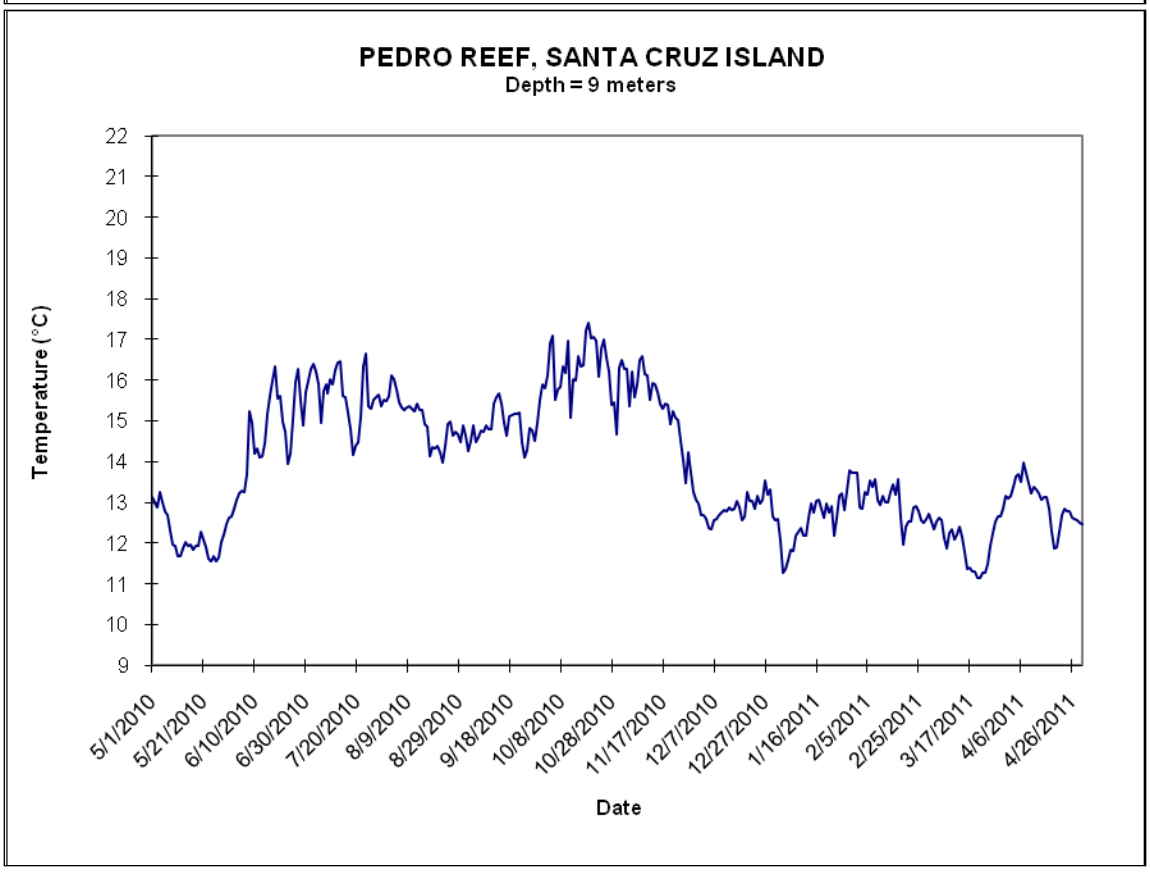

SOUTH POINT, SANTA ROSA ISLAND
Depth = 13 meters
Temperature (°C)
22
21
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18
17
16
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5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

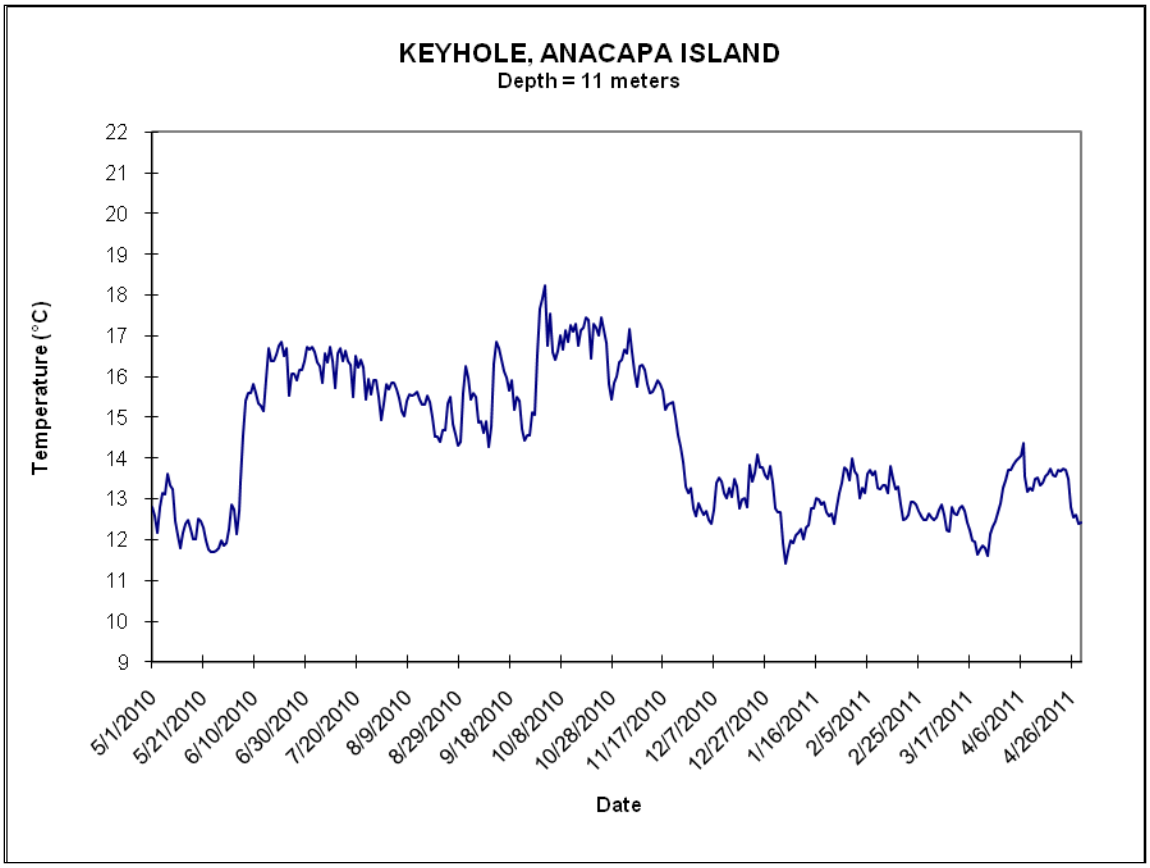

DEVIL'S PEAK MEMBER, SANTA CRUZ ISLAND
Depth = 13 meters
Temperature (°C)
22
21
20
19
18
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16
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5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

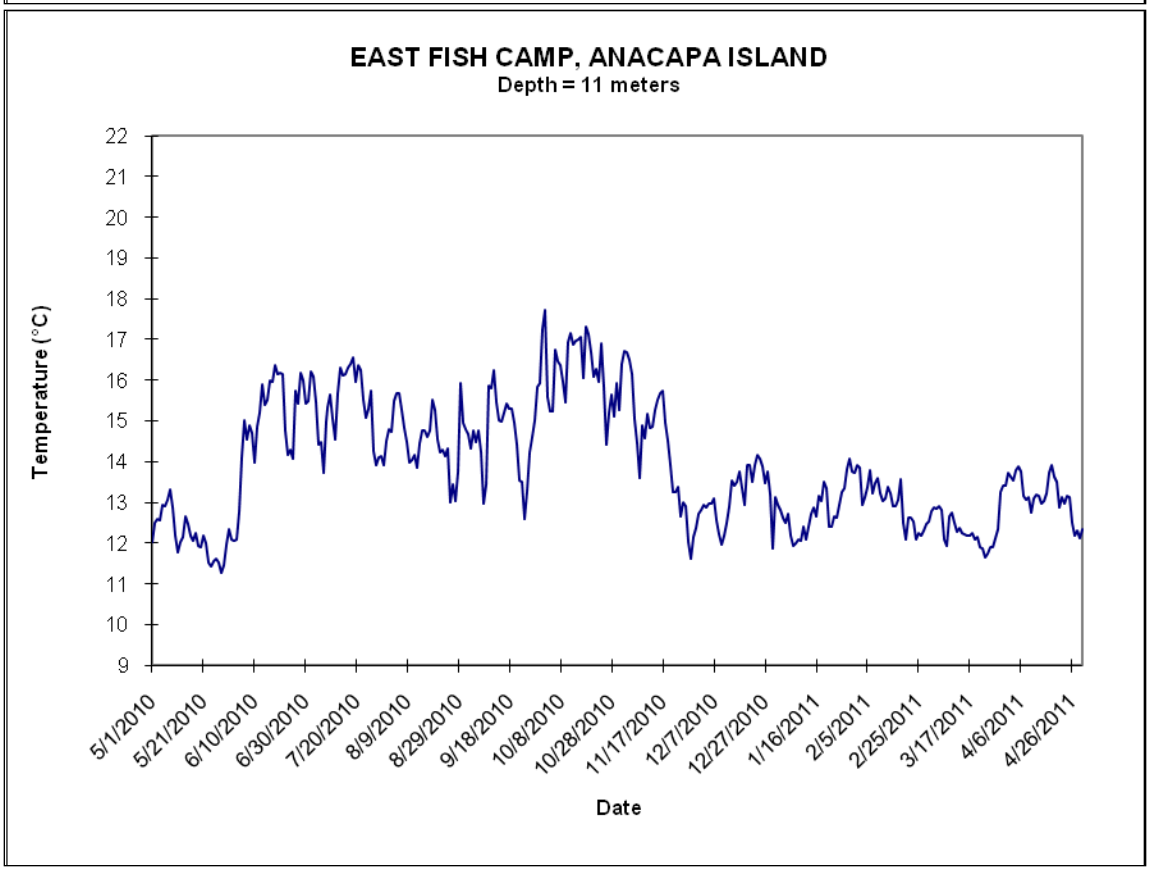

POTATO PASTURE, SANTA CRUZ ISLAND
Depth = 13 meters
Temperature (°C)
22
21
20
19
18
17
16
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14
13
12
11
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5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

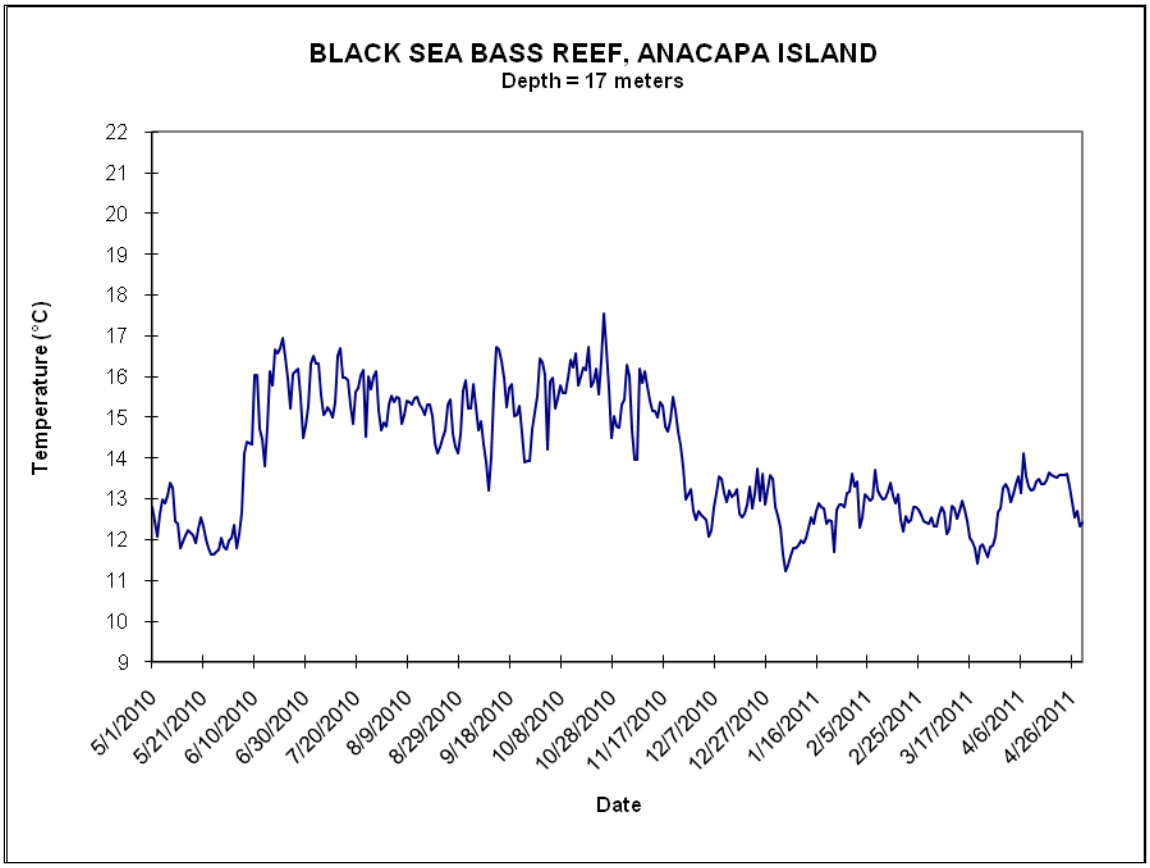

CAVERN POINT, SANTA CRUZ ISLAND
Depth = 13 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

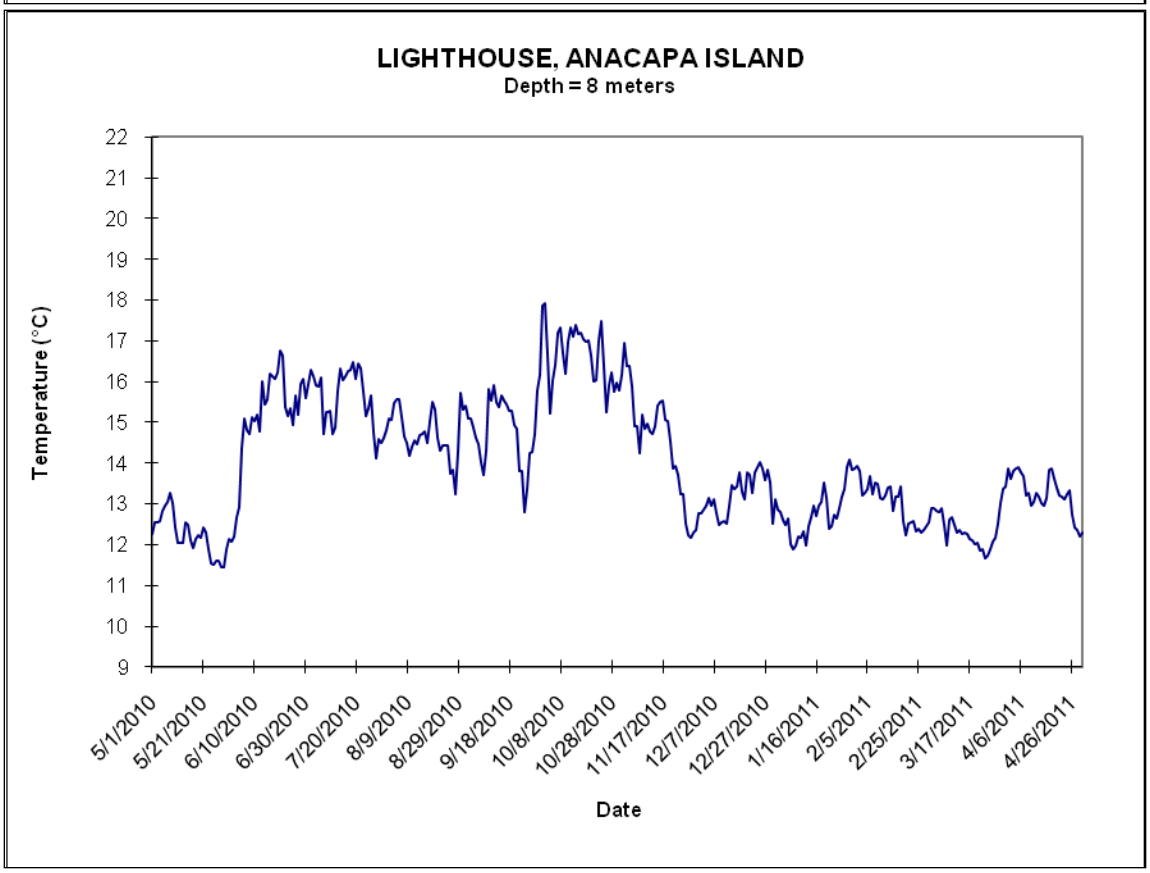

LITTLE SCORPION, SANTA CRUZ ISLAND
Depth = 11 meters
Temperature (°C)
22
21
20
19
18
17
16
15
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13
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11
10
9
5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

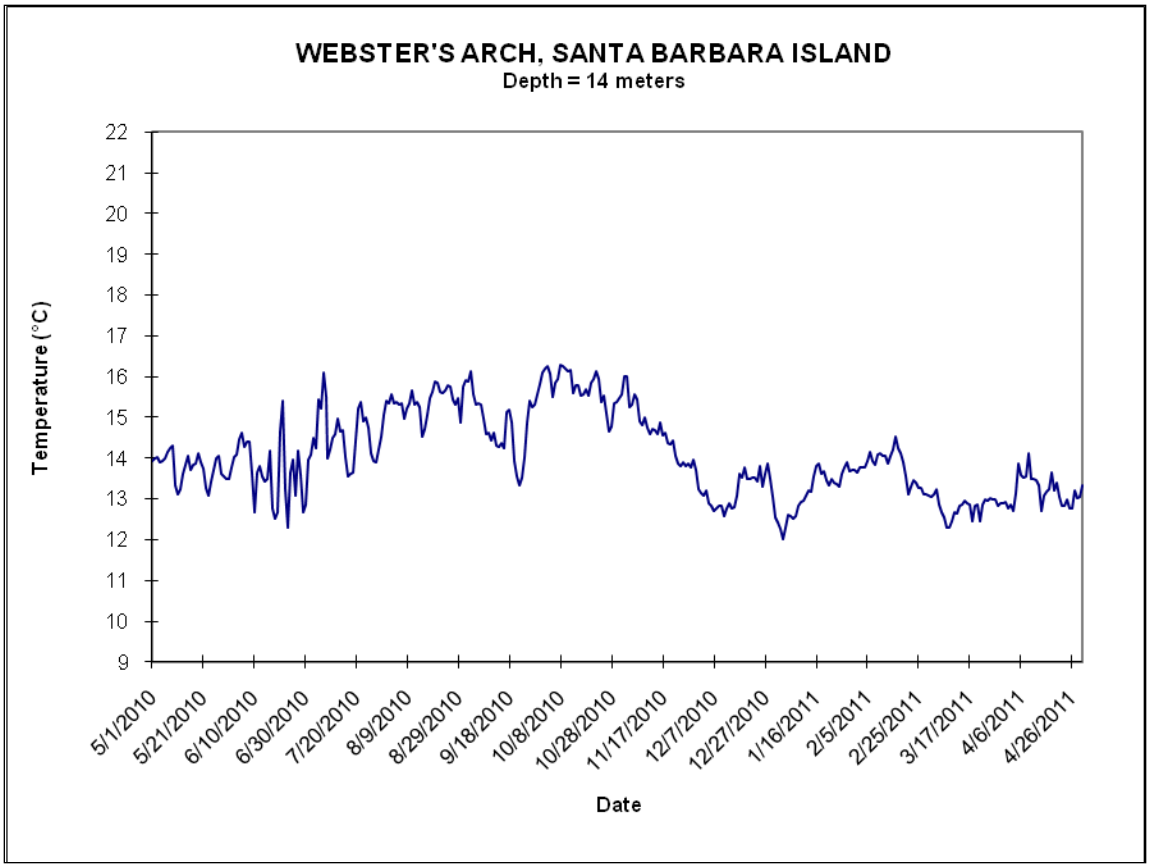

PEDRO REEF, SANTA CRUZ ISLAND
Depth = 9 meters
Temperature (°C)
22
21
20
19
18
17
16
15
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13
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9
5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

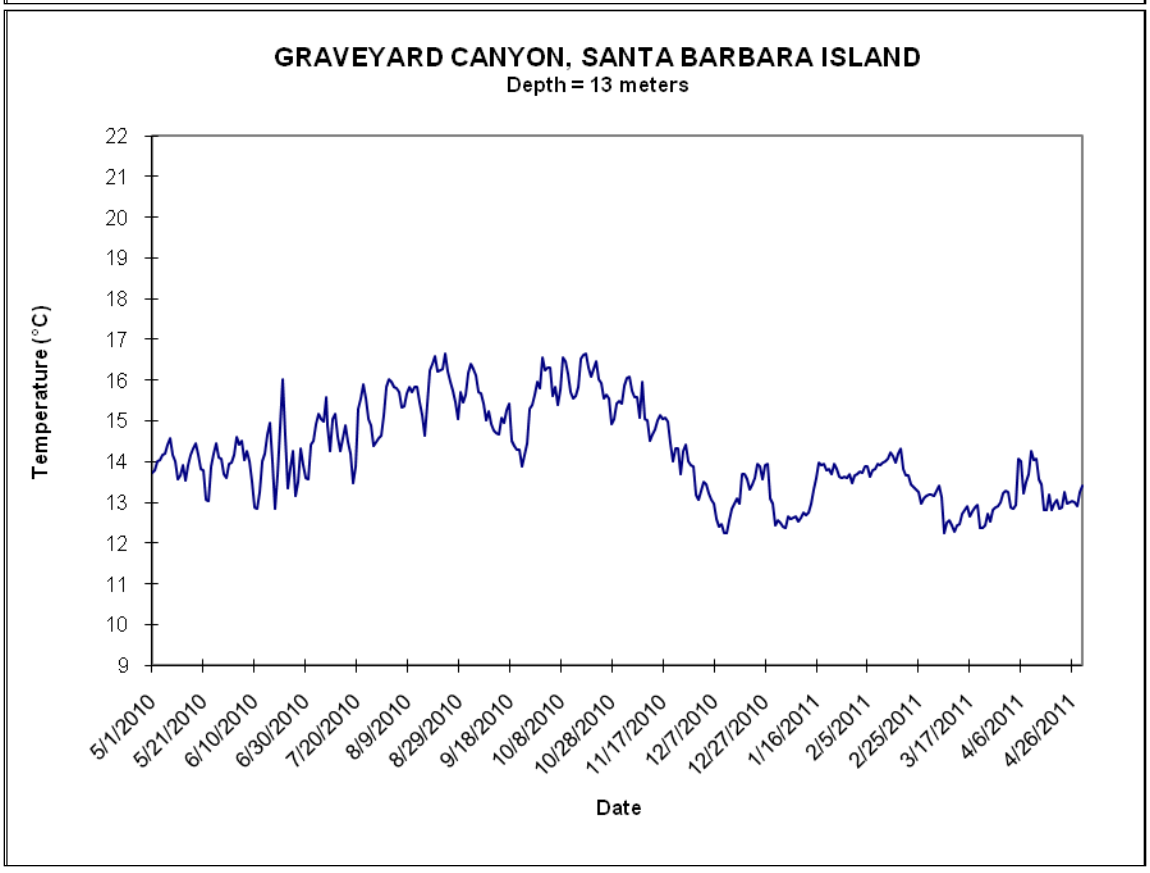

KEYHOLE, ANACAPA ISLAND
Depth = 11 meters
Temperature (°C)
22
21
20
19
18
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16
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12
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9
5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

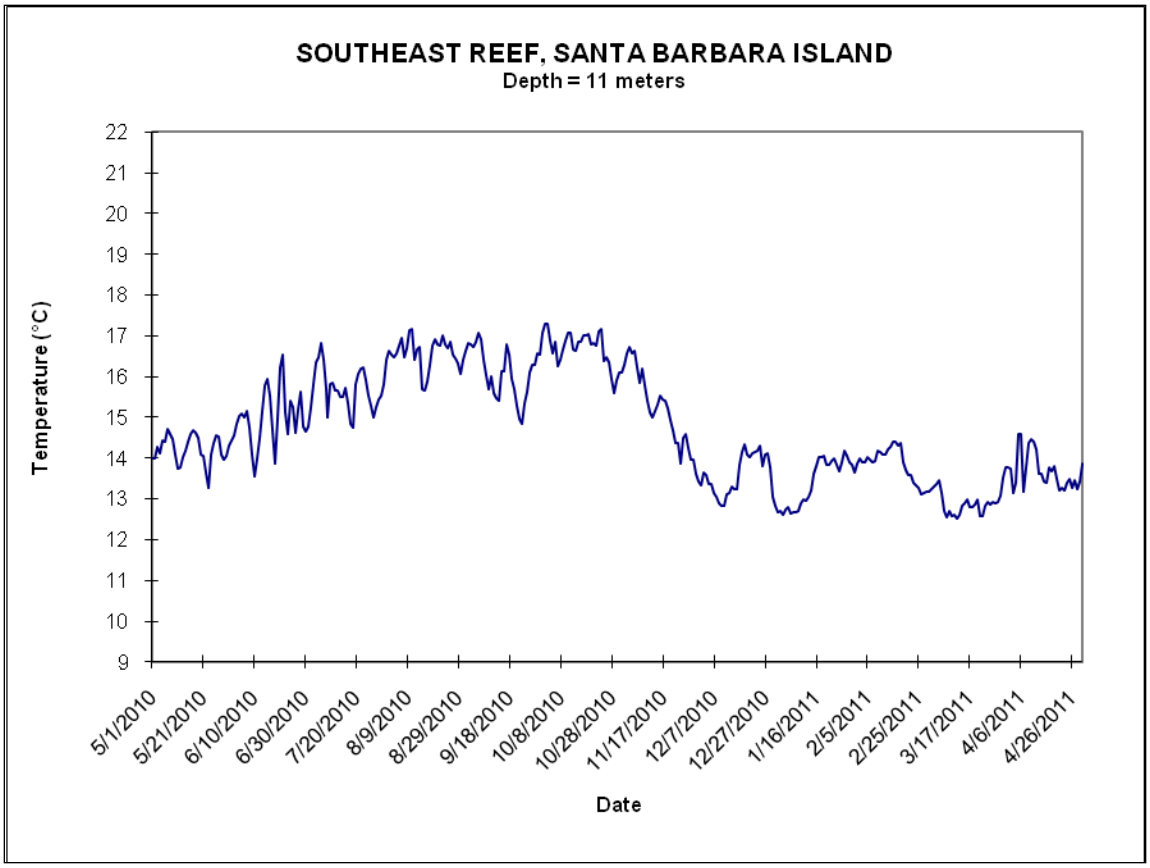

EAST FISH CAMP, ANACAPA ISLAND
Depth = 11 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
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12
11
10
9
5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date


BLACK SEA BASS REEF, ANACAPA ISLAND
Depth = 17 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
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9
5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date


LIGHTHOUSE, ANACAPA ISLAND
Depth = 8 meters
Temperature (°C)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date


WEBSTER'S ARCH, SANTA BARBARA ISLAND
Depth = 14 meters
Temperature (°C)
22
21
20
19
18
17
16
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14
13
12
11
10
9
5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date


GRAVEYARD CANYON, SANTA BARBARA ISLAND
Depth = 13 meters
Temperature (°C)
22
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5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date


SOUTHEAST REEF, SANTA BARBARA ISLAND
Depth = 11 meters
Temperature (°C)
22
21
20
19
18
17
16
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12
11
10
9
5/1/2010
5/21/2010
6/10/2010
6/30/2010
7/20/2010
8/9/2010
8/29/2010
9/18/2010
10/8/2010
10/28/2010
11/17/2010
12/7/2010
12/27/2010
1/16/2011
2/5/2011
2/25/2011
3/17/2011
4/6/2011
4/26/2011
Date

Appendix O. Protocol Modifications, Data Management, and Additional Projects Information

Protocol Changes

There were no changes made to the KFM protocols this year. However, there are a few changes that are being considered in the near future. For the *Macrocystis pyrifera* size frequency protocol, data are collected for holdfast diameter and the number of stipes greater than 1 m tall per plant. It is very easy for any observer to mix up the "holdfast diameter" and "stipe count" columns. To simplify this method, we may eliminate the holdfast diameter column since we already have 25 years of information on the relationship of these two measurements. This would not only reduce errors, but it would also speed up efficiency and simplify the protocol.

Corrections in the Database

There were no corrections made to the database in 2011. However, the KFMP database was restructured in order to standardize it with the rest of the NPS Inventory and Monitoring Network. The KFM database management handbook will be updated to reflect the changes.

Sampling Difficulties

All proposed data collection was completed this year.

Quantification of Observer Variability

We began a collaboration 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 for the following protocols: 1 m quadrats, 5 m quadrats, and band transects. Calibration data were collected at the following sites: Rodes Reef, Chickasaw, and Pelican Bay. Through a video that Jarrett made for the Science Fund Challenge he was able to raise $4,048 for the Channel Islands Foundation to assist with collection of this data.

Appendix P. KFM Program Data Usage for 2011

Data Requests

There were six formal data requests from outside NPS. All requests were fulfilled.

- Steve Katz from the Channel Islands National Marine Sanctuary requested all of the Santa Barbara Island temperature data.
- Laura Rodgers-Bennett from CDFG requested all of the abalone data.
- Peter Kalvass from CDFG requested all of the *Parastichopus parvimensis* data.
- Jarrett Byrnes at the National Center for Ecological Analysis and Synthesis was sent all of the KFM data including temperature.
- Matt Kay and doctoral student at UCSB requested all of the *Panulirus interruptus* density data.
- Dr. Milton Love at UCSB requested our fish siting information from the roving diver fish counts.

Presentations

The following two talks were presented at the 2011 Western Society of Naturalists Meeting:

Traiger, S.B.[*], Kushner, D.J., Sprague, J.L.
MULTIPLE APPROACHES TO ASSESSING THE EFFECTIVENESS OF MARINE RESERVES USING THE COMMERCIAL SEA CUCUMBER, *PARASTICHOPUS PARVIMENSIS*
Channel Islands National Park

The warty sea cucumber, *Parastichopus parvimensis*, has declined in some areas at the California Channel Islands since a dive fishery began in the 1990s. We evaluated the effectiveness of four reserves established in 2003 for *P. parvimensis* density. Annual *P. parvimensis* densities were collected during SCUBA surveys as part of Channel Islands National Park's long-term kelp forest monitoring program. We used one-way ANOVAs with Tukey post-hoc test and before-after, control impact (BACI) analyses to evaluate marine reserve effectiveness. The ANOVAs showed significantly higher density at three reserves. Before-after, control-impact (BACI) analysis could only be conducted for two reserves and showed significantly higher *P. parvimensis* density at one reserve. There were no increasing or decreasing trends at Santa Rosa Island, where fishing pressure for *P. parvimensis* is low. We examined recruitment data of *P. parvimensis* with Artificial Recruitment Modules; no discernable patterns were found. *Parastichopus parvimensis* is a model species of the importance of monitoring before MPAs and/or fisheries are established and the importance of long-term monitoring. Marine reserves are proving to be valuable management tools in maintaining fished populations of organisms such as *P. parvimensis*.

Caselle, J.E.[1*], Hamilton, S.L.[2], Readdie, M.[3], Kushner, D.[4]
HABITAT AND FISHING EXPLAIN GRADIENTS OF FISH DENSITY ACROSS THE BOUNDARIES OF FOUR MARINE RESERVES IN THE CHANNEL ISLANDS, CA
1 - Marine Science Institute, University of California Santa Barbara 2 - Moss Landing Marine Laboratories 3 - Landels-Hill Big Creek Reserve, University of California Santa Cruz 4 - Channel Islands National Park, National Park Service

Marine protected areas (MPAs) are frequently implemented as fisheries management tools. Previous studies of MPAs have demonstrated higher biomass, density, and size structure for many organisms inside closed areas relative to areas open to fishing. Most studies are limited to 'inside' vs. 'outside' comparisons. At four target reserves in the Channel Islands, CA, we assessed these parameters at multiple sites ranging from the center of the reserves to areas up to several kilometers away. Using SCUBA surveys of rocky reef fishes and habitat, we found that fish density and biomass tended to be greatest at the core of the reserves, and declined with distance from the core. These patterns were most evident for species that are the targets of fishing outside reserves. However, the shape of the decline across the reserve boundaries varied among the four reserves and the importance of habitat vs. fishing in creating the observed patterns also varied spatially. Interpreting abundance patterns across MPA boundaries has implications for calculating the magnitude of spillover, one important purported fisheries benefit of MPAs.

David Kushner presented a public Kelp Forest Monitoring lecure for the Sea to Shore Lecture series at CHIS.

The talk below was presented at the 4th International Barcode of Life Conference in Adelaide Australia on November 30, 2011:

Barcoding the kelp forests of California's Channel Islands National Park: Serving the compound interests of MARINE RESEARCH, resource management, and RESEARCH-BASED science education

Ralph Imondi[1], David Kushner[2], Daniel Distel[3], Timery Deboer[3], Robert Hanner[4], and Linda Santschi[1]

Coastal Marine Biolabs[1], Ventura, CA, Channel Islands National Park[2], Ventura, CA, Ocean Genome Legacy[3], Ipswich, MA, University of Guelph, ON[4]

http://www.slideshare.net/CBOLAdelaide2011/ralph-imondi-opening-plenary

Situated at the boundary of the Oregonian and Californian provinces, the Channel Islands National Park contains marine ecosystems of extraordinary complexity and biological diversity. Warm waters originating from the south and surrounding the park's easternmost islands support temperate biota characteristic of the Californian province, whereas cooler waters originating from the north and surrounding the park's westernmost islands support species assemblages that characterize the Oregonian province. An unusual assemblage of plants and animals representing both temperate and boreal biogeographic provinces occurs within a broad and variable transition zone around Santa Cruz Island. The composition of marine communities on the northern and southern coasts of each park island is also influenced by prevailing winds and bathymetry. Nutrient upwelling from deep-water basins to the south and west of the park produce trophic cascades and temperature regimes on the sheltered southern coasts that differ considerably from those along the shallow and windy northern coasts. Future advances in environmental barcoding hold significant promise for complementing and improving efforts to detect short- and long-term impacts on the park's complex ecosystems that arise from natural and anthropogenic variables. We therefore launched a student-centered collaborative project to generate a DNA archive and reference barcode library of select kelp forest fish and invertebrate taxa with high commercial

value and/or ecological importance. A complete DNA inventory for fish and invertebrate indicator species monitored through the park's long-standing kelp forest monitoring program was recently assembled and archived in the Ocean Genome Resource. This project marks the first comprehensive effort to create a permanent DNA record of species diversity in a U.S. National Park and represents an integrated collaboration among marine biorepositories, conservation biologists, resource management and enforcement personnel, and scientists committed to addressing science education reform agenda through student engagement in interdisciplinary research and biodiversity genomics.

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
Ventura, CA 93001

The Department of the Interior protects and manages the nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

NPS 159/120558, May 2013

National Park Service
U.S. Department of the Interior

Natural Resource Stewardship and Science
1201 Oakridge Drive, Suite 150
Fort Collins, CO 80525

www.nature.nps.gov