

OPTIONS PAPER
SEA TROUT MANAGEMENT

Prepared by:
Commission Staff
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INTRODUCTION:

The Commission has already made a series of policy decisions on sea trout. However, due to the press of other business, the staff has been unable to draft rules on these policies, as of September 1985.

The Commission had decided on a series of measures including size limits, bag limits, and minimum mesh sizes, but had not completed a full management package. This options paper reviews those decisions, the related issues, biological and economic information, and provides alternatives for consideration in order to complete policy decision on this species.

NOTE:

References to Tables and Figures refer to same found in the paper; Spotted Seatrout, Parameter Basis for GXPOPS model and Trends in the Fishery. This paper follows the Options Paper in the Agenda Pack.

Appendix 1 lists local rules which affect spotted seatrout. There is currently a statewide minimum size limit of 12" fork length. The size limit does not apply in Gulf and Franklin counties.

ISSUES

Issue #1 Biological Impacts:

Sea Trout:

For sea trout, the biological assessment indicates that recruitment overfishing is not likely to be a problem at present, but that the potential for recruitment overfishing exists. This potential could be greatly reduced by increasing the minimum size limit. It also showed that yield might be increased by increasing the size limit. Estimated increases in yield per recruit vary from 1% to 16% depending on sex and area of the state. This increase in yield per recruit and total catch in pounds would be accomplished at the cost of a decrease in catch in number by 16% to 23%.

The estimates above assume that all released fish survive and that natural mortality is relatively low. However, some sea trout will die as a result of being caught and released. Many fishermen believe that this type of mortality will be severe. The scientific information is not conclusive. Studies by the Texas Parks and Wildlife Department indicated wide fluctuation in survival rates. In experiments where fish were caught by hook and line and held in cages for a week, the mortality of fish handled like recreational fishermen would be expected to handle them was only 5% greater in the winter and 17.3% greater in the summer than the mortality of very carefully treated, control fish. However, average mortality of control fish varied from 56.5% to 14.3%. Some, possibly all, mortality in the control fish would not have occurred if the fish had been immediately released, but the amount is not known. Texas Parks and Wildlife biologists feel that these studies and other data from tagging studies indicated high survival rates (Gary Matlock, personal communication). A study in Louisiana found 70% survival over a two month period for fish treated relatively well and released immediately into ponds. This probably overestimates hooking mortality because of the length of time the fish were held.

If survival rates in Florida are similar to the above examples, a size limit will probably not increase yield per recruit and might decrease it, as well as cause a much greater decrease in the number of fish retained. It would still result in an increase in spawning biomass, average size of the fish caught, and the number of fish available to be caught, even though many of them would have to be released.

If recruitment overfishing is not currently a problem for sea trout, it is unlikely that any restriction on fishing will increase the total number of fish available for harvest. The stock assessment indicates that only minimal gains in abundance (1% to 16%) are possible from increasing the minimum size and

then only if release mortality can be reduced to a minimum. Therefore, catch rates and fishing success can only be increased at the cost of a roughly equal or greater reduction in catch at some other time or by some other group of fishermen. Again, any such restriction must be done in such a way as to minimize release mortality, otherwise mortality of fish released will reduce or eliminate any benefit of fishery regulation.

Issue #2 Allocation of the Resource:

Allocation of the resource will be a very controversial issue, with many recreational fishermen arguing that economics and scarcity of the resource demand game fish status.

The present distribution of catch between users of spotted sea trout is difficult to determine accurately, due to substantial fluctuations in annual catch by each user group. For the period 1979-1985, the recreational/commercial ratio of catch for sea trout was 73%/27% (Table 1). (Note minor change in percentages given in earlier options papers due to updated statistics.) There was a significant degree of double counting due to the sale of fish by recreational fishermen. An estimated 25% of the commercial trout landings were recreationally caught (preliminary data based on a DNR survey of major wholesalers). Adjustment of landings data by these percentages would decrease total catch of trout by 604,000 pounds, and change the recreational/commercial ratio to 80%/20%.

ECONOMICS:

Changes in economic value due to allocation of fish from commercial to recreational fishermen are difficult to calculate, given existing data. Many assumptions are necessary, especially in recreational value, some of which cannot be adequately tested. The staff has approached this problem by calculating the loss of commercial revenues, including economic values up through the retail sales level, and subtracting that value from the estimated increase in economic value from increased recreational fishing participation, also at the retail level. Therefore, a net economic impact is estimated.

There are so many uncertainties in estimating recreational value and the change in recreational value resulting from increased availability of fish, that no precise estimate is possible. Instead, a possible range of economic value is calculated based on conservative and liberal assumptions and data. The primary factors affecting the estimate are the estimated number of recreational fishermen, total recreational catch, and how much impact on participation is expected from increasing the availability of fish.

Allocation of sea trout entirely to recreational fishermen will result in a loss of commercial value, estimated at \$8.9 million at the retail level. If the average recreational catch

at present is assumed to be on the low end of the available estimates, the estimated net economic impact of allocation to recreational fishermen varies from -\$2.3 million to +\$40.5 million. If the average recreational catch at present is assumed to be on the high end of the available estimates, the estimated net economic impact varies from -\$3.3 million to +\$37.7 million.

The lower figures within each range are based on studies showing little impact on recreational participation as a result of increasing fishing success. The available studies were for short time periods, no longer than one year. No long-term studies have been conducted that are available to staff. Therefore, the low end of each range represents a reasonable estimate of the short-term impact.

The larger number within each range represents the most liberal assumption on the impact of increasing availability to recreational fishermen. It assumes that participation will rise in direct proportion to the increasing availability of the fish. This represents the maximum potential long-term gain and should be considered optimistic.

Some information in how recreational fisheries in Florida are likely to react to changes in abundance is available, but is not completely consistent. The decline of king mackerel resulted in a large decline in recreational fishing for kings along the central West Coast. Some, but not nearly all, of this effort shifted to other species. Analysis of catch records from Everglades National Park shows little, if any, statistical relation between fishing success for redfish and the number of recreational trips. However, the Park is an isolated area and may not be typical of Florida fisheries as a whole. Biologists with the Florida Game and Fresh Water Fish Commission report that fishing effort in some lakes changes greatly in response to increasing or decreasing fishing success. At the local level, this response can be very fast. In Lake Okeechobee, fishing effort for crappie increases and decreases in close correlation to fishing success and within the same year. This is primarily tourist fishing effort. In Lake Tohopakaliga, fishing effort for bass by tourists is reported to follow abundance trends, but with a delay of about a year. This delay appears to be related to the time needed for the news of good fishing to spread.

The above economic calculations represent a first cut at estimating net economic value of an allocation from one user group to the other. This technique has never been tried before and the results should be considered preliminary.

In summary, it appears likely that the short-term net economic impacts (1-3 years) of allocation to recreational fishermen will be negative, on the order of \$2 to \$3 million annually. For the long-term, it appears likely that the net economic benefit will be positive, but not so large as the high end estimate.

An allocation decision should be backed by demonstration that (a) it is fair and equitable to all people of the state; (b) it does not contradict the standard which prohibits one "entity" from acquiring an excessive share; and (c) it is based on the best information available. This rule will be greatly strengthened if it can be shown that continuing both commercial and recreational exploitation is not consistent with "reasonable means and quantities of annual harvest consistent with maximum practicable sustainable stock abundance." As an example, where MFC rules have completely prohibited harvest, it has been shown that it was not possible to allow even a small harvest and still insure protection of the resource. In the case of redbfish, the Commission concluded that allowing commercial harvest would create such large enforcement problems, especially for the bag limit, that it was not consistent with the standard, especially in light of the very small catch of redbfish.

The basis for this kind of allocation must be optimum benefits for all people of the state. Even though the rule may allocate away from one group and give to another, net impact on people as a whole must be positive. Economics is one valid measure of overall benefit to the state. In this case, overall, net economic impact appears to be positive, but it is not possible to be specific. The available economic data cannot provide a definite answer.

A second and unique benefit is aesthetics. In the long run, it is assumed that reallocation will increase the recreational catch, increase the number of fishermen and the quality of their fishing experience, thereby increasing the aesthetic value of the resource.

The fairness standard must be interpreted in light of optimum benefit. Allocation clearly discriminates against the commercial fishermen and non-fishing consumers in favor of recreational fishermen as both catchers and consumers of the resource. It could be argued that, because the commercial sea trout harvest is a small percent (2%) of commercial landings, exclusion of commercial fishermen from sea trout does not place a significant unfair burden on the commercial industry, even though the impact on those commercial fishermen who substantially depend on sea trout will be significant. For redbfish, it was argued that the rule applies equally to all citizens, that all have the same opportunity to harvest redbfish under the same conditions.

In some cases, it may be preferable to place a greater restriction on one group if that promotes the overall good. For redbfish, where only a small portion of the total catch is commercial, elimination of that catch allowed achievement of the Commission's biological goal with less restriction on the primary, recreational user. This would also be the case for trout. Because the commercial fishery catches a larger fraction of the total, its elimination would reduce the need for recreational limits even more than in the case of redbfish. By

the same token, prohibiting sale of sea trout will have a greater impact on commercial fishermen than redbfish.

Issue #3 Mechanisms for Reducing Fishing Effort:

There appear to be two possible mechanisms for reducing recreational catch, bag limits and season closures. Bag limits are often well accepted and have been recommended by many sports fishermen. The effect of bag limits for trout can be significant if the limits are low. Expected reductions in total harvest for East/West Coast recreational fisheries are: 12 inches, 14%/19%; 13 inches, 34%/40%; 14 inches, 51%/56%; 15 inches 64%/71% (Appendix 2).

Effective mechanisms for reducing the commercial fishing effort are more difficult to determine. Possible mechanisms include season closures, gear prohibitions, gear regulations (net mesh size restrictions), area closures, and quotas. Gear restrictions are possible, but will be complicated by the fact that many fishermen use many different sizes of net for different species. Area closures to close popular fishing "holes" where fish collect in winter would be difficult to implement. It would have to be done on a county by county basis and the areas carefully selected. Any such selection would thread a very thin line between either not being effective or totally excluding the commercial fishermen from the majority of productive grounds. Quotas often are appropriate in commercial fisheries and might be a workable option for trout. Quotas are simple and easy to understand and explain. However, in the case of trout, there are so many possible outlets for sale, many of whom do not report catch statistics, that enforcing a quota would be very difficult. Season closures appear to be a possible mechanism which could be workable. The primary landings are in November, December, and January, with summer being the slowest period (Appendix 3). Therefore, for a given amount of catch reduction, the season would have to be closed longer in the summer than in the winter. Enforcement of a season closure would be difficult, but less so than a quota, particularly if the season closure for commercial fishing extends for a large portion of the year.

The Commission has yet to deal with the question of regional management. DNR staff will be completing the latest study on sea trout by mid-summer. DNR will present a review of the status of this study and the prospects of developing sufficient biological information to formulate regional management strategies at the January meeting.

GEOGRAPHIC MANAGEMENT

- I. Develop a single management plan for statewide application: size limits, bag limits, closed seasons, etc.
- II. Tailor management to coincide with regional differences in growth, mortality (natural and fishing), reproductive biology, or other biological parameters.

Points to Consider:

- a. Consistent, statewide regulations may be less confusing and generally more acceptable to the public as a whole.
- b. The available scientific information does indicate the possibility of regional variation in growth and possibly mortality parameters, i.e.: East Coast, Southwest Coast, Panhandle. Ongoing DNR studies may give a clearer picture of the existence and/or extent of these differences.
- c. Given adequate data, regional management which reflects real variation in biological parameters would be the most efficient and effective form of management. Without adequate data, regional management measures could be ineffective, or even counterproductive.

Alternative Management Strategies:

- I. Allocate the resource entirely or primarily to recreational users, while increasing abundance to improve fishing success and protect against recruitment overfishing.
- II. Maintain status quo while developing a biological monitoring system to accurately determine the condition of the resource.
- III. Maintain access to the resource for all user groups while limiting catch and/or effort to improve catch per unit effort and fishing success.
- IV. Restrict catches to increase spawning stock in order to insure that no possibility of recruitment overfishing can occur.
- V. Maintain access to the resource for all user groups while limiting catch and/or effort to improve catch per unit effort, increase abundance and insure that recruitment overfishing does not occur. (Chosen Alternative)

Points to Consider:

- a. The concept of Strategy Alternative V was adopted by the Commission in September 1985. The wording was developed by staff. It incorporates concerns about recruitment overfishing, addressed in Alternative IV into Alternative III, which mandates maintaining a mixed commercial and recreational fishery at a high level of stock abundance.

This strategy lays the basis for a tight regulatory regime which could include bag limits, season closures, gear restrictions and size limits as strict or equal to or greater than what has been considered in the past. As with Alternative III, a certain amount of allocation to recreational fishermen is not inconsistent, so long as a source of commercial harvest is available.

- b. Alternative Strategy I presupposes a determination that the resource is more valuable to the state as a recreational fishery. (See discussion on economic value and Commission standards in Issue #2.)
- c. Alternative Strategy II would be consistent with an argument that (1) the stock assessment indicates little or no need to limit catch in order to protect or increase recruitment; (2) release mortality is likely to eliminate any gains in yield per recruit from restricting size at harvest and greatly reduce any increase in abundance resulting from reduced fishing effort; (3) the available information does not provide sufficient rationale to justify allocating the resource to recreational fishermen; and (4) the available biological information is not sufficient to properly manage the resource. This alternative inherently contains the assumption that more action may be needed in the future as better data becomes available.
- d. Alternative Strategy III assumes maintenance of access to the resource by commercial fishermen, recreational fishermen, and consumers. Some degree of allocation would be possible within this alternative. For example, in areas of greatest recreational use and demand, most or all of the fish could be allocated to recreational users, provided a source of supply to consumers was readily available somewhere else in the state.

Alternative III is consistent with an argument that the state would benefit by increasing the catch rate of both recreational and commercial fishermen, at the cost of restricting catch by an equal or greater amount at some other time. For example, a season closure may reduce catch at one time in order to increase catch

rate during the rest of the year, with the total catch remaining almost constant. As another example, a bag limit or higher size limit results in many fish being caught, but returned to the water, increasing abundance and recreational catch rate even though many fish will have to be released and the total number of fish retained will actually decrease.

- e. Alternative Strategy IV assumes that recruitment overfishing could be a problem, even though we do not have enough data to demonstrate it. This alternative establishes a basis for very conservative management decisions and tight restrictions on catch.

MANAGEMENT OPTIONS

I. SIZE LIMITS:

Alternative 1: (Chosen Alternative)

- a. 14 inch minimum size limit south and east of Bowlegs Point in Dixie County.
- b. 12 inch minimum size limit in the rest of the state.

Alternative 2: 14 inch minimum size limit statewide.

Points to Consider:

- a. See sections on Issues and minimizing release mortality for information on the interaction of size limit, release mortality, yield and abundance.
- b. Alternative 1 was chosen on the basis of public testimony that reported fish in the Panhandle were naturally smaller than in the rest of the state. Therefore, a smaller size limit is appropriate and would have a roughly equivalent effect on yield and abundance. Also, since Franklin and Gulf counties have no size limits, it was argued that a 12 inch limit was an appropriate first step. Alabama and Mississippi have 14 inch minimum size limits for sea trout.
- c. Alternative 2 would be consistent with the Commission's previous decision on redfish.

II. Minimizing Release Mortality of Sea Trout:

Management of alternatives in this section assume that the Commission continues to support the proposed 14 inch size limit and/or extend that size limit to the Panhandle.

Alternative 1:

- a. Prohibit use of treble hooks with natural bait; and
- b. Prohibit harvest of sea trout with gill nets of less than 3 inch stretched mesh until July 1, 1988. If, by that date, no studies of mesh size selectivity have been done, harvest of sea trout with gill nets will be prohibited. (Chosen Alternative)

Alternative 2:

- a. Prohibit use of treble hooks with natural bait; and
- b. Prohibit harvest of sea trout with gill nets until size selectivity and release mortality studies are completed.

Points to Consider:

- a. Sea trout are very delicate fish which may have a high mortality after being caught and released. Scientific studies on the subject are conflicting, some showing high mortality, some low. Public testimony indicates high mortality. (See Issues Section.)
- b. Alternatives 1(a), 2(a) and 2(b) encourage an active study of mesh size selectivity and release mortality.
- c. Prohibiting the harvest of trout with gill nets will have a much greater impact on commercial fishermen and consumers than was the case for redfish. Gill nets account for 30% of the trout commercial harvest, 40% after recreational sales are removed from the total (as compared to 21% and 24% respectively for redfish).
- d. Alternatives 1 and 2 will create a substantial, but unquantified waste of sea trout, caught as a bycatch in gill nets being used to harvest other species, such as mullet. Data from the DNR trip ticket system indicates that such bycatches are a significant portion of the catch. For the period January - March 1985, 25% of individual sales of sea trout were 6 pounds of fish or less and 34% of trout landings came from sales in which sea trout averaged less than 10% of the total sale. A possible solution is to allow a percentage bycatch in nets set for other species.
- e. Prohibition on the use of treble hooks has received favorable comment from some sports writers and organized fishing groups. How the average fishermen would react is unknown.
- f. Enforcement of a prohibition on treble hooks will be nearly impossible unless use is prohibited entirely for all species. Otherwise, an officer will have to observe the fishermen catching the fish in order to make a case.
- g. The July 1, 1988 deadline was adopted at a time when it was possible to get such studies funded in the 1986 Legislature. This now appears unlikely. Even if funded in the 1988 legislative session, it will be difficult to complete such studies soon enough to

consider and modify the rule, if needed, prior to July 1, 1988. The Commission may wish to consider changing the deadline accordingly.

III. Alternative Management Packages Dealing with Allocation and Reducing Effort to Increase Abundance and Spawning Biomass:

- Alternative 1: Implement increased size limits with no further action until better data is available.
- Alternative 2: Commercial season closure: May - June. Recreational bag limit: 10/person/day for the entire year.
- Alternative 3: Commercial season closure: January - February. Recreational bag limit: 10/person/day for the entire year.
- Alternative 4: Season closure to all fishing: May - June.
- Alternative 5: Prohibit sale: August - October. Bag limit: 5/person/day during August, September and October for all fishermen.
- Alternative 6: Prohibit sale: August - October. Bag limit: 3/person/day for August - October.
- Alternative 7: Season closure to all fishing: July - October.
- Alternative 8: Season closure to all fishing: May - June. Commercial weekend closure. Recreational bag limit: 10/person/day for the entire year.
- Alternative 9: Recreational bag limit: 10/person/day for the entire year.
- Alternative 10: Season closure to all fishing: January - February.
- Alternative 11: Recreational bag limit: 10/person/day for the entire year. Prohibit commercial fishing.
- Alternative 12: Recreational bag limit: 12/person/day for the entire year. Prohibit gill net harvest of sea trout after July 1, 1988. (Chosen Alternative)

Points to Consider:

- a. The various alternatives above more or less correspond with the several management strategy alternatives discussed previously. Alternatives 3 and 7 through 12 are consistent with Alternative Strategy V, chosen by the Commission. Alternative 1 corresponds to Management Strategy II. Alternative 11 corresponds with Management Strategy I. Alternative 7, 8 and 11 are consistent with Alternative Strategy IV.
- b. The impact of these alternatives on abundance and spawning biomass are the primary biological factors which should be considered. The table on page 16 provides numerical estimates of these factors. Percent change in abundance provides a reasonable estimate of improvement in fishing success (catch per unit effort). Percent spawning biomass remaining means the fraction remaining compared to what would be there if no fishing were occurring.

It is not known what level of adult population is needed to maintain sea trout recruitment. In some other species, including cod and some of the herrings, 10% to 20% of the original spawners appear to be sufficient to provide a normal level of recruitment. One study estimated that haddock required 20% to 40% of the original biomass. Other species, like shrimp, do not appear to need any measurable population of adults to supply adequate recruitment. The sea trout is likely to be more similar to cod or haddock than to shrimp. Therefore, a conservative interpretation of the chosen management strategy would require spawning biomass at 20% or above.

- c. All alternatives assume a 14 inch minimum size limit. However, the chosen size limit alternative allows a 12 inch limit in the Panhandle. In that area of the Panhandle where the 12 inch limit applies today, all alternatives will have substantially less impact on abundance and spawning biomass. For example, the effect of alternative 12 on abundance drops from +49% to +37%. Spawning biomass drops from 20% to 18%.
- d. All alternatives appear to have about the same impact on total pounds landed because losses from release mortality cancel gains which should have resulted from the increase in size limit. However, release mortality from bag limits and other effort reduction measures has not been estimated. If large, total yield could be substantially reduced in Alternatives 2 - 12.

- e. Calculations of impact of the various alternatives on effort, abundance and spawning biomass should be used with caution. The data used in this analysis is weak, making it difficult to know if the actual biological condition of the resource is better or worse than the analysis indicates. If release mortality is high or enforcement is poor, much of the estimated benefits will not occur. There are other assumptions built into the calculations which may not be completely met.
- f. In Alternatives 2 and 4 through 6, the impacts on abundance are similar, +37% - +41%, and should result in a moderate increase in real abundance. However, the measures may have substantially different social economic impacts.
- g. Alternatives 3 and 7 through 12 have substantially greater biological benefits, with estimated abundance increases of 46% to 85% and an increase in the percentage of spawning biomass of at least 20% of original amount.

For Alternative 12, which includes all measures adopted to date, it is assumed that the gill net prohibition will be permanent, otherwise, the effect on effort and abundance will be less. Making the gill net prohibition permanent would substantially change the rationale under which it was adopted.

- h. Recreational fishermen may object to Alternative 12 because it puts a bag limit on them immediately, but does not restrict commercial fishing until 1988.
- i. An analysis of these and other alternatives will be strengthened by the information generated in the current DNR sea trout studies. Be advised that data generated by the study may substantially alter impacts predicted in this paper.

IMPACT OF ALTERNATIVES ON ABUNDANCE AND YIELD

Percent Fishing Effort Reduction:

	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Due to 14" size limit:	16%	16%	16%	16%	16%	16%
Due to other measures:	0%	11%	13%	11%	8%	10%
Change in abundance:	22%	42%	46%	41%	37%	41%
Percent of spawning biomass remaining:	16%	19%	20%	19%	18%	19%

Fishing Effort Reduction:

	Alt. 7	Alt. 8	Alt. 9	Alt. 10	Alt. 11	Alt. 12
Due to 14" size limit:	16%	16%	16%	16%	16%	16%
Due to other measures:	24%	24%	17%	18%	27%	14%*
Change in abundance:	75%	75%	57%	59%	+85%	+49%*
Percent of spawning biomass remaining:	24%	24%	21%	21%	25%	20%*

* Effective after July 1, 1988.

APPENDIX 1

Local Laws:

There are three local laws which deal specifically with sea trout. Depending on what action is taken by the MFC, some or all will have to be repealed. If repeal is necessary, a hearing will have to be held in each county affected. Below is a list of such local laws.

1. Ch. 22458, SPECIAL ACTS 1943 - St. Johns

Prohibits the taking of saltwater trout from the waters of St. Johns County between June 15 and August 15 of each year.

2. Ch. 65-1983, SPECIAL ACTS 1965 - Okaloosa

Bag limit of 15 spotted sea trout or weakfish per day, minimum size limit of 12 inches, off-the-water "transportation" limit of 45 spotted sea trout, and prohibition of sale, all applicable in Okaloosa County.

3. Ch. 65-905, SPECIAL ACTS 1965, as amended by Ch. 81-403, SPECIAL ACTS 1981

State law on size and bag limits for spotted sea trout shall not apply in Gulf and Franklin counties.

APPENDIX 2

Table A

Percent of Total Recreational Catch of Sea Trout* Caught In
Excess of Possible Bag Limits:

Bag Limit	East Coast	West Coast	Statewide
3	35.0%	43.3%	41.3%
5	20.1%	29.7%	27.4%
7	13.5%	21.8%	19.8%
10	7.9%	14.7%	13.0%
12	5.7%	10.6%	9.4%
15	3.3%	7.7%	6.5%

* Source: National Marine Fisheries Service Recreational
Fishery Surveys, Combined Years: 1979, 1980,
1983, and 1984.

Table B

Sea Trout: Percent of Present Catch Smaller Than Given Size:

	<u>COMMERCIAL</u>		<u>RECREATIONAL</u>	
	East Coast (Indian River)	West Coast (Tampa Bay)	East Coast	West Coast
<u>Size:</u>				
12"	NOT AVAILABLE		14%	19%
13"	NOT AVAILABLE		34%	40%
14"	NOT AVAILABLE		51%	56%
15"	NOT AVAILABLE		64%	71%

Source: National Marine Fisheries Service Recreational
Fishing Survey 1979, 1980, 1983, 1984 and DNR
Sampling Commercial Catch

APPENDIX 3

Sea Trout Commercial Landings* in Florida Monthly Average 1973 - 1982

	<u>Pounds Landed</u>	<u>Percent of Annual Landings</u>
JANUARY	329,582	12.5%
FEBRUARY	231,261	8.8%
MARCH	186,941	7.1%
APRIL	165,629	6.3%
MAY	179,258	6.8%
JUNE	153,534	5.8%
JULY	161,951	6.2%
AUGUST	173,068	6.6%
SEPTEMBER	190,883	7.3%
OCTOBER	225,064	8.5%
NOVEMBER	296,903	11.2%
DECEMBER	342,392	13.0%
ANNUAL	2,636,466	

* Source: National Marine Fisheries Service Statistics

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