

9.0 OTHER APPLICABLE LAWS AND REQUIREMENTS

9.1 FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS)

A Final Environmental Impact Statement (FEIS) was prepared and is included in the Shark FMP (Appendix I). Section 9 provides additional insights on environmental impacts, particularly on the human environment, and is important to understanding the effects of the selected actions.

9.2 VESSEL SAFETY

Under provisions of Public Law 99-659, the Magnuson Act was amended to require that vessel safety considerations be evaluated in the prosecution of fishing as provided for in a FMP. After consultation with the Coast Guard, NMFS concluded that, with respect to the shark fishery, no vessel will be forced into fishing during weather conditions that are deemed unsafe. Accordingly, no adjustments for access to the fishery are provided. Since no adjustment is necessary, there will be no adverse effects on the conservation of other fisheries or discrimination among participants in the shark fishery.

9.3 REGULATORY IMPACT REVIEW

9.3.1 INTRODUCTION

Executive Order 12291, "Federal Regulation," requires a Regulatory Impact Review (RIR) for all regulatory actions that are of public interest. The RIR: (1) provides a comprehensive review of the level and incidence of impacts associated with a proposed or final regulatory action; (2) provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve the problem; and (3) ensures that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost-effective way.

The RIR also serves as the basis for determining whether any proposed regulations are major, under criteria provided in E.O. 12291, and whether the proposed regulations will have a significant economic impact on a substantial number of small entities, in compliance with the Regulatory Flexibility Act of 1980 (RFA). The primary purpose of the RFA is to relieve small businesses, small organizations, and small governmental jurisdictions (collectively termed "small entities") of burdensome regulatory and record-keeping requirements. The RFA requires that if regulatory and record-keeping requirements significantly affect a substantial number of small entities, then the head of the regulatory agency proposing those regulations

must prepare a Regulatory Flexibility Analysis that is published with the regulations and reviewed by the Small Business Administration.

9.3.2 SUMMARY OF PROBLEMS IN THE FISHERY

Problems in the fishery are discussed in detail in Section 5 and are summarized as follows:

1. Overfishing of the shark populations in the Western North Atlantic, including U.S. waters.
2. Lack of management for shark fisheries in the Western North Atlantic.
3. "Finning" practice; i.e., harvesting sharks for fins alone, with discard and physical waste of carcasses.
4. Significant bycatch mortality and physical waste.
5. Inadequate information base.
6. Limited public awareness and education.
7. Habitat loss and degradation.

9.3.3 SUMMARY OF MANAGEMENT OBJECTIVES

Management objectives are discussed in Section 6.0 and summarized as follows:

1. Prevent overfishing of shark resources.
2. Encourage management of shark stocks throughout their ranges.
3. Establish a shark resource data collection, research and monitoring program.
4. Increase the benefits derived from shark resources to the U.S. while reducing waste, consistent with the other objectives.

9.3.4 SUMMARY OF MANAGEMENT MEASURES

9.3.4.1 ACCEPTED MEASURES

1. Establish a fishing year from January 1 through December 31.
2. Establish calendar year commercial quotas (based on the Review Committee Report) for the large coastal and pelagic

species groups; each annual quota will be divided into two equal half-year quotas that will apply to the following two fishing periods--January 1 through June 30 and July 1 through December 31; and a recreational trip limit of four sharks per vessel for large coastal or pelagic species groups and a daily bag limit of five sharks per person for sharks in the small coastal species group. The quotas are 2,436 mt (dressed weight) for large coastal species group and 580 mt (dressed weight) for the pelagic species group. The quota for large coastal species group is expected to increase yearly as part of a stock rebuilding program until it reaches 3,184 mt (projected to occur in the year 1995) when the MSY of 3,800 mt is projected to be attained.

3. NMFS intends to implement commercial quotas for the large coastal and pelagic groups during the first several years of FMP implementation (1993 and 1994) in a manner somewhat different from that presented in the proposed FMP. First, the calendar year commercial quotas are divided into two equal halves that would apply respectively to two fishing periods (January 1 through June 30; July 1 through December 31). Second, specific commercial quotas for 1993 and 1994 are derived from the Review Committee's rebuilding schedule which provides total annual landings (recreational and commercial combined) for these years.
4. Release uninjured all sharks not taken as part of the commercial or recreational fishery.
5. Establish a framework procedure for adjusting commercial quotas, recreational bag limits, species size limits, management unit, fishing year, species groups, MSY's, and permitting and reporting requirements.
6. Prohibit finning by requiring that the ratio between wet fins/dressed carcass weight not exceed 5 percent.
7. Prohibit the sale by recreational fishermen of sharks or shark products caught in the EEZ.
8. Require annual commercial permits for fishermen who harvest and sell shark meat and fins.
9. Establish a permit eligibility requirement that the owner or operator (including charter vessel and headboat owners/operators who intend to sell their catch) must show proof that at least 50 percent of earned income has been derived from sale of the fish or fish products or charter vessel and headboat operations or at least \$20,000 from the sale of fish during one of three years preceding the permit request.

10. Require trip reports by permitted fishermen, and persons conducting shark tournaments; and require fishermen to provide information to NMFS under the Trip Interview Program.
11. Require NMFS observers on selected shark fishing vessels to document mortality of marine mammals and endangered species.

9.3.4.2 RESERVED MEASURES

1. Mako minimum size limit.

9.3.4.3 REJECTED MEASURES

1. No action.
2. Alternative management strategies for large coastal and pelagic species groups.
3. Prohibit finning, by emergency Secretarial action.
4. Allow harvest of male sharks only.
5. Allocate commercial quotas by geographic region.
6. Close shark nursery areas to fishing.
7. Establish size limits for sharks other than mako.
8. Alternative recreational bag limits.
9. Close fisheries that kill shark as bycatch.
10. Prohibit shark gillnets to protect marine mammals and endangered species.
11. Require annual permits for dealers; i.e., persons who purchase shark meat and fins from fishermen who fish in the EEZ.
12. Establish different earned income alternatives for holders of the annual commercial permits.

9.3.5 IMPACTS OF ACCEPTED MANAGEMENT MEASURES

9.3.5.1 CALENDAR YEAR COMMERCIAL FISHING QUOTAS

A 12-month fishing year should result in a fishing season of less than 12 months for sharks in the large coastal and pelagic species groups (assuming that the preferred quota options are

adopted). The shortened season will unavoidably increase fishing activity during the early part of the season, raise costs, and alter the historical supply and price situation. The short-term results will be lower profits for commercial fishermen and lower consumer surplus resulting from less product and less availability of fresh product during the closed season. While these effects will be fully expected, the magnitude of the effects, including a prediction on the length of the season, cannot be estimated in the absence of information about predicted landings if a quota was not in effect.

NMFS established calendar year commercial quotas for the large coastal and pelagic species groups and divided the quotas into two equal halves that would apply respectively to two fishing periods (January 1 through June 30; July 1 through December 31). This approach to applying the commercial quotas should spread the commercial fisheries in both southern and northern areas reasonably equally throughout the year, as well as addressing the Center's specific concerns. Also, this approach should not eliminate the historic peak months of the established southern fisheries (Table 9.1) while ensuring an open season and a new, unfished quota for the peak fishing months of a new, expanding fishery in the northeast.

By splitting the commercial quotas into two parts and opening the fisheries on January 1 to June 30 and on July 1 through December 31, historical allocations by region can be approached and the necessity to make and enforce regional allocations may be avoided.

A positive biological effect of this approach is that the semi-annual quota during January - June, is likely to be filled and the fishery closed before the start of shark pupping season, which runs from April to June. Sharks in inshore nursery grounds are thought to be particularly vulnerable to commercial and recreational fishing effort.

Although landings data were not available from the Caribbean prior to 1987, the fishery is rather small. Peak landings in 1990 were 18 mt. Since this fishery occurs throughout the year, the proposed fishing year should not affect the landings.

The conclusions reached about regional access to the fishery before the season closes depend on an assumption that total fishing effort remains fixed or declines and that the distribution of effort does not change. It is possible that effort may be increased in the Gulf of Mexico via more effort by Gulf vessels or by other vessels moving to the Gulf to ensure that they receive their "share" of the semi-annual quotas. If this occurs, then total fishing costs will increase and the historical distribution of catches will be altered in favor of

the Gulf of Mexico fishery. However, the benefits from avoiding the pupping season should still occur.

In summary, the calendar year semi-annual quotas fishing year are expected to have a small net benefit relative to the July 1-June 30 or a calendar year-single year quota if the amount and distribution of effort does not change.

9.3.5.2 COMMERCIAL QUOTAS - SMALL COASTAL, LARGE COASTAL AND PELAGIC SPECIES GROUPS AND RECREATIONAL BAG LIMITS

The FMP contains provisions to set commercial quotas for sharks in the large coastal and pelagic species groups. The quota for the large coastal species group is expected to have a major effect of reducing catches in the short run, while the quota for the pelagic species group may not result in a reduction in catches of that group of sharks.

The first objective of the FMP is to prevent overfishing of the shark resource. Table 9.2 (derived from Parrack, 1992) shows the expected commercial and recreational take of sharks for the period 1992-2002. In the absence of management, landings are projected to decline due to the overfished status of the shark resources. Table 9.2 also shows that the RIR analysis flows from a stock assessment and management strategy based on numbers of sharks being added and/or removed from the fishery.

The choice of a commercial quota for the large coastal species of sharks is based on two parts. First, the Committee points out the following:

- "1) 1991 landings are estimated to have been 0.370 million fish (4319 mt, Table 3), considerably less than the peak of 0.448 million in 1989 (5629 mt) and much more than the 1986 landing of 0.215 million fish (2057 mt). Commercial boats directing at sharks decreased from the peak in 1989 to 1991. The 1992 kill probably exceeded that of 1991. During 1992 there was a significant increase in fin prices, anticipation of a fishery closure, a displacement of boats from closed fisheries into the shark fleet, a higher than usual availability of fish during the spring, and an increase in dressed meat prices in the fall."
- ...
- "8) The effect of 1993 removals cannot be projected without 1992 landings. [The] 1992 landings will not be compiled until mid 1993 or latter, so for the reasons in 1) above, 1992 landings were assumed to be 10 percent more than that of 1991. Projecting the average of 1986-91 replacement rates, the 1993 stock size is 6 percent less than that of 1992. Projection of that stock size (Table 4) indicates a 1993 landed removal of 3520 mt at the $F(\text{rep}) = .2546$ fishing level."

Table 9.1

Percent of U.S. Shark Landings by Month by Area, 1984-1988

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
New England	0.04	0.02	0.01	0.02	0.08	0.33	0.56	0.60	0.58	0.41	0.23	0.12	3.01
Mid-Atlantic	0.18	0.18	0.12	0.19	0.32	0.46	0.59	0.52	0.54	0.48	0.31	0.35	4.26
So Atlantic	2.54	3.73	5.04	4.60	3.48	2.63	2.62	2.39	2.85	2.60	2.60	1.97	37.07
Gulf of Mex	3.53	3.22	5.10	5.10	6.39	5.46	5.77	5.19	4.12	4.87	3.37	3.57	55.67
Total U.S.	6.29	7.16	10.27	9.91	10.27	8.89	9.53	8.70	8.09	8.36	6.51	6.02	100.00

Source: New England & Mid-Atlantic - R. Schween, NMFS, Washington, D.C.
South Atlantic & Gulf of Mexico - G. Davenport, NMFS, SEC, Miami, Fla.

Second, NMFS set the commercial and recreational shares at the historical landings based on the annual average between 1986-1991 (Table 4.7) and on the bag limit analysis (table 4.8). Therefore, the commercial quota is equal to 84 percent of the total allowable catch.

The rebuilding process of the management regime is based on the recommendation of the Committee that calendar year 1993 landings for the large coastal species group should be reduced below the calendar year 1991 landings level of 4,319 mt dressed weight to a total allowable catch (TAC) level that allows rebuilding of the resource to begin.

The Committee Report establishes three options for the calendar year 1993 landings limit (recreational and commercial combined) for the large coastal species group that will allow rebuilding of the resource to begin. Each option provides different levels of economic and conservation benefits while shark population is rebuilding. Accordingly the commercial quota is adjusted upward each year until the MSY is reached.

In the FMP, the initial TAC is described as 2,900 mt but the tables accompanying this analysis show the initial TAC as 2,916 mt. The reason for the slight difference is that the projected quota for each year is rounded in the FMP, but the RIR analysis uses unrounded quotas derived from the stock assessment to avoid problems in making the calculations. The small differences do not affect the outcome because the rounding differences sum to approximately zero over the period of analysis used in the RIR. (A more thorough explanation of the concepts used in the stock assessment is in Parrack, 1992.)

The economic impact of the commercial quota is represented by a proxy variable, the cumulative present value (CPV) of the landing stream under the preferred management measures. Since value of landings is a gross value indicator, the actual net value will be less. Nonetheless, it is reasonable to say that large changes in value of landings will be accompanied by changes in net value which, although surely smaller, will be in the same direction.

While concepts such as profits (producer surplus), consumer surplus and economic rents are more realistic measures of economic value, lack of data precluded the calculation of any of these measures. Missing data included cost and returns information and any measure of how price reacts to the supply of sharks. Although the latter information could potentially be derived, there were major supply and demand shifts occurring throughout the 1980's and these shifts make it difficult to identify the demand curve (or the price response relationship).

Table 9.2

**Large Coastal Species Landings Without
Management Regulations in Place**
(Dressed Weight Metric Tons)

<u>Year</u>	<u>Total landings</u>	<u>Commercial*</u>	<u>Recreational*</u>
1993	4,205	3,532	673
1994	3,965	3,331	634
1995	3,739	3,141	598
1996	3,526	2,962	564
1997	3,325	2,793	532
1998	3,135	2,633	502
1999	3,002	2,522	480
2000	2,874	2,414	460
2001	2,752	2,312	440
2002	2,636	2,214	422

* Based on the current shares of 84 percent commercial landings and 16 percent recreational landings.

Source: Derived from Parrack 1992.

In addition, there are few, if any species data for the earlier years and since price varies by species, the situation is even more confused. The problem can be visualized by examining the price and quantity time-series shown in Table 9.3 and noting the apparent lack of any relationship (a simple regression of price on quantity revealed no significant relationship and indicated that at minimum a simultaneous equation approach would be necessary to determine the relationships involved).

In lieu of a price dictated by supply or other factors, the price of large coastal species group was calculated to be \$.57 per pound on a whole weight basis and was assumed to be constant in real terms throughout the period used in the present value (PV) analysis. This constant price is not the average price for all Atlantic sharks since that average price includes the pelagic species group that have a higher value than the large coastal species group.

Since price by species is not available, this estimate of the price for large coastal species group was derived using recent information on the price of sharks landed in the northern areas, knowledge that northern landings are almost entirely pelagic species group, the average price received for all sharks combined in the southern area, the catch by gear in the southern area, and knowledge that almost all the pelagic species group sharks are caught by pelagic species group longline. The other data needed to estimate ex-vessel value is the expected landings stream (derived from Parrack, 1992) over the period of analysis and is shown as a part of Tables 9.4, 9.5, 9.6, 9.7, and 9.8. The PV analysis uses a discount rate of 5.6 percent based on the actual market yield for 1-10 year U.S. Treasury Notes ending on November 30, 1992. During the previous 52 weeks, this interest rate ranged from 4.6 to 6.6 percent. The 10 percent rate as dictated by the E.O. 12291 guidelines is not appropriate (Weir, 1992).

9.3.5.2.1 COMMERCIAL QUOTAS - LARGE SPECIES GROUP - NO-ACTION

The current trends are projected to continue from 1993 to 2002. Under this alternative, total landings are projected to decline from 4,205 mt in 1993 to 2,636 mt in 2002 due to overfishing of the resource. Accordingly, annual value would decline from \$4.4 million in 1993 to \$2.6 million in 2002. Life history information predicts that continue overfishing would lead to reduced landings since the shark resource is unable to sustain the current population.

9.3.5.2.2 COMMERCIAL QUOTAS - LARGE SPECIES GROUP - OPTION 2 (F(5%))

There will be a short-term negative impact on the commercial fishery and consumers from the initial quota of 2,436 mt for

Table 9.3

Landings and Nominal Prices of All Atlantic Sharks, 1979-1990

<u>YEAR</u>	<u>LANDINGS</u> (mt)	<u>PRICE</u> (\$/kg)	<u>VALUE</u> (\$ million)
1979	135	0.57	0.08
1980	458	0.56	0.26
1981	666	0.66	0.44
1982	590	0.80	0.47
1983	724	0.98	0.71
1984	846	0.91	0.77
1985	969	1.06	1.03
1986	1,618	1.12	1.81
1987	3,603	1.13	4.07
1988	5,276	1.08	5.70
1989	7,122	1.04	7.41
1990	5,950	0.93	5.53
1991	N/A	1.25	N/A

Source: Converted from NMFS statistics files.

Table 9.4

**Large Coastal Species Landings, Commercial Share
Annual Value (Nominal Prices), and Cumulative Present Value
(CPV) Without Fishery Management Plan In Place
(Dressed Weight Metric Tons, \$ Millions)**

<u>Year</u>	<u>Landings</u> (mt)	<u>Com*</u> <u>Share</u> (mt)	<u>Annual</u> <u>Value</u>	<u>CPV</u>
1993	4,205	3,532	4.4	4.2
1994	3,965	3,331	4.2	7.9
1995	3,739	3,141	3.9	11.3
1996	3,526	2,962	3.7	14.3
1997	3,325	2,793	3.5	17.9
1998	3,136	2,634	3.3	19.4
1999	2,957	2,484	3.1	21.5
2000	2,789	2,343	2.9	23.4
2001	2,630	2,209	2.8	25.1
2002	2,480	2,083	2.6	26.6

* Based on the current shares of 84 percent commercial landings and 16 percent recreational landings.

Source: Derived from Parrack 1992.

large species for the 1993 fishing year. The 1993 quota represents a reduction of about 29 percent of the annual average of 3,444 during the period 1986-1991 (Table 4.7). This reduction in landings will result in a large, but unavoidable, negative impact on the commercial fishing industry and accompanying losses in consumer surplus in the short run while the resource is rebuilding. For example, the loss in ex-vessel revenue would be about \$1,267,000 in 1993.

Despite these expected losses, the quota should help to rebuild the large stocks to MSY by the year 1995 (Table 9.5). The commercial quota will increase by 5 percent as the rebuilding process continues to 1995 and thereby reaching the MSY level of landings 3,192 mt (84 percent of the MSY level of 3,800 mt). A comparison between Tables 9.4 and 9.5 shows that by 2000 the annual catches without rebuilding are projected to be lower than the catches under management. At the end of 2002 the cumulative discounted value of the landings under regulation is projected to exceed the value without regulation by \$2 million.

9.3.5.2.3 COMMERCIAL QUOTAS - LARGE SPECIES GROUP - OPTION 3- (F(10%))

There will be a short-term negative impact on the commercial fishery and consumers from the initial quota of 1,941 mt for large species for the 1993 fishing year. The 1993 quota represents a reduction of about 44 percent of the annual average of 3,444 during the period 1986-1991 (Table 4.7). This reduction in landings will result in a large, but unavoidable, negative impact on the commercial fishing industry and accompanying losses in consumer surplus in the short run while the resource is rebuilding. For example, the loss in ex-vessel revenue would be about \$1,889,000 in 1993.

Despite these expected losses, the quota should help to rebuild the large stocks to MSY by the year 1994 (Table 9.6). The commercial quota will increase by 10 percent as the rebuilding process continues to 1994 and thereby reaching the MSY level of landings 3,192 mt (84 percent of the MSY level of 3,800 mt). A comparison between Tables 9.4 and 9.6 shows that by 2000 the annual catches without rebuilding are projected to be lower than the catches under management. At the end of 2002, the cumulative discounted value of the landings under regulation is projected not to exceed the value without regulation by \$2.0 million.

9.3.5.2.4 COMMERCIAL QUOTAS - LARGE SPECIES GROUP - OPTION 1 (F(REP))

There will be a short-term negative impact on the commercial fishery and consumers from the initial quota of 2,957 mt for large species for the 1993 fishing year. The 1993 quota represents a reduction of about 14 percent of the annual average

Table 9.5

**Large Shark Landings, Commercial Share,
Annual Value, and Cumulative Present Value (CPV) With
Fishery Management Plan (Option 2, (F(5%)) In Place**
(Dressed Weight Metric Tons, \$ Millions)

<u>Year</u>	<u>Landings</u> (mt)	<u>Com*</u> <u>Share</u> (mt)	<u>Annual</u> <u>Value</u>	<u>CPV</u>
1993	2,900	2,436	3.1	2.9
1994	3,060	2,570	3.2	5.8
1995	3,800**	3,192	4.0	9.2
1996	3,800	3,192	3.6	12.4
1997	3,800	3,192	3.7	15.5
1998	3,800	3,192	3.9	18.4
1999	3,800	3,192	4.0	21.1
2000	3,800	3,192	4.0	23.7
2001	3,800	3,192	4.0	26.2
2002	3,800	3,192	4.0	28.5

* Based on the current shares of 84 percent commercial landings and 16 percent recreational landings.

** MSY reached.

Source: Derived from Parrack 1992.

Table 9.6

Large Shark Landings, Commercial Share, Annual Value, and
 Cumulative Present Value (CPV) With Fishery Management Plan
 (Option 3, F(10%)) In Place
 (Dressed Weight Metric Tons, \$ Millions)

<u>Year</u>	<u>Landings</u> (mt)	<u>Com*</u> <u>Share</u> (mt)	<u>Annual</u> <u>Value</u>	<u>CPV</u>
1993	2,311	1,941	2.4	2.3
1994	3,800**	3,192	4.0	5.9
1995	3,800	3,192	4.0	9.3
1996	3,800	3,192	4.0	12.5
1997	3,800	3,192	4.0	15.6
1998	3,800	3,192	4.0	18.5
1999	3,800	3,192	4.0	21.2
2000	3,800	3,192	4.0	23.8
2001	3,800	3,192	4.0	26.3
2002	3,800	3,192	4.0	28.6

* Based on the current shares of 84 percent commercial landings and 16 percent recreational landings.

** MSY reached.

Source: Derived from Parrack 1992.

of 3,444 during the period 1986-1991 (Table 4.7). This reduction in landings will result in a large, but unavoidable, negative impact on the commercial fishing industry and accompanying losses in consumer surplus in the short run while the resource is rebuilding. For example, the loss in ex-vessel revenue would be about \$606,000 in 1993.

Despite these expected losses, the quota would never help to rebuild the large stocks to MSY (Table 9.7). The commercial quota never increases since the purpose of this measure is to replace what is caught. A comparison between Tables 9.4 and 9.7 shows that by 1998, the annual catches without rebuilding are projected to be lower than the catches under management. At the end of 2002 the cumulative discounted value of the landings under regulation is projected to exceed the value without regulation by \$1.3 million.

9.3.5.2.5 COMMERCIAL QUOTAS - PELAGIC AND SMALL COASTAL SPECIES GROUP

A stock assessment was not conducted for the pelagic species group of sharks, so the analysis provided for the large group is not possible. However, it is possible to at least provide some insight as to the potential effect of the pelagic species group quota on landings. The commercial quota for the pelagic species group is 580 mt and is based on the average landings during the period 1986-1991. Parrack, 1990 observed in the stock assessment document that "Current landings indicate significant exploitation...", but was unable to make any more definitive statements.

As more data become available, the pelagic species group quota can be adjusted as necessary, but at this time it appears that the quota would merely cap an unexpected future increase in pelagic species group landings but would have no immediate economic impact.

9.3.5.2.6 COMMERCIAL QUOTAS - PELAGIC AND SMALL SPECIES GROUP - RECREATIONAL BAG LIMITS

The Shark FMP proposes recreational bag limits of four sharks per boat per trip for large and pelagic species group sharks combined and a daily bag limit of five sharks per person for small sharks. The recreational catch and landings data for large sharks are sparse and extremely difficult to interpret. Further, recreational landings have apparently declined in recent years. The four-fish limit for large sharks was chosen based largely to equalize the regulatory induced percentage reduction, e.g., about 29 percent, in landings between commercial and recreational fishermen. In addition, throughout the public comment periods, the recreational community wanted a more strict

Table 9.7

Large Shark Landings, Commercial Share, Annual Value, and
 Cumulative Present Value (CPV) With Fishery Management Plan
 (Option 1, F(REP)) In Place
 (Dressed Weight Metric Tons, \$ Millions)

<u>Year</u>	<u>Landings</u> (mt)	Com* <u>Share</u> (mt)	<u>Annual</u> <u>Value</u>	<u>CPV</u>
1993	3,520	2,957	3.7	3.5
1994	3,520	2,957	2.7	6.9
1995	3,520	2,957	3.0	10.0
1996	3,520	2,957	3.2	13.0
1997	3,520	2,957	3.6	15.8
1998	3,520	2,957	3.9	18.5
1999	3,520	2,957	4.0	21.0
2000	3,520	2,957	4.0	23.4
2001	3,520	2,957	4.0	25.7
2002	3,520	2,957	4.0	27.9

* Based on the current shares of 84 percent commercial landings and 16 percent recreational landings.

Source: Derived from Parrack 1992.

regulation than a bag limit of one shark per person per trip (the original NMFS proposal) would not be restrictive enough. Based on a limited sample of 112 trips recorded in the 1980's where the anglers landed large sharks, the four sharks per trip limit would be expected to reduce catch by 28 percent (Table 4.8). This reduction will reduce the benefits from the recreational fishery in the short term until the resource improves. Since catching sharks is not restricted, only retention, the negative impact on trip satisfaction related to retaining sharks will be mitigated.

This is an important consideration for shark fishing, because recreational anglers currently release or discard far more sharks than they land (NMFS, 1979-1988; Marine Recreational Fishery Statistics Surveys, Atlantic and Gulf Coasts). Therefore, retention may contribute relatively less value to shark fishing trips versus trips directed at other species. As is the usual assumption, long-term gains should result at some point in time as the stocks rebuild. Since about half of the recreational shark mortality comes from sharks which are landed (type A catch) the bag limit should contribute to some rebuilding of the stocks via the effect on that half of the recreational mortality. More importantly, the rebuilding effects from the commercial quota should add a considerable, but not quantifiable, increase in value to the recreational fishery via increased shark abundance and resulting increased trip satisfaction.

The bag limit of 5 small coastal species group sharks will probably have no measurable economic effect because the regulations apply only in the EEZ and a significant portion of these sharks are caught in state waters. In addition, the bag limit may not limit landings even if applied in state waters. Regardless, this bag limit should foster a conservation ethic among anglers and help prevent overfishing the resource.

An important consideration will be the enforcement of the bag limits. Since shark identification is extremely difficult, especially if the sharks have the heads, tails and/or fins removed, enforcement will be difficult and may result in a low compliance level. This will reduce both the short-term losses and longer-term gains that would otherwise be associated with the bag limits.

In summary, the large coastal/pelagic species group bag limit is expected to have a small net benefit following a period during which short-term recreational values may decline. This small benefit will be reduced, perhaps to zero, due to the enforcement problem created by having the dual bag limit system in effect. The daily bag limit of 5 small coastal species sharks per person is expected to foster a conservation ethic among recreational anglers and contribute towards prevention of overfishing of the small coastal species resource.

9.3.5.3 RELEASE CONDITION

Since the requirement for live release of sharks that are not kept is largely unenforceable, it will not have any significant economic consequences on commercial or recreational fishermen unless there is some degree of purely voluntary compliance. Any reduction in shark mortality that results from the implementation of the measure will have a net positive benefit because there are essentially no costs associated with the measure.

9.3.5.4 FRAMEWORK PROCEDURE

Establishing a framework procedure for determining annual harvest levels will have no direct impact on the recreational or commercial fishery. The indirect effect on the economic value of the fishery would be positive to the extent that the procedure allows timely adjustments and ensures that the shark fishery is maintained at the MSY level.

9.3.5.5 PROHIBIT FINNING

This action was proposed to address the problem of "physical waste." Parrack (1992) reviewed the information obtained from fishermen, fish house owners/processors, fin dealers, etc., and concluded that the extent of finning may equal the number of sharks harvested for meat and fins. Regardless of the level of physical waste of sharks, the RIR is concerned with economic effects. In the case of "finning," the practice results in economic waste if the potential landed value of the carcasses being discarded exceeds the cost of landing them. The problem presented is that this potential value may not accrue to the fishermen who originally catch these sharks. Obviously, for the fishermen who practice finning it is not economically rational to land these carcasses for any of a variety of reasons, including the costs of handling and processing on board or the need to reserve hold space for more valuable species.

To the extent it is not economically feasible for some fishermen to land whole sharks, the requirement to land carcasses along with fins may, assuming that the regulation is enforceable, result in the live or dead release of sharks currently taken for fins alone. According to information in the Shark FMP, the finning situation is believed to occur in association with the pelagic longline fishery, and for this fishery the amendment indicates a shark bycatch mortality rate of over 50 percent. This means that half of the sharks subject to the finning regulation will be released dead and this will obviously offset some of the potential benefits from the finning regulation. The value from the half of the sharks that survive will come from two sources, their contribution to increased shark numbers via their reproductive potential and their potential use if caught later by a user who receives value from the catch. These users will

either be recreational fishermen who derive value from catching and perhaps retaining the sharks or commercial fishermen (other than pelagic longline fishermen) who would retain the sharks for the value of the fins and perhaps the meat. The magnitude of these values depend upon the chance that sharks released alive can be recaptured and the value of these sharks in recreational or commercial terms. In the absence of complete information it is not possible to calculate the value derived from the finning regulation. However, the discussion shows that there are losses and gains associated with the requirement and the probable outcome is a relatively minor though intermediate net economic change.

9.3.5.6 PROHIBIT SALE OF RECREATIONAL CATCH

The commercial permit requirement will effectively prohibit recreational fishermen from selling their catch. Parrack (1990) estimated that in some years 10 percent of recreational caught sharks, mostly makos, are sold in the Northeast, and the market is the restaurant trade. The amendment does not contain information on other species taken by recreational fishermen and the assumption is made that such sales are minor. Hence, a prohibition on sale of shark meat and shark products by recreational fishermen is expected to have a small negative economic impact on recreational fishermen.

9.3.5.7 REQUIRE COMMERCIAL FISHERMEN PERMITS

The requirement for an annual fishing permit is not expected to direct economic impact on the fishery in terms of quantity and value of landings. The permit requirement will increase the cost of doing business by the cost of a permit, approximately \$53.

9.3.5.8 COMMERCIAL PERMIT ELIGIBILITY

To be eligible for a Federal commercial permit, the owner or operator (including charter vessel and headboat owners/operators who intend to sell their catch) must derive at least 50 percent of earned income from sale of the fish or fish products or charter vessel and headboat operations or at least \$20,000 from the sale of fish during one of three years preceding the year for which the permit is requested. The income requirement limits potential commercial shark fishing permit holders to persons with some commercial fishing experience. This requirement is expected to eliminate part time commercial and recreational fishermen from the fishery. Finally, this requirement is a step towards standardizing the earned income requirements for Federal permits under the jurisdiction of the SEO, that will improve processing of applications for permits and reduce confusion among applicants.

9.3.5.9 PERMITTED FISHERMEN AND TOURNAMENT REPORTING

The cost of reporting catch and purchases of sharks is expected to be somewhat greater (Section 9.3.7). However, the resulting improved data base will be used to refine management measures and, consequently, could increase the annual economic value of the shark fishery above the cost of the permit and associated data collection and management systems.

The requirement for selected tournament directors to report catch and effort data is expected to have minimal impact on the value of recreational shark fishing. Increased record keeping costs are assumed to be offset by improved fishing resulting from improved management. Since most tournaments keep careful records on catch to determine winners, and probably monitor effort to prevent illegal fishing methods, it is likely that there will be little increase in record keeping and only the transfer of data to the management authority would represent an additional cost (Section 9.3.7).

9.3.5.10 OBSERVERS

The requirement that selected permitted fishing vessels accommodate a NMFS observer will involve a cost to fishermen. They will be expected to bear the expense of food, provide sleeping space and use of radio equipment, and generally make records and catch available. NMFS will pay observers' salaries and benefits. The principal purpose of observers is to document catches of marine mammals, endangered species, and shark discards. NMFS monetary constraints will undoubtedly limit observer coverage, and will affect the total cost to the fishermen as well (Section 9.3.7). Society will benefit from information gained and applied in the form of better shark management, and the conservation of marine mammals and endangered species.

9.3.6 IMPACT OF RESERVED MEASURES

9.3.6.1 MAKO MINIMUM SIZE LIMIT

This measure was reserved because of inadequate supporting biological information. There is no clear evidence that significant conservation benefits would accrue. The proposed application of the measure differently to the recreational and commercial fisheries raised many public objections that could not overcome with demonstrable (tangible) stock conservation benefits. In the future, NMFS will ask the OT to review this measure, as well as possible minimum sizes for other species, and provide NMFS with its recommendations regarding the implementation of and benefits from shark minimum sizes. Provisions for their subsequent incorporation through the framework regulatory adjustment procedure (see Section 7.1.4)

have been made. The impacts of these measures would become part of the RIR associated with the implementation of these measures.

9.3.7 IMPACTS OF REJECTED MANAGEMENT MEASURES

9.3.7.1 NO ACTION

Commercial shark landings increased from 1,618 mt in 1986, peaked at 7,122 mt in 1989, and declined by 16 percent to 5,950 mt in 1990 (Table 3.1). If the 16 percent decline in landings accurately reflects the status of shark resources and is not a result of adverse market conditions or other factors that could reduce landings, this reduction indicates that the fishery complex is unable to sustain previous harvest levels.

Recreational shark landings have also been significant and exceeded commercial landings in all years during the period 1979-1987 (Tables 3.1 and 3.3). As for commercial landings, recreational landings have recently declined.

Parrack (1990) conducted a stock assessment for three separate shark species groups: large; small; and pelagic species group and calculated MSY's for each group. His analysis indicated that the large shark species group is overfished (catch exceeds production), and a stock rebuilding program is required to achieve MSY. The species group, comprised of small sharks, is fully exploited. Parrack was unable to carry out a quantitative assessment of the pelagic species group due to data limitations and concluded that there is no evidence available to suggest that the MSY is being exceeded but the group likely is fully exploited. The proposed FMP incorporated this assessment and a management regime to rebuild the large species group that appeared to be overfished and to maintain the small and pelagic stocks at the current levels.

During the public comment period held on the proposed FMP and on the proposed implementing rule, significant new fishery information was received from fishermen, fish dealers/processors, and several state fishery agencies. This new information included: (1) data showing fishery removals in recent years higher than those used as a basis for determining MSY and stock conditions in the May 1990 stock assessment; (2) records on the size frequency of shark species caught in commercial fisheries; and (3) information on the commercial fishing fleet. NMFS reviewed this new information and determined that incorporation of these new data in the stock assessment could result in conclusions about the abundance, productivity, and condition of the managed shark species significantly different from those used in the proposed FMP (dated October 28, 1991).

To ensure that all FMP management measures are based upon the best scientific information available, a revised assessment of

the condition of the large coastal species group was completed by the NMFS Southeast Fisheries Science Center. The revised assessment was reviewed by a scientific peer committee consisting of both outside scientific experts and NMFS scientists. The Review Committee issued its final report on November 23, 1992 (Report of the Atlantic Coastal Shark Fishery Analysis Review, November 23, 1992).

The Review Committee reported evidence of overfishing for the large coastal group during 1986 through 1992 (except for 1987 and 1990). The Review Committee recommended that the calendar year 1993 landings for the large coastal be reduced below the calendar year 1991 landings level of 4,319 mt dressed weight.

9.3.7.2 Alternative Fishing Years

Consideration was given to establishing a fishing year based upon July 1-June 30 and January 1-December 31. These alternatives were rejected as follows.

July 1 - June 30

The Southeast Fisheries Science Center has advised that retention of this alternative fishing year (with associated fishing year commercial quotas) could (1) encourage rapid expansion of a new shark fishery in the previously unfished area off the northeastern states and, as such, be potentially destructive to already overfished shark resources--a growing new fishery on an overexploited resource in a previously unfished area, and (2) damage the historic fishery off the southern states by allowing the new northern fishery to take an unfair share of the annual quota. Also, it is noted that the Review Committee's stock rebuilding schedule and NMFS' collection of fishery statistics are both based on a calendar year. Implementing calendar year quotas while retaining a July 1 through June 30 fishing season poses several problems that are difficult to resolve.

For these reasons, NMFS decided to establish calendar year commercial quotas divided into two equal halves that would apply respectively to two fishing periods (January 1 through June 30; July 1 through December 31). This approach to applying the commercial quotas should spread the commercial fisheries in both southern and northern areas reasonably equally throughout the year, as well as addressing the Center's specific concerns. Also, this approach should not eliminate the historic peak months of the established southern fisheries while ensuring an open season and a new, unfished quota for the peak fishing months of a new, expanding fishery in the northeast.

January 1 - December 31

A 12-month fishing year should result in a fishing season of less than 12 months for sharks in the large coastal and pelagic species groups (assuming that the preferred quota options are adopted). The shortened season will unavoidably increase fishing activity during the early part of the season, raise costs, and alter the historical supply and price situation. The short-term results will be lower profits for commercial fishermen and lower consumer surplus resulting from less product and less availability of fresh product during the closed season. While these effects will be fully expected, the magnitude of the effects, including a prediction on the length of the season, cannot be estimated in the absence of information about predicted landings if a quota was not in effect.

NMFS rejected this alternative since use of this alternative would provide the conditions under which the entire quota taken in the Gulf of Mexico, Caribbean, and South Atlantic fisheries before resources become available to the New England and Mid-Atlantic fisheries. From 1984 to 1988, about 7 percent of all commercial shark landings were made in the New England and Mid-Atlantic areas, primarily during June through October, while about 93 percent of the landings came from the South Atlantic, Gulf of Mexico, and Caribbean areas where landings are slightly higher during March through July (Table 9.1). If the fishing year was the calendar year, the entire quota might be taken before fish became available in the Mid-Atlantic and New England.

9.3.7.3.1 MANAGEMENT STRATEGIES - LARGE COASTAL SPECIES GROUP

Based on Parrack's 1992 assessment, the Shark FMP consisted and rejected one more restrictive strategy and two less restrictive strategy for managing the large resource (See Sections 9.3.5.2.1, 9.3.5.2.3, and 9.3.5.2.4.).

9.3.7.3.2 MANAGEMENT STRATEGIES - LARGE COASTAL SPECIES GROUP- SHARK FMP (OCTOBER 28, 1991)

Based on Parrack's 1990 assessment, the Shark FMP (October 28, 1991) considered and rejected 6 alternative management strategies to rebuild the overfished large coastal species group resource through different sets of quotas on the commercial sector and bag limits on the recreational sector and the no-action alternative. These strategies were rejected in favor of the current strategies embodied in the Parrack's 1992 assessment. The rejected strategies are discussed below.

9.3.7.3.3 MORE RESTRICTIVE STRATEGIES

Four management alternatives would rebuild the large sharks before year 2000 through quotas and bag limits which would be

more restrictive than under the preferred alternative (Figure 4.1, Section 4.5.1, Section 7.2, Table 7.1, Shark FMP, October 28, 1991). The main differences among the alternative strategies were the length of the recovery periods and the size of the short term adverse economic impacts on the dependent user groups. All of these options would rebuild the overfished large shark resources quicker than the proposed alternative, but would involve larger short term adverse impacts on the user groups.

Two of these alternatives, the no harvest strategy which would not allow any harvest until the stocks were rebuilt and the 40 percent strategy which would allow harvest of 40 percent of production (refer to earlier parts of the RIR for an explanation of the term "production"), were analyzed using the methods applied to the preferred alternative of allowing harvest of 80 percent of production. The results are displayed in Table 9.6 along with the basic results for the preferred alternative (refer to earlier discussion and Table 9.4, Shark FMP, October 28, 1991). These results indicate that the more restrictive alternatives result in higher cumulative present values at the end of the period chosen for analysis, but the results can be considered to be identical over the long term since they differ by about 3 percent. However, there are significant differences in the results in terms of the time paths by which the overall identical results are achieved. For example, the 80 percent or preferred alternative is clearly superior through the year 1995, but by the end of the year 1998 the other two alternatives are slightly superior. Similar conclusions could be drawn concerning the 20 percent and 60 percent alternatives. These alternative strategies were rejected since the preferred alternative achieves the same goals without the degree of adverse impacts on the dependent fishermen and support industries before 1998.

9.3.7.3.4 LESS RESTRICTIVE STRATEGIES

This category consists of two alternatives. The first management strategy proposes to rebuild the large sharks by year 2007 through a less restrictive quota for the commercial sector and trip limit for the recreational sector (Figure 4.1, Section 4.5.1, Section 7.2, Table 7.1, Shark FMP (October 28, 1991)). This option should not adversely affect commercial and recreational fisheries during the 15-year recovery period. After the recovery period, commercial and recreational fisheries would operate at a level designed to maintain the resources at a fully exploited level. This strategy was rejected on biological rather than economic grounds, because the preferred alternative achieves the biological goals over a shorter recovery period with less risk to the resource.

The second strategy consists of not taking any management actions to assist the recovery of the resource. This strategy was rejected because the resource is overfished. Continued

overfishing could lead to collapses of the large shark resources and concomitant adverse economic impacts on the dependent commercial and recreational fisheries. Some species could be reduced to levels that would require listing on the Endangered Species List.

9.3.7.3.5 NO-ACTION ALTERNATIVE

Commercial shark landings increased from 1,618 mt in 1986, peaked at 7,122 mt in 1989, and declined by 16 percent to 5,950 mt in 1990 (Table 3.1, Shark FMP [October 28, 1991]). If the 16 percent decline in landings accurately reflects the status of shark resources and is not a result of adverse market conditions or other factors that could reduce landings, this reduction indicates that the fishery complex is unable to sustain previous harvest levels.

Recreational shark landings have also been significant and exceeded commercial landings in all years during the period 1979-1987 (Tables 3.1 and 3.3, Shark FMP (October 28, 1991)). As for commercial landings, recreational landings have recently declined.

Parrack (1990) conducted a stock assessment for three separate shark species groups: large ; small ; and pelagic species group and calculated MSY's for each group. His analysis indicated that the large shark species group is overfished (catch exceeds production), and a stock rebuilding program is required to achieve MSY (Section 4.4.1). The species group, comprised of small sharks, is fully exploited (Section 4.4.2). Parrack was unable to carry out a quantitative assessment of the pelagic species group due to data limitations and concluded that there is no evidence available to suggest that the MSY is being exceeded but the group likely is fully exploited (Section 4.4.3).

The outcome of the No Action alternative is covered earlier in the RIR in Section 9.3.5.2 which describes the economic outcome of the preferred quota and bag limit measures with reference to the No Action alternative. According to Table 9.4, the outcome of the No Action alternative for the large species is for a steady decline in landings and an associated loss of net benefits if some action is not taken. For the pelagic species group species, the RIR concludes that the No Action alternative has basically the same outcome as the preferred management regime because the commercial quota for pelagic species group is not expected to limit the catch. However, the No Action alternative would allow the continued recreational landing of small mako sharks and the continued recreational sale of all sharks. The economic outcome of the former is unknown because there is no stock assessment for mako sharks--if makos are overfished the outcome of No Action is negative and if they are not fully exploited then the outcome of the No Action alternative is

positive. The net effect of continuing to allow sale of recreational caught sharks is expected to have only a minor net impact if any at all because changing the status quo largely involves transferring income between groups without creating major aggregate effects.

9.3.7.4 PROHIBIT FINNING BY EMERGENCY ACTION

The same considerations apply that are discussed in Section 9.3.5.4, but only for 90 or 180 days, the limit of the Secretary's emergency action authority. In this event, the cost of implementing the action would probably outweigh any gain as there would be no lasting regulation and, thus, no lasting positive effect on the fishery.

9.3.7.5 HARVEST ONLY MALE SHARKS

This option was considered because it offers some potential for reducing mortality of females and enhancing reproductive potential. The impact of this measure on the fishery is unclear. To the extent that male sharks can be identified (by claspers) prior to death, it could result in reducing mortality to female sharks and contribute to maintaining shark populations and a viable fishery. However, fishing gear is not selective and discard mortality of females would be high. In addition, enforcement in the commercial and recreational fisheries would be very difficult as carcasses would be identifiable only if claspers were left intact. The expected economic outcome of this alternative is negative.

9.3.7.6 ALLOCATE COMMERCIAL QUOTA BY REGION

Assuming that a single commercial quota is adopted, the fishery is likely to be closed before the end of the fishing year. This alternative was considered to address the equity issue by employing the same reasoning used in the decision regarding the fishing year. That is, the intent is to manage the fishery under quota in a fashion that gives various fishing areas their historical portion of the catch. From the economics viewpoint the area quota concept would not result in the highest value because there are likely to be disparities among the net marginal values by area and the fishery could not be prosecuted on a least-cost basis. Allocations based on historical shares, or any other non-economic criterion, is no more likely to be economically optimal than is the catch distribution resulting from no allocation, but does have a cost of administration and enforcement. Since the setting of the season appears to resolve the potential equity problem without distorting the rational economic behavior of the fishermen, it was preferred to the area quota solution.

9.3.7.7 CLOSE NURSERY AREAS

In theory, closing nursery areas to fishing would benefit shark populations and thus increase the economic value of the shark fishery. However, nursery areas are not well defined so the target closure areas are largely unknown. In lieu of closing nursery areas, the choice of a July 1-June 30 fishing year, in conjunction with a restrictive commercial quota, is expected to provide for a closure of the entire fishery. Since the pupping season is April-June and the quota should be reached before April and the season reopened the following July of any given year, this would include a cessation of fishing in the nursery areas during the pupping season regardless of the location of the nursery areas.

9.3.7.8 SIZE LIMITS FOR SHARKS OTHER THAN MAKOS

Data are not available to estimate the short-term reduction in landings (recreational or commercial) or the long-term benefits of size limits on sharks. Minimum size by species would cause some short-term reduction in landings and thus commercial revenues and recreational satisfaction. This would be offset to an unknown degree by increased long-term landings resulting from a stabilized population. The net effect is unknown.

9.3.7.9 ALTERNATIVE RECREATIONAL BAG LIMITS

The bag limit of one shark per person for the large and pelagic species group sharks combined is less restrictive than the preferred measure, which calls for a trip limit of two sharks per boat regardless of the size of the fishing party. The reasons for the choice of the preferred alternative versus this alternative are discussed in the section describing the impacts of the preferred measure in the proposed FMP (dated October 28, 1991).

An alternative of not having a bag limit for small sharks was considered and rejected on the non-economic grounds that a positive bag limit on a fully utilized resource promotes conservation ethics among recreational anglers and helps prevent overfishing. Since there are minimal biological or economic reasons to have a bag limit for the small , the no bag limit alternative may produce a net benefit relative to the preferred alternative of a bag limit of five. Information in the amendment concludes that the fish are of limited commercial or recreational value. The positive economic outcome of this alternative relative to the outcome of the preferred measure is expected to be small because more trip satisfaction appears to be related to catching rather than keeping sharks.

9.3.7.10 CLOSING FISHERIES WHICH KILL SHARKS AS BYCATCH

Closing the shrimp, swordfish, or tuna fisheries, which kill sharks as incidental catch, would result in major negative impacts. The exvessel values associated with these fisheries are in the hundreds of millions of dollars and the associated economic values would be very large when compared to the value of sharks being protected from incidental take.

9.3.7.11 PROHIBIT SHARK GILLNETS TO PROTECT LISTED SPECIES

During the period 1986-1989, there were 10-12 gillnet boats directing effort on sharks, about 12-15 swordfish vessels which had a significant catch of sharks, 3-4 vessels which used a combination of gillnets and longlines in the directed shark fishery and an unknown number of gillnet craft that target a variety of other species and catch sharks in the process. In 1989, the combined shark landings of these craft were about 622 mt or about 10 percent of the total shark landings for that year. A portion of the losses, which are implied by this alternative, would be reduced because fishermen have the opportunity to switch to other gear types and because the quota rather than the amount or types of gears employed in the fishery will limit the catch. However, there will still be economic losses associated with the measure because the gear would have to be written off and because the gear must represent an efficient operation in a substantial portion of the fishery at certain times of the year and in certain areas. The losses associated with this alternative would increase over time as the stocks recover.

The increased value associated with this measure would be in terms of the value of marine mammals or endangered/threatened species not killed. As noted in Section 7.3 and 7.6, gillnets are known to cause mortalities of marine mammals although the extent of these mortalities is unknown. Gillnets may also be associated with lethal takes of endangered or threatened species, principally sea turtles, and may impact the shortnose sturgeon. Numbers or values of animals saved are not available, so there is no way to calculate the benefits which the alternative could create. The preferred alternative which will require onboard observers on selected shark-fishing vessels should enable NMFS to assess the impacts of gillnets on listed species.

9.3.7.12 REQUIRE ANNUAL DEALER PERMITS

This option was considered as a means of identifying the dealers that purchased shark products from commercial fishermen. Statisticians planned on using this information to design efficient data collection systems. Agents planned on using this information to design efficient law enforcement activities.

Requiring annual dealer permits was rejected since the scientists could obtain the necessary catch and other information directly from fishermen via logbooks, weight-out slips and other existing collection systems. It was determined that law enforcement agents could use other sources of information to design efficient enforcement activities. In other words, this alternative was rejected on the basis that it would involve additional costs but would not generate additional benefits.

9.3.7.13 ALTERNATIVE COMMERCIAL PERMIT ELIGIBILITY REQUIREMENTS

Three alternatives considered and rejected were:

1. To be eligible for a Federal commercial permit, the owner or operator (including charter vessel and headboat owners/operators who intend to sell their catch) must derive at least 10 percent of earned income from sale of the fish or fish products or charter vessel and headboat operations during the calendar year preceding the permit request.

2. To be eligible for a Federal commercial permit, the owner or operator (including charter vessel and headboat owners/operators who intend to sell their catch) must derive at least 50 percent of earned income from sale of the fish or fish products or charter vessel and headboat operations during the calendar year preceding the permit request.

3. To be eligible for a Federal commercial permit, the owner or operator (including charter vessel and headboat owners/operators who intend to sell their catch) must derive at least 50 percent of earned income from sale of the fish or fish products or charter vessel and headboat operations or at least \$20,000 from the sale of fish during one of two years preceding the permit request.

These alternative income requirements were rejected because none of them provided the flexibility that would allow commercial fishermen to exit and reenter the fishery due to "Acts of God, e.g., such as loss of a vessel or illness." NMFS considers such situations as reasonable limits on those individuals wishing to earn their living from public resources such as sharks.

9.3.8 GOVERNMENT AND PRIVATE COSTS OF MANAGEMENT

The development and implementation of the Shark FMP has or will create costs that should be addressed in the RIR and used in the calculation of the overall net economic changes that result from the associated management regime. These costs are estimated to be.

Plan Preparation

The cost to the Federal government of preparing the Shark FMP includes expenses and salaries of NMFS, NOAA, and DOC personnel; printing; and public hearings. The total cost is estimated at \$600,000. This estimate does not include any costs borne by the Regional Fishery Management Councils and is a one-time cost.

Enforcement

Enforcement costs for NMFS and the Coast Guard are estimated at be \$500,000 yearly. State enforcement costs are not included in this estimate.

Government Costs Related to Fishing Permits

There are no government costs because the NMFS is allowed to recover all administrative costs via permit fees.

Private Costs Related to Permit Application and Cost of Permits

A total of 700 fishermen are expected to apply for commercial shark fishing permits and the public cost, including the permit application fee and the value of time preparing the application form, is estimated at \$55.50 for each application. The annual cost is therefore projected at \$38,850.

Government Costs Related to Logbooks

The Federal costs will be related to the value of time required to print and mail the logbooks, prepare the logbook responses for data entry, enter the data, and verify/analyze the entered data. The annual total cost of these items combined is estimated at \$24,400.

Private Costs Related to Logbooks

It is expected that 200 fishermen will be selected to receive logbooks under a mandatory reporting system. The aggregate annual cost of time for these 200 fishermen to report on an average of 24 fishing trips per year is estimated at \$18,400.

Government Costs Related to Tournament Reporting

Costs related to printing and mailing of reporting forms, preparing data for entry, entering data and verifying/analyzing these data are estimated at \$4,260 annually.

Private Costs Related to Tournament Reporting

Costs related to completing and mailing information on the biological information collected on sharks landed during an

estimated 200 tournaments per year will result in an annual private sector cost of \$1,052.

Government Costs Related to At-Sea Observer Program

The government will bear the salary, benefits and other related costs of the observer program. At a cost of \$150 per day, the cost of 3,840 at-sea days is estimated at \$576,000. This is a maximum amount and depends heavily on the ability of NMFS to receive a budget increase to pay for the proposed program.

Private Costs Related to At-Sea Observer Program

The Shark FMP contains a mandatory observer program for those vessels selected and the vessel owner/operator is responsible for providing food and quarters for the observer. There will be an estimated maximum of 40 vessels selected for observer coverage involving an average of 24 trips per year and an average of 4 days at sea for bottom and pelagic longline trips combined. At an estimated cost of \$25 per day, the total maximum cost of providing food and quarters is \$96,000. The actual level of private costs will depend on the ability of NMFS to support the government costs of the program.

9.3.9 SUMMARY OF IMPACTS

Although data are not available to fully quantify impacts of all of the management measures, there is enough information to indicate the likely direction and general magnitude of effect for most of the measures. Table 9.8 summarizes the expected economic impacts for the preferred measures in terms of changes from the baseline of No Action. While the aggregate net benefit of the accepted measures is expected to be positive, some of the individual actions are forecast to have a zero or small negative economic effect on the commercial and/or recreational sectors. The table also includes a summary of the government and private costs associated with plan development and implementation. The process of developing, implementing, and maintaining the Shark FMP will involve government and private costs that are independent of the net economic benefits derived from the management measures. These costs are expected to total \$1,704,600 for the government sector and \$576,000 of this amount is related to the observer program, which may or may not be implemented. The private sector costs are estimated at \$154,302, of which \$96,000 results from the observer program.

In summary, this is not a major rule under Executive Order 12291. The proposed rule, if adopted, is not likely to result in an annual effect on the economy of \$100 million or more; a major increase in costs or prices for consumers, individual industries, Federal, state, or local government agencies, or geographic

Table 9.8

Summary of Net Benefits and Government/Private Costs
of Preferred Management Measures

<u>PREFERRED MEASURE</u>	<u>COMMERCIAL</u> ¹	<u>RECREATIONAL</u> ¹
Semi-Annual Quotas	Small Positive	None
Commercial Quota	\$1.9 million	None
Rec. Bag Limit		
4 Large Coastal or Pelagic Sharks	None	Small Positive
Rec. Bag Limit		
5 Small Coastal Sharks	None	Small Positive
Live Release Condition	Small Positive	Small Positive
Framework Procedure	None	None
Prohibit Finning	Small Positive	Positive
Prohibit Recreational Sale	Small Positive	Negative
Commercial Fishing Permits	Negative ²	None
Tournament Reporting	None	Negative ²
Observer Program	Negative	None
Commercial Permit Eligibility	Positive	Negative
Mako Minimum Size	Reserved	Reserved
<u>COST ITEM</u>	<u>GOVERNMENT</u>	<u>PRIVATE</u>
Plan Preparation ¹	\$ 600,000	None
Law Enforcement	500,000	None
Permits	None	\$ 38,850
Logbooks	24,400	18,400
Tournament Reporting	4,260	1,052
Observer Program (Max Cost)	<u>576,000</u>	<u>96,000</u>
TOTAL COSTS	\$1,704,660	\$154,302

¹ Benefits and costs generally occur annually except for the cumulative costs incurred to date for preparing the Shark FMP and the cumulative net present value of the commercial landings ending by year 2002.

² The negative outcome refers to the economic impact on the commercial and recreational sectors only. Both measures are designed to gather information to improve management, and this positive effect is expected to exceed any negative user impacts.

regions; or a significant adverse effect on competition, employment, investment, productivity, innovation, or the ability of U.S.-based enterprises to compete with foreign-based enterprises in domestic or export markets.

9.3.10 REGULATORY FLEXIBILITY ANALYSIS

The Regulatory Flexibility Act requires a determination as to whether or not a proposed rule has a significant impact on a substantial number of small entities. If the rule does have this impact then an Initial Regulatory Flexibility Analysis (IRFA) has to be completed for public comment. The IRFA becomes final after the public comments have been addressed. If the proposed rule does not meet the criteria for "substantial number" and "significant impact," then a certification to this effect must be prepared.

For the purposes of the IRFA, the firms directly involved in the fishery and potentially affected by the proposed rules are considered to be commercial fishing vessels (over 800 will be affected), processing businesses (unknown number) and charter vessels and headboats that provide recreational fishing opportunities for a fee (several hundred directly affected). All of these commercial firms are classified as small entities and almost all of them will be affected by the action to some degree. Therefore, for this proposed rule the "substantial number" part of the determination will be met. The outcome of "significant impact" can be triggered by several conditions, one of which is that the regulations are likely to result in a reduction in annual gross revenues by more than 5 percent. Implementation of the anti-finning regulations may reduce the commercial landings by more than 5 percent, the criterion for the commercial fishing and processing small entities should be met. The situation for the charter vessels and headboats is less clear because these firms would be affected less by the commercial permit requirements than by the imposition of bag limits that would govern the number of sharks paying passengers would be allowed to retain. Although a reliable estimate of the number or percentage that would be affected cannot be ascertained, it is certain that some, but not all, of these small entities would be affected. Considering the small entities in aggregate, the criteria for "substantial number" and "significant impact" are met and an RFA is required. The RFA follows and is based largely upon the findings of the accompanying Shark FMP and its accompanying RIR.

Explanation of Why the Action is Being Considered: The proposed FMP identified the large coastal shark species as being overfished due to significant and continuing commercial and recreational fishing effort. The pelagic species group shark and small coastal species are considered fully utilized and could be overfished if fishing effort increases.

During the public comment period held on the proposed FMP and on the proposed implementing rule, significant new fishery information was received from fishermen, fish dealers/processors, and several state fishery agencies. This new information included: (1) data showing fishery removals in recent years higher than those used as a basis for determining MSY and stock conditions in the may 1990 stock assessment; (2) records on the size frequency of shark species caught in commercial fisheries; and (3) information on the commercial fishing fleet. NMFS reviewed this new information, and determined that incorporation of these new data in the stock assessment could result in conclusions about the abundance, productivity, and condition of the managed shark species significantly different from those used in the proposed FMP (dated October 28, 1991).

Objectives and Legal Basis for the Rule: The basic objectives are to prevent overfishing, provide for management throughout the range of the sharks and to establish a data collection, research and monitoring program. The Magnuson Fishery Conservation and Management Act of 1976 provides the legal basis for the rule.

Identification of Alternatives: A number of alternatives to the proposed action were considered. Refer to the Shark FMP for a complete discussion and to the RIR for the economic evaluation of the alternatives.

Demographic Analysis: A demographic analysis was not conducted.

Cost Analysis: A cost analysis was completed and for all the actions in aggregate, it was determined that the rule would be cost-effective. Refer to RIR.

Competitive Effects Analysis: The industry is composed entirely of small businesses (harvesters, processors and charter vessel/headboat operators). Since no large businesses are involved, there are no disproportional small versus large business effects.

Reporting, Recordkeeping, and Compliance Requirements: These measures are designed to obtain the minimum amount of information necessary to monitor the resource, develop the regulations required to rebuild the overfished large coastal species group, and to maintain the small coastal and pelagic species at current levels.

Identification of Overlapping Regulations: The rule would apply to fishing activities conducted in the United States EEZ. There is some overlapping logbook requirements in the regulations governing the harvest of Gulf of Mexico reef fish and Atlantic swordfish. The NMFS plans to consolidate all highly migratory species in the future to reduce the reporting burden.

9.4 PAPERWORK REDUCTION ACT

The purpose of the Paperwork Reduction Act is to control the burden on the public, businesses, local, county, and state governments, and other entities of providing information to the Federal Government. The primary regulatory tool is the Information Collection Budget. The authority to manage information collection and record keeping requirements rests with the Office of Management and Budget. This authority encompasses establishment of guidelines and policies, approval of information requests, and reduction of paperwork burdens and duplications.

9.4.1 PROPOSED DATA COLLECTION PROGRAM

The Secretary proposes to establish: a Federal permit program for commercial shark fishermen; a Trip Interview Program (TIP) to collect effort and other fishery-dependent information; a system requiring fishermen to report information on a per-trip basis; and a system for shark tournament fishing activity.

Fishermen permitted in the shark fishery, if selected, must provide information on kind and amount of gear used; time fished; number of each species caught by market category, landed, and discarded; location fished; exvessel price by market category; total, fixed, and variable costs of production, and unit costs; any other economic, sociological/anthropological information the Assistant Administrator may deem appropriate or desire. NMFS will also select fishermen who hold Federal permits for swordfish, Gulf reef fish, and/or commercial shark fishing for reporting and surveying of harvest operations. Fishermen who hold a Federal permit for swordfish will be required to report their catches on the Swordfish Logbook Daily Form. Fishermen holding a Federal permit for Gulf of Mexico reef fish will be required to report their shark catches on the Gulf Reef Fish Logbook Trip Report Form. Fishermen who hold a Federal permit for commercial shark fishing will be required to complete a logbook and make their shark catches available for examination and provide information about their fishing trip to NMFS port samplers who will collect size frequency, species identification, and other biological and fishery information through the TIP sampling program. These data will provide biological and CPUE information necessary for stock assessment and other analyses. Fishermen who fail to report or provide information timely and accurately may lose their permits (Section 7.1.3.1).

Shark tournament directors, if selected by NMFS, must provide information on number of boats, number of anglers, number and weight of each species landed and discarded, information necessary for the estimation of recreational angler value of catch, and a copy of the tournament regulations with specific rules that might have affected the results (e.g., line test restrictions, minimum entry weights, bait restrictions, etc.).

Many tournaments in the Gulf of Mexico, to their credit, voluntarily provide catch and effort data to NMFS. However, a goal of this Shark FMP is that tournament coverage be mandatory when in the interest of fisheries management.

9.4.2 ESTIMATE OF REPORTING BURDEN AND COST

Approximately 700 persons are expected to apply for commercial shark fishing permits. The administrative cost of application, staff, overhead, and postage is expected to be about \$53 per commercial permit. The program cost is expected to be about \$37,100. Estimated burden hours are 175 for the commercial permittees.

Estimated burden hours for the logbook system is 1,430. The Science and Research Director may determine that information collected by other states' trip reporting systems, when properly submitted, will satisfy the reporting requirements for the commercial sector.

In addition to mandatory logbooks for all commercial fishermen targeting sharks, NMFS may select shark fishermen to provide catch information via interview. This will include fishermen already required to report catch information via logbook for other fisheries; e.g., swordfish and Gulf reef fish. Fishermen selected for interview will be required to provide information to NMFS port samplers via the Trip Interview Program already in existence. The interview effort will be directed at fishermen who target sharks in their fishing operations. Target shark fisheries are generally concentrated in certain geographical areas. Interview sampling of this sector of the fishery will be efficient and produce accurate information on species and size composition which often cannot be provided from fishermen -submitted reports. As fishermen are already required to report, the additional estimated burden hours are negligible.

Approximately 200 shark tournaments will be selected to maintain and report catch records to NMFS. Estimated costs are \$1,052 for the tournament organizers and \$4,260 for NMFS. The burden hours are estimated at 100.

9.5 COASTAL ZONE MANAGEMENT CONSISTENCY

The Coastal Zone Management Act (CZMA) of 1972, and its implementing regulations, require that all Federal activities which directly affect the coastal zone be consistent with approved coastal zone management programs to the maximum extent practicable. A determination that this action is consistent with approved state coastal zone management programs was prepared and submitted for review on October 31, 1989 to each of the state coastal zone management agencies during the review process. The states of New York, New Jersey, New Hampshire, Massachusetts,

Connecticut, South Carolina, Pennsylvania, Maryland, Florida, and Delaware concurred with the Federal consistency determination. Georgia, Texas, and Maine do not participate in the Federal coastal zone management program. North Carolina commented it would review the final Shark FMP. Louisiana, Mississippi, and Puerto Rico submitted comments, but failed to state concurrence or disagreement with the consistency determination. Alabama, Rhode Island, Virginia, and the Virgin Islands did not respond. Copies of the final Shark FMP were sent to states for further comment relative to coastal zone management consistency.

Ten states reviewed the FMP and concluded that the proposed measures were consistent with their coastal zone management plans. These states were Connecticut, Delaware, Florida, Mississippi, New York, North Carolina, Pennsylvania, Puerto Rico, South Carolina, and Virginia. None of the other states commented on the Shark FMP, dated October 28, 1991, and therefore, consistency is automatically implied.

One state, New Jersey, stated that the FMP was inconsistent with their coastal zone management plan. New Jersey did not approve of the exception that permitted commercial vessels would have been able to land undersized mako sharks retrieved dead on longlines or in gillnets. This issue is moot since NMFS has reserved the mako minimum size limit.

On February 5, 1993, Florida indicated to NMFS that the state believes the final FMP, as preliminarily approved and released on December 11, 1992, is inconsistent with the Florida Coastal Management Program that was prepared and implemented under provisions of the CZMA. Florida argued that the final FMP measures regarding bag limits, fishing season dates, and finning prohibition, are inconsistent with the state's more restrictive regulations concerning these measures and, as a result, preempt their management authority. These measures in the final FMP were changed from those in the proposed FMP and proposed regulations. In March 1992, Florida issued state fishing regulations regarding bag limits, fishing year dates, and finning measures based on consistency with the Federal measures proposed at that time. Florida regulations also require a resident to have a Federal permit if he/she is to catch and sell sharks from state waters.

In response to Florida's concerns regarding the preliminarily approved final FMP, NMFS reviewed the FMP measures and the implementing regulations. To avoid any inadvertent Federal limitation of state management authority, NMFS changed the FMP and final regulations regarding conditions associated with accepting a Federal shark fishing permit. The final regulations were revised to require that a Federal permit recipient must agree that the vessel's fishing, catch, and gear will be subject to the Federal shark fishing regulations regardless of where the fishing occurs, with the exception that if a permitted vessel

fishes only in state waters on a given trip, the vessel's fishing, catch, or gear may be subject to the more restrictive state requirements for that trip. Any state regulations limiting the landing or possession of sharks by commercial fishermen fishing legally in the waters of another state, in the EEZ, or outside the EEZ in a more restrictive manner than Federal requirements would frustrate the intent of the FMP to allow a commercial fishery in the EEZ.

The FMP measures objected to by Florida as inconsistent with its Coastal Management Program will be implemented by an interim final rule with request for public comment. A final rule will be issued subsequently after considering the comments received and making necessary changes. NMFS has determined that the interim final rule will be implemented in a manner that is consistent to the maximum extent practicable with the approved coastal management programs of all the affected coastal states. This determination will be submitted for review by the responsible state agencies under section 307 of the CZMA at the time of publication of the interim final rule. State comments regarding this consistency determination will be considered by NMFS in issuing the final rule.

9.6 ENDANGERED SPECIES ACT AND MARINE MAMMAL PROTECTION ACT

Approximately 100+ commercial fishing vessels operating in U.S. waters of the Atlantic Ocean, Gulf of Mexico, and Caribbean spend a portion of their time targeting sharks. The 1988 shark longline fishery caught 80 percent of commercial landings, or 4,215 mt. About 15 net gear vessels caught the remaining 1,061 mt. The net gear consisted of drift gillnets, purse seines, and otter trawls. Of this, drift gillnetters targeting schools of blacktip and operating in state and Federal waters, landed about 750 mt in Florida in 1988 (Schaefer, 1990). An estimated 50 percent, or 500 mt, of net gear landings occur in Federal waters.

Longlines and net gear are known to kill marine mammals and sea turtles (Witzell, 1984). Components of the shark fishery are known to or suspected of interacting with marine mammals. With respect to the drift gillnet fishery that targets schooling blacktip sharks, no data presently exist as to the exact number of marine mammals or listed species are incidentally captured in this fishery.

The bottom longline fishery for snapper-grouper and other reef fish (including sharks) in the South Atlantic and Gulf of Mexico and the pelagic hook-and-line fishery in the Gulf of Maine, southern New England, and the Mid-Atlantic for tuna, shark, swordfish are listed as Category III fisheries (*Federal Register*, Vol. 56, No. 26, February 7, 1991). These fisheries are required to report any lethal takes to NMFS within 10 days of the

interaction. Components of the shark fishery listed as Category II are the Florida east coast gillnet fishery and the Atlantic Ocean, Caribbean, and Gulf of Mexico tuna, shark, swordfish longline fishery. They are required to register their vessels in the Marine Mammal Exemption Program and to complete vessel owner logs which document the daily fishing effort as well as any marine mammal interactions. Vessels are required to carry observers in the Category 1 Atlantic Ocean, Caribbean, and Gulf of Mexico swordfish, tuna, and shark drift gillnet fishery, if requested by NMFS. Registration and reporting requirements for Category I vessels are the same as for Category II.

On July 5, 1989, NMFS issued a Biological Opinion (BO) on the implementation of the Marine Mammal Exemption Program (MMEP). The impacts of all U.S. fisheries on threatened and listed species were assessed. The BO concluded that the continued activities of U. S. fisheries would not jeopardize the existence of threatened and endangered species but may adversely affect these species. An Incidental Take Statement (ITS) was given that allowed the take of sea turtles and shortnose sturgeon. The requirements of the ITS included observer coverage and documentation of any takes. NMFS has implemented some of these requirements through the MMEP logbook and observer program.

In September of 1989, an informal Section 7 consultation was conducted by the SEO regarding the management measures proposed by the initial draft of the Shark FMP. The consultation concluded that the proposed measures would not adversely affect threatened or endangered species but that the fisheries being managed might adversely affect listed species. The changes in the Shark FMP since the 1989 draft have increased the regulations to these fisheries. These changes do not change the determinations of the September 1989 consultation.

A Biological Assessment (BA) discussing the effects of the fisheries involved in the Shark FMP was submitted by the SEO on April 2, 1991, with a request for initiation of consultation pursuant to Section 7 of the ESA. The BA concluded that the continued activities of the directed fisheries would not jeopardize the recovery or existence of any endangered or threatened species, or their habitat. The resulting BO considers the effects of the fisheries on the listed species in the area. Listed species under the jurisdiction of the NMFS that occur in the Atlantic Ocean, Gulf of Mexico and the Caribbean and may be affected by the shark fishery include:

WHALES:

- (1) the endangered northern right whale - Eubalaena glacialis
- (2) the endangered humpback whale - Megaptera novaeangliae
- (3) the endangered fin whale - Balaenoptera physalus
- (4) the endangered sei whale - Balaenoptera borealis
- (5) the endangered sperm whale - Physeter macrocephalus

SEA TURTLES:

- (6) the endangered Kemp's ridley turtle - Lepidochelys kempii
- (7) the endangered leatherback turtle - Dermochelys coriacea
- (8) the endangered hawksbill turtle - Eretmochelys imbricata
- (9) the endangered/threatened green turtle - Chelonia mydas
- (10) the threatened loggerhead turtle - Caretta

Green turtles in U.S. waters are listed as threatened except for the Florida breeding population which is listed as endangered.

FISH:

- (11) the endangered shortnose sturgeon - Acipenser brevirostrum

Additional species known to occur in the EEZ of the U.S. in the Atlantic Ocean, Gulf of Mexico and Caribbean Sea:

- (1) the endangered blue whale - Balaenoptera musculus

NMFS has determined that the proposed activities are not likely to affect this species.

Based on data from logbooks and observer reports, NMFS anticipates that the direct and indirect fisheries for sharks may result in the injury or mortality of loggerhead, leatherback, and green turtles. NMFS also believes that Kemp's ridley and hawksbill turtles and shortnose sturgeon may also be injured or killed by these fisheries. Therefore, NMFS has established a low level of incidental take and terms and conditions necessary to minimize and monitor this impact. An incidental take (by injury or mortality) level of ten (10) shortnose sturgeons, two (2) Kemp's ridley, two (2) hawksbill, four (4) green, four (4) leatherback, or ten (10) loggerhead turtle mortalities is set pursuant to Section 7(b)(4) of the ESA. If the incidental take meets or exceeds this level, consultation must be reinitiated and area closures, seasonal closures, or gear restrictions may be necessary.

Reasonable and prudent measures that NMFS believes are necessary to minimize the impacts of the shark fisheries on listed species are listed below as well as the measures to document the incidental take, should such take occur:

1. Regional observer programs will be implemented to document incidental capture, injury, and mortality of listed species. This program should emphasize monitoring of gill net and longline fisheries that take sharks directly or indirectly.
2. All incidents of take of endangered or threatened species will be reported within 10 days of the take. The report shall include a description of the animal's condition at the time of release.

3. Any sea turtle incidentally taken must be handled with due care to prevent injury to live specimens, observed for activity, and returned to the water as provided in 50 CFR Part 227.72(e)(1)(i).
4. Regulations should be considered to reduce/eliminate mortalities where the take of threatened or endangered species exceeds levels specified in this incidental Take Statement.

In July 1992, the shark gillnet fishery came under suspicion of taking sea turtles when over 20 loggerhead turtles stranded on Cumberland Island, Georgia during a 10-day period. Three shark gillnet vessels were reportedly fishing off this island during this period. On October 13, 1992, (57 FR 46815) NMFS established a temporary observer requirement in the shark gillnet fishery. This rule was in effect from October 7 through November 5, 1992. Under this regulation, NMFS could place observers on these vessels to determine whether these vessels take turtles. The accompanying biological opinion analyzed the impact of this fishery on threatened and endangered sea turtles. That opinion reemphasized the need for an observer program to determine the impact of this fishery on seas turtles and established an incidental take statement that allowed the documented take by injury or mortality of: one Kemp's ridley, or one green, or one hawksbill, or one leatherback turtle, or two loggerhead turtles.

Implementation of the Shark FMP will reduce fishing effort. A reduction in marine mammal and endangered species mortality should occur with a reduction of shark fishing effort. The presence of onboard observers will help quantify the impact of shark fishing on these species.

The Shark FMP recognizes the need to assess possible gear restrictions to reduce bycatch mortality in the future. At present, information on which to base restrictions does not exist. The gear restriction issue will be addressed by the OT after the Shark FMP is implemented.

9.7 FEDERALISM

Executive Order 12612 requires that "Federalism" principles be considered in the formulation and implementation of Federal policies. The official designated by the Secretary has determined that the Federal regulations governing fishing for sharks in the EEZ has sufficient Federalism implications to warrant preparation of a FA. The FA is available upon request to NMFS. The FA concludes that the implementation of regulations managing sharks in Federal waters is not only required by Federal law, but clearly in the Nation's best interest since they are a valuable resource that are in danger of a stock collapse due to overfishing. This is done without limiting the policy-making

discretion of the states or preempting state laws. The proposed management measures and the implementing regulations are therefore consistent with the principles, criteria, and requirements of Executive Order 12612. The concepts of Federalism support approval of the management measures and issuance of the regulations.