2002 Summer Flounder, Scup, and Black Sea Bass Specifications Environmental Assessment Regulatory Impact Review/Initial Regulatory Flexibility Analysis Essential Fish Habitat Assessment

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ENVIRONMENTAL ASSESSMENT

Purpose and Need

The purpose of this document is to examine the impacts to the environment that would result from the implementation of the 2002 management measures recommended for the summer flounder, scup, and black sea bass fisheries. These measures include harvest limits (commercial and recreational) and other measures to ensure that the annual fishing targets specified in the Fishery Management Plan for the Summer Flounder, Scup, and Black Sea Bass fisheries (FMP) are attained.

Introduction

The management measures contained in the FMP are intended to address the overfished condition of these stocks. The summer flounder measures are based on a management plan drafted by the State/Federal Summer Flounder Management Program pursuant to a contract between the New Jersey Division of Fish, Game, and Wildlife, and the National Marine Fisheries Service (NMFS). The State/Federal draft was adopted by the Atlantic States Marine Fisheries Commission (Commission) in 1982. The Mid-Atlantic Fishery Management Council (Council) adopted the FMP in April 1988 and NMFS approved it in September 1988. The FMP has been amended several times since its initial implementation, with Environmental Impact Statements prepared to consider the impacts of the three major amendments relevant to this action. Amendment 2 enacted management measures for the summer flounder fishery through final regulations implemented on December 4, 1992 (57 FR 57358). Amendment 8 enacted management measures for the scup fishery north of Cape Hatteras Light through final regulations implemented on September 23, 1996 (61 FR 43420). Amendment 9 enacted management measures for the black sea bass fishery north of Cape Hatteras Light through final regulations implemented on December 16, 1996 (61 FR 58461). Each of these amendments enacted comprehensive management measures to attain annual fishing targets and address overfishing. Each of the amendments was adopted jointly by the Council and the Commission, so state regulatory actions complement federal management actions. The scup and black sea bass fisheries south of Cape Hatteras Light are managed under the SAFMC's Snapper/Grouper FMP.

The management objectives of the FMPs are as follows:

1) reduce fishing mortality in the summer flounder, scup and black sea bass fisheries to ensure that overfishing does not occur;
2) reduce fishing mortality on immature summer flounder, scup, and black sea bass to increase spawning stock biomass;
3) improve the yield from the fishery;
4) promote compatible management regulations between state and federal jurisdictions;
5) promote uniform and effective enforcement of regulations;
6) minimize regulations to achieve the management objectives stated above.

To attain these management objectives the FMP specifies the following measures that may be specified annually:

* commercial quotas;
* minimum sizes;
* gear regulations;
* recreational harvest limit;
* recreational possession limit, season, and no-sale provision.

Framework 1 to the Summer Flounder, Scup, and Black Sea Bass FMP, which was approved by NMFS on August 10, 2001, established a procedure through which research set-aside amounts up to 3-percent would be set annually as part of Council's quota-setting process. The intent of the program is to support the collection of new information that will benefit both the commercial and recreational fisheries for these species. Collaborative efforts between the public, research institutions, and the government will be subsidized by a percentage set-aside from the total allowable landings (TAL) of selected species, including summer flounder, scup, and black sea bass, under management by the Mid-Atlantic Council.

1.0 Annual Specification Process

Comprehensive measures enacted by Amendment 2 and modified in Amendments 3 through 7 were designed to rebuild the severely depleted summer flounder stock. Amendments 8 and 9 to the Summer Flounder, Scup and Black Sea Bass FMP implemented recovery strategies to rebuild the scup and black sea bass stocks, respectively. The FMP specifies for summer flounder a target F for 2002 of the level of fishing that produces maximum yield per recruit (F_{MAX}). Best available data indicate that F_{MAX} is currently equal to 0.26. The target F will be attained by specification of total allowable landings (TAL) allocated to the commercial (60 percent) and the recreational (40 percent) sectors. The commercial sector's quota is allocated to the coastal states based on percentage shares specified in the FMP. The FMP established a target exploitation rate for scup in 2002 and subsequent years of 21 percent. The total allowable catch (TAC) associated with that rate is allocated 78 percent to the commercial sector and 22 percent to the recreational sector. Discard estimates are deducted from both TACs to establish TALs for both sectors. The commercial TAL is allocated to three different periods. The Black Sea Bass FMP specifies a target exploitation rate of 37 percent for 2002. This target is to be attained through specification of a TAL level that is allocated to the commercial (49 percent) and recreational (51 percent) fisheries. The commercial quota is specified on a coastwide basis by quarter.

These amendments established Monitoring Committees which meet annually to review the best available scientific data and make recommendations regarding the total allowable landings and other management measures in the plan. The Committee's recommendations are made to achieve the target fishing mortality or exploitation rates established in the amendments to reduce overfishing. The Committee bases its recommendations on the following information: (1) commercial and recreational catch data; (2) current estimates of fishing mortality; (3) stock status; (4) recent estimates of recruitment; (5) virtual

population analysis (VPA); (6) target mortality levels; (7) levels of regulatory noncompliance by fishers or individual states; (8) impact of fish size and net mesh regulations; (9) sea sampling data; (10) impact of gear other than otter trawls on the mortality of each species; and (11) other relevant information.

Based on the recommendations of the Monitoring Committee, the Mid-Atlantic Council's Demersal Species Committee makes a recommendation to the Council which in turn makes a recommendation to the Regional Administrator. The Regional Administrator reviews the recommendation and may revise it if necessary to achieve FMP objectives. In addition, because the FMP is a joint plan with the Commission, the Commission's Summer Flounder, Scup and Black Sea Bass Board (Board) adopts complementary measures. The Council met jointly with the Board and adopted recommended measures at the August, 2001, meeting.

2.0 Methods of Analysis

The basic approach adopted in this analysis is an assessment of various management measures from the standpoint of determining the impacts upon the environment. In order to conduct a more complete analysis, impacts were examined in three alternatives (Table 1). The preferred alternative examines the measures adopted by the Council and the Board for 2002. The second alternative examines the impacts of the status quo alternative, i.e. the quotas that were implemented in 2001 (most restrictive). The third alternative examines the highest quotas (least restrictive alternative)considered by the two bodies. A full description of these alternatives is given in section 3.0.

Table 1. Comparison (in lb) of the alternatives of quota combinations reviewed. "FLK" is summer flounder.

	Commercial Quota*	Percent of 2000 Landings	Percent Change
Quota Alternative 1 (Preferred)			
FLK Preferred Alternative	14,578,288	129.97	29.97
Scup Preferred Alternative	8,000,000	300.87	200.87
Black Sea Bass Preferred Alternative	3,332,000	125.38	25.38
Quota Alternative 2 (Status Quo–Most Restrictive)			
FLK Status Quo	10,747,535	95.81	-4.19
Scup Status Quo	4,444,600	167.15	67.15
Black Sea Bass Status Quo	3,024,770	113.76	13.76
Quota Alternative 3 (Least Restrictive)			
FLK Non-Selected Alternative 3	20,878,658	186.13	86.13
Scup Non-Selected Alternative 3	9,530,000	358.41	258.41

Black Sea Bass Non-Selected Alternative 3	3,970,960	149.42	49.42

* Note that quotas are provisional and would be adjusted in 2002 to account for 2001 overages.

3.0 Alternatives Being Considered

3.1 Alternative 1 (Preferred Alternative)

Alternative 1 analyzes the impacts of the harvest limits recommended by the Council and Board on vessels that are permitted to catch any of the three species. The Council and Board recommended a total allowable landings (TAL) level of 24,297,146 lb(11,021,000 kg) for 2002 for summer flounder. The recommended coastwide TAL for 2002 for summer flounder of 24,297,146 lb (11,021,000 kg) is approximately 35.6 percent above the level established for 2001. The TAL for 2002 would be divided between the commercial and recreational components of the fishery in the same proportion as it was each year from 1993 to 2000. In 2002, the commercial fishery would receive 14,578,288 lb (6,612,600 kg) as a quota, and the recreational fishery would receive 9,718,858 lb (4,408,400 kg) as a harvest limit.

The Council and Board voted to establish a system in 1998 whereby 15 percent of each states quota for summer flounder would be set-aside each year to reduce discards after the closure of the directed commercial fishery. In addition to this, the set-aside system would allow for summer flounder landings to continue throughout the fishing season. This system was introduced for the first time in 1999, and no data as to its effectiveness are yet available. However, the program would continue in 2002. In order for fishermen to land the incidental catch allowance in a state, the Commission recommended that a state implement possession limits such that summer flounder on board cannot exceed 10 percent of other species on board for any trip set under the incidental catch allocation. Possession limits must be sufficiently restrictive to allow the incidental catch fishery to remain open for the entire year without exceeding the state's overall quota. In addition, the Commission recommended that states implement programs to collect additional data on discards in the commercial fishery.

The Council and Board recommend a coastwide total allowable catch (TAC) of 12,920,000 lb (5,860,413 kg) for 2002 for scup. This TAC is 54.34 percent above the TAC established for 2001. The 2002 TAC is divided between the commercial and recreational components of the fishery in the same proportion as it was each year from 1997 to 2001. The commercial TAC for 2002 is 10,077,000 lb (4,570,850 kg) and the recreational TAC is 2,840,000 lb (1,288,202 kg). Discard estimates are deducted from these TACs to set a TAL for the commercial and recreational sectors. The commercial TAL is a quota; and the recreational TAL is a harvest limit. Both are shown below.

	Commercial (lb)	Recreational (lb)
TAC:	10,077,600(4,571,122 kg)	2,842,400 (1,289,291 kg)
Less Discard Estimate:	2,077,600 (942,384 kg)	72,400 (32,840 kg)
TAL:	8,000,000 (3,628,740 kg)	2,770,000 (1,256,451 kg)

The Council and Board recommended no change in scup landing/possession limits for the two winter periods in 2002. For the first winter period (Jan-Apr), they recommended a landing limit of 10,000 pounds. When 80 percent of the landings are reached, the landing limit will drop to 1,000 pounds. For the second winter period (Nov-Dec), a 2,000 pounds landing limit was adopted. The Council and Board also adopted a measure that allows vessels fishing with small mesh and having an escapement extension of 45 meshes of 5.5" square mesh behind the body of the net and ahead of the codend be allowed to fish in the GRAs. For the directed scup fishery minimum mesh size for nets would be modified as follows: for large nets, no more than 25 meshes of 4.5" mesh in the codend with at least 100 meshes of 5.0" mesh forward of the 4.5" mesh and for small nets, 4.5" mesh or larger throughout.

The Council and Board recommended a coastwide TAL of 6,800,000 lb (3,084,428 kg) for 2002 for black sea bass. Based on landings data from 1983 to 1992, 49 percent of the TAL is allocated to the commercial fishery as quota and 51 percent is allocated to the recreational fishery as a harvest limit. As such, the recommended commercial quota for 2002 is 3,332,000 lb (1,511,370 kg) and the recommended recreational harvest limit is 3,468,000 lb (1,573,058 kg). The Council and Board recommended that the possession limits be modified for 2002 to 7,000; 2,000; 2,000; and 2,000 for each quarter, respectively. The Council and Board are also recommending an increase of minimum fish size in the commercial fishery to 11" TL. Accordingly, the Council and Board are also recommending changes in minimum mesh size and vent size. The current minimum mesh regulations require a 4.0" minimum mesh in the codend of the net for vessels possessing more than 1000 lbs of black sea bass. The Council and Commission recommended that the net provisions be modified such that fishermen could use large nets with a minimum of 75 meshes of 4.5" diamond mesh in the codend or small nets with at least 4.5" diamond mesh throughout, for 2002. The recommended threshold to trigger the minimum mesh size is 500 pounds from January through March and 100 pounds from April through December. Based on industry advice, the Council and Commission recommended that vent sizes be increased in 2002 to 1 3/8" x 5 3/4" for the rectangular vents, 2 3/8" in diameter for the circular vents, and 2" for square vents. The current regulations specify escape vent sizes of 1 1/8" x 5 3/4" for rectangular vents, 2" for circular vents, and 1 ½" for square vents.

In the annual specification process for 2002, the Council approved a research set aside amount equal to 2 percent of the total allowable harvest for summer flounder and 3 percent of the total allowable harvest for scup and black sea bass. Assuming that NMFS approves the preferred TAL alternative for each species, the set-aside amount would be 486,000; 323,100; and 204,000 pounds for summer flounder, scup, and black sea bass, respectively.

A number of research projects have been submitted to NMFS that would require an exemption from some of the current or proposed regulations for these species. In order to expedite the approval and implementation of these research projects, Council staff agreed to analyze the impacts of these exemptions on the environment for inclusion in the specification package for these species.

3.2 Alternative 2 (Status Quo - Most Restrictive)

Alternative 2 analyzes the impacts of maintaining the 2001 harvest limits for 2002 (status quo). More specifically, a summer flounder TAL of 17,912,559 lb. The commercial quota would be 10,747,535 lb, and the recreational harvest limit would be 7,165,024 lb in 2002. The scup fishery would receive a commercial quota of 4,444,600 lb and a recreational harvest limit of 1,771,400 lb. A TAL of 6,173,000 lb would be established for the black sea bass fishery. The commercial fishery would receive a quota of 3,024,770 lb and the recreational fishery would receive a harvest limit of 3,148,230 lb.

3.3 Alternative 3 (Least Restrictive)

Alternative 3 analyzes the impacts of the harvest limits that would result in higher landings in 2002 (relative to 2001). This alternative includes a summer flounder TAL of 34,797,763 lb (a 20,878,658 lb commercial quota; a 13,919,105 lb recreational harvest limit), a 9,530,000 lb commercial quota for scup (a 3,210,000 lb recreational harvest limit), and a 8,104,000 lb TAL for black sea bass (a 3,970,960 lb commercial quota; a 4,133,040 lb recreational harvest limit).

4.0 Affected Environment

4.1 Port and Community Description

The ports and communities that are dependent on summer flounder, scup, and black sea bass are fully described in Appendix 1 of this document.

4.2 Analysis of Permit Data/Human Environment

Federally Permitted Vessels

This analysis estimates that as of September 5, 2000, there were 1,969 vessels with one or more of the following three commercial or recreational Federal Northeast permits: summer flounder (FLK), black sea bass (BSB), and scup (SCP). A total of 1033, 977, and 831 Federal commercial permits for FLK, SCP, and BSB, respectively, had been issued to Northeast region fishing vessels. For party/charter operators a total of 613, 498, and 528 Federal permits were issued for FLK, SCP, and BSB, respectively.

These three fisheries (FLK, SCP, and BSB) have vessels permitted as commercial, recreational, or both. Of the 1,969 vessels with at least one Federal permit there were 1,303 that held only commercial permits for FLK, SCP, or BSB while there were 546 vessels that held only a recreational permit. The remaining vessels(120)held some combination of recreational and commercial permits. Whether engaged in a commercial or recreational fishing activity vessels may hold any one of seven combinations of FLK, SCP, and BSB permits. The total number of vessels holding any one of these possible combinations of permits by species and commercial or recreational status are reported in Table 2.

Table 2. Summary of number of vessels holding federal commercial and/or recreational permit combinations for summer Flounder (FLK), scup (SCP) and black sea bass (BSB).

Comm. Permit Combinations	Recreational Permit Combinations								
	No. Rec. Permit	FLK Only	SCP Only	FLK/ Scup	BSB Only	FLK/ BSB	SCP/ BSB	FLK/ SCP/ BSB	Row Total
No. Comm. Permit	0	54	12	34	9	66	15	356	546
FLK Only	286	5	4	1	2	0	1	5	304
SCP Only	69	3	0	1	0	3	0	7	83
BSB	96	1	0	0	0	0	1	1	99
FLK/ SCP	178	3	0	6	3	5	2	8	205
FLK/ BSB	40	0	0	0	0	2	1	0	43
SCP/ BSB	172	8	0	1	0	1	2	24	208
FLK/ SCP/ BSB	462	3	1	1	0	0	0	14	481
Column Total	1303	77	17	44	14	77	22	415	1969

Row sums in Table 2 indicate the total number of vessels that have been issued some unique combination of commercial permits. For example, there were 304 vessels whose only commercial permit was for FLK. By contrast, there were 481 that held all three commercial permits. Column totals in Table 2 indicate the total number of vessels that have been issued some unique combination of Federal recreational permits. For example, there were 17 vessels whose only recreational permit was for scup while 415 vessels held all three recreational permits. Each cell in Table 2 reports the total number of vessels that have the unique combination recreational and commercial permits by species. For example, the cell entry of 5 in row 2 column 2 indicates that there were 5 vessels that held the unique combination of only a FLK commercial permit and only a FLK recreational permit. Note that each cell entry in row one corresponds to vessels that held no commercial permit for FLK, SCP or BSB, while each cell entry in

column 1 corresponds to vessels that held no such recreational permit.

In addition to FLK, SCP, and BSB there are a number of alternative commercial or recreational fisheries for which any given vessel might possess a Federal permit. The total number of vessels holding any one or more of these other permits is reported in Table 3.

Table 3. Other permit year 2000 federal northeast region permits held by FLK, SCP, and BSB commercial and recreational vessels.

	Commercial Only (n= 1,303)		Party/Charter Only (n= 546)		Commercial and Party/Charter (n= 120)	
Northeast Permits	Vessels (No.)	Percent of Total	Vessels (No.)	Percent of Total	Vessels (No.)	Percent of Total
Surfclam	620	47.6	84	15.4	24	20
Ocean Quahog	574	44.1	80	14.7	19	15.8
Scallop	253	19.4	0	0	4	3.3
Non-trap Lobster	594	45.6	8	1.5	10	8.3
Lobster Trap	355	27.2	43	7.9	24	20
Party/ Charter Lobster	2	0.2	14	2.6	2	1.7
Party/ Charter Multi-Species	433	33.2	440	80.6	52	43.3
Comm. Multi-species	711	54.6	63	11.5	52	43.3
Party/ Charter Squid/ Mackerel/ Butterfish	4	0.3	423	77.5	76	63.3
Comm. Squid/ Mackerel/ Butterfish	1071	82.2	220	39.6	86	71.7

Comm. Bluefish	1062	81.5	425	77.8	100	83.3
Party/ Charter Bluefish	14	1.1	84	15.4	88	73.3

Of the vessels that hold at least one Federal permit for FLK, SCP, or BSB the largest number of commercial permit holders (Table 4) are held by Massachusetts vessels, followed closely by New York and New Jersey, then Rhode Island, and North Carolina. The fewest permits are held by Florida vessels, followed by Delaware. In terms of average tonnage, the largest commercial vessels are found in Florida, followed by Virginia, Massachusetts, Maine, and North Carolina. These rankings by state are similar for average length as well. The smallest vessels are found in Delaware, followed by New Hampshire and New York.

Table 4. Permit year 2000 descriptive data from northeast region permit files for commercial vessels.

	CT	DE	FL	MA	MD	ME	NC	NH	NJ	NY	PA	RI	SC	VA	WV	Other
No. of Permits by Mailing Address State	26	17	3	370	18	46	134	20	181	184	3	172	1	125	0	3
No.of Permits by Home Port State	15	14	4	429	15	33	117	13	152	212	22	133	1	137	2	4
No.of Permits by Principal Port State	28	8	2	383	23	44	125	18	181	184	0	171	1	133	1	1
Average Length by Principal Port	57.9	38.3	82.0	58.9	52.1	57.9	60.6	51.6	56.5	44.2	NA	56.9	47.0	63.3	NA	NA
Average Tonnage by Principal Port	74.1	16.0	127.0	82.6	37.6	75.1	79.0	44.8	69.3	40.0	NA	69.8	33.0	93.0	NA	NA
Percent Home Port Equal Principal Port	53.6	50.0	25.0	87.4	65.2	75.0	81.6	72.2	77.9	84.9	0	74.9	100	81.8	0	NA

For party/charter vessels (Table 5), the largest number of permit holders are found in New Jersey, followed by New York and Massachusetts. The fewest permits are in Florida, followed by North Carolina. As might be expected, recreational vessels are smaller on average than commercial vessels. In terms of overall length, the largest party/charter vessels operate out of principal ports in the states of Florida and Maryland, followed by Pennsylvania, Connecticut, New York, and New Jersey; while the smallest are in New Hampshire.

Table 5. Permit year 2000 descriptive data from northeast region permit files for party/charter vessels.

	CT	DE	FL	MA	MD	ME	NC	NH	NJ	NY	PA	RI	VA	Other
No. of Permits by Mailing Address State	25	7	4	119	8	23	12	18	153	101	6	39	31	0
No. of Permits by Home Port State	15	10	6	125	6	23	13	18	121	111	25	35	34	4
No. of Permits by Principal Port State	22	7	2	116	6	25	15	18	155	96	3	46	34	1
Average Length by Principal Port	45.0	38.6	60.5	37.0	58.8	36.0	38.8	30.9	45.7	47.0	52.3	36.8	39.0	NA
Average Tonnage by Principal Port	26.8	11.7	68.5	19.2	45.5	20.2	20.2	9.1	31.1	34.1	44.7	19.1	22.2	NA
Percent Home Port Equals Principal Port	68.2	70.0	16.7	90.4	66.7	88.0	80.0	94.4	76.8	79.3	4.0	76.1	88.2	NA

For vessels that hold a combination of commercial and party/charter permits most vessels operate out of ports in the states of New York followed by Massachusetts and New Jersey (Table 6). Like the vessels that hold only party/charter FLK, SCP, or BSB, permits, these vessels are generally smaller than commercial vessels and are smaller, on average, than party/charter vessels in Massachusetts and New York but are larger than New Jersey party/charter vessels.

Table 6. Permit year 2000 descriptive data from northeast region permit files for combination commercial/recreational vessels.

	CT	DE	FL	MA	ME	NC	NH	NJ	NY	PA	RI	VA	Other
No.of Permits by Mailing Address State	3	3	1	20	1	3	2	17	47	0	10	13	0
No. of Permits by Home Port State	3	3	1	26	4	1	14	49	2	2	5	12	0
No.of Permits by Principal Port State	2	2	0	20	1	4	2	14	48	2	12	12	1
Average Length by Principal Port	33.5	59.0	NA	34.8	46.0	41.3	33.5	53.1	37.9	66.5	41.8	46.7	36.0
Average Tonnage by Principal Port	7.0	55.0	NA	15.1	48.0	19.8	4.0	42.6	22.2	101.5	29.2	35.8	17.0
Percent Home Port Equal Principal Port	66.7	66.7	0	73.1	0	75.0	50.0	78.6	95.9	0	41.7	91.7	NA

Summer flounder permits are allocated per state, though vessels are not

constrained to land in their home state. It can be useful, therefore, to examine the degree to which vessels from different states make it a practice to land in states other than their home state. With the exception of South Carolina, commercial vessels in Massachusetts and Maryland vessels were most likely to list the same state as both the vessel owner's declared principal port of landing and the identified port of their home (Table 4), followed closely by Florida, New Jersey, Connecticut, New York, and New Hampshire. Vessels in Delaware were the least likely to land in their home port state followed by Virginia, North Carolina, and Rhode Island. Among recreational vessels (Table 5), New Hampshire vessels are the most likely to list the same state as both principal of landing and home port, followed equally by Delaware, Florida, Massachusetts, and Pennsylvania. For vessels that have a combination of commercial and party/charter permits, every such vessel operating out of Connecticut and North Carolina declared the same landing and home port (Table 6) on their year 2000 Federal permit application. Those vessels which have generally made it a practice to land in their home state may have less inherent flexibility in altering their landing state to adjust to smaller quotas in their home state.

To examine landings patterns 1999 data are used. The top commercial landings ports for FLK, SCP, and black sea bass by pounds landed are shown in Table 7. Related data for the recreational fisheries are shown in Table 8, though the nature of the recreational database (MRFSS) means that it is inappropriate to desegregate to less than state levels. Thus port-level recreational data are not shown.

Table 7. Top ports of landing (in pounds), based on NMFS 1999 weighout data. Since this table includes only the "top ports," it may not include all of the landings for the year.

Port	Pounds FLK	# FLK Vessels	Pounds SCP	# SCP Vessels	Pounds BSB	# BSB Vessels
STONINGTON, CT	188,498		52,799		8,207	
OCEAN CITY, MD	166,866	21	C	C	407,245	27
CHATHAM, MA	24,883	17	78,894	28	166,154	33
NEW BEDFORD, MA	318,553	139	264,495	31	85,143	42
BARNSTABLE, MA	126,224	31	47,083	25	10,758	27
OTHER DUKES, MA	157,619	30	34,376	23	118,436	29
NANTUCKET, MA	117,688	30	0	0	C	C
OTHER MASS	4,349	4	162,007	5	133,270	7
BAYBORO, NC	106,628	4	0	0	C	C
BEAUFORT, NC	576,122	25	0	0	21,317	13
ENGELHARD, NC	361,185	17	0	0	16,722	13

ORIENTAL, NC	312,304	19	0	0	783	6
WANCHESE, NC	1,020,351	53	0	0	85,612	56
VANDEMERE, NC	137,494	7	0	0	C	C
BELFORD, NJ	358,957	19	1,602	15	2,972	28
WILDWOOD, NJ	68,481	6	C	C	60,352	7
CAPE MAY, NJ	740,914	72	644,603	27	277,209	55
PT. PLEASANT, NJ	649,293	39	118,352	24	30,643	43
SEA ISLE CITY, NJ	6,891	5	C	C	107,018	7
FREEPORT, NY	30,012	24	63,675	9	18,825	17
GREENPORT, NY	70,182	22	54,358	14	13,247	14
HAMPTON BAY, NY	328,952	57	159,843	45	64,538	48
MONTAUK, NY	316,141	74	133,484	68	102,809	103
LITTLE COMPTON, RI	70,815	14	214,078	11	11,210	14
NEWPORT, RI	198,165	46	317,833	29	16,353	36
POINT JUDITH, RI	1,147,339	130	671,995	105	137,857	143
TIVERTON, RI	143,506	31	36,966	18	5,026	23
CHINCOTEAGUE, VA	391,248	29	323	5	84,125	24
HAMPTON, VA	719,640	39	C	C	219,437	33
NEWPORT NEWS, VA	887,148	59	C	C	72,343	42
VIRGINIA BEACH, VA	C	C	C	C	362,665	23

C = Confidential

Table 8. MRFSS preliminary estimates of 1999 recreational harvest and total catch (in numbers of fish).

State	FLK Harvest	FLK Catch	SCP Harvest	SCP Catch	BSB Harvest	BSB Catch
CT	215311	717740	373943	647073	1583	175312
MA	147720	393316	1209089	1549781	20985	46636
RI	432087	872254	718660	998039	25290	145934
DE	180562	613297	492	11498	41462	253967

MD	226912	1239079	2105	2105	159527	1646599
NJ	1502689	10723182	251821	351894	449134	2177475
NY	759640	4020124	874539	1071762	88880	820126
VA	378283	2561235	0	3890	536489	1778424
NC	236791	236791	0	0	88493	712993

Dealers

There were 199 dealers who bought summer flounder, scup and/or black sea bass in 1999. They were distributed by state as indicated in Table 9. Employment data for these specific firms are not available. In 1999 these dealers bought $16,259,534 worth of summer flounder; $3,686,648 worth of scup; and $4,793,747 worth of black sea bass.

Table 9. Dealers reporting buying FLK, BSB, and/or SCP, by state (from NMFS commercial landings database).

	DE, ME, NH, CT	MD	MA	NJ	NY	NC	RI	VA
Number of Dealers	5	3	43	23	44	27	37	17

Threatened and Endangered Species

The impacts of the summer flounder, scup and black sea fisheries upon endangered and threatened species and marine mammal populations are described in detail by the Council in the FMP amendments that instituted fishery management measures for these fisheries (Amendments 2, 10 and 12, summer flounder; Amendments 8 and 12, scup; Amendments 9 and 12, black sea bass). Impacts of this action are further summarized in section 6.2, Impacts of Alternatives upon Endangered or Threatened Species or Marine Mammal Populations, of this document.

5.0 Description of Fisheries

5.1 Summer Flounder

The commercial and recreational fisheries for summer flounder are outlined by principal port in Appendix 1, and additional information is found in Amendments 2, 10, and 12 (information on how to obtain these and other Council documents referred throughout this specifications package can be obtained from the MAFMC office).

In recent years, the commercial fishery has been managed under a quota system. In 1993, the first year that a coastwide quota was implemented, commercial landings were 12.59 million lb (5.71 million kg), slightly in excess of the quota of 12.35 million lb (5.60 million kg). Commercial landings in 1994 and 1995, were 14.56 and 15.42 million lb (6.58 and 6.97 million kg),

respectively. In 1996, landings declined to 12.95 million lb (5.85 million kg) which were about 16 percent in excess of the initial quota of 11.11 million lb (5.04 million kg) for that year. In 1997, landings were approximately 8.81 million lb (4.08 million kg) which were about 5 percent in excess of the initial quota of 8.38 million lb (3.8 million kg) for that year. Commercial landings were 10.72 million lb (4.86 million kg) in 1999 and increased to 11.22 million lb (5.09 million kg) in 2000. Annual commercial landings from 1993 to 2000 were less than the 16.59 million lb (7.52 million kg) landed in 1992, the year before quota implementation. With the exception of 1997, landings were substantially larger than the 9.25 million lb (4.19 million kg) landed in 1990.

Recreational landings have fluctuated since Amendment 2 regulations were implemented in 1993. Landings increased to 8.83 million lb (4.0 million kg) in 1993 from the 1992 level of 7.15 million lb (3.24 million kg). In 1994, recreational landings increased again to 9.33 million lb (4.23 million kg) and then declined to 5.42 million lb (2.46 million kg) in 1995. In 1996 and 1997, landings were 9.82 million lb (4.45 million kg) and 11.87 million lb (5.38 million kg), respectively. In 1998, recreational landings increased to 12.48 million lb (5.66 million kg) and then dropped to 9.10 million lb (4.13 million kg) in 1999. In 2000, recreational landings of summer flounder increased to the highest level in 10 years, 15.82 million lb (7.18 kg).

5.1.1 Status of the Stock

The status of the summer flounder stock is re-evaluated annually. The most recent assessment, updated by the NEFSC Southern Demersal Working Group in June, 2001 indicates that the summer flounder stock is overfished and overfishing is occurring with respect to the Amendment 12 overfishing definition.

However, the fishing mortality rate estimated for 2000 is 0.30, a significant decline from the 1.31 estimated for 1994. In addition, total stock biomass has increased substantially since 1991 to 102.3 million pounds in 2000. Spawning stock biomass has increased each year since 1993 to 81.6 million pounds in 2000, the highest value in the time series. Projections indicate that if the TAL in 2001 is not exceeded, total stock biomass will exceed the biomass threshold in January, 2002. At this level, the stock will no longer be overfished.

Year-class estimates indicate that the 1996, 1997 and 1998 year classes were about average size at 35 to 42 million fish. The assessment estimated the 1999 and 2000 year classes to be below average at 28 and 26 million fish, respectively. However “retrospective analysis shows that the VPA tends to underestimate recent year-classes.”

5.1.2 Stock Characteristics and Ecological Relationships

Full description of stock characteristics and ecological relationships of summer flounder are incorporated by reference in section 5.3 of Amendment 2. Additional information can be found in the SAW-31 documents. The following is

taking from the “SAW Southern Demersal Working Group 2001 Advisory Report: Summer Flounder.”

An analytical assessment (VPA) of commercial and recreational total catch at age (landings plus discard) was conducted. The natural mortality rate (M) was assumed to be 0.2. Indices of recruitment and stock abundance from NEFSC winter, spring, and autumn, Massachusetts spring and autumn, Rhode Island, Connecticut spring and autumn trawl, Delaware, and New Jersey trawl surveys were used in VPA tuning. In addition, recruitment indices from surveys conducted by the states of North Carolina, Virginia, and Maryland were used in VPA tuning in an ADAPT framework. The uncertainty associated with the estimates of fishing mortality and spawning stock biomass in 2000 was evaluated with respect to research survey variability.

Fishing mortality calculated from the average of the currently fully recruited ages (3-5) summer flounder has been high, varying between 0.9 and 2.2 during 1982-1997 (55%-83% exploitation), far in excess of the revised FMP Amendment 12 overfishing definition, $F_{threshold} = F_{target} = F_{max} = 0.26$ (21% exploitation). The fishing mortality rate has declined substantially since 1997 and was estimated to be 0.30 in 2000 but is still 15 percent higher than the overfishing definition. The annual partial recruitment of age-1 fish decreased from near 0.50 during the first half of the VPA series to 0.25 since 1994; the partial recruitment of age-2 fish has decreased from 1.00 in 1993 to 0.77 in 1998-2000. These decreases in partial recruitment at age are in line with expectations given recent changes in commercial and recreational fishery regulations.

The NEFSC spring survey stock biomass index (1968-2001) peaked during 1976-1977, and reached a record high in 2001. Total stock biomass on January 1, estimated by VPA (1982-1999) reached 48,300 mt in 1983, before falling to 16,100 mt in 1989. Total stock biomass has increased since 1991, has been stable since 1994 at about 41,000 mt, and in 2000 was estimated to be 46,400 mt, which is 44 percent of the biomass target of B_{MSY} = 106,400 mt, and 87 percent of the biomass threshold of one-half B_{MSY} = 53,200 mt.

The arithmetic average recruitment from 1982 to 2000 was 40 million fish at age 0, with a median of 36 million fish. The 1982 and 1983 year-classes are the largest in the VPA time series, at 74 and 80 million fish, respectively, at age 0. Recruitment declined from 1983 to 1988, with the 1988 year-class the weakest at only 13 million fish. Recruitment since 1988 has generally improved, and the 1995 year-class, at 45 million fish, was above average. The 1996-1998 year-classes, ranging between 35 to 42 million fish, are estimated to be about average. The 1999 and 2000 year-classes, at 28 and 26 million fish, respectively, are estimated to be below average. It should be noted that retrospective analysis shows that the assessment tends to underestimate the abundance of recent year classes. Recent recruitment per unit of SSB has been lower than that estimated at a comparable abundance of SSB during the early 1980s.

Spawning stock biomass declined 72 percent from 1983 to 1989 (18,800 mt to 5,200 mt), but has since increased seven-fold, with improved recruitment and

decreased fishing mortality to 37,000 mt in 2000. The age structure of the spawning stock has expanded, with 78 percent at ages 2 and older, and 16 percent at ages 5 and older. Under equilibrium conditions at F_{max}, however, about 85 percent of the spawning stock biomass would be expected to be ages 2 and older, with 50 percent at ages 5 and older.

5.1.3 Economic and Social Environment

A general description by principal port of the commercial and recreational importance of scup, summer flounder and black sea bass is given in Appendix 1.

Since 1993 the commercial fishery has been managed under a quota system. The value of commercial landings of summer flounder in 1993 were estimated at $19.1 million. In 1994 and 1995 commercial exvessel value increased to $24.0 and $28.3 million, respectively. Estimated exvessel value for 1996, 1997, and 1998 was $20.8 million and $15.5 million, and $18.7 million, respectively. In 1999, summer flounder commercial landings were valued at $19.4 million and average exvessel price for summer flounder was estimated at $1.81 per pound. In 2000, summer flounder landings were valued at $18.5 million and average exvessel price for summer flounder was estimated at $1.65 per pound. In general, summer flounder landings for smaller tonnage vessels were higher in the summer months, while landings for larger tonnage vessels were higher in the winter months. Monthly price fluctuations were evident. On average, higher prices tended to occur during the summer months. This price fluctuation is likely associated with supply responses.

Summer flounder continues to be an important component of the recreational fishery. Estimation of primary species sought as reported by anglers in recent intercept surveys indicates that summer flounder has increased in importance in the U.S. North Atlantic and Mid-Atlantic subregions, while decreasing in the South Atlantic subregion. The number of trips for which recreational anglers sought summer flounder in the North Atlantic and Mid-Atlantic subregions in 2000 was 654 thousand and 4.9 million, respectively. This represents a 31 percent increase relative to 1999 for both regions combined.

Japan continues to be the most important export market for summer flounder. Exports of summer flounder are difficult to determine as summer flounder gets lumped under a variety of export codes and it is impossible to identify in the U.S. export data (B. Ross pers. comm. 1997). However, export of US summer flounder to Japan has been reported to vary from approximately 800 to 1,800 mt in 1993-1997 (Asakawa pers. comm.). Fresh whole U.S. fluke or summer flounder (Paralichthys dentatus) is generally exported to Japan for raw (sashimi) consumption. Fresh U.S. summer flounder is used as a substitute for Japanese "hirame" (bastard halibut -- *Paralichthys olivaceus*), and normally imported whole fresh and sold through seafood auction markets to restaurants. They are usually consumed raw for sashimi or sushi toppings in Japan. While U.S. summer flounder is well established in some major action markets, daily prices may fluctuate depending on the total quantity of domestic and imported hirame (including U.S. summer flounder) delivered to auction on a given day. Depending on quality, auction prices for fresh U.S. summer flounder may vary

from around 1,000 to 3,000 yen/kilo ($3.13 to 9.40/lb at 145 yen/$ 1.00) depending on size, quality and market conditions (Asakawa pers. Comm.). Frozen summer flounder may not be considered to be of the same quality, and is unlikely to become substitute for unfrozen summer flounder. Nevertheless, properly handled frozen summer flounder may receive wholesale prices of 400-900 yen/kilo ($1.73-3.90/lb) or higher (Asakawa pers. comm.). The recent economic crisis in Japan could potentially hamper exports of seafood commodities to that country. Furthermore, future devaluation of the yen would result in reduced revenues for exporters of summer flounder to Japan.

Imports of flounders (all species combined) were 5.92 million lb ($4.54 million) in 1996, 5.39 million lb ($4.44 million) in 1997, and 7.23 million lb million lb ($4.67 million) in 1998. In 1999, 7.87 million lb of flounders valued at $5.28 million entered the country for consumption (NMFS). Importers generally tend to import flounders when domestic exvessel prices reach $2 per pound. South Atlantic flatfish (e.g., Argentina) are imported to the US when domestic prices are high. However, frozen imports may not make the grade for some restaurants and retail buyers that demand fresh flounder (National Fishermen, 1998).

The commercial and recreational fisheries for summer flounder are fully described and incorporated by reference in sections 8.1 and 8.2 of Amendment 2.

5.2 Scup

The commercial and recreational fisheries for scup are fully described and incorporated by reference in section 7.1 and 7.2, respectively of Amendment 8, and are outlined by principal port in Appendix 1. In the last 20 years (1981 to 2000) there has been a downward trend in scup commercial landings. Commercial scup landings, which had declined 60 percent from 21.73 million lb (9.85 million kg) in 1981 to 8.77 million lb (3.71 million kg) in 1989, increased to 15.61 million lb (6.86 million kg) in 1991 and then dropped to the lowest value in the time series, 2.66 million lb (1.21 million kg), in 2000.

The recreational landings declined steadily from a 1986 value of 11.61 million lb (5.26 million kg) to 1.34 million lb (0.61 million kg) in 1995, and then increased to 2.16 million lb (0.98 million kg) in 1996. In 1997, recreational landings were 1.2 million lb (0.54 million kg) and then dropped to 0.88 million lb (0.40 million kg) in 1998, the lowest value in the time series. However,, recreational landings rebounded to 1.89 million lb (0.86 million kg) in 1999 and continued to rebound in 2000 to 5.18 million pounds (2.35 million kg).

5.2.1 Status of the stock

The most recent assessment on scup, in June 2000, indicates that scup are overfished and overfishing is occurring(SARC 31). The SARC concluded that “the current index of spawning stock biomass is low (1998-2000 average =0.10 SSB kg/tow) and less than 5 percent of the biomass threshold (2.77 SSB

kg/tow)." The SARC also stated that "fishing mortality should be reduced substantially and immediately. Reduction in fishing mortality from discards will have the most impact on the stock, particularly considering the importance of the 1999 and all future good recruitment to rebuilding the stock."

Since then, the ASMFC Technical Committee has updated the state and federal survey indices for scup as well as discard estimates from sea sample and VTR data. In general, the surveys indicate an increase in stock abundance in recent years. The NEFSC spring survey results indicate that spawning stock biomass has increased each year since 1998; the estimate for 2000 (3 yr average) is 0.25 or about 9 percent of the biomass threshold. In addition, the NEFSC autumn survey results (kg/tow) for 2000 are the highest in the time series since 1976. These survey results reflect the effects of a strong 1997 year class and moderate to strong 1999 and 2000 year classes on the stock.

Commercial and recreational landings also indicate that the 1997 year class was strong and has persisted over time to support landings in both 1999 and 2000. Recreational catch per trip increased substantially in 1999 and recreational landings in 2000 were highest since 1991. Increased abundance of larger fish has also been noted by commercial fishermen who have suggested that more than the 1997 year class accounts for the availability of larger fish. However, ageing studies conducted by CT DEP personnel suggest that scup from the 1997 year class have grown at a faster rate than previous year classes. As such, the 1997 year class probably accounts for most of the larger fish in the commercial and recreational catches in 2000.

Estimates of fishing mortality rates for scup are uncertain. The SARC conducted several analyses that indicated that F was at least 1.0 for ages 0-3 scup for the 1984 to 2000 time series. The SARC could not estimate F's on older fish because they are not well represented in the surveys. However, the SARC did note that it was likely that the current F was "significantly higher than the reference point." The SARC noted that the truncation in lengths and ages in the surveys and landings suggest that the stock has experienced high fishing mortality rates.

Although the magnitude of the mortality rates is unknown, relative exploitation rates have changed over the period. Relative exploitation rates based on total landings and the spring survey suggest a general increase in exploitation from 1981 to 1995. Since then, relative exploitation rates have declined; the 2000 value is about one-third of the 1997 value.

5.2.2 Stock Characteristics and Ecological Relationships

The stock characteristics and ecological relationships of scup are fully described and incorporated by reference in section 5.3 of Amendment 8. Scup was last fully assessed at SAW-31 in 2000. Reliable estimates of commercial fishery discards were not available due to the limited sample size and the uncertainty related to the representative nature of the sea sampling data for scup. VPA and production models were not undertaken and stock status was estimated from survey abundance indices. Standardized indices of abundance

from the NEFSC autumn survey and the MRFSS (recreational) catch per tow show similar patterns over time (1981-1999). Total mortality rates were estimated from survey based calculations using both annual and cohort catch curves. Fishing mortality rates were then estimated by subtracting the assumed natural mortality rate of 0.2.

The SARC estimated that total mortality of age 0-3 scup was close to 2.0 based on survey data suggesting that discard mortality had been high. However, the estimates were uncertain and did not account for availability of scup to the trawl gear or the fact that natural mortality is higher on smaller scup. The SARC concluded that the F on age 0-3 scup was at least 1.0.

The relative exploitation index may offer some clue as to current levels of mortality for older fish. Because the index is based on mostly landings of scup larger than 9" TL (the commercial minimum fish size and the recreational minimum fish size in states from MA through NJ) and SSB, the index may indicate fishing mortality rates on the larger fish has declined in recent years.

Based on current information, scup abundance is likely to increase in 2002. Survey information indicates that regulations may have protected the 1997 year class and also indicate a large 1999 and 2000 year class. If the 1999 and 2000 year classes are large and mortality of undersized fish is reduced, substantial biomass could be added to the stock by 2002.

In fact, deterministic projections of the NEFSC spring survey based on the 3-year average value for 2000 (average of the 1999, 2000, and 2001 indices at age) indicate that the SSB 3-year average index could increase from 0.25 in 2000 to 0.457 in 2001 assuming a fully recruited F of 1.0, the F estimated by the SARC in the last assessment, and the partial recruitment and maturity vectors from the yield per recruit analysis conducted for SAW 27. Assuming an average biomass that is at least identical to the 2001 average value of 0.457 in 2002, then exploitation rates could drop to 21 percent if the landings do not exceed 10.77 million pounds in 2002.

This calculation does not include an estimate of discards, i.e., mortality estimates are based on landings (not catch) of fully recruited fish and assumes that legal sized fish would not be discarded. As such, discards in both the directed scup fishery and indirect small mesh fisheries should be minimized to achieve the target exploitation rate for 2002. If in fact discards in 2002 are as high as suggested by sea sample data for 2000, the TAL would have to be reduced significantly to achieve the target exploitation rate of 21 percent.

5.2.3 Economic and Social Environment

A general description by principal port of the commercial and recreational importance of scup, summer flounder and black sea bass is given in Appendix 1.

Commercial scup landings were about 2.66 million lb (from ME to Cape Hatteras, NC) and valued at $3.33 million in 2000. The average price per pound was

$1.25 in 2000. The overall degree of reliance on scup is low for the ports described in Appendix 1. Scup values and landings were higher for ports located in the northern part of the coast.

A detailed description of the economic aspects of the commercial and recreational fisheries for scup was presented in sections 8.1 and 8.2 of Amendment 8.

5.3 Black Sea Bass

The commercial and recreational fisheries for black sea bass are fully described in section 7.1 and 7.2, respectively of Amendment 9, and are outlined by principal port in Appendix 1.

Commercial black sea bass landings have varied without trend since 1981, ranging from a low of 2.04 million lb (0.93 million kg) in 1994 to a high of 4.33 million lb (1.96 million kg) in 1984. The 2000 landings of 2.66 million lb (1.21 million kg) were below the average for 1981-2000 of 3.11 million lb (1.41 million kg). Currently, landings are substantially below the peak landings of 21.80 million lb (9.89 million kg) estimated for 1952.

Recreational landings ranged from a low of 1.15 million lb (0.52 million kg) in 1998 to a high of 12.39 million lb (5.62 million kg) in 1986. Recreational landings in 2000 were about 3.62 million lb (1.64 million kg), a substantial increase from 1.70 million pounds (0.77 million kg) in 1999, but slightly less than the average for 1981-2000 of 3.88 million pounds (1.76 million kg).

5.3.1 Status of the Stock

The most recent assessment on black sea bass, completed in June 1998, indicates that black sea bass are over-exploited and at a low biomass level (SAW 27). Fishing mortality for 1997, based on length based methods, was 0.73. The complete assessment is detailed in the “Report of the 27th Northeast Regional Stock Assessment Workshop.”

The NEFSC has provided spring survey results for 2001. Amendment 12 to the Summer Flounder, Scup and Black Sea Bass FMP, which was partially approved by NMFS in 1999, established a biomass threshold based on this survey. Specifically, the biomass threshold is defined as the maximum value of a three-year moving average of the NEFSC spring survey catch-per-tow (1977-1979 average of 0.9 kg/tow).

Because of the potential influence of extremely small or large number for a single tow, Gary Shepherd, NEFSC (pers. comm.) has suggested that the survey indices be log transformed to give a better indication of stock status. The transformed series indicates a general increase in the exploitable biomass since 1993. The preliminary index for 2001 of 0.245 is the highest value in the series since 1976 and would substantiate fishermen’s observations that black sea bass have become more abundant in recent years. The three-year moving average for 1999-2001 of 0.204 is a 45 percent increase relative to the 1998-2000 average.

Fishery dependent data can also be used as a indicator of stock status. Increased abundance is evident in the recreational data; landing-per-hour fished increased 25 percent from 1999 to 2000. Data provided by a Virginia pot fisherman indicate an increase in abundance as well.

Relative exploitation based on the total commercial and recreational landings and the moving average of the transformed spring survey index indicates a significant reduction in mortality from 1998 to 2000 relative to 1996 and 1997 levels. Based on length frequencies from the spring survey, and assuming length of full recruitment at 25 cm, the average F based on two length based methods was 0.75 (48% exploitation rate) in 1998 (G. Shepherd pers. comm.). Length based estimates are very sensitive to changes in the length used for full recruitment; average F's were 0.51 (37% exploitation) or 1.25 (66% exploitation) if a length of 23 or 27 cm was used in the calculations. Based on the relative index, exploitation rates in 2000 increased relative to the 1998 values; assuming a 48% rate for 1998, the exploitation rate in 2000 was 59%.

The spring survey can also be used as an index of recruitment. The survey indicates good year classes were produced in 1988, and 1990 through 1992, with a moderate year class in 1995, and poor year classes in 1993, 1994, and 1996 through 1998. The 1999 index was about three times the average for the period 1968-1998 and the fourth largest value since 1968. Results for 2000 indicate a strong year class; the index is 2.782, the highest in the time series. However, preliminary results indicate that the year class was poor in 2001.

5.3.2 Stock Characteristics and Ecological Relationships

The stock characteristics and ecological relationships are fully described in section 5.3 of Amendment 9. In addition, the advisory report on black sea bass from SAW-27 states that "recent catches are well below the historical average, age and size structure is truncated, and survey biomass indices since the late 1980s have been one-tenth of those observed in the late 1970s. Average annual fishing mortality, estimated from length-based analyses, ranged from 0.56 to 0.79 during 1984-1997 and was 0.73 (48 percent exploitation) in 1997. Recruitment in 1997, as indicated by survey indices, was well below the 1972-1996 average." Additional, detailed information is available in the SAW-27 documents.

5.3.3 Economic and Social Environment

A general description by principal port of the commercial and recreational importance of scup, summer flounder and black sea bass is given in Appendix 1.

In 2000, black sea bass landings (from ME to Cape Hatteras, NC) were valued at $4.76 million and average exvessel price for black sea bass was estimated at $1.79 per pound. The overall degree of reliance on black sea bass for ports described in Appendix 1. Black sea bass values and landings were higher for ports located along the southern part of the coast.

A detailed description of the economic aspects of the commercial and

recreational fisheries for black sea bass was presented in sections 8.1 and 8.2 of Amendment 9.

6.0 Environmental Consequences of Preferred and other Alternatives

This EA analyzes the impacts of the alternatives considered for the year 2002 specifications for summer flounder, scup, and black sea bass. The nature of the management programs for these three fisheries was examined in detail in the Environmental Impact Statement (EIS) prepared for each of the three fisheries (Amendment 2 for summer flounder (1992), Amendment 8 for scup (1996), and Amendment 9 for black sea bass (1996)). Those analyses included considerations of the impacts of the overall management measures on stock health and abundance, spawning stock biomass, and protected species, as well as on the economy and affected fishermen.

Cumulative Impacts

Although the measures that are the subject of this EA are for the year 2002 fisheries, the annual specification process for these fisheries could have potential cumulative impacts. The extent of any cumulative impacts from measures established in previous years is largely dependent on how effective those measures were in meeting their intended objectives and the extent to which mitigating measures compensated for any quota overages.

The management schemes established by the Council for summer flounder, scup, and black sea bass in the FMP, as previously analyzed in each species' respective EIS, recognize that management measures and fishery specifications established in one fishing year have implications for the measures that follow in subsequent years. In order to end overfishing and remedy the overfished status of these stocks, the Council developed rebuilding programs that have stock biomass targets. To achieve rebuilding, the Council recommends annual specifications that are intended to have a reasonable likelihood of not exceeding the specified target F's for the coming fishing year. Because of the nature of the fisheries (e.g., the landing of these species over in a large number of coastal states) and the inherent time lags encountered in collecting landings that are necessary to make final determinations of actual landings, there is always the possibility that some harvest quotas may be unintentionally exceeded before the information necessary to close that portion of the fishery is available. On the other hand, other sectors of the fishery (e.g., certain states, in the case of summer flounder) may under-achieve their allowable harvest levels in a given year.

To compensate for any over-harvests, and to preserve the conservation intent of the management regime, the FMP includes provisions that require that any commercial landings that exceed the specifications in one year or quota period be deducted from the commercial quota that would otherwise have been allowed for that portion of the fishery in the following year. Similarly, overages in the recreational fishery are addressed by way of changes in management measures to reduce the harvest in the following year to the specified level. Thus, the FMP and the annual specifications anticipate the possibility that landings may exceed targets in any given year and provide a remedy that at

least partially compensates for such occurrences in terms of maintaining the conservation goals of the FMP and the rebuilding programs, thus mitigating the impacts of those overages. The annual nature of the management measures is intended to provide the opportunity for the Council and NMFS to assess regularly the status of the fisheries and to make necessary adjustments to ensure that there is a reasonable expectation of meeting the objectives of the FMP and the targets associated with any rebuilding programs under the FMP.

The rebuilding programs under the FMP began in 1993, 1997, and 1998 for summer flounder, scup, and black sea bass, respectively. Because each year's measures build upon the previous year's measures, the cumulative effects of the management program on the health of the stocks and the fishery are assessed from year to year. As described above, the regulation implementing the FMP require that any commercial fishery overages in a given year be subtracted from the initial quota for a given state (summer flounder) or season (scup and black sea bass) the following year. An exception to this requirement occurred when a court ruling added 3.05 million pounds (1.4 million kg) to the commercial fishery for 1995 (February 16, 1995, 60 FR 8958). In the recreational fisheries for these species, projected landings in a given year are used by the Council in recommending recreational management measures for each species in the following year. The Council and NMFS consider angler effort and success, stock availability and the target harvest limits in establishing recreational measures for the upcoming year, including size limits, seasons, and bag limits. The recreational fisheries have target harvest levels, which do not require the fishery to be closed when attained, as compared to the commercial fishing quotas, which do require the fishery to be closed when the quota is attained.

Harvest limits, total landings, and total overages for each of the three fisheries have been as follows (weights are in thousands of pounds):

<u>Summer Flounder</u>

Commercial Quotas (millions of pounds)

Year	Quota	Commercial Share	Adjusted Commercial Quota	Commercial Landings	Overage
1993 -	20.73	12.44	-	12.59	-
1994 -	26.68	16.00	-	14.52	-
1995 -	19.40	14.7 (add on)	-	15.38	0.68
1996 -	18.52	11.11	10.43	12.72	2.29
1997 -	18.52	11.11	8.81	8.97	0.16
1998 -	18.52	11.11	10.95	11.21	0.26
1999 -	18.52	11.11	10.73	10.62	-
2000 -	18.52	11.11	10.88	11.22	0.24
2001 -	17.91	10.75	10.06	N/A	N/A

*-Preliminary

** Although there was not an overall overage in 1999, several individual states exceeded their 1999 allocation thus requiring a 2000 adjustment.

Recreational Harvest Limits (millions of pounds)

	Harvest	Landings	Overage

	Limit		
1995 -	7.8	5.50	-
1996 -	7.41	10.37	2.96
1997 -	7.41	11.86	4.45
1998 -	7.41	12.53	5.12
1999 -	7.41	8.37	0.96
2000 -	7.41	15.82	8.41
2001 -	7.16	N/A	N/A

	Scup^			Black Sea Bass^		
	TAL	Landings	Overages	TAL	Landings	Overages
1997 -	7.947	6.034	-	-	-	-
1998 -	6.125	5.042	-	6.173	3.69	-
1999 -	3.772	5.209	1.437	6.173	4.67	-
2000 -	3.772	7.842	4.070	6.173	6.28	0.107
2001 -	3.530	N/A	N/A	6.173	N/A	N/A

^-Includes both commercial and recreational harvest limits.
Note - 2001 landings not yet available for scup and black sea bass.

The summer flounder, scup, and black sea bass commercial fisheries have experienced annual total overages. In 2000, summer flounder, scup, and black sea bass commercial overages totaled approximately 0.34, 0.91, and 0.03 million pounds, respectively. However, the total overage, even though the recreational overage cannot be deducted, factors into the cumulative impact on the stocks. The overages of total landings for summer flounder, scup, and black sea bass were 9.81 million lb, 2.54 million lb, and 0.49 million lb, respectively, in 2000.

Quota overages in a given year or period have two expected impacts. First, the overages result in harvest levels in the following year or period for that portion of the fishery that are lower than would otherwise have been allowed, given the condition of the stock. In commercial fisheries, the overages result in a direct reduction in the next year’s quota, which impacts fishery participants by decreasing potential revenues for the fishing year or period in which the overages are deducted. However, the fishery participants have already realized revenues from the landings that exceeded the allowable harvest level in the year they occurred. Thus, from an economic perspective, the timing of revenues is altered and there may be impacts on some fishermen caused by unexpected reductions in their opportunities to earn revenues in these fisheries in the year during which the overages are deducted. In the recreational fisheries, overages in one year may result in lower bag limits, larger minimum size limits, and/or shorter seasons than would otherwise have been allowed, had the overages not occurred. Increased harvests in one year are thus “paid back” by decreased harvest opportunities the next year. Recreational fishing opportunities for those fishermen not desiring to keep their catch of these species would be affected little, if any, by such occurrences.

The second possible result of overages is the potential that the annual F targets of the FMP will not be met and/or that the rebuilding schedule will be

delayed. The significance of any such delays depends on the magnitude of the overages and their resultant impact on the stock size and age structure. While it is not possible to quantify those effects precisely, the fact that the FMP's management regime takes into account the overages and the current status of the stocks in setting the specifications for the next year mitigates any such impacts. For summer flounder, the actual F has been higher than the target for several years, thus, the rate of rebuilding may have been slowed compared to the amount of rebuilding that might have occurred had F not exceeded the target. Nevertheless, the spawning stock biomass for summer flounder has increased substantially during the rebuilding period and the age structure of the summer flounder stock has expanded. Thus, the summer flounder stock is healthier and more robust than before rebuilding was initiated. Fishing mortality targets have generally been achieved for scup and black sea bass, so overages in individual periods or quarters are not likely to result in impacts on stock rebuilding for those stocks.

The Council and NMFS recognize that overages in any of the fisheries in 2002 could have additional negative impacts on the rate of rebuilding. Given the history of the summer flounder fishery, the mitigating influence of annual overage adjustments, and the fact that the stock has shown continued improvement during the rebuilding period, despite the overages that have occurred, the cumulative impacts of overages are not considered to be significant. Likewise, the impacts of any overages that might occur in 2002 as a result of these fishery specifications are also not considered to be significant.

6.1 Impacts of Alternatives upon the Affected Environment

The environment in which these fisheries are prosecuted was described in detail by the Council in the FMP amendments that instituted fishery management for these fisheries (Amendments 2, 10, and 12 for summer flounder; Amendments 8 and 12 for scup; and Amendments 9 and 12 for black sea bass). The fishery management plans for black sea bass and scup regulate the fishery from Maine to Cape Hatteras, North Carolina, while the summer flounder fishery is regulated from Maine to the southern border of North Carolina. The fisheries are prosecuted by vessels throughout the range, though the geographic focus of the fishery varies somewhat from year to year.

The principal gear used to harvest summer flounder, scup and black sea bass is the bottom otter trawl with other major gears including scallop dredge (for summer flounder) and fish pots and traps (for scup and black sea bass). There are potential impacts of otter trawling and scallop dredging on the ocean bottom habitat. However, quantification of specific gear types on various bottom types is poorly understood. However, whatever the consequences for habitat, it can be assumed that increased trawling and dredging effort would tend to have greater negative consequences. Conversely, any action which acts to reduce fishing effort, would tend to reduce the negative impacts of gear on the physical environment. The proposed 2002 quota specifications increase the summer flounder TAL by 35%, increase the black sea bass TAL by 10%, and increase the scup TAL by 73%. It is difficult to predict precisely whether these quota increases will result in increased fishing effort on EFH. Several possibilities

exist that would influence fishing effort. Potentially, the larger quota could result in a larger number of fishing trips, or longer fishing trips, with a corresponding potential for greater habitat impacts. Conversely, a larger quota could mean that states establish higher trip limits, which would result in an equal number of fishing trips landing a larger volume of fish. Similarly, with increased species abundance, catch-per-unit-effort could increase which would result in the same number of tows landing a larger volume of fish. In these latter instances, the proposed quotas would result in either the same or reduced gear impacts to bottom habitats. The chart below represents the range of potential habitat impacts that could occur under each of the various quota alternatives for each of the three species.

Comparison of Habitat Impacts and Considerations for Selecting Alternatives

Alternative	Quotain mil lbs.	Potential Habitat Impacts	Considerations for selecting alternative
Summer Flounder			
Preferred Alternative 1	24.3	Based upon species abundance, impacts may remain the same as existing, may increase or may decrease. Increased CPUE will tend to lead toward stable or decreased impacts to habitat. This is a potential increase in habitat impacts is more than Alternative 2 but less than Alternative 3.	Maximizes landings without compromising rebuilding schedule, minimal to no increased habitat impacts, increased financial benefit to industry
Alternative 2 (Status quo)	17.913	Impacts may range from maintaining existing level of to decreases. The potential for maintaining or decreasing impacts is greatest with this alternative	Does not maximize landings, reduced short-term yields, potential decreased impacts on habitat, no increase or decrease in financial benefit to industry
Alternative 3	34.797	Based upon species abundance, impacts may remain the same as existing, may increase or may decrease. Increased CPUE will tend to lead toward stable or decreased impacts to habitat. However, this alternative has the potential for the greatest increase in habitat impacts.	Maximizes landings to greatest extent, May compromise stock rebuilding, potential for highest habitat impacts, potential for highest short-term financial benefits to industry.
Scup			
Preferred Alternative 1	12.92	Based upon species abundance, impacts may remain the same as existing, may increase or may decrease. Increased CPUE will tend to lead toward stable or decreased impacts to habitat. However, this alternative has the potential for the greatest increase in habitat impacts.	Maximizes landings to greatest extent, potential for highest habitat impacts, potential for highest short-term financial benefits to industry.
Alternative 2 (Status quo)	5.683	Impacts may range from maintaining existing level of to decreases. The potential for maintaining or decreasing impacts is greatest with this alternative	Does not maximize landings, reduced short-term yields, potential decreased impacts on habitat, no increase or decrease in financial benefit to industry

Alternative 3	12.74	Based upon species abundance, impacts may remain the same as existing, may increase or may decrease. Increased CPUE will tend to lead toward stable or decreased impacts to habitat. This is a potential increase in habitat impacts is more than Alternative 2 but less than Alternative 1.	Maximizes landings without compromising rebuilding schedule, minimal to no increased habitat impacts, increased financial benefit to industry
BSB			
Preferred Alternative 1	6.8	Based upon species abundance, impacts may remain the same as existing, may increase or may decrease. Increased CPUE will tend to lead toward stable or decreased impacts to habitat. This is a potential increase in habitat impacts is more than Alternative 2 but less than Alternative 3.	Maximizes landings without compromising rebuilding schedule, minimal to no increased habitat impacts, increased financial benefit to industry
Alternative 2 (Status quo)	6.173	Impacts may range from maintaining existing level of to decreases. The potential for maintaining or decreasing impacts is greatest with this alternative	Does not maximize landings, reduced short-term yields, potential decreased impacts on habitat, no increase or decrease in financial benefit to industry
Alternative 3	8.104	Based upon species abundance, impacts may remain the same as existing, may increase or may decrease. Increased CPUE will tend to lead toward stable or decreased impacts to habitat. However, this alternative has the potential for the greatest increase in habitat impacts.	Maximizes landings to greatest extent, May compromise stock rebuilding, potential for highest habitat impacts, potential for highest short-term financial benefits to industry.

Given the range of habitat impacts that could occur, depending upon whether fishing effort increases or remains constant (due to a higher catch-per-unit-effort because of increased species abundance), this proposed action may have adverse effects to EFH that range from increased adverse impacts to impacts that are less than existing impacts. The non-quota setting specifications associated with this action will not have an adverse effect on EFH.

Since the increase in the quota for each species meets the FMP objective of improving yield while ensuring that overfishing does not occur, and due to the lack of evidence to suggest that fishing effort on bottom habitats will actually increase due to this action, this action minimizes the adverse effects of fishing on EFH to the extent practicable, pursuant to Section 305 (a)(7) of the MSFCMA.

6.2 Impacts of Alternatives upon Endangered or Threatened Species or Marine Mammal Populations

Numerous species of marine mammals and sea turtles occur in the Northwest Atlantic Ocean. A comprehensive study of this areas was completed from 1979-1982 by the Cetacean and Turtle Assessment Program (CETAP), at the University of Rhode Island, covering the area of Cape Sable, Nova Scotia, to Cape Hatteras, North Carolina, from the coastline to 5 nautical miles seaward of the 1,000 fathom isobath.

Four hundred and seventy one large whale sightings, 1,547 small whale sightings

and 1,172 sea turtles were encountered in this survey. CETAP concluded that both large and small cetaceans were widely distributed throughout the study areas in all four seasons, and grouped the 13 most commonly seen species into three categories, based on geographical distribution. The first group contained only the harbor porpoise, which is distributed only over the shelf and throughout the Gulf of Maine, Cape Cod, and Georges Ban, but probably not southwest of Nantucket. The second group contained the most frequently encountered baleen whales (fin, humpback, minke and right whales) and the white-sided dolphin. These were found in the same areas as the harbor porpoise, and also occasionally over the shelf at least to Cape Hatteras or out to the shelf edge. The third group indicated a "strong tenancy for association with the shelf edge" and included the grampus, striped, spotted, saddleback and bottlenose dolphins, and the sperm and pilot whales.

Loggerhead turtles were found throughout the study area, but appeared to migrate north to about Massachusetts in summer and south in winter. Leatherbacks appeared to have had a more northerly distribution. CETAP hypothesized a northward migration of both species in the Gulf Stream with a southward return in continental shelf waters nearer to shore. Both species usually were found over the shoreward half of the slope and in depths less than 200 feet. The northwest Atlantic may be important for sea turtles feeding or migrations, but the nesting areas for these species generally are in the South Atlantic and Gulf of Mexico.

This problems may become acute when climatic conditions result in concentrations of turtles and fish in the same area at the same time. These conditions apparently are met when temperatures are cool in October, but then remain moderate into mid-December and result in a concentration of turtles between Oregon Inlet and Cape Hatteras, North Carolina. In most years, sea turtles leave Chesapeake Bay and filter through the areas a few weeks before the fall fisheries become concentrated. Efforts are currently under way (by VIMS and U.S. Fish and Wildlife Service refuges and Back Bay, Virginia and Pea Island, North Carolina) to more closely monitor these mortalities due to trawls. Fisherman are encouraged to carefully release turtles captured incidentally and to attempt resuscitation of unconscious turtles, as recommended in the 1981 Federal Register (pages 43976 and 43977).

The only other endangered species occurring in the northwest Atlantic is the shortnose sturgeon (*Acipenser brevirostrom*). The Councils and NMFS urge fishers to report any incidental catches of this species to the Regional Administrator, NMFS, One Blackburn Drive, Gloucester, Massachusetts 01930, who will forward the information to persons responsible for the active sturgeon database.

As for protected marine mammals, species that may be potentially impacted by these fisheries included bottlenose dolphin, pilot whale, fin whale, humpback whale, right whale, harbor porpoise, harbor seal and four species of beaked whales. Detailed discussions of the impact of these fisheries on these species, can be found in Amendments 2, 8, 9, 10, and 12 to the Summer Flounder, Scup and Black Sea Bass FMP.

Section 114 of the MMPA establishes an interim exemption for the taking of marine mammals incidental to commercial fishing operations and requires that NMFS

publish an annual update to the List of Fisheries, along with the marine mammals and the number of vessels or persons involve in each fishery, arranging the according to the following categories: 1) The fishery has a frequent incidental taking of marine mammals; 2) the fishery has an occasional incidental taking of marine mammals; or 3) the fishery has a remote likelihood, or no known taking, of marine mammals. The gears managed under this FMP are all in the third category or not listed at all for the final List of Fisheries for 2001 for the taking of marine mammals by commercial fishing operations under section 114 of the Marine Mammal Protection Act (MMPA) of 1972 (63 FR 5784).

The range of the species discussed above and the species managed under this FMP overlap, and there always exists a potential for an incidental kill. Except in unique situations, such incidental catches should have a negligible impact on marine mammal or abundances of endangered species, and NMFS has concluded in the previous consultations that implementation of this FMP will not have any adverse impact upon these populations.

The measures in the alternatives do not contain major changes to existing management measures. Changes in overall fishing effort as a result of the higher commercial quotas are unknown. Fishing effort could increase as vessels take more, or longer, trips. Conversely, fishing effort could remain constant because vessels may achieve a higher catch-per-unit-effort due to increased species abundance. States could impose higher trip limits so that vessels would need to take fewer trips to land the larger volume of fish. Because the proposed changes are not expected to cause large increases in fishing effort, it is concluded that the preferred alternative will not affect endangered and threatened species or critical habitat in any manner not considered in prior consultations on these fisheries, and will have no adverse impact on marine mammals.

6.3 Impact of Alternative 1 (Preferred Alternative) on the Environment

This alternative examines the impacts on the environment that would result from a total allowable landing limit (TAL) of 24.297 million lb for summer flounder (14.578 million lb commercial; 9.719 million lbs recreational); a total allowable catch of 12.920 million lbs for scup (which results in a TAL of 8.000 million lbs commercial; 2.770 million lbs recreational), and a TAL of 6.800 million lbs for black sea bass (3.332 million lbs commercial; 3.468 million lbs recreational).

The Council also approved a research set aside amount equal to 2 percent of the total allowable harvest for summer flounder and 3 percent of the total allowable harvest for scup and black sea bass. Assuming that NMFS approves the preferred TAL alternative for each species, the set-aside amount would be 486,000; 323,100; and 204,000 pounds for summer flounder, scup, and black sea bass, respectively.

A number of research projects have been submitted to NMFS that would require an exemption from some of the current or proposed regulations for these species. In order to expedite the approval and implementation of these research projects, Council staff agreed to analyze the impacts of these exemptions on the environment for inclusion in the specification package for these species.

6.3.1 Impact of Preferred Summer Flounder Measures upon the Environment

The preferred alternative would set the coastwide limit at 24.297 million lb (11.021 million kg). Based on this limit, 14.578 million lb (6.612 million kg) would be allocated to the commercial fishery and 9.719 million lb (4.408 million kg) to the recreational fishery in 2002. Based on the current status of the stock a TAL of 24.297 million pounds has a 50 percent probability of achieving the target F of 0.26 in 2002, assuming the TAL and discard level in 2001 are not exceeded.

The Commission has measures in place to decrease the level of discards in the commercial fisheries in 2002. Specifically, the Commission established a system whereby 15 percent of each states quota would be set-aside each year to reduce discards after the closure of the directed commercial fishery. In order for fishermen to land the 15 percent bycatch allowance in a state, the Commission recommended that states implement possession limits that were sufficiently restrictive to allow the bycatch fishery to remain open for the entire year without exceeding the state's overall quota. This system was introduced for the first time in 1999, and no data as to its effectiveness are yet available. However, the program would continue in 2002. In addition, the Commission recommended that states implement programs to collect additional data on discards in the commercial fishery.

These measures would decrease discards of sublegal fish as well as reduce regulatory discards that occur as the result of landing limits in the states. A decrease in the amount of discards would increase the likelihood that the target biomass would be achieved in 2002, because true incidental catch would now be landed and apply to the quota reducing the amount of fish killed by commercial fishermen.

This TAL and a reduction in discards in 2002, will increase the likelihood that a landings limit of 24.297 million lb (11.021 million kg) will achieve the F target of 0.26 in 2002. In addition, this TAL of 24.297 million lb (11.021 million kg) is approximately 35.6 percent higher than the TAL implemented in 2001. As a result of a higher TAL, thus a higher commercial quota and recreational harvest limit relative to 2001, it is likely that fishermen will experience positive impacts. Positive impacts for commercial fishermen include increased landings and thus increased revenue.

The summer flounder measures could result in negative impacts on other fisheries. The commercial fishery for summer flounder is primarily prosecuted with otter trawls. This fishery often harvests mixed species, including scup, black sea bass, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the summer flounder fishery, incidental catch of other species does occur. A larger quota could result in increased effort and greater catches of other species. However a larger quota could mean higher trip limits, thereby resulting in an equal number of fishing trips. Also, catch-per-unit-effort could correspondingly increase resulting in the same number of tows landing a larger volume of fish. If these measures do not result in an increase of effort in the summer flounder fishery, the incidental catch rates of other species should not increase.

A recreational harvest limit of 9.718 million lb (4.408 million kg) in 2002 is higher than the harvest limit from 1997-2000 and about 6.098 million lb (0.54 million kg) below the recreational landings for 2000. As such, it is likely that more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) would be required to prevent anglers from exceeding the recreational harvest limit in 2002. At the present time there are neither behavioral or demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. It may be possible that, given the popularity of summer flounder among anglers as the second most frequently sought species in the Mid-Atlantic, and third in the North Atlantic in 2000 (MRFSS), more limiting regulations could affect the demand for party/charter boat trips. However, party/charter activity for most of the 1990s have remained relatively stable, so the effects may be minimal.

6.3.2 Impact of Preferred Scup Measures upon the Environment

The preferred alternative considered in this document for the 2002 scup specifications would allow for a TAC of 12.920 million lb (5.860 million kg). This TAC for 2002 is 54.34 percent larger than the TAC established for 2001. The TAC is allocated to the commercial and recreational fisheries based on the proportions of commercial and recreational catch (landings plus discards) for the years 1988-1992. Based on this data, 78 percent of the TAC is allocated to the commercial fishery and 22 percent to the recreational fishery. As such, based on a TAC of 12.92 million lb (5.860 million kg), the commercial TAC would be 10.077 million pounds (78 percent) for 2002. The recreational TAC would be 2.840 million pounds (22 percent). Based on the commercial and recreational discard estimates used for the year 2001 specifications, the commercial TAL would be 8.000 million pounds and the recreational harvest limit would be 2.77 million pounds for 2002. The allocation of the commercial TAC and the discards to each period and the associated quota for each period is presented in Table 10.

Table 10. Scup TAC, discard and quota distribution by period, proposed for 2002.

Period	% Allocation	TAC	Discards	Quota
Annual	100.00	10,077,600	2,077,600	8,000,000
Winter I Jan-April	45.11	4,546,735	936,935	3,608,800
Summer May-Oct	38.95	3,924,991	808,991	3,116,000
Winter II Nov-Dec	15.94	1,606,274	331,074	1,275,200

Based on current information, scup abundance is likely to increase in 2002. Survey information indicates that regulations may have protected the 1997 year class and also indicate a large 1999 and 2000 year class. If the 1999 and 2000 year classes are large and mortality of undersized fish is reduced, substantial biomass could be added to the stock by 2002.

In fact, deterministic projections of the NEFSC spring survey based on the 3-year

average value for 2000 (average of the 1999, 2000, and 2001 indices at age) indicate that the SSB 3-year average index could increase from 0.25 in 2000 to 0.457 in 2001 assuming a fully recruited F of 1.0, the F estimated by the SARC in the last assessment, and the partial recruitment and maturity vectors from the yield per recruit analysis conducted for SAW 27. Assuming an average biomass that is at least identical to the 2001 average value of 0.457 in 2002, then exploitation rates could drop to 21 percent if the landings do not exceed 10.77 million pounds in 2002.

The Council and Board recommended no change in scup landing/possession limits for the two winter periods in 2002. For the first winter period (Jan-Apr), they recommended a landing limit of 10,000 pounds. When 80 percent of the landings are reached, the landing limit will drop to 1,000 pounds. For the second winter period (Nov-Dec), a 2,000 pounds landing limit was adopted (Table 10). The recommended landing/possession limits for both Winter period are the same as the landing/possession limits implemented in year 2001, with the exception that in 2002 the landing limit will drop to 1,000 pounds when 80 percent of the landings are reached, instead of the 75 percent used in 2001. The 80 percent landing trigger in 2002 is expected to decrease landings from 10,000 pounds to 1,000 pounds early enough to allow for the equitable distribution of the quota over the Winter I period. It is not expected that the change in the landing trigger during the Winter I period will affect landings in some negative manner during this period.

Over the years, there has been considerable discussion regarding the threshold level used to trigger the minimum mesh requirements. The appropriate threshold level would allow the bycatch of legal sized fish harvested in small mesh fisheries to be landed while at the same time discouraging the use of small mesh by directed scup fishermen. In 1999, the Council and Board dropped the threshold to 200 pounds in the winter and 100 pounds in the summer to encourage the use of 4.5" mesh and protect the 1997 year class. In 1998, when the thresholds were 4000/1000 pounds, 39 percent of the scup landings and 91 percent of the discards were associated with mesh less than 4.5". In 1999, 25 percent of the landings and 37 percent of the discards were associated with mesh less than 4.5". In 2000, 68 percent of the discards were associated with mesh less than 4.5". Last year the threshold was increased to 500 pounds for the winter fishery. The Council and Board recommended that the threshold remain at 500 lbs for the winter period and 100 lbs for the summer period for 2002.

The proposed scup quota for 2002 increases scup landings relative to the quotas specified for 2001. At the same time, measures are being recommended to reduce scup discards. Specifically, the Council and the Board are recommending changes in the configuration of large nets and the continuation of GRAs with an added experimental net exemption.

Amendment 8 to the Summer Flounder and Scup FMP contains provisions that allow for changes in the minimum fish size and minimum net mesh provisions each year. Current regulations require a 9" TL minimum fish size in the commercial fishery and a 4.5" minimum mesh in the codend of the net for vessels possessing more than 500 pounds of scup from November through April and 100 pounds from May through October. The minimum fish size went into effect on September 23, 1996 with a

minimum mesh size of 4.0". The minimum mesh size increased to 4.5" on April 14, 1997. The minimum fish size, mesh requirements, and threshold may be changed annually based on the recommendations of the Monitoring Committee. For the 2002 directed scup fishery, mesh requirements would be modified such that large nets would have no more than 25 meshes of 4.5" mesh in the codend with at least 100 meshes of 5.0" mesh forward of the 4.5" mesh and for small nets, 4.5" mesh or larger throughout. Based on retention lengths derived from length and body depth measurements, a 4.5" mesh has an associated L_{50} of 9.1" TL. This means that 50 percent of the 9.1" TL scup that encountered the net would be retained by this mesh. Mesh sizes of 2.0", 3.0", and 4.0", and 5.0" have associated L_{50s} of 4.8" TL, 6.5" TL , 8.3" TL, and 10.1" TL, respectively. The 5.0" mesh forward of the 4.5" mesh is expected to allow for additional escapement of undersized scup. This recommendation is not expected to reduce landings of scup.

The Council recommend that the GRAs that were implemented in 2001 continue for 2002. Additionally, the Council and Board adopted a measure that allows vessels fishing with small mesh and having an escapement extension of 45 meshes of 5.5" square mesh behind the body of the net and ahead of the codend be allowed to fish in the GRAs.

The affect of the GRAs on small net fisheries is fully described in the 2001 Specification Document. These measures are expected to reduce discards of scup in non-directed fisheries. However, the recommendation that will allow small mesh experimental net in the GRAs may increase landings of other species relative to 2001. It is not possible to assess the monetary value associated with the additional harvest as a result of the proposed experimental net exemption, because quantitative data on these nets are limited. The modifications are inexpensive and can be incorporated into existing nets with minimal labor (section 5.0 of the PREE). The modifications are based on a project funded by the Mid-Atlantic Council and conducted by the Manomet Center for Conservation Sciences to develop selective trawls for small mesh fisheries. Results of the research indicate that a 5.5" square mesh extension placed in the net 50 meshes ahead of the codend significantly reduced (66 percent reduction) the bycatch and discard of small scup without a reduction in the capture of squid.

The scup measures could result in negative impacts on other fisheries. The commercial fishery for scup is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests mixed species, including summer flounder, black sea bass, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the scup fishery, incidental catch of other species does occur. A larger quota could result in increased effort and greater catches of other species. However a larger quota could mean higher trip limits, thereby resulting in an equal number of fishing trips. Also, catch-per-unit-effort could correspondingly increase resulting in the same number of tows landing a larger volume of fish. If these measures do not result in an increase of effort in the scup fishery, the incidental catch rates of other species should not increase.

The preferred alternative would implement a recreational harvest limit of 2.770 million lb (1.256 million kg). In 2000, scup recreational landings were estimated at 5.183 million lb (2.351 million kg). As such, this harvest limit would decrease recreational landings by about 46.6 percent relative to the

landings estimated for 2000.

6.3.3 Impact of Preferred Black Sea Bass Measures upon the Environment

The preferred alternative would establish a TAL of 6.800 million lb (3.084 million kg) for 2002. This TAL is 10.1 percent higher than the TAL implemented each year since 1998, the first year that TALs were set for black sea bass.

Amendment 9, which was approved by NMFS on November 15, 1996, established a recovery schedule to reduce overfishing on black sea bass over an 8 year time frame (the first year was 1996). That same schedule was used in Amendment 12 to meet SFA requirements. The target exploitation rate established by this schedule for 2000 was 48 percent. In 2001 and 2002, the target exploitation rate is 37 percent. In 2003, the target exploitation rate will drop to the exploitation rate associated with F_{max} (0.32) or 25 percent.

Although the exploitation rate for 2001 is uncertain, relative exploitation rates have generally declined in recent years. Relative exploitation based on the total commercial and recreational landings and the moving average of the transformed spring survey index indicates a significant reduction in mortality from 1998 to 2000 relative to 1996 and 1997 levels.

Given the lack of stock assessment information, it is hard to predict what the actual biomass will be in 2002. The best available information on stock status indicates that stock size has increased in recent years. In fact, the 3-year average for 1999-2001 is 45 percent larger than the value for 1998-2000. In addition, the recruitment index for 2000 is the highest in the time series, 1968-2000. If protected, this year class should allow for additional stock rebuilding in 2002 and beyond.

If the spring survey for 2002 is at least equal to 0.33, and assuming an exploitation rate of 48% in 1998, the TAL could increase to 6.8 million pounds and the exploitation rate could drop to 37% in 2002. The assumption that the index will be at least 0.33 in 2002 is predicated on the size of the 2000 year class, its abundance in 2002, and the continued protection of earlier year classes that have already contributed to significant stock rebuilding. In fact, the Council and Commission have adopted management measures to protect the 2000 and earlier year classes and allow for continued increases in biomass in 2002.

Specifically, the slight increase in TAL is justified by the combination of commercial management measures that were adopted by the Council and Commission in conjunction with this TAL. The Council and Commission recommended that the minimum size increase to 11" TL, that mesh size increase to 4.5" such that otter trawls nets have a minimum of 75 meshes of 4.5" in the codend or 4.5" throughout the net, and finally that vent sizes in black sea bass pot/traps be increased substantially to 1 3/8" x 5 3/4" for the rectangular vents, 2 3/8" in diameter for the circular vents, and 2" for square vents. The increase in minimum size will allow smaller fish to escape, grow, and reproduce. Similarly, an increase in the mesh size and an increase in the size of escape vents will allow for the escapement of sublegal fish from commercial gears. This combination of management measures should allow for additional protection to the 2000 and

earlier year classes which will allow for a significant increase in exploitable biomass in 2002.

Based on the recommended TAL, the commercial quota would be 3.332 million lb (1.511 million kg) (49 percent) and the recreational harvest limit would be 3.468 million lb (1.573 million kg) (51 percent) for 2002. The commercial quota and recreational harvest limit would be higher than the 1998, 1999, 2000, and 2001 levels.

The commercial quota is allocated into four periods based on landings data from 1988-1992. Based on these data, the allocation by period would range from 410,836 lb to 1.287 million lb (Table 11). Quarterly quotas would be adjusted in 2002 to account for overages in 2001.

Table 11. The black sea bass allocation and possession limits by quarter, as proposed for 2002.

Quarter	% Allocation	Quota (lb)	Possession Limit (lb)
Quarter 1, Jan-Mar	38.64	1,287,485	7,000
Quarter 2, Apr-June	29.26	974,943	2,000
Quarter 3, July-Sept	12.33	410,836	2,000
Quarter 4, Oct-Dec	19.77	658,736	2,000

The current black sea bass regulations specify that possession limits be implemented for each period and that the possession limit does not change over the period. Possession limits would remain in effect until the fishery is closed by NMFS based on projections that the quarterly quota would be taken. The possession limits for 2001 were 9,000; 1,500; 1,000; and 2,000 pounds for quarters 1 through 4, respectively. However, due to an ASMFC emergency rule action, the originally implemented possession limit for 2001 Quarter 4 period was reduced from 2,000 pounds to 300 pounds. However, states will have the option of developing a management program that allows fishermen to land up 2,000 pounds per week.

In 2001, the commercial fishery closed prematurely in the first, second, and third quarters. Because of this closure, and likely increase in stock size and effort, possession limits for each of the quarters were modified to allow for landings over the entire period. The Council and Board recommended that the possession limits be modified for 2002 to 7,000; 2,000; 2,000; and 2,000 for each quarter, respectively.

The current minimum mesh regulations require a 4.0" minimum mesh in the codend of the net for vessels possessing more than 1,000 lbs of black sea bass. The Council and Board recommended that the net provisions be modified such that

fishermen could use large nets with a minimum of 75 meshes of 4.5" diamond mesh in the codend or use small nets with at least 4.5" diamond mesh throughout for 2002. In addition, a threshold of 500 pounds from January through March and 100 pounds from April through December to trigger the minimum mesh size were also recommended. Based on retention lengths derived from length and body depth measurements, the proposed minimum mesh size of 4.5" has an associated L_{25} of 10.6" TL. This means that 25 percent of the 10.6" TL black sea bass that encountered the net would be retained by this mesh. Mesh sizes of 2.0", 3.0", and 4.0" have an associated L_{25} of 4.0" TL, 6.6" TL, and 9.3" TL, respectively. A reduction in the threshold to 500 lbs in the first quarter and 100 lbs in the other quarters would discourage the use of small mesh in areas where black sea bass are concentrated and could offer additional protection to the 2000 year class. This change will accommodate small mesh fishermen while at the same time maintaining a reasonable mesh threshold for the black sea bass fishery.

Current vent size regulations, implemented in 1996, were based on a MAFMC study (for the rectangular sizes) and industry comment (for the circle and square). Based on industry advice, the Council and Board recommended that vent sizes be increased in 2002 to 1 3/8" x 5 3/4" for the rectangular vents, 2 3/8" in diameter for the circular vents, and 2" for square vents. The proposed vent sizes represent significant increases from the current sizes of 1 1/8" x 5 3/4" for rectangular vents, 2" in diameter for circular vents, and 1 ½" for square vents. Analysis conducted for Amendment 9 indicated that rectangular vent sizes that were 1 3/8" wide had an associated L_{50} of 11.5" TL. As such, these increases in vent sizes should allow for a significant escapement of undersized fish. The cost of replacing escape vents is expected to be minimal. Currently, according to industry comment, some commercial pot and trap black sea bass fishermen are already using these sizes of vents.

The current minimum fish size for black sea bass is 10" TL. However, the Council and Board are recommending an increase to an 11" TL fish in 2002. The smaller mesh and smaller vent sizes would allow for escapement of fish less than the proposed minimum fish size of 11" TL. Assuming that undersized fish are not caught and discarded, the increase in minimum size will result in an increase of size at full recruitment, thus yields are increased as fishermen catch larger, heavier fish. These regulations also may increase spawning stock biomass by allowing more fish to spawn.

The black sea bass measures could result in negative impacts on other fisheries. The commercial fishery for black sea bass is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests mixed species, including summer flounder, scup, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the scup fishery, incidental catch of other species does occur. A larger quota could result in increased effort and greater catches of other species. However a larger quota could mean higher trip limits, thereby resulting in an equal number of fishing trips. Also, catch-per-unit-effort could correspondingly increase resulting in the same number of tows landing a larger volume of fish. If these measures do not result in an increase of effort in the black sea bass fishery, the incidental catch rates of other species should not increase.

The recreational harvest limit of 3.468 million lb (1.573 million kg) is approximately 4.2 percent below the 2000 recreational landings of 3.621 million lb (1.642 million kg). As such, it is not expected that this recreational harvest limit would have a significant impact on the recreational fishery. Additionally, because the 2001 recreational management measures were designed to reduce recreational fishing mortality on black sea bass, the 2002 recreational harvest limit may be identical to the 2001 recreational landings. As such, this harvest limit should have minimal impacts in 2002.

6.4 Impact of Alternative 2 on the Environment (Status Quo–Most Restrictive)

6.4.1 Impact of Alternative 2 Summer Flounder Measures upon the Environment

This alternative would set the 2001 summer flounder TAL at 17.913 million lb (8.125 million kg), the same TAL that was implemented in 2001. Based on this limit 60 percent would be allocated to the commercial fishery, or 10.748 million lb (4.875 million kg). The recreational fishery would be allocated 40 percent or 7.165 million lb (3.250 million kg) in 2002. These measures are more restrictive than the measures proposed under Alternative 1.

The summer flounder measures should not result in negative impacts on other fisheries. The commercial fishery for summer flounder is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests mixed species, including scup, black sea bass, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the summer flounder fishery, incidental catch of other species does occur. Because these measures will not result in an increase of effort in the summer flounder fishery, the incidental catch rates of other species should not increase.

A recreational harvest limit of 7.165 million lb (3.250 million kg) in 2001 would be the same harvest limit that implemented in 2001. However, this harvest limit for 2002 could result in a decrease in recreational landings of about 8.651 million lb (3.924 million kg) from estimated recreational landings for 2000. As such, it would be likely that more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) would be required to prevent anglers from exceeding the recreational harvest limit in 2002. At the present time there are neither behavioral or demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. It may be possible that, given the popularity of summer flounder among anglers), a drastic decrease in recreational harvest limit could adversely affect the demand for party/charter boat trips. However, overall party/charter demand for all species is stable, so overall economic impacts are anticipated to be slight.

6.4.2 Impact of Alternative 2 Scup Measures upon the Environment

This alternative would set the coastwide commercial quota at 4.445 million lb (2.016 million kg). The recreational harvest limit would be 1.238 million lb (0.803 million kg). This alternative would maintain the same quota and harvest limits that was implemented in 2001. As such, this alternative is not expected to have a negative impact relative to 2001.

This commercial quota may result in a 67 percent increase in landings relative to 2000 commercial landings. As such, the scup measures could result in negative impacts on other fisheries. The commercial fishery for scup is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests mixed species, including summer flounder, black sea bass, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the scup fishery, incidental catch of other species does occur. A larger quota could result in increased effort and greater catches of other species. However a larger quota could mean higher trip limits, thereby resulting in an equal number of fishing trips. Also, catch-per-unit-effort could correspondingly increase resulting in the same number of tows landing a larger volume of fish.
If these measures do not result in an increase of effort in the scup fishery, the incidental catch rates of other species should not increase.

This alternative would implement a recreational harvest limit of 1.771 million lb (0.803 million kg). This alternative could result in a decrease in recreational landings of about 3.412 million lb (1.548 million kg) from estimated recreational landings for 2000. In 2000, scup recreational landings were estimated at 5.183 million lb (2.351 million kg). As such, it would be likely that more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) would be required to prevent anglers from exceeding the recreational harvest limit in 2002. At the present time there are neither behavioral or demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. It may be possible that a drastic decrease in recreational harvest limit could adversely affect the demand for party/charter boat trips. However, overall party/charter demand for all species is stable, so overall economic impacts are anticipated to be slight.

6.4.3 Impact of Alternative 2 Black Sea Bass Measures upon the Environment

This alternative would set the coastwide commercial quota at 3.025 million lb (1.372 million kg). The recreational harvest limit would be 3.148 million lb (1.428 million kg). This alternative would maintain the same quota and harvest limits that was implemented in 2001. As such, this alternative is not expected to have a negative impact relative to 2001.

This commercial quota represents a 13.8 percent increase in landings relative to the estimate for 2000 commercial landings. As such, the black sea bass measures could result in negative impacts on other fisheries. The commercial fishery for black sea bass is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests mixed species, including summer flounder, scup, squid, Atlantic mackerel, and silver hake. Given the mixed species nature of the black sea bass fishery, incidental catch of other species does occur. A larger quota could result in increased effort and greater catches of other species. However a larger quota could mean higher trip limits, thereby resulting in an equal number of fishing trips. Also, catch-per-unit-effort could correspondingly increase resulting in the same number of tows landing a larger volume of fish. If these measures do not result in an increase of effort in the black sea bass fishery, the incidental catch rates of other species should not increase.

This alternative would implement a recreational harvest limit of 3.148 million lb

(1.428 million kg). In 2000, black sea bass recreational landings were estimated at 3.621 million lb (1.642 million kg). As such, this harvest limit for 2002 could result in a decrease in recreational landings of about 0.473 million lb (0.215 million kg) from estimated recreational landings for 2000. Thus, it would be likely that more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) would be required to prevent anglers from exceeding the recreational harvest limit in 2002. At the present time there are neither behavioral or demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. It may be possible that a drastic decrease in recreational harvest limit could adversely affect the demand for party/charter boat trips. However, overall party/charter demand for all species is stable, so overall economic impacts are anticipated to be slight.

6.5 Impact of Alternative 3 on the Environment (Least Restrictive)

6.5.1 Impact of Alternative 3 Summer Flounder Measures upon the Environment

This alternative would set the coastwide limit at 34.797 million lb (15.784 million kg). Based on this limit, 20.879 million lb (9.471 million kg) would be allocated to the commercial fishery and 13.919 million lb (6.314 million kg) to the recreational fishery in 2001.

This alternative, a commercial quota of 34.797 million lb (15.784 million kg) would be approximately 16.881 million lb (7.658 million kg) higher than the 2001 TAL. As such, the summer flounder measures could result in negative impacts on other fisheries. The commercial fishery for summer flounder is primarily prosecuted with otter trawls. This fishery often harvests mixed species, including scup, black sea bass, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the summer flounder fishery, incidental catch of other species does occur. A larger quota could result in increased effort and greater catches of other species. However a larger quota could mean higher trip limits, thereby resulting in an equal number of fishing trips. Also, catch-per-unit-effort could correspondingly increase resulting in the same number of tows landing a larger volume of fish. If these measures do not result in an increase of effort in the summer flounder fishery, the incidental catch rates of other species should not increase.

The summer flounder recreational harvest limit for 2002 would be 13.919 million lb (6.314 million kg). This is a 12.0 percent decrease below the 2000 recreational landings. In 2000, summer flounder recreational landings were estimated at 15.816 million lb (7.174 million kg). As such, it would be likely that more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) would be required to prevent anglers from exceeding the recreational harvest limit in 2002. At the present time there are neither behavioral or demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. It may be possible that a drastic decrease in recreational harvest limit could adversely affect the demand for party/charter boat trips. However, overall party/charter demand for all species is stable, so overall economic impacts are anticipated to be slight.

Although, this alternative would increase short-term benefits to the commercial and recreational fisheries due to the increase in landings, it has an associated F of 0.40. Therefore this alternative would exceed the F target for 2002. Thus, this alternative is unacceptable. If the target is exceeded, stock rebuilding will be slowed and the long-term benefits to the fishery and the stock will be reduced.

6.5.2 Impact of Alternative 3 Scup Measures upon the Environment

This alternative would set the coastwide commercial quota at 9.530 million lb (4.323 million kg). The recreational harvest limit would be 3.210 million lb (1.456 million kg).

This alternative is based on the assumption that the SSB index based on the NEFSC spring trawl survey will be 0.54 in 2002 (the same value as 2001) and an F=1.0 (exploitation rate of 58%) in 2000. Based on this projected biomass level and 2000 F, total landings could be 12.74 million lb in 2001 to achieve the target exploitation rate of 33%. Based on discard estimates used for 2000, the combined TAC would be 14.89 million lb (6.754 million kg).

The commercial quota of 9.530 million lb (3 million kg) is derived from the commercial TAC of 7.223 million lb (3.28 million kg) and a discard level of 2.084 million lb (0.95 million kg). As such, this alternative would use the same discard amount in 2001 as used in the 2000 quota calculation.

Under this alternative, this commercial quota would be more than double the quota implemented for 2001 and an increase of 258 percent relative to the 2000 landings. As such, the scup measures could result in negative impacts on other fisheries. The commercial fishery for scup is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests mixed species, including summer flounder, black sea bass, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the scup fishery, incidental catch of other species does occur. A larger quota could result in increased effort and greater catches of other species. However a larger quota could mean higher trip limits, thereby resulting in an equal number of fishing trips. Also, catch-per-unit-effort could correspondingly increase resulting in the same number of tows landing a larger volume of fish. If these measures do not result in an increase of effort in the scup fishery, the incidental catch rates of other species should not increase.

The scup recreational harvest limit for 2002 would be 3.210 million lb (0.89 million kg). This is a 38.1 percent decrease below the 2000 recreational landings. In 2000, scup recreational landings were estimated at 5.183 million lb (2.351 million kg). As such, it would be likely that more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) would be required to prevent anglers from exceeding the recreational harvest limit in 2002. At the present time there are neither behavioral or demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. It may be possible that a drastic decrease in recreational harvest limit could adversely affect the demand for party/charter boat trips. However, overall party/charter demand for all species is stable, so overall economic impacts are anticipated to be slight.

This TAL, which includes both the commercial quota and recreational harvest limit would increase short-term benefits to fishermen due to an increase in landings. However, the higher TAL assumes a stock abundance that may be unrealistically high resulting in an exploitation rate that exceeds the target for 2001. If the target is exceeded, stock rebuilding will be slowed and the long-term benefits to the fishery and the stock will be reduced.

6.5.3 Impact of Alternative 3 Black Sea Bass Measures upon the Environment

This 2002 TAL is based on the assumption that the SSB value for 2002 will be 0.4, double the 2000 value for the spring bottom trawl survey index (transformed). Based on this SSB value and the assumption that the exploitation rate was 48 percent in 1998, the TAL in 2002 could be 8.104 million lb (3.676 million kg) to achieve the target exploitation rate in 2001 of 37 percent. Based on this TAL, the commercial quota would be 3.970 million lb (1.801 million kg) and the recreational harvest limit would be 4.133 million lb (1.875 million kg) for 2002.

The black sea bass measures could result in negative impacts on other fisheries. The commercial fishery for black sea bass is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests mixed species, including scup, black sea bass, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the black sea bass fishery, incidental catch of other species does occur. A larger quota could result in increased effort and greater catches of other species. However a larger quota could mean higher trip limits, thereby resulting in an equal number of fishing trips. Also, catch-per-unit-effort could correspondingly increase resulting in the same number of tows landing a larger volume of fish. If these measures do not result in an increase of effort in the black sea bass fishery, the incidental catch rates of other species should not increase.

Recreational landings would be increased by over 0.50 million lb (0.227 million kg) relative to the 2000 landings estimate if this alternative were implemented. As such, it is not expected that this alternative would have an adverse affect on the recreational fishery for black sea bass.

This higher TAL is based on a SSB value that may be unrealistic for 2002. As such, it will result in an exploitation rate that would likely exceed the target for 2002. If the target is exceeded, stock rebuilding will be slowed and the long-term benefits to the fishery and the stock will be reduced.

6.6 Research Set Aside

6.6.1 Summer Flounder

The Council also approved a research set aside amount equal to 2 percent of the total allowable harvest for summer flounder. Assuming that NMFS approves the preferred TAL the research set-aside amount would be 486,000 pounds for summer flounder. The proposed summer flounder research projects would exempt researchers from the minimum mesh size, minimum fish size, and allow for landings of summer flounder during a closure.

Minimum mesh and/or minimum fish size

The current minimum mesh regulations require a 5.5" diamond or 6" square mesh in the entire net for vessels possessing more than the threshold amount of summer flounder (100 lbs). Based on mesh selectivity studies, a 5.5" mesh has an associated L50 of 13.5" TL. This means that 50 percent of the 13.5" summer flounder that encountered the net would be retained by this mesh. Mesh sizes of 4.5" and 5.0" have associated L50s of 11.2" TL and 12.3" TL, respectively.

The current regulations require a 14" TL minimum fish size in the commercial fishery. Assuming that undersized fish are not caught and discarded, minimum sizes increase the size at full recruitment because yields are increased as fishermen catch larger, heavier fish. These regulations also can increase spawning stock biomass by allowing more fish to spawn.

The smaller mesh would allow for the capture and retention of fish less than the current minimum size of 14" TL. If these fish were exempt from the minimum size requirement for sale, they would be landed and those landings would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could be offset by a decrease in mortality for larger fish (greater than 14" TL) if smaller fish were sold instead. However, because overall mortality rates are controlled by the TAL, any changes in mortality should be insignificant, i.e., total landings including the research set aside can not exceed the TAL.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as $801,900 dockside based on a 2000 price of $1.65 per pound. As such, assuming an equal reduction amongst all active vessels (i.e., 795 vessels that landed summer flounder in 2000), this could mean a reduction of about $1,000 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 9.718 to 9.524 million lb (a 2 percent decrease) if 2 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for summer flounder. As such, permit holders that would have landed these summer flounder could be disadvantaged.

Changes in mesh size would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Closures

Research has been proposed that would allow for landings of summer flounder during a state or federal closure. Because these landings would count against the overall quota, the biological/ecological impacts would not change relative to

the status quo.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as $801,900 dockside based on a 2000 price of $1.65 per pound. As such, assuming an equal reduction amongst all active vessels (i.e., 795 vessels that landed summer flounder in 2000), this could mean a reduction of about $1,000 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 9.718 to 9.524 million lb (a 2 percent decrease) if 2 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for summer flounder. As such, permit holders that would have landed these summer flounder could be disadvantaged.

Landings during a closure would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

6.6.2 Scup

Assuming that NMFS approves the preferred TAL alternative for scup, the research set-aside amount would be 3% of the TAL or 323,100 pounds. The proposed scup research projects would exempt researchers from the minimum mesh size, minimum fish size, and commercial possession limits and allow for landings of scup during a closure.

Minimum mesh and/or minimum fish size

The current minimum mesh regulations require a 4.5" minimum mesh in the codend of the net for vessels possessing more than 500 lbs of scup from November through April and 100 pounds from May through October. The Council recommended that the net provisions be changed for 2002. These changes include a modification such that fishermen could use nets with no more than 25 meshes of 4.5 mesh in the codend with at least 100 meshes of 5.0" mesh forward of the 4.5" mesh or use a net with at least 4.5" mesh throughout. If approved by NMFS, the Council's recommended change would become effective in 2002.

The proposed research would use smaller mesh to catch and retain small scup. Based on retention lengths derived from length and body depth measurements, a 4.5" mesh has an associated L50 of 9.1" TL. This means that 50 percent of the 9.1" TL scup that encountered the net would be retained by this mesh. Mesh sizes of 2.0", 3.0", and 4.0" have associated L50s of 4.8" TL and 6.5" TL and 8.3" TL, respectively.

The current regulations require a 9" TL minimum fish size in the commercial fishery. Assuming that undersized fish are not caught and discarded, minimum sizes increase the size at full recruitment because yields are increased as fishermen catch larger, heavier fish. These regulations also can increase spawning stock biomass by allowing more fish to spawn.

The smaller mesh would allow for the capture and retention of fish less than the current minimum size of 9" TL. If these fish were exempt from the minimum size requirement for sale, they would be landed and those landings would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could be offset by a decrease in mortality for larger fish (greater than 9" TL) if smaller fish were sold instead. However, because overall mortality rates are controlled by the TAL, any changes in mortality should be insignificant, i.e., total landings including the research set aside can not exceed the TAL.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as $403,875 dockside based on a 2000 price of $1.25 per pound. As such, assuming an equal reduction amongst all active commercial vessels (i.e., 425 vessels that landed scup in 2000), this could mean a reduction of about $950 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 2.770 to 2.687 million lb (a 3 percent decrease) if 3 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for scup. As such, permit holders that would have landed these scup could be disadvantaged.

Changes in mesh and minimum fish size would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Closures

Research has been proposed that would allow for landings of scup during a state or federal closure. Because these landings would count against the overall quota, the biological/ecological impacts would not change relative to the status quo.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as $403,875 dockside based on a 2000 price of $1.25 per pound. As such, assuming an equal reduction amongst all active commercial vessels (i.e., 425 vessels that landed scup in 2000), this could mean a reduction of about $950 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 2.770 to 2.687 million lb (a 3 percent decrease) if 3 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for scup. As such, permit holders that would have landed these scup could be disadvantaged.

Landings during a closure would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Possession limits

Research has been proposed that would allow research vessels to land in excess of the possession limits. The proposed regulations would limit fishermen to 10,000 pounds and 2,000 pounds per trip for the first and second winter periods, respectively. Although the possession limits could be exceeded, the landings would count against the quota and, as such, the biological/ ecological impacts would not change relative to the status quo.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as $403,875 dockside based on a 2000 price of $1.25 per pound. As such, assuming an equal reduction amongst all active commercial vessels (i.e., 425 vessels that landed scup in 2000), this could mean a reduction of about $950 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 2.770 to 2.687 million lb (a 3 percent decrease) if 3 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for scup. As such, permit holders that would have landed these scup could be disadvantaged.

Landings in excess of the possession limit would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and could have no impact on essential fish habitat.

6.6.3 Black Sea Bass

Assuming that NMFS approves the preferred TAL alternative for black sea bass, the research set-aside amount would be 3% of the TAL or 204,000 pounds. The proposed black sea bass research projects would exempt researchers from the minimum mesh size, escape vent requirements, minimum fish size, and commercial possession limits and allow for landings of black sea bass during a closure.

Minimum mesh and escape vent requirements

The current minimum mesh regulations require a 4.0" minimum mesh in the codend of the net for vessels possessing more than 1000 lbs of black sea bass. The Council recommended that the net provisions be changed for 2002. These changes include a modification such that fishermen could use nets with a minimum of 75 meshes of 4.5" diamond mesh in the codend or use a net with at least 4.5" diamond mesh throughout. If approved by NMFS, the Council's recommended change would become effective in 2002.

The proposed research would use smaller mesh to catch and retain small black sea bass. Based on retention lengths derived from length and body depth measurements, the proposed minimum mesh size of 4.5" has an associated L_{25} of 10.6" TL. This means that 25 percent of the 10.6" TL black sea bass that encountered the net would be retained by this mesh. Mesh sizes of 2.0", 3.0", and 4.0" have an associated L_{25} of 4.0" TL, 6.6" TL, and 9.3" TL, respectively.

The proposed regulations would require an 11" TL minimum fish size in the

commercial fishery. Assuming that undersized fish are not caught and discarded, minimum sizes increase the size at full recruitment because yields are increased as fishermen catch larger, heavier fish. These regulations also can increase spawning stock biomass by allowing more fish to spawn.

The regulations that implemented escape vent sizes for black sea bass became effective on December 16, 1996. The vent sizes were based on a MAFMC study (for the rectangular sizes) and industry comment (for the circle and square). Based on industry advice, the Council recommended that the vent sizes be increased in 2002 to 1 3/8" x 5 3/4" for the rectangular vents, 2 3/8" in diameter for the circular vents, and 2" for square vents. The proposed vent sizes represent significant increases from the current sizes of 1 1/8" x 5 3/4" for rectangular vents, 2" in diameter for circular vents, and 1 ½" for square vents. Analysis conducted for Amendment 9 indicated that rectangular vent sizes that were 1 3/8" wide had an associated L_{50} of 11.5" TL. As such, these increases in vent sizes should allow for a significant escapement of undersized fish.

The smaller mesh and smaller vent sizes would allow for the capture and retention of fish less than the proposed minimum size of 11" TL. If these fish were exempt from the minimum size requirement for sale, they would be landed and those landings would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could be offset by a decrease in mortality for larger fish (greater than 11" TL) if smaller fish were sold instead. However, because overall mortality rates are controlled by the TAL, any changes in mortality should be insignificant, i.e., total landings including the research set aside can not exceed the TAL.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as $365,160 dockside based on a 2000 price of $1.79 per pound. As such, assuming an equal reduction amongst all active commercial vessels (i.e., 723 vessels that caught black sea bass in 2000), this could mean a reduction of about $505 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 3.468 to 3.364 million lb (a 3 percent decrease) if 3 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for black sea bass. As such, permit holders that would have landed these black sea bass could be disadvantaged.

Changes in mesh, vent sizes and minimum fish size would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Closures

Research has been proposed that would allow for landings of black sea bass during a state or federal closure. Because these landings would count against the overall quota, the biological/ecological impacts would not change relative to the

status quo.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as $365,160 dockside based on a 2000 price of $1.79 per pound. As such, assuming an equal reduction amongst all active commercial vessels (i.e., 723 vessels that caught black sea bass in 2000), this could mean a reduction of about $505 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 3.468 to 3.364 million lb (a 3 percent decrease) if 3 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for black sea bass. As such, permit holders that would have landed these black sea bass could be disadvantaged.

Landings during a closure would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Possession limits

Research has been proposed that would allow research vessels to land in excess of the possession limits. The proposed regulations would limit fishermen to7,000 pounds in the first quarter and 2,000 pounds in the second, third, and fourth quarters, respectively. Although the possession limits could be exceeded, the landings would count against the quota and, as such, the biological/ecological impacts would not change relative to the status quo.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as $365,160 dockside based on a 2000 price of $1.79 per pound. As such, assuming an equal reduction amongst all active commercial vessels (i.e., 723 vessels that caught black sea bass in 2000), this could mean a reduction of about $505 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 3.468 to 3.364 million lb (a 3 percent decrease) if 3 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for black sea bass. As such, permit holders that would have landed these black sea bass could be disadvantaged.

Landings in excess of the possession limit would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

6.6.4 GRAs for scup, black sea bass, and *Loligo* squid

NMFS implemented gear restricted areas (GRAs) for 2001 based on a recommendation of the Council and Commission. These GRAs regulate the use of otter trawls with codend mesh less than 4.5 inches in areas and times that were identified as having high scup discards. Specific areas and times include a Northern Gear Restricted Area from November 1 to December 31 and a Southern Gear Restricted Area from January 1 to March 15. Research has been proposed that would exempt vessels fishing with small mesh from the GRA regulations, i.e., allow them to catch and retain several species of fish including scup, black sea bass, and *Loligo* squid from these areas during a closure.

Analysis conducted to support these GRAs, indicate that these areas and times were associated with high levels of scup discards. As such, fishing with small mesh in these areas could mitigate the effects of the GRAs thereby increasing the discards of scup relative to the status quo. However, given the level of the research set aside, the effects on scup discards and mortality should be minimal. In addition, because landings of the regulated species would count against the overall quotas for each species, the overall mortality level would not change relative to the status quo.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as $404 thousand, $365 thousand, and $750 thousand dockside for scup, black sea bass and *Loligo* squid based on 2000 prices per pound, respectively. As such, assuming an equal reduction amongst all active vessels (i.e., 425, 723, and 495 vessels that caught scup, black sea bass, and *Loligo* in 2000, respectively), this could mean a reduction of $950, $505, and $1,515 per individual vessel, for scup, black sea bass, and Loligo, respectively. However, if a vessel is participating in two or more of these fisheries, the revenue reduction could be higher. In addition, it is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for these species. As such, permit holders that would have landed these species could be disadvantaged.

Landings in excess of the possession limit would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

6.7 Social Impacts

New quotas alone have relatively limited social impacts. The changes in social structure and cultural fabric that may have occurred under implementation of limited access are already largely in place. The major impact of quota reductions is to profitability. Only where there is a significant reduction in net revenues or in the ability to meet costs and make a living are substantial social impacts likely. With regard to commercial fishermen, the landings and revenue per vessel for the species whose quotas or adjusted quotas are being lowered in Alternative 1 (the preferred alternative) are such a small portion of overall landings and revenues for the majority of those vessels, that no adverse economic impact (>5 percent revenue reduction) are projected (section 5.0 of the PREE).

The specifications are not expected to affect in a negative way the overall demand for recreational fishing trips in the North and Mid-Atlantic regions

(section 5.0 of the RIR/IRFA). As such, there should not be significant adverse impacts to ports and communities.

A detailed study and characterization of the black sea bass and scup fisheries was conducted by Finlayson and McCay (1994). That study was conducted in order to assess the economic impacts of the draft management FMP for the scup and black sea bass fisheries. This report indicates that black sea bass pot specialization is found from Cape May, NJ through Virginia. The Montauk and Hampton Roads black sea bass pot fishery really only developed beginning in 1992 and 1993. Nonetheless, already in 1994 Hampton Roads, Cape May, and Ocean City pot fishers and Ocean City handline fishermen were heavily dependent on black sea bass. Given the variety of other fishing activities, and in some cases other industries, while individuals may be heavily affected, fishing communities in the region will be minimally impacted. A distinction needs to be made, however, between impacts to individuals and impacts to communities. Where the number of affected individuals in a community is large, the types and degree of impacts are likely to be the same at each level. Where the numbers of individuals are small, however, they may not be.

Further north, Rhode Island pot fishermen and fish trap/pound net fishers are heavily dependent on scup. These fishermen are scattered through communities the length of the Rhode Island coast, however. So the impacts to individuals are unlikely to translate into large community effects.

More recently, McCay and Cieri (2000) reported a small pot fishery in Wildwood, NJ, that mainly targets black sea bass. In Sea Isle City, NJ, there is an offshore pot fishery for lobster, conch, and fish (mostly black sea bass). The value of fish trapped within the pot fishery accounted for 12 percent of the total value landed by the pot fishery in Sea Isle City in 1998. In 1999, the contribution of black sea bass to the total landings of fish and shellfish in Sea Isle City was estimated to be 10.38 percent in 1999. In Delaware, fishermen (predominantly “bayman” or “watermen”) use a wide array of gear types when working the estuary, bay, and tributaries of the Delaware Bay and River, bordering New Jersey. Pots and traps are an important type of gear for these fishermen. For fish traps, the most important species is black sea bass. A more detailed description of several ports important to the summer flounder, scup, and black sea bass fisheries is presented in section Appendix 1 of this document.

It is important to mention that when the proposed quotas for summer flounder, scup, and black sea bass for year 2002 are compared to the quotas specified (adjusted quotas) for those species in 2001, the 2002 quotas are 45 percent, 127 percent, and 125 percent higher, respectively. However, due to projected overages in 2001, the overall adjusted commercial quotas for 2002 will be 37 percent, 116 percent, and 119 percent higher than the quotas specified for summer flounder, scup, and black sea bass in 2001, respectively (section 3.1 and 4.0 of the PREE).

Vessel affected under the 2002 recommended harvest levels (Alternative 1)

Under Alternative 1, there are no vessels projected to be impacted with revenue reductions greater than 5% (section 5.1 of the PREE). In fact, the threshold analysis conducted in section 5.1 of the PREE indicates that all vessels are projected to increase revenues in 2002 compared to 2001. Under this alternative,

projected landings for the summer flounder, scup, and black sea bass in 2002 are higher than the adjusted landings implemented in 2001.

Effects of the gear restricted areas

The Council recommended that the GRAs that were implemented in 2001 continue for 2002. Additionally, the Council and Board adopted a measure that allows vessels fishing with small mesh and having an escapement extension of 45 meshes of 5.5" square mesh behind the body of the net and ahead of the codend be allowed to fish in the GRAs.

The affect of the GRAs on small net fisheries is fully described in the 2001 Specification Document. These measures are expected to reduce discards of scup in non-directed fisheries. However, the recommendation that will allow small mesh experimental net in the GRAs may increase landings of other species relative to 2001. It is not possible to assess the monetary value associated with the additional harvest as a result of the proposed experimental net exemption, because quantitative data on these nets are limited. The modifications are inexpensive and can be incorporated into existing nets with minimal labor (section 5.0 of the PREE). The modifications are based on a project funded by the Mid-Atlantic Council and conducted by the Manomet Center for Conservation Sciences to develop selective trawls for small mesh fisheries. Results of the research indicate that a 5.5" square mesh extension placed in the net 50 meshes ahead of the codend significantly reduced (66% reduction) the bycatch and discard of small scup without a reduction in the capture of squid.

Effects of mesh size, vent size, minimum size, and research set-aside quota

In addition to the proposed TALs for summer flounder, scup, and black sea bass, the Council and Commission have approved changes to the minimum mesh, minimum fish size, and possession limits for one or more of these species. In addition, reseacrh set-asides were proposed for each fishery. A detailed description of these measures was presented in section 6.3 of the EA and are briefly discussed in section 5.0 of the PREE. The analysis of these measures is also presented in section 5.0 of the PREE. None of these additional management measures were projected to have a significant economic impact on the fisheries participants.

Vessels affected under the most restrictive 2001 alternative (Alternative 2 - Status Quo)

The social impact analysis first examined the anticipated impacts under the preferred alternative (Alternative 1). In addition, examined Alternative 2 - the most restrictive combined alternative. It is presumed that impacts of other alternatives will be less than impacts under this alternative. Under Alternative 2, there are no vessels projected to incur in revenue reductions of greater than 5% (section 5.2 of the PREE). The analysis conducted in section 5.2 of the PREE indicates that the bulk of the vessels, 97%, actively participating in these fisheries (1004 vessels) are projected to incur a revenue increase, 5 vessels (<1%) no revenue change, and 29 vessels (3%) a revenue reduction of less than 5%.

7.0 Essential Fish Habitat Assessment

Summer flounder, scup and black sea bass have Essential Fish Habitat (EFH) designated in many of the same bottom habitats that have been designated as EFH for most of the MAFMC managed species of surfclams/ocean quahogs, squid/mackerel/butterfish, bluefish, and dogfish, as well as the NEFMC species of groundfish within the Northeast Multispecies FMP, including: Atlantic cod, haddock, monkfish, ocean pout, American plaice, pollock, redfish, white hake, windowpane flounder, winter flounder, witch flounder, yellowtail flounder, Atlantic halibut and Atlantic sea scallops. Numerous species within the NMFS Highly Migratory Species Division and the SAFMC have EFH identified in areas also identified as EFH for summer flounder, scup and black sea bass. Broadly, EFH is designated as the pelagic and demersal waters along the continental shelf from off southern New England through the south Atlantic to Cape Canaveral, Florida. Specifically, the definitions as approved in Amendment 12 (MAFMC 1999) are:

Identification and Description

Summer flounder

Eggs: 1) North of Cape Hatteras, EFH is the pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of the all the ranked ten-minute squares for the area where summer flounder eggs are collected in the MARMAP survey. 2) South of Cape Hatteras, EFH is the waters over the Continental Shelf (from the coast out to the limits of the EEZ), from Cape Hatteras, North Carolina to Cape Canaveral, Florida, to depths of 360 ft. In general, summer flounder eggs are found between October and May, being most abundant between Cape Cod and Cape Hatteras, with the heaviest concentrations within 9 miles of shore off New Jersey and New York. Eggs are most commonly collected at depths of 30 to 360 ft.

Larvae: 1) North of Cape Hatteras, EFH is the pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all the ranked ten-minute squares for the area where summer flounder larvae are collected in the MARMAP survey. 2) South of Cape Hatteras, EFH is the nearshore waters of the Continental Shelf (from the coast out to the limits of the EEZ), from Cape Hatteras, North Carolina to Cape Canaveral Florida, in nearshore waters (out to 50 miles from shore. 3) Inshore, EFH is all the estuaries where summer flounder were identified as being present (rare, common, abundant, or highly abundant) in the ELMR database, in the "mixing" (defined in ELMR as 0.5 to 25.0 ppt) and "seawater" (defined in ELMR as greater than 25 ppt) salinity zones. In general, summer flounder larvae are most abundant nearshore (12-50 miles from shore) at depths between 30 to 230 ft. They are most frequently found in the northern part of the Mid-Atlantic Bight from September to February, and in the southern part from November to May.

Juveniles: 1) North of Cape Hatteras, EFH is the demersal waters over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all the ranked ten-minute squares for the area where juvenile summer flounder are collected in the NEFSC trawl survey. 2) South of

Cape Hatteras, EFH is the waters over the Continental Shelf (from the coast out to the limits of the EEZ) to depths of 500 ft, from Cape Hatteras, North Carolina to Cape Canaveral, Florida. 3) Inshore, EFH is all of the estuaries where summer flounder were identified as being present (rare, common, abundant, or highly abundant) in the ELMR database for the "mixing" and "seawater" salinity zones. In general, juveniles use several estuarine habitats as nursery areas, including salt marsh creeks, seagrass beds, mudflats, and open bay areas in water temperatures greater than 37 ^{o}F and salinities from 10 to 30 ppt range.

Adults: 1) North of Cape Hatteras, EFH is the demersal waters over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all the ranked ten-minute squares for the area where adult summer flounder are collected in the NEFSC trawl survey. 2) South of Cape Hatteras, EFH is the waters over the Continental Shelf (from the coast out to the limits of the EEZ) to depths of 500 ft, from Cape Hatteras, North Carolina to Cape Canaveral, Florida. 3) Inshore, EFH is the estuaries where summer flounder were identified as being common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. Generally summer flounder inhabit shallow coastal and estuarine waters during warmer months and move offshore on the outer Continental Shelf at depths of 500 ft in colder months.

Scup

Eggs: EFH is estuaries where scup eggs were identified as common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. In general scup eggs are found from May through August in southern New England to coastal Virginia, in waters between 55 and 73 ^{o}F and in salinities greater than 15 ppt.

Larvae: EFH is estuaries where scup were identified as common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. In general scup larvae are most abundant nearshore from May through September, in waters between 55 and 73 ^{o}F and in salinities greater than 15 ppt.

Juveniles: 1) Offshore, EFH is the demersal waters over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all the ranked ten-minute squares of the area where juvenile scup are collected in the NEFSC trawl survey. 2) Inshore, EFH is the estuaries where scup are identified as being common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. Juvenile scup, in general during the summer and spring are found in estuaries and bays between Virginia and Massachusetts, in association with various sands, mud, mussel and eelgrass bed type substrates and in water temperatures greater than 45 ^{o}F and salinities greater than 15 ppt.

Adults: 1) Offshore, EFH is the demersal waters over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all the

ranked ten-minute squares of the area where adult scup are collected in the NEFSC trawl survey. 2) Inshore, EFH is the estuaries where scup were identified as being common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. Generally, wintering adults (November through April) are usually offshore, south of New York to North Carolina, in waters above 45 ^{o}F.

Black sea bass

Eggs: EFH is the estuaries where black sea bass eggs were identified in the ELMR database as common, abundant, or highly abundant for the "mixing" and "seawater" salinity zones. Generally, black sea bass eggs are found from May through October on the Continental Shelf, from southern New England to North Carolina.

Larvae: 1) North of Cape Hatteras, EFH is the pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all ranked ten-minute squares of the area where black sea bass larvae are collected in the MARMAP survey. 2) EFH also is estuaries where black sea bass were identified as common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. Generally, the habitats for the transforming (to juveniles) larvae are near the coastal areas and into marine parts of estuaries between Virginia and New York. When larvae become demersal, they are generally found on structured inshore habitat such as sponge beds.

Juveniles: 1) Offshore, EFH is the demersal waters over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all the ranked squares of the area where juvenile black sea bass are collected in the NEFSC trawl survey. 2) Inshore, EFH is the estuaries where black sea bass are identified as being common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. Juveniles are found in the estuaries in the summer and spring. Generally, juvenile black sea bass are found in waters warmer than 43 ^{o}F with salinities greater than 18 pp and coastal areas between Virginia and Massachusetts, but winter offshore from New Jersey and south. Juvenile black sea bass are usually found in association with rough bottom, shellfish and eelgrass beds, man-made structures in sandy-shelly areas; offshore clam beds and shell patches may also be used during the wintering.

Adults: 1) Offshore, EFH is the demersal waters over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all the ranked ten-minute squares of the area where adult black sea bass are collected in the NEFSC trawl survey. 2) Inshore, EFH is the estuaries where adult black sea bass were identified as being common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. Black sea bass are generally found in estuaries from May through October. Wintering adults (November through April) are generally offshore, south of New York to North Carolina. Temperatures above 43 ^{o}F seem to be the minimum requirements. Structured habitats

(natural and man-made), sand and shell are usually the substrate preference.

Fishing impacts to summer flounder, scup, and black sea bass EFH

Auster and Langton (1998) state that, "One of the most difficult aspects of estimating the extent of fishing impacts on habitat is the lack of high resolution data on the distribution of fishing effort." Currently, there is no way to fully gauge the present intensity and severity of mobile gear in contact with the bottom (bottom otter trawl, clam dredge, scallop dredge, and dredge-other), therefore these gears are characterized as having a "potential adverse impact" on summer flounder, scup, and black sea bass EFH (MAFMC 1999). The types of habitat in which these gears are fishing and with what kind of intensity is unquantified in the Mid-Atlantic. Auster and Langton (1998) cite studies that indicate that mobile clam dredges, traps and pots being drug and dropped, and bottom otter trawls coming into contact with the bottom have impacted structural habitat, community structure, and ecosystem process. They also cite several conceptual models to determine the impacts of gears on different types of habitat. However, without high resolution data on fishing effort and the habitat complexity that is being fished, it is currently difficult to predict impact of these gears.

Summer flounder, scup, and black sea bass are demersal species that have associations with substrates, SAV, and structured habitat (Packer and Griesbach 1999, Steimle *et al.* 1999a-b). Specific habitats that are designated as EFH and are important to these species are as follows:

Summer Flounder: pelagic waters, demersal waters, saltmarsh creeks, sea grass beds, mudflats, open bay areas

Scup: demersal waters, sands, mud, mussel and eelgrass beds

Black Sea Bass: pelagic waters, structured habitat (e.g. sponge beds), rough bottom shellfish, sand and shell

Both mobile and stationary gear are characterized as having a potential impact on summer flounder, scup, and black sea bass EFH. Auster and Langton (1998) cited studies that indicate impacts mobile gear on the structural components and community structure in both long- and short- terms, of these habitat types. Stationary gears such as pots, traps, and gill nets can continue to fish once they are lost, i.e., ghost gear. The impact of ghost gear is also poorly quantified, therefore these gears are also characterized as having a "potential adverse impact" on summer flounder, scup, and black sea bass EFH (MAFMC 1999).

Options for Managing Adverse Effects from Fishing

According to section 600.815 (a)(3) Councils must act to prevent, mitigate, or minimize adverse effects from fishing, to the extent practicable, if there is evidence that a fishing practice is having an identifiable adverse effect on EFH.

Section 600.815 (a)(4) states that, fishery management options may include, but are not limited to: (i) fishing equipment restrictions, (ii) time/area closures, and (iii) harvest limits.

The Council designated both mobile bottom gear and stationary gear as having a potential adverse impact (MAFMC 1999) on summer flounder, scup, and black sea bass EFH. The Council has implemented many regulations in the past that have indirectly acted to reduce impacts to habitat. Since numerous regulations are already in place, the Council is not presently planning on implementing any additional management measures associated with these proposed quotas. The Council will implement new management measure to reduce habitat impacts, if data become available that indicate that current measures are inadequate to reduce impact to habitat. The Council can propose management measures through the framework procedures described in section 3.1.1.1 of Amendment 12 at any time and must review all of their EFH at least every 5 years.

Currently, there are 32 stocks managed by NEFMC, MAFMC, and SAFMC in the Atlantic Ocean that are designated as overfished (NMFS 1998). All of NMFS's HMS species with the exception of the group "pelagic sharks" are overfished. These designations result in a general reduction of fishing effort from Maine through Florida in order to rebuild these stocks. This reduction of effort translates into less of an impact on habitat throughout the western Atlantic coast.

In addition to a general reduction of fishing effort there are other mechanisms in place to reduce the impact of bottom otter trawls and other types of bottom mobile gear on habitat. The summer flounder, scup, and black sea bass FMP includes a mechanism to implement Special Management Zones (SMZ) which allows the restriction of certain types of fishing gear that are not compatible with artificial reefs or fish attraction devices permitted by the Army Corps of Engineers. In addition, the Council is planning on continuing the GRAs, that were implemented in 2001, for scup in the year 2002 to reduce scup discards.

Dredges accounted for 79% of the MAFMC landings from Maine through North Carolina in 1997. The surfclam and ocean quahog fisheries are managed under an Individual Transferable Quota (ITQ) system. ITQ's instill a sense of ownership of the resource. Fishermen in these fisheries understand that they are not time driven to deplete the resource and that by protecting the resource and the surrounding habitat they are protecting their long term livelihoods. In addition to the indirect benefits of ITQs, the numbers of surfclam and ocean quahog fishermen have also decreased significantly with the implementation of ITQs. In 1979 there were 162 permitted surf clamming vessels, by 1995 that number had fallen to 37. The number of ocean quahog vessels decreased from 59 in 1979 to 36 in 1995. Many vessels fish for both surfclams and ocean quahogs and in fact the total number of clam dredge vessels that fished in 1998 was only 47.

Some discussions of various gear impacts on bottom in the Mid-Atlantic region has been presented to the Council over the past several years. It is because of this anecdotal information that the Council is considering that all mobile gear coming into contact with the seafloor within summer flounder, scup, and black sea bass EFH is characterized as having a potential impact on their EFH (MAFMC 1999). However, the effort of these bottom tending gears is largely unquantified from data that are presently collected by the NEFSC as summarized by Auster and Langton (1998). Dr. Joe DeAlteris (University of Rhode Island) is presently attempting to synthesize the historical (1983 to 1993) fishing effort data by area and hopes to have this project complete in the next two years. When specific gear-effort data by area are available the Council will review them and consider whether additional specific management measures will be useful.

The requirement concerning gear impact management is to the extent practicable given the evidence that the fishing practice is having an identifiable adverse effect. The Council feels strongly that very little evidence was provided in the synthesis document of Auster and Langton (1998) relative to identifiable adverse effects to EFH in FMPs managed by this Council at this time. Fishing gear impacts along with the description and identification of EFH are frameworked management measures which can easily and readily be changed as more information becomes available (MAFMC 1999). The Council feels it would be premature, given the lack of identifiable adverse effects of gear impacts to these managed species EFH, to propose gear management measures at this time. The Council will consider implementing management measures to protect EFH if and when adverse gear impacts are identified.

In summary, the quotas proposed for summer flounder, scup, and black sea bass, for 2002 are higher than those specified for 2001. However, an increase in quota does not necessarily mean an increase in fishing effort. As discussed in Section 6.0, with improving stock abundance, fishermen may be able to catch more fish with less or constant effort. Conversely, fishing effort could increase as vessels take more, or longer trips, to land the higher quota. Therefore, the measures proposed in this specification package may have adverse effects to EFH that range from increased adverse impacts to impacts that are less than existing impacts. The non-quota setting specifications associated with this action will not have an adverse effect on EFH. Since the increase in the quota for each species meets the FMP objective of improving yield while ensuring that overfishing does not occur, and due to the lack of direct evidence to suggest that fishing effort on bottom habitats will actually increase due to this action, NMFS has determined that this action minimizes the adverse effects of fishing on EFH to the extent practicable, pursuant to Section 305(a)(7) of the Magnuson-Stevens fishery conservation and management Act. Because some adverse effects to EFH will be present, an abbreviated EFH consultation pursuant to Section 305(b)(2) of the Magnuson-Stevens Act is required.

8.0 List of agencies and persons consulted in formulating the action

The summer flounder, scup and black sea bass specifications were submitted to the National Marine Fisheries Service (NMFS) by the Mid-Atlantic Fishery Management Council and the Atlantic States Marine Fisheries Commission.

9.0 List of preparers of the environmental assessment

This environmental assessment was prepared by the Mid-Atlantic Council and the Northeast Regional Office of NMFS, and is based, in part, on information provided by the Northeast Fisheries Science Center (Center).

10.0 Finding of no significant environmental impact

Having reviewed the environmental assessment on the specifications for the 2002 summer flounder, scup, and black sea bass fisheries, and the available information relating to the action, I have determined that there will be no significant adverse environmental impact resulting from the action and that preparation of an environmental impact statement on the action is not required by Section 102(2)(c) of the National Environmental Policy Act or its implementing regulations.

_____ _____

Assistant Administrator for Fisheries, NOAA — Date

OTHER APPLICABLE LAWS

1.0 PAPERWORK REDUCTION ACT OF 1995

The Paperwork Reduction Act (PRA) concerns the collection of information. The intent of the PRA is to minimize the Federal paperwork burden for individuals, small business, state and local governments, and other persons as well as to maximize the usefulness of information collected by the Federal government.

This action does not contain any new collection-of-information requirements subject to the Paperwork Reduction Act (PRA). The request for an experimental fishing exemption has already been approved by OMB under Control Number 0648-0309. Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. There are no changes to the existing reporting requirements previously approved under OMB Control Nos. 0648-0202 (Vessel permits), 0648-0229 (Dealer reporting) and 0648-0212 (Vessel logbooks).

As stated above, this action does not implement new reporting or record keeping measures. There are no changes to existing reporting requirements. Currently, all summer flounder, scup and/or black sea bass Federally-permitted dealers must submit weekly reports of fish purchases. The owner or operator of any vessel issued a moratorium vessel permit for summer flounder, scup, black sea bass, must maintain on board the vessel, and submit, an accurate daily fishing log report for all fishing trips, regardless of species fished for or taken. The owner of any party or charter boat issued a summer flounder or scup permit other than a moratorium permit and carrying passengers for hire shall maintain on board the vessel, and submit, an accurate daily fishing log report for each charter or party fishing trip that lands summer flounder or scup, unless such a vessel is also issued another permit that requires regular reporting, in which case a fishing log report is required for each trip regardless of species retained. These reporting requirements are critical for monitoring the harvest level of these fisheries.

2.0 RELEVANT FEDERAL RULES

This action will not duplicate, overlap or conflict with any other Federal rules.

The Council determined that this action is consistent to the maximum extent practicable with the approved coastal management programs of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, New Jersey, Delaware, maryland, Virginia, North Carolina, south Carolina, Georgia, and florida. This determination was submitted on September 19, 2001, for review by the responsible state agencies under section 307 of the coastal Zone management Act.

REGULATORY IMPACT REVIEW/INITIAL REGULATORY FLEXIBILITY ANALYSIS

1.0 INTRODUCTION

The National Marine Fisheries Service (NMFS) requires the preparation of a Regulatory Impact Review (RIR) for all regulatory actions that either implement a new Fishery Management Plan (FMP) or significantly amend an existing plan. This RIR is part of the process of preparing and reviewing FMPs and provides a comprehensive review of the changes in net economic benefits to society associated with proposed regulatory actions. This analysis also 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 problems. The purpose of this analysis is to ensure 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. This RIR addresses many items in the regulatory philosophy and principles of Executive Order (E.O.) 12866.

NMFS has also included an Initial Regulatory Flexibility Act Analysis (RFA) to evaluate the economic impacts of the alternatives on small business entities, although positive economic impacts are anticipated due to the quota increases contained in the Preferred Alternative.

2.0 EVALUATION OF E.O. 12866 SIGNIFICANCE

A complete description of the objectives of this proposed rule may be found in the Introduction of the EA. This action is taken under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and regulations at 50 CFR part 648.

A description of ports and communities, an analysis of permit data, and a description of the fisheries affected by this action are presented in sections 4.1, 4.2, and 5.0 of the EA, respectively.

The economic benefits of the summer flounder, scup and black sea bass FMP have been evaluated periodically as amendments to the FMP have been implemented to either change the effort reduction schedule or as new species have been added. These analyses have been conducted at the time a major amendment is developed and interim actions (framework adjustments or quota specifications) may be presumed to leave the conclusions reached in the initial benefit-cost analyses unchanged provided the original conservation and economic objectives of the plan are being met.

The economic effects of the black sea bass effort reductions were evaluated at the time black sea bass was added to the FMP through Amendment 9. The economic analysis presented at that time was largely qualitative in nature. Given the fact that the black sea bass quota was implemented for the first time in 1998 it is too early to determine whether or not the black sea bass objectives are being met. Nevertheless, assessment of the black sea bass quota indicates that overall landings have been within the quota specifications in 1998 and 1999. However, for the 2000 fishing season landings were about 1 percent above the overall quota. A preliminary assessment of the 2001 fishing season indicate that 2001 landings will be about 5 percent above the overall quota (assuming that overages

do not occur in the fourth quarter and that the entire quota is taken during the fourth quarter; see section 3.1 below). This is the second time since the black sea bass quota was implemented that overall landings are projected to be above the established commercial quota. Since quota adjustments will be made to the 2002 quota in order to account for the overages in 2001, there is a reasonable expectation that the management objectives will be met and the expected economic benefits will not be compromised.

The economic effects of the scup effort reductions were evaluated at the time scup was added to the FMP through Amendment 8. The expected economic benefits and costs for the scup effort reduction were also described in qualitative terms. Similar to black sea bass, the coastwide scup quota has only been implemented from 1997 to 2001. Preliminary assessment of the 2001 fishing season indicate that 2001 landings will be approximately 11 percent over the quota specification. Thus, it is too early to determine whether or not the management objectives for scup are being met. At this time, the plan objectives appear to be met so there is a reasonable expectation that the expected economic benefits of managing scup will not be compromised. However, overages must be brought in control in order to meet the benefits of the proposed management objectives. Attainment of the management objectives may require more rigorous actions to reduce effort than what has been adopted to date.

Analysis of Alternatives

For each alternative potential impacts on several areas of interest are discussed. The objective of this analysis is to describe clearly and concisely the economic effects of the various alternatives. The types of effects that should be considered include the following changes in landings, prices, consumer and producer benefits, harvesting costs, enforcement costs, and distributional effects. Due to the lack of an empirical model for these fisheries and knowledge of elasticities of supply and demand, a qualitative approach to the economic assessment was adopted. Nevertheless, quantitative measures are provided whenever possible.

A more detailed description of the economic concepts involved can be found in "Guidelines for Economic Analysis of Fishery Management Actions" (USDC 2000), as only a brief summary of key concepts will be presented here.

Benefit-cost analysis is conducted to evaluate the net social benefit arising from changes in consumer and producer surpluses that are expected to occur upon implementation of a regulatory action. Total Consumer Surplus (CS) is the difference between the amounts consumers are willing to pay for products or services and the amounts they actually pay. Thus CS represents net benefits to consumers. When the information necessary to plot the supply and demand curves for a particular commodity is available, consumer surplus is represented by the area that is below the demand curve and above the market clearing price where the two curves intersect. Since an empirical model describing the elasticities of supply and demand for these species is not available, it was assumed that the price for these species was determined by the market clearing price or the intersection of the supply and demand curves. These prices were the base prices used to determine potential changes in prices due to changes in landings.

Net benefit to producers is producer surplus (PS). Total PS is the difference

between the amounts producers actually receive for providing goods and services and the economic cost producers bear to do so. Graphically, it is the area above the supply curve and below the market clearing price where supply and demand intersect. Economic costs are measured by the opportunity cost of all resources including the raw materials, physical and human capital used in the process of supplying these goods and services to consumers.

One of the more visible costs to society of fisheries regulation is that of enforcement. From a budgetary perspective, the cost of enforcement is equivalent to the total public expenditure devoted to enforcement. However, the economic cost of enforcement is measured by the opportunity cost of devoting resources to enforcement vis à vis some other public or private use and/or by the opportunity cost of diverting enforcement resources from one fishery to another.

1) Alternative 1 (Preferred Alternative)

For purposes of this analysis, the status quo and all other alternatives will be evaluated under the assumption that the primary measure for achieving the conservation objectives will be through changes in quota levels. This alternative as well as the other alternatives will be evaluated against a base line. The base line condition provides the standard against which all other alternative actions are compared. In this analysis, the base line condition is the final adjusted quotas for 2001. This comparison will allow for the evaluation of the potential fishing opportunities associated with each alternative versus the fishing opportunities that were in place in 2001. Aggregate changes in fishing opportunities in 2002 (adjusted quotas) versus quotas specified for 2001 are shown in Table 12. The information presented in Table 12 was used to determine potential changes in landings associated with the proposed quota levels associated with each of the alternatives evaluated in this analysis.

Landings

Under the preferred alternative, aggregate landings for summer flounder, scup, and black sea bass are expected to be 44 percent, 115 percent, and 19 percent higher in 2002 when compared to 2001 adjusted quota, respectively.

Prices

Given the likelihood that this alternative will result in substantial increase in the landings of all three species, it would be anticipated that there will be a decrease in the price for these species holding all other factors constant.

Consumer Surplus

Given the potential decrease in the price for these species under this scenario, it is expected that consumer surplus associated with these fisheries may increase.

Harvest Costs

No changes in harvest costs are identified under this alternative.

Producer surplus

Given the potential decrease in the price for these species under this scenario, it is expected that producer surplus associated with these fisheries may decrease.

Enforcement Costs

This alternative does not introduce additional enforcement measures. As such, no changes in enforcement costs are identified under this alternative.

Distributive Effects

There are no changes to the quota allocation process for any of the species. As such, no distributional effects are identified under this alterative.

2) Alternative 2, (Status Quo or "No Action" Alternative (also the Most Restrictive Alternative))

The status quo or "no action" alternative refers to what most likely will occur in the absence of implementing the proposed regulation. The implementation of this action means that the current 2001 rules will apply to 2002. That is, the 2002 quota levels for each fishery would be identical to the quotas established in 2001. Then projected overages in 2001 would have to be deducted from the 2002 quota to determine the specified quota for 2002. The same assumptions regarding landings relative to the base line and changes in fishing opportunities discussed under Alternative 1 also apply here. The "no action" alternative does not necessarily mean a continuation of the present, but instead is the most likely scenario for the future in the absence of other alternatives. This alternative evaluates the overall quotas that are most restrictive among all quotas evaluated.

Under this alternative aggregate landings for summer flounder, scup, and black sea bass are expected to be 6 percent, 14 percent, and 7 percent higher in 2002 when compared to the 2001 adjusted quota, respectively. The directional impacts are expected to be similar to those described under Alternative 1 above, except that given a smaller increase in landings associated with this alternative, the magnitude of the changes may be smaller than that described under Alternative 1.

3) Alternative 3 (Least Restrictive Alternative)

The same assumptions regarding landings relative to the base line and changes in fishing opportunities discussed under Alternative 1 also apply here. This alternative evaluates the least restrictive quotas among all quotas evaluated. Under Alternative 3 aggregate landings for summer flounder, scup, and black sea bass are expected to be 106 percent, 157 percent, and 43 percent higher in 2002 when compared to 2001 adjusted quota, respectively. The directional impacts are expected to be similar to those described under Alternative 1 above, except that given a larger increase in landings associated with this alternative, the magnitude of the changes may be greater than that described under Alternative 1.

Table 12. Percentage changes associated with allowable commercial landings for various alternatives in 2002 (adjusted for overages) relative to the quotas

specified for 2001.

	Total Changes Including Overages		
Geographic Area or Time Period	**Quota Alternative 1 (Preferred)**	**Quota Alternative 2 (Status Quo-Most Restrictive)**	**Quota Alternative 3 (Least Restrictive)**
Summer Flounder			
States other than Maine	+44.41%	6.39%	+107.13%
Maine	-100.00%	-100.00%	-100.00%
Aggregate Change	+44.25%	+6.16%	+106.88%
Scup			
Winter 1	+114.37%	+18.65%	+155.67%
Summer	+143.43%	+20.75%	+196.36%
Winter 2	+79.99%	0%	+114.51%
Aggregate Change	+115.60%	+14.94%	+157.04%
Black Sea Bass			
Quarter 1	+6.43%	-3.72%	+27.55%
Quarter 2	+34.88%	+21.65%	+62.39%
Quarter 3	+18.69%	+6.54%	+43.95%
Quarter 4	+27.43%	+15.67%	+51.86%
Aggregate Change	+19.13%	+7.66%	43.02%

Summary of Impacts of Alternatives

The overall impacts of summer flounder, scup, and black sea bass landings on prices, consumer surplus, and producer surplus are difficult to determine without detailed knowledge of the relationship between supply and demand factors for these fisheries. In the absence of detailed empirical models for these fisheries and knowledge of elasticities of supply and demand, a qualitative approach was employed to assess potential impacts of the proposed management measures.

The impact of each of the regulatory quota alternatives relative to the base year is summarized in Table 13. When potential outcomes from implementing a specific alternative are equal for all three species in direction, the resulting directional effect is presented as one. However, when outcomes from implementing a specific alternative differ across species, the directional effects will be presented separately for each species. A “-1" indicates that the level of the given feature would be reduced given the action as compared to the base year. A

“+1" indicates that the level of the given feature would increase relative to the base year and a “0" indicates no change. In this analysis, the base line condition is the final adjusted quotas for 2001. This comparison will allow for the evaluation of the potential fishing opportunities associated with each alternative in 2002 versus the fishing opportunities that were in place in 2001.

The preferred alternative, the status quo, and the least restrictive alternative may be expected to have similar overall directional impacts. These alternatives show a likely decrease in prices associated with higher landings in 2002 compared to the base year. As such, consumer surplus is expected to increase and producer surplus is expected to decrease. However, the magnitude of the changes will likely vary across alternatives due to the potential changes in landings associated with each alternative. For example, the impact on price reduction for each species associated with the least restrictive alternative (Alternative 3) may be expected to be higher than those associated with the Status Quo (Alternative 2) or the Preferred Alternative (Alternative 1).

No changes in the competitive nature of these fisheries is expected to occur if any of these management measures were implemented. All the alternatives would maintain the competitive structure of the fishery, that is, there are no changes in the manner the quotas are allocated by region or state from the base year. However, large reductions in quota levels from year to year may affect vessels differently due to their capability to adjust to quota changes.

No changes in enforcement costs or harvest costs have been identified for any of the evaluated alternatives.

It is important to mention that although the measures that are evaluated in this specification package are for the year 2002 fisheries, the annual specification process for these fisheries could have potential cumulative impacts. The extent of any cumulative impacts from measures established in previous years is largely dependent on how effective those measures were in meeting their intended objectives and the extent to which mitigating measures compensated for any quota overages. Section 6.0 of the EA has a detailed description or historical account or commutative impacts of the measures established in previous years. This information is important because it allows for the evaluation of projected results from the implementation of specific management measures versus actual results.

Table 13. Qualitative comparative summary of economic effects of regulatory alternatives relative to the base line “adjusted quotas for 2001".

Feature	Alternative 1 Preferred Alternative	Alternative 2 Status Quo Most Restrictive	Alternative 3 Least Restrictive
Landings	+1	+1(?)	+1
Prices	-1	-1(?)	-1
Consumer Surplus	+1	+1(?)	+1
Harvest Costs	0	0	0

Producer Surplus	-1	-1(?)	-1
Enforcement Costs	0	0	0
Distributive Impacts	0	0	0
“-1" denotes a reduction relative to the base line; “0" denotes no change relative to the base line; and “+1" denotes an increase relative to the base line.			

The proposed action does not constitute a significant regulatory action under E.O. 12866 for the following reasons. First, it will not have an annual effect on the economy of more than $100 million because the total value of all commercial landings of these species is approximately $26.6 million. Based on preliminary unpublished NMFS weighout (dealer) data, the 2000 total commercial value for summer flounder was estimated at $18.5 million from Maine to North Carolina, and at $3.3 million and $4.8 million for scup and black sea bass from Maine to Cape Hatteras, NC, respectively. Assuming 2000 ex-vessel prices and the effect of potential changes in prices due to changes in landings in 2002 versus 2001 (discussed under Alternative 1 above), the 2002 quotas in Preferred Alternative 1 (after overages have been applied) would increase summer flounder, scup, and black sea bass ex-vessel revenues by approximately $5.4 million, $6.2 million, and $0.9 million, relative to 2000 revenues (landings), respectively, for a total increase of $12.5 million. For Alternative 2, the 2002 quotas (after overages have been applied) would decrease summer flounder ex-vessel revenues by approximately $0.9 million, and increase scup, and black sea bass ex-vessel revenues by approximately $1.7 million, and $0.4 million, relative to 2000 revenues (landings), respectively, for a total increase of $1.2 million. For Alternative 3, the 2002 quotas (after overages have been applied) would increase summer flounder, scup, and black sea bass ex-vessel revenues by approximately $15.8 million, $8.1 million, and $2.1 million, relative to 2000 revenues (landings), respectively, for a total increase of $26.0 million.

The landing/trip limits were chosen as an appropriate balance between the economic concerns of the industry (e.g., landing enough scup or black sea bass to make the trip economically viable) and the need to ensure the equitable distribution of the quota over the period.

Changes in landing/trip limits can impact profitability in various ways. These impacts would vary depending of fishing practices. The possession limit recommended for Quarter 1 of the black sea bass fishery is not expected to negatively impact the black sea bass fishery. However, the decrease in the Quarter 1 limit may have some positive impacts by providing the market a regular product supply, avoiding market gluts, and price fluctuations.

The proposed fish size limits and minimum mesh provisions in black sea bass fishery and the mesh size provisions in the scup fishery are recommended to reduce the catch of undersized fish. These measures are not expected to affect small entities in a negative manner. If fish smaller that the minimum size limit could be landed they would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could

be offset by a decrease in mortality for larger fish. However, overall mortality rates are controlled by the TAL, and changes in mortality because of these proposed regulations should be insignificant. Additionally, a reduction in the catch of undersized fish may lead to an increase the size at full recruitment because yields are increased as fishermen catch larger, heavier fish. Therefore, the proposed regulations could help to increase spawning stock biomass by allowing more fish to spawn. If 2000 price differentials between smaller and larger fish in the black sea bass fishery continued, commercial fishermen may benefit from the proposed minimum size in the sea bass fishery and, in fact, experience an increase in revenue.

In the annual specification process for 2002, the Council approved a research set aside amount equal to 2 percent of the total allowable harvest for summer flounder and 3 percent of the total allowable harvest for scup and black sea bass. Assuming that NMFS approves the preferred TAL alternative for each species, the set-aside amount would be 486,000; 323,100; and 204,000 pounds for summer flounder, scup, and black sea bass, respectively. It is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts (see section 5.1 below).

The Council recommended that the GRAs that were implemented in 2001 continue for 2002. Additionally, the Council and Board adopted a measure that allows vessels fishing with small mesh and having an escapement extension of 45 meshes of 5.5" square mesh behind the body of the net and ahead of the codend be allowed to fish in the GRAs.

The affect of the GRAs on small net fisheries is fully described in the 2001 Specification Document. The GRAs are expected to reduce discards of scup in non-directed fisheries. However, the recommendation to allow small mesh experimental net in the GRAs may increase landings of other species relative to 2001. It is not possible to assess the monetary value associated with the additional harvest as a result of the proposed experimental net exemption, because quantitative data on these nets are limited. The modifications are inexpensive and can be incorporated into existing nets with minimal labor (section 5.0 of the RIR/IRFA). The modifications are based on a project funded by the Mid-Atlantic Council and conducted by the Manomet Center for Conservation Sciences to develop selective trawls for small mesh fisheries. Results of the research indicate that a 5.5" square mesh extension placed in the net 50 meshes ahead of the codend significantly reduced (66 percent reduction) the bycatch and discard of small scup without a reduction in the capture of squid.

The Preferred Alternative, and other non-quota measures, being considered by this action are necessary to advance the recovery of summer flounder, scup and black sea bass stocks, and to establish the harvest of these species at sustainable levels. The action benefits in a material way the economy, productivity, competition and jobs. The action will not adversely affect, in the long-term, competition, jobs, the environment, public health or safety, or state, local, or tribal government communities. Second, the action will not create a serious inconsistency or otherwise interfere with an action taken or planned by another agency. No other agency has indicated that it plans an action that will affect the summer flounder, scup or black sea bass fisheries in the EEZ. Third, the actions will not materially alter the budgetary impact of entitlement, grants,

user fees, or loan programs or the rights and obligations of their participants. And, fourth, the actions do not raise novel, legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in E.O. 12866.

3.0 REGULATORY FLEXIBILITY ANALYSIS

3.1 INTRODUCTION AND METHODS

Although positive economic impacts are anticipated as a result of this action due to the quota increases contained in the Preferred Alternative, the Initial Regulatory Flexibility Act Analysis (RFA) contained in Section 4.0, 5.0 and 6.0 was prepared to further evaluate the economic impacts of the three quota alternatives and other non-quota measures (i.e. gear requirements and trip limits) on small business entities.

A complete description of the need for, and objectives of, this rule can be found in the Introduction of the EA. A description of ports and communities, an analysis of permit data, and a description of the fisheries are presented in sections 4.1, 4.2, and 5.0 of the EA, respectively. This action is taken under authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and regulations at 50 CFR part 648.

This action does not duplicate, overlap, or conflict with other Federal rules. This action does not contain any new collection of information, reporting, or recordkeeping requirements.

Compliance costs associated with this action are anticipated due to requirements for trawl gear conversion in the scup and black sea bass fisheries, and escape vent modifications for pots and traps in the black sea bass fishery. Costs of trawl gear conversions are expected to vary for inshore and offshore vessels, and with the degree of modifications required. For vessels operating in the inshore fishery, compliance costs are estimated to be approximately $775, and for vessels operating in the offshore fishery costs are estimated at approximately $1,354. The cost of replacing escape vents is expected to be minimal, and some commercial pot and trap black sea bass fishers have indicated that they are already using the types of vents that would be required.

The Small Business Administration (SBA) defines a small business in the commercial fishing and recreational fishing activity, as a firm with receipts (gross revenues) of up to $3.0 million. The proposed measures regarding the 2002 quotas could affect any vessel holding an active Federal permit for summer flounder, scup, or black sea bass as well as vessels that fish for any one of these species in state waters. Data from the Northeast permit application database shows that as of September 5, 2000 there were 1969 vessels that were permitted to take part in the summer flounder, scup, and/or black sea bass fisheries (both commercial and charter/party sectors). These permitted vessels may be further categorized depending upon which permits or combinations of permits that were held (section 4.2 of the EA). Table 2 reports the number of vessels for all possible combinations of permits. The proposed minimum mesh, minimum fish size, and possession limits for summer flounder, scup, and/or black sea bass could potentially affect all permit holders. However, active participants are more likely to be affected in the near term. All permitted

vessels readily fall within the definition of small business.

Since all permit holders may not actually land any of the three species the more immediate impact of the rule may be felt by the 1038 commercial vessels that are actively participating in these fisheries (Table 14). An active participant was defined as being any vessel that reported having landed one or more pounds of any one of the three species in the Northeast dealer data during calendar year 2000. The dealer data covers activity by unique vessels that hold a Federal permit of any kind and provides summary data for vessels that fish exclusively in state waters. This means that an active vessel may be a vessel that holds a valid Federal summer flounder, scup, or black sea bass permit; a vessel that holds a valid Federal permit but no summer flounder, scup or black bass permit; a vessel that holds a Federal permit other than summer flounder, scup, or black sea bass and fishes for those species exclusively in state waters; or may be vessel that holds no Federal permit of any kind. Of the four possibilities the number of vessels in the latter two categories cannot be estimated because the dealer data provides only summary information for state waters vessels and because the vessels in the last category do not have to report landings. Of the active vessels reported in Table 14, 294 commercial vessels did not hold a valid Federal permit for summer flounder, scup, or black sea bass during calendar year 2000. Note that in a manner similar to that of Table 2 these active vessels are also reported by all possible combinations of reported landings.

In this RFA, the primary unit of observation for purposes of performing a threshold analysis is vessels that participated in any one or more of the three fisheries (summer flounder, scup, and black sea bass) during calendar year 2000, irrespective of their current permit status.

Not all landings and revenues reported through the Federal dealer data can be attributed to a specific vessel. Vessels without Federal permits are not subject to any Federal reporting requirements with which to corroborate the dealer reports. Similarly, dealers that buy exclusively from state waters only vessels and have no Federal permits, are also not subject to Federal reporting requirements. Thus, it is possible that some vessel activity cannot be tracked with the landings and revenue data that are available. Thus, these vessels cannot be included in the threshold analysis, unless each state were to report individual vessel activity through some additional reporting system - which currently does not exist. This problem has two consequences for performing threshold analyses. First, the stated number of entities subject to the regulation is a lower bound estimate, since vessels that operate strictly within state waters and sell exclusively to non-Federally permitted dealers cannot be counted. Second, the portion of activity by these uncounted vessels may cause the estimated economic impacts to be over- or underestimated.

The effects of actions were analyzed by employing quantitative approaches to the extent possible. Where quantitative data were not available, qualitative analyses were conducted.

In order to conduct a more complete analysis, cumulative impacts were examined in three ways to represent three potential quota “alternatives.” The first analysis (Preferred Alternative) examined the measures recommended by the Council for each of the three species. The second alternative considered the measures proposed under the “no action” or Status Quo Alternative, which is also the most

restrictive alternative, for each of the fisheries. The third alternative looked at the highest quotas (least restrictive). Cumulative impacts were examined because many of the vessels active in these fisheries participate in one or even all three of these fisheries (section 4.2 of the EA). Actions in one fishery, e.g. a decrease in quota, could have an impact on levels of participation in other fisheries. A full description of these three alternatives is provided in sections 4 and 5, below.

Procedurally, the economic effects of the quota alternatives were estimated using five steps. First, the Northeast dealer data were queried to identify all vessels that landed at least one or more pounds of summer flounder, scup, or black sea bass in calendar year 2000. The fact that individual owners' business organization may differ from one another is reflected in the different combinations of species landed by these vessels. Thus, for purposes of the threshold analysis, active vessels were grouped into seven classes or tiers (Table 14) based on combinations of summer flounder, scup and black sea bass landings. In this manner, the original universe of vessels is treated as seven distinct "sub-universes" with a separate threshold analysis conducted for each. Note that the States of Connecticut and Delaware report canvas (summary) data to NMFS, so landings and revenues by individual vessels cannot be included. Thus, vessels that land exclusively in those states cannot be analyzed. Vessels that land in these, plus other states, are analyzed - but landings and revenues represent only that portion of business conducted in states other than Connecticut and Delaware. It is presumed that the impacts on vessels that cannot be identified will be similar to the participating vessels that are analyzed herein.

The second step was to estimate total revenues from all species landed by each vessel during calendar year 2000. This estimate provides the base from which subsequent quota changes and their associated effects on vessel revenues were compared. Since 2000 is the last full year from which data are available (partial year data could miss seasonal fisheries), it was chosen as the base year for the analysis. That is, partial landings data for 2001 were not used in this analysis because the year is not complete. As such, 2000 data were used as a proxy for 2001.

The third step was to deduct or add, as appropriate, the expected change in vessel revenues depending upon which of the three quota alternatives were evaluated. This was accomplished by estimating proportional reductions or increases in the three quota alternatives versus the base quota year 2000 (2001 proxy). Landings to date, indicate that there will be overages in the summer flounder, scup, and black sea bass commercial fisheries. The estimated overages were used to adjust the final 2002 quotas for all evaluated alternatives to reflect the expected fishing opportunities. NMFS quota summary reports at the time this analysis was conducted (September 8, 2001) indicate that in the scup fishery an overage of approximately 16,734 lbs (1 percent) and 368,076 lbs (33 percent) occurred during Winter 1 and Summer periods, respectively; in the black sea bass fishery an overage of 43,562 lbs (4 percent), 58,377 (9 percent), and 40,623 lbs (13 percent) occurred during Quarters 1, 2 and 3, respectively; and in the summer flounder fishery an overage of 20,371 lbs (949 percent) and 47,812 lbs (7 percent) occurred in Maine and Massachusetts, respectively. Vessel landings and revenues of summer flounder, scup, and black sea bass were prorated by state (summer flounder) or period (scup and black sea bass) according to the

proportional change in quota in each state (summer flounder) or periods (scup and black sea bass) (section 4.0 below). In addition to this, for the purpose of estimating the 2002 quotas and revenue changes, the following assumptions were made: a) that the states with overages at the time of the analysis will harvest no additional summer flounder, and that the industry will fully harvest, and not exceed, the remaining 2001 state allocations; b) that the scup overages that occurred in the Winter 1 and Summer periods will remain and that the industry will fully harvest, and not exceed, the remaining 2001 allocation; and c) that the black sea bass overages in Quarters 1, 2, and 3 will remain, and that the industry will fully harvest, and not exceed, the remaining 2001 allocation.

The fourth step was to divide the estimated 2002 revenues from all species by the 2000 base revenues for every vessel in each of the classes. For step five, if the dividend from step 3 was less than or equal to 0.95 then the vessel was defined as being impacted (i.e. had an expected loss of gross revenues of 5 percent or more). For each quota alternative a summary table was constructed that report the results of the threshold analysis by class when necessary. These results were further summarized by home state as defined by permit application data when appropriate.

The threshold analysis just described is intended to identify impacted vessels and to characterize the potential economic impact on directly affected entities. To further characterize the potential impacts on indirectly impacted entities and the larger communities within which owners of impacted vessels reside, selected county profiles are typically constructed. Each profile are based on impacts under the most restrictive possible alternative. The most restrictive alternative is chosen to identify impacted counties because it would identify the maximum number possible and thus include the broadest possible range of counties in the analysis. Counties included in the profile typically meet the following criteria: the number of impacted vessels (vessels with revenue loss exceeding 5 percent) per county was either greater than 4, or all impacted vessels in a given state were from the same home county.

In this specifications package, Alternative 2 is the most restrictive alternative. However, as indicated in the threshold analysis conducted in section 5.0 below, there were no counties that were identified as having enough impacted vessels to meet the criteria specified. This is due to the fact that there were no vessels impacted with revenue loss exceeding 5 percent. Since the county analysis was based on impacts under quota Alternative 2, the analyses represent the most profound impacts possible for those counties. Consequently, the other quota alternatives would result in even fewer impacted vessels.

In addition to the threshold analysis described above, the Council also analyzed changes in total gross revenue that would occur as a result of the three quota alternatives. These analyses are presented after the threshold analysis for each alternative.

A description of important ports and communities to the summer flounder, scup, and black sea bass fisheries is presented in Appendix 1 of this document.

It should be noted that county profiles are intended to characterize the relative importance of commercial fishing and fishing related industries in the home counties. As such, the county profiles provide a link to the Social Impact

Analysis (section 6.7, of the EA) but are not intended to be a substitute for that analysis. The target counties are identified based on the county associated with the vessel's homeport as listed in the owner's permit application.

Counties are typically selected as the unit of observation because a variety of secondary economic and demographic statistical data were available from several different sources. Limited data are available for place names (i.e. by town or city name) but in most instances reporting is too aggregated or is not reported due to confidentiality requirements. Reported statistics include summaries of landings, Federal permits, demographic statistics, and employment, wages, and number of establishments for each county.

Table 14. Numbers of vessels landing scup, black sea bass and/or summer flounder in 2000.

Landings Class	Landings Combinations	Commercial Vessels (#)
1	Scup Only	29
2	Black Sea Bass Only	169
3	Fluke Only	267
4	Scup/Black Sea Bass	45
5	Scup/Fluke	19
6	Black Sea Bass/Fluke	177
7	Scup/Black Sea Bass/Fluke	332
	Total	1038
Data from Northeast Region dealer data.		

4.0 DESCRIPTION OF QUOTA ALTERNATIVES

All quota alternatives considered in this RFA are based on three harvest levels for each of the species (a high, medium, and low level of harvest). These recommendations, and their impacts relative to the 2000 landings, are shown in Table 15. Table 16 shows the proposed quota specifications as a proportion of the 2001 quotas. Estimated overages for 2001 were used to adjust the final 2002 quotas which reflect expected fishing opportunities. Table 12 shows the percentage change of the 2002 adjusted allowable commercial landings relative to the quotas specified for 2001. The analysis for comparison in this RFA was conducted employing adjusted final 2002 quotas and these were compared against the adjusted quotas for 2001.

Table 15. 2002 quota recommendations for each alternative versus the 2000

landings.

	2002 Commercial Quota Recommendations	2000 Weighout Landings	2002 Quota as a Percent of 2000 Landings
Summer Flounder			
Preferred Alternative	14,578,288	11,217,104	29.96
Status Quo Alternative - Least Restrictive	10,747,535	11,217,104	-4.19
Alternative 3 Most Restrictive	20,878,658	11,217,104	86.13
Scup			
Preferred Alternative	8,000,000	2,659,052	200.86
Status Quo Alternative - Least Restrictive	4,444,600	2,659,052	67.15
Alternative 3 Most Restrictive	9,530,000	2,659,052	258.40
Black Sea Bass			
Preferred Alternative	3,332,000	2,657,566	25.38
Status Quo Alternative - Least Restrictive	3,024,770	2,657,566	13.82
Alternative 3 Most Restrictive	3,970,960	2,657,566	49.42

Table 16. Comparison of the alternatives of quota combinations reviewed. “FLK” is summer flounder.

	Commercial Quota	**Quota Specification as a Proportion of the 2001 Quotas (not adjusted)**	**Percent Change**
Quota Alternative 1 (Preferred Alternative)			
FLK Preferred Alternative	14,578,288	1.356	34.64
Scup Preferred Alternative	8,000,000	1.799	79.99
Black Sea Bass Preferred Alternative	3,332,000	1.101	10.15
Quota Alternative 2 (Status Quo, Most Restrictive)			
FLK Status Quo	10,747,535	1	0
Scup Status Quo	4,444,600	1	0
Black Sea Bass Status Quo	3,024,770	1	0
Quota Alternative 3 (Least Restrictive)			
FLK Non-Selected Alternative 3	20,878,658	1.942	94.26
Scup Non-Selected Alternative 3	9,530,000	2.144	114.41

Black Sea Bass Non-Selected Alternative 3	3,970,960	1.312	31.28

4.1 QUOTA ALTERNATIVE 1 (Preferred Alternative)

Alternative 1 analyzes the cumulative impacts of the harvest limits recommended by the Council and Board for summer flounder, scup, and black sea bass on vessels that are permitted to catch any of these three species. Harvest limits were recommended to best achieve the target fishing mortality or exploitation rates specified in each fisheries respective rebuilding schedule.

Specifically, this alternative examines the impacts on industry that would result from a TAL of 24,297,146 lbs for summer flounder (14,578,288 lbs commercial; 9,718,858 lbs recreational); a total allowable catch of 12,920,000 lbs for scup (which results in a TAL of 8,000,000 lbs commercial; 2,770,000 lbs recreational), and a TAL of 6,800,000 lbs for black sea bass (3,332,000 lbs commercial; 3,468,000 lbs recreational). Notice that the commercial allowable landings presented here and in the next 3 alternatives will be adjusted to account for overages in 2001.

In addition to the proposed TALs for summer flounder, scup, and black sea bass, the Council and Commission have approved changes to the minimum mesh, minimum fish size, and possession limits for one or more of these species. A detailed description of the minimum mesh, minimum fish size, possession limits, and research set aside measures was presented in section 3.0 of the EA. A brief discussion and impact of these measures is presented in section 5.0 below.

4.2 QUOTA ALTERNATIVE 2 (Status Quo, Most Restrictive)

Alternative 2 analyzes the cumulative impacts of the most restrictive possible harvest levels - those that would result in the greatest reductions in landings (relative to 2001) for summer flounder, scup, and black sea bass. Alternative 2 evaluates the most restrictive overall harvest levels. This alternative includes non-selected alternatives for all three species. Alternative 2 includes the same harvest limits that were implemented in 2001 for all three species. This alternative would set the 2002 summer flounder TAL at 17,912,559 lbs (10,747,535 lbs commercial; 7,165,024 lbs recreational), a TAL of 6,216,000 lbs for scup (4,444,600 lbs commercial; 1,771,400 lbs recreational), and a TAL of 6,173,000 lbs for black sea bass (3,024,000 lbs commercial; 3,148,230 lbs recreational).

4.3 QUOTA ALTERNATIVE 3 (Least Restrictive)

Alternative 3 analyzes the cumulative impacts of the least restrictive possible harvest levels - those that would result in the least reductions (or greatest increases) in landings (relative to 2001) for all species. These limits resulted in the highest possible landings for 2002, regardless of their probability of achieving the biological targets. Thus, this alternative includes non-selected alternatives for all three species. Specifically, this alternative considers a TAL of 34,797,763 lbs for summer flounder (20,878,658

lbs commercial; 13,919,105 lbs recreational), a 9,534,200 lbs commercial quota for scup (3,210,000 lbs recreational), and a 8,104,000 lbs TAL for black sea bass (3,970,960 lbs commercial; 4,133,040 lbs recreational) in 2002.

5.0 ANALYSES OF IMPACTS OF ALTERNATIVES

For the purpose of analysis of the following alternatives, several assumptions must be made. First, average revenue changes noted in this analysis are made using 2000 dealer data and participation. In addition to this, 2000 permit files were used to describe permit holders in these fisheries. It is important to mention that revenue changes for 2002 are dependent upon landings in 2001. This dependence occurs because the commercial quotas for all three species require that overages in the quota from the prior year be deducted from the allocation in the current year. Hence, overages in 2001 will decrease the 2002 allocations. As such, for the purpose of analyzing the 2002 revenue changes, the assumptions made in section 3.1 of the RIR/IRFA regarding 2001 landings apply.

For the analyses themselves, reductions are estimated by examining the total revenue earned by an individual vessel in 2000, and comparing it to its potential revenue in 2002, given the 2002 harvest levels. Generally, the percent of revenue reduction for impacted vessels vary considerably based on permits it held (i.e., based on the fisheries in which it was able to participate) and species it landed. Diversity in the fleet, perhaps, helps to balance loss in one fishery with revenue generated from other fisheries. Lastly, it is important to keep in mind that while the analyses are based on landings for Federally permitted vessels only, those vessels may be permitted to, and frequently do, fish in state waters for a species of fish for which it does not hold a Federal permit.

5.1 QUOTA ALTERNATIVE 1 (Preferred Alternative)

This alternative examines the impacts on industry that would result from total harvest limits for summer flounder, scup and black sea bass. To analyze the economic effects of this alternative, the total harvest limits specified in section 4.0 of the RIR/IRFA were employed.

The summer flounder specifications would result in an aggregate 44.3 percent increase in allowable commercial landings relative to the 2001 quota and a 38.6 percent reduction in recreational harvest relative to 2000 landings (Tables 12 and 17). The scup specifications would result in an aggregate 115.6 percent increase in allowable commercial landings and a 46.5 percent decrease in recreational harvest relative to 2000 landings (Tables 12 and 18). The black sea bass specifications would result in an aggregate 19.1 percent increase in allowable commercial landings and a 4.1 percent decrease in the recreational harvest relative to 2000 landings (Tables 12 and 19).

5.1.1 COMMERCIAL IMPACTS

5.1.1.1 Threshold Analysis for Participating Vessels

The result of the threshold analysis of the Preferred Alternative indicates that across all vessel classes, revenues were projected to increase for 1038

vessels (relative to 2001). There were no vessels projected to incur revenue losses relative to 2001. Even though the overall summer flounder quota for 2002 (adjusted) is projected to be over 44 percent higher relative to the quota specified in 2001 for that species, one state, Maine, is projected to decrease its summer flounder quota for 2002 by 100 percent relative to the quota specified for that state in 2001. That is, from 2,146 lbs in 2001 to 0 lbs in 2002. Nevertheless, the threshold analysis indicated that there are no vessels likely to be affected by this projected decrease in summer flounder landings in Maine in 2002. This is probably due to the possibility that vessels landing small quantities of summer flounder in Maine also landed larger quantities of summer flounder in other states, thus benefitting from the increase in quota in those other states in 2002 versus 2001. In addition, it is possible that these vessels also landed black sea bass along with summer flounder, thus benefitting from the increase in black sea bass quota in 2002 and therefore not showing a reduction in ex-vessel revenue. The vessel distribution by landing combination and home port state for these vessels is similar to that presented under the total column, 3rd column from the left in Table 26, and the 2nd second column from the left in Table 27, respectively.

In addition to the threshold analysis described above, the Council also analyzed changes in total gross revenue that would occur as a result of the quota alternatives. Assuming 2000 ex-vessel prices (summer flounder - $1.65/lb; scup - $1.25/lb; and bsb $1.79/lb) and the effect of potential changes in prices due to changes in landings in 2002 versus 2001, the 2002 quotas in Preferred Alternative 1 (after overages have been applied) would increase summer flounder, scup, and black sea bass ex-vessel revenues by approximately $5.4 million, $6.2 million, and $0.9 million, relative to 2000 revenues, respectively, for a total revenue increase of $12.5 million.

Assuming the increase in summer flounder total gross revenues associated with the Preferred Alternative is distributed equally between the 795 vessels that landed summer flounder in 2000, the average increase in revenue associated with the increase in summer flounder quota is $6,792/vessel.

Assuming the increase in scup total gross revenues associated with the Preferred Alternative is distributed equally between the 425 vessels that landed scup in 2000, the average increase in revenue associated with the increase in the scup quota is $14,588/vessel.

Finally, if the increase in black sea bass total gross revenues associated with the Preferred Alternative is distributed equally between the 723 vessels that landed black sea bass in 2000, the average increase in revenue associated with the increase in black sea bass quota is $1,245/vessel.

5.1.2 RECREATIONAL IMPACTS

Landing statistics from the last several years show that recreational summer flounder landings have generally exceeded the recreational harvest limits, ranging from 5 percent in 1993 to 113 percent in 2000. In 1994 and 1995, summer flounder landings were below the recreational harvest limit by about 20 percent for both years combined (Table 17). In 2000, the recreational landings were 15.82 million lb. Under this alternative, the summer flounder 2002 recreational harvest limit would be 9.72 million lb. Thus, the harvest

limit in 2002 would be a decrease of about 38 percent from 2000 recreational landings, and a decrease of 36 percent from the 2001 recreational harvest limit.

Table 17. Number of summer flounder recreational fishing trips, recreational harvest limit, and recreational landings from 1991 to 2002.

Year	Number of Fishing Trips[a]	Recreational Harvest Limit (million lb)	Recreational Landings of Summer Flounder (million lb)[b]
1991	4,645,993	None	7.96
1992	3,751,815	None	7.15
1993	4,829,252	8.38	8.83
1994	5,761,918	10.67	9.33
1995	4,742,194	7.76	5.42
1996	5,086,347	7.41	9.82
1997	5,620,055	7.41	11.87
1998	5,296,982	7.41	12.48
1999	4,230,627	7.41	8.37
2000	5,554,515[c]	7.41	15.82
2001	N/A	7.16	N/A
2002	-	9.72	-

[a] Number of fishing trips as reported by anglers in the intercept survey indicating that the primary species group sought was summer flounder, North Atlantic, Mid-Atlantic, and South Atlantic regions combined. Estimates are not expanded. Source: MRFSS.
[b] From Maine to North Carolina. Source: MRFSS.
[c] North Atlantic and Mid-Atlantic regions combined.
N/A = Data not available.

Scup recreational landings have declined over 89 percent for the period 1991 to 1998, then increased by 448 percent from 1998 to 2000 (Table 18). The number of fishing trips has also declined over 86 percent from 1991 to 1998, and then increased by 316 percent from 1998 to 2000. The decrease in the recreational fishery in 1990 occurred both with and without any recreational harvest limits, and it is perhaps a result of the stock being over-exploited and at a low biomass level. In addition, it is possible that party/charter boats may be targeting other species that are relatively more abundant than scup (e.g., striped bass), thus accounting for the decrease in the number of fishing trips in this fishery. In 2000, recreational landings were 5.18 million lb. Under this alternative, the scup recreational harvest limit for 2002 would be 2.77 million lb. This represents a 46 percent decrease over the 2000 recreational landings. The proposed recreational harvest limit for 2002 is about 56 percent higher than the recreational harvest limit implemented in

2001.

Table 18. Number of scup recreational fishing trips, recreational harvest limit, and recreational landings from 1991 to 2002.

Year	Number of Fishing Trips[a]	Recreational Harvest Limit (million lb)	Recreational Landings of Scup (million lb)[b]
1991	763,284	None	8.09
1992	495,201	None	4.41
1993	252,017	None	3.20
1994	221,074	None	2.63
1995	153,008	None	1.34
1996	145,814	None	2.16
1997	118,266	1.95	1.20
1998	105,283	1.55	0.88
1999	133,703	1.24	1.89
2000	438,040	1.24	5.18
2001	N/A	1.77	N/A
2002	-	2.77	-

[a] Number of fishing trips as reported by anglers in the intercept survey indicating that the primary species group sought was scup, North Atlantic, Mid-Atlantic, and South Atlantic regions combined. Estimates are not expanded. Source: MRFSS.
[b] From Maine to North Carolina. Source: MRFSS.
N/A = Data not available.

Black sea bass recreational fishing trips have shown a slight upward trend from the early to Mid-1990's (Table 19). Black sea bass recreational landings have also shown a slight upward trend from 1991 to 1997. However, landings decreased considerably from 1995-1996 to 1999, but then substantially increased in 2000. In 2000, recreational landings were 3.62 million lb. Under this alternative, the black sea bass recreational harvest limit for 2002 would be 3.47 million lb. This represents a 4 percent decrease over the 2000 recreational landings. The proposed 2002 recreational harvest limit is about 10 percent higher than the recreational harvest limit implemented in 2001.

Table 19. Number of black sea bass recreational fishing trips, recreational harvest limit, and recreational landings from 1991 to 2001.

Year	Number of Fishing Trips[a]	Recreational Harvest Limit (million lb)	Recreational Landings of BSB (million lb)[b]
1991	N/A	None	4.19
1992	218,700	None	2.71
1993	296,370	None	4.84
1994	265,402	None	2.95
1995	315,165	None	6.21
1996	282,972	None	4.00
1997	313,052	None	4.27
1998	N/A	3.15	1.15
1999	N/A	3.15	1.70
2000	219,860	3.15	3.62
2001	N/A	3.15	N/A
2002	-	3.47	-

[a] Number of fishing trips as reported by anglers in the intercept survey indicating that the primary species group sought was black sea bass, North Atlantic, Mid-Atlantic, and South Atlantic regions combined. Estimates are not expanded. Source: MRFSS.
[b] From Maine to Cape Hatteras, North Carolina. Source: MRFSS.
N/A = Data not available.

At the present time, there is neither behavioral nor demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. For example, in the summer flounder fishery, there is no mechanism to deduct overages directly from the recreational harvest limit. Any overages must be addressed by way of adjustments to the management measures. While it is likely that proposed management measures may restrict the recreational fishery for 2002, and these measures may cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size or closed season), there is no indication that any of these measures would lead to a decline in the demand for party/charter boat trips. Currently, the market demand for this sector is relatively stable. It is unlikely measures will result in any substantive decreases in the demand for party/charter boat trips. It is most likely that party/charter anglers will target other species when faced with potential reductions in the amount of summer flounder, scup, or black sea bass that they are allowed to catch.

The effects of the proposed recreational harvest limits in the Preferred Alternative for summer flounder, scup and black sea bass will be further analyzed when additional information regarding 2001 recreational landings are available, and the Council submits its recommendation for 2002 recreational

measures. These recommendations are expected in early 2002.

Effects of Commercial Trip Limits, Minimum Mesh, and Minimum Fish Size

Scup Measures

The Council and Commission recommended no change to commercial scup landing/possession limits for the two winter periods in 2002. For the first winter period (Jan-Apr), they recommended a landing limit of 10,000 pounds. For the second winter period (Nov-Dec), a 2,000 pounds landing limit was adopted (Table 20). The recommended landing/possession limits for both winter periods are the same as the landing/possession limits implemented in year 2001, with the exception that in 2002 the landing limit will drop to 1,000 pounds when 80 percent of the landings are reached in Winter I, instead of the 75 percent used in 2001. The 80 percent landing trigger in 2002 is expected to decrease landings from 10,000 pounds to 1,000 pounds early enough to allow for the equitable distribution of the quota over the Winter I period. It is not expected that the change in the landing trigger during the Winter I period will affect landings in some negative manner during this period. In addition, due to an ASMFC emergency rule action, the originally implemented landing/possession limit for 2001 Winter II period of 2,000 will be reduced to 500 pounds, when 70 percent of the quota is projected to be taken.

Table 20. Summary of possession limits in the scup and black sea bass fisheries, 1999-2001.

Species	Quota Period	1999	2000	2001	2002
Scup	Winter I[a]	12,000 (85%) 1,000	10,000 (85%) 1,000	10,000 (75%) 1,000	10,000 (80%) 1,000
	Summer	N/A	N/A	N/A	N/A
	Winter II	4,000	4,000/500[b]	2,000[d]	2,000
Black Sea Bass	Quarter 1	11,000	9,000	9,000	7,000
	Quarter 2	7,000	3,000	1,500	2,000
	Quarter 3	3,000	2,000	1,000	2,000
	Quarter 4	4,000	3,000/2,000[c]	2,000[e]	2,000

[a]An example of how to read this row is: The recommended landing limit for the first 2001 winter period (Jan-Apr) is 10,000 pounds. When 75percent of the landings are reached, the landing limit will drop to 1,000 pounds.
[b]The landing limit was reduced from 4,000 pounds to 500 pounds by an ASMFC emergency rule action.
[c]The trip limit was reduced from 3,000 pounds to 2,000 pounds by an ASMFC emergency rule action.
N/A= Not Applicable.
[d]Due to an ASMFC emergency rule action, the originally implemented landing/possession limit for 2001 Winter II period of 2,000 will be reduced to 500 pounds, when 70 percent of the quota is projected to be taken.
[e]Due to an ASMFC emergency rule action, the originally implemented possession limit for 2001 Quarter 4 period was reduced from 2,000 pounds to 300 pounds. However, states will have the option of developing a management program that allows fishermen to land up 2,000 pounds per week.

Amendment 8 to the Summer Flounder and Scup FMP contains provisions that allow for changes in the scup minimum fish size and minimum net mesh provisions each year. Current regulations require a 9" TL minimum fish size in the commercial fishery and a 4.5" minimum mesh in the codend of the net for vessels possessing more than 500 pounds of scup from November through April and 100 pounds from May through October. The minimum fish size went into effect on September 23, 1996 with a minimum mesh size of 4.0". The minimum mesh size increased to 4.5" on April 14, 1997. The minimum fish size, mesh requirements, and threshold may be changed annually based on the recommendations of the Monitoring Committee. The same mesh threshold implemented in 2001 will continue in 2002 (Table 21). The Council and Commission adopted a measure that allows vessels fishing with small mesh and having an escapement extension of 45 meshes of 5.5" square mesh behind the body of the net and ahead of the codend be allowed to fish in the GRAs. For the directed scup fishery, the minimum mesh size for nets would be modified such that for large nets, no more than 25 meshes of 4.5" mesh in the codend with at least 100 meshes of 5.0" mesh forward of the 4.5" mesh; and for small nets, 4.5" mesh or larger throughout.

Table 21. Summary of mesh threshold in the scup fishery, 1999-2001 and proposed for 2002.

Period		1999	2000	2001	2002
Nov-Apr	Min. mesh size (in, diamond)	4.5	4.5	4.5	4.5[a]
	Mesh threshold	200	200	500	500
May-Oct	Min. mesh size (in, diamond)	4.5	4.5	4.5	4.5[a]
	Mesh threshold	100	100	100	100

[a]For the directed scup fishery minimum mesh size for nets would be modified such that for large nets, no more than 25 meshes of 4.5" mesh in the codend with at least 100 meshes of 5.0" mesh forward of the 4.5" mesh and for small nets, 4.5" mesh or larger throughout.

As stated before, the proposed scup quota for 2002 increases scup landings relative to the quotas specified for 2001. Additionally, measures are proposed to reduce scup discards.

Black Sea Bass Measures

The current black sea bass regulations specify that trip limits be implemented for each quarter, and that the trip limit not change over the period. Trip limits are to remain in effect until the fishery is closed by NMFS based on projections that the quarterly quota would be taken. The trip limits for 2001 were 9,000; 1,500; 1,000; and 2,000 pounds for quarters 1 through 4, respectively. However, due to an ASMFC emergency rule action, the originally implemented trip limit for 2001 Quarter 4 period was reduced from 2,000 pounds to 300 pounds. However, in 2002, states will have the option of developing a management program that allows fishermen to land up to 2,000 pounds per week.

In 2001, like 1999, the commercial fishery closed prematurely in the first,

second, and third quarters. Because of those closures, and a likely increase in stock size and effort, possession limits for each of the quarters were modified to allow for landings over the entire period. The Council and Commission recommended that the trip limits be modified for 2002 to 7,000; 2,000; 2,000; and 2,000 for each quarter (Table 20). Additionally the Council and Commission recommended to change the minimum mesh size and the threshold to trigger the minimum mesh size. In 2001, minimum mesh size was 4" mesh with a threshold of 1,000 pounds to trigger the minimum mesh size. For 2002, the Council and Commission are recommending a minimum mesh increase to 4.5" mesh and a threshold of 500 pounds from January through March and 100 pounds from April through December to trigger the minimum mesh size (Table 22).

The current minimum mesh regulations require a 4.0" minimum mesh in the codend of the net for vessels possessing more than 1,000 lbs of black sea bass. The Council and Commission recommended that the net provisions be modified such that fishermen could use nets with at least 75 meshes of 4.5" diamond mesh in the codend or use a net with at least 4.5" diamond mesh throughout, for 2002.

The Council and Commission are recommending an increase of minimum fish size in the commercial fishery, from 10" TL to 11" TL. In addition, the Council and Commission recommended that vent sizes be increased in 2002 to 1 3/8" x 5 3/4" for the rectangular vents, 2 3/8" in diameter for the circular vents, and 2" for square vents. The proposed vent sizes represent significant increases from the current sizes of 1 1/8" x 5 3/4" for rectangular vents, 2" in diameter for circular vents, and 1 ½" for square vents.

Table 22. Summary of mesh size and threshold in the black sea bass fishery, 1999-2001, and proposed for 2002.

Period		1999	2000	2001	2002
Jan - Mar	Min. mesh size (in, diamond)	4.0	4.0	4.0	4.5
	Mesh threshold	1,000	1,000	1,000	500
Apr - Dec	Min. mesh size (in, diamond)	4.0	4.0	4.0	4.5
	Mesh threshold	1,000	1,000	1,000	100

Analysis of Impacts

In order to analyze the impacts of the proposed possession limits a threshold analysis was conducted. This analysis compares potential changes associated with the proposed 2002 possession limits to the base year. Since 2000 is the last full year from which data are available (partial year data could miss seasonal fisheries), it was chosen as the base year for this analysis. Partial data for 2001 were not used in this analysis because the data are not complete. As such, 2000 data were used as a proxy for 2001. The difficulty in using 2000 data arises from the fact that scup landings in Winter II and black sea bass landings in quarters 2 and 3 of that year were constrained by trip limits that were higher than those implemented in 2001 and/or proposed for 2002 (Table 20). As such, the results from this analysis would represent the upper bound or worse case impacts. Impacts of the proposed limits are

evaluated by projecting potential changes in the number of trips made by the affected vessels and changes in revenues. In order to assess the potential change in the number of trips made by the affected entities, it is assumed that vessels constrained by limits in 2002 versus the base year will continue to make trips to allow them to land the same quantity of fish that was landed during the base year. In order to assess the potential change in revenues for the affected entities, it is assumed that vessels constrained by limits in 2002 versus the base year will not make additional trips to land the same quantity of fish that was landed during the base year, that is, the landing/trip limit is a strict limiting factor.

Scup

As indicated above, the recommended trip limits, minimum mesh size, and mesh threshold remain unchanged from 2001 to 2002. As such, these measures are not expected to have a negative impact on the scup fishery, and will not constrain fishermen in 2002 relative to 2001.

The recommended minimum fish size and minimum mesh provisions for 2002 is the same as those implemented in 2001, with the exception that the Council has recommended that an experimental net configuration be allowed to fish in the GRAs; and that for large nets no more than 25 inches of 4.5" mesh be in the codend with at least 100 meshes of 5.0" inch mesh forward of the 4.5" mesh, and that for small nets 4.5" mesh throughout. Based on retention lengths derived from length and body depth measurements, a 4.5" mesh has an associated L_{50} of 9.1" TL. This means that 50 percent of the 9.1" TL scup that encountered the net would be retained by this mesh. Mesh sizes of 2.0", 3.0", and 4.0", and 5.0" have associated L_{50s} of 4.8" TL, 6.5" TL , 8.3" TL, and 10.1" TL, respectively. The 5.0" mesh forward of the 4.5" mesh is expected to allow for additional escapement of undersized scup. The change in mesh regulations is not expected to have a negative impact on fishermen operations as the fish expected to escape would be discarded because of the size.

Other Impacts

The current minimum mesh regulations require a 4.5" minimum mesh in the codend of the net for vessels possessing more than 500 lbs of scup from November through April and 100 pounds from May through October. The Council recommended that the net provisions be modified such that fishermen could use nets with no more than 25 meshes of 4.5 mesh in the codend with at least 100 meshes of 5.0" mesh forward of the 4.5" mesh or use a net with at least 4.5" mesh throughout, for 2002. Based on retention lengths derived from length and body depth measurements, a 4.5" mesh has an associated L_{50} of 9.1" TL, while 5.0" mesh has an L_{50} of 10.1". This means that 50 percent of the 9.1" TL scup that encountered the net would be retained by this mesh. Mesh sizes of 2.0", 3.0", and 4.0" have associated L_{50s} of 4.8" TL and 6.5" TL and 8.3" TL, respectively. The 5.0" mesh forward of the 4.5" mesh is expected to allow for additional escapement of undersized scup. This will provide for future increases in exploitable scup biomass. This recommendation is not expected to reduce landings of scup.

The affect of the GRAs on small net fisheries is fully described in the 2001 Specification Document. These measures are not expected to reduce landings of

scup in non-directed fisheries. As a matter of fact, the Council and Commission are recommending that small mesh nets that have an escapement panel extension of 45 meshes of 5.5" square mesh behind the body of the net and ahead of the codend be allowed to fish in the GRAs. As such, landings of scup in the non-directed fishery may increase in 2002 relative to 2000. It is not possible to assess the monetary value associated with the additional scup harvested as a result of the proposed experimental net exemption, because quantitative data on these nets are limited. The modifications are inexpensive and can be incorporated into existing nets with minimal labor. The modifications are based on a project funded by the Mid-Atlantic Council and conducted by the Manomet Center for Conservation Sciences to develop selective trawls for small-mesh fisheries.

Results of the research indicate that a 5.5" square mesh extension placed in the net 50 meshes ahead of the codend significantly reduced (66 percent reduction) the bycatch and discard of small scup without a reduction in the capture of squid.

The compliance costs associated with gear conversion would vary for inshore and offshore vessels and the degree of modifications required. More specifically these costs would vary according to the various features that can be incorporated into the gear and the horsepower (hp) or size of the fishing vessel. For vessels operating in the inshore fishery (assume 250 hp) cost could approximately be $775 and for vessels operating in the offshore fishery (assume 670 hp) cost could approximately be $1,354. These costs are considered direct costs associated with the required gear conversion. Any gear replacement costs for those vessels that participate in the fisheries and need to comply with the mesh size criteria described in this section would be incurred in year one (2002) of the implementation of this management action. These modifications are expected to allow for additional escapement of undersized scup and provide for future increases in exploitable scup biomass.

The current regulations require a 9" TL minimum fish size in the commercial fishery. Assuming that undersized fish are not caught and discarded, the existing minimum fish sizes act to increase the size of scup at full recruitment to the fishery, thereby resulting in increased yields as fishermen catch larger, heavier fish. These minimum size regulations also can increase spawning stock biomass by allowing more fish to spawn.

The smaller minimum mesh size and the absence of GRAs would allow for the capture and retention of fish less than the current minimum size of 9" TL. If these fish were exempt from the minimum size requirement for sale, they would be landed and those landings would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could be offset by a decrease in mortality for larger fish (greater than 9" TL) if smaller fish were sold instead. However, because overall mortality rates are controlled by the TAL, any changes in mortality should be insignificant.

The bulk of the scup landed in 2000 corresponded to the medium and large size categories, with only a small quantity (<1,000 lb) of pins landed (Table 23). Pins are typically <9" in size, and in 2000 commanded a price of $0.45/lb.

Price differentials are substantial between pins and small/medium/large scup. Given these price differentials and market demand (i.e., recent quantities of pins landed), it is not anticipated that substantial quantities of scup of less than 9" TL will enter the market as a consequence of this measure.

Table 23. Landings, ex-vessel value, and price of scup by size category for 2000, ME to Cape Hatteras (NC), all gear combined.

Size Category	Landings (1,000 lbs)	Value ($1,000)	Price ($/lb)
Pins	<1	<1	0.45
Small	37	40	1.07
Medium	768	845	1.10
Large	1,025	1,386	1.35
Large/Mix	312	335	10.7
Jumbo	90	142	1.58
Unclassified	425	585	1.37

Black Sea Bass

The proposed possession limits for black sea bass were chosen to balance the need to provide for economically viable fishing trips with the need to ensure an equitable distribution of the quota over the entire period. As indicated above, the proposed possession limit for Quarter 1 in the black sea bass fishery is the only proposed possession limit in 2002 that will constrain commercial fishermen landings when compared to 2001. The proposed possession limits for Quarters 2 and 3 are higher than the possession limit for 2001, and the proposed Quarter 4 possession limit is identical to the possession limit implemented in year 2001. As such, these trip limits are not expected to have a negative impact on fishermen operations in 2002 compared to 2001. The proposed black sea bass trip limit of 7,000 pounds in Quarter 1 is not expected to significantly impact vessels, trips or landings based on 2000 landings. Only one vessel is reported to have landed 7,000 pounds in one trip (Table 24).

Table 24. The total number of vessels, trips, and associated pounds for a given threshold (pounds) of black sea bass, Quarter 1 (January through March) period, 2000.

Threshold	Vessels	%	Trips	%	Pounds	%
>=1	307	100.00	4,103	100.00	808,468	100.00
>=100	158	51.47	970	23.64	737,255	91.19
>=200	114	37.13	653	15.92	693,813	85.82
>=300	88	28.66	527	12.84	663,234	82.04
>=400	73	23.78	446	10.87	635,168	78.56

>=500	62	20.20	380	9.26	606,288	74.99
>=1000	45	14.66	226	5.51	498,698	61.68
>=1500	33	10.75	135	3.29	388,317	48.03
>=2000	30	9.77	98	2.39	324,693	40.16
>=2500	24	7.82	63	1.54	248,568	30.75
>=3000	18	5.86	44	1.07	197,374	24.41
>=3500	14	4.56	36	0.88	172,601	21.35
>=4000	12	3.91	27	0.66	139,249	17.22
>=4500	9	2.93	17	0.41	96,976	12.00
>=5000	9	2.93	15	0.37	87,973	10.88
>=5500	6	1.95	8	0.20	51,215	6.33
>=6000	5	1.63	7	0.17	45,552	5.63
>=6500	3	0.98	3	0.07	20,800	2.57
>=7000	1	0.33	1	0.02	7,000	0.87

Source: Preliminary Uunpublished NMFS Weighout (dealer) data, ME-NC.

Other Impacts

The Council and Commission are recommending an increase of minimum fish size in the commercial fishery, from 10" TL to 11" TL. The current minimum fish size for black sea bass is 10" TL. Assuming that undersized fish are not caught and discarded, minimum sizes increase the size at full recruitment because yields are increased as fishermen catch larger, heavier fish. These regulations also can increase spawning stock biomass by allowing more fish to spawn. Accordingly, the Council and Commission are also recommending changes in minimum mesh size and escape vent size for pots and traps. The proposed gear modifications in the black sea bass fishery (increased minimum trawl mesh size and pot/trap escape vents) will impose some initial compliance costs (discussed below), but they were deemed necessary to complement the increase in minimum commercial fish size, and, also an increase in the black sea bass TAL. In summary, the larger mesh and larger vent sizes (discussed below) allow for additional escapement of sublegal fish (less than the proposed minimum fish size of 11" TL) and thereby, in conjunction with the increase in minimum fish size, provide for future increases in exploitable black sea bass biomass.

The bulk of the black sea bass landed in 2000 corresponded to the medium and large size categories (Table 25). A change in the black sea bass size limit may affect the landings of some small fish, thus, shifting a portion of the black landings from small size category fish to medium size category. Price differentials in 2000 were substantial between small and medium black sea bass (Table 25). Therefore, if 2000 price patterns continue in 2002, fishermen will benefit from this change.

Table 25. Landings, ex-vessel value , and price of black sea bass by size category for 2000, ME to Cape Hatteras (NC), all gear combined.

Size Category	Landings (1,000 lbs)	Value ($1,000)	Price ($/lb)
Pins	<1	<1	1.03
Small	513	536	1.05
Medium	643	948	1.47
Large	833	1,700	2.04
Jumbo	502	1,315	2.62
Unclassified	166	259	1.56

The current minimum mesh regulations require a 4.0" minimum mesh in the codend of the net for vessels possessing more than 1,000 lbs of black sea bass. For 2002, the Council and Board recommended that the net provisions be modified such that fishermen could use large nets with at least 75 meshes of 4.5" diamond mesh in the codend, or use small nets with at least 4.5" diamond mesh throughout. In addition, a threshold of 500 pounds from January through March and 100 pounds from April through December to trigger the minimum mesh size was also recommended (Table 22). Based on retention lengths derived from length and body depth measurements, the proposed minimum mesh size of 4.5" has an associated L_{25} of 10.6" TL. This means that 25 percent of the 10.6" TL black sea bass that encountered the net would be retained by this mesh. Mesh sizes of 2.0", 3.0", and 4.0" have an associated L_{25} of 4.0" TL, 6.6" TL, and 9.3" TL, respectively. A reduction in the threshold to 500 lbs in the first quarter and 100 lbs in the other quarters would discourage the use of small mesh in areas where black sea bass are concentrated and could offer additional protection to the 2000 year class. This change will accommodate small mesh fishermen while at the same time maintaining a reasonable mesh threshold for the black sea bass fishery.

The modifications are inexpensive and can be incorporated into existing nets with minimal labor. The costs associated with gear conversion would vary for inshore and offshore vessels and the degree of modifications required. More specifically these costs would vary according to the various features that can be incorporated into the gear and the horsepower (hp) or size of the fishing vessel. For vessels operating in the inshore fishery (assume 250 hp) cost could approximately be $775 and for vessels operating in the offshore fishery (assume 670 hp) cost could approximately be $1,354. These costs are considered direct costs associated with the required gear conversion. Any gear replacement costs for those vessels that participate in the fisheries and need to comply with the mesh size criteria described in this section would be incurred in year one (2002) of the implementation of this management action.

Current vent size regulations, implemented in 1996, were based on a MAFMC study (for the rectangular sizes) and industry comment (for the circle and square). Based on industry advice, the Council and Commission recommended that vent sizes be increased in 2002 to 1 3/8" x 5 3/4" for the rectangular vents, 2 3/8" in diameter for the circular vents, and 2" for square vents.

The proposed vent sizes represent significant increases from the current sizes of 1 1/8" x 5 3/4" for rectangular vents, 2" in diameter for circular vents, and 1 ½" for square vents. Analysis conducted for Amendment 9 indicated that rectangular vent sizes that were 1 3/8" wide had an associated L_{50} of 11.5" TL. As such, these increases in vent sizes should allow for a significant escapement of undersized fish. The cost of replacing escape vents is expected to be minimal. Currently, according to industry comment, some commercial pot and trap black sea bass fishermen are already using this type of vent.

The current minimum fish size for black sea bass is 10" TL. However, for 2002, the Council and Board are recommending an increase to an 11" TL fish. The larger mesh and larger vent sizes will allow for additional escapement of fish less than the proposed minimum fish size of 11" TL. Assuming that undersized fish are not caught and discarded, the increase in minimum size will result in an increase of size at full recruitment. Thus, yields will be increased as fishermen catch larger, heavier fish. These regulations also may increase future spawning stock biomass by allowing more fish to grow and spawn.

Summary of Impacts

The possession limits were chosen as an appropriate balance between the economic concerns of the industry (e.g., landing enough scup or black sea bass to make the trip economically viable) and the need to ensure the equitable distribution of the quota over the period.

Changes in possession limits can impact profitability in various ways. These impacts would vary depending of fishing practices. The possession limit recommended for Quarter 1 of the black sea bass fishery is not expected to negatively impact the black sea bass fishery. The decrease in the Quarter 1 limit may have some positive impacts by providing the market with a regular product supply and a longer season, avoiding market gluts, and the resulting price fluctuations.

The proposed fish size limits and minimum mesh provisions in the black sea bass fishery and the mesh size provisions in the scup fishery are recommended to reduce the catch of undersized fish. These measures are not expected to affect small entities in a negative manner. If fish smaller that the minimum size limit could be landed they would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could be offset by a decrease in mortality for larger fish. However, overall mortality rates are controlled by the TAL, and changes in mortality because of these proposed regulations should be insignificant. Additionally, a reduction in the catch of undersized fish may lead to an increase the size at full recruitment because yields are increased as fishermen catch larger, heavier fish. Therefore, the proposed regulations could help to increase spawning stock biomass by allowing more fish to spawn. If 2000 price differentials between smaller and larger fish in the black sea bass fishery continue, commercial fishermen may benefit from the proposed minimum size in the sea bass fishery and, in fact, experience an increase in revenue. Overall, the changes are expected to provide for future increases in exploitable biomass.

Effects of the Research Set-Aside Quota

Summer Flounder

The Council approved a research set-aside amount equal to 2 percent of the total allowable harvest for summer flounder. Assuming that NMFS approves the preferred TAL, the research set-aside amount would be 486,000 pounds for summer flounder. The proposed summer flounder research projects would exempt researchers from the minimum mesh size, minimum fish size, and allow for landings of summer flounder during a closure.

The social and economic impacts of this research should be minimal. The research set-asides are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. Also, the research set-asides are expected to yield important long-term benefits associated with improved data upon which to base management decisions. The set-aside could be worth as much as $801,900 dockside based on a 2000 price of $1.65 per pound. As such, assuming an equal reduction amongst all active vessels (i.e., 795 vessels that landed summer flounder in 2000), this could mean a reduction of about $1,000 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 9.718 to 9.524 million lb (a 2 percent decrease) if 2 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for summer flounder. As such, permit holders that would have landed these summer flounder could be disadvantaged.

Minimum mesh and/or minimum fish size

The current minimum mesh regulations require a 5.5" diamond or 6" square mesh in the entire net for vessels possessing more than the threshold amount of summer flounder (100 lbs). Based on mesh selectivity studies, a 5.5" mesh has an associated L50 of 13.5" TL. This means that 50 percent of the 13.5" summer flounder that encountered the net would be retained by this mesh. Mesh sizes of 4.5" and 5.0" have associated L50s of 11.2" TL and 12.3" TL, respectively.

The current regulations require a 14" TL minimum fish size in the commercial fishery. Assuming that undersized fish are not caught and discarded, minimum sizes increase the size at full recruitment because yields are increased as fishermen catch larger, heavier fish. These regulations also can increase spawning stock biomass by allowing more fish to spawn.

The smaller mesh would allow for the capture and retention of fish less than the current minimum size of 14" TL. If these fish were exempt from the minimum size requirement for sale, they would be landed and those landings would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could be

offset by a decrease in mortality for larger fish (greater than 14" TL) if smaller fish were sold instead. However, because overall mortality rates are controlled by the TAL, any changes in mortality should be insignificant, i.e., total landings including the research set aside can not exceed the TAL.

Changes in mesh size would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Closures

Research has been proposed that would allow for landings of summer flounder during a state or federal closure. Because these landings would count against the overall quota, the biological/ecological impacts would not change relative to the status quo.

Landings during a closure would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Scup

Assuming that NMFS approves the preferred TAL alternative for scup, the research set-aside amount would be 323,100 pounds. The proposed scup research projects would exempt researchers from the minimum mesh size, minimum fish size, and commercial possession limits and allow for landings of scup during a closure.

The social and economic impacts of this research should be minimal. The research set-asides are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. Also, the research set-asides are expected to yield important long-term benefits associated with improved data upon which to base management decisions. The set-aside could be worth as much as $403,875 dockside based on a 2000 price of $1.25 per pound. As such, assuming an equal reduction amongst all active commercial vessels (i.e., 425 vessels that landed scup in 2000), this could mean a reduction of about $950 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 2.770 to 2.687 million lb (a 3 percent decrease) if 3 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for scup. As such, permit holders that would have landed these scup could be disadvantaged.

Minimum mesh and/or minimum fish size

The current minimum mesh regulations require a 4.5" minimum mesh in the codend of the net for vessels possessing more than 500 lbs of scup from November through April and 100 pounds from May through October. The Council

recommended that the net provisions be changed for 2002. These changes include a modification such that fishermen could use nets with no more than 25 meshes of 4.5 mesh in the codend with at least 100 meshes of 5.0" mesh forward of the 4.5" mesh or use a net with at least 4.5" mesh throughout. If approved by NMFS, the Council's recommended change would become effective in 2002.

The proposed research would use smaller mesh to catch and retain small scup. Based on retention lengths derived from length and body depth measurements, a 4.5" mesh has an associated L50 of 9.1" TL. This means that 50 percent of the 9.1" TL scup that encountered the net would be retained by this mesh. Mesh sizes of 2.0", 3.0", and 4.0" have associated L50s of 4.8" TL and 6.5" TL and 8.3" TL, respectively.

The current regulations require a 9" TL minimum fish size in the commercial fishery. Assuming that undersized fish are not caught and discarded, minimum sizes increase the size at full recruitment because yields are increased as fishermen catch larger, heavier fish. These regulations also can increase spawning stock biomass by allowing more fish to spawn.

The smaller mesh would allow for the capture and retention of fish less than the current minimum size of 9" TL. If these fish were exempt from the minimum size requirement for sale, they would be landed and those landings would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could be offset by a decrease in mortality for larger fish (greater than 9" TL) if smaller fish were sold instead. However, because overall mortality rates are controlled by the TAL, any changes in mortality should be insignificant, i.e., total landings including the research set aside can not exceed the TAL.

Changes in mesh and minimum fish size would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Closures

Research has been proposed that would allow for landings of scup during a state or federal closure. Because these landings would count against the overall quota, the biological/ecological impacts would not change relative to the status quo.

Landings during a closure would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Possession limits

Research has been proposed that would allow research vessels to land in excess of the possession limits. The proposed regulations would limit fishermen to 10,000 pounds and 2,000 pounds per trip for the first and second winter periods, respectively. Although the possession limits could be exceeded, the landings would count against the quota and, as such, the biological/ecological impacts would not change relative to the status quo.

Landings in excess of the possession limit would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and could have no impact on essential fish habitat.

Black Sea Bass

Assuming that NMFS approves the preferred TAL alternative for black sea bass, the research set-aside amount would be 204,000 pounds. The proposed black sea bass research projects would exempt researchers from the minimum mesh size, escape vent requirements, minimum fish size, and commercial possession limits and allow for landings of black sea bass during a closure.

The social and economic impacts of this research should be minimal. The research set-asides are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. Also, the research set-asides are expected to yield important long-term benefits associated with improved data upon which to base management decisions. The set-aside could be worth as much as $365,160 dockside based on a 2000 price of $1.79 per pound. As such, assuming an equal reduction amongst all active commercial vessels (i.e., 723 vessels that caught black sea bass in 2000), this could mean a reduction of about $505 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 3.468 to 3.364 million lb (a 3 percent decrease) if 3 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for black sea bass. As such, permit holders that would have landed these black sea bass could be disadvantaged.

Minimum mesh and escape vent requirements

The current minimum mesh regulations require a 4.0" minimum mesh in the codend of the net for vessels possessing more than 1000 lbs of black sea bass. The Council recommended that the net provisions be changed for 2002. These changes include a modification such that fishermen could use nets with at least 75 meshes of 4.5" diamond mesh in the codend or use a net with at least 4.5" diamond mesh throughout. If approved by NMFS, the Council's recommended change would become effective in 2002.

The proposed research would use smaller mesh to catch and retain small black sea bass. Based on retention lengths derived from length and body depth measurements, the proposed minimum mesh size of 4.5" has an associated L_{25} of 10.6" TL. This means that 25 percent of the 10.6" TL black sea bass that encountered the net would be retained by this mesh. Mesh sizes of 2.0", 3.0", and 4.0" have an associated L_{25} of 4.0" TL, 6.6" TL, and 9.3" TL, respectively.

The proposed regulations would require an 11" TL minimum fish size in the commercial fishery. Assuming that undersized fish are not caught and discarded, minimum sizes increase the size at full recruitment because yields

are increased as fishermen catch larger, heavier fish. These regulations also can increase spawning stock biomass by allowing more fish to spawn.

The regulations that implemented escape vent sizes for black sea bass became effective on December 16, 1996. The vent sizes were based on a MAFMC study (for the rectangular sizes) and industry comment (for the circle and square). Based on industry advice, the Council recommended that the vent sizes be increased in 2002 to 1 3/8" x 5 3/4" for the rectangular vents, 2 3/8" in diameter for the circular vents, and 2" for square vents. The proposed vent sizes represent significant increases from the current sizes of 1 1/8" x 5 3/4" for rectangular vents, 2" in diameter for circular vents, and 1 ½" for square vents. Analysis conducted for Amendment 9 indicated that rectangular vent sizes that were 1 3/8" wide had an associated L_{50} of 11.5" TL. As such, these increases in vent sizes should allow for a significant escapement of undersized fish.

The smaller mesh and smaller vent sizes would allow for the capture and retention of fish less than the proposed minimum size of 11" TL. If these fish were exempt from the minimum size requirement for sale, they would be landed and those landings would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could be offset by a decrease in mortality for larger fish (greater than 11" TL) if smaller fish were sold instead. However, because overall mortality rates are controlled by the TAL, any changes in mortality should be insignificant, i.e., total landings including the research set aside can not exceed the TAL.

Changes in mesh, vent sizes and minimum fish size would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Closures

Research has been proposed that would allow for landings of black sea bass during a state or federal closure. Because these landings would count against the overall quota, the biological/ecological impacts would not change relative to the status quo.

Landings during a closure would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Possession limits

Research has been proposed that would allow research vessels to land in excess of the possession limits. The proposed regulations would limit fishermen to 7,000 pounds in the first quarter and 2,000 pounds in the second, third, and fourth quarters, respectively. Although the possession limits could be exceeded, the landings would count against the quota and, as such, the biological/ecological impacts would not change relative to the status quo.

Landings in excess of the possession limit would have no impact on species

covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

GRAs for scup, black sea bass, and Loligo squid

NMFS implemented gear restricted areas (GRAs) for 2001 based on a recommendation of the Council and Commission. These GRAs regulate the use of otter trawls with codend mesh less than 4.5 inches in areas and times that were identified as having high scup discards. Specific areas and times include a Northern Gear Restricted Area from November 1 to December 31 and a Southern Gear Restricted Area from January 1 to March 15. Research has been proposed that would exempt vessels fishing with small mesh from the GRA regulations, i.e., allow them to catch and retain several species of fish including scup, black sea bass, whiting and *Loligo* squid from these areas when the GRAs are in effect.

Analysis conducted to support the GRAs indicates that these areas and times were associated with high levels of scup discards. As such, fishing with small mesh in these areas could mitigate the effects of the GRAs thereby increasing the discards of scup relative to the status quo. However, given the level of the research set-aside, the effects on scup discards and mortality should be minimal. Furthermore, the research is anticipated to examine methods to reduce scup discards. If the research is successful at reducing discards, there will be significant benefits to the scup fishery in the long term. Finally, because landings of non-exempt species (*Loligo* squid, whiting and black sea bass) would count against the overall quotas established for these species, the overall mortality level for those species would not change relative to the status quo.

The social and economic impacts of this research in the GRAs should be minimal. The research set-asides are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. The set-aside could be worth as much as $404 thousand, $365 thousand, and $750 thousand dockside for scup, black sea bass and *Loligo* squid based on 2000 prices per pound, respectively. As such, assuming an equal reduction amongst all active vessels (i.e., 425, 723, and 495 vessels that caught scup, black sea bass, and *Loligo* in 2000, respectively), this could mean a reduction of $950, $505, and $1,515 per individual vessel, for scup, black sea bass, and Loligo, respectively. However, if a vessel is participating in two or more of these fisheries, the revenue reduction could be higher. In addition, it is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for these species. As such, permit holders that would have landed these species could be disadvantaged.

5.1.3 SUMMARY OF IMPACTS

In sum, the proposed 2002 commercial quotas (adjusted) in Preferred Alternative 1 for summer flounder, scup, and black sea bass for the year 2002 are 44.3, 115.6, and 19.1 percent higher, respectively, compared to the quotas for year 2001. In 2002, the recreational harvest limits in Preferred Alternative 1 for summer flounder, scup, and black sea bass for the year 2002 are 36, 57, and 10 percent higher, respectively, compared to the recreational

harvest limits for year 2001. The commercial quotas and recreational harvest limits selected as the Preferred Alternative were chosen because they provide for the maximum level of commercial and recreational landings, yet still achieve the fishing mortality and exploitation rates specified in the FMP

The threshold analysis indicates that all 1038 commercial vessels are projected to incur revenue gains under Preferred Alternative 1. This is due to the fact that the quotas under this alternative are substantially higher than those established in 2001. The substantial increase in these quotas overcompensates for the reductions in landings due to overages in 2001. Assuming 2000 ex-vessel prices and the effect of potential changes in prices due to changes in landings in 2002 versus 2001, the 2002 quotas in Preferred Alternative 1 (after overages have been applied) would increase summer flounder, scup, and black sea bass ex-vessel revenues by approximately $5.4 million, $6.2 million, and $0.9 million, relative to 2000 revenues (landings), respectively, for a total increase of $12.5 million.

It is important to stress that these are potential changes, i.e., based on available data. Actual changes in revenue will likely vary. This variation would occur for several reasons, including impacts undetermined for unidentifiable vessels, revenues earned or lost due to trip limits and seasons set by a state to manage sub-allocations of quota, and unanticipated reductions in 2002 for quota overages in 2001 that were not accounted for here. These commercial quotas were identified as the Preferred Alternative because they are consistent with the requirement to eliminate overfishing and to attain the rebuilding objectives specified in the FMP for summer flounder, scup and black sea bass, and because they maximize commercial landings to the extent practicable.

Recreational landings for all three fisheries have fluctuated over the past several years. The number of trips targeting a given species in any given year is quite variable. In the aggregate, total number of recreational trips (all modes combined) in the North Atlantic and Mid-Atlantic subregions combined have remained relatively stable with a slight downward trend since the early 1990s. In addition, the number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined have fluctuated throughout the 1990-2000 period, ranging from 2.6 million trips in 1993 to 1.1 million trips in 1999. In 2000, 1.4 million party/charter boat trips were taken in the North Atlantic and Mid-Atlantic subregions combined. On average, the number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined, from 1999 to 2000, was 1.8 million, and 1.4 million trips for the 1996 to 2000 period. The recreational harvest limits were identified as the Preferred Alternative because they are consistent with the requirement to eliminate overfishing and to attain the rebuilding objectives specified in the FMP for summer flounder, scup and black sea bass, and because they maximize recreational landings to the extent practicable. The effects of the proposed recreational harvest limits for summer flounder, scup and black sea bass will be further analyzed when additional information regarding 2001 recreational landings are available, and the Council submits its recommendation for 2002 recreational measures. Those recommendations are expected in early 2002.

The affect of the GRAs on small-mesh fisheries is fully described in the 2001 Specification Document. The GRA measures reduce discards of scup in non-directed fisheries. However, the recommendation that will allow a small-mesh experimental net in the GRAs may increase landings of other species relative to 2001. It is not possible to assess the monetary value associated with the additional harvest as a result of the proposed experimental net exemption, because quantitative data on these nets are limited. The modifications are inexpensive and can be incorporated into existing nets with minimal labor. The modifications are based on a project funded by the Mid-Atlantic Council and conducted by the Manomet Center for Conservation Sciences to develop selective trawls for small mesh fisheries. Results of the research indicate that a 5.5" square mesh extension placed in the net 50 meshes ahead of the codend significantly reduced (66% reduction) the bycatch and discard of small scup without a reduction in the capture of squid.

The scup and black sea bass possession limits were chosen as an appropriate balance between the economic concerns of the industry (e.g., landing enough scup or black sea bass to make the trip economically viable) and the need to ensure the equitable distribution of the quota over the period.

Changes in possession limits can impact profitability in various ways. These impacts would vary depending of fishing practices. The possession limit recommended for Quarter 1 of the black sea bass fishery is not expected to negatively impact the black sea bass fishery. However, the decrease in the Quarter 1 limit may have some positive impacts by providing the market a regular product supply, avoiding market gluts, and price fluctuations.

The proposed fish size limits and minimum mesh provisions in black sea bass fishery and the mesh size provisions in the scup fishery are recommended to reduce the catch of undersized fish. These measures are not expected to affect small entities in a negative manner. If fish smaller that the minimum size limit could be landed they would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could be offset by a decrease in mortality for larger fish. However, overall mortality rates are controlled by the TAL, and changes in mortality because of these proposed regulations should be insignificant. Additionally, a reduction in the catch of undersized fish may lead to an increase in the size at full recruitment, because yields are increased as fishermen catch larger, heavier fish. Therefore, the proposed regulations could help to increase spawning stock biomass by allowing more fish to spawn. If 2000 price differentials between smaller and larger fish in the black sea bass fishery continued, commercial fishermen may benefit from the proposed minimum size in the sea bass fishery and, in fact, experience an increase in revenue.

The social and economic impacts of the summer flounder research set-aside should be minimal. The research set-asides are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. Also, the research set-asides are expected to yield important long-term benefits associated with improved data upon which to base management decisions. The set-aside could be worth as much as $801,900 dockside based on a 2000 summer flounder price of $1.65 per pound. As such, assuming an equal

reduction amongst all active vessels (i.e., 795 vessels that landed summer flounder in 2000), this could mean a reduction of about $1,000 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 9.718 to 9.524 million lb (a 2 percent decrease) if 2 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set-aside and, as such, there would be no negative impacts.

The social and economic impacts of the scup research set-aside should be minimal. The research set-asides are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. Also, the research set-asides are expected to yield important long-term benefits associated with improved data upon which to base management decisions. The set-aside could be worth as much as $403,875 dockside based on a 2000 scup price of $1.25 per pound. As such, assuming an equal reduction amongst all active commercial vessels (i.e., 425 vessels that landed scup in 2000), this could mean a reduction of about $950 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 2.770 to 2.687 million lb (a 3-percent decrease) if 3 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

The social and economic impacts of the black sea bass research set-aside should be minimal. The research set-asides are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. Also, the research set-asides are expected to yield important long-term benefits associated with improved data upon which to base management decisions. The set-aside could be worth as much as $365,160 dockside based on a 2000 sea bass price of $1.79 per pound. As such, assuming an equal reduction amongst all active commercial vessels (i.e., 723 vessels that caught black sea bass in 2000), this could mean a reduction of about $505 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 3.468 to 3.364 million lb (a 3 percent decrease) if 3 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set aside and, as such, there would be no negative impacts.

The social and economic impacts of scup, whiting, black sea bass, and Loligo research set-aside in GRAs should be minimal. The research set-asides are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. Furthermore, the research is anticipated to examine methods to reduce scup discards. If the research is successful at reducing discards, there will be significant benefits to the scup fishery in the long term. The set-aside could be worth as much as $404 thousand, $365 thousand, and $750 thousand dockside for scup, black sea bass and *Loligo* squid based on 2000 prices per pound, respectively. As such, assuming an equal reduction amongst all active vessels (i.e., 425, 723, and 495 vessels that caught scup, black sea bass, and *Loligo* in 2000, respectively), this could mean a reduction of $950, $505, and $1,515 per individual vessel, for scup, black sea bass, and Loligo, respectively. However, if a vessel is participating in two or more of these fisheries, the revenue reduction could

be higher. In addition, it is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for these species. As such, permit holders that would have landed these species could be disadvantaged.

5.2 QUOTA ALTERNATIVE 2

This alternative examines the impacts on industry that would result from total harvest limits for summer flounder, scup and black sea bass. To analyze the economic effects of this alternative, the total harvest limits specified in section 4.0 of the RIR/IRFA were employed.

Under this alternative, the summer flounder specifications would result in an aggregate 6.1 percent increase in allowable commercial landings relative to the 2001 quota and a 54.7 percent reduction in recreational harvest relative to 2000 landings (Tables 12 and 17). The scup specifications would result in an aggregate 14.9 percent increase in allowable commercial landings relative to the 2001 quota and a 65.8 percent decrease in recreational harvest relative to 2000 landings (Tables 12 and 18). The black sea bass specifications would result in an aggregate 7.6 percent increase in allowable commercial landings relative to the 2001 quota and a 12.9 percent decrease in the recreational harvest relative to 2000 landings (Tables 12 and 19). Again, this alternative makes the same assumptions about landings as are made in the previous analysis.

5.2.1 COMMERCIAL IMPACTS

5.2.1.1 Threshold Analysis for Participating Vessels

The results of the threshold analysis are reported in Table 26. Across all vessel classes a total of 29 vessels were projected to be impacted by revenue losses of <5 percent. The economic impacts for the 1038 vessels participating in these fisheries range from expected revenue losses on the order of <5 percent for a total of 29 vessels (relative to 2001) to no change in revenues for 5 vessels and increase revenue for 1004 vessels. Most of the vessels with projected revenue losses of <5 percent landed black sea bass only followed by a combination of black sea bass and fluke, and scup, black sea bass, and fluke. The majority of the revenue losses are attributed to quota reductions and overages associated with the black sea bass fishery in Quarter 1.

Table 26. Threshold analysis of revenue impacts for participating vessels, “FLK” is summer flounder, “BSB” is black sea bass, and “SCP” is scup.

Quota Alternative 2 Status Quo (Most Restrictive)				Increased Revenue (number)	No Change in Revenue (number)	Number of Impacted Vessels by Reduction Percentile (%)						
Class	Landings Combination	Total Vessels	Number of Vessels Impacted by ≥ 5 Reduction			<5	5-9	10-19	20-29	30-39	40-49	$50
1	SCP Only	29	0	24	5	0	0	0	0	0	0	0

2	BSB Only	169	0	142	0	27	0	0	0	0	0	0
3	FLK ONLY	267	0	267	0	0	0	0	0	0	0	0
4	SCP/BSB	45	0	45	0	0	0	0	0	0	0	0
5	SCP/FLK	19	0	19	0	0	0	0	0	0	0	0
6	BSB/FLK	177	0	176	0	1	0	0	0	0	0	0
7	SCP/BSB/FLK	332	0	331	0	1	0	0	0	0	0	0
	Totals	1038	0	1004	5	29	0	0	0	0	0	0

Impacts of the quotas provisions were examined relative to a vessel's home state as reported on the vessel's permit application (Table 27). "Home state" indicates the state where a vessel is based and primarily ported, and is presumed to reflect to where the costs and benefits of management actions return. However, home state is self-reported at the time an individual applies for a Federal permit and may not necessarily indicate where the vessel subsequently conducts most of its activity. The number of impacted vessels (revenue reduction <5 percent) by home state ranged from none in Massachusetts, Maryland, Maine, and Pennsylvania to a high of 7 in Virginia. The larger number of impacted vessels in Virginia may be due to a relatively higher dependence on black sea bass.

Table 27. Review of revenue impacts under quota Alternative 2, by home state.
[a]States with fewer than 4 vessels were aggregated.

State	Participating Vessels	Number of Vessels Impacted ≥5%	Increased Revenue (number)	No Change in Revenue (number)	Number of Impacted Vessels by Reduction Percentile (percent)						
					<5	5-9	10-19	20-29	30-39	40-49	$50
DE	4	0	3	0	1	0	0	0	0	0	0
MA	169	0	168	1	0	0	0	0	0	0	0
MD	12	0	12	0	0	0	0	0	0	0	0
ME	4	0	4	0	0	0	0	0	0	0	0
NC	83	0	77	0	6	0	0	0	0	0	0
NJ	122	0	120	0	2	0	0	0	0	0	0
NY	153	0	152	0	1	0	0	0	0	0	0
PA	11	0	11	0	0	0	0	0	0	0	0
RI	93	0	91	0	2	0	0	0	0	0	0
VA	81	0	74	0	7	0	0	0	0	0	0
OTHER[a]	3	0	3	0	0	0	0	0	0	0	0
NOT KNOWN[b]	303	0	289	4	10	NK	NK	NK	NK	NK	NK
Total	1038	0	1004	5	29	0	0	0	0	0	0

[a]States with fewer than 4 vessels were aggregated.
[b]Vessels have shown landings of either of those three species in 2000, but do not hold any of the requisite Federal permits in 2000. These vessels may be fishing exclusively in state waters fisheries for those species, and landings are

indicated because of reporting requirements for their other Federal permits or they do not hold a Federal permit to participate in these fisheries any longer.

By virtue of holding a valid Federal permit for summer flounder, scup, or black sea bass a vessel is subject to any regulations that are promulgated under the FMP. From this perspective, these vessels are subject to any quota specification whether or not they actually choose to engage in any one of the three (summer flounder, scup, or black sea bass) fisheries. The decision to engage in any given fishery during a given time period is subject to numerous considerations from temporary suspension of fishing due to illness or vessel construction or repair to merely a reasoned decision to pursue other fisheries. Given the limited access nature of the fisheries, a vessel may wish to continue to hold a permit to preserve the opportunity to engage in the fishery when circumstance allows.

In addition to the threshold analysis described above, the Council also analyzed changes in total gross revenue that would occur as a result of the quota alternatives. Assuming 2000 ex-vessel prices (summer flounder - $1.65/lb; scup - $1.25/lb; and bsb $1.79/lb) and the effect of potential changes in prices due to changes in landings in 2002 versus 2001, the 2002 quotas in Alternative 2 (after overages have been applied) would increase summer flounder, scup, and black sea bass ex-vessel revenues by approximately $0.9 million, $1.7 million, and $0.4 million, relative to 2000 revenues (2001 proxy), respectively, for a total revenue increase of $3.0 million.

Assuming the increase in summer flounder total gross revenues associated with Alternative 2 is distributed equally between the 795 vessels that landed summer flounder in 2000, the average increase in revenue associated with the increase in summer flounder quota in Alternative 2 is $1,132/vessel.

Assuming the increase in scup total gross revenues associated with Alternative 2 is distributed equally between the 425 vessels that landed scup in 2000, the average increase in revenue associated with the increase in scup quota is $4,000/vessel.

Assuming the increase in black sea bass total gross revenues associated with Alternative 2 is distributed equally between the 723 vessels that landed black sea bass in 2000, the average increase in revenue associated with the increase in black sea bass quota is $553/vessel.

5.2.2 RECREATIONAL IMPACTS

Under this alternative, the summer flounder 2002 recreational harvest limit would be 7.16 million lb. This limit is a 54.7 percent decrease from 2000 recreational landings, and no change from the 2000 recreational harvest limit (Table 17). The scup recreational harvest limit for 2002 would be set equal to 1.77 million lb. This is a 65.8 percent decrease over the 2000 recreational landings, and no change from the 2000 recreational harvest limit (Table 18). Finally, this alternative would set the black sea bass recreational harvest limit for 2002 at 3.15 million lb. This level represents a 4.1 percent decrease from the 2000 recreational landings, and no change from the 2000 recreational harvest limit (Table 19).

In the summer flounder fishery, there is no mechanism to deduct overages directly from the recreational harvest limit, so any overages must be addressed by way of adjustments to the management measures. It is likely that management measures under this alternative would be required to restrict the recreational fishery for 2002 (compared to 2000 landings) and may cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size or closed season). However, there is no indication that any of these measures would lead to a decline in the demand for party/charter boat trips. Currently, the market demand for these sectors is relatively stable. It is unlikely these measures will result in any substantive decreases in the demand for party/charter boat trips.

At the present time, there is neither behavioral nor demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. It is most likely that party/charter anglers will target other species when faced with potential reductions in the amount of summer flounder and scup that they are allowed to catch. As such, it is not probable that the decrease in the harvest limits, relative to the 2000 landings will have a substantial impact on the number of party/charter fishing trips.

5.2.3 SUMMARY OF IMPACTS

In sum, the proposed quotas under Alternative 2 (Status Quo) for all three species are identical to that of the 2001 quotas. However, due to overages in 2000 which affected the final adjusted 2001 quotas and due to the projected overages in 2001, the final commercial quotas in 2002 will be higher than in 2001. In 2002, recreational landings would decrease in the case of summer flounder (versus 2000 recreational landings) and increase in the case of black sea bass.

Recreational landings for all three fisheries have fluctuated over the past several years. The number of trips targeting a given species in any given year is quite variable. In the aggregate, total number of recreational trips (all modes combined) in the North Atlantic and Mid-Atlantic subregions combined have remained relatively stable with a slight downward trend since the early 1990s. In addition, the number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined have fluctuated throughout the 1990-2000 period, ranging from 2.6 million trips in 1993 to 1.1 million trips in 1999. In 2000, 1.4 million party/charter boat trips were taken in the North Atlantic and Mid-Atlantic subregions combined. On average, the number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined, from 1999 to 2000, was 1.8 million, and 1.4 million trips for the 1996 to 2000 period.

Under this alternative, a total of 29 of the 1038 commercial vessels were projected to incur revenue losses of less than 5 percent. In addition, it is estimated that 5 vessels would have no change in revenue in 2002 compared to 2001 and 1004 would have an increase in revenue. Among affected vessels that landed black sea bass only were proportionally more affected with revenue losses of less than 5 percent.

Assuming 2000 ex-vessel prices and the effect of potential changes in prices due to changes in landings in 2002 versus 2001, the 2002 quotas in Alternative

2 (after overages have been applied) would increase summer flounder, scup, and black sea bass total ex-vessel gross revenues by approximately $0.9 million, $1.7 million, and $0.4 million, relative to 2000 revenues (landings), respectively, for a total revenue increase of $3.0 million.

If the increase in total gross revenues associated with the summer flounder quota in Alternative 2 is distributed equally between the 795 vessels that landed summer flounder in 2000, the average increase in revenue associated with the summer flounder quota in Alternative 2 is $1,132/vessel. If the increase in total gross revenues associated the scup quota in Alternative 2 is distributed equally between the 425 vessels that landed scup in 2000, the average increase in revenue associated with the scup quota in Alternative 2 is $4,000/vessel and, similarly, if the increase in black sea bass total gross revenues associated with Alternative 2 is distributed equally between the 723 vessels that landed black sea bass in 2000, the average increase in revenue associated with the black sea bass quota in Alternative 2 is $553/vessel.

The total harvest limit for scup analyzed under this alternative is more conservative than that presented in Alternative 1. More specifically, the commercial summer flounder, scup, and black sea bass harvest limits under this alternative is approximately 3.8, 3.6, and 2.7 million lb lower than the limit specified under Alternative 1. While these measures may present an improved probability of attaining the rebuilding objectives specified in the FMP, the negative economic impacts upon small entities would be higher than under Alternative 1.

It is important to stress that these changes represent merely the potential, i.e., based on available data. Actual changes in revenue will likely vary. This variation would occur for several reasons, including impacts undetermined for unidentifiable vessels, revenues earned or lost due to trip limits and seasons set by a state to manage sub-allocations of quota, and unanticipated reductions in 2001 for quota overages in 2000 that were not accounted for here.

5.3 QUOTA ALTERNATIVE 3

This alternative examines the impacts on industry that would result from total harvest limits for summer flounder, scup and black sea bass. To analyze the economic effects of this alternative, the total harvest limits specified in section 4.0 of the RIR/IRFA were employed.

Alternative 3 represents the “least restrictive” alternative - those harvest levels considered that would allow the maximum to be harvested. The summer flounder specifications under this alternative would result in an aggregate 108.6 percent increase in allowable commercial landings relative to the 2001 quota and a 12.0 percent reduction in recreational harvest relative to 1999 landings (Tables 12 and 17). The scup specifications would result in an aggregate 159.0 percent increase in allowable commercial landings relative to the 2001 commercial quota and a 38.0 percent reduction in recreational harvest relative to 2000 landings (Tables 12 and 18). The black sea bass specifications would result in an aggregate 43.0 percent increase in allowable commercial landings relative to the 2001 commercial quota and a 14.1 percent increase in the recreational harvest relative to 2000 landings (Tables 12 and

19). Again, this alternative makes the same assumptions about landings as are made in the previous analyses.

5.3.1 COMMERCIAL IMPACTS

5.3.1.1 Threshold Analysis for Participating Vessels

The results of the threshold analysis indicates that across all vessel classes, a total of 1038 vessels were projected to be impacted by revenue increase (relative to 2001). There were no vessels projected to incur in revenue losses relative to 2001. Even though, the overall summer flounder quota for 2002 (adjusted) is projected to be over 106 percent higher relative to the quota specified in 2001 for that species, one state, Maine, is projected to decrease its summer flounder quota for 2002 by 100 percent relative to the quota specified for that state in 2001. That is, from 2,146 lbs in 2001 to 0 lbs in 2002. Nevertheless, the threshold analysis indicated that there are no vessels affected by this projected decrease in summer flounder landings in that state in 2002. This is probably due to the possibility that vessels landings small quantities of summer flounder in Maine also landed larger quantities of summer flounder in other states, thus benefitting from the increase in quota in those other states in 2002 versus 2001. In addition, it is possible that these vessels also landed black sea bass along with summer flounder, thus benefitting from the increase in black sea bass quota in 2002 and therefore not showing a reduction in exvessel revenue. The vessel distribution by landing combination and home port state for these vessels is similar to that presented under the total column, 3rd column from the left in Table 26 and 2nd second column form the left in Table 27, respectively.

In addition to the threshold analysis described above, the Council also analyzed changes in total gross revenue that would occur as a result of the quota alternatives. Assuming 2000 ex-vessel prices (summer flounder - $1.65/lb; scup - $1.25/lb; and bsb $1.79/lb) and the effect of potential changes in prices due to changes in landings in 2002 versus 2001, the 2002 quotas in Alternative 3 (after overages have been applied) would increase summer flounder, scup, and black sea bass ex-vessel revenues by approximately $15.8 million, $8.1 million, and $2.1 million, relative to 2000 revenues (2001 proxy), respectively, for a total revenue increase of $26.0 million.

Assuming the increase in summer flounder total gross revenues associated with Alternative 3 is distributed equally between the 795 vessels that landed summer flounder in 2000, the average increase in revenue associated with the increase in summer flounder quota in Alternative 3 is $19,874/vessel.

Assuming the increase in scup total gross revenues associated with Alternative 3 is distributed equally between the 425 vessels that landed scup in 2000, the average increase in revenue associated with the increase in scup quota is $19,058/vessel.

Assuming the increase in black sea bass total gross revenues associated with Alternative 3 is distributed equally between the 723 vessels that landed black sea bass in 2000, the average increase in revenue associated with the increase in black sea bass quota is $2,904/vessel.

5.3.2 RECREATIONAL IMPACTS

Under this “least restrictive” alternative, the summer flounder 2001 recreational harvest limit would be 13.9 million lb. This level is a 12.1 percent decrease from 2000 recreational landings, and a 6.74 million lb increase over the 2001 recreational harvest limit. Under this alternative, the scup recreational harvest limit for 2002 would be 3.2 million lb. This is a 38.0 percent decrease over the 2000 landings, and a 1.4 million lb increase over the 2001 harvest limit. For black sea bass, the recreational harvest limit for 2002 would be 4.13 million lb, a 14.2 percent increase over the 2000 recreational landings, and 0.98 million lb over the 2001 recreational harvest limit.

It is likely that management measures proposed to restrict the recreational summer flounder and scup fisheries for 2002 (compared to 2000 landings) may cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size or closed season). Given that the black sea bass level is projected to increase, it is not anticipated that restrictive measures would be required under this alternative. There is no indication that any of these measures would lead to a decline in the demand for party/charter boat trips. Given the relatively stable market demand that these sectors are experiencing, it is unlikely these measures will result in any substantive decreases in the demand for party/charter boat trips.

At the present time, there is neither behavioral nor demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. It is most likely that party/charter anglers will target other species when faced with potential reductions in the amount of summer flounder that they are allowed to catch. It is not probable that the decrease in the summer flounder harvest limits, relative to the 1999 landings, will have a substantial impact on the number of party/charter fishing trips, as the increased scup and black sea bass harvest limits will allow for greater recreational opportunities in those fisheries.

5.3.3 SUMMARY OF IMPACTS

Alternative 3 allows fishermen to land more summer flounder in 2002 versus 2001, 2000, 1999, 1998, 1997, and 1996. It would also allow fishermen to land more scup in 2002 versus 2001, 2000 and 1999, and more black sea bass versus 2001, 2000, 1999, and 1998. Recreational landings would increase for black sea bass (relative to 2000 landings) and decrease for summer flounder and scup.

Recreational landings for all three fisheries have fluctuated over the past several years. The number of trips targeting a given species in any given year is quite variable. In the aggregate, total number of recreational trips (all modes combined) in the North Atlantic and Mid-Atlantic subregions combined have remained relatively stable with a slight downward trend since the early 1990s. In addition, the number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined have fluctuated throughout the 1990-2000 period, ranging from 2.6 million trips in 1993 to 1.1 million trips in 1999. In 2000, 1.4 million party/charter boat trips were taken in the North Atlantic and Mid-Atlantic subregions combined. On average,

the number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined, from 1999 to 2000, was 1.8 million, and 1.4 million trips for the 1996 to 2000 period.

The threshold analysis indicates that all 1038 commercial vessels were projected to incur revenue gain. This due to the fact that the quotas under this alternative are substantially higher than those established in 2001. The substantial increase in these quotas overcompensate for the reductions in landings due to overages in 2001.

Assuming 2000 ex-vessel prices and the effect of potential changes in prices due to changes in landings in 2002 versus 2001, the 2002 quotas in Alternative 3 (after overages have been applied) would increase summer flounder, scup, and black sea bass ex-vessel revenues by approximately $15.8 million, $8.1 million, and $2.1 million, relative to 2000 revenues (landings), respectively, for a total revenue increase of $26.0 million.

If the increase in total summer flounder gross revenues associated with Alternative 3 is distributed equally between the 795 vessels that landed summer flounder in 2000, the average increase in revenue associated with the summer flounder quota in Alternative 3 is $19,874/vessel. If the increase in total scup gross revenues is distributed equally between the 425 vessels that landed scup in 2000, the average increase in revenue associated with the scup quota in Alternative 3 is $19,058/vessel and, similarly, if the increase in total gross revenues associated with the black sea bass quota in Alternative 3 is distributed equally between the 723 vessels that landed black sea bass in 2000, the average increase in revenue associated with the black sea bass quota in Alternative 3 is $2,904/vessel.

These measures would allow for significant increases in the harvest of summer flounder, scup, and black sea bass. Neither limit for these species has a high probability of achieving the rebuilding goals of the FMP. Therefore, while this alternative may mitigate the impacts on small entities, it does not comport with the fishing mortality and exploitation rates specified in the FMP. Therefore, this alternative was not proposed by the Council.

It is important to stress that these changes represent merely the potential, i.e., based on available data. Actual changes in revenue will likely vary. This variation would occur for several reasons, including impacts undetermined for unidentifiable vessels, revenues earned or lost due to trip limits and seasons set by a state to manage sub-allocations of quota, and unanticipated reductions in 2002 for quota overages in 2001 that were not accounted for here. These measures are specified in order to eliminate overfishing and to attain the rebuilding objectives specified in the FMP for summer flounder, scup and black sea bass.

6.0 OTHER IMPACTS

6.1 COUNTY IMPACTS

For the reasons specified in section 3.1 of this PREE, the economic impacts on vessels of a specified h-port were analyzed on a county wide basis. As stated in section 3.1 of the PREE, this profile of impacted counties was based on

impacts under quota Alternative 2 - the most restrictive possible alternative. Counties included in the profile had to meet the following criteria:
- the number of impacted vessels (vessels with revenue loss exceeding 5 percent) per county was either greater than 4, or
- all impacted vessels in a given state were from the same home county.

The results of these analyses are summarized below. Since the counties have been identified based on impacts under quota Alternative 2, the analyses represent the most profound impacts possible for those counties. Consequently, other quota alternatives would result in fewer impacts.

Based on the above criteria, there were no counties projected to be impacted, that is, did not have enough impacted vessels to meet the criteria specified. This is an obvious result since there were no vessels impacted with revenue losses or 5 percent or greater associated with the alternatives evaluated. Since the county analysis was based on impacts under quota Alternative 2, the analyses represent the most profound impacts possible for those counties. Consequently, other quota alternatives would result in no impacts as well.

A description of important ports and communities to the summer flounder, scup, and black sea bass fisheries is presented in section Appendix 1 of this document.

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APPENDIX 1

Port and Community Description

Defining What Constitutes a Community

National Standard 8 states that conservation and management measures take into consideration the importance of the fishery resources to fishing communities while being consistent with the conservation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. According to National Standard 8, a fishing community must be a geographic entity. This geographic entity could be a port/town, a county, or some small geographic division. In this document, the basic unit of analysis is the port/town.

Dependence of Individual Communities on Summer Founder, Scup, and Black Sea Bass

According to National Marine Fisheries Service (NMFS) weighout landings data, in 1999, summer flounder was landed in 130 ports, scup in 63 ports, and black sea bass in 99 ports from Maine throughout North Carolina. In addition, 57 ports reported landings of all three species. All of these ports were located in 10 states and 64 counties and are listed in Table 1.

In order to assess the importance of each species to each port, the proportion or contribution of the species to the total value landed (or revenue) from all landings (fishing revenue dependence) were estimated. The ports reporting summer flounder landings (130 ports) in 1999 showed that summer flounder contributed less than 5% of the total port landings value for all species for 65% of the ports (84 ports), with 5-10% of the total port landings value for 14% of the ports (18 ports), and with greater than 10% of the total port landings value for 22% of the ports (28 ports). The ports reporting scup landings (63 ports) in 1999 showed that scup contributed less than 5% of the total port landings value for all species for 81% of the ports (51 ports), with 5-10% of the total port landings value for 6% of the ports (4 ports), and with greater than 10% of the total port landings value for 13% of the ports (8 ports). The ports reporting black sea bass landings (99 ports) in 1999 showed that black sea bass contributed less than 5% of the total port landings value for all species for 85% of the ports (84 ports), with 5-10% of the total port landings value for 6% of the ports (6 ports), and

with greater than 10% of the total port landings value for 9% of the ports (9 ports). In addition, for ports showing any landings combinations of summer flounder, scup, and/or black sea bass (140 ports) in 1999, summer flounder, scup, and/or black sea bass contributed with less than 5% of the total port landings value for all species for 53% of the ports (75 ports), with 5-10% of the total port landings value for 12% of the ports (17 ports), and with greater than 10% of the total port landings value for 34% of the ports (48 ports). As such, when the individual contribution of summer flounder, scup, or black sea bass to the total value landed for all species is considered, a small proportion of the ports (ranging from 6% to 22%) where these species were landed in 1999 derived more than 10% of the total port landings from any of the three species. However, when the contribution of two or more species is considered, the percentage of ports showing more than 10% of the total port landings increased to 34%. Since in some cases, the total port landings ranged from a few hundred to a few thousand dollars, the following criteria was employed to identify the ports and counties to be described in the community profiles: 1) the contribution of either summer flounder, scup, or black sea bass was 10% or more of the total value landed for all species in a specific port; 2) the contribution of either summer flounder, scup, or black sea bass to the ports identified under criteria 1 was $1,000 or greater; 3) the contribution of either summer flounder, scup, and/or black sea bass was 10% or more of the total value landed in a specific port; and 4) that the total landed value for all species combined for those ports qualifying under the above criteria (3) was $100,000 or greater.

Employing the criteria outlined above, 35 ports were identified for further evaluation. These ports and the contribution of summer flounder, scup, and black sea bass to the total value of all port landings are presented in Table 2. In addition, two other ports, Tiverton (Newport County, RI) and Cape May (Cape May County, NJ), were included in the discussion because the overall contribution of summer flounder, scup, and black sea bass was 10% of the total value of all species landed in those ports. In addition, detailed economic information of the counties containing one or more ports that showed 10% or more commercial revenue dependence on summer flounder, scup, and/or black sea bass in 1999 is presented in Table 3.

Barnstable County, Massachusetts

Barnstable is one of 14 counties in Massachusetts and is part of the Barnstable-Yarmouth Metropolitan Area. In 1999, the total population for the county of 212,519 individuals ranked 9th in the state.

PER CAPITA PERSONAL INCOME

In 1999, Barnstable had a per capita personal income (PCPI) of $34,470. This PCPI ranked 6th in the state, and was 97% of the state average ($35,527) and 121% of the national average ($28,546). The 1999 PCPI reflected a 5.7% increase from 1998. The 1998-99 state change was 6.3% while the national change was 4.5%.

TOTAL PERSONAL INCOME

In 1999, Barnstable had a total personal income (TPI) of $7,325,565* (*all income estimates with the exception of PCPI are in thousands of dollars). This TPI ranked 9th in the state and accounted for 3.3% of the state total. The 1999 TPI reflected a 7.7% increase from 1998. The 1998-99 state change was 6.9% and the national change was 5.4%.

COMPONENTS OF TOTAL PERSONAL INCOME

The TPI includes the earnings (wages, salaries, other labor income, and proprietors' income); dividends, interest, and rent; and transfer payments received by the residents of Barnstable. In 1999, earnings were 55.4% of TPI; dividends, interest, and rent were 28.8%; and transfer payments were 15.9%. From 1998 to 1999, earnings increased 10.7%; dividends, interest, and rent increased 4.9%; and transfer payments increased 3.1%.

EARNINGS BY INDUSTRY

Earnings by persons employed in Barnstable increased from $3,223,196* in 1998 to $3,666,220* in 1999, an increase of 13.7%. The largest industries in 1999 were services (31.1% of earnings), retail trade (16.9%), and state and local government (12.9%). In 1999, the industries that accounted for at least 5% of earnings showed the slowest growing from 1998 to 1999 was state and local government (increased 5.4%) while the fastest growing was durable goods manufacturing (7.5% of earnings in 1999 which increased 157.1%) (Regional Economic Information Systems, Bureau of Economic Analysis, Bearfacts

–*http://www.bea.doc.gov/bea/regional/bearfacts/bf1/25/b125001.htm*)

In 1990, Barnstable County had 186,605 residents allocated among 52,450 families and 77,675 households. According to 1990 Census data in Barnstable County, there were 84 white non-Hispanic male captains or other officers of fishing vessels and 616 fishers (571 non-Hispanic white males and 45 non-Hispanic white females).

In 1990, 43% of the 135,192 housing units in the county were empty while 28% of the occupied units were rental units and 81% of the vacant units were for seasonal, recreational, or occasional use.

In 1990, 66% of all residents had been born in the state of Massachusetts while another 19% were born in the Northeast United States. Furthermore, 52% of persons age 5 and over were living in the same house in 1990 that they had occupied in 1985. An additional 25% were living in a different house in 1985 but still within Dukes County and 11% were living in a different house but still in Massachusetts.

The racial composition of Dukes County in 1990 was 96% white, 2% black, and 2% other groups (the largest number was American Indian). Furthermore, 1% of all persons were of Hispanic origin. When reporting first ancestry, Irish was the largest group (21%) followed by English (18%), then German (17%). The vast majority of persons age 5 years and over speak only English (91%) and only 1% of households are classified as linguistically isolated.

In 1990, 30% of county residents age 25 and over were high school graduates and 19% held a bachelor's degree. According to the Bureau of Labor Statistics, the civilian labor force in 1996 was 102,662 with a 5.8% unemployment rate. According to the 1999 CBP, there were 8,253 establishments employing 69,028 individuals with an annual payroll of $2002 million. When fishing dependent industries are included, the level of dependence increases; however, it is difficult to calculate due to data reporting restrictions in the County Business Pattern data. Overall, 92% of the establishments in Barnstable County employ 1-19 employees.

In 1989, the median *household* income was $31,766 with median family income of $38,117 and the median non-family *household* income of $18,404. The *per capita* income in 1989 was $16,402.

In 1997, the median *household* income was estimated to be $40,791 while 8.9% of the county's population was estimated to be living in poverty.

Port of Falmouth

Falmouth is located 72 miles southeast of Boston and 239 miles from New York City in Southeastern Massachusetts situated on the shoulder or southwest end of Cape Cod. It is bordered by Bourne and Sandwich on the north, Mashpee on the east, Buzzards Bay on the west, and Gosnold, Vineyard Sound, and Nantucket Sound on the south (Massachusetts Department of Housing and Community Development – *http://www.state.ma.us/dhcd/iprofile/096.HTM*).

In 1990, Falmouth (County Subdivision) had 27,960 residents allocated among 7,822 families and 11,364 households. According to 1990 Census data in Falmouth, there were 267 persons employed in occupations of agricultural services, forestry and fishing (2% of all employed persons 16 or over) and 361 employed in agriculture, forestry and fisheries industries.

In 1990, 38% of the 18,168 housing units in the area were empty while 29% of the occupied units were rental units.

In 1990, 68% of all residents had been born in the state of Massachusetts and the next largest group (15%) were born in the Northeast United States. In the classification of persons age 5 and over, 53% were living in the same house in 1990 that they had occupied in 1985. An additional 26% were living in a different house in 1985 but still within Barnstable County, and 11% were living in a different house but still in Massachusetts. In addition, 89% of all workers 16 and over worked in their county of residence.

The racial composition of Falmouth in 1990 was 95% white, 2% black, 1% American Indian, and less than 1% of any other group. Furthermore, 1% of all persons were of Hispanic origin. When reporting first ancestry, Irish was the largest group (20%) followed by English (15%), then Portuguese (10%). The majority of persons age 5 years and over speak only English (89%) and less than 1% of households are classified as linguistically isolated.

In 1990, 29% of residents age 25 and over were high school graduates and 18% held a bachelor's degree. In 1989, the

median *household* income was $33,944 (7% above of the Barnstable County average) with the median family income of $40,655 (7% above the county average) and the median non-family *household* income of $19,022 (3% above the county average). The *per capita* income in 1989 was $17,131 (4% of the county average). Approximately 9% of persons for whom poverty status was determined (98% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by other professional and related services and health services.

Falmouth is a large town and probably has one of the longest coastlines in the state. Consequently, there is a lot of land development with high value, high demand, and the choice views that create real property wealth. At the same time, Falmouth has a lot of agencies that are very attentive to the environmental demands of that coastline, whether it be the Planning Board, the Zoning Board of Appeals, the Conservation Commission, the Department of Natural Resources, Shellfish Warden, Harbormaster and the Board of Selectmen. Large geographical tracts of land have been set aside for public conservation. These tracts of land are not necessarily exclusively waterfront but some of the woodland and back land areas that are the natural habitat for wildlife and are locations that also serve to enhance the attractiveness of the community. Falmouth, like every community tries to retain attractiveness in the face of growth pressure (Massachusetts Department of Housing and Community Development - *http://www.state.ma.us/dhcd/iprofile/096.HTM*).

Dukes County, Massachusetts

Dukes is one of the 14 counties in Massachusetts but is not part of a Metropolitan Area. In 1997, the total population for the county of 13,588 individuals ranked 13th in the state.

PER CAPITA PERSONAL INCOME

In 1997, Dukes had a PCPI of $29,945. This PCPI ranked 7th in the state and was 96% of the state average ($31,239) and 118 % of the national average ($25,288). The 1997 PCPI reflected an increase of 3.6% from 1996. The 1996-97 state change was 5.6% and the national change was 4.7%.

TOTAL PERSONAL INCOME

In 1997, Dukes had a TPI of $406,886* (*all income estimates with the exception of PCPI are in thousands of dollars). This TPI ranked 13th in the state and accounted for 0.2% of the state total. The 1997 TPI reflected an increase of 6.3% from 1996. The 1996-97 state change was 6.1% and the national change was 5.7%.

COMPONENTS OF TOTAL PERSONAL INCOME

The TPI includes the earnings (wages, salaries, other labor income, and proprietors' income); dividends, interest, and rent; and transfer payments received by the residents of Dukes. In 1997, earnings were 54.9% of TPI; dividends, interest, and rent were 31.8%; and transfer payments were 13.3%. From 1996 to 1997, earnings increased 7.4%; dividends, interest, and rent increased 4.5%; and transfer payments increased 5.8%.

EARNINGS BY INDUSTRY

Earnings by persons employed in Dukes increased from $221,669* in 1996 to $238,278* in 1997, an increase of 7.5%. The largest industries in 1997 were services (28.3% of earnings); retail trade (22.8%); and construction (14.8%). In 1999, the industries that accounted for at least 5% of earnings showed the slowest growing from 1996 to 1997 was construction (increased 5.1%) while the fastest growing was state and local government (13.8% of earnings in 1997 which increased 12.3%) (Regional Economic Information Systems, Bureau of Economic Analysis, Bearfacts - *http://www.bea.doc.gov/bea/regional/bearfacts/bf9697/25/25007.htm*).

In 1990, Dukes County had 11,639 residents allocated among 2,977 families and 5,076 households. For 1997, the population was estimated to be 13,578 individuals and for 2000 to be 14,987 individuals. According to 1990 Census data in Dukes County, there were 6 white non-Hispanic male captains or other officers of fishing vessels and 66 fishermen (50 non-Hispanic white male, 3 American Indian or Alaskan Native male, and 13 non-Hispanic white female).

In 1990, 57% of the 11,604 housing units in the county were empty while 28% of the occupied units were rental units and 82% of the vacant units were for seasonal, recreational, or occasional use.

In 1990, 60% of all residents had been born in the state of Massachusetts while another 24% were born in the Northeast United States. Furthermore, 51% of persons age 5 and over were living in the same house in 1990 that they had occupied in 1985. An additional 26% were living in a different house in 1985 but still within Dukes County and 9% were living in a different house but still in Massachusetts.

In 1990, the racial composition of Dukes County was 92% white, 4% black, and 3% other groups (the largest numbers were American Indian and Korean). Furthermore, 1% of all persons were of Hispanic origin. When reporting first ancestry, English was the largest group (21%) followed by Irish (13%), then Portuguese (11%). The vast majority of persons age 5 years and over speak only English (96%) and only 1% of households are classified as linguistically isolated.

In 1990, 29% of county residents age 25 and over were high school graduates and 22% held a bachelor's degree. According to the Bureau of Labor Statistics, the civilian labor force in 1996 was 8,908 with a 5.1% unemployment rate. According to the 1999 CBP, there were 986 establishments employing 4,938 individuals with an annual payroll of $160 million. When fishing dependent industries are included, the level of dependence increases; however, it is difficult to calculate due to data reporting restrictions in the County Business Pattern data. Overall, 96% of the establishments in Dukes County employ 1-19 employees.

In 1989, the median *household* income was $31,994 with median family income of $41,369 and the median non-family *household* income of $21,035. The *per capita* income in 1989 was $18,280. In 1997, the median *household* income was estimated to be $40,852 while 6.7% of the county's population was estimated to be living in poverty.

Ports of "Other Dukes"

Ports of "Other Dukes" refers to ports in the Martha's Vineyard area. Martha's Vineyard is an island 20 miles long and about 10 miles wide situated five miles south of the southwest tip of Cape Cod. The major fishing ports in the area are located in the towns of Oak Bluffs, Vineyard Haven and, to a lesser extent, Edgartown. Both Oak Bluffs and Edgartown are classified as "Resort Retirement Artistic Communities" according to the Commonwealth of Massachusetts Department of Revenue - Division of Local Services -

(*http://www.state.ma.us/scripts/dls/databank/indivl.cgi?report3*).

Oak Bluffs

The town of Oak Bluffs is located on the northern shore of Martha's Vineyard, an island 20 miles long and 10 miles wide situated five miles south of the southwest tip of Cape Cod. Oak Bluffs is bordered by Nantucket Sound on the north and east, Edgartown on the south, and Tisbury on the west and northwest (Massachusetts Department of Housing and Community Development - *http:// www.state.ma.us/dhcd/iprofile/221.htm*).

In 1990, Oak Bluffs (County Subdivision) had 2,805 residents allocated among 718 families and 1,265 households. According to 1990 Census data in Oak Bluffs, there were 44 persons employed in occupations of agricultural services, forestry and fishing (3% of all employed persons 16 or over) and 67 employed in agriculture, forestry and fisheries industries.

In 1990, 61% of the 3,171 housing units in the area were empty while 23% of the occupied units were rental units.

In 1990, 59% of all residents had been born in the state of Massachusetts and the next largest group (24%) were born in the Northeast United States. In the classification of persons age 5 and over, 46% were living in the same house in 1990 that they had occupied in 1985. An additional 31% were living in a different house in 1985 but still within Dukes County and 9% were living in a different house but still in Massachusetts. In addition, 95% of all workers 16 and over worked in their county of residence.

The racial composition of Oak Bluffs in 1990 was 90% white, 7% black, 3% American Indian, and less than 1% of any other group. Furthermore, 1% of all persons were of Hispanic origin. When reporting first ancestry, English was the largest group (20%) followed by Portuguese (15%), then Irish (11%). The majority of persons age 5 years and over speak only English (93%) and only 2% of households are classified as linguistically isolated.

In 1990, 33% of residents age 25 and over were high school graduates and 18% held a bachelor's degree. In 1989, the median *household* income was $31,117 (97% of the Dukes County average) with the median family income of $38,462 (93% of the county average) and the median non-family *household* income of

$21,625 (3% above the county average). The *per capita* income in 1989 was $16,695 (91% of the county average). Approximately 7% of persons for whom poverty status was determined (98% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by construction and health services.

The town of Oak Bluffs is a resort town on the northeast shore of Martha's Vineyard. There was a large pre-Colonial Indian population that took advantage of the fishing and shellfishing in Oak Bluffs. The explorer Gosnold was among the first European adventurers. Beginning as early as 1602, fishermen and traders set up temporary or seasonal camps on Cuttyhunk. The first grant of 500 acres of land made to a European was in 1642 to John Dagget. It wasn't until 1667 that the first permanent European settlement took place. Subsistence farming, fishing and shellfishing supported these early settlers.

In 1835, Jeremiah Pease chose an oak grove on the edge of Squash Meadow for a camp meeting of island Methodists. The summer meeting became popular and attendance grew like wildfire. Groups of church members first came to stay in tents for two or three days, then families started bringing their own tents to the weekend retreats. In 1835, nine tents were sufficient to shelter the attendees. In 1858, over 12,000 people attended the Sunday Services. The camp meetings were ecumenical in spirit and attracted members of most Protestant sects as well as Roman Catholics. By the late 1850's, annual visitors were replacing tents with elaborately decorated carpenter Gothic cottages and the first major hotel in Oak Bluffs opened in the 1860's. The expanding number of permanent residents, including a significant immigrant population of Portuguese, continued a substantial fishing industry, built cottages and serviced summer visitors in the thriving tourist business. Through the 19th century, Oak Bluffs saw the side-by-side development of a secular seaside resort featuring a trotting track, roller rink and dance hall, and the continuation of a religious summer revival.

In modern times, Oak Bluffs has come to terms with all of the strands in its past and among the most sought after houses are the small, colorful carpenter Gothic cottages built by revivalists. (Massachusetts Department of Housing and

Community Development - *http://www.state.ma.us/ dhcd/iprofile/221.htm*).

Port of Vineyard Haven

In 1990, Vineyard Haven had 1,778 residents allocated among 472 families and 804 households. According to 1990 Census data in Vineyard Haven, there were 43 persons employed in occupations of agricultural services, forestry and fishing (5% of all employed persons 16 or over) and 36 employed in agriculture, forestry and fisheries industries.

In 1990, 36% of the 1,338 housing units in the area were empty while 36% of the occupied units were rental units.

In 1990, 58% of all residents had been born in the state of Massachusetts and the next largest group (23%) were born in the Northeast United States. In the classification of persons age 5 and over, 52% were living in the same house in 1990 that they had occupied in 1985. An additional 23% were living in a different house in 1985 but still within Dukes County and 15% were living in a different house but still in Massachusetts. In addition, 100% of all workers 16 and over worked in their county of residence.

In 1990, the racial composition of Vineyard Haven was 89% white, 4% black, 3% American Indian, and 4% of any other group. Furthermore, less than 1% of all persons were of Hispanic origin. When reporting first ancestry, English was the largest group (22%) followed by Irish (13%), then Portuguese (11%). The majority of persons age 5 years and over speak only English (96%) and none of the households are classified as linguistically isolated.

In 1990, 29% of residents age 25 and over were high school graduates and 17% held a bachelor's degree. In 1989, the median *household* income was $25,965 (81% of the Dukes County average) with the median family income of $35,887 (87% of the county average) and the median non-family *household* income of $16,100 (77% of the county average). The *per capita* income in 1989 was $16,769 (92% of the county average). Approximately 10% of persons for whom poverty status was determined (100% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by health services and construction.

Port of Edgartown

In 1990, Edgartown (County Subdivision) had 3,062 residents allocated among 710 families and 1,376 households. According to 1990 Census data in Edgartown, there were 49 persons employed in occupations of agricultural services, forestry and fishing (3% of all employed persons 16 or over) and though there were 72 employed in agriculture, forestry and fisheries industries.

In 1990, 57% of the 3,041 housing units in the area were empty while 28% of the occupied units were rental units.

In 1990, 66% of all residents had been born in the state of Massachusetts and the next largest group (22%) were born in the Northeast United States. In the classification of persons age 5 and over, 50% were living in the same house in 1990 that they had occupied in 1985. An additional 26% were living in a different house in 1985 but still within Dukes County and 10% were living in a different house but still in Massachusetts. In addition, 98% of all workers 16 and over worked in their county of residence.

In 1990, the racial composition of Edgartown was 93% white and 7% black. When reporting first ancestry, English was the largest group (18%) followed by Irish (11%), then Portuguese (9%). The majority of persons age 5 years and over speak only English (98%) and none of the households are classified as linguistically isolated.

In 1990, 31% of residents age 25 and over were high school graduates and 23% held a bachelor's degree. In 1989, the median *household* income was $36,285 (13% above the Dukes County average) with the median family income of $43,803 (6% above the county average) and the median non-family *household* income of $25,076 (19% above the county average). The *per capita* income in 1989 was $22,242 (22% above the county average). Approximately 5% of persons for whom poverty status was determined (96% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by other professional and related services, finance, insurance and real estate, and construction.

The community of Edgartown is bordered by Oak Bluffs and

Nantucket Sound on the north, Katama Bay on the East, the Atlantic Ocean on the south, and West Tisbury on the west. Edgartown is separated from Chappaquiddick Island by Katama Bay (Massachusetts Department of Housing and Community Development - *http://www.state.ma.us/dhcd/iprofile/089.htm*).

Edgartown is classified as a "Resort Retirement Artistic Community" according to the Commonwealth of Massachusetts Department of Revenue, Division of Local Services (*http://www.state.ma.us/scripts/dls/databank/indivi1.cgi?report3*). Edgartown is seen by some to be one of New England's most elegant communities. Edgartown was Martha's Vineyard's first colonial settlement and has been the county seat since 1642. The stately Greek Revival Houses built by the whaling captains have been carefully maintained and make the town a seaport village preserved from the early 19th century.

The view from Main Street include the harbor and waterfront. Although the tall square-riggers that sailed the world's oceans have passed from the scene, the heritage of these vessels and their captains remains. For the past hundred years, Edgartown has been one of the world's greatest yachting centers. The town is also known for its architecture with many buildings that pre-date the whaling era and still serve as family homes. Among the oldest buildings are the Vincent House, built in 1672, the Thomas Cooke House which is now a museum, and the offices of the Vineyard Gazette. The venerable Old Whaling Church is now a performing arts center.

Public beaches offer surfing, swimming, bathing, and bluefish and bass fishing. On Felix Neck, about three miles outside the center of town, 200 acres which is owned by the Massachusetts Audubon Society provide marked trails and a program of wildlife management and conservation education. Special activities for all age groups are offered throughout the year (Massachusetts Department of Housing and Community Development - *http://www.state.ma.us/dhcd/iprofile/089.htm*).

Nantucket County, Massachusetts

Nantucket is one of the 14 counties in Massachusetts and is not part of a Metropolitan Area. In 1997, the total population for the county of 7,489 individuals ranked 14th in the state.

PER CAPITA PERSONAL INCOME

In 1997, Nantucket had a PCPI of $41,240. This PCPI ranked first in the state and was 132% of the state average ($31,239), and 163% of the national average ($25,288). The 1997 PCPI reflected an increase of 5.5% from 1996. The 1996-97 state change was 5.6% and the national change was 4.7%.

TOTAL PERSONAL INCOME

In 1997, Nantucket had a TPI of $308,843* (*all income estimates with the exception of PCPI are in thousands of dollars). This TPI ranked 14th in the state and accounted for 0.2% of the state total. The 1997 TPI reflected an increase of 8.2% from 1996. The 1996-97 state change was 6.1% and the national change was 5.7%.

COMPONENTS OF TOTAL PERSONAL INCOME

The TPI includes the earnings (wages, salaries, other labor income, and proprietors' income); dividends, interest, and rent; and transfer payments received by the residents of Nantucket. In 1997, earnings were 63.6% of TPI; dividends, interest, and rent were 26.9%; and transfer payments were 9.6%. From 1996 to 1997, earnings increased 10.4%; dividends, interest, and rent increased 4.3%; and transfer payments increased 5.9%.

EARNINGS BY INDUSTRY

Earnings by persons employed in Nantucket increased from $194,741* in 1996 to $215,079* in 1997, an increase of 10.4%. The largest industries in 1997 were services (25.7% of earnings); retail trade (24.8%); and construction (15.5%). Of the industries that accounted for at least 5 percent of earnings in 1997, the slowest growing from 1996 to 1997 was construction, which increased 5.4 %; the fastest growing was transportation and public utilities (5.6 % of earnings in 1997), which increased 16.2 % (Regional Economic Information Systems, Bureau of Economic Analysis, Bearfacts - *http://www.bea.doc.gov/bea/regional/bearfacts/bf9697/25/25019.htm*).

In 1990, Nantucket County had 6,012 residents allocated among 1,453 families and 2,631 households. By 1997, the population was estimated to be 7,508 and by 2000 to be 9,250. According to 1990 Census data in Nantucket County, there were 11 fishermen (all male non-Hispanic white).

In 1990, 63% of the 7,021 housing units in the county were empty while 37% of the occupied units were rental units and 81% of the vacant units were for seasonal, recreational or occasional use.

In 1990, 51% of all residents had been born in the state of Massachusetts and an additional 29% were born in the Northeast United States. Furthermore, 45% of persons age 5 and over were living in the same house in 1990 that they had occupied in 1985. An additional 31% were living in a different house in 1985 but still within Nantucket County and 7% were living in a different house but still in Massachusetts.

In 1990, the racial composition of Nantucket County was 97% white, 2% black, and 1% other groups (the largest numbers were American Indian and Japanese). Furthermore, 1% of all persons were of Hispanic origin. When reporting first ancestry, English was the largest group (29%) followed by Irish (15%), then German (7%). The vast majority of persons age 5 years and over speak only English (91%) and only 1% of households are classified as linguistically isolated.

In 1990, 27% of county residents age 25 and over were high school graduates and 24% held a bachelor's degree. According to the Bureau of Labor Statistics, the civilian labor force in 1996 was 5,863 with a 2.2% unemployment rate. According to the 1999 CBP there were 746 establishments employing 4,017 individuals with an annual payroll of $141 million. When fishing dependent industries are included, the level of dependence increases; however, it is difficult to calculate due to the data reporting restrictions in the County Business Pattern data. Overall, 94% of the establishments in Nantucket County employ 1-19 employees.

In 1989, the median *household* income was $40,331 with median family income of $49,209 and the median non-family *household* income of $26,059. The *per capita* income in 1989 was $20,591. In 1997, the median *household* income was estimated to be $48,151 while 4.2% of the county's population was estimated to be living in poverty.

Ports of "Other Nantucket"

The ports of "Other Nantucket" refer to the ports of Nantucket and Madaket. However, the bulk of commercial landings is landed in Nantucket. In 1998, 47,000 pounds valued at $136,000 were landed in the ports of "Other

Nantucket." Four species (lobster, summer flounder, knobbed whelk, and cod) accounted for over 86% of the total value landed in these ports. In the past few years, between 12 and 16 vessels have landed in the ports of "Other Nantucket." In 1998, less than 3 vessels landed in these ports. The contribution of scup was low to the total exvessel value and pounds of all landings for all species was low.

Nantucket is the largest island in the group that forms the county and runs about 15 miles from east to west and 10 miles from north to south. (Massachusetts Department of Housing and Community Development - *http://www.state.ma.us/dhcd/iprofile/201.htm*). The 50 square mile island situated 30 miles out to sea south of Cape Cod, has incredible natural beauty and unspoiled charm. The charm of Nantucket is embodied in its well-preserved architecture and its protected moors, plains and beaches. For more than 150 years Nantucket served as the center of the world's whaling industry. In recognition of this heritage, the U.S. Department of the Interior designated the town a National Historic Landmark in 1966.

The Nantucket economy is based on tourism and second-home development. The island, connected to Hyannis by two ferry services and several airlines, has a summer population that peaks at approximately 40,000 in August. Residents and visitors alike enjoy Nantucket's many bike paths and beaches, as well as seasonal events including Daffodil Weekend, Harborfest, and the Cranberry Festival.

Nantucket's special environment is well-cared for by the efforts of several environmental and planning organizations, including the Nantucket Planning and Economic Development Commission, Nantucket Conservation Foundation (owner of 8200 acres of island open space) and the Nantucket Land Council. The Nantucket Land Bank, founded in 1984 as the nation's first local land trust, utilizes funding from a local real estate transaction fee. The Land Bank has purchased over 1,000 acres of open space to date (Massachusetts Department of Housing and Community Development - *http://www.state.ma.us/iprofile/201.htm*).

Not-Specified County, Massachusetts

Port of "Other Massachusetts"

The National Marine Fisheries Service (NMFS) port/county

denomination corresponds or refers to landings occurring in any port throughout the state but not assigned to a specific port. This may include landings made in ports were marine and estuarine fishes are landed. As such, individual characterization by port/county is difficult. NMFS weighout data shows that 26 different species valued at $2.58 million were landed under this port category in 1999. Five species accounted for over 98% of the total exvessel value of all species landed under this port category. These species were striped bass (46.42%), unknown crab (25.57%), cod (11.13%), scup (7.60%), and black sea bass (7.37%).

Newport County, Rhode Island

Newport is one of the5counties in Rhode Island and is not part of a Metropolitan Area. In 1997, the total population for the county of 82,962 individuals ranked 4th in the state.

PER CAPITA PERSONAL INCOME

In 1997, Newport had a PCPI of $27,558. This PCPI ranked 2nd in the state, and was 107% of the state average ($25,667) and 109% of the national average ($25,288). The 1997 PCPI reflected an increase of 6.0% from 1996. The 1996-97 state change was 5.4% while the national change was 4.7%.

TOTAL PERSONAL INCOME

In 1997, Newport had a TPI of $2,286,246* (* all income estimates with the exception of PCPI are in thousands of dollars). This TPI ranked 4th in the state and accounted for 9% of the state total. The 1997 TPI reflected an increase of 6.2% from 1996. The 1996-97 state change was 5.3% and the national change was 5.7%.

COMPONENTS OF TOTAL PERSONAL INCOME

The TPI includes the earnings (wages, salaries, other labor income, and proprietors' income); dividends, interest, and rent; and transfer payments received by the residents of Newport. In 1997, earnings were 60.8% of TPI; dividends, interest, and rent were 20.9 %; and transfer payments were 18.2 %. From 1996 to 1997, earnings increased 7.3 %; dividends, interest, and rent increased 2.8 %; and transfer payments increased 6.6 %.

EARNINGS BY INDUSTRY

Earnings by persons employed in Newport increased from $1,343,651* in 1996 to $1,445,178* in 1997, an increase of 7.6 %. The largest industries in 1997 were services (32.4 % of earnings), federal civilian government (17.0 %), and military (11.6 %). The industries that accounted for at least 5 % of earnings in 1997, the slowest growing from 1996 to 1997, was state and local government (8.2 % of earnings in 1997 which increased 0.8 %) while the fastest growing was services (which increased 13.1 %). (Regional Economic Information System, Bureau of Economic Analysis - *http://www.bea.doc.gov/bea/regional/bearfacts/bf9697/44/44005.htm*).

In 1990, Newport County had 87,194 residents allocated among 22,684 families (average size 3.07) and 32,731 households. By 1997, the population was estimated to be 82,598 and by 2000 to be 85,433. According to 1990 Census data in Newport County, there were 27 captains or other officers of fishing vessels (19 white non-Hispanic males and 8 American Indian or Alaskan native male) and 333 fishermen (all male, 302 non-Hispanic white, 5 Hispanic white, 8 non-Hispanic black and 18 “other races”).

In 1990, 13% of the 37,475 housing units in the county were empty while 41% of the occupied units were rental units and 46% of the vacant units were for seasonal, recreational or occasional use.

In 1990, 38% of all residents had been born in the state of Rhode Island while another 38% were born in the Northeast United States. Furthermore 51% of persons age 5 and over were living in the same house in 1990 that they had occupied in 1985. An additional 21% were living in a different house in 1985 but still within Newport County and 3% were living in a different house but still in Rhode Island.

In 1990, the racial composition of Newport County was 94% white, 4% black, and 2% other groups (largest number were Filipino and then American Indian). Furthermore, 2% of all persons were of Hispanic origin. When reporting first ancestry, Irish was the largest group (19%) followed by English (14%), then Portuguese (13%). The vast majority of persons age 5 years and over speak only English (92%) and only 1% of households are classified as linguistically isolated.

In 1990, 18% of county residents age 25 and over were high school graduates and 19% were college graduates. According to

the Bureau of Labor Statistics, the civilian labor force in 1996 was 39,286 with a 5.0% unemployment rate. According to the 1999 CBP, there were 2,706 establishments employing 28,076 individuals with an annual payroll of $745 million. When fishing dependent industries are included, the level of dependence increases; however, it is difficult to calculate due to data reporting restrictions in the County Business Pattern data. Overall, 89% of the establishments in Barnstable County employ 1-19 employees.

In 1989, the median *household* income was $35,829 with the median family income of $41,424 and the median non-family income of $20,929. The *per capita* income in 1989 was $16,819. In 1997, the median *household* income was estimated to be $43,684 while 7.9% of the county's population was estimated to be living in poverty. The above information was taken from MAFMC (2000).

Port of Little Compton

In 1990, Little Compton (county subdivision) had 3,339 residents allocated among 1,013 families and 1,310 households. According to 1990 Census data in Little Compton, there were 155 persons employed in occupations of agricultural services, forestry and fishing (9% of all employed persons 16 or over) though there were 149 employed in agriculture, forestry and fisheries industries.

In 1990, 30% of the 1,850 housing units in Little Compton were empty while 20% of the occupied units were rental units.

In 1990, 58% of all residents had been born in the Northeast United States and the next largest group was born in the state of Rhode Island (31%) followed by those born in a foreign country (3%). In the classification of persons age 5 and over, 64% were living in the same house in 1990 that they had occupied in 1985. An additional 17% were living in a different house in 1985 but still within Newport County and 4% were living in a different house but still in Rhode Island. In addition, 51% of all workers 16 and over worked in their county of residence.

The racial composition of Little Compton in 1990 was over 99% white and less than 1% was Japanese. Furthermore, less than 1% of all persons were of Hispanic origin. When reporting first ancestry, English was the largest group (31%) followed by Portuguese (17%), then Irish (12%). The majority of

persons age 5 years and over speak only English (90%) and 1% of households are classified as linguistically isolated.

In 1990, 27% of the residents of Little Compton age 25 and over were high school graduates and 24% held a bachelor's degree. In 1989, the median *household* income was $41,187 (15% above the Newport County average) with the median family income of $44,292 (7% above the county average) and the median non-family *household* income of $22,257 (6% above the county average). The *per capita* income in 1989 was $20,273 (21% above the county average). Approximately 4% of persons for whom poverty status was determined (100% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by durable goods manufacturing and construction.

Little Compton was incorporated as a part of Plymouth Colony in 1682 after having been settled by Captain Benjamin Church, the noted Indian fighter, and others seven years previously. In 1746 under Royal Decree, Little Compton was transferred to Rhode Island together with the towns of Cumberland, Barrington, Bristol and Tiverton.

The town was originally the home of the "Sagonate" or "Sakonnet" Indians, a particularly independent group of native Americans that fought with the settlers against the notorious King Philip, Sachem of the Wampanoags. King Philip waged a bloody war against the white settlers and tried to induce other neighboring tribes to join his crusade.

The southern end of the town bordering the Atlantic is still known as "Sakonnet". This was the area that Captain Church cleared for settlement.

After the Indian hostilities ceased, the small settlement of Little Compton enjoyed comparative peace and prosperity until the threat of the British occupation of Newport arose during the Revolution. Parties from the British garrison invaded Little Compton several times and were met with stiff resistance from the settlers.

Today, the port of Little Compton is a rural-farming community. Fishing is still a major industry in the town as one can observe with the daily departure of the fishing fleet from the Sakonnet Wharf. The town has also developed into an ideal vacation spot with the traditional atmosphere of

colonial New England. (Rhode Island Economic Development Corporation - *http://www.riedc.com/mcds/Little%20Compton.html).*

Port of Newport

In 1990, Newport city had 28,227 residents allocated among 6,422 families and 2,692 households. According to 1990 Census data in Newport, there were 316 persons employed in occupations of agricultural services, forestry and fishing (2% of all employed persons 16 or over) and 291 employed in agriculture, forestry, and fishing industries.

In 1990, 15% of the 13,094 housing units in the town were empty while 58% of the occupied units were rental units and 34% of the vacant units were for seasonal, recreational or occasional use only (13% were **?**usual home elsewhere").

In 1990, 44% of all residents had been born in the state of Rhode Island and 28% were born in the Northeast United States. In the classification of persons age 5 and over, 42% were living in the same house in 1990 that they had occupied in 1985. An additional 24% were living in a different house in 1985 but still within Newport County and less than 1% were living in a different house but still in Rhode Island. In addition, 88% of all workers 16 and over worked in their county of residence and 67% worked in their town of residence.

In 1990, the racial composition of Newport was 89% white, 8% black, and 3% other groups (American Indian and Filipino). Only 3% of all persons were of Hispanic origin. When reporting first ancestry, Irish was the largest group (25%) followed by English (12%) and German (9%). The majority of persons age 5 years and over speak only English (92%) and less than 3% of households are classified as linguistically isolated.

In 1990, 28% of the town's residents age 25 and over were only high school graduates and 20% held a only bachelor's degree while an additional 18% had some college. In 1989, the median *household* income was $30,534 (85% of the Newport County average) with a median family income of $37,427 (90% of the county average) and a median non-family income of $20,629 (99% of the county average). The *per capita* income in 1989 was $16,358 (97% of the county average). Approximately 11% of persons for whom poverty status was determined (90% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by other professional and related services, and educational services.

The town of Newport was settled in 1639 and was incorporated as a city in 1784. Rhode Island was founded on the basis of complete religious and political freedom. In Newport, Quakers and Jews found a comfortable haven shortly after it was founded. By the early 1700's, commerce, combined with a successful farming and fishing industry, brought great wealth to the community. Newport ships

developed what became the first resort in British North America during the 1720's when sea captains brought passengers from the Carolinas and Caribbean who wished to get away from the heat, fever, and humidity of their plantations.

Newport was one of the five most important settlements in the 13 colonies sharing that distinction with Boston, New York, Philadelphia and Charlestown. Newport was the "Birthplace of the Navy" combining both private and naval shipping which added to the cosmopolitan atmosphere of the community. The finest furniture and silver craftsmen worked here before the Revolution. Summer visitors enjoyed an advanced cultural society that has continued to this day.

Newport combines three communities in one; the “settled community”, the “Navy” (which bases its Naval Education and Training Center here), and the "summer colony." The communities all work in harmony to produce and sponsor events of international importance such as opera and music festivals; the opening of the opulent Vanderbilt, Astor, and Belmont mansions to visitors; and outstanding exhibits and performances of the visual and performing arts.

The city claims more standing buildings built before 1830 than any American community. Most of these buildings are open to visitors, such as the Old Colony House (the nation's second oldest capitol building); the Redwood Library (the oldest library building in continuous use); the Touro Synagogue (America's oldest Jewish house of worship); the armory of the Artillery Company of Newport (the oldest, active military organization in the country); and several examples of Colonial residential architecture such as the Hunter House, which experts agree rates with the nation's top ten.

Contemporary Newport has a variety of museum attractions, including the International Tennis Hall of Fame, the Newport Auto Museum, and replicas of two ships recalling the port's part in the Revolutionary War. There are windjammer cruises out of the port, excursion boats, harbor and city bus tours, a New York style disco, scuba diving, surfing, spearfishing, summer theater, golf, pari-mutual jai alai, tennis and fishing along with numerous yacht races for international, national, regional, or Olympic championships. Its numerous restaurants serve up the best in Rhode Island seafood, and several are known for their continental cuisine (*http://www.riedc.com/mcds/Newport.html#introduction*).

Newport is an historical port dedicated to tourism and recreational boating but with a long and persistent commercial fishing presence. Before the development of the docking facilities at Point Judith, Newport was the center for fishing and shipping in the state. In 1971, 57 % of all Rhode Island commercial fisheries landings were in Newport, but Point Judith surpassed Newport in importance by 1973 and now is the dominant commercial port in the state.

Tourism in Newport started as far back as the 1700's. Visitors included southern plantation owners who stayed in Newport to escape the heat of the summer. By the 1830's, tourist hotels began to dominate the shore side landscape. The famous "cottages" of Newport where built by industrialists seeking to top each other in displays of ostentatiousness. The present tourist economy is centered on

year round activities with the highlights being summer and sailing events. The Americas Cup races are regularly held in the area, attesting to the importance of the pleasure boating industry.

Besides tourism, the East Bay Navy base has a major economic impact in the area. The base employees thousands of local civilians in service roles. The service industry also caters to a large retirement community. Many naval personnel who are familiar with the area from periods at the local War College or at the command schools choose to retire in Newport. They bring money into the community as retirement pensions and contribute to the support of many service-oriented businesses.

Fishing has always been an integral part of the local economy, although not of the stature of tourism and other components. There is little community "dependency" on fishing in Newport, for the existing 'community' could do quite well if commercial fishing disappeared altogether. The fishing "community" is rather a regional contributor to the commerce of the groundfish fishery. It provides support to approximately 200 families with a sustainable livelihood while they contribute a high-quality food product to the commerce of the region and nation.

During the 1700's to early 1800's, fishing was an important part of the local economy. Historical records mention fish drying stations and fisheries. Fisheries began to declined by the 1700's with the rapid development of Newport as a slave trading and shipping center.

Whaling was practiced for several decades in the 1770's but was never as important as it was in ports such as New Bedford and Nantucket. By 1785, the whaling fleet consisted of 50 vessels. By the late 1850's, however, most of the craft had either moved to New Bedford or entered other pursuits (Field 1902).

The period from 1800 to 1930 saw the development of the indigenous (bay and inshore) fleet. Fishing effort was concentrated on groundfish stocks that could be reached in a day, fished, and then landed on the dock. Most fish, with the exception of menhaden, were taken in staked and floating fish traps and weirs. This was also the period when industrial fishing was a major component of the economy. For example, in 1889 in Newport and other Rhode Island ports, fish reduction plants for menhaden and fish drying operations for cod and other groundfish processed 127 million pounds of fish (89 % of which were menhaden) (Olsen and Stevenson 1975). This fishery collapsed in the 1930s, and the fishery transitioned towards groundfish trawling. During the 1920s, marine diesel engines effectively extended the range and fishing time of commercial groundfishing vessels using otter trawls.

Newport has one of the best natural harbors on the northeast. It provides excellent protection from rough weather and is deep enough to provide berthing for U.S. naval vessels. Fishermen only use one wharf in the area. It is leased by the state to the Newport Shipyard Company. In 1981, major fish buyers included Anthony's Seafood, Aquidnick Lobster Company, and Parascandolo and Sons. Anthony's is no longer in business, and Parascandolo markets all groundfish landings that come into Newport. Fish are not sold or processed locally.

Newport's fishing fleet has dramatically declined over the last twenty years. The decline has been spurred by increasing property values restricting fishing industry infrastructure and competition with recreational vessels constricting wharf space. No new boats or new shore side fishing businesses have come into the fishery in the last twenty years. The local waters of Narragansett Bay are overfished, and nearshore grounds off the coast and nearby Block Island have experienced significant declines in groundfish. Factors forcing a decline in groundfishing are not recent, but has been ongoing for some time. Bort (1981) wrote: "The general direction of the community's development does not bode well for the future of fishing. Neither tourists nor pleasure boaters are typically enthusiastic about sharing a harbor with commercial fishermen. The stereotypic grizzled old man handlining from a dory is romanticized. The modern steel trawler is viewed as a source of odor and noise and as competition for space. The fishing industry is far down on the list of economic inputs to Newport, and probably also on the community's list of priorities".

Bort (1981) was correct in this prediction. There is still a degree of prejudice by the Newport community against commercial fishermen (key respondent, Office of the Harbor Master) and the fleet has declined dramatically. In 1977, 164 boats made landings in Newport. While 49 were from Newport, 45 from New Bedford, and the remainder from as far north as Gloucester and as far south as Virginia (Murphy pers. comm.). In 1978, only 91 of these vessels had returned to Newport.

The greatest decline has been in the indigenous, or bay and inshore fleet. After WWII, the indigenous Newport fleet consisted of 20 vessels. In 1981, this number was down to only eight, and in 1996, only four. Declines in nearshore stocks, pollution impacts, competition with stationary gear, and area closures have made inshore groundfishing more difficult. Overall, the Newport fleet is more dependent proportionately on groundfish than the more diversified fleet fishing out of Point Judith. All of the vessels are essentially groundfish fishing, with some having the capacity and permits to fish squid (*Loligo*) as needed in order to maximize the benefit of days at sea limits. Despite these difficulties, local fishermen and fish marketers feel that the remaining fleet represents a stabilized situation.

It does not appear that the social, economic, and cultural capital which comprise the fishery are being reproduced. Multispecies Groundfish permit holders in Newport will eventually have to make the decision to retire their permits or pass them on to others as vessels age and new recruits do not take up the occupation (a decline in the social yield). The questions that remain for Newport are: (1) will the community support the presence of a new generation of fishermen; (2) will a support infrastructure survive to allow them to fish; and (3) will anyone be interested in joining a profession that is both dangerous and increasingly economically risky? (Dyer and Griffiths, 1996). The above information was taken from. The above information was taken from MAFMC (2000).

Port of Tiverton

Tiverton is a quiet waterfront community situated on the easterly side of the Sakonnet River just minutes away from the cities of Portsmouth, Newport, Providence, Fall River, and New Bedford. (*http://members.home.net/tiverton3/main.html*).

In 1990, Tiverton (County Subdivision) had 14,312 residents allocated among 4,181 families and 5,308 households. According to 1990 Census data in Tiverton, there were 221 persons employed in occupations of agricultural services, forestry and fishing (3% of all employed persons 16 or over) and 209 employed in agriculture, forestry and fisheries industries.

In 1990, 6% of the5,675 housing units in the area were empty while 18% of the occupied units were rental units.

In 1990, 71% of all residents had been born in the Northeast United States and the next largest group (18%) were born in the state of Rhode Island. In the classification of persons age 5 and over, 70% were living in the same house in 1990 that they had occupied in 1985. An additional 13% were living in a different house in 1985 but still within Newport County, and 2% were living in a different house but still in Rhode Island. In addition, 43% of all workers 16 and over worked in their county of residence.

The racial composition of Tiverton in 1990 was over 99% white with less than 1% Filipino and American Indian. Furthermore, 2% of all persons were of Hispanic origin. When reporting first ancestry, Portuguese was the largest group (30%) followed by English (14%), then Irish (11%). The majority of persons age 5 years and over speak only English (88%) and less than 2% of households are classified as linguistically isolated.

In 1990, 31% of residents age 25 and over were high school graduates and 13% held a bachelor's degree. In 1989, the median *household* income was $36,170 (1% above the Newport County average) with the median family income of $41,127 (1% below the county average) and the median non-family *household* income of $13,271 (3% above the county average). The *per capita* income in 1989 was $16,023 (1% below the county average). Approximately 6% of persons for whom poverty status was determined (99% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by manufacturing of durable goods, health services, and construction.

Tiverton was originally incorporated in 1694 as part of the Massachusetts Bay Colony. A long boundary dispute between Rhode Island and Massachusetts was settled in 1746. Tiverton, by Royal Decree, together with the towns of Cumberland, Barrington, Bristol and Little Compton was annexed to Rhode Island. The town was incorporated in 1747.

During the Revolution when the British held Aquidneck Island, Tiverton was an asylum for Americans fleeing from British occupation. The town became a mustering point for Colonial forces who gathered together to drive the British off the island.

In its early day, Tiverton was chiefly a farming community with some fishing and boat construction. Until 1900, the manufacture of menhaden oil, a fish derivative, was one of the primary industrial pursuits. Cotton and woolen mills were established as early as 1827. Today, trade establishments are the major employers in the town. In recent years, Tiverton has grown as a summer resort and

residential area. Development has been concentrated in the area known as North Tiverton (Rhode Island Economic Development Corporation - *http://www.riedc.com/mcds/Tiverton.html*).

Washington County, Rhode Island

Washington is one of the 5 counties in Rhode Island and is part of the Providence-Warwick-Pawtucket Metropolitan Area. In 1997, the total population for the county of 119,243 individuals ranked 3rd in the state.

PER CAPITA PERSONAL INCOME

In 1997, Washington had a PCPI of $27,198. This PCPI ranked 3rd in the state, and was 106 % of the state average ($25,667) and 108 % of the national average ($25,288). The 1997 PCPI reflected a 5.7 % increase from 1996. The 1996-97 state change was 5.4 % and the national change was 4.7 %.

TOTAL PERSONAL INCOME

In 1997, Washington had a TPI of $3,243,118* (* all income estimates with the exception of PCPI are in thousands of dollars). This TPI ranked 3rd in the state and accounted for 12.8 % of the state total. The 1997 TPI reflected a 6.9 % increase from 1996. The 1996-97 state change was 5.3 % and the national change was 5.7 %.

COMPONENTS OF TOTAL PERSONAL INCOME

The TPI includes the earnings (wages, salaries, other labor income, and proprietors' income); dividends, interest, and rent; and transfer payments received by the residents of Washington. In 1997, earnings were 66.6 % of TPI; dividends, interest, and rent were 18.2 %; and transfer payments were 15.2 %. From 1996 to 1997, earnings increased 8.1 %; dividends, interest, and rent increased 2.8 %; and transfer payments increased 7.1 %.

EARNINGS BY INDUSTRY

Earnings by persons employed in Washington increased from $1,369,415* in 1996 to $1,439,275* in 1997, an increase of 5.1 %. The largest industries in 1997 were services (25.1 % of earnings), state and local government (19.6 %); and retail trade (12.6 %). In 1997, industries that accounted for at least 5 % of earnings showed the slowest growing from 1996 to 1997 was state and local government (increased 0.4 %) while the fastest growing was nondurable goods manufacturing (8.2 % of earnings in 1997 which increased 9.0 %). (Regional Economic Information System, Bureau of Economic Analysis - *http://www.bea.doc.gov/bea/regional/bearfacts/bf9697/44/44009.htm*).

In 1990, Washington County had 110,006 residents allocated among 28,309 families and 39,272 households. For 1997, the population was estimated to be 119,690 and for 2000 to be 123,546.

According to 1990 Census data in Washington County, there were 131 captains or other officers of fishing vessels (122 white non-Hispanic males and 9 males of "other races") and 612 fishermen (559 non-Hispanic white male, 7 male of "other races", and 46 white non-Hispanic female).

In 1990, 21% of the 49,856 housing units in the county were empty while 31% of the occupied units were rental units and 65% of the vacant units were for seasonal, recreational, or occasional use and 6% were "usual home elsewhere."

In 1990, 61% of all residents had been born in the state of Rhode Island while 25% were born in the Northeast United States. Furthermore, 50% of persons age 5 and over were living in the same house in 1990 that they had occupied in 1985. An additional 18% were living in a different house in 1985 but still within Washington County and 10% were living in a different house but still in Rhode Island. In addition, 56% of all workers age 16 and over work in their county of residence.

In 1990, the racial composition of Washington County was 97% white, 1% black, and 1% American Indian, Eskimo, or Aleut. Furthermore, under 1% of all persons were of Hispanic origin. When reporting first ancestry, English was the largest group (9%) followed by Irish (8%), then French (5%). The vast majority of persons age 5 years and over speak only English (93%) and only 1% of households are classified as linguistically isolated.

In 1990, 29% of county residents age 25 and over were high school graduates and 17% held a bachelor's degree. According to the Bureau of Labor Statistics, the civilian labor force in 1996 was 59,863 with a 3.8% unemployment rate. According to the 1999 CBP, there were 3,463 establishments employing 34,553 individuals with an annual payroll of $925 million. When fishing dependent industries are included, the level of dependence increase; however, it is difficult to calculate due to data reporting restrictions in the County Business Pattern data. Overall, 91% of the establishments in Washington County employ 1-19 employees.

In 1989, the median *household* income was $36,948 with the median family income of $42,343 and the median non-family income of $20,234. The *per capita* income in 1989 was $16,182. In 1997, the median *household* income was estimated to be $47,467 while 6.5% of the county's population was estimated to be living in poverty. The above information was taken from MAFMC (2000).

Port of New Shoreham

The town of New Shoreham was incorporated in 1672 as the only town on Block Island. New Shoreham is the smallest town in the smallest state in the United States and can only be accessed by boat or plane. Block Island has a single source aquifer (*http://www.ultranet.com/block-island*).

In 1990, New Shoreham (county subdivision) had 821 residents allocated among 209 families and 358 households. According to 1990 Census data in New Shoreham, there were 30 persons employed in

occupations of farming, forestry and fishing (less than 7% of all employed persons 16 or over) and 34 employed in agriculture, forestry and fisheries industries.

In 1990, 71% of the1,276 housing units in New Shoreham were empty while 38% of the occupied units were rental units.

In 1990, 38% of all residents had been born in the state of Rhode Island while 40% had been born in the Northeast United States. In the classification of persons age 5 and over, 45% were living in the same house in 1990 that they had occupied in 1985. An additional 21% were living in a different house in 1985 but still within Washington County, and 8% were living in a different house but still in Rhode Island. In addition, 43% of all workers 16 and over worked in their place of residence while 97% worked in their county of residence.

The racial composition of New Shoreham in 1990 was 97% white, less than 3% black, and less than 1% of any other group. Furthermore, about 1% of all persons were of Hispanic origin. When reporting first ancestry, English was the largest group (21%) followed by Irish (16%), then German (14%). The majority of persons age 5 years and over speak only English (96%) and none of the households are classified as linguistically isolated.

In 1990, 26% of New Shoreham residents age 25 and over were high school graduates and 27% held a bachelor's degree. In 1989, the median *household* income was $31,471 (85% of the Washington County average) with the median family income of $43,068 (2% above the county average) and the median non-family *household* income of $16,875 (83% of the county average). The *per capita* income in 1989 was $20,676 (28% above the county average). Approximately 8% of persons for whom poverty status was determined (over 100% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was construction followed by retail trade and personal services.

Block Island was formed about 12,000 years ago when the glacier from the last Ice Age finally subsided leaving the sandy moraine which now makes up Long Island, Block Island, Martha's Vineyard, and Nantucket. In prehistoric times, a Native Indian tribe called the Manisses lived here as hunters and gathers. Shell heaps and fire pits dating back hundreds of years before the time of Christ have been found here.

The European settlers who arrived in 1661 found a gently rolling forested landscape dotted with hundreds of fresh water ponds. They established a farming and fishing community which slowly grew from a population of 25 to about 1,350 at the time of the American Civil War. It was at this time that island resident Nicholas Ball foresaw that a safe harbor would attract the steamboat traffic which plied Block Island Sound on the busy New York to Providence and New Bedford routes. He convinced the federal government to build a breakwater at "Old Harbor" thus giving the Island its first real harbor.

Within 20 years, a number of large Victorian Hotels were built for the visiting steamship passengers and the island's reputation as a magnificent vacation resort was established.

With the demise of the steamship to the automotive age, so came the decline of Block Island as a Victorian resort community. By the middle of the 20th century, the island had reverted back primarily to farming and fishing. The year-round population fell to below 500 and the magnificent Victorian hotels sat mostly vacant.

In the 1960s, the island began to be rediscovered. Visitors who were enchanted by the unspoiled landscape and beautiful beaches started to buy property and soon their summer cottages began to dot the countryside. One by one, the rustic hotels were restored and the village as it is today began to take form. In the real estate boom of the 1980's, a number of large development projects were proposed. These projects, which were not typical of the cottage style construction found elsewhere on the island, were vigorously opposed by grass roots environmental and conservation groups and by a town government which was unwilling to let Block Island go the way of dozens of other coastal communities which had been ruined by over development.

Today Block Island sits at the crossroads. An island whose appeal, which comes from its unspoiled nature, is now threatened by the very popularity which it attracts. Some feel that the island can be spared the overdevelopment which ravaged many other coastal communities by planning and incorporating growth-pacing mechanisms to protect its unspoiled character. Others who are less far sighted and perhaps more economically motivated disagree (*http://www.ultranet.com/block-island*).

Formed by glaciers 12,000 years ago, Block Island is made up of a diverse array of habitats such as morainal grasslands, beaches, sand dunes, maritime scrubland, salt and brackish ponds, and various freshwater wetland ecosystems. These habitats support a rich diversity of wildlife, including over forty species classified as rare or endangered. As such, Block Island is one of the most ecologically significant areas in the northeast. Thousands of migratory shorebirds, waterfowl, raptors and songbirds also depend on the Island as a critical stopover point on their journey north and south along the Atlantic Flyway.

The dominant vegetation type on the island has been described as maritime scrubland, made up of tall shrubs such as shad, arrowwood and bayberry, and dense understory vegetation. This community is associated with areas that are exposed to offshore winds and salt spray. Most of the fruit-bearing shrubs found in the scrubland provide an important food source for migrating songbirds, and provide excellent nesting cover for the state-wide rare Northern Harrier, or Marsh Hawk. Shrubs also provide habitat for the common Ring Necked Pheasant and American Woodcock. The highest concentrations of endangered species occur in the open grassland habitat, most notably at the Lewis-Dickens Farm in the southwest part of the island. Grassland has been almost continuously maintained since the advent of agriculture on Block Island. Species of note include the regionally rare Grasshopper Sparrow, Upland Sandpiper and the federally endangered American Burying Beetle. The American Burying Beetle is now found only in two places, with Block Island holding the more viable population. The state-endangered

Northern Harrier relies on these grasslands for food.

Block Island beaches are home to many species of plants and animals which are ecologically significant and fragile. Beaches are interesting as ecosystems because they are in a state of constant flux. Some changes act on a scale of days, like waves, tides, and wind. Others, like storms and human use, operate on longer time scales. Plants and animals must be able to survive very dry conditions, flooding, shifting sands, and other varied elements of life in the intertidal zone, the beach, and the dunes. However, these species depend on relatively calm, stable conditions during summer. Fragile plants that are not able to resist trampling by foot or vehicle tend to grow on beaches. These fragile plants are responsible for the stabilization of dunes and root systems hold them in place. Erosion of dunes leads to erosion of the beach and of the island. Due to overuse, most rare species occur on the less heavily used beaches. Both Piping Plovers and Least Terns used to nest on the east beaches on Block Island, but have been extirpated in the last twenty years (*http://www.ultranet.com/block-island*).

Port of Point Judith

While Point Judith is not an incorporated place and as such is not available in the general census files, both Point Judith and nearby Narragansett are included in the county subdivision of South Kingstown. Census data for that entity are therefore included here.

In 1990, South Kingstown had 24,631 residents allocated among 5,243 families and 7,456 households. According to 1990 Census data in South Kingstown, there were 423 persons employed in occupations of agricultural services, forestry and fishing (4% of all employed persons 16 or over), and 448 employed in agriculture, forestry and fishing industries.

In 1990, 24% of the 9,806 housing units in the town were empty while 28% of the occupied units were rental units. Of the vacant units, 84% were classified as for seasonal, recreational or occasional use only and 11% were “usual home elsewhere”.

In 1990, 56% of all residents had been born in the state of Rhode Island and the next largest group (28%) were born in the Northeast United States. In the classification of persons age 5 and over, 46% were living in the same house in 1990 that they had occupied in 1985. An additional 17% were living in a different house in 1985 but still within Washington County, and 13% were living in a different house but still in Rhode Island. In addition, 65% of all workers 16 and over worked in their county of residence.

The racial composition of South Kingstown in 1990 was 93% white, 2% black, and 2% American Indian, Eskimo or Aleut and 3% Asian or Pacific Islander. Furthermore, 1% of all persons were of Hispanic origin. When reporting first ancestry, Irish and English were the largest groups (16% each) followed by Italian (13%). The majority of persons age 5 years and over speak only English (72%), and less than 1% of households are classified as linguistically isolated.

In 1990, 24% of the town's residents age 25 and over were high school graduates and 14% held a bachelor's degree. In 1989, the median *household* income was $36,481 (99% of the Washington County average) with the median family income of $41,895 (99% of the county average) and the median non-family income of $21,523 (6% above the county average). The *per capita* income in 1989 was $14,325 (89% of the county average). Approximately 7% of persons for whom poverty status was determined (78% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by educational services and manufacturing of durable goods.

Commercial fishing in Point Judith is an historically recent activity. The port lacks the complex fishing traditions and infrastructure of the larger ports such as Gloucester and New Bedford. A fleet consisting of offshore and inshore vessels follow a cyclic, shifting pattern of resource use that sets Point Judith apart from the northern New England ports. Point Judith boats are diverse in their annual round and approach to the fisheries as opposed to New Bedford boats which only go after groundfish. Fishermen are employed full-time as they switch fisheries and boats during the year. The port most similar to Point Judith is Chatham, although Chatham has no large offshore vessels in its fleet.

Beginning in the 17th century and through most of the 18th, the region of southern Rhode Island surrounding Point Judith was a farming community. Pictures from the turn of the century show plowed fields and farm settlements where there are now secondary growth forest and housing developments. The textile industry started in 1802, became prominent in the late 19th century, and then collapsed. The 20th century has seen the decline of agriculture and mill manufacturing, and their replacement with the tertiary services sector, including retail trade, health care, education, and tourism. Commercial fishing is a secondary industry that came to prominence in the 1930's. Unlike other primary sector industries such as agriculture which have declined, fishing advanced in importance in the community.

Seining was carried out by 'fishing gangs', characterized by fish houses along the beach with bunks in which they slept until it was time to fish. Gangs were equipped with two boats and a seine, and this fishing practice continued until about 1940. Trap fishing and lobstering were also important early fishing methods in the area.

After WWII, the fishing fleet expanded and a cooperative was formed (The Point Judith Fishermen's Cooperative Association, locally known as "the Coop"). This included most all inshore groundfishermen in the port. As of 1978, Point Judith's landings made up 61 % of Rhode Island's total catch. In 1992, the total value of fish landed in Point Judith was $36.2 million.

With enactment of the 200 mile limit in 1976, fishing strategies began to diversify as lobster, shellfish, and swordfishing became important. These new fisheries did not require the same precision, or knowledge of the grounds as groundfishing. It encouraged a whole new generation of fishermen who worked outside the established cooperation. Many of these newcomers had never fished before, but were making a lot of money. New entrants were also encouraged by inexpensive boat loans made

available through the U.S. Department of Commerce. The expansion of the industry in the late 1970 pressured the cooperation to put a moratorium on memberships. This was extended until 1986-87 when the cooperation increased its processing capacity by moving into a new larger building. Yet during the cooperation moratorium, other companies filled the niche created by the expanding industry, and by the time the cooperation could accommodate the influx, there was little incentive for fishermen to join. The expansion of the cooperation increased operating costs, and along with pressures from local and external (main market) competitors, contributed to its collapse in 1994.

The social cohesiveness of the Point Judith community was based on sharing the common occupation and traditions of the fishing lifestyle. Twenty years ago, there was a different atmosphere to the community. Bait processing and related jobs brought locals with no prior experience into contact with established fishermen to share in the development of the industry. An event that represented this shared lifestyle was the blessing of the fleet. The blessing was marked with food, games, parades, and other festivities. Commercial fishing boats would be cleaned and decorated for the celebration to symbolically demonstrate their central value in the social and economic life pattern of the community (Dyer and Griffith 1996).

Tourism, however, has continued to gain in importance in Point Judith in recent years. A similar process typifies nearby Newport, where fishing has been overshadowed and incrementally reduced by more than a hundred years of touristic development (Bort 1980). For example, with the increasing costs of boat insurance, insurance companies refused to cover anyone hurt during the Blessing of the Fleet celebration. Such insurance blackmail effectively ended the blessing, and the town officials never fought to keep this significant marker of the local fishing culture alive (personal communication, key respondent). This change represented a shift in social and economic alliances away from fishing towards tourism.

Areas where fishermen used to park before setting out to sea are now lots for tourists. Most of the social gathering spots for fishermen have been converted into tourist attractions such as ice cream shops and restaurants. Weakening of the communal identity of fishermen has had a negative social impact. A symptom of this is the changing role of the Point Judith Mission. The Mission initially helped fishermens families in crisis with food and small loans. Over the years, the emphasis moved towards helping fishermen with drug and alcohol addiction problems. Today, some key respondents feel the Mission has lost its community orientation as a support resource for fishing families.

Fishermen comprise a social and occupational network where people know each other. The small town atmosphere is punctuated by functions such as the Fishermen's Scholarship fund.

Port facilities, although small scale compared to New Bedford or Gloucester, are adequate for the size of the local fleet. There are approximately 230 vessels of all types berthed in Point Judith (McGovern pers. comm.). The area is not much bigger than 3 city blocks, but all the activity in the area is associated with some aspect of the fishing industry. Vessels are located at a number of docks which extend perpendicular to the main street. Another set of docks extend off a large industrial area.

Across from the harbor are a number of empty docks for seasonal recreational boaters.

There are numerous support industries along the water. The large industrial area at the north end of the street is where most fish processing is done. It has six processing plants including the former Point Judith Cooperation (now owned by an independent operator) and the Town Dock. Facilities include dockside fuel pumps, a single restaurant/store, bait shops, commercial marine suppliers, recreational suppliers, and vessel repair shops. Along the adjoining streets are several other restaurants devoted to seafood. The Block Island Ferry also leaves from this port and promotes a large seasonal population of people passing through town.

The main docking facility is the Town Dock. It employs 50 people and hires between 20-50 part-timers as needed. Temporary employees work at the dock on a seasonal basis depending on the species. Permanent employees all live in the area, while part-timers live as far away as Providence.

Town Dock handles 12 permanent vessels in the 60-70 foot range. They handle some vessels from other ports, but primarily deal with the 12 Point Judith vessels. Dock space does not appear to be a problem in Point Judith, as long as boats are out at sea. During storms the boats have to 'raft-out' which means they tie up to one another along the docks. Boats are charged a docking fee which is handled by the state. There are more docks than processing places in town with a dozen different places to tie up.

At one time, the dock served as a cutting dock for yellowtail, summer flounder, and cod. About seven years ago it shifted its focus because of a decrease in landings for these species. Now, they process little groundfish and deal primarily with squid, herring, and mackerel. Other important species include butterfish, scup, and summer flounder. Fish product from Point Judith is considered to be of very high quality. It commands high prices in Fulton's and the Boston Fish Market.

Squid, herring, mackerel, and whiting are predominantly offshore midwater species caught by large (70 foot) vessels. Groundfish such as cod, flounder, and haddock are primarily targeted by inshore medium length vessels and not offshore vessels.

An ecological advantage for Point Judith fishermen is that they are close to many of their primary stocks, including relatively new target species such as squid. Another advantage is that Point Judith fishermen have access to mid-Atlantic stocks such as butterfish, which are approaching the northern most point for many species, as well as access to northern traditional groundfish areas and stocks. An important key to adaptability of Point Judith fishermen is stock and gear switching. This adaptability is attuned to the mixing of Mid-Atlantic and New England marine ecozones.

In a telephone survey, the total number of suppliers of fisheries equipment was noted as 11 with 32 wholesale fish and seafood buyers, 4 seafood brokers, and 2 packers.

The Point Judith fisheries have been dominated by otter-trawl dragging and lobster pot fishing, which

together regularly make up 90-95 % of the catch.

The fleet in Point Judith is very unlike those in Gloucester and New Bedford, and most similar to the Chatham fishing fleet. It differs from Chatham in having an offshore fleet (17 compared to none in Chatham). The industry and the local fishermen's families, with the possible exception of lobster fishermen and shellfishermen victimized by the Cape North oil spill, are under less stress than those in ports such as Gloucester and New Bedford. Adaptability is a trademark of the Point Judith fleet, and local respondents say they have enjoyed six successful consecutive fishing seasons.

Like Chatham, Point Judith fishermen have the capacity and willingness to innovate and spread their efforts across different gear types and fishery stocks (key respondent, local fishing community leader). For example, recent increases in local landings result from targeting herring, which involves a gear conversion costing $125,000. Such success and economic flexibility is mirrored in a fleet that is fairly modern and in good repair.

In 1996, there were 134 commercial vessels in port ranging from 45-90 feet, with most being ground trawlers. Of these, 55 are between 45 and 75 feet, and 17 over 75 feet. The smaller vessels have 1-2 person crews, with larger vessels manned by 4-5 crew. Most larger vessels fish for squid, herring and whiting. Some smaller inshore boats are still targeting groundfish.

As in Gloucester, there is an external market for seafood products, including processing of non-local seafood products. For example, the Mitsubishi corporation has an arrangement with Sea Fresh Corporation. Mitsubishi Fresh, Inc., contracts 16 Taiwanese longliners to fish for big eye and yellowfin tuna off of Brazil and Trinidad. These vessels stay out for six months at a time, unloading their catch onto carrier vessels in exchange for fuel and food, and then return to Trinidad where the main plant is located. Fish are handled and shipped from Trinidad to Miami and New York for distribution in the United States markets. Most of the harvest is sold domestically. All sales and business are conducted out of Narragansett. The involvement of foreign investors in local seafood processing is a pattern that is being repeated in many ports.

The original inhabitants of the region where Algonquin Indians, who hunted, trapped, and cultivated until being replaced by European colonists. Indian displacement began with the Pettaquamscutt Purchase in 1658, followed by other transactions in 1660 and 1662. White settlers practiced agriculture using slaves and indentured servants for the next 200 years. The industrial sector boomed in the early 1800s with the growth of textile mills, while the agricultural sector experienced declines with gentrification of the area and shifts in labor to mill jobs. Details of demographic transition and economic history from these early years up to 1970 can be found in Poggie and Gersuny (1978). The primary trend has been towards an increase in the services sector away from primary and secondary sectors. In 1970, only 1.1 % of workers were engaged in agriculture (93 people), 903 in manufacturing (including 244 in textiles), 24.2 % in material goods-producing occupations, with the majority (74.7%) involved in various professional, white collar, and service pursuits.

As of 1996, the labor force remains skewed towards the service industry, with fishermen's numbers remaining fairly constant. There are few new fishermen coming into the industry from local communities, but sons of fishermen are inheriting operating vessels and permits (key respondent, Point Judith as cited by Clay pers. comm.). Tourism has also become a competing industry. Although fishermen are holding their own, access to prime docking space and 'social space' is being lost to tourism development.

Most fishermen from this port live in a 20 mile radius. There is little residential housing in the immediate vicinity. Thus, there is no communal enclave of fishermen's residences, and fishing families are scattered throughout the small local communities of Southern Rhode Island, including Snug Harbor, Wakefield, and Narragansett. Although Point Judith does have a tradition in the fisheries, most of the people here have little family connection to the fishing industry. The typical Point Judith fisher is around 40 years old, has college or masters degrees, and came into the fisheries during the 60's primarily for the lifestyle and financial independence afforded by the occupation.

The majority of fishermen are first generation and lack historical ties to the industry. There is also little ethnic diversity in a population characterized as highly adaptive. The more ethnically rooted a fishing community is, the more difficult it is for them to change. There is a good side to lack of tradition.

The overwhelming majority of fishermen are white males. Older fishermen refer to themselves as "Swamp Yankees." On the other hand, a majority of fish processing workers are ethnic minorities. The former Coop contracts a company to bus in Asians and Puerto Ricans from Providence to work in the fish houses.

Several local organizations represent fishermen and their issues. Until 1994, the Point Judith Fisherman's Cooperation was a viable organization which provided marketing support to members. The marketing-purchasing organization of the Cooperation made it "one of the most effective fishing cooperatives in the United States." Overcapitalization has been cited as the major factor in the failure of the cooperative, but other conditions such as poor prices and market conditions could have contributed to its demise (key respondent, Point Judith as cited by Clay pers. comm.). The Cooperation has been purchased, and is now run as an independent fish marketing organization.

An important fishing organization based out of Point Judith is the East Coast Fisheries Federation (ECFF). It is mainly a large boat organization extending from New Bedford to New Jersey. ECFF is partially supported by funding from local processors, and functions to keep fishermen abreast of important management issues. Funds are taken from fuel costs, with 3 cents from every gallon going to the organization, which ensures its existence even if there is a lack of interest.

The primary issues in this port are distilled from interviews with key informants as the most often mentioned critical issues. They reflect the focus and concern of Point Judith fishermen in maintaining flexibility and adaptability being able to change fisheries, versatility, but dampened by the hassle of numerous new permits for the different fisheries and not knowing the control dates until after the fact;

being on the margins of management decision making; restrictions on the mesh size you can have onboard your vessel with what fish, and the need for these fisheries to be able to switch mesh sizes mid-tow; gear conflict offshore between draggers and offshore lobster pots as well as inshore between draggers and gillnetters; fear of ITQs; positive attitudes towards the buyout program; inability to improve your business by increasing your vessel size and/or horsepower (certain fisheries, such as groundfish and scallops, have vessel upgrade limits on length, tonnage, and horsepower as a form of effort control); distrust of the political process of developing FMPs; discouragement at the time lapse between the gathering of scientific data and the proper use of that data; insulted by the way they are perceived and publicly portrayed by fishery scientists (no perceived respect for their knowledge or experience as fishermen by those managing the resource); pollution impacts on nearshore waters; interference in commercial fishing by the developing tourist (recreational boating) sector; loss of dock space for nearshore draggers; poor prices because of the influx of foreign fisheries products driving down ex-vessel value of domestic fresh-caught fish; and no control over the marketing end of the industry.

The development of tourism in South Kingston and a focus on offshore trawling has also created problems for the few inshore draggers who wish to continue groundfishing. Dock space is expensive and supporting commercial infrastructure cannot be expanded upon, since it is in competition with a growing recreational boat sector. The trend has been towards consolidation of infrastructure and loss of 'social' space as the surrounding area becomes gentrified.

The kinds of impacts being felt by families of large draggers in places such as New Bedford and Gloucester is not apparent in Point Judith. Fishermen are still under stress because of the constantly changing regulatory climate, but appear to be coping by maintaining flexible fishing strategies. The oil spill has also stressed local fishing families, particularly those that rely on shellfishing and lobstering for all or part of their fishing income (Dyer and Burroughs 1996).

As in all of the primary ports surveyed, there is no evidence that the industry is replicating itself or expanding through the introduction of new vessels and support businesses. However, Point Judith fishermen are, overall, being able to sustain their level of social yield in the fishery by maintaining a great degree of adaptability to changing regulatory and economic conditions.

The social reproduction of the fishery follows a father-son progression, and fishermen are related to each other patrilineally. This is predicted by the Natural Resource Community model, in which relationships to utilization of local resources, whether they be extracted through commercial fishing, farming, or for subsistence purposes, tie individuals to a location through the social and cultural value of a renewable natural resource extraction lifestyle.

Thus, patrilineal kinship ties have defined the social and occupational networks of local fishermen for generations. A recent dockside intercept survey of seven boat captains found them working with a son and/or one other male relative as part of the crew.

One significant change is that women are involved more as crew or dockside support than they have been in the past, with at least one woman boat owner in the port. Another difference with the present fishing populations from the early 1970s is that there has been an influx of first time fishermen from the University of Rhode Island and nearby communities that have no family history in the industry, and started fishing because it was an available option. Present recruitment, however, is at a standstill as limits on permits, well established occupational networks, and high start-up costs inhibit new entrants to the fishery. Other issues include gear conflicts, area restrictions, and competition for resources with the recreational sector.

Fishermen of Point Judith are maintaining their economic viability by taking advantage of a good mix of mid and north Atlantic fish stocks, and by maintaining diversity in seasonal fishing patterns, gear types, and permits held. The result is a relatively economically healthy fishing fleet with few new recruits and no new vessels coming into the system. Ties to international markets have kept the inshore processing sector viable even with the declines in groundfish landings. Offshore midwater draggers have also made up for local declines in groundfish landing by targeting high biomass midwater species such as whiting, herring, and squid. The immediate future of the fishery in Point Judith looks good, but the lack of recruitment and loss of social and cultural capital through gentrification prevents the industry from expanding, and could accelerate its decline if gentrification intensifies. There is evidence that this is occurring, since the south Kingston area is experiencing a population growth due to high quality of living and benefits of a good school system which is driving rapid land development. As values of local dock space and land increase, further declines in fishing infrastructure may follow (Dyer and Griffiths 1996). The above information was taken from MAFMC (2000).

Port of Westerly

In 1990, Westerly had 16,612 residents allocated among 4,635 families and 6,592 households. According to 1990 Census data in Westerly, there were 29 persons employed in occupations of agricultural services, forestry and fishing (less than 1% of all employed persons 16 or over), and 42 employed in agriculture, forestry and fisheries industries.

In 1990, 7% of the 7,068 housing units in Westerly were empty while 42% of the occupied units were rental units.

In 1990, 60% of all residents had been born in the state of Rhode Island and the next largest group (26%) were born in the Northeast United States. In the classification of persons age 5 and over, 55% were living in the same house in 1990 that they had occupied in 1985. An additional 25% were living in a different house in 1985 but still within Washington County and 1% were living in a different house but still in Rhode Island. In addition, 43% of all workers 16 and over worked in their place of residence while 53% worked in their county of residence.

The racial composition of Westerly in 1990 was 98% white, less than 1% Chinese, and less than 2% of any other group. Furthermore, about 1% of all persons were of Hispanic origin. When reporting first

ancestry, Italian was the largest group (36%) followed by Irish and English (11%). The majority of persons age 5 years and over speak only English (84%) and only 3% of households are classified as linguistically isolated.

In 1990, 32% of Westerly residents age 25 and over were high school graduates and 11% held a bachelor's degree. In 1989, the median *household* income was $33,469 (91% of the Washington County average) with the median family income of $40,814 (96% of the county average) and the median non-family *household* income of $14,732 (73% of the county average). The *per capita* income in 1989 was $15,370 (95% of the county average). Approximately 7% of persons for whom poverty status was determined (over 98% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by durable goods manufacturing and nondurable goods manufacturing.

Middlesex County, Connecticut

Middlesex is one of the 8 counties in Connecticut and is part of the Hartford Metropolitan Area. In 1997, the total population for the county of 148,802 individuals ranked 6th in the state.

PER CAPITA PERSONAL INCOME

In 1997, Middlesex had a PCPI of $31,393. This PCPI ranked 3rd in the state, and was 88 % of the state average ($35,863) and 124 % of the national average ($25,288). The 1997 PCPI reflected a 4.0 % increase from 1996. The 1996-97 state change was 5.5 % while the national change was 4.7 %.

TOTAL PERSONAL INCOME

In 1997, Middlesex had a TPI of $4,671,334* (*all income estimates with the exception of PCPI are in thousands of dollars). This TPI ranked 6th in the state and accounted for 4 % of the state total. The 1997 TPI reflected a 4.8 % increase from 1996. The 1996-97 state change was 5.7 % while the national change was 5.7 %.

COMPONENTS OF TOTAL PERSONAL INCOME

The TPI includes the earnings (wages, salaries, other labor income, and proprietors' income); dividends, interest, and rent; and transfer payments received by the residents of Middlesex. In 1997, earnings were 69.9 % of TPI; dividends, interest, and rent were 18.0 %; and transfer payments were 12.1 %. From 1996 to 1997, earnings increased 5.0 %; dividends, interest, and rent increased 4.3 %; and transfer payments increased 4.4 %.

EARNINGS BY INDUSTRY

Earnings by persons employed in Middlesex increased from $2,625,132* in 1996 to $2,800,458* in 1997, an increase of 6.7 %. The largest industries in 1997 were services; durable goods manufacturing (18.4 %), and finance, insurance, and real estate. In 1997, the industries that accounted for at least 5 % of earnings showed the slowest growing from 1996 to 1997 was finance, insurance, and real estate while the fastest growing was durable goods manufacturing (increased 24.4 %). (Regional Economic Information Systems, Bureau of Economic Analysis, Bearfacts - *http://www.bea.doc.gov /bea/regional/bearfacts/bf9697/09/09007.htm*).

In 1990, Middlesex County had 143,196 residents allocated among 38,125 families and 54,694 households. For 1997, the population was estimated to be 149,010 and for 2000 to be 155,071 According to 1990 Census data in Middlesex County, there were 14 white non-Hispanic male captains or other officers of fishing vessels and 28 non-Hispanic white male fishermen.

In 1990, 11% of the 61,593 housing units in the county were empty while 30% of the occupied units were rental units and 54% of the vacant units were for seasonal, recreational or occasional use.

In 1990, 63% of all residents had been born in the state of Connecticut while another 21% were born in the Northeast United States. Furthermore, 56% of persons age 5 and over were living in the same house in 1990 that they had occupied in 1985. An additional 20% were living in a different house in 1985 but still within Middlesex County, and 13% were living in a different house but still in Connecticut.

The racial composition of Middlesex County in 1990 was 94% white, 4% black, and 2% other groups. Of those other groups the largest number were Chinese and then Asian Indian. Furthermore, 2% of all persons were of Hispanic origin. When reporting first ancestry, Italian was the largest group (17%) followed by English (13%), Irish (13%), then German (12%). The vast majority of persons age 5 years and over speak only English (87%) and only 2% of households are classified as linguistically isolated.

In 1990, 30% of county residents age 25 and older were high school graduates and 18% held a bachelor's degree. According to the Bureau of Labor Statistics, the civilian labor force in 1996 was 80,770 with a 5.9% unemployment rate. According to the 1999 CBP, there were 4,206 establishments employing 59,997 individuals with an annual payroll of $2,071 million. When fishing dependent industries are included, the level of dependence increases; however, it is difficult to calculate due to the data reporting restrictions in the County Business Pattern data. Overall, 88% of the establishments in Middlesex County employ 1-19 employees.

In 1989, the median *household* income was $43,212 with the median family income of $50,891 and the median non-family *household* income of $26,547. The *per capita* income in 1989 was $19,660. In 1997, the median *household* income was estimated to be $53,624 while 5.2% of the county's population was estimated to be living in poverty.

Port of Clinton

Clinton is located in Middlesex County, Connecticut overlooking Long Island Sound. It is approximately 38 miles south of the capital city of Hartford. Equidistant from New York and Boston, it is within comfortable commuting distance of the metropolitan industrial centers of New Haven, Middletown, and New London. Clinton is contained within 17.2 square miles and has 72 miles of town roads with an estimated population of 13,500. During the summer months, its estimated population reaches around 20,000 individuals (*http://clintonct.com*).

In 1990, Clinton had 3,374 residents allocated among 884 families and 1,383households. According to 1990 Census data in Clinton, there were 24 persons employed in occupations of agricultural services, forestry and fishing (1% of all employed persons 16 or over) and 36 employed in agriculture, forestry and fisheries industries.

In 1990, 9% of the1,564 housing units in the area were empty while 38% of the occupied units were rental units.

In 1990, 60% of all residents had been born in the state of Connecticut and the next largest group (26%) were born in the Northeast United States. In the classification of persons age 5 and over, 48% were living in the same house in 1990 that they had occupied in 1985. An additional 22% were living in a different house in 1985 but still within Middlesex County, and 16% were living in a different house but still in Connecticut. In addition, 26% of all workers 16 and over worked in their place of residence while 54% worked in their county of residence.

The racial composition of Clinton in 1990 was 97% white, 1% American Indian, 1% black, and less than 2% of any other group. Furthermore, 4% of all persons were of Hispanic origin. When reporting first ancestry, English was the largest group (20%) followed by Irish (16%), then German and Italian (14%). The majority of persons age 5 years and over speak only English (90%) and 3% of households are classified as linguistically isolated.

In 1990, 33% of residents age 25 and over were high school graduates and 16% held a bachelor's degree. In 1989, the median *household* income was $37,145 (86% of the Middlesex County average) with the median family income of $44,091 (87% of the county average) and the median non-family *household* income of $22,434 (85% of the county average). The *per capita* income in 1989 was $17,059 (87% of the county average). Approximately 5% of persons for whom poverty status was determined (98% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by durable goods manufacturing and construction.

Clinton traces its history from 1663 when the land between Guilford and Saybrook, as they were then bounded, was known as Homonoscitt. During this time, a committee was appointed by the General Court at Hartford to lay out this area as a plantation. In 1667, the settlement was designated a town and named Kenilworth. By the middle of the eighteenth century, through changes in usage, this name

became Killingworth. In 1838, the southern portion was incorporated by the General Assembly as the town of Clinton, the northern portion retaining the name of Killingworth. The line marking the division between the towns of Killingworth and Clinton was the same as that which divided the first and second ecclesiastical societies, or as they were later known "school societies," which were established in 1735.

As in most small New England shore towns, life centered about fishing, farming, shipbuilding, and the church. One of the early leaders of Clinton's church was the Reverend Abraham Pierson. In 1701, when the General Court of the Colony in Hartford granted a charter for "the founding of a collegiate school within His Majesty's Colony of Connecticut, " its founders chose the Reverend Mr. Pierson as its rector. The first classes were held in his parsonage in Clinton. In later years, the school was moved to Saybrook and then to New Haven, where it eventually became Yale University (Clinton Historical Society - *http://clinton.com/hist.htm*).

New London County, Connecticut

New London is one of the 8 counties in Connecticut and is part of the New London-Norwich Metropolitan Area. In 1997, the total population for the county of 248,838 individuals ranked 4th in the State.

PER CAPITA PERSONAL INCOME

In 1997, New London had a PCPI of $28,466. This PCPI ranked 4th in the state, and was 79 % of the state average ($35,863) and 113 % of the national average ($25,288). The 1997 PCPI reflected an increase of 3.7 % from 1996. The 1996-97 state change was 5.5 % while the national change was 4.7 %.

TOTAL PERSONAL INCOME

In 1997, New London had a TPI of $7,083,512* (* all income estimates with the exception of PCPI are in thousands of dollars). This TPI ranked 4th in the state and accounted for 6 % of the state total. The 1997 TPI reflected a 3.6 % increase from 1996. The 1996-97 state change was 5.7 % and the national change was 5.7 %.

COMPONENTS OF TOTAL PERSONAL INCOME

The TPI includes the earnings (wages, salaries, other labor income, and proprietors' income); dividends, interest, and rent; and transfer payments received by the residents of New London. In 1997, earnings were 66.1 % of TPI; dividends, interest, and rent were 17.5 %; and transfer payments were 16.4 %. From 1996 to 1997, earnings increased 3.0 %; dividends, interest, and rent increased 4.3 %; and transfer payments increased 4.9 %.

EARNINGS BY INDUSTRY

Earnings by persons employed in New London increased from $4,983,674* in 1996 to $5,286,511* in 1997, an increase of 6.1 %. The largest industries in 1997 were services (34.4 % of earnings), durable goods manufacturing (12.6 %), and nondurable goods manufacturing (9.9%). In 1999, the industries that accounted for at least 5 % of earnings showed the slowest growing from 1996 to 1997 was durable goods manufacturing (which decreased 7.9 %) while the fastest growing was construction (5.2 % of earnings in 1997 which increased 23.6 %) (Regional Economic Information System, Bureau of Economic Analysis - *http://www.bea.doc.gov/ bea/ regional/bearfacts/bf9697/09/09011.htm*).

In 1990, New London County had 254,957 residents allocated among 67,291 families and 93,542 households. For 1997, the population was estimated to have dropped to 252,958 and estimated to be 259,088 by 2000. According to 1990 Census data in New London County, there were 19 white non-Hispanic male captains or other officers of fishing vessels and 85 fishermen (all non-Hispanic white, 67 male and 18 female).

In 1990, 11% of the 104,461 housing units in the county were empty while 35% of the occupied units were rental units and 43% of the vacant units were for seasonal, recreational or occasional use and 13% were "usual home elsewhere".

In 1990, 52% of all residents had been born in the state of Connecticut while 25% were born in the Northeast United States. Furthermore, 53% of persons age 5 and over were living in the same house in 1990 that they had occupied in 1985. An additional 25% were living in a different house in 1985 but still within New London County, and 6% were living in a different house but still in Connecticut.

The racial composition of New London County in 1990 was 92% white, 5% black, and 3% other groups (the largest numbers were Filipino and American Indian). Furthermore, 3% of all persons were of Hispanic origin. When reporting first ancestry, Irish, English and German were the largest groups (12% each). The majority of persons age 5 years and over speak only English (86%) and only 1% of households are classified as linguistically isolated.

In 1990, 33% of county residents age 25 and older were high school graduates and 13% held a bachelors degree. According to the Bureau of Labor Statistics, the civilian labor force in 1996 was 132,890 with a 5.9% unemployment rate. According to the 1999 CBP, there were 103,728 employees and 5,705 establishments with an annual payroll of $3.4 billion. When fishing dependent industries are included, the level of dependence increases; however, it is difficult to calculate due to data reporting restrictions in the County Business Pattern data. Overall, 88% of establishments in New London County employ 1-19 employees.

In 1989, the median *household* income was $37,488 with the median family income of $43,256 and the median non-family *household* income of $22,457. The *per capita* income in 1989 was $16,702. In 1997 the median *household* income was estimated to be $43,725, and 7.3% of the county's population was estimated to be living in poverty.

The city of New London, founded in 1659, is Connecticut's twelfth largest city by population. The city was incorporated in May, 1784. New London is located 50 miles southeast of Hartford and covers an area of 5.5 square miles surrounded by the town of Waterford on the north and west, the Thames River on the east, and Long Island Sound on the south. The city is centrally located approximately 120 miles northeast of New York City and approximately 100 miles southwest of Boston, Massachusetts.

The city is about three hours from New York City by rail or highway. Providence, Rhode Island, is approximately an hour from the city and Boston is approximately two hours away. The city is served by interstate, intrastate, and local bus lines. New London is served by Interstate 95 to Boston and New York (routes 82, 32 and 2 link the city with Hartford). Rail transportation and freight service are available to major points including New York, Boston, Providence, and Montreal. Air service is available at Groton-New London Airport to the south, Green Airport (Providence) to the east and Bradley Airport to the north. The city has one of the finest natural harbors on the eastern seaboard and State Pier in New London is a noted cargo port.

Port of East Lyme

In 1990, East Lyme (county subdivision) had 15,340 residents allocated among 4,116 families and 5,490 households. According to 1990 Census data in East Lyme, there were 134 persons employed in occupations of agricultural services, forestry and fishing (2% of all employed persons 16 or over) and 111 employed in agriculture, forestry and fishing industries.

In 1990, 19% of the 6,772 housing units in the area were empty while 21% of the occupied units were rental units.

In 1990, 56% of all residents had been born in the state of Connecticut and the next largest group (25%) were born in the Northeast United States. In the classification of persons age 5 and over, 58% were living in the same house in 1990 that they had occupied in 1985. An additional 21% were living in a different house in 1985 but still within New London County, and 11% were living in a different house but still in Connecticut. In addition, 4% of all workers 16 and over worked in their place of residence while 84% worked in their county of residence.

The racial composition of East Lyme in 1990 was 94% white, 3% black, and less than 3% of any other group. Furthermore, 2% of all person were of Hispanic origin. When reporting first ancestry, Irish was the largest group (15%) followed by English (14%), German (13%), and Italian (11%). The majority of persons age 5 and over speak only English (88%) and less than 1% of the households are classified as linguistically isolated.

In 1990, 28% of residents age 25 and over were high school graduates and 17% held a bachelor's degree. In 1989, the median *household* income was $46,979 (25% above the New London County average) with the median family income of $52,434 (21% above the county average) and the median non-family *household* income of $30,887 (38% above the county average). The *per capita* income in

1989 was $20,004 (20% above the county average). Approximately 3% of persons for whom poverty status was determined (94% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by durable goods manufacturing and health services.

Nassau County, New York

Nassau is one of the 62 counties in New York and is part of the Nassau-Suffolk Metropolitan Area. The 1997, the total population for the county of 1,299,485 individuals ranked 5th in the State.

PER CAPITA PERSONAL INCOME

In 1997, Nassau had a PCPI of $39,691. This PCPI ranked 3rd in the state, and was 131 % of the state average ($30,250) and 157 % of the national average ($25,288). The 1997 PCPI reflected a 4.2% increase from 1996. The 1996-97 state change was 4.3 % while the national change was 4.7%.

TOTAL PERSONAL INCOME

In 1997, Nassau had a TPI of $51,578,265* (*all income estimates with the exception of PCPI are in thousands of dollars). This TPI ranked 3rd in the state and accounted for 9.4 % of the state total. The 1997 TPI reflected a 4.2% increase from 1996. The 1996-97 state change was 4.3 % and the national change was 5.7 %.

COMPONENTS OF TOTAL PERSONAL INCOME

The TPI includes the earnings (wages, salaries, other labor income, and proprietors' income); dividends, interest, and rent; and transfer payments received by the residents of Nassau. In 1997, earnings were 62.9 % of TPI; dividends, interest, and rent were 23.6 %; and transfer payments were 13.6 %. From 1996 to 1997, earnings increased 4.6 %; dividends, interest, and rent increased 3.1%; and transfer payments increased 3.9 %.

EARNINGS BY INDUSTRY

Earnings by persons employed in Nassau increased from $25,386,409 in 1996 to $26,642,198 in 1997, an increase of 4.9 %. The largest industries in 1997 were services (37.4 % of earnings), state and local government (12.1 %), and finance, insurance, and real estate (11.5 %). In 1999, the industries that accounted for at least 5 % of earnings showed the slowest growing from 1996 to 1997 was finance, insurance, and real estate (which increased 1.5 %) while the fastest growing was wholesale trade (8.3 % of earnings in 1997 which increased 5.8 %) (Regional Economic Information Systems, Bureau of Economic Analysis, Bearfacts - *http://www.bea.doc.gov/bea/regional/bearfacts/bf9697/36/36059.htm*).

In 1990, Nassau County had 1,287,348 residents allocated among 346,790 families (average family size 3.3) and 431,148 households. The population was estimated to be 1,303,686 in 1997 and 1,334,544 in 2000. According to 1990 Census data in Nassau County, there were 14 captains or other officers of fishing vessels (all white, non-Hispanic males) and 62 fishermen (40 non-Hispanic white males, 5 non-Hispanic white females and 17 non-Hispanic black males).

In 1990, 3% of the 446,292 housing units in the county were empty while 20% of the occupied units were rental units.

In 1990, 77% of all residents had been born in the state of New York and the next largest group (13%) were foreign born. Furthermore, 72% of persons 5 age and over were living in the same house in 1990 that they had occupied in 1985. An additional 15% were living in a different house in 1985 but still within Nassau County and 9% were living in a different house but still in the state of New York. In addition, 14% of all workers 16 and over worked in their place of residence while 60% worked in their county of residence.

The racial composition of Nassau County in 1990 was 87% white, 9% black, and 3% Asian (primarily Asian Indian and Chinese) and less than 1% other groups. Furthermore, only 6% of all persons were of Hispanic origin. When reporting first ancestry, Italian was the largest group (21%) followed by Irish (14%), German (12%), "Race or Hispanic origin groups" (10%), and Russian (6%). The vast majority of persons age 5 years and over speak only English (81%) and only 4% of households are classified as linguistically isolated.

In 1990, 84% of county residents age 25 and over were high school graduates and 30% were college graduates. According to the Bureau of Labor Statistics, the civilian labor force in 1996 was 674,308 with a 3.8% unemployment rate. According to the 1999 CBP, there were 46,686 establishments employing 543,465 individuals with an annual payroll of $19.6 billion . When fishing dependent industries are included, the level of dependence increases: however, it is difficult to calculate due to data reporting restrictions in the County Business Pattern data. Overall, 90% of establishments in Nassau County employ 1-19 employees.

In 1989, the median *household* income was $54,283 with the median family income of $60,619 and the median non-family *household* income of $25,062. The *per capita* income in 1989 was $23,352. In 1997, the median *household* income was estimated to be $58,155, and 5.1% of the county's population was estimated to be living in poverty.

Nassau County is indeed a vacation paradise. As the heart of Long Island the largest island adjoining the continental United States, Nassau County delivers the finest activities, entertainment, scenic environments and pure relaxation for world traveling tourists. Miles of sandy beaches and top-rated parks, an abundance of historical landmarks, quality restaurants and five star hotels greatly enhance the region's leisure and economic lure.

With the Hamptons to the east and the Statue of Liberty to the west, Nassau County has become one of the fastest growing regions in the country. Located just east of Kennedy and Laguardia Airports, Nassau County offers a unique system of transportation. Manhattan's daily Broadway Plays, Museum of Natural History and the Empire State Building are only 15 minutes from Nassau County's western boarder.

Nassau County has something for everyone. Whether its boating, swimming, bicycling, fishing, landmark and historical exploration, shopping or fitness activities like walking, running, golfing or tennis, the region provides a wide array of superior facilities for all to enjoy. Beaches are some of the most renowned natural resources of Nassau's unique location. While the north shore of Nassau County provides wonderful views across the tranquil Long Island Sound to the shores of Connecticut and Rhode Island, the south shore adjoins the vast and exhilarating Atlantic Ocean. A day on Jones Beach, Long Beach, Lido Beach or Atlantic Beach will bring hours of memorable fun for the whole family and some of the most unforgettable sunsets at day's end.

The North Shore of Nassau County and Long Island is known as the Gold Coast for good historical reason. Millionaires such as the Vanderbilts constructed magnificent mansions here in the early 1900's where they spent summers entertaining the world's elite. Many of these breathtaking homes provide a taste of the world's richest lifestyles through daily public tours.

The natural beauty of Nassau County is a driving force behind the region's continually growing popularity among tourists. The easy accessibility by auto, air, train and ferry makes Nassau County and Long Island the ideal destination for a special vacation (*http://www.co.nassau.ny.us/paradise.html*).

Port of Freeport

The Village of Freeport, New York, is located on Long Island's south shore in Nassau County. Freeport covers five square miles and is home to approximately 45,000 people. The principal industry in the Village of Freeport is fishing and the Nautical Mile is home to charter fishing boats and many shops and seafood restaurants.

In 1990, Freeport Village had 39,894 residents allocated among 9,717 families and 13,230 households. According to 1990 Census data in Freeport, there were 247 persons employed in occupations of agricultural services, forestry and fishing (1% of all employed persons 16 or over) and 241 employed in agriculture, forestry and fishing industries.

In 1990, 3% of the 13,660 housing units in the village were empty while 35% of the occupied units were rental units.

In 1990, 64% of all residents had been born in the state of New York and the next largest group (22%) were foreign born. Furthermore, 62% of persons age 5 and over were living in the same house in 1990 that they had occupied in 1985. An additional 24% were living in a different house in 1985 but still

within Nassau County and 8% were living in a different house but still in New York. In addition, 23% of all workers 16 and over worked in their place of residence while 69% worked in their county of residence.

The racial composition of Freeport Village in 1990 was 56% white, 32% black, 2% Asian or Pacific Islander (especially Filipino, Asian Indian, and Chinese), and less than 1% of any other group. Furthermore, 20% of all persons were of Hispanic origin. When reporting first ancestry, "Race or Hispanic origin groups" was the largest group (36%) followed by Irish and Italian (9% each), German (8%), then West Indian (6% excluding Hispanic origin groups). The majority of persons age 5 years and over speak only English (73%) and only 7% of households are classified as linguistically isolated.

In 1990, 30% of Village residents age 25 and over were high school graduates and 12% held a bachelor's degree. In 1989, the median *household* income was $43,948 (81% of the Nassau County average) with the median family income of $49,829 (81% of the county average) and the median non-family *household* income of $27,272 (10% above the county average). The *per capita* income in 1989 was $17,018 (73% of the county average). Approximately 7% % of persons for whom poverty status was determined (99% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by health services, educational services, and durable goods manufacturing. Freeport ranks second in the list of top ten places in Nassau County in the 1992 Economic Census, based on population, number of establishments, and sales. In 1992, there were 241 retail establishments with total sales of $305 million, 137 wholesale establishments with total sales of $463 million and 315 services establishments with total sales of $134 million.

Freeport and neighboring Point Lookout (included in the Freeport port code) are almost entirely dependent on otter trawl landings (over 89% poundage, 87% value), and the major species are *loligo* squid and silver hake, with smaller amounts of scup, weakfish, bluefish, butterfish, summer flounder, other flounders, Atlantic mackerel. Gillnets are used for bluefish, angler, and other species, and there are small handline, pot, pound-net and bay shellfisheries associated with these ports (McCay and Cieri 2000).

There are three commercial fishing docks in Freeport. One dock has a small retail shop; only one boat works from the dock. Fishermen sell mostly to Fulton Fish Market because they give the highest dollar. although some sell catch to the main fish house in Point Lookout.

Fishermen believe they are developing the area for tourists and pleasure boaters, squeezing the commercial fishermen off the docks. Today, there are only three boats (65' plus trawlers) that go out of the port full-time.

Suffolk County, New York

Suffolk is one of the 62 counties in New York and is part of the Nassau-Suffolk Metropolitan Area. In 1997, the total population for the county of 1,362,616individuals ranked 4th in the state.

PER CAPITA PERSONAL INCOME

In 1997, Suffolk had a PCPI of $30,330. This PCPI ranked 6th in the state, and was 100 % of the state average ($30,250) and 120 % of the national average ($25,288). The 1997 PCPI reflected a4.0% increase from 1996. The 1996-97 state change was 4.3 % and the national change was 4.7%.

TOTAL PERSONAL INCOME

In 1997, Suffolk had a TPI of $41,282,942* (*all income estimates with the exception of PCPI are in thousands of dollars). This TPI ranked 5th in the state and accounted for 7.5 % of the state total. The 1997 TPI reflected a 4.5% increase from 1996. The 1996-97 state change was 4.3% and the national change was 5.7 %.

COMPONENTS OF TOTAL PERSONAL INCOME

The TPI includes the earnings (wages, salaries, other labor income, and proprietors' income); dividends, interest, and rent; and transfer payments received by the residents of Suffolk. In 1997, earnings were 67.2 % of TPI; dividends, interest, and rent were 17.3 %; and transfer payments were 15.5 %. From 1996 to 1997, earnings increased 5.0 %; dividends, interest, and rent increased 3.3 %; and transfer payments increased 3.9 %.

EARNINGS BY INDUSTRY

Earnings by persons employed in Suffolk increased from $20,897,961* in 1996 to $22,116,323* in 1997, an increase of 5.8 %. The largest industries in 1997 were services (28.6 % of earnings), state and local government (17.2 %), and retail trade (9.3 %). In 1997, the industries that accounted for at least 5 % of earnings showed the slowest growing from 1996 to 1997 was durable goods manufacturing (8.5 % of earnings in 1997 which increased 0.7 %) while the fastest growing was construction (6.1 % of earnings in 1997 which increased 9.6 %) (Regional Economic Information Systems, Bearfacts - *http://govinfo.library.orst.edu/bfact?9_9_ 30- 103.nyc*).

In 1990, Suffolk County had 1,321,864 residents allocated among 343,611 families and 424,623 households. The population was estimated to be 1,362,616 in 1997 and 1,419,369 in 2000. According to 1990 Census data in Suffolk County, there were 9,294 persons employed in agricultural services, forestry and fishing (1% of all employed persons 16 or over). There were 101 non-Hispanic white male captains or other officers of fishing vessels and 662 fishermen (650 non-Hispanic white males, 8 non- Hispanic white females, and 4 non-Hispanic black males).

According to a 1997-98 survey of private sector firms in the county conducted by the Suffolk County

Department of Labor (DOL) and the Private Industry Council, 96.8% of firms responding (response rate was 45.5%) expected their employment to remain stable or expand over the following year. Manufacturing and finance, insurance, and real estate were the most optimistic sectors. The largest industry in the county is services with 35.9% of private sector jobs. In agriculture, forestry and fishing, 96.8% of firms expected increasing or stable employment while 3.2% expected decreases (*http://www.co.suffolk.ny.us/labor/EmployerSurvey97-98.htm*).

Occupations expected to be in demand were sales representative-agent, truck driver, auto-truck mechanic, engineers, carpenters (144 jobs), construction laborers (141 jobs), HVAC mechanics, plumbers, electricians, dental assistants, physical therapists, registered nurses, and home health aides. Three percent of needed employees (293 persons) were in agriculture, forestry and fishing, but only 4 fishermen, 1 fish packer/cutter, 13 marina workers, and 9 boat/marine mechanics were listed. The industry with the most difficulty in finding qualified personnel was the services industry, followed by retail trade and manufacturing. Average hourly wages in agriculture, forestry and fishing were reported to be $9.84 per hour. Construction jobs averaged $12.19 per hour and manufacturing $11.96 per hour. while retail trade averaged only $7.96 per hour. However, for the one firm reporting as employing fishermen, average wages per fisherman were $24 per hour (for the one firm employing licensed seamen wages averaged $29 per hour). This is considerably higher than plumbers who received $13.73 per hour, carpenters received $13.26 per hour, machinists received $13.29 per hour, boat/marine mechanics received $11.83 per hour, truck-van drivers received $9.87 per hour, construction laborers received $9.60 per hour, and marina workers received $8.29 per hour. By employer zip code, 53 of the needed jobs (based in 27 firms) were located in Hampton Bays and 27 jobs (in 16 firms) were in Montauk.

In 1990, 12% of the 481,317 housing units in the county were empty while 20% of the occupied units were rental units.

In 1990, 81% of all residents had been born in the state of New York while the next largest group (4%) were born in the Northeast United States. Furthermore, 67% of persons age 5 and over were living in the same house in 1990 that they had occupied in 1985. An additional 20% were living in a different house in 1985 but still within Suffolk County and 9% were living in a different house but still in New York.

The racial composition of Suffolk County in 1990 was 90% white, 6% black, and 3% other groups (largest numbers were Chinese and Asian Indian). Furthermore, 6% of all persons were of Hispanic origin. When reporting first ancestry, Italian was the largest group (24%) followed by German and Irish (16%), then "Race or Hispanic origin groups"(10%). The vast majority of persons age 5 years and over speak only English (85%) and only 2% of households are classified as linguistically isolated.

In 1990, 33% of county residents age 25 and over were high school graduates and 13% held a bachelor's degree. According to the Bureau of Labor Statistics, the civilian labor force in 1996 was 691,154 with a 4.7% unemployment rate. According to the 1999 CBP, there were 499,811

employees and 42,477 establishments with an annual payroll of $17 billion. When fishing dependent industries are included, in the level of dependence increases; however, it is difficult to calculate due to data reporting restrictions in the County Business Pattern data. Overall, 89% of establishments in Suffolk County employ1-19 employees.

In 1989, the median *household* income was $49,128 with the median family income of $53,247 and the median non-family income of $24,016. The *per capita* income in 1989 was $18,041. In 1997, the median household income was estimated to be $53,560 while 7.6% of the county's population was estimated to be living in poverty. Approximately 5% of persons for whom poverty status was determined (98% of all residents) had 1989 income below the poverty line.

Suffolk County occupies the eastern two thirds of Long Island, New York, which juts about 120 miles into the Atlantic. The County covers roughly 1,000 square miles of territory and is 86 miles long and 26 miles wide at the widest point. The weather is temperate, clean water abundant, and the soil is good. In fact, Suffolk is the leading agricultural county in the state of New York. It is still number one in farming despite all of the building developments and urban sprawl is a tribute to the excellent soil, favorable weather conditions, and the farmers of this region.

Over the past millennium there has been a procession of all kinds of people from Indians, explorers, pirates and colonists, to an invading army that maintained control for years. There have also been an influx of whalers, railroad men, Nazis, summer people, bootleggers, groupies, commuters, and spacemen. Homeowners, farmers, and fisherman have always been the mainstay of this county. There is a cosmopolitan mixture of 1,300,000 people of all kinds today and the population is still growing (*http://www.co.suffolk.ny.us*).

Port of Ammagansett

The NMFS data are collected for the port of Ammagansett as well as unspecified "other Suffolk" fishing. "Other Suffolk" probably includes landings from the fishermen at Orient/Orient Point, Shelter and Fisher Islands, Southold, Cutchogue, and many other smaller places in Suffolk County on both the north and the south forks of eastern Long Island including Mount Sinai.

Bay clamming (for hard clams or quahogs) is the major fishery, representing over 71% of the area's value in 1998 while lobstering is next, representing14% of the value. Other important shellfisheries are for oysters, soft clams, horseshoe crabs, blue crabs, and green crabs. Harvesting bay scallops is an important fishery for all east end ports, but landings vary widely from one year to the next. There is tremendous diversity in gears used, bespeaking the mixed bay, sound, and ocean nature of these fisheries. They include handlines, longlines, harpoons, seines, otter trawls, gillnets, pound nets, pots for fish, eels, conch, crabs, and lobster, fyke-nets, cast nets, diving gear, crab and oyster dredges, shovels, rakes, tongs, patent tongs, and "by hand" (McCay and Cieri 2000).

Ammagansett and Three Mile Harbor

According to NMFS weighout data "Ammagansett" shows the profiles of three traditional, small-scale fisheries of the South Fork of eastern Long Island. To clarify, the town of Ammagansett has no dock facilities and thus is not a "port" in the traditional sense. Fish and shellfish are trucked to consignment houses in Ammagansett from various locations in the area, including but not restricted to Three Mile Harbor, which is in the town of Springs (most fish landed here are sent to Fulton Fish Market). Both Ammagansett and Springs are part of the township of East Hampton.

Beach seines, pound-nets, and handlining were the major gear types identified for Ammagansett weighout data in 1998. Beach seines are used for bluefish, eels, Atlantic silverside and other species, totaling 6% of the 1998 value. The greatest value (36% in 1998) came from pound-nets or fish weirs. In 1998, 41 species were landed in these fish weirs. The landings of pound-nets provide a sample of the biodiversity of the inshore waters as well as the diversity of preferences in local and metropolitan markets. The species included bluefish (54%), summer flounder (16%), *Loligo* squid (6.5%), weakfish (6%), carp (4%), striped bass (3%), scup (2%), and white perch (1.6%). Less than 1% of the poundage were winter flounder, butterfish, Spanish mackerel, tautog, lobster, black sea bass, Atlantic silverside, skates, dogfish, bonito, Atlantic mackerel, smooth dogfish, crevalle, American shad, albacore tuna, northern puffer, silver hake, sea robins, king mackerel, herring, conger eel, king whiting, oyster toadfish, conchs, periwinkles, menhaden, cunner, crab, tuna (general), blue runner, black drum, triggerfish, and angler.

Another traditional fishery, handlining, is about the same in value as pound-nets in Ammagansett (34.5%). It is used primarily for scup, striped bass, and bluefish, however, 28 other species were also caught handlining, ranging from small amounts of cod, butterfish, eels, king, Spanish and Atlantic mackerel, and white perch, to larger amounts of summer flounder and dogfish. One of the wholesalers in Ammagansett does a significant business in live fish (McCay and Cieri 2000).

Port of Hampton Bays

In 1990, Hampton Bays had 7,893 residents allocated among 2,095 families and 3,243 households. According to 1990 Census data in Hampton Bays, there were 116 persons employed in occupations of agricultural services, forestry and fishing (3% of all employed persons 16 or over), and 133 employed in agriculture, forestry and fishing industries.

In 1990, 37% of the 5,227 housing units in the port area were empty while 28% of the occupied units were rental units.

In 1990, 81% of all residents had been born in the state of New York and the next largest group (7%) were born in the Northeast United States. In the classification of persons age 5 and over, 61% were living in the same house in 1990 that they had occupied in 1985. An additional 23% were living in a different house in 1985 but still within Suffolk County, and 9% were living in a different house but still in New York. In addition, 30% of all workers 16 and over worked in their place of residence while 90% worked in their county of residence.

The racial composition of Hampton Bays in 1990 was 98% white, 1% black, and less than 1% of any other group. Furthermore, 2% of all persons were of Hispanic origin. When reporting first ancestry, Irish was the largest group (20%) followed by German (17%), Italian (16%), then English (9%). The vast majority of persons age 5 years and over speak only English (91%) and only 2% of households are classified as linguistically isolated.

In 1990, 34% of residents age 25 and over were high school graduates and 12% held a bachelor's degree. In 1989, the median *household* income was $35,736 (almost a quarter lower than the Suffolk County average) with the median family income of $41,676 (over 20% below the county average) and the median non-family income of $21,023 (7% lower than the county average). The *per capita* income in 1989 was $18,249 (almost exactly the county average). Approximately 6% of persons for whom poverty status was determined (98% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by educational services and construction.

Hampton Bays is situated on the South Shore of Long Island at the beginning of the South Fork. The community is bounded on the west by East Quogue, on the east by Southampton Village and Shinnecock Hills, on the north by Great Peconic Bay, and on the south by the Atlantic Ocean. The glacial Ronkonkoma Moraine runs through the north part of the community, with hills winding their way into Shinnecock Hills and eventually to Montauk. South of this hilly moraine, the land flattens into the sandy outwash plain leading to Shinnecock Bay and the barrier beach on the Atlantic Ocean.

This area was not called Hampton Bays until 1922, previously eleven small hamlets, each containing no more than a dozen homes. Good Ground was the main hamlet in the area occupying roughly what is now Main Street, Hampton Bays. Other surrounding hamlets were Ponquogue, Squiretown, East Tiana, Canoe Place, Southport, Springville, Red Creek, West Tiana, Newtown, and Rampasture. Most of these hamlets were settled by one or two families and had their own school house. (Note: Shinnecock and Hampton Bays entries refer to the same port.)

In 1922, as tourism from New York City increased in the surrounding villages such as Westhampton, Southampton and East Hampton, these hamlets, by now generally called Good Ground, consolidated under the name of Hampton Bays in order to reep some of the benefits in being part of the exclusive "Hamptons" tourist trade (*http://www.hamptonbaysonline.com/external/historical_history.cfm*).

Shinnecock/Hampton Bays is second only to Montauk as a commercial fishing center in New York. The offshore fishing industry in this part of Long Island is concentrated to the west of Shinnecock Inlet, on a barrier island that is just to the south of Hampton Bays. "Shinnecock," as it is known, is part of the town of Southampton. There is a large county-owned dock that is run by the town, where most commercial boats tie-up. The pack-out facilities and their associated docks are on private land, including two private unloading docks and one belonging to the Shinnecock Fishermen's Cooperative. The rest of the land to the east and west of the inlet is a county park. The NMFS codes for this fishery

are for Shinnecock and Hampton Bays. We have combined them for this analysis because both refer to the same place (bluefin tuna and other large pelagic landings are collected using the Shinnecock port code while the rest use Hampton Bays).

This is primarily a dragger fishing port (otter trawl landings making up 84% of the poundage and 74% of the value in 1998). Silver hake (whiting) and *Loligo* squid made up over 70% of these landings (66 other species were landed by draggers, including bluefish, butterfish, red hake, and summer flounder). Gillnets are second in importance, accounting for 12% of the value of landings in 1998. They too had diverse landings, totaling 39 species, led by bluefish (31% of poundage), angler (28%), and skates (23%). Bottom longlines (7.3% of value) were used for tilefish while pelagic longlines for swordfish and tunas. There is also a diverse assemblage of inshore techniques, including haul seines, pound-nets, pots (for crab, fish, eel, conch, and both inshore and offshore lobster), fyke-nets, and the shellfish techniques of shovels, rakes, and "by hand" (McCay and Cieri 2000).

Port of Mattituck

In 1990, Mattituck had 3,849 residents allocated among 1,126 families and 1,519 households. According to 1990 Census data in Mattituck, there were 103 persons employed in industries of agricultural services, forestry and fishing (6% of all employed persons 16 or over), and 80 employed in agriculture, forestry and fishing occupations.

In 1990, 33% of the 2,157 housing units in the town were empty while 29% of the occupied units were rental units.

In 1990, 85% of all residents had been born in the state of New York and the next largest group (4%) were born in the Northeast United States. In the classification of persons age 5 and over, 67% were living in the same house in 1990 that they had occupied in 1985. An additional 21% were living in a different house in 1985 but still within Suffolk County, and 5% were living in a different house but still in New York. In addition, 26% of all workers 16 and over worked in their place of residence while 96% worked in their county of residence.

The racial composition of Mattituck in 1990 was 98% white and less than 1% of any other group. Furthermore, under 1% of all persons were of Hispanic origin. When reporting first ancestry, German was the largest group (22%) followed by Polish (20%), Irish (17%), then English (11%). The vast majority of persons age 5 years and over speak only English (93%) and 3% of households are classified as linguistically isolated.

In 1990, 33% of residents age 25 and over were high school graduates, and 11% held a bachelor's degree while 22% had some college. In 1989, the median *household* income was $36,415 (74% of the Suffolk County average) with the median family income of $44,688 (84% of the county average) and the median non-family income of $22,159 (92% of the county average). The *per capita* income in 1989 was $17,511 (95% of the county average). Approximately 4% of persons for whom poverty

status was determined (99.6% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by education al services and health services.

Although Greenport and Mattituck are very dissimilar ports, landings information was combined to protect confidentiality. Otter trawl landings are by far the most important, over 95%, and the classic Mid-Atlantic complement of species is found, led by silver hake and *Loligo* squid, but including butterfish, summer and winter flounder, scup, striped bass, angler, and other species. There is also pound-net fishing, haul-seining, gillnetting, handlining, pelagic longlining, lobster and conch pot fishing, and raking for clams and dredging for bay scallops.

Over 90% of the weighout landings attributed to Mattituck came from otter trawl fishing, and the full complement of Mid-Atlantic species were major landings(25%), butterfish (12%), summer flounder (14.5%), scup (4.4%), dogfish 3.1%). Lobster and striped bass were also significant, among the 37 species landed. Total landings in 1998 were less than 275,000 pounds. "Other New York" includes lobster and other landings which probably came from places like Mattituck.

Greenport is the largest fishing center on the north fork of Long Island. People from Greenport own and fish with vessels in other ports. Two sea scallopers owned by a company in Cape May, NJ, use Greenport's docks. There is a lot of overlap, often the lobstermen, conchers, gillnetters, etc., are the same people, adapting to the seasons and the regulations. Regulations and decline in some species have made a difference. Despite local support, commercial fishing is not nearly as big in Greenport as it was 10 or 20 years ago. Opportunities exist for work at other trades in the region, including a local shipyard, as well as machinist, welding, electrician and similar jobs.

At Mattituck Creek off East Mill Road they run boats averaging 35-45'. Most lobster on Long Island Sound. They also do some handlining and gillnetting. There are a few draggers that also work out of the inlet. A seafood house across the creek has its own dock and advertises a lobster business.

Another marina closer to the mouth of the inlet is a combination commercial and recreational dock with few amenities. This is reportedly the only other place where any commercial fishermen docked. At one time Mattituck had a lot of fishing activity, particularly before 1992, when dragging was sharply cut back by closures of many areas such as western Long Island Sound and zones along the western shore of Long Island and Peconic. These closures affected many places besides Mattituck and they forced some small dragger operations to move to the open ocean and to other fisheries (McCay and Cieri 2000).

Port of Montauk

Montauk is the largest fishing port in New York. It is situated near the eastern tip of the South Fork of Long Island. Otter-trawls and longlines are the principal gear-types, in terms of pounds landed and

value. Loligo squid and silver hake were the two most important fin-fish caught in 1998, however, tilefish, swordfish and tuna landings were important as well. Montauk is the leading tilefish port in the U.S., but the tilefish fishery has declined greatly. For the years 1998-1999, some of the Montauk-based tilefish boats were unloading their catches in Rhode Island. Nonetheless, tilefish accounted for 21% of the value of landings in this port in 1998. The number of species landed at Montauk is staggering. The methods used to harvest fish and shellfish are diverse, including pound nets or fish weirs, box traps, haul seines, and spears, along with the more usual pots, lines, and trawl nets.

In 1990, Montauk had 3,001 residents allocated among 817 families and 1,284 households. According to 1990 Census data in Montauk, there were 151 persons employed in occupations of agricultural services, forestry and fishing (9% of all employed persons 16 or over) and 139 persons employed in agriculture, forestry and fisheries industries.

In 1990, 69% of the 3,984 housing units in Montauk were empty while 29% of the occupied units were rental units.

In 1990, 70% of all residents had been born in the state of New York and the next largest group (14%) were foreign born. In the classification of persons age 5 and over, 58% were living in the same house in 1990 that they had occupied in 1985. An additional 25% were living in a different house in 1985 but still within Suffolk County, and 9% were living in a different house but still in New York. In addition, 65% of all workers 16 and over worked in their place of residence while 90% worked in their county of residence.

The racial composition of Montauk was 98% white, 1% black, and less than 1% of any other group. Furthermore, 7% of all persons were of Hispanic origin. When reporting first ancestry, German was the largest group (20%) followed by Irish (17%), Italian (10%), then "race or Hispanic origin groups" (8%). The majority of persons age 5 years and over speak only English (81%) and only 1% of households are classified as linguistically isolated.

In 1990, 35% of port residents age 25 and over were high school graduates and 13% held a bachelor's degree. In 1989, the median *household* income was $31,849 (almost a third lower than the Suffolk County average) with the median family income of $39,292 (almost a quarter below the county average) and the median non-family income of $22,417 (only 7% lower than the county average). The *per capita* income in 1989 was $20,502 (11% higher than the county average). Approximately 3% of persons for whom poverty status was determined (98% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by personal services, construction and other professional and related services.

Montauk is an isolated community on the tip of Long Island, New York. Baymen originally fished for subsistence and barter using weirs and inshore seine nets. The vessel of choice was the piragua, a small

sail-powered craft for fishing in nearshore bays and inlets. Shellfish fishing was also important and remains a seasonal summer activity. Although baymen have disappeared in Montauk, some still follow this simple lifestyle in nearby Shelter Island, Snug Harbor, and Freeport.

Shore seining for menhaden ("bunkers") was an early commercial activity that supported over 30 "seine gangs" in the early 1800's. Shore gangs were replaced at the turn of the century by menhaden steamers using haul seines. Women used to play an important part in the fishery by helping out on the beach (seining for alewives). They also worked in marketing and processing of bunkers. Bunker factories made millions for their owners, and fish were converted into fish meal, fertilizer, and oil. Local menhaden stocks were eventually depleted, and the bunker industry lasted until 1968 when the last fish factory, the Promise Land, closed.

Despite the closure of the bunker factories and a small groundfish fleet, Montauk remains New York state's most important commercial fishing port. A large portion of the catch, which also includes 10 % of the *Illex* and *Loligo* squid landings in the northeast, is sold for export (Dyer and Griffith 1996). Commercial and recreational fishing are the primary activities in Montauk, with the community business sector being geared to servicing these two fishing sectors. The summer season is also important for tourists as summer rates for hotels and other seasonal housing will reflect.

A local community leader in the recreational sector estimated that 100 resident families make their living in recreational fishing services (Clay pers. comm.). With 24 estimated commercial vessels averaging three crew each, there are approximately 72 families that are directly dependent on the production side of commercial fishing. This does not include those in the processing, transportation, and infrastructure support sector (e.g., fish market owners/operators, dock workers, welders, fish processors, and carpenters) (Dyer and Griffith 1996).

The winter community is small and insular, consisting of commercial fishermen and their families, small businesses, and local charter boat owners/operators. Some of the recreational fishermen will overwinter in Montauk or nearby East Hampton. Many others will drydock their vessels and spend the winter months elsewhere. The height of the fishing season begins around mid-March after Saint Patrick's Day, which is marked by a celebration of the rites of spring and the renewal of fishing.

Fishing is most active during the months of June to September, and least active from December to February. The winter fishery targets tilefish, pollock and cod along the shelf. In the summer, a large charter boat fleet goes after tuna. A summer fishery for yellowfin, bluefin, and big eye tuna is conducted by a day and charter boat fleet. The importance of the recreational sector has been steadily growing as recreational fishing pressure increases and as some commercial fishermen convert their boats for charter fishing and whale watching (Dyer and Griffith 1996).

Montauk is also home of a productive tilefish fleet. Tilefish are caught during the fall and winter months by longline in deep water at the edge of the continental shelf. Montauk led the northeast in tilefish landings in 1993 with 2,200,000 pounds valued at $2.75 million. Tilefish are sold in restaurants in New

York or bought by the Japanese to make sashimi. One tilefish operation consisted of three boats owned by two brothers and each boat had two crews of three deckhands and a captain. They would fish the deep water valleys off of New Jersey for ten days, return, and rotate out with another crew (Dyer and Griffith 1996). In 1998, tilefish landings in Montauk were again the highest in the northeast, with landings of 1,388,905 valued at $2,569,783. Montauk has three docks run by three fish houses. One dock primarily handles tilefish, one handles groundfish and lobster boats in the summer, and one handles draggers (McCay *et al*. 1993).

The docks are a couple of miles away from the town's main street. Around the docks are a number of associated industries such as restaurants, fish markets and marinas, with most of these businesses closed for the winter season. There are four marinas, three party boats and eight charter boats with posted telephone numbers at the Chamber of Commerce. Marinas which cater to the recreational sector include the Montauk Marine Basin, the Montauk Yacht Club, Uihlien's Marina and Boat Rental, and West Lake Fishing Lodge. Commercial vessels are located at two city docks opposite each other on the harbor. One is located near two fish markets and one next to the Coast Guard station.

Most of Montauk's fish are packed out at four commercial facilities including Inlet Seafood, a fishing cooperative; Gosman's Dock; Montauk Fish Dock; and Deep Water Seafood. Except for Inlet Seafood, which opens after Saint Patrick's Day for the spring-summer season, there is little local processing and sale of fish. Some fish goes to local restaurants during the summer. The commercial catch is shipped to Fulton's Fish Market in New York City. Fish are generally shipped whole frozen. In the past, there have been problems with the legitimacy of the market. Although a precise number of boxes (of fish) were sent to Fulton, Fulton claimed to receive a lesser amount in many instances. According to one fishermen, those practices have changed since the government take-over of the market. There are few marketing alternatives for fishermen, and Fulton's continues to be the primary destination.

Areas previously dominated by baiting shanties near the state docks are taken over by whale watching and charter boat operations. Baiting longlines is now carried out on board by deckhands. “Fifteen years ago there used to be bait shanties here, but now they are all gone. You can see the whale watching and charter boats all along the docks where the bait shanties used to be. We used the bait to fish longlines. Now, we fish for squid and bait our hooks by hand on board. We fish deep water for squid and tilefish, because the other species such as flounder are played out. Most of the inshore fish are gone." --Commercial Fisherman (Clay pers. comm.).

In February of 1996, a total of 18 of the commercial fleet of medium to large scale vessels ranging from 32 to 90 feet were counted at the dock, and another six reported out fishing. All commercial vessels observed were trawlers with the exception of two lobster vessels. Party boats, tuna head boats, and whale watching boats dominated the drydock area. In 1998, there were 188 vessels which landed fish or shellfish in Montauk according to the NMFS Commercial Landings Database.

Fishing effort off Montauk and on commercial stocks targeted by Montauk fishermen (e.g., *Loligo*) is

increasing somewhat from migration of vessels from other ports since the closure of portions of the Georges Bank. This has caused some concern and conflict between local fishermen and these "outsiders" (key respondents -- two commercial fishermen). A key respondent reported that the large boats from the New England fishery now fishing out of Ocean City, Maryland, are directly competing with the Montauk fleet for whiting, squid and other species.

There has been a transition from commercial to charter boat/recreational fishing with the decline of local fishery stocks. Part of this conversion includes a shift of effort into tuna fishing, which is seen as a viable alternative as groundfish fishing has become less lucrative in the Long Island Sound.

"I switched over to tuna because it is easier to make money. You can make a lot of money catching tuna, and you don't have the same overhead as with groundfish. Also, if you take out guests on charter, they don't have to catch a fish to be happy." -- Former Captain of Groundfish Fishing Vessel (Dyer and Griffith 1996).

Avoiding pollution and abiding by nearshore restrictions means longer trips at greater distances offshore. Fishing farther offshore has increased risk for those who traditionally fished the Sound, and two local baymen died at sea in 1993 while fishing far from shore. Traditional fishing cycles of 2-4 days were tied into "making market". With trip lengths increasing to 5 days or more, including greater transit distance and costs to reach the grounds, it has made earning an income more unpredictable. A local crewman explains "We have to fish with the cycles - when markets open up to buy fish -- if we can't do this it makes it difficult to make a living - your income becomes very erratic".

In response to such events and economic concerns over fishing families, the Montauk Emergency Fishermen's Fund was initiated in 1993. The purpose of this fund is to take care of fishermen and their immediate families who experience loss of life at sea, medical hardship, or severe economic hardship (Dyer and Griffith 1996).

Communication with management was expressed as a lack of understanding of what fishermen and the fishing industry was all about. Interviews with local commercial fishermen indicated a frustration with the management process, and that fishermen felt their concerns were ignored even when they did have a chance to speak (Clay pers. comm.).

"We hold our local meetings in a room above the firehouse. When the state representatives come by to listen to us, they nod their heads a lot but nothing is ever done about our concerns. We don't see the situation the same, there are more fish out there than they say. Those public hearings are just a rubber stamp so they can go ahead and do whatever they want anyway (Dyer and Griffith 1996).

Given the isolation of Montauk, with few options other than marine resource utilization, this community is highly dependent on sustaining its commercial fishing enterprise. As in other secondary ports in this study, the commercial groundfish fishing sector in Montauk does not appear to be expanding, nor does it appear to be reproducing itself through replacement of old vessels with new, increased processing

capacity, or increasing social yield (the number of fishermen who sustainably participate). Declines in all of these areas are being hastened by the growth of the recreational sector, increasing fishing costs, pollution impacts on stocks, and regulatory restrictions. However, the expansion of fishermen into new fisheries such as tilefish, and switching to tuna fishing and other strategies (e.g., whale watching) has given the commercial fishing community more flexibility than in larger ports such as Gloucester (Dyer and Griffith 1996).

Cape May County, New Jersey

Cape May is one of 21 counties in New Jersey and is part of the Atlantic-Cape May Metropolitan Area. In 1997, the total population for the county of 97,961 individuals ranked 20th in the state.

PER CAPITA PERSONAL INCOME

In 1997, Cape May had a PCPI of $26,419. This PCPI ranked 15th in the state, and was 82 % of the state average ($32,356) and 104 % of the national average ($25,288). The 1997 PCPI reflected a 2.6 % increase from 1996. The 1996-97 state change was 4.7 % while the national change was 4.7 %.

TOTAL PERSONAL INCOME

In 1997, Cape May had a TPI of $2,587,984* (*all income estimates with the exception of PCPI are in thousands of dollars). This TPI ranked 20th in the state and accounted for 1 % of the state total. The 1997 TPI reflected a 2.6 % increase from 1996. The 1996-97 state change was 5.4 % while the national change was 5.7 %.

COMPONENTS OF TOTAL PERSONAL INCOME

The TPI includes the earnings (wages, salaries, other labor income, and proprietors' income); dividends, interest, and rent; and transfer payments received by the residents of Cape May. In 1997, earnings were 55.3 % of TPI; dividends, interest, and rent were 24.2 %; and transfer payments were 20.5 %. From 1996 to 1997, earnings increased 1.9 %; dividends, interest, and rent increased 3.4 %; and transfer payments increased 3.5 %.

EARNINGS BY INDUSTRY

Earnings by persons employed in Cape May increased from $1,150,717 in 1996 to $1,200,447 in 1997, an increase of 4.3 %. The largest industries in 1997 were services, state and local government (22.7 %), and retail trade (18.6 %). In 1997, the industries that accounted for at least 5 % of earnings showed the slowest growing from 1996 to 1997 was transportation and public utilities (5.6 % of earnings in 1997 which decreased 0.7 %) while the fastest growing was finance, insurance, and real estate (5.7 % of earnings in 1997 which increased 5.6 %) (Regional Economic Information System, Bureau of Economic Analysis, Bearfacts - *http://www. bea.doc.gov/bea/regional/*

bearfacts/bf9697/34/34009.htm).

In 1990, Cape May County had 95,089 residents allocated among 25,955 families and 38,035 households. For 1997, the population was estimated to be 98,125 and 102,326 for 2000. According to 1990 Census data in Cape May County, there were 82 white non-Hispanic male captains or other officers of fishing vessels and 275 fishermen (262 non-Hispanic white males, 12 non-Hispanic black males, and 1 non-Hispanic white female).

In 1990, 56% of the 85,537 housing units in the county were empty while 28% of the occupied units were rental units.

In 1990, 45% of all residents had been born in the state of New Jersey while another 41% were born in the Northeast United States. Furthermore, 54% of persons age 5 and over were living in the same house in 1990 that they had occupied in 1985. An additional 22% were living in a different house in 1985 but still within Cape May County, and 9% were living in a different house but still in New Jersey.

The racial composition of Cape May County in 1990 was 92% white, 5% black, and 2% other groups (largest numbers were American Indian and Filipino). Furthermore, 2% of all persons were of Hispanic origin. When reporting first ancestry, German was the largest group (22%) followed by Irish (19%), Italian (11%), then English (10%). The vast majority of persons age 5 years and over speak only English (85%) and only 1% of households are classified as linguistically isolated.

In 1990, 36% of county residents age 25 and over were high school graduates and 12% held a bachelor's degree. According to the Bureau of Labor Statistics, the civilian labor force in 1996 was 46,599 with an 11.7% unemployment rate. According to the 1999 CBP, there were 3,984 establishments employing 24,960 individuals with an annual payroll of $671 million. When fishing dependent industries are included, the level of dependence increases; however, it is difficult to calculate due to data reporting restrictions in the County Business Pattern data. Overall, 94% of the establishments in Cape May County employ 1-19 employees.

In 1989, the median *household* income was $30,435 with the median family income of $35,476 and the median non-family *household* income of $16,975. The *per capita* income in 1989 was $15,536. In 1997, the median *household* income was estimated to be $36,211 while 11% of the county's population was estimated to be living in poverty.

Cape May County is a peninsula, located at the southernmost tip of New Jersey between the Atlantic Ocean and the Delaware Bay. There is something for everyone on a Jersey Cape vacation from the thrill and excitement of the boardwalk to the gracious hospitality of Victorian Inns.

The common thread of a Jersey Cape vacation is the 30 mile ribbon of clean, white sandy beaches which winds along the cool gentle surf of the Atlantic Ocean and connects the resorts of Ocean City, Sea Isle City, Avalon, Stone Harbor, the Wildwoods, and Cape May. Each of the resort communities

of the Jersey Cape offers a wide variety of activities for seashore getaway (*http://www.thejerseycape.net*).

With 30 miles of the most naturally beautiful beaches in the state, Cape May county offers visitors a relaxing, family oriented seaside vacation. While jetsking, boating, and fishing abound, plan to spend plenty of time just strolling and taking in the view.

For generations, the world famous Wildwood boardwalk has been a premier shore attraction. With several piers featuring all the latest rides, there's plenty of excitement to go around for the whole family. The Wildwoods has 2 miles of boardwalk with 5 amusement piers.

Cape May is the southernmost resort on the Jersey shore and one of the nation's oldest vacation spots. It's famous for its preserved victorian architecture and pleasant charm. The Cape May lighthouse was built in 1859 and stands 159 feet tall and is open year round. Visitors can climb the Cape May point lighthouse for a panoramic view of the ocean and Delaware bay. The Cape May-Lewes ferry runs daily between Cape May and Lewes Delaware. The 17 mile trip takes a little over an hour. The 80 foot tall Yankee schooner sails the water in the area making trips available to the public.

For generations, families have enjoyed the summertime pleasures found only on the Jersey Cape, making Cape May County one of the best vacation destinations on the east coast. Cape May City acquired its name from Cornelius Mey who gave his name to the Cape peninsula on a voyage there in 1620. He was not the first to enter the bay, but he was the first to give it a definite name, Cape Mey. Captain Mey made another voyage from Holland in 1623. He brought thirty refuge families from Holland and settled with them at Fort Nassau on the Delaware River. Mey became the first director-general of the territory claimed by the Dutch.

The first town was a whaling village that existed on the cape by the 1690's, perhaps as early as 1650. The village was generally referred to as Town Bank, although some referred to it as Potshot, Cape May Town, or New England Village . The Town Bank whalers congregated on a high bluff overlooking the point where Delaware Bay met the Atlantic Ocean, especially during the winter whaling season. The whalers rowed out to catch the whales in wooden boats not much more than 30 feet long. They would harpoon the whale until it bled to death, then drag the carcass to shore. A whale might be 60 feet long, 40 feet in circumference and 250 tons in weight and yield 3,500 gallons of whale oil and whalebone worth at least a $1,000. It was a very dangerous occupation, but very well paid, if you lived to collect. The whales disappeared from the Delaware Bay by 1700 and Town Bank was abandoned. The bay claimed the land that was known as Town Bank which is now under water off the Cape May coast.

The exact date for the founding of Cape May City is not established, however, an act of the New Jersey Assembly in 1697 calls for a road between Cape May and Burlington. The report on the road says it was completed from Egg Harbor to Cold Spring in 1706 and from there to Town Bank in 1707.

Cape May referred to anything on the Cape but by 1801, there were ads in the Philadelphia Daily Auroua advertising Cape Island as a seaside resort. The Atlantic Hotel placed ads and ran daily trips from 1806-1811. The town really took off as a summer destination after the arrival of steam powered boats, because then trips up and down the Delaware no longer had to be dependent on the tide.

On March 8, 1848, Cape Island was incorporated as the borough of Cape May. Cape May City was a thriving seaside community, attracting many politicians and many wealthy plantation owners. Huge hotels were built, some accommodating as many as 2,000 guests. There were gambling casinos and horse racing on the beach. In 1850, Senator Abraham Lincoln and family vacationed there . The Civil War led to the first decline of Cape May by interrupting the normal vacationing habits of the southern plantation owners.

Ocean City was founded by a group of ministers who ban the sale of liquor in 1879. This ban is still in effect and makes the 8 mile beach here a favorite of families. After the war, frequent train service and savvy marketing to the Philadelphia and New York area revived Cape May as a seaside resort. A great fire in 1878 destroyed most of the city, but the wealthy vacationers did not abandon their vacation site. Nearly all the buildings in Cape May were built during this ‘‘Victorian Age’’. Because wealthy patrons were used to coming to the area they rebuilt and competed for the best "cottages".

A pleasant alternative to the beaches, the Cape May County Park and Zoo opened in 1942. Plenty of recreational facilities such as playground areas, tennis, and volleyball courts, baseball fields, nature, walking, jogging, bike trails, and fresh water fishing. There are plenty of benches with shade trees, covered pavilions, picnic tables, open-pit barbecues and clean restrooms. The Zoo has over 100 species of wildlife housed in a beautiful setting in the well maintained zoo.

A hurricane swept through Cape May City in 1962. It destroyed the boardwalk, convention center and most of the beachfront. Again, Cape May City was rebuilt. T he Victorian homes were still intact, but they built a new convention center and boardwalk. The extension of the Garden State Parkway into Cape May City, the advent of the ferry to Delaware and the designation of the City as a Historic District, have led to the rise again of a great resort town.

The United State Coast Guard Training Center in Cape May is located on a 450 acre point of land between the Atlantic Ocean and Cape May Harbor. The training center was established in 1948 after moving all east coast recruit training facilities from Mayport, FL (*http://www.usgennet.org/usa/nj/county/capemay/Cape%20May%20City.htm*).

Port of Cape May

In 1990, the City of Cape May had 4,668 residents allocated among 1,119 families and 1,860 households. According to 1990 Census data in Cape May, there were 33 persons employed in occupations of agricultural services, forestry and fishing (2% of all employed persons 16 or over) and 25 employed in agriculture, forestry and fishing industries.

In 1990, 54% of the 4,052 housing units in the area were empty while 48% of the occupied units were rental units.

In 1990, 24% of all residents had been born in the state of New Jersey while 41% were born in the Northeast United States. In the classification of persons age 5 and over, 41% were living in the same house in 1990 that they had occupied in 1985. An additional 14% were living in a different house in 1985 but still within Cape May County, and 7% were living in a different house but still in New Jersey. In addition, 72% of all workers 16 and over worked in their place of residence while 94% worked in their county of residence.

The racial composition of Cape May in 1990 was 90% white, 8% black, and 3% of any other group. Furthermore, 2% of all person were of Hispanic origin. When reporting first ancestry, Irish was the largest group (22%) followed by German (21%), then English (12%). The majority of persons age 5 and over speak only English (81%) and none of the households were classified as linguistically isolated.

In 1990, 29% of residents age 25 and over were high school graduates and 17% held a bachelor's degree. In 1989, the median *household* income was $27,560 (91% of the Cape May County average) with the median family income of $35,568 (about the same as the county average) and the median non-family *household* income of $13,713 (81% of the county average). The *per capita* income in 1989 was $15,884 (about the same as the county average). Approximately 5% of persons for whom poverty status was determined (86% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by educational services and public administration.

Cape May is New Jersey's largest commercial fishing port in terms of landings and value. When combined with neighboring Wildwood (the fishing port is often referred to as "Cape May/Wildwood"), its landings exceeded 93 million pounds, worth over $29 million in 1998.

Draggers, or vessels using bottom otter trawls, account for 69% of Cape May's landings and 70% of its value. Most are used for a wide variety of finfish species while some are also used for scallops. Cape May has a long history of combined or alternating fin-fishing and scalloping. Squid is also very important. In 1998, 17% of Cape May's landed value came from *Illex* squid and another 22% from *Loligo* squid. Much of the squid is processed locally as Atlantic mackerel, caught with draggers and midwater pair trawls. Summer flounder has been a major species but regulations have severely reduced catches (4% landed value in 1998). Scup is another dragger-caught species of historic importance in Cape May. In 1998, it represented 6% of landed value. Cape May is also the home of one of the very few vessels allowed to use purse seines for bluefin tuna in U.S. waters. This vessel lands its catch in Gloucester, MA. The only purse seine landings in Cape May in 1998 were for menhaden using smaller vessels. Fishing for large pelagics is also done with longlines and troll lines.

Although sea scallop management measures have reduced opportunities for many Cape May fishermen, scalloping remains important. In addition to scalloping with otter trawls, scallop dredges are also utilized, accounting for 15% of the total value of Cape May's landings in 1998. Angler (monkfish) are caught with scallop dredges as well as gillnets, otter trawls, and scallop otter trawls (1.8% of landed value). Dogfish catches are now relatively small (0.3% of total landings in 1998) (McCay and Cieri 2000).

Port of Sea Isle City

In 1990, Sea Isle City had 2,700 residents allocated among 805 families and 1,250 households. According to 1990 Census data in Sea Isle City, there were 10 persons employed in occupations of agricultural services, forestry and fishing (1% less than all employed persons 16 or over).

In 1990, 80% of the 5,989 housing units in the area were empty while 37% of the occupied units were rental units.

In 1990, 38% of all residents had been born in the state of New Jersey and 51% were born in the Northeast United States. In the classification of persons age 5 and over, 49% were living in the same house in 1990 that they had occupied in 1985. An additional 18% were living in a different house in 1985 but still within Sea Isle City, and 13% were living in a different house but still in New Jersey. In addition, 30% of all workers 16 and over worked in their place of residence while 66% worked in their county of residence.

The racial composition of Sea Isle City in 1990 was 99% white and 1% of any other group. When reporting first ancestry, Irish was the largest group (28%) followed by German (25%), then Italian (14%). The majority of persons age 5 and over speak only English (96%) and 2% of the households are classified as linguistically isolated.

In 1990, 39% of residents age 25 and over were high school graduates and 14% held a bachelor's degree. In 1989, the median *household* income was $32,218 (less than 1% above the Cape May County average) with the median family income of $34,145 (96% of the county average) and the median non-family *household* income of $23,750 (40% above the county average). The *per capita* income in 1989 was $17,768 (14% above the county average). Approximately 4% of persons for whom poverty status was determined (99% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by construction and health services.

Sea Isle City is one of the premier vacation spots along the New Jersey Shore. Nestled on Ludlam's Island in Cape May County, it is conveniently located just 35 minutes from Atlantic City, 90 minutes from Philadelphia, and 2 ½ hours from New York City. Sea Isle is more than just June, July and August...The friendly town is just as attractive during the "bookend months" of the spring and fall.

Over the last century, Sea Isle has grown from a small fishing village into one of the Jersey Shore's most spectacular vacation resorts. The clean, white sandy beaches and peaceful meadows have been attracting family vacationers for many years. Sea Isle offers a diverse array of restaurants and shops, biking, boating, swimming, free summer concerts and strolls along our famous promenade (*http://www.seaislecity.org*).

Essex County, New Jersey

Essex is one of 21 counties in New Jersey and is part of the Newark Metropolitan Area. In 1999, the total population of 747,355 individuals ranked 2nd in the state.

PER CAPITA PERSONAL INCOME

In 1999, Essex had a PCPI of $34,824. This PCPI ranked 8th in the state, and was 98 % of the state average ($35,612) and 122 % of the national average ($28,546). In 1989, the PCPI of Essex was $22,198 and ranked 10th in the state. The average annual growth rate of PCPI over the past 10 years was 4.6 %. The average annual growth rate for the state was 4.2 % and the nation was 4.4 %.

TOTAL PERSONAL INCOME

In 1999, Essex had a TPI of $26,025,825* (*all income estimates with the exception of PCPI are in thousands of dollars). This TPI ranked 2nd in the state and accounted for 9 % of the state total. In 1989, the TPI of Essex was $17,526,474* and ranked 2nd in the state. The average annual growth rate of TPI over the past 10 years was 4.0 %. The average annual growth rate for the state was 4.8 % and for the nation was 5.4 %.

COMPONENTS OF TOTAL PERSONAL INCOME

The TPI includes the earnings (wages, salaries, other labor income, and proprietors's income); dividends, interest, and rent; and transfer payments received by the residents of Essex. In 1999, earnings were 67.0 % of TPI (compared with 68.4 % in 1989); dividends, interest, and rent were 18.5 % (compared with 18.0 % in 1989); and transfer payments were 14.5 % (compared with 13.6 % in 1989). From 1989 to 1999, earnings increased on average 3.8 % each year; dividends, interest, and rent increased on average 4.3 %; and transfer payments increased on average 4.7 %.

EARNINGS BY INDUSTRY

Earnings of persons employed in Essex increased from $14,313,723* in 1989 to $20,416,471* in 1999, an average annual growth rate of 3.6 %. The largest industries in 1999 were services, (33.3% of earnings), state and local government (15.2 %), and finance, insurance, and real estate (3.2 %). In 1989, the largest industries were services (29.1 % of earnings), state and local government (14.7 %), and finance, insurance, and real estate (10.3 %). In 1999, the industries that accounted for at least 5 %

of earnings showed the slowest growing from 1989 to 1999 was nondurable goods manufacturing (6.4 % of earnings in 1999 which increased at an average annual rate of 0.5 %) while the fastest growing was finance, insurance, and real estate (which increased at an average annual rate of 6.2 %) (Regional Economic Information System, Bureau of Economic Analysis, Bearfacts - *http://www. bea.doc.gov/bea/regional/ bearfacts/bf9697/34/34009.htm*).

In 1990, Essex County had 778,206 residents allocated among 193,081 families and 277,667 households. For 1997, the population was estimated to be 750,842 and 793,633 for 2000. According to 1990 Census data in Newport County, there were 17 non-Hispanic white male fishermen.

In 1990, 7% of the 298,710 housing units in the county were empty while 55% of the occupied units were rental units.

In 1990, 55% of all residents had been born in the state of New Jersey and another 11% were born in the Northeast United States. Furthermore, 61% of persons age 5 and over were living in the same house in 1990 that they had occupied in 1985. An additional 25% were living in a different house in 1985 but still within Essex County, and 5% were living in a different house but still in New Jersey.

The racial composition of Essex County in 1990 was 51% white, 41% black, and 3% other groups (the largest numbers were Filipino and Asian Indian). Furthermore, 12% of all persons were of Hispanic origin. When reporting first ancestry, "Race or Hispanic Origin" was the largest group (37%) followed by Italian (13%), Irish (6%), then German (5%). The vast majority of persons age 5 years and over speak only English (74%) and 9% of households are classified as linguistically isolated.

In 1990, 22% of county residents age 25 and over were high school graduates and 11% held a bachelor's degree. According to the Bureau of Labor Statistics, the civilian labor force in 1996 was 373,293 with a 7.7% unemployment rate. According to the 1999 CBP, there were 19,944 establishments employing 334,015 individuals with an annual payroll of $13 billion. When fishing dependent industries are included, the level of dependence increases; however, it is difficult to calculate due to data reporting restrictions in the County Business Pattern data. Overall, 87% of the establishments in Essex County employ 1-19 employees.

In 1989, the median *household* income was $34,518 with the median family income of $42,150, and the median non-family *household* income of $18,869. The *per capita* income in 1989 was $17,574. In 1989, 17% of persons for whom poverty status was determined (98% of all residents) had 1989 income below the poverty line. In 1997, the median *household* income was estimated to be $39,823 while 17% of the county's populations was estimated to be living in poverty.

The recorded history of Essex County begins in 1666, when 30 Connecticut families headed by Robert Treat arrived to establish a settlement along the banks of the Passaic River in what is now the City of Newark. The following year the settlers purchased the land from the Lenni Lenape Indians for $800.

Essex County was officially established in 1682 by the East Jersey Legislature as one of the four original counties of present day New Jersey (Bergen, Monmouth and Middlesex were the others). By the time of the American Revolution, Essex County had become quite prosperous. After the war, the country entered into a period of unprecedented industrial growth. This was due in part to the completion of the New Jersey Railroad, the Morris Canal, and the establishment of the Morris and Essex Railroad. Factories that grew up around the rail and canal arteries drew waves of immigrants from Europe and the population began to swell.

In 1895, Essex County became the first county in the United States to create a countywide park system. That year, the Governor of New Jersey signed legislation creating the Essex County Parks Commission and the first 60 acres of land were acquired from the City of Newark as the beginning of Branch Brook Park. The Parks Commissioners had the foresight to retain Frederick Law Olmsted, the creator of New York's Central Park, to design 20 of Essex County's 25 parks and reservations. Those first 60 acres have grown into 5,745 acres of greenspace which include vast reservations, developed parks, golf courses, tennis courts, ice and roller skating complexes and a zoo.

The "roaring 20's" was a decade of growth and prosperity, particularly with the construction of Newark's first skyscrapers and the development of the building trades industry. Newark Airport was opened, Port Newark came into being, and the Newark City Subway was under construction. It was also at this time that many of the County's boroughs and townships experienced major development and expansion and that early suburban shopping centers were begun.

The stock market crash of 1929, along with the enforcement of prohibition, temporarily crippled the thriving economy of Essex. With the repeal of prohibition, the reopening of many major breweries and the gradual national recovery, Essex began to grow.

The central section of the county, once known as the "trolley car suburbs", grew rapidly after the turn of the century when trolley lines were built to carry workers from industrial Newark to the less crowded outlying towns of Irvington, East Orange, Orange and Bloomfield. Commuter railroads which passed through Newark carried commuters to Manhattan from suburban towns such as South Orange, Maplewood, Millburn, Glen Ridge, and Montclair.

Development of the western section of the county was slowed because of the difficulty and expense of crossing First and Second Mountains. However, the demand for modern industrial development and new residential spaces forced development to the west. With the completion of Route 280, communities such as Livingston, Fairfield, Roseland, Cedar Grove, Essex Fells and the Caldwells become the County's fastest growing communities. Residents of the western section enjoy modern homes and shopping malls as well as room for further development and expansion.

New industrial and professional office parks, hi-tech centers, and luxury condominiums and townhouses in the western portion of the County provide an attractive setting along with an expanding tax ratable base.

Since its inception, Essex County has been the industrial and financial hub of New Jersey. Countywide, total real property values now exceed $36 billion with an annual growth in 1996 of $78 million. With the opening in 1997 of the New Jersey Performing Arts Center in Newark, Essex will rival New York City as a cultural center for music and dance showcasing the nation's and the world's best artists. A county-sponsored baseball and soccer stadium complex will bring minor league baseball back to Essex County in the 1998 season.

With Newark International Airport and Port Newark located within its borders, Essex County is a major national transportation hub with a superior network of rail, highway, air and sea transportation and is home to one of the world's largest containerized shipping ports.

Today Essex County, with 22 municipalities ranging over 127 square miles and a total population of 765,348, is New Jersey's second most populous County. The Essex County economy continues to shift from a manufacturing base to a service oriented economy and many corporate giants as PSE&G, Bell Atlantic, ADP, and Prudential have their headquarters located in Essex County (*http://co.essex.nj.us/history0.htm*).

Monmouth County, New Jersey

Monmouth is one of 21 counties in New Jersey and is part of the Monmouth-Ocean Metropolitan Area. In 1999, the total population for the county of 611,444 individuals ranked 4th in the state.

PER CAPITA PERSONAL INCOME

In 1999, Monmouth had a PCPI of $37,356. This PCPI ranked 7th in the state, and was 105 % of the state average ($35,612) and 131 % of the national average ($28,546). In 1989, the PCPI of Monmouth was $24,974 and ranked 5th in the state. The average annual growth rate of PCPI over the past 10 years was 4.1 %. The average annual growth rate for the state was 4.2 % and for the nation was 4.4 %.

TOTAL PERSONAL INCOME

In 1999, Monmouth had a TPI of $22,841,109* (*all income estimates with the exception of PCPI are in thousands of dollars). This TPI ranked 5th in the state and accounted for 7.9 % of the state total. In 1989, the TPI of Monmouth was $13,789,875* and ranked 4th in the state. The average annual growth rate of TPI over the past 10 years was 5.2 %. The average annual growth rate for the state was 4.8 % and for the nation was 5.4 %.

COMPONENTS OF TOTAL PERSONAL INCOME

The TPI includes the earnings (wages, salaries, other labor income, and proprietors's income); dividends, interest, and rent; and transfer payments received by the residents of Monmouth. In 1999,

earnings were 71.5 % of TPI (compared with 70.9 % in 1989); dividends, interest, and rent were 19.2 % (compared with 20.8 % in 1989); and transfer payments were 9.3 % (compared with 8.4 % in 1989). From 1989 to 1999, earnings increased on average 5.3 % each year; dividends, interest, and rent increased on average 4.4 %; and transfer payments increased on average 6.3 %.

EARNINGS BY INDUSTRY

Earnings by persons employed in Monmouth increased from $7,319,587* in 1989 to $11,994,325* in 1999, an average annual growth rate of 5.1 %. The largest industries in 1999 were services (36.4 % of earnings), state and local government (11.1 %), and finance, insurance, and real estate (9.4 %). In 1989, the largest industries were services (30.6 % of earnings), state and local government (11.4 %), and retail trade (10.8 %). In 1999, the industries that accounted for at least 5 % of earnings showed the slowest growing from 1989 to 1999 was federal civilian government (5.1 % of earnings in 1999 which increased at an average annual rate of 0.3 %) while the fastest growing was finance, insurance, and real estate (which increased at an average annual rate of 9.6 %).

In 1990, Monmouth County had 553,124 residents allocated among 146,947 families and 197,325 households. For 1997, the population was estimated to be 596,250 and 615,301 for 2000. According to 1990 Census data in Monmouth County, there were 41 white non-Hispanic male captains or other officers of fishing vessels and 142 fishermen (all non-Hispanic white males).

In 1990,218,408 housing units in the county were empty in 1990 while 27% of the occupied units were rental units.

In 1990, 57% of all residents had been born in the state of New Jersey while another 25% were born in the Northeast United States. Furthermore, 60% of persons age 5 and over were living in the same house in 1990 that they had occupied in 1985. An additional 19% were living in a different house in 1985 but still within Monmouth County, and 9% were living in a different house but still in New Jersey.

The racial composition of Monmouth County in 1990 was 87% white, 9% black, and 4% other groups (the largest numbers were American Indian and Filipino). Furthermore, 4% of all persons were of Hispanic origin. When reporting first ancestry, Irish and Italian were the largest groups (17% each) followed by German (13%), then Race or Hispanic Origin (11%). The vast majority of persons age 5 years and over speak only English (81%) and 2% of households are classified as linguistically isolated.

In 1990, 30% of county residents age 25 and over were high school graduates and 18% held a bachelor's degree. According to the Bureau of Labor Statistics, the civilian labor force in 1996 was 306,158 with a 5.2% unemployment rate. According to the 1999 CBP, there were 18,456 establishments employing 204,186 individuals with an annual payroll of $7 billion. When fishing dependent industries are included, the level of dependence increases; however, it is difficult to calculate due to data reporting restrictions in the County Business Pattern data. Overall, 90% of the establishments in Monmouth County employ 1-19 employees.

In 1989, the median *household* income was $45,912 with the median family income of $53,590 and the median non-family *household* income of $24,003. The *per capita* income in 1989 was $20,565. In 1997, the median *household* income was estimated to be $57,985 while 6.6% of the county's population was estimated to be living in poverty.

Ports of "Other Essex"

This port denomination corresponds or refers to landings occurring in just about any port in Essex County, New Jersey. It could also include ports where marine and estuarine fishes are landed. As such, individual characterization by port is difficult to determine.

NMFS weighout data shows that two species accounted for over 92% ($0.9 million) of the total exvessel value of all species landed under this port category and these species were: Loligo squid (81.9%) and summer flounder (10.47%).

Port of Monmouth/Belford

The fishermen of Belford fish in the same area as Monmouth fishermen. Historically, the fisheries have been primarily in the bay and inshore waters however, offshore dragging has increased in the past decade. The fishing port is within a region that is primarily residential with small businesses, and a major military installation. However, tourism is insignificant.

In 1990, Port Monmouth had 3,558 residents allocated among 954 families and 1,204 households. According to 1990 Census data in Port Monmouth, there were 84 persons employed in occupations of agricultural services, forestry and fishing (3% of all employed persons 16 or over) and 71 employed in agriculture, forestry and fishing industries.

In 1990, 7% of the 1,281 housing units in the area were empty while 20% of the occupied units were rental units.

In 1990, 72% of all residents had been born in the state of New Jersey and the next largest group (20%) were born in the Northeast United States. In the classification of persons age 5 and over, 67% were living in the same house in 1990 that they had occupied in 1985. An additional 18% were living in a different house in 1985 but still within Monmouth County, and 11% were living in a different house but still in New Jersey. In addition, 4% of all workers 16 and over worked in their place of residence while 42% worked in their county of residence.

The racial composition of Port Monmouth in 1990 was 97% white and 3% of any other group. Furthermore, 5% of all persons were of Hispanic Origin. When reporting first ancestry, Irish was the largest group (26%) followed by German (21%), then Italian (20%). The majority of persons age 5 and over speak only English (93%) and less than 1% of the households are classified as linguistically isolated.

In 1990, 43% of residents age 25 and over were high school graduates and 7% held a bachelor's degree. In 1989, the median *household* income was $38,516 (84% of the Monmouth County average) with the median family income of $40,169 (75% of the county average) and the median non-family *household* income of $17,321 (72% of the county average). The *per capita* income in 1989 was $13,610 (66% of the county average). Approximately 4% of persons for whom poverty status was determined (96% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by finance, insurance, and real estate, and durable goods manufacturing.

The fishing port of Belford is on a tidal creek leading out to Raritan Bay and the New York Bays. Its fishery is oriented both to the bay and to the Atlantic Ocean, which is reached by going out around Sandy Hook, a few miles from Belford. Belford and neighboring Port Monmouth were once large industrial fishing and processing centers for menhaden, but the menhaden factory closed in 1982. Menhaden are still caught with small purse-seine boats and pound-nets, primarily for the bait market. In 1998, they accounted for over two-thirds of the landings in Belford. Today, Belford's fisheries are small-scale and owner-operated. Most of the finfish are handled through a fishermen's cooperative, which sells wholesale but also runs a small retail store and restaurant. Lobsters are sold in other ways, including through a local lobster pound. Otter trawl finfishing is the most important activity, accounting for 50% of the landed value in 1998. It is a multi-species fishery (42 species were landed in 1998). Major species caught by otter trawlers landing in Belford, by landed value, were summer flounder, *Loligo* squid, silver hake, winter flounder, spiny dogfish and skates. Lobster pot fishing is third only to purse seining and dragging (it accounted for 17% of landed value in 1998).

In recent years, surfclam and ocean quahog vessels have been offloading at Belford, however, in 1998, they accounted for less than 4% of the landed value (in contrast to 1992, when ocean quahogs accounted for over 30% of landed value). Crab dredging in Raritan Bay is of equal value. The last of New Jersey's pound-nets are in Raritan and Sandy Hook Bays (they accounted for 3.9% of Belford's total landed value in 1998). Some of the total landed value was from menhaden but 27 other species were also landed from the pound-nets, notably bluefish, weakfish, summer flounder, butterfish, small amounts of tuna, skates, shad, and tautog. Other fishing techniques used include crab and fish pots, handlining, and diving (McCay and Cieri 2000).

Sussex County, Delaware

Sussex is one of 3 counties in Delaware and is not part of a Metropolitan Area. In 1999, the total population for the county of 140,308 individuals ranked 2nd in the state.

PER CAPITA PERSONAL INCOME

In 1999, Sussex had a PCPI of $23,700. This PCPI ranked 2nd in the state, and was 77 % of the state average ($30,701), and 83 % of the national average ($28,546). In 1989, the PCPI of Sussex

was $17,511 and ranked 2nd in the state. The average annual growth rate of PCPI over the past 10 years was 3.1 %. The average annual growth rate for the state was 3.9 % and for the nation was 4.4 %.

TOTAL PERSONAL INCOME

In 1999, Sussex had a TPI of $3,325,275* (*all income estimates with the exception of PCPI are in thousands of dollars). This TPI ranked 2nd in the state and accounted for 14.4 % of the state total. In 1989, the TPI of Sussex was $1,951,375* and ranked 2nd in the state. The average annual growth rate of TPI over the past 10 years was 5.5 %. The average annual growth rate for the state was 5.3 % and for the nation was 5.4 %.

COMPONENTS OF TOTAL PERSONAL INCOME

The TPI includes the earnings (wages, salaries, other labor income, and proprietors's income); dividends, interest, and rent; and transfer payments received by the residents of Sussex. In 1999, earnings were 57.9 % of TPI (compared with 63.4 % in 1989); dividends, interest, and rent were 22.1 % (compared with 22.6 % in 1989); and transfer payments were 20.0 % (compared with 14.0 % in 1989). From 1989 to 1999, earnings increased on average 4.5 % each year; dividends, interest, and rent increased on average 5.3 %; and transfer payments increased on average 9.3 %.

EARNINGS BY INDUSTRY

Earnings by persons employed in Sussex increased from $1,255,546* in 1989 to $1,982,230* in 1999, an average annual growth rate of 4.7 %. The largest industries in 1999 were services (22.4% of earnings), nondurable goods manufacturing (15.6 %), and retail trade (15.6 %). In 1989, the largest industries were nondurable goods manufacturing (19.8 % of earnings), services (15.9 %), and farming (12.7 %). In 1999, the industries that accounted for at least 5 % of earnings showed the slowest growing from 1989 to 1999 was nondurable goods manufacturing (which increased at an average annual rate of 2.2 %) while the fastest growing was finance, insurance, and real estate (which increased at an average annual rate of 9.8 %).

In 1990, Sussex County had 113,229 residents allocated among 32,150 families and 43,483 households. For 1997, the population was estimated to be 134,034 and 156,638 for 2000. According to 1990 Census data in Sussex County, there were 7 white non-Hispanic male captains or other officers of fishing vessels and 105 fishermen (100 non-Hispanic white males and 5 non-Hispanic white females).

In 1990,41% of the74,253 housing units in the county were empty while 21% of the occupied units were rental units.

In 1990, 53% of all residents had been born in the state of Delaware while another 16% were born in

the Northeast United States. Furthermore, 56% of persons age 5 and over were living in the same house in 1990 that they had occupied in 1985. An additional 26% were living in a different house in 1985 but still within Sussex County and 4% were living in a different house but still in Delaware.

The racial composition of Sussex County in 1990 was 82% white, 17% black, and 2% other groups (largest number were American Indian and Filipino). Furthermore, 1% of all persons were of Hispanic origin. When reporting first ancestry, English was the largest group (20%) followed by race or Hispanic Origin (17%), German (13%), then Irish (11%). The vast majority of persons age 5 years and over speak only English (94%) and less than 1% of households are classified as linguistically isolated.

In 1990, 37% of county residents age 25 and over were high school graduates and 9% held a bachelor's degree. According to the Bureau of Labor Statistics, the civilian labor force in 1996 was 67,866 with a 4.5% unemployment rate. According to the 1999 CBP, there were 4,516 establishments employing 48,677 individuals with an annual payroll of $1.45 billion. When fishing dependent industries are included, the level of dependence increases; however, it is difficult to calculate due to data reporting restrictions in the County Business Pattern data. Overall, 91% of the establishments in Sussex County employ 1-19 employees.

In 1989, the median *household* income was $26,904 with the median family income of $31,112 and the median non-family *household* income of $14,076. The *per capita* income in 1989 was $12,723. In 1997, the median *household* income was estimated to be $33,281 while 12.7% of the county's population was estimated to be living in poverty.

Because of its small size and strategic location, President Thomas Jefferson compared Delaware to a jewel, some believe he was referring to Sussex County. The southernmost county in Delaware, Sussex lies at the confluence of the Delaware River and the Atlantic Ocean. Sussex County has a proud history that has been shaped by the people, the ocean, and the land.
Archaeologists estimate that the first inhabitants of Sussex County arrived between 10,000 and 14,000 years ago. The people were later called American Indians by European Colonial powers who mistakenly thought that the New World they reached was India. Native Americans in Delaware called themselves by various tribal names of the Algonquin Nation. Most notable were the Leni Lenape and Nanticoke tribes. They settled along the tributaries of numerous bays, streams, branches, and rivers. In the fall and winter, they harvested fish, oysters, and other shellfish. In the warmer months, they planted crops and hunted for small deer and mammals. Many members of the Nanticoke Tribe reside along the banks of the Indian River. Every year the Nanticoke hold an annual Pow Wow in Oak Orchard that celebrates their traditional culture. In addition, the Nanticoke Museum is open year round to teach visitors and tourists about their way of life.

During the nineteenth century, Delaware continued to prosper. The agricultural leanings of Sussex County were off set by the industrial areas in New Castle. Throughout the nineteenth century, Sussex County and all of Delaware built the foundations of the modern infrastructure.

The Chesapeake and Delaware Canal was opened, allowing transportation from the markets of Maryland to the shops of Philadelphia. Equally impressive, the Delaware breakwater at Lewes was constructed to harbor ships. The breakwater was the first national harbor and it indicated both the importance and the danger of the Delaware Bay.

Toward the middle of the nineteenth century, the railroads arrived. When the Junction and Breakwater Railroad arrived in 1869, the economy of the Sussex was on the decline. The vast majority of Sussex Courtians were farm owners and many were slave holders. The agriculturally based economy that provided slave labor had few northern supporters during the Civil War. The Quakers of New Castle County vehemently preached against the excesses of their southern neighbors. Long after the Civil War ended and after slavery was abolished in the south, it persisted in Delaware. The Emancipation Proclamation had no effect on Delaware as a "northern state". Delaware was the last state in the Union to ratify the thirteenth amendment to the constitution, and formally ended slavery early in the twentieth century.

By the middle of the nineteenth century, the railroads began to change the Sussex County landscape. The community of Ellendale was built around the railroad, and communities from Bridgeville to Delmar started to have more regular contact with the rest of Delaware.
Farmers could load their crops and themselves on a train that would leave Milford and arrive in Wilmington two hours later. Transportation, as it had always done, created new opportunities for businesses.

From the1890's through the Golden Age of the 1920's, Americans discovered the beach. The Rehoboth camp meeting was established close to 1892, as a religious camp. From that time on, city dwellers flocked to the water in ever increasing numbers. Steamboats carried travelers from Philadelphia and other urban areas to the beach at regular intervals. As trips to local beaches established some of our nations first resort areas, Sussex County became noted for its beautiful beaches.

While most of southwestern Sussex County is agricultural, the DuPont plant in Seaford is an exception. In 1939, DuPont located one of its first nylon plants in Sussex. This plant was an important source of nylon for parachutes during World War II. Because of DuPont's success, Seaford is a center for industry, bordered by the Nanticoke River and agricultural areas.
Modern Sussex is a combination of old and new. Sussex County has a rich past, and a wonderful heritage to draw from to lead it wisely into a very prosperous future (*http://www.co.sussex.de.us/historical/index.html*).

Port of Lewes/Indian River

Indian River fishermen fish out of the same port as Lewes fishermen because there is no actual port in Indian River.

In 1990, Lewes had 13,628 residents allocated among 3,928 families and 6,063 households. According to 1990 Census data in Lewes, there were 202 persons employed in occupations of agricultural services, forestry and fishing (2% of all employed persons 16 or over) and 235 employed in agriculture, forestry and fishing industries.

In 1990, 36% of the 16,845 housing units in the area were empty while 23% of the occupied units were rental units.

In 1990, 46% of all residents had been born in the state of Delaware and the next largest group (26%) were born in the Northeast United States. In the classification of persons age 5 and over, 48% were living in the same house in 1990 that they had occupied in 1985. An additional 27% were living in a different house in 1985 but still within Sussex County and 6% were living in a different house but still in Delaware. In addition, 12% of all workers 16 and over worked in their place of residence while 92% worked in their county of residence.

The racial composition of Lewes in 1990 was 89% white, 9% black, and 1% of any other group. Furthermore, less than 1% of all persons were of Hispanic origin. When reporting first ancestry, English was the largest group (23%) followed by German (16%), then Irish (12%). The majority of persons age 5 and over speak only English (92%) and less than 1% of the households are classified as linguistically isolated.

In 1990, 32% of residents age 25 and over were high school graduates and 14% held a bachelor's degree. In 1998, the median *household* income was $26,153 (97% of the Sussex County average) with the median family income of $33,646 (about 1% above the county average) and the median non-family *household* income of $15,757 (12% above the county average). The *per capita* income in 1989 was $16,189 (27% above the county average). Approximately 9% of persons for whom poverty status was determined (90% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by construction and health services.

Bounded on the east by the mighty Atlantic Ocean and on the west by Rehoboth Bay and Indian River Bay, the 2018-acre park is a beach-goer's delight. Throughout history, the forces of wind and water have kept this barrier island largely inaccessible, due to the frequent natural changes of the inlet channel between the bays and the sea. Transportation along this narrow stretch of land was difficult until the federal government completed construction of two large steel and stone jetties in 1939, stabilizing the Indian River Inlet. The State Park Commission (now the Division of Parks and Recreation) began operating Delaware Seashore State Park in 1965. Today, the park is a major attraction or millions of visitors who enjoy the large variety of water-related activities available along Delaware's coast. The main attraction for many visitors is swimming and sunbathing along the park's spectacular beaches. Two ocean swimming areas feature modern bathhouses with showers and changing rooms. Lifeguards patrol the beaches from 9 am to 5 pm daily between Memorial Day weekend and Labor Day. Snack foods

are available at the bathhouses, and umbrellas, chairs and rafts can be rented on the beach. Another swimming area is located on Rehoboth Bay, at Tower Road. The calm bay waters are suitable for families with small children, and the beach is guarded during the summer months.

Surfers enjoy riding the mighty ocean waves at Delaware Seashore, too. The beach just north of the Inlet is one of the few designated areas in the state for this exciting sport. Other beaches throughout the park are set aside for surffishing. Marked dune crossings allow fishing access for four-wheel drive vehicles. A surffishing vehicle permit is required to drive onto the beach. Permits and related information are available at the park office.

The shallow bays provide many additional opportunities to enjoy the water. Windsurfing and sailing are growing in popularity, and the sports are colorful to watch from the shore. A non-motorized boat launch provides access for sail boards and boats in the New Road area. Clamming and crabbing are permitted in some sections of the bays. A short nature trail on Burton's Island affords scenic views of the salt marshes and bay islands, where gulls and terns gather in their noisy summer nesting colonies.

For group activities with family and friends, two picnic pavilions are available on a first-come, first-served basis, one on the bay shore at Savages Ditch Road and the other at the Inlet. Entertaining and informative programs, such as bay seining and marsh hikes, are held throughout the summers. The park also hosts a popular Sandcastle Contest each July, where amateur participants create unique sculptures and castles to compete for prizes.

Fishing is a very popular year-round pastime at Delaware Seashore. In addition to surffishing on the ocean beaches, anglers may try their luck along the banks of the Indian River Inlet. A special access pier at the inlet allows people with disabilities to get close to the fishing action.

Headboats and charter boats welcome visitors aboard for ocean fishing excursions. Several captains operate fishing boats from the Indian River Marina, located on the bay side north of the Inlet. The park's marina features many convenient services for boaters and fisherman, including bait and tackle sales, fish cleaning, fuel and sewage pumps, oil recycling, and year-round marine repairs and service. A snack bar provides refreshments during the summer months. The marina's 295 boat slips can be rented on a yearly basis, and for those bringing boats for the day, a launching ramp at the marina allows access to the bays and ocean (fee required).

The campground at Delaware Seashore State Park is a vacation destination for thousands of visitors each year. Open mid-March to mid-November, the campground can accommodate a variety of camping units, from tents to large recreational vehicles. Three-point hookups for electricity, water, and sewer service are available on some sites. Showers, laundry and snack vending machines add to the convenience of outdoor living at the Indian River Inlet. Campsites are available on a first-come, first-served basis.

Thompson Island on Rehoboth Bay is a new addition to the park. Located northwest of the Inlet,

Thompson Island Preserve is a good example of the productive salt marsh habitat once common around the inland bays. Due to its importance to local wildlife, human activities on the island are limited, and there is no motor vehicle access or parking available at this time (*http://www.destateparks.com/dssp/dssp.htm*).

Worcester County, Maryland

Worcester is one of 24 counties in Maryland and is not part of a Metropolitan Area. In 1999, the total population for the county of 43,672 individuals ranked 17th in the state. Worcester is located on Maryland's Eastern Shore, a peninsula bordered by the Chesapeake Bay and the Atlantic Ocean.

PER CAPITA PERSONAL INCOME

In 1999, Worcester had a PCPI of $26,471. This PCPI ranked 16th in the state, and was 81 % of the state average ($32,517), and 93 % of the national average ($28,546). In 1989, the PCPI of Worcester was $19,640 and ranked 11th in the state. The average annual growth rate of PCPI over the past 10 years was 3.0 %. The average annual growth rate for the state was 4.0 % and for the nation was 4.4 %.

TOTAL PERSONAL INCOME

In 1999, Worcester had a TPI of $1,156,046* (*all income estimates with the exception of PCPI are in thousands of dollars.) This TPI ranked 19th in the state and accounted for 0.7 % of the state total. In 1989, the TPI of Worcester was $680,075* and ranked 19th in the state. The average annual growth rate of TPI over the past 10 years was 5.4 %. The average annual growth rate for the state was 4.9 % and for the nation was 5.4 %.

COMPONENTS OF TOTAL PERSONAL INCOME

The TPI includes the earnings (wages, salaries, other labor income, and proprietors's income); dividends, interest, and rent; and transfer payments received by the residents of Worcester. In 1999, earnings were 54.0 % of TPI (compared with 59.8 % in 1989); dividends, interest, and rent were 28.5 % (compared with 27.4 % in 1989); and transfer payments were 17.6 % (compared with 12.9 % in 1989). From 1989 to 1999, earnings increased on average 4.4 % each year; dividends, interest, and rent increased on average 5.9 %; and transfer payments increased on average 8.8 %.

EARNINGS BY INDUSTRY

Earnings by persons employed in Worcester increased from $452,719* in 1989 to $680,474* in 1999, an average annual growth rate of 4.2 %. The largest industries in 1999 were services (27.3% of earnings), retail trade (23.4 %), and state and local government (13.3 %). In 1989, the largest industries were services (22.9 % of earnings), retail trade (22.9 %), and state and local government

(11.2 %). In 1999, the industries that accounted for at least 5 % of earnings showed the slowest growing from 1989 to 1999 was nondurable goods manufacturing (7.3 % of earnings in 1999 which increased at an average annual rate of 1.8 %) and the fastest growing was services (which increased at an average annual rate of 6.0 %).

In 1990, Worcester County had 35,028 residents allocated among 9,828 families and 14,233 households. For 1997, the population was estimated to be 42,115 and 46,543 for 2000. According to 1990 Census data in Worcester County, there were 33 white non-Hispanic male captains or other officers of fishing vessels and 87 fishermen (79 non-Hispanic white males, 8 non-Hispanic white females).

In 1990, 34% of the 41,800 housing units in the county were empty while 31% of the occupied units were rental units.

In 1990, 63% of all residents had been born in the state of Maryland while another 11% were born in the Northeast United States. Furthermore, 50% of persons age 5 and over were living in the same house in 1990 that they had occupied in 1985. An additional 28% were living in a different house in 1985 but still within Worcester County and 11% were living in a different house but still in Maryland.

The racial composition of Worcester County in 1990 was 78% white, 21% black, and less than 1% of any other groups (the largest numbers were American Indian and Korean). Furthermore, less than 1% of all persons were of Hispanic origin. When reporting first ancestry, English was the largest group (20%) followed by Race or Hispanic Origin (18%), German (13%), then Irish (10%). The vast majority of persons age 5 years and over speak only English (95%) and less than 1% of households are classified as linguistically isolated.

In 1990, 56% of county residents age 25 and over were high school graduates and 10% held a bachelor's degree. According to the Bureau of Labor Statistics, the civilian labor force in 1996 was 24,836 with a 9.5% unemployment rate. According to the 1999 CBP, there were 2,137 establishments employing 17,402 individuals with an annual payroll of $405 million. When fishing dependent industries are included, the level of dependence increases; however, it is difficult to calculate due to data reporting restrictions in the County Business Pattern data. Overall, 92% of the establishments in Worcester County employ 1-19 employees.

In 1989, the median *household* income was $27,586 with the median family income of $33,089 and the median non-family *household* income of $15,005. The *per capita* income in 1989 was $14,341. In 1997, the median *household* income was estimated to be $32.815 while 11.9% of the county's population was estimated to be living in poverty.

Port of Ocean City

In 1990, Ocean City had 7,880 residents allocated among 2,158 families and 3,882 households. According to 1990 Census data in Ocean City, there were 55 persons employed in occupations of agricultural services, forestry and fishing (1% of all employed persons 16 or over) and 85 employed in agriculture, forestry and fishing industries.

In 1990, 87% of the 27,808 housing units in the area were empty while 36% of the occupied units were rental units.

In 1990, 58% of all residents had been born in the state of Maryland and the next largest group (18%) were born in the southern part of the United States. In the classification of persons age 5 and over, 45% were living in the same house in 1990 that they had occupied in 1985. An additional 26% were living in a different house in 1985 but still within Worcester County and 16% were living in a different house but still in Maryland. In addition, 30% of all workers 16 and over worked in their place of residence while 50% worked in their county of residence.

The racial composition of Ocean City in 1990 was 95% white, 4% black, and 1% of any other group. When reporting first ancestry, German was the largest group (20%) followed by English (19%), then Irish (15%). The majority of persons age 5 and over speak only English (92%) and less than 1% of the households are classified as linguistically isolated.

In 1990, 33% of residents age 25 and over were high school graduates and 13% held a bachelor's degree. In 1989, the median *household* income was $27,423 (99% of the Worcester County average) with the median family income of $35,021 (6% above the county average) and the median non-family *household* income of $18,995 (27% above the county average). The *per capita* income in 1989 was $19,271 (34% above the county average). Approximately 10% of persons for whom poverty status was determined (90% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by personal services and construction.

Ocean City is situated on approximately ten miles of barrier island and is next to an inlet that was created during a hurricane in the 1930's. It is a huge tourist community, with hotels, motels and condos for rent stretching for miles from south to north on the Ocean City peninsula. Ocean City has grown into a major summer resort area in the last twenty to twenty-five years. On the sports fishing side, Ocean City is billed as the "White Marlin Capital of the World" and the waterfront is dominated by recreational marinas. There are several marinas in Ocean City and one in West Ocean City at the harbor, used for commercial fishing. This harbor is directly west of the inlet at the southern end of the city.

Ocean City is the only major ocean fishing community in Maryland, though some of the Chesapeake communities do bring in species of interest to the Council from the bay. It is important to note that the commercial fishing industry in "Ocean City" is actually located in West Ocean City. Parts of the

industry, at one time, were located at the southern tip of Ocean City. Tucked away in West Ocean City, just across from the southern tip of the Ocean City peninsula, is the commercial fishing industry, situated primarily on South Harbor Road just a short distance from Assateague Island and the inlet leading to the Atlantic Ocean. On South Harbor Road itself, the seafood businesses and boats are on one side of the street and small houses are on the other (McCay and Cieri 2000).

Ocean City and Worcester County are the only part of the state of Maryland to touch the sea. The area was settled shortly after the American Revolution by Eastern Shore Virginians.
According to legend, Ocean City began its path towards becoming a resort in 1869 when Isaac Coffin built the first cottage on the beach to have paying guests. Before Isaac Coffin, the area was merely referred to as "The Ladies Resort to the Ocean". In those days, people traveled to Ocean City by stage coach and ferry. It wasn't long before other boarding houses were built on this ten mile strip of sand. The new attraction soon brought prominent businessmen from the Eastern Shore, Baltimore and Philadelphia, but these businessmen were not on vacation. They were looking for an opportunity. They decided to develop250 lots which were cut into the barrier island. There were 4,000 original shares and each sold for $25 each, which was a good investment.

The first luxury hotel was opened July 4, 1875. The Atlantic Hotel featured billiards and dancing, and boasted over 400 rooms. A railroad to Berlin was completed in 1878, and the line went all the way to the sand in 1881.

In 1933, a severe storm formed what is now the Inlet. Engineers decided this inlet would make for easy acces to fishing in the Atlantic Ocean. They decided to make the south end inlet of Ocean City permanent.

Due to surf and wind, the island is gradually moving westward. If nature has its way, in hundreds of years, Ocean City will no longer be an island but will instead be connected to the mainland. Millions of dollars have been poured into the sand to prevent the slow erosion of the shoreline.

In 1952, post-war America rapidly completed the Chesepeake Bay Bridge and suddenly Ocean City was readily available to everyone along the Baltimore-Washington corridor. In 1964 the Bay Bridge Tunnel was completed and a path for potential southern visitors was made.

Throughout the 1970's, Ocean City flourished with more than 10,000 condominiums built. Within just a few years, condo row and its spectacular high-rise ocean view had been created. Ocean City now has all the makings of a modern resort in the north end of town, while the south end still boasts an old town aura.

Ocean City has changed a great deal in the 130 years since Isaac Coffin opened his first cottage. It has extended from a few cottages between 1st and 9th street to hundreds of high rise condominiums reaching all the way to 145th Street. The Boardwalk has grown from a few wooden boards that were laid in the sand each morning and picked up each night to a concrete-based, wooden-topped

permanent fixture that features a variety of shops, eateries, and other attractions. One thing that hasn't changed is the main attraction of Ocean City, the fresh, clean smell of the salt air, the unparalleled feel of sand between your toes, and the mesmerizing view of the ocean (*http://www.oceancity.md*).

Accomack County, Virginia

Accomack is one of 105 counties and independent cities in Virginia and is not part of a Metropolitan Area. In 1999, the total population for the county of 32,121 individuals ranked 47th in the state.

PER CAPITA PERSONAL INCOME

In 1999, Accomack had a PCPI of $20,194. This PCPI ranked 73rd in the state, and was 68 % of the state average ($29,794), and 71 % of the national average ($28,546). In 1989, the PCPI of Accomack was $13,950 and ranked 68th in the state. The average annual growth rate of PCPI over the past 10 years was 3.8 %. The average annual growth rate for the state was 4.2 % and for the nation was 4.4 %.

TOTAL PERSONAL INCOME

In 1999, Accomack had a TPI of $648,645* (*all income estimates with the exception of PCPI are in thousands of dollars.) This TPI ranked 49th in the state and accounted for 0.3 % of the state total. In 1989, the TPI of Accomack was $444,572* and ranked 44th in the state. The average annual growth rate of TPI over the past 10 years was 3.8 %. The average annual growth rate for the state was 5.4 % and for the nation was 5.4 %.

COMPONENTS OF TOTAL PERSONAL INCOME

The TPI includes the earnings (wages, salaries, other labor income, and proprietors's income); dividends, interest, and rent; and transfer payments received by the residents of Accomack. In 1999, earnings were 54.3 % of TPI (compared with 56.1 % in 1989); dividends, interest, and rent were 24.7 % (compared with 26.9 % in 1989); and transfer payments were 21.0 % (compared with 17.0 % in 1989). From 1989 to 1999, earnings increased on average 3.5 % each year; dividends, interest, and rent increased on average 3.0 %; and transfer payments increased on average 6.1 %.

EARNINGS BY INDUSTRY

Earnings by persons employed in Accomack increased from $278,834* in 1989 to $385,971* in 1999, an average annual growth rate of 3.3 %. The largest industries in 1999 were services (20.4% of earnings), nondurable goods manufacturing (18.9 %), and state and local government (13.3 %). In 1989, the largest industries were nondurable goods manufacturing (20.0 % of earnings), services (13.1 %), and federal civilian government (12.3 %). In 1999, the industries that accounted for at least 5 % of earnings showed the slowest growing from 1989 to 1999 was retail trade (8.2 % of earnings in 1999

which increased at an average annual rate of 1.6 %) while the fastest growing was services (which increased at an average annual rate of 7.9 %).

In 1990, Accomack County had 31,703 residents allocated among 8,809 families and 12,646 households. For 1997, the population was estimated to be 32,096 and for 2000 to be 38,305. According to 1990 Census data in Accomack County, there were 25 white non-Hispanic male captains or other officers of fishing vessels and 360 fishermen (334 non-Hispanic white males, 12 non-Hispanic white females, and 26 non-Hispanic black males).

In 1990, 20% of the 58,840 housing units in the county were empty while 25% of the occupied units were rental units.

In 1990, 69% of all residents had been born in the state of Virginia while another 16% were born in the southern part of the United States. Furthermore, 64% of persons age 5 and over were living in the same house in 1990 that they had occupied in 1985. An additional 19% were living in a different house in 1985 but still within Accomack County and 5% were living in a different house but still in Virginia.

The racial composition of Accomack County in 1990 was 65% white, 34% black ,and less than 1% of any other groups (the largest numbers were American Indian and Filipino). Furthermore, 1% of all persons were of Hispanic origin. When reporting first ancestry, Race or Hispanic Origin was the largest group (30%) followed by English (16%), American (15%), then German (7%). The vast majority of persons age 5 years and over speak only English (95%) and less than 1% of households are classified as linguistically isolated.

In 1990, 32% of county residents age 25 and over were high school graduates and 6% held a bachelor's degree. According to the Bureau of Labor Statistics, the civilian labor force in 1996 was 14,806 with a 9.1% unemployment rate. According to the 1999 CBP, there were 823 establishments employing 9,050 individuals with an annual payroll of $163 million. When fishing dependent industries are included, the level of dependence increases; however, it is difficult to calculate due to data reporting restrictions in the County Business Pattern data. Overall, 91% of the establishments in Accomack County employ 1-19 employees.

In 1989, the median *household* income was $20,431 with the median family income of $24,063, and the median non-family *household* income of $11,741. The *per capita* income in 1989 was $10,506. In 1997, the median *household* income was estimated to be $25,309 while 29% of the county's population was estimated to be living in poverty.

Port of Chincoteague

In 1990, Chincoteague had 3,572 residents allocated among 1,080 families and 1,684 households. According to 1990 Census data in Chincoteague, there were 83 persons employed in occupations of agricultural services, forestry and fishing (5% of all employed persons 16 or over) and 81employed in

agriculture, forestry and fisheries industries.

In 1990, 46% of the 3,167 housing units in the area were empty while 20% of the occupied units were rental units.

In 1990, 45% of all residents had been born in the state of Virginia and the next largest group (32%) were born in the southern part of the United States. In the classification of persons age 5 and over, 63% were living in the same house in 1990 that they had occupied in 1985. An additional 16% were living in a different house in 1985 but still within Accomack County and 4% were living in a different house but still in Virginia. In addition, 35% of all workers 16 and over worked in their place of residence while 47% worked in their county of residence.

The racial composition of Chincoteague in 1990 was 99% white, less than 1% black, and 1% Hispanic origin. When reporting first ancestry, American was the largest group (20%) followed by English (16%), then Irish (11%). The majority of persons age 5 and over speak only English (97%) and none of the households are classified as linguistically isolated.

In 1990, 40% of residents age 25 and over were high school graduates and 8% held a bachelor's degree. In 1989, the median *household* income was $21,996 (7% above the Accomack County average) with the median family income of $24,341 (1% above the county average) and the median non-family *household* income of $15,909 (35% above the county average). The *per capita* income in 1989 was $12,586 (20% above the county average). Approximately14% of persons for whom poverty status was determined (87% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by construction and personal services.

Chincoteague Island, Virginia's only resort island, is perhaps the most beautiful island on Virginia's Eastern Shore. World famous for its oyster beds and clam shoals, Chincoteague is the gateway to the Assateague Island National Seashore and the Chincoteague Wildlife Refuge. Adventure awaits everywhere as history and legend blend with the wild loveliness of the seasonal shore. This serene fishing village, seven miles long and one and one-half miles wide and abounding with history and natural charm, welcomes you to explore its unique island heritage.

Chincoteague, a beautiful island by the sea, is part of the Eastern Shore of Virginia, the peninsula which bounds the Chesapeake Bay. The island, which is nine miles long by perhaps a mile and a half wide, is sheltered not only by the long mainland to the west, but to the east by Assateague, an island running up through Maryland, and is connected with the mainland by a five mile causeway and bridges. This little island town of about four thousand inhabitants has indeed been given the right name meaning "The Beautiful Land Across the Water."

The island received its name from the tribe of Indians known as the Gingo-Teague Tribe. The name

Chincoteague has been spelled in various ways; Gingoteague, Gingoteak, Gengoteie, Jengoteague. Even today in some sections of our country, we can hear it pronounced Gingoteague (*http://www.chincoteaguechamber.com*).

Hampton County, Virginia

Hampton (Independent City) is one of 105 counties and independent cities in Virginia and is part of the Norfolk-Virginia Beach-Newport News Metropolitan Area. In 1999, the total population for the county of 137,193 individuals ranked 12th in the state.

PER CAPITA PERSONAL INCOME

In 1999, Hampton (Independent City) had a PCPI of $22,250. This PCPI ranked 50th in the state, and was 75 % of the state average ($29,794) and 78 % of the national average ($28,546). In 1989, the PCPI of Hampton (Independent City) was $15,767 and ranked 44th in the state. The average annual growth rate of PCPI over the past 10 years was 3.5%. The average annual growth rate for the state was 4.2 % and for the nation was 4.4 %.

TOTAL PERSONAL INCOME

In 1999, Hampton (Independent City) had a TPI of $3,052,570* (*all income estimates with the exception of PCPI are in thousands of dollars.) This TPI ranked 15th in the state and accounted for 1.5 % of the state total. In 1989, the TPI of Hampton (Independent City) was $2,102,186* and ranked 14th in the state. The average annual growth rate of TPI over the past 10 years was 3.8 %. The average annual growth rate for the state was 5.4 % and for the nation was 5.4 %.

COMPONENTS OF TOTAL PERSONAL INCOME

The TPI includes the earnings (wages, salaries, other labor income, and proprietors's income); dividends, interest, and rent; and transfer payments received by the residents of Hampton (Independent City). In 1999, earnings were 69.5 % of TPI (compared with 73.7 % in 1989); dividends, interest, and rent were 16.8 % (compared with 16.3 % in 1989); and transfer payments were 13.8 % (compared with 9.9 % in 1989). From 1989 to 1999, earnings increased on average 3.2 % each year; dividends, interest, and rent increased on average 4.1 %; and transfer payments increased on average 7.3 %.

EARNINGS BY INDUSTRY

Earnings by persons employed in Hampton (Independent City) increased from $1,878,148* in 1989 to $2,891,439* in 1999, an average annual growth rate of 4.4 %. The largest industries in 1999 were services (20.5 % of earnings), military (19.8 %), and federal civilian government (18.7 %). In 1989, the largest industries were military (24.8 % of earnings), federal civilian government (21.9 %), and services (16.7 %). In 1999, the industries that accounted for at least 5% of earnings showed the

slowest growing from 1989 to 1999 was military (which increased at an average annual rate of 2.1 %) while the fastest growing was wholesale trade (which increased at an average annual rate of 15.0 %).

The port of Hampton is located in the City of Hampton County. In 1990, Hampton County had 133,793 residents allocated among 35,322 families and 49,699 households. For 1997, the population was estimated to be 138,555 and for 2000 to be 146,437.

In 1990, 7% of the53,623 housing units in the county were empty while 41% of the occupied units were rental units.

In 1990, 47% of all residents had been born in the state of Virginia while another 25% were born in the southern part of the United States. Furthermore, 42% of persons age 5 and over were living in the same house in 1990 that they had occupied in 1985. An additional 19% were living in a different house in 1985 but still within Hampton County and 11% were living in a different house but still in Virginia.

The racial composition of Hampton County in 1990 was 58% white, 39% black, and 3% of any other groups (largest numbers were Vietnamese and Filipino). Furthermore, 2% of all persons were of Hispanic origin. When reporting first ancestry, Race or Hispanic Origin was the largest group (39%) followed by German (12%), English (10%), then American (7%). The vast majority of persons age 5 years and over speak only English (83%) and less than 1% of households are classified as linguistically isolated.

In 1990, 29% of county residents age 25 and over were high school graduates and 13% held a bachelor's degree. According to the Bureau of Labor Statistics, the civilian labor force in 1996 was 65,959 with a 5% unemployment rate. According to the 1999 CBP, there were 2,467 establishments employing 48,646 individuals with an annual payroll of $1 billion. When fishing dependent industries are included, the level of dependence increases; however, it is difficult to calculate due to data reporting restrictions in the County Business Pattern data. Overall, 83% of the establishments in Hampton County employ 1-19 employees.

In 1989, the median *household* income was $30,144 with the median family income of $34,291 and the median non-family *household* income of $19,869. The *per capita* income in 1989 was $13,099. In 1997, the median *household* income was estimated to be $36,297 while 14.6% of the county's population was estimated to be living in poverty.

Port of Hampton Roads/Hampton

Like Newport News, Hampton and Seaford are important sea scalloping ports near the mouth of Chesapeake Bay. Scallops accounted for 69% of landed value in 1998. In Hampton, a significant portion of the scallops are caught with otter trawls rather than scallop dredges. The sea scallop fleet of Seaford relies entirely on dredges and accounts for virtually all of the landings and landed value. Besides scallops these dredge-equipped vessels caught large amounts of angler as well as a small

amount of summer flounder.

Finfish dragging is also important in Hampton. Species diversity is extremely high and he otter trawl fleet of Hampton takes *Illex* and *Loligo* squid, black sea bass (a substantial amount is also caught with handlines), Atlantic mackerel, Atlantic croaker (a large portion was caught by haul seines as well as pound nets and sink gill nets), and angler (although most was landed by scallop dredges and scallop otter trawls). A small amount of pelagic longlining is also done from Hampton for black tip, mako, shortfin, thresher sharks, and tuna (big eye, yellowfin, and albacore).

The inshore and bay fisheries of Hampton include the pound-net and seine fisheries for Atlantic croaker, gillnetting and handlining, blue crabs, (caught with dredges, pots, and scrapes) and hard clams or quahogs (harvested with patent tongs and crabs). We have combined the weighout data for Hampton and Seaford to preserve the confidentiality of data for fisheries. Species diversity in the landings at Hampton and Seaford is extremely high. Fourteen species had either poundage or value at or above 2% in 1998, led by sea scallops, summer flounder, *Illex* squid, Atlantic croaker, blue crab, and angler (McCay and Cieri 2000).

City of Virginia Beach County, Virginia

Virginia Beach (Independent City) is one of 105 counties and independent cities in Virginia and is part of the Norfolk-Virginia Beach-Newport News Metropolitan Area. In 1999, the total population for the county of 433,461 individuals ranked 2nd in the state.

PER CAPITA PERSONAL INCOME

In 1999, Virginia Beach (Independent City) had a PCPI of $28,356. This PCPI ranked 17th in the state, and was 95 % of the state average ($29,794), and 99 % of the national average ($28,546). In 1989, the PCPI of Virginia Beach (Independent City) was $20,237 and ranked 12th in the state. The average annual growth rate of PCPI over the past 10 years was 3.4 %. The average annual growth rate for the state was 4.2 % and for the nation was 4.4 %.

TOTAL PERSONAL INCOME

In 1999, Virginia Beach (Independent City) had a TPI of $12,291,242* (*all income estimates with the exception of PCPI are in thousands of dollars.) This TPI ranked 2nd in the state and accounted for 6 % of the state total. In 1989, the TPI of Virginia Beach (Independent City) was $7,777,160* and ranked 2nd in the state. The average annual growth rate of TPI over the past 10 years was 4.7 %. The average annual growth rate for the state was 5.4 % and for the nation was 5.4 %.

COMPONENTS OF TOTAL PERSONAL INCOME

The TPI includes the earnings (wages, salaries, other labor income, and proprietors's income);

dividends, interest, and rent; and transfer payments received by the residents of Virginia Beach (Independent City). In 1999, earnings were 74.6 % of TPI (compared with 78.9 % in 1989); dividends, interest, and rent were 18.0 % (compared with 16.1 % in 1989); and transfer payments were 7.4 % (compared with 5.0 % in 1989). From 1989 to 1999, earnings increased on average 4.1 % each year; dividends, interest, and rent increased on average 5.8 %; and transfer payments increased on average 8.8 %.

EARNINGS BY INDUSTRY

Earnings by persons employed in Virginia Beach (Independent City) increased from $3,654,713* in 1989 to $6,430,500* in 1999, an average annual growth rate of 5.8 %. The largest industries in 1999 were services (29.3 % of earnings), military (16.3 %), and retail trade (11.0 %). In 1989, the largest industries were military (24.8 % of earnings), services (23.1 %), and retail trade (11.5 %). In 1999, the industries that accounted for at least 5 % of earnings showed the slowest growing from 1989 to 1999 was military (which increased at an average annual rate of 1.5 %) and the fastest growing was finance, insurance, and real estate (which increased at an average annual rate of 12.3 %).

The port of Virginia Beach/Lynnhaven is located in the City of Virginia Beach County. In 1990, the City of Virginia Beach County had 393,069 residents allocated among 102,963 families and 135,736 households. For 1997, the population was estimated to be 432,545 and for 2000 to be 425,257.

In1990, 81% of the 147,037 housing units in the county were empty while 38% of the occupied units were rental units.

In 1990, 36% of all residents had been born in the state of Virginia while another 22% were born in the southern part of the United States. Furthermore, 36% of persons age 5 and over were living in the same house in 1990 that they had occupied in 1985. An additional 24% were living in a different house in 1985 but still within the City of Virginia Beach County and 11% were living in a different house but still in Virginia.

The racial composition of the City of Virginia Beach County in 1990 was 78% white, 21% black, and less than 6% of any other groups (largest numbers were Filipino and American Indian). Furthermore, 3% of all persons were of Hispanic origin. When reporting first ancestry, German and Race or Hispanic Origin were the largest groups (17%) followed by English (12%), then Irish (10%). The vast majority of persons age 5 years and over speak only English (89%) and less than 1% of households are classified as linguistically isolated.

In 1990, 29% of county residents age 25 and over were high school graduates and 18% held a bachelor's degree. According to the Bureau of Labor Statistics, the civilian labor force in 1996 was 206,969 with a 4.1% unemployment rate. According to the 1999 CBP, there were 10,185 establishments employing 139,142 individuals with an annual payroll of $3.2 billion. When fishing dependent industries are included, the level of dependence increases; however, it is difficult to calculate

due to data reporting restrictions in the County Business Pattern data. Overall, 86% of the establishments in the City of Virginia Beach County employ 1-19 employees.

In 1989, the median *household* income was $36,271 with the median family income of $39,112, and the median non-family *household* income of $26,224. The *per capita* income in 1989 was $15,242. In 1997, the median *household* income was estimated to be $44,714 while 9% of the county's population was estimated to be living in poverty.

A granite cross at Cape Henry marks the spot where the Jamestown settlers first touched down on the Virginia shores in 1607. Sailing aboard the Susan Constant (100 tons), the Godspeed (40 tons), and the Discovery (20 tons) under the command of Captain Christopher Newport, the one hundred colonists were sent by the Virginia Company chiefly for trading purposes. Shortly after landing at Cape Henry, the colonists moved up the James River to the site where they would build the first permanent English settlement in the New World.

The first settlement inside the city limits of Virginia Beach was made on Lynnhaven Bay in 1621, but the area that is now Virginia Beach, remained thinly settled for well over a century. In the 1880's, the resort was developed along the beach, and by the turn of the century was very popular. In 1906, it became a town but the rest of the area remained undeveloped.

That began to change during WWII when the navy built Oceana Naval Air Station in what is now the middle of Virginia Beach. The end of the war saw the advent of suburbs and encroachment by neighboring Norfolk. To forestall being gobbled up by Norfolk, the resort of Virginia Beach merged with Princess Anne county in 1963 to form the modern city. Geographically, Virginia Beach is huge. Covering 310 square miles, it is the largest city in Virginia and claims to be the largest resort city in the world (*http://www.vabeach.com*).

Port of Virginia Beach/Lynnhaven

Most of the commercial fishing activity in Virginia Beach occurs in the Lynnhaven section, along Long Creek, which empties into Lynnhaven Bay and eventually Chesapeake Bay. Two active federally permitted dealers in this port also operate as packing houses for two out-or-town dealers. In the past, there was significant activity at Rudee Inlet on the Atlantic side of the city, but now there are only 3 or 4 commercial boats.

The commercial fishery at Virginia Beach/Lynnhaven is inlet-dependent and pressured by competition for waterfront from tourist-related development and recreational boaters and fishermen. The major gear type used as reported to the NMFS is the sink gillnet, used to catch a large number of species including bluefish, striped bass, Atlantic croaker, summer flounder, shad, dogfish, weakfish and spot. Drift and stake gillnets are also used, the latter for spiny dogfish and bluefish among other species. This is also a center of pot fishing for blue crabs, eels, conchs (whelks) and fish. The fish catches were mainly black sea bass and tautog. Handlines accounted for 9% of the landed value in 1998, mostly

from black sea bass and summer flounder catches, but also striped bass, tautog, tilefish, tunas, and others. Pound nets accounted for 3.3% of the value in 1998. Species fished in the area included striped bass, bluefish, butterfish, Atlantic croaker, summer flounder, Spanish mackerel, spot, and weakfish (McCay and Cieri 2000).

Carteret County, North Carolina

Carteret is one of the 100 counties in North Carolina and is not part of a Metropolitan Area. In 1997, the total population of 59,560 individuals ranked 38th in the state.

PER CAPITA PERSONAL INCOME

In 1997, Carteret had a PCPI of $20,798. This PCPI ranked 31st in the state, and was 90 % of the state average ($23,168), and 82 % of the national average ($25,288). The 1997 PCPI reflected an increase of 5.1 % from 1996. The 1996-97 state change was 5.1 % and the national change was 4.7 %.

TOTAL PERSONAL INCOME

In 1997, Carteret had a TPI of $1,238,751* (*all income estimates with the exception of PCPI are in thousands of dollars). This TPI ranked 36th in the state and accounted for 0.7 % of the state total. The 1997 TPI reflected an increase of 6.8 % from 1996. The 1996-97 state change was 6.8 and the national change was 5.7 %.

COMPONENTS OF TOTAL PERSONAL INCOME

The TPI includes the earnings (wages, salaries, other labor income, and proprietors' income); dividends, interest, and rent; and transfer payments received by the residents of Carteret. In 1997, earnings were 56.6 % of TPI; dividends, interest, and rent were 19.8 %; and transfer payments were 23.6 %. From 1996 to 1997, earnings increased 7.5 %; dividends, interest, and rent increased 6.3 %; and transfer payments increased 5.5 %.

EARNINGS BY INDUSTRY

Earnings by persons employed in Carteret increased from $504,266* in 1996 to $552,679* in 1997, an increase of 9.6 %. The largest industries in 1997 were services (22.2 % of earnings), retail trade (19.1 %), and state and local government (18.2 %). In 1997, the industries that accounted for at least 5 % of earnings showed the slowest growing from 1996 to 1997 was transportation and public utilities (5.3 % of earnings in 1997 which increased 5.6 %), the fastest growing was construction (11.4 % of earnings in 1997 which increased 26.8 % (*http://www.bea.doc.gov/bea/regional/bearfacts/bf9697/37/37031.htm*).

In 1990, Carteret County had 52,556 residents allocated among 15,351 families (average size 2.88) and 21,221 households. According to 1990 Census data in Carteret County, there were 86 white non-Hispanic male captains or other officers of fishing vessels and 591 fishermen (511 white males, 24 white females, 36 black males, 7 black females, 13 American Indian and Alaska native males).

Agricultural services, forestry and fishing account for 1% of employees, 2% of establishments and 2% of annual payroll. When fishing dependent industries are included, the level of dependence increases; however, it is difficult to calculate due to data reporting restrictions in the County Business Pattern data. Overall, 91% of establishments in Carteret County employ 1-19 employees

In 1990, 39% of the 34,576 housing units in the county were empty, 26% of the occupied units were rental units, and 76% of the vacant units were for seasonal, recreational or occasional use while 9% were "usual home elsewhere."

In 1990, 64% of all residents had been born in the state of North Carolina, another 14% were born in the southern United States, and 11% were born in the Northeast United States. Furthermore, 52% of persons age 5 and over were living in the same house in 1990 that they had occupied in 1985. An additional 22% were living in a different house in 1985 but still within Carteret County and 11% were living in a different house but still in North Carolina. Three percent of all workers age 16 or over, who reside in the county, also work within the county.

The racial composition of Carteret County in 1990 was 91% white, 8% black, and 1% other groups. Less than 1% of all persons were of Hispanic origin. When reporting first ancestry, English was the largest group (24%) followed by German (13%), then Irish, United States or American, and Race or Hispanic Origin Groups (10% each). The vast majority of persons age 5 years and over speak only English (97%) and less than 1% of households are classified as linguistically isolated.

In 1990, 31% of county residents 25 years and over were high school graduates and 11% held a bachelor's degree. Another 22% had some college, and 16% had 9th through 12th grade but no diploma. According to the Bureau of Labor Statistics, the civilian labor force in 1996 was 28,319 with a 4.9% unemployment rate. According to the 1999 CBP, there were 1,912 establishments employing 17,300 individuals with an annual payroll of $323 million. When fishing dependent industries are included, the level of dependence increases; however, it is difficult to calculate due to data reporting restrictions in the County Business Pattern data. Overall, 91% of the establishments in Carteret County employ 1-19 employees.

In 1989, the median *household* income was $25,811 with the median family income of $30,241 and the median non-family income of $14,038. The *per capita* income in 1989 was $13,227. In 1997, the median *household* income was estimated to be $34,348 while 11.8% of the county's population was estimated to be living in poverty.

Carteret County provides a good example of the significance of the fishing industry to local communities

in North Carolina. Centrally located along North Carolina's coast, it is one of the state's most important commercial and recreational fishing destinations. A study by the Carteret County Economic Development Council concluded that about 20 % of the civilian labor force in the county is directly or indirectly employed in commercial fishing. The study further concluded that without commercial fishing, the county's economy would suffer. Although recreational fishing was not analyzed in this study, it undoubtedly supports a significant number of jobs in Carteret County (*http://www.nmfs.gov/habitat/publications/habitatconections/num2.htm*).

Port of Atlantic

In 1990, Atlantic township had 660 residents allocated among 198 families and 294 households. According to 1990 Census data in Atlantic township, there were 33 persons employed in occupations of agricultural services, forestry and fishing (13% of all employed persons 16 or over) and 41 employed in agriculture, forestry and fisheries industries.

In 1990, 26% of the 426 housing units in the area were empty while 29% of the occupied units were rental units.

In 1990, of the 534 residents born in the state of North Carolina, 80% were born in the southern United States. In the classification of persons age 5 and over, 54% were living in the same house in 1990 that they had occupied in 1985. An additional 26% were living in a different house in 1985 but still within Carteret County and 16% were living in a different house but still in North Carolina. In addition, 29% of all workers 16 and over worked in their county of residence. In 1990, the racial composition of Atlantic township was 100% white.

In 1990, 39% of Atlantic Townships residents age 25 and over were high school graduates and 8% held a bachelor's degree. An additional 20% had some college and another 10% had 9th through 12th grade but no diploma. In 1989, the median *household* income was $16,307 with the median family income of $20,536 and the median non-family income of $10,769 (77% of the county average). The *per capita* income in 1989 was $10,293 (78% of the county average). Approximately 17% of persons for whom poverty status was determined (85% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was agriculture, forestry and fishing followed by retail trade.

Port of Beaufort

In 1990, Beaufort township had 7,568 residents allocated among 2,175 families and 3,092 households. According to 1990 Census data in Beaufort township, there were 201 persons employed in occupations of agricultural services, forestry and fishing (6% of all employed persons 16 or over)and146 employed in agriculture, forestry and fishing industries.

In 1990, 15% of the 3,622 housing units in the area were empty while 59% of the 3,070 occupied units were owner occupied and 26% were rental units.

In 1990, 75% of all residents had been born in the state of North Carolina and the next largest group (10%) were born in the southern United States. In the classification of persons age 5 and over, 63% were living in the same house in 1990 that they had occupied in 1985. An additional 21% were living in a different house in 1985 but still within Carteret County and 7% were living in a different house but still in North Carolina. In addition, 60% of all workers 16 and over worked in their county of residence.

The racial composition of Beaufort township in 1990 was 76% white and 22% black. When reporting first ancestry, English was the largest group (26%) followed by Hispanic origin (22%), then United States or American (13%). The majority of persons age 5 years and over speak English (40%) and no households were classified as linguistically isolated.

In 1990, 22% of port's residents age 25 and over were high school graduates and 6% held a bachelor's degree. In 1989, the median *household* income was $23,601 with the median family income of $28,342 and the median non-family income of $11,522. The *per capita* income in 1989 was $10,981.

According to the 1990 census, the largest employment sector was retail trade followed by public administration.

Dare County, North Carolina

Dare is one of 100 counties in North Carolina and is not part of a Metropolitan Area. In 1997, the total population of 27,935 individuals ranked 68th in the state.

PER CAPITA PERSONAL INCOME

In 1997, Dare had a PCPI of $21,624. This PCPI ranked 25th in the state, and was 93 % of the state average ($23,168) and 86 % of the national average ($25,288). The 1997 PCPI reflected an increase of 4.1 % from 1996. The 1996-97 state change was 5.1 % and the national change was 4.7 %.

TOTAL PERSONAL INCOME

In 1997, Dare had a TPI of $604,066* (*all income estimates with the exception of PCPI are in thousands of dollars). This TPI ranked 67th in the state and accounted for 0.4 % of the state total. The 1997 TPI reflected an increase of 8.4 % from 1996. The 1996-97 state change was 6.8% and the national change was 5.7 %.

COMPONENTS OF TOTAL PERSONAL INCOME

The TPI includes the earnings (wages, salaries, other labor income, and proprietors' income); dividends, interest, and rent; and transfer payments received by the residents of Dare. In 1997, earnings were 60.9 % of TPI; dividends, interest, and rent were 20.5%; and transfer payments were 18.6 %. From 1996 to 1997, earnings increased 9.4 %; dividends, interest, and rent increased 6.4 %; and transfer payments increased 7.4 %.

EARNINGS BY INDUSTRY

Earnings by persons employed in Dare increased from $374,509* in 1996 to $411,465* in 1997, an increase of 9.9 %. The largest industries in 1997 were retail trade (24.1 % of earnings), services (22.0 %), and construction (14.4 %). In 1997, the industries that accounted for at least 5% of earnings showed the slowest growing from 1996 to 1997 was state and local government (14.3% of earnings in 1997 which increased 7.8 %) while the fastest growing was finance, insurance, and real estate (10.7 % of earnings in 1997 which increased 11.1 %) (Regional Economic Information System, Bureau of Economic Analysis (*http://www.bea.doc.gov/bea/regional/bearfacts/bf9697/37/37055.htm*).

In 1990, Dare County had 22,746 residents allocated among 6,469 families and 9,359 households. For 1995, the population was estimated to be 26,847 and for 1998 to be 28,953. According to 1990 Census data in Dare County, there were 30 white, non-Hispanic male captains or other officers of fishing vessels and 440 fishermen (391 male non-Hispanic white, and 49 female non-Hispanic white).

In 1990, 57% of the 21,567 housing units in the county were empty while 29% of the occupied units were rental units and 53% of vacant units were for seasonal, recreational or occasional use.

In 1990, 41% of all residents had been born in the state of North Carolina and the next largest group (36%) were born in the Northeast United States. Furthermore, 35% of persons age 5 and over were living in the same house in 1990 that they had occupied in 1985. An additional 24% were living in a different house in 1985 but still within Dare County and 8% were living in a different house but still in North Carolina.

In 1990, the racial composition of Dare County was 95% white, 4% black, and 1% other groups. Furthermore, under 1% of all persons were of Hispanic origin. When reporting first ancestry, English was the largest group (23%), followed by German (15%), United States or American (11%), then Irish (9%). The vast majority of persons age 5 years and over speak only English (97%) and less than 1% of households are classified as linguistically isolated.

In 1990, 30% of county residents age 25 and over were high school graduates and 15% held a bachelor's degree. According to the Bureau of Labor Statistics, the civilian labor force in 1996 was 16,039 with a 5.9% unemployment rate. According to the 1999 CBP, there were 1,648 establishments employing 11,695 individuals with an annual payroll of $254 million. When fishing dependent industries are included, the level of dependence increases; however, it is difficult to calculate due to data reporting restrictions in the County Business Pattern data . Overall, 14% of establishments

in Dare County employ 1-19 employees.

In 1989, the median *household* income was $29,322 with the median family income of $34,891 and the median non-family income of $16,858. The *per capita* income in 1989 was $15,107. In 1997, the median *household* income was estimated to be $35,258 and 8% of the county's population was estimated to be living in poverty.

Recreational fishing by small boat (private, rental, charter) is popular in the Pamlico, Croatian, Albemarle, and Roanoke Sounds. Anglers can expect to catch a wide variety of fish including trout, spot, croaker, summer flounder, sheepshead, and at night, even red drum. Also popular is cobia, which hits its peak in late May or early June. In recent years, there have been good catches of striped bass during the fall, winter and spring.

There are public boat ramps located at numerous places including the Manteo waterfront, Oregon Inlet, Pirate's Cove, Kill Devil Hills on Durham Street and on Hatteras Island.

In addition, headboats which carry 40-50 people run half-day trips and stay in the sound and inlet waters. Depending on the season, the catch is usually spot, sea trout, summer flounder, croaker, and black sea bass.

In the summer, summer flounder, croaker and small bluefish are the mainstay, though spot, croaker and grey trout are also plentiful. Surffishing really takes off by Outer Banks standards in August when pompano and Spanish mackerel begin to make a showing and a few tarpon are hooked. September is the best month for all three (*http://www.outerbanks.org/fishing.htm*).

Port of Wanchese

In 1990, Wanchese had 1,374 residents allocated among 383 families and 503 households. According to 1990 Census data in Wanchese, there were 131 persons employed in occupations of agricultural services, forestry and fishing (19% of all employed persons 16 or over) and 137 employed in agriculture, forestry and fishing industries.

In 1990, 12% of the 583 housing units in the area were empty while 25% of the occupied units were rental units and 14% of the vacant units were classified as for seasonal, recreational or occasional use only while 11% were "usual home elsewhere."

In 1990, 61% of all residents had been born in the state of North Carolina and the next largest group (23%) were born in the southern United States. In the classification of persons age 5 and over, 53% were living in the same house in 1990 that they had occupied in 1985. An additional 27% were living in a different house in 1985 but still within Dare County and 4% were living in a different house but still in North Carolina. In addition, 38% of all workers 16 and over worked in their place of residence while 97% worked in their county of residence.

The racial composition of Wanchese in 1990 was 99% white. Only 1% of all persons were of Hispanic origin. When reporting first ancestry, United States or American was the largest group (28%) followed by English (14%), then German (10%). The majority of persons age 5 years and over speak only English (98%) and no households were classified as linguistically isolated.

In 1990, 31% of Wanchese residents age 25 and over were high school graduates and 5% held a only bachelor's degree. In 1989, the median *household* income was $25,977 (89% of the Dare County average) with the median family income of $28,828 (83% of the county average) and the median non-family income of $13,015 (77% of the county average). The *per capita* income in 1989 was $10,830 (72% of the county average). Approximately 9% of persons for whom poverty status was determined (99% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was agriculture, forestry and fishing followed by retail trade.

Wanchese is located on the southern part of Roanoke Island, located in the northern Outer Banks. This small fishing village is said to have changed as little as those who have lived here for generations (Cutchin 1997). The village actually received its name from a Native American leader named Wanchese who greeted these first English settlers in 1584. Wanchese was officially named when the federal postal system was established in 1886 (Cutchin 1997, Wilson *et al.* 1999).

Fishing has long been important to the town. Today, the village still revolves around fishing but has expanded to include processing plants. Though traditionally a commercial fishing community, recent growth in tourism and recreational fishing has sparked competition between the new and the old for a restricted resource (Wilson *et al.* 1999).

Wanchese's first fish house began in 1936 by the grandfather of the current generation that still runs two fish houses in the community. His son fished the first trawler in Wanchese in the 1950s. He took a little 65 foot wooden boat and converted it into a fishing trawler. The grandfather stayed and helped pack boats but he was a gillnetter at heart and would rather be catching fish. In those days, they were fishing more in Pamlico and Albemarle Sounds than in the ocean. They beach fished for sea mollusks, trout, croakers, spots, striped bass, and bluefish. In the Sounds, they fished croakers, butterfish, Spanish mackerel, spots, and pigfishes. With the trawler, they began flounder fishing in the winter. Then they would go offshore and catch some black sea bass later in the year. They bought another similar boat and then a WWI converted subchaser. The subchaser was the first boat to try scalloping. The owner of a third fish house built the first flynet in 1971 (Wilson *et al.*1999).

Fishermen along the Outer Banks and from Wanchese are especially sensitive to the historical importance of their fisheries and related marine lifestyles, beginning with the shore-based whaling fisheries of the early colonial period and going through subsequent periods where fishing families provided life-saving services to hundreds of ships that make up the "Ghost Fleet" of the Outer Banks. Fishermen mentioned the importance of this history in terms of the memories of old fishermen. One

claimed, for example, that there have been periods in local fishermen' pasts that they had to migrate to Florida because of declines in local fish stocks, making the argument that regulations need to consider extreme fluctuations in fish stocks as part of the economic hazards of commercial fishing. This same fisherman noted the importance of life-time experience in fishing and of the difference between knowledge gained through direct experience and knowledge gained through scientific methods. These methods may suffer from sampling biases, while the former may suffer from other kinds of biases (economic, political, religious, etc.), yet combining the two could far better inform the regulatory community than sole reliance on one or the other.

The heavy dependence on Wanchese as a fishing community demands special attention in this section. Seven principal families of seafood dealers ring the seafood industrial park and serve as the central locations of the estimated 200 fishing families who live in Wanchese as well as anchor the southern marketing behaviors of fishermen from as far away as New Bedford, Massachusetts and Portland, Maine. The fleets that originate from here, and the fishing activity focused by the seafood dealers and the ports, concentrate around the seafood industrial park and fleets of trawlers organized or encouraged by seafood dealers. The large, greater than100 foot vessels, have been less active recently and their captains and crews are now fishing from smaller crafts.

These arrangements have been replicated in the Newport News/Hampton area. As one leaves either Wanchese or migrates across the Chesapeake to Virginia's Eastern Shore and the other parts of the Delmarva Peninsula, more independent owner-operator fishing operations prevail. Some with long-time loyalties between fishermen and fish dealers that hinge on the questions of slip space and access. In recent years, fishermen in this region have become increasingly concerned that real estate development will entice dealers to sell their space to developers less interested in commercial fishing than in providing marinas and condominiums for recreational boating traffic (Dyer and Griffith 1996).

Hyde County, North Carolina

Hyde is one of 100 counties in North Carolina and is not part of a Metropolitan Area. In 1999, the total population for the county of 5,828 individuals ranked 99th in the state.

PER CAPITA PERSONAL INCOME

In 1999, Hyde had a PCPI of $17,613. This PCPI ranked 93rd in the state, and was 67 % of the state average, $26,417, and 62 % of the national average, $28,546. In 1989, the PCPI of Hyde was $13,476 and ranked 59th in the state. The average annual growth rate of PCPI over the past 10 years was 2.7 %. The average annual growth rate for the state was 4.8 % and for the nation was 4.4 %.

TOTAL PERSONAL INCOME

In 1999, Hyde had a TPI of $102,646*. This TPI ranked 99th in the state and accounted for 0.1% of the state total. In 1989, the TPI of Hyde was $73,982* and ranked 98th in the state. The average

annual growth rate of TPI over the past 10 years was 3.3 %. The average annual growth rate for the state was 6.4 % and for the nation was 5.4 %.

COMPONENTS OF TOTAL PERSONAL INCOME

The TPI includes the earnings (wages, salaries, other labor income, and proprietors's income); dividends, interest, and rent; and transfer payments received by the residents of Hyde. In 1999, earnings were 61.3 % of TPI (compared with 64.4 % in 1989); dividends, interest, and rent were 12.7 % (compared with 18.7 % in 1989); and transfer payments were 25.9 % (compared with 16.9 % in 1989). From 1989 to 1999, earnings increased on average 2.8 % each year; dividends, interest, and rent decreased on average 0.6 %; and transfer payments increased on average 7.8 %.

EARNINGS BY INDUSTRY

Earnings of persons employed in Hyde increased from $45,285* in 1989 to $62,417* in 1999, an average annual growth rate of 3.3 %. The largest industries in 1999 were state and local government (34.2 % of earnings), services (11.1 %), and retail trade (10.0 %). In 1999, the industries that accounted for at least 5 % of earnings in 1999 showed the slowest growing from 1989 to 1999 was farm (6.0 % of earnings in 1999 which decreased at an average annual rate of 13.5 %) while the fastest growing was state and local government which increased at an average annual rate of 10.0 %.

In 1990, Hyde County had 5,411 residents allocated among 1,572 families and 2,092 households. According to 1990 Census data in Hyde County, there were no captains or other officers of fishing vessels however, there were 235 fishermen (196 white non-Hispanic males, 38 black non-Hispanic males and 8 white non-Hispanic females).

In 1990, 28% of the 2,905 housing units in the county were empty while 56% of the 2,094 occupied units were owner occupied and 17% were rental units.

In 1990, 78% of all residents in Hyde County had been born in the state of North Carolina while another 10% were born in the southern part of the United States. Furthermore, 72% of persons age 5 and over were living in the same house in 1990 that they had occupied in 1985. An additional 16% were living in a different house in 1985 but still within Hyde County and 5% were living in a different house but still in North Carolina.

The racial composition of Hyde County in 1990 was 67% white and 33% black. When reporting first ancestry, English was the largest group (13%) followed by United States or American (11%), then German (8%). The vast majority of persons age 5 years and over speak English (98%).

In 1990, 35% of county residents age 25 and over were high school graduates and 5% held a bachelor’s degree. According to the Bureau of Labor Statistics, the civilian labor force in 1996 was 2,819 with a 9.5% unemployment rate. According to the 1999 CBP, there were 168 establishments

employing 938 individuals with an annual payroll of $17 million. When fishing dependent industries are included, the level of dependence increases; however, it is difficult to calculate due to data reporting restrictions in the County Business Pattern data. Overall, 95% of the establishments in Hyde County employ 1-19 employees.

In 1989, the median *household* income was $17,665 with the median family income of $19,929, and the median non-family *household* income of $10,286. The *per capita* income in 1989 was $9,434. In 1997, the median *household* income was estimated to be $23,568 while 24.8% of the county's population was estimated to be living in poverty.

Port of Engelhard

The fishermen of Engelhard fish out of the same areas as Wanchese fishermen. Engelhard has fewer ocean fishermen than in Wanchese but more than Belhaven. There are approximately twenty large boats in Engelhard. These boats use Oregon Inlet when it is navigable; however, most of the larger boats dock in the Virginia area during the winter because they can not use Oregon Inlet. Sometimes the larger boats have to go as far as Morehead City to get out into the ocean.

Ocean fishing generally starts in August when fishermen fish off of Chincoteague and Delaware Bay. They then work south as the season progresses and they continue fishing all the way down to Diamond Shoals. From mid-November to mid-January, some smaller boats fish south of Diamond Shoals. In mid-January, the big boats go to the edge around Norfolk Canyon and Washington Canyon. Small boats with double rigs will fish down to Ocracoke; however, most boats do not usually go much further south than Hatteras. These fishermen fish primarily for flounder; however, from September15 through March, many also fish for croaker, trout, bluefish, and sea mullet from off of Chesapeake Bay south. In October, November and December, croaker can be caught in the area between the shore and the Point. During the months of May and June, some boats go to Brunswick, Georgia to shrimp in the ocean. Those who continue to fish during this time go to Nantucket or to Georges Banks to fish for flounder (McCay and Cieri 2000).

Pamlico County, North Carolina

Pamlico is one of 100 counties in North Carolina and is not part of a Metropolitan Area. In 1999, the total population for the county of 12,314 individuals ranked 91st in the state.

PER CAPITA PERSONAL INCOME

In 1999, Pamlico had a PCPI of $21,919. This PCPI ranked 50th in the state, and was 83 % of the state average ($26,417) and 77 % of the national average ($28,546). In 1989, the PCPI of Pamlico was $14,545 and ranked 46th in the state. The average annual growth rate of PCPI over the past 10 years was 4.2 %. The average annual growth rate for the state was 4.8 % and for the nation was 4.4 %.

TOTAL PERSONAL INCOME

In 1999, Pamlico had a TPI of $269,912* (*all income estimates with the exception of PCPI are in thousands of dollars). This TPI ranked 89th in the state and accounted for 0.1 % of the state total. In 1989, the TPI of Pamlico was $164,115* and ranked 90th in the state. The average annual growth rate of TPI over the past 10 years was 5.1 %. The average annual growth rate for the state was 6.4 % and for the nation was 5.4 %.

COMPONENTS OF TOTAL PERSONAL INCOME

The TPI includes the earnings (wages, salaries, other labor income, and proprietors's income); dividends, interest, and rent; and transfer payments received by the residents of Pamlico. In 1999, earnings were 56.7 % of TPI (compared with 65.3 % in 1989); dividends, interest, and rent were 22.5 % (compared with 20.5 % in 1989); and transfer payments were 20.8 % (compared with 14.2 % in 1989). From 1989 to 1999, earnings increased on average 3.6 % each year; dividends, interest, and rent increased on average 6.1 %; and transfer payments increased on average 9.2 %.

EARNINGS BY INDUSTRY

Earnings of persons employed in Pamlico increased from $53,431* in 1989 to $85,714* in 1999, an average annual growth rate of 4.8 %. The largest industries in 1999 were services (26.4 % of earnings), state and local government (23.8 %), and retail trade (12.0 %). In 1989, the largest industries were state and local government (18.5 % of earnings), services (12.0 %), and retail trade (11.8 %). In 1999, the industries that accounted for at least 5 % of earnings showed the slowest growing from 1989 to 1999 was agricultural services, forestry, fishing, & other (5.1 % of earnings in 1999 which increased at an average annual rate of 3.2 %) and the fastest growing was services which increased at an average annual rate of 13.5 %.

Pamlico County fishermen work the same areas as the Wanchese fishermen. However, they are more likely to work their way north and carry their catches to Virginia or Cape May. The exceptions to this are in November and December when the fish are further south (between Currituck Light to Hatteras Inlet). Between January and April, the fish begin to move offshore and further north (McCay and Cieri 2000).

In 1990, Pamlico County had 11,372 residents allocated among 3,377 families and 4,489 households. According to 1990 Census data in Pamlico County, there were 36 white non-Hispanic captains or other officers of fishing vessels and 251 fishermen (222 white non-Hispanic males, 29 black non-Hispanic males, and 3 white non-Hispanic females).

In 1990, 25% of the 6,050 housing units in the county were empty while 81% of the 4,523 occupied units were owner occupied and 14% were rental units.

In 1990, 79% of all residents in Pamlico County had been born in the state of North Carolina while another 8% were born in the southern part of the United States. Furthermore, 66% of persons age 5 and over were living in the same house in 1990 that they had occupied in 1985. An additional 16% were living in a different house in 1985 but still within Pamlico County and 9% were living in a different house but still in North Carolina.

The racial composition of Pamlico County in 1990 was 73% white, 26% black, and less than 1% were of Hispanic origin. When reporting first ancestry, English was the largest group (17%) followed by United States or American (14%), then Irish (10%). The vast majority of persons age 5 years and over speak only English (96%).

In 1990, 31% of county residents age 25 and over were high school graduates and 8% held a bachelor's degree. According to the Bureau of Labor Statistics the civilian labor force in 1996 was 5,412 with a 5.1% unemployment rate. According to the 1999 CBP, there were 230 establishments employing 1,849 individuals with an annual payroll of $37 million. When fishing dependent industries are included, the level of dependence increases; however, it is difficult to calculate due to data reporting restrictions in the County Business Pattern data. Overall, 90% of the establishments in Pamlico County employ 1-19 employees.

In 1989, the median *household* income was $21,060 with the median family income of $26,168 and the median non-family *household* income of $10,000. In 1997, the median *household* income was estimated to be $28,629 while 16.8% of the county's population was estimated to be living in poverty.

Port of Bayboro

In 1990, the Port of Bayboro had 704 residents allocated among 197 families and 276 households. According to 1990 Census data in Bayboro, there were 14 persons employed in occupations of agricultural services, forestry and fishing (5% of all employed persons 16 or over) and 19 employed in agriculture, forestry and fishing industries.

In 1990, 11% of the 320 housing units in the area were empty while 23% of the 285 occupied units were rental units.

In 1990, 79% of all residents had been born in the state of North Carolina and 11% were born in the southern part of the United States. In the classification of persons age 5 and over, 60% were living in the same house in 1990 that they had occupied in 1985. An additional 22% were living in a different house in 1985 but still within Pamlico County and 7% were living in a different house but still in North Carolina. In addition, 18% of all workers 16 and over worked in their place of residence while 31% worked in their county of residence.

The racial composition of Bayboro in 1990 was 54% white and 45% black. When reporting first ancestry, English was the largest group (13%) followed by Irish (12%), then German (4%). The

majority of persons age 5 and over speak only English (61%) and none of the households are classified as linguistically isolated.

In 1990, 28% of residents age 25 and over were high school graduates and 7% held a bachelor's degree. In 1989, the median *household* income was $20,469 (97% of the Pamlico County average) with the median family income of $25,417 (97% of the county average) and the median non-family *household* income of $10,208 (2 % above the county average). The *per capita* income in 1989 was $10,947. Approximately 35% of persons for whom poverty status was determined (72% of all residents) had 1989 income below the poverty line.

According to the 1990 census, the largest employment sector was retail trade followed by educational services and construction.

Port of Oriental

In 1990, the Port of Oriental had 804 residents allocated among 284 families and 367 households. According to 1990 Census data in Oriental, there were 9 persons employed in occupations of agricultural services, forestry and fishing (3% of all employed persons 16 or over) and 9 were employed in agriculture, forestry and fishing industries.

In 1990, 24% of the 482 housing units in the area were empty while 21% of the 367 occupied units were rental units.

In 1990, 61% of all residents had been born in the state of North Carolina and the next largest group (16%) were born in the Northeast United States. In the classification of persons age 5 and over, 49% were living in the same house in 1990 that they had occupied in 1985. An additional 17% were living in a different house in 1985 but still within Pamlico County and 14% were living in a different house but still in North Carolina. In addition, 34% of all workers 16 and over worked in their place of residence while 9% worked in their county of residence.

The racial composition of Bayboro in 1990 was 87% white and 13% black. When reporting first ancestry, English was the largest group (29%) followed by German (11%), then Irish (8%). The majority of persons age 5 and over speak only English (90%) and none of the households are classified as linguistically isolated.

In 1990, 25% of residents age 25 and over were high school graduates and 19% held a bachelor's degree. In 1989, the median *household* income was $26,339 (25% above the county average) with the median family income of $30,000 (15% above the county average) and the median non-family *household* income of $11,442 (14% above the county average). The *per capita* income in 1989 was $14,719.

According to the 1990 census, the largest employment sector was retail trade followed by educational

services and manufacturing for durable goods.

Port of Vandemere

In 1990, the Port of Vandemere had 338 residents allocated among 94 families and 131 households. According to 1990 Census data in Vandemere, there were 35 persons employed in occupations of agricultural services, forestry and fishing (26% of all employed persons 16 and over) and 32 were employed in agriculture, forestry and fishing industries.

In 1990, 18% of the 152 housing units in the area were empty while 25% of the 124 occupied units were rental units.

In 1990, 89% of all residents had been born in the state of North Carolina and 5% were born in the Northeast United States. In the classification of persons age 5 and over, 75% were living in the same house in 1990 that they had occupied in 1985. An additional 16% were living in a different house in 1985 but still within Pamlico County and 4% were living in a different house but still in North Carolina. In addition, 27% of all workers 16 and over worked in their place of residence while 17% worked in their county of residence.

The racial composition of Vandemere in 1990 was 48% white and 52% black. When reporting first ancestry, English was the largest group (10%) followed by United States or American (9%), then German (5%). The majority of persons age 5 and over speak only English (97%) and none of the households are classified as linguistically isolated.

In 1990, 30% of residents age 25 and over were high school graduates and 5% held a bachelor's degree. In 1989, the median *household* income was $17,788 (84% of the county average) with the median family income of $18,864 (72% of the county average) and the median non-family *household* income of $15,250 (53% above the county average). The *per capita* income in 1989 was $7,836.

According to the 1990 census, the largest employment sector was agriculture, forestry and fisheries, followed by manufacturing of durable goods and retail trade.

Table 1. Ports that showed commercial landings of summer flounder, scup, and/or black sea bass, from Maine to North Carolina, 1999.

Port Name	State	County	summer flounder	scup	bsb	all three species
PORTLAND	ME	CUMBERLAND	X			
CHATHAM	MA	BARNSTABLE	X	X	X	X
COTUIT	MA	BARNSTABLE			X	
FALMOUTH	MA	BARNSTABLE	X	X	X	X
HARWICHPORT	MA	BARNSTABLE		X	X	
OTHER BARNSTABLE	MA	BARNSTABLE	X	X	X	X
PROVINCETOWN	MA	BARNSTABLE	X			
WOODS HOLE	MA	BARNSTABLE	X			
FALL RIVER	MA	BRISTOL	X	X	X	X
NEW BEDFORD	MA	BRISTOL	X	X	X	X
WESTPORT	MA	BRISTOL	X		X	
OTHER DUKES	MA	DUKES	X	X	X	X
GLOUCESTER	MA	ESSEX	X	X	X	X
NEWBURYPORT	MA	ESSEX	X	X	X	X
NANTUCKET	MA	NANTUCKET	X		X	
OTHER MASS	MA	NOT-SPECIFIED	X	X	X	X
PLYMOUTH	MA	PLYMOUTH	X	X	X	X
SCITUATE	MA	PLYMOUTH	X		X	
BOSTON	MA	SUFFOLK	X		X	
BRISTOL	RI	BRISTOL	X	X	X	X
OTHER KENT	RI	KENT	X	X	X	X
JAMESTOWN	RI	NEWPORT	X	X	X	X
LITTLE COMPTON	RI	NEWPORT	X	X	X	X
MELVILLE	RI	NEWPORT	X			
NEWPORT	RI	NEWPORT	X	X	X	X
PORTSMOUTH	RI	NEWPORT	X	X	X	X
TIVERTON	RI	NEWPORT	X	X	X	X
CHARLESTOWN	RI	WASHINGTON	X	X	X	X
NEW SHOREHAM	RI	WASHINGTON	X			
NORTH KINGSTOWN	RI	WASHINGTON	X	X	X	X
POINT JUDITH	RI	WASHINGTON	X	X	X	X
SOUTH KINGSTOWN	RI	WASHINGTON	X	X	X	X
WESTERLEY	RI	WASHINGTON	X	X	X	X
NORWALK	CT	FAIRFIELD	X			
CLINTON	CT	MIDDLESEX	X	X	X	X
OLD SAYBROOK	CT	MIDDLESEX	X	X	X	X
BRANFORD	CT	NEW HAVEN	X	X	X	X
EAST HAVEN	CT	NEW HAVEN	X	X	X	X
GUILFORD	CT	NEW HAVEN	X	X	X	X
EAST LYME	CT	NEW LONDON	X	X	X	X
GROTON	CT	NEW LONDON	X	X	X	X
LYME	CT	NEW LONDON	X			
MYSTIC	CT	NEW LONDON	X		X	
NEW LONDON	CT	NEW LONDON	X	X	X	X
NOANK	CT	NEW LONDON	X	X	X	X
OLD LYME	CT	NEW LONDON		X	X	
STONINGTON	CT	NEW LONDON	X	X	X	X
WATERFORD	CT	NEW LONDON	X	X	X	X
OTHER CONNECTICUT	CT	NOT-SPECIFIED	X	X		

Table 1 (continued). Ports that showed commercial landings of summer flounder, scup, and/or black sea bass, from Maine to North Carolina, 1999.

BROOKLYN	NY	KINGS	X	X	X	X
FREEPORT	NY	NASSAU	X	X	X	X
OTHER NASSAU	NY	NASSAU			X	
NEW YORK CITY	NY	NEW YORK		X	X	
OTHER NY	NY	NOT-SPECIFIED	X	X	X	X
OTHER QUEENS	NY	QUEENS			X	
AMMAGANSETT	NY	SUFFOLK	X	X	X	X
GREENPORT	NY	SUFFOLK	X	X	X	X
HAMPTON BAY	NY	SUFFOLK	X	X	X	X
MATTITUCK	NY	SUFFOLK	X	X	X	X
MONTAUK	NY	SUFFOLK	X	X	X	X
OTHER SUFFOLK	NY	SUFFOLK	X	X	X	X
ATLANTIC CITY	NJ	ATLANTIC			X	
OTHER ATLANTIC	NJ	ATLANTIC	X		X	
CAPE MAY	NJ	CAPE MAY	X	X	X	X
OTHER CAPE MAY	NJ	CAPE MAY	X			
SEA ISLE CITY	NJ	CAPE MAY	X	X	X	X
WILDWOOD	NJ	CAPE MAY	X	X	X	X
OTHER CUMBERLAND	NJ	CUMBERLAND	X			
OTHER ESSEX	NJ	ESSEX	X		X	
BELFORD	NJ	MONMOUTH	X	X	X	X
BELMAR	NJ	MONMOUTH	X			
HIGHLANDS	NJ	MONMOUTH			X	
NEPTUNE	NJ	MONMOUTH	X		X	
OTHER MONMOUTH	NJ	MONMOUTH	X		X	
LONG BEACH/BARNEGAT LIGHT	NJ	OCEAN	X	X	X	X
OTHER OCEAN	NJ	OCEAN	X		X	
PT. PLEASANT	NJ	OCEAN	X	X	X	X
OTHER UNION	NJ	UNION	X		X	
OTHER DELAWARE	DE	NOT-SPECIFIED	X		X	
INDIAN RIVER	DE	SUSSEX	X		X	
LEWES	DE	SUSSEX			X	
OTHER SUSSEX	DE	SUSSEX			X	
OTHER MARYLAND	MD	NOT-SPECIFIED	X	X	X	X
FLOOD CREEK	MD	ST. MARY'S	X			
HERRING CREEK	MD	ST. MARY'S	X			
ISLAND CREEK	MD	ST. MARY'S	X			
SMITH CREEK	MD	ST. MARY'S	X			
ST. GEORGES CREEK	MD	ST. MARY'S	X			
ST. PATRICK'S CREEK	MD	ST. MARY'S	X			
OCEAN CITY	MD	WORCESTER	X	X	X	X
CHINCOTEAGUE	VA	ACCOMAC	X	X	X	X
OTHER ACCOMAC	VA	ACCOMAC	X	X	X	X
WACHAPREAGUE	VA	ACCOMAC	X		X	
OTHER CHESTERFIELD	VA	CHESTERFIELD	X			
HAMPTON	VA	CITY OF HAMPTON	X	X	X	X
NEWPORT NEWS	VA	CITY OF NEWPORT NEWS	X	X	X	X
NORFOLK	VA	CITY OF NORFOLK	X		X	
OTHER CITY OF SUFFOLK	VA	CITY OF SUFFOLK	X			
VIRGINIA BEACH/LYNNHAVEN	VA	CITY OF VIRGINIA BEACH	X	X	X	X
OTHER ESSEX	VA	ESSEX	X			
OTHER GLOUCESTER	VA	GLOUCESTER	X			
OTHER ISLE OF WIGHT	VA	ISLE OF WIGHT	X			

Table 1 (continued). Ports that showed commercial landings of summer flounder, scup, and/or black sea bass, from Maine to North Carolina, 1999.

OTHER JAMES CITY	VA	JAMES CITY	X			
OTHER KING & QUEEN	VA	KING & QUEEN	X			
OTHER KING GEORGE	VA	KING GEORGE	X			
OTHER LANCASTER	VA	LANCASTER	X	X		
OTHER MATHEWS	VA	MATHEWS	X	X		
OTHER MIDDLESEX	VA	MIDDLESEX	X		X	
CAPE CHARLES	VA	NORTHAMPTON	X		X	
OTHER NORTHAMPTON	VA	NORTHAMPTON	X			
OYSTER	VA	NORTHAMPTON	X			
COAN RIVER	VA	NORTHUMBERLAND	X			
HULL CREEK	VA	NORTHUMBERLAND	X			
LITTLE WICOMICO RIVER	VA	NORTHUMBERLAND	X			
MUNDY POINT	VA	NORTHUMBERLAND	X			
OTHER NORTHUMBERLAND	VA	NORTHUMBERLAND	X		X	
OTHER VA	VA	NOT-SPECIFIED	X			
OTHER RICHMOND	VA	RICHMOND	X			
NOMINI BAY	VA	WESTMORELAND	X			
OTHER WESTMORELAND	VA	WESTMORELAND	X			
RAGGED POINT HOLLOW	VA	WESTMORELAND	X			
CITY OF SEAFORD	VA	YORK	X		X	
OTHER YORK	VA	YORK	X			
ATLANTIC	NC	CARTERET	X		X	
BEAUFORT	NC	CARTERET	X		X	
MOREHEAD CITY	NC	CARTERET	X	X	X	X
OTHER CARTERET	NC	CARTERET	X		X	
AVON	NC	DARE	X		X	
HATTERAS	NC	DARE	X		X	
	NC	DARE			X	
OTHER DARE	NC	DARE	X	X	X	X
WANCHESE	NC	DARE	X		X	
ENGELHARD	NC	HYDE	X		X	
OTHER NORTH CAROLINA	NC	NOT-SPECIFIED	X			
SWANSBORO	NC	ONSLOW	X			
BAYBORO	NC	PAMLICO	X		X	
HOBUCKEN	NC	PAMLICO	X		X	
LOWLAND	NC	PAMLICO	X			
ORIENTAL	NC	PAMLICO	X		X	
OTHER PAMLICO	NC	PAMLICO	X		X	
VANDEMERE	NC	PAMLICO	X		X	

Table 2. Ports With 10% or More Revenue Dependence on Summer Flounder, Scup, and/or Black Sea Bass, 1999.

Port	State	County	All Species Value ($)	Percent (%) Summer Flounder	Percent (%) Scup	Percent (%) Black Sea Bass	Percent (%) Summer Flounder, Scup, Black Sea Bass Mix
Falmouth	MA	Barnstable	118,464	47.69%	0.59%	0.23%	48.51%
Other Dukes	MA	Dukes	2,196,255	13.36%	2.02%	9.99%	25.37%
Nantucket	MA	Nantucket	510,147	46.22%	-	Confidential	Confidential
Other MA	MA	Not-Specified	2,578,272	0.35%	7.60%	7.37%	15.32%
Little Compton	RI	Newport	1,853,977	6.35%	18.16%	1.36%	25.88%
Newport	RI	Newport	8,740,253	4.97%	4.77%	0.37%	10.12%
Tiverton	RI	Newport	3,807,282	7.94%	1.74%	0.23%	9.90%
New Shoreham	RI	Washington	113,282	39.8%	-	-	39.82%
S. Kingstown	RI	Washington	207,760	Confidential	Confidential	Confidential	Confidential
Westerley	RI	Washington	161,815	Confidential	Confidential	Confidential	Confidential
Clinton	CT	Middlesex	164,988	Confidential	15.78%	0.22%	33.00%
East Lyme	CT	New London	199,495	7.83%	16.32%	0.17%	24.32%
Freeport	NY	Nassau	1,492,839	4.24%	7.12%	2.48%	13.84%
Ammagansett	NY	Suffolk	181,625	Confidential	Confidential	Confidential	Confidential
Hampton Bay	NY	Suffolk	8,471,407	8.33%	2.85%	1.37%	12.54%
Mattituck	NY	Suffolk	233,472	32.78%	11.98%	1.21%	45.97%
Montauk	NY	Suffolk	11,499,567	6.64%	1.76%	2.14%	10.54%
Cape May	NJ	Cape May	22,398,888	4.30%	3.17%	1.90%	9.34%
Sea Isle City	NJ	Cape May	1,646,613	0.73%	Confidential	10.38%	Confidential
Other Essex	NJ	Essex	906,139	10.47%	-	0.20%	10.66%
Belford	NJ	Monmouth	2,993,513	23.74%	0.08%	0.16%	23.98%

Table 2 (continued). Ports With 10% or More Revenue Dependence on Summer Flounder, Scup, and/or Black Sea Bass, 1999.

Port	State	County	All Species Value ($)	Percent (%) Summer Flounder	Percent (%) Scup	Percent (%) Black Sea Bass	Percent (%) Summer Flounder, Scup, Black Sea Bass Mix
Indian River	DE	Sussex	574,019	Confidential	Confidential	Confidential	Confidential
Lewes	DE	Sussex	119,757	-	-	Confidential	Confidential
Ocean City	MD	Worcester	6,192,175	5.41%	0.01%	9.76%	15.18%
Chincoteague	VA	Accomac	2,138,891	30.00%	0.01%	6.21%	36.21%
Hampton	VA	City of Hampton	8,670,343	10.87%	0.01%	3.69%	14.57%
VA Beach/Lynn Haven	VA	City of VA Beach	4,347,932	0.36%	Confidential	14.60%	Confidential
Atlantic	NC	Carteret	1,003,298	12.14%	-	0.06%	12.20%
Beaufort	NC	Carteret	3,653,821	18.95%	-	1.00%	19.96%
Other Carteret	NC	Carteret	224,897	Confidential	-	Confidential	Confidential
Wanchese	NC	Dare	9,748,684	13.26%	-	2.00%	15.27%
Engelhard	NC	Hyde	4,244,478	10.87%	-	0.71%	11.58%
Bayboro	NC	Pamlico	507,960	24.85%	-	Confidential	Confidential
Lowland	NC	Pamlico	522,277	19.16%	-	-	19.16%
Oriental	NC	Pamlico	3,518,360	11.82%	-	0.04%	11.85%
Vandemere	NC	Pamlico	1,516,704	10.02%	-	0.01%	10.03%

Table 3. Counties containing one or more ports that showed 10% or more commercial revenue dependence on summer flounder, scup, and/or black sea bass, 1999.

State	County[a]	Population[b]	Employment[c]	Total Personal Income[d] (million of $'s)	Commercial Fishing Employment	Percent of Personal Income Derived from Commercial Fishing	Fresh and Frozen Seafood Processing Employment	Percent of Personal Income Derived from Seafood Processing
MA	Barnstable	213,221	120,375	3,729.63	1,105	0.68%	32	0.03%
MA	Dukes	14,208	11,020	321.495	30	0.26%	0	0
MA	Nantucket	8,025	8,128	260.903	188	1.53%	0	0
MA	All Other	6,053,331	3,821,066	157,987.07	5,658	0.10%	2,081	0.05%
RI	Newport	87,401	49,389	1,783.76	457	0.52%	0	0
RI	Washington	127,249	59,155	1,764.21	1,357	2.42%	77	0.15%
CT	Middlesex	155,232	84,700	3,389.06	58	0.04%	0	0
CT	New London	254,254	157,529	6,142.68	99	0.03%	0	0
NY	Nassau	1,355,236	748,564	31,851.12	153	0.01%	*	*
NY	Suffolk	1,427,096	695,522	27,877.06	563	0.03%	*	*
NJ	Cape May	100,736	52,277	1,497.58	698	1.09%	*	*
NJ	Essex	770,678	444,792	20,947.53	*	*	125	0.02%
NJ	Monmouth	619,846	304,465	12,480.74	81	0.01%	*	*
DE	Sussex	140,374	84,060	2,761.88	224	0.06%	*	*
MD	Worcester	43,470	30,109	694.625	83	0.10%	0	0
VA	Accomac	32,805	17,098	387.305	298	0.88%	337	1.15%
VA	City of Hampton	139,348	85,953	2,962.99	79	0.04%	116	0.09%
VA	City of VA Beach	439,892	223,837	6,530.41	14	<0.01%	0	0
NC	Carteret	62,315	30,253	657.077	61	0.02%	25	0.09%
NC	Dare	30,042	23,643	492.549	*	*	19	0.05%
NC	Hyde	5,823	3,764	3,839.13	269	0.05%	178	0.07%
NC	Pamlico	12,810	4,368	114.641	417	2.39%	96	1.54%

* = < 10 observations.

a = Data obtained from the Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive West, Suite 140, Stillwater, MN 55082, www.implan.com, 1999.
b = Year-round population.
c = Includes both full-time and part-time workers.
d = Includes employee compensation (wage and salary payments and benefits paid by employers) and proprietary income (payments received by self-employed individuals as income).