

**FRAMEWORK ADJUSTMENT 2**  
**TO THE**  
**SUMMER FLOUNDER, SCUP, AND BLACK SEA BASS**  
**FISHERY MANAGEMENT PLAN**

**(Includes Environmental Assessment and Regulatory Impact Review)**

**January 2001**

**Mid-Atlantic Fishery Management Council**  
**and the**  
**the Atlantic States Marine Fisheries Commission,**  
**in cooperation with**  
**the National Marine Fisheries Service,**  
**the New England Fishery Management Council,**  
**and**  
**the South Atlantic Fishery Management Council**

Draft adopted by MAFMC:

Final adopted by MAFMC:

Final approved by NOAA:



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***A Publication of the Mid-Atlantic Fishery Management Council pursuant  
to National Oceanic and Atmospheric Administration Award No.  
NA57FC0002***

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## EXECUTIVE SUMMARY

Framework 2 to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan, prepared by the Mid-Atlantic Fishery Management Council, is intended to manage the summer flounder fishery pursuant to the Magnuson-Stevens Fishery Conservation Act of 1976, as amended by the Sustainable Fisheries Act. The purpose of this framework is to implement conservation equivalency for the recreational summer flounder fishery. Although conservation equivalency has been used for fishing years 1999 and 2000, it was only implemented as an interim measure and will no longer be available as a management tool after September 2000. The Mid-Atlantic Fishery Management Council and Atlantic States Marine Fisheries Commission must amend the current FMP to include conservation equivalency as a tool to regulate the summer flounder coastwide recreational harvest limit. Six possible alternatives to achieving the coastwide recreational harvest limit include:

- 1) A system that allows the Mid-Atlantic Fishery Management Council and Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass Management Board to decide on an annual basis whether to (a) require all states to develop state-specific conservation equivalent management measures using guidelines agreed upon by the Council and Board or (b) specify coastwide measures to achieve the coastwide recreational harvest limit (Preferred Alternative).
- 2) A system in which three subregions of the coast develop region-specific measures to achieve the coastwide recreational harvest limit (Non-preferred Alternative 1).
- 3) A system where states in each subregion use subregional data to develop state-specific minimum size limits, possession limits, and closed seasons to achieve the coastwide recreational harvest limit (Non-preferred Alternative 2).
- 4) State-by-state allocation of the coastwide recreational harvest limit (Non-preferred Alternative 3).
- 5) Coastwide management measures to achieve the coastwide recreational harvest limit (No action, Non-preferred Alternative 4).
- 6) A system like the one currently in place under the interim rule where states choose either a coastwide measure or equivalent measures to achieve the coastwide recreational limit (Non-preferred Alternative 5).

The Mid-Atlantic Fishery Management Council and Atlantic States Marine Fisheries Commission are requesting public input on all of the alternatives. These alternative are discussed in further detail in this document.

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## **1.0 INTRODUCTION AND BACKGROUND**

### **1.1 History of FMP Development**

The Mid-Atlantic Fishery Management Council (Council) first considered the development of a fishery management plan for summer flounder in late 1977. During the early discussions, the fact that a significant portion of the catch was taken from state waters was considered. As a result, on 17 March 1978 a questionnaire was sent by the Council to east coast state fishery administrators seeking comment on whether the plan should be prepared by the Council or by the states acting through the Atlantic States Marine Fisheries Commission (Commission).

It was decided that the initial plan would be prepared by the Commission. The Council arranged for National Marine Fisheries Service (NMFS) to make some of the Council's programmatic grant funds available to finance preparation of the Commission's plan. New Jersey was designated as the state with lead responsibility for the plan. The state/federal draft was adopted by the Commission at its annual meeting in October 1982. The original Council Summer Flounder Fishery Management Plan (FMP; MAFMC 1988) was based on the Commission's management plan. NMFS approved the original FMP on 19 September 1988.

Amendment 1 to the FMP was developed in the summer of 1990 solely to protect the 1989 and 1990 year classes by imposing a minimum net mesh size comparable to the 13" minimum fish size included in the original FMP. On 15 February 1991 the Council was notified that NMFS had approved the overfishing definition for summer flounder contained in Amendment 1, but had disapproved the minimum net mesh provision.

The Council adopted the hearing draft of Amendment 2 on 29 May 1991. The amendment was also adopted for hearings at the May meeting of the ASMFC Interstate Fishery Management Program Policy Board. Amendment 2 was approved by NMFS on 6 August 1992.

Amendment 3 to the Summer Flounder FMP was developed in response to fishermen's concerns that the demarcation line for the small mesh exempted fishery bisected Hudson Canyon and was difficult to enforce. Amendment 3 revised the Northeast exempted fishery line to 72°30.0'W. In addition, Amendment 3 increased the large mesh net threshold to 200 lbs during the winter fishery, 1 November to 30 April. Furthermore, Amendment 3 stipulated that otter trawl vessels fishing from 1 May through 31 October could only retain up to 100 lbs of summer flounder before using the large mesh net. Amendment 3 was approved by the Council on 21 January 1993 and submitted to NMFS on 16 February 1993.

Amendment 4 adjusted Connecticut's commercial landings of summer flounder and revised the state-specific shares of the coastwide commercial summer flounder quota as requested by ASMFC. Amendment 5 allowed states to transfer or combine the commercial quota. Amendment 6 allowed multiple nets on board as long as they were properly stowed and changed the deadline for publishing the overall catch limits and commercial management measures to 15 October and the recreational management measures to 15 February. Amendment 7 revised the fishing mortality rate reduction schedule for summer flounder.

Amendment 8 established management measures for scup (*Stenotomus chrysops*) and

Amendment 9 established a management program for black sea bass (*Centropristis striata*). Both of these were major amendments that implemented a number of management measures for scup and black sea bass including commercial quotas, commercial gear requirements, minimum size limits, recreational harvest limits, and permit and reporting requirements.

Amendment 10 made a number of changes to the summer flounder regulations implemented by Amendment 2 and later amendments to the Summer Flounder, Scup and Black Sea Bass FMP. Specifically this amendment modified the commercial minimum mesh regulations, continued the moratorium on entry of additional commercial vessels, removed provisions that pertain to the expiration of the moratorium permit, prohibited the transfer of summer flounder at sea, and established a special permit for party/charter vessels to allow the possession of summer flounder parts smaller than the minimum size.

Amendment 11 was implemented to achieve consistency among Mid-Atlantic and New England FMPs regarding vessel replacement and upgrade provisions, permit history transfer, splitting, and renewal regulations for fishing vessels issued Northeast Limited Access federal fishery permits.

Amendment 12 was developed to bring the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan into compliance with the new and revised National Standards and other required provisions of the Sustainable Fisheries Act (SFA). Specifically, the amendment revised the overfishing definitions (National Standard 1) for summer flounder, scup, and black sea bass and addressed the new and revised National Standards (National Standard 8 - consider effects on fishing communities, National Standard 9 - reduce bycatch, National Standard 10 - promote safety at sea) relative to the existing management measures. The Amendment also identified essential habitat for summer flounder, scup and black sea bass. In addition, Amendment 12 added a framework adjustment procedure that allows the Council to add or modify management measures through a streamlined public review process. Amendment 12 was partially approved on 28 April 1999.

It should be noted that any management measure implemented by an earlier amendment not specifically referenced in this framework is intended to continue in force.

## **1.2 Management Objectives**

The objectives of the FMP are:

1. Reduce fishing mortality in the summer flounder, scup, and black sea bass fisheries to assure 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 these fisheries.
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.

### **1.3 Management Unit**

The management unit is summer flounder (*Paralichthys dentatus*) in US waters in the western Atlantic Ocean from the southern border of North Carolina northward to the US-Canadian border, and scup (*Stenotomous chrysops*) and black sea bass (*Centropristis striata*) in US waters in the western Atlantic ocean from Cape Hatteras, North Carolina northward to the US-Canadian border.

### **1.4 Management Strategy**

This framework will provide the information and analyses necessary to implement a system of conservation equivalency for the recreational fishery of summer flounder to achieve the annual recreational harvest limit. The Council intends to continue the management programs detailed in the summer flounder, scup, and black sea bass FMP and reduce overfishing and rebuild the summer flounder, scup, and black sea bass stocks.

## **2.0 PURPOSE AND NEED FOR ACTION**

### **2.1 Conservation Equivalency**

The recreational summer flounder fishery is managed through an annual evaluation process and is based on a coastwide recreational harvest limit. After the annual coastwide recreational harvest limit is determined by the Council and Commission's Summer Flounder, Scup, and Black Sea Bass Management Board (Board), the Summer Flounder Monitoring Committee meets to review scientific and other relevant information and recommend management measures necessary to achieve that limit. These management measures include minimum fish size, possession limits, and closed seasons. However, summer flounder migrations may result in differences in availability to the recreational fishery in each state. These differences make it difficult to choose coastwide management measures that are equitable to all geographic regions. The purpose of this framework is to propose a management system that will (1) constrain the recreational summer flounder fishery to the coastwide recreational harvest limit; and (2) allow states to customize summer flounder recreational management measures in order to deal with burden issues associated with the implementation of coastwide measures.

Although conservation equivalency has been used to achieve the coastwide recreational harvest limit for fishing years 1999 and 2000, it was only implemented as an interim measure and as such, was no longer available as a management tool after September 2000. The Council and Board must amend the FMP, to continue to use conservation equivalency as a tool to regulate the summer flounder recreational fishery.

### **2.2 Problems for Resolution**

Summer flounder migrations may result in differences in availability to the recreational fishery

in each state. These differences make it difficult to choose coastwide management measures that are equitable to all geographic regions. For example, it was estimated that the 1999 coastwide recreational management measures (15 inch minimum size limit, an 8-fish possession limit, and a closed season from January 1 - May 28 and September 12 - December 31) would reduce landings by 41% on a coastwide basis, relative to 1998 landings. However, predicted reductions for individual states range from 10.7% for Massachusetts to 69.6% for North Carolina, with a disproportionately high impact of the closed season on southern states (Table 1).

The Council and Board implemented conservation equivalency as an emergency action in the summer flounder recreational fishery in 1999. The Final Rule for Recreational Measures for 1999 for the Summer Flounder Scup and Black Sea Bass Fishery Management Plan implemented the interim measures for summer flounder conservation equivalency for the federal FMP from September 9, 1999 through March 9, 2000. The interim rule was extended through September 5, 2000. Under the interim rule, states can select a combination of minimum fish sizes, possession limits, and closed seasons or the coastwide management measures to constrain recreational landings. However, under the interim rule states can choose management measures that may not achieve the harvest limit. For example, in the fishing year 1999 the target reduction of landings for each state was 41%. Table 2 presents the 1999 management measures chosen by each state, and their predicted and actual reduction of landings relative to 1998. For example, the state of Rhode Island chose coastwide management measures which predicted a 20.7% reduction in landings, but actually resulted in a 9.4% increase in landings. Maryland and Virginia implemented state-specific management measures which predicted a 33.8% and 36.3% reduction in landings, respectively, but actually resulted in a 10% increase and 67.5% decrease, respectively.

### **3.0 PREFERRED AND ALTERNATIVE MANAGEMENT MEASURES**

#### **3.1 Preferred Management Measure**

##### **3.1.1 Preferred Alternative: annual decision by the Council and Board for (a) conservation equivalency by state for all states or (b) coastwide management measures**

Under this alternative, the Council and Board, with the advice of the Summer Flounder Monitoring Committee, would establish the recreational harvest limit and choose recreational management measures to achieve the harvest limit on a coastwide basis. On an annual basis, the Council and Board would decide in December, whether to (a) require all states to develop state-specific conservation equivalent management measures using guidelines agreed upon by the Council and Board or (b) use the coastwide measures to achieve the coastwide recreational harvest limit. The Council and Board will receive state-specific tables by the December joint meeting in order to make an informed decision. If coastwide measures are chosen, the provision that allows states to shift the closure within the same wave, currently available under the FMP, will not be available.

Conservation equivalent measures would be defined as state specific measures that constrain recreational landings on a state specific basis to achieve the coastwide recreational harvest limit. If conservation equivalent measures were chosen, the Commission staff would summarize guidelines agreed upon by the Council and Board for states to determine equivalent measures.

These guidelines would include, but would not be limited to: the overall required reduction in landings, the percent reduction required by each state, the rate of effectiveness of regulations, precautionary default measures, minimum management measures (e.g., a 15.5 total length minimum size limit), and any procedures to be adhered to when states develop equivalent measures.

Precautionary default measures are defined as measures that would achieve at least the overall required reduction in landings for each state. For example, in 1999 a 41% reduction in landings was required. Appropriate precautionary default measures would be a one fish possession limit and a 15.5 inch total length size limit, which would have achieved at least a 41% reduction in each state, assuming 85% effectiveness of regulations. Precautionary default measures should be voted on at the joint meeting when conservation equivalent measures are chosen.

At the joint meeting in December the Council and Board will also choose between coastwide measures or conservation equivalency. Should the Council and Board choose state conservation equivalency measures the Council will submit to NMFS, the intent to use conservation equivalency as the preferred alternative and the coastwide measures as one of the non-preferred alternatives. Although this process acknowledges that the Council is requesting the implementation of state conservation equivalency measures and/or the precautionary default measures (depending of the Commission recommendation for each state), it is also necessary for the Council to submit the coastwide measures to NMFS for publication in the Federal Register.

The need for the coastwide measures is two-fold. Since individual state proposals will not be included in the publication of the proposed rule, by providing both the precautionary default and coastwide measures NMFS can publish the two extreme sets of measures that would satisfy the percent reduction required for recreational landings. This will inform the public of the worse case scenarios and provide opportunity for the public to comment on these measures. Secondly, as described in this section, the publication of the proposed rule is on a parallel track with the Board's decision to approve or disapprove individual states proposals. During the Technical Committee and Board decision phases, a situation may arise where there is a change of direction and the Board may reconsider its choice of state equivalency in favor of coastwide measures. By publishing the coastwide measures in the proposed rule, NMFS can accommodate the Commissions recommendation for coastwide measures rather than state conservation equivalency measures. If the coastwide measures were not published in the proposed rule, NMFS would not have the flexibility to approve this recommendation if requested by the Commission. As specified in above, the Commission's decision must apply to all states and not individual states.

### **3.1.1.1 Procedures for conservation equivalency determinations**

Earlier drafts of the framework document included procedures for conservation equivalency determinations, to be considered by the Council, Board, and public. The following procedure is the preferred option chosen by the Council at the first framework meeting and revises the conservation equivalency procedures presented in earlier drafts of this framework document (Table 3). If the Council and Board decided to use conservation equivalency the following procedure would apply.

A) Late December - Commission staff summarizes the guidelines (see section 3.1.1) agreed upon by the Council and Board to determine conservation equivalent measures, and distributes them to the states.

B) Early January - A state must submit a proposal to the Commission staff at least two weeks prior to the Technical Committee meeting.

C) January 15 - Commission staff distributes the states' conservation equivalency proposals to the Technical Committee and the Board. Council staff submits the recreational specification package to NMFS. The package would include the overall percent reduction in landings required, coastwide measures (as a non-preferred alternative), and the recommendation to implement conservation equivalency (as the preferred alternative) and precautionary default measures.

D) Late January - The Technical Committee evaluates each state's proposal and advises the Board of the proposal's consistency with achieving the coastwide recreational harvest limit. Commission staff is responsible for compiling the Technical Committee recommendations and presenting them to the Board for determination.

E) February - The Board approves or disapproves the state proposals. If it is determined that a proposal is not consistent, then that state would be required to implement the precautionary default measures. States that do not submit proposals will be required to adopt the the precautionary coastwide default measures, unless the Board gives the state a chance to recalculate management measures, following the guidelines set forth by the Council and Board. In this case, the Board's would detail the procedures by which the state can develop alternative measures.

F) March 1 (on or about) - NMFS publishes the proposed rule for recreational measures to announce the overall percent reduction in landings, the Council and Board's recommendation of state conservation equivalency (as the preferred alternative), the precautionary default measures, and coastwide measures (as the non-preferred alternative).

G) March 15 - The Board submits comments to NMFS during the comment period to inform NMFS about the approval or disapproval of the state conservation equivalency proposals.

H) April - NMFS publishes the final rule announcing the overall required reduction in landings and the state specific conservation equivalency measures and precautionary default measures, or coastwide measures.

The proposed rule specifying the total harvest level, including the commercial quota and recreational harvest limit, as well as any other necessary measures for the commercial fishery, is to be published by October 15 so that the rulemaking process can be completed and final rule published prior to the beginning of the fishing year on January 1. A second proposed rule is to be published on or about March 1, specifying recreational management measures (coastwide or equivalent, including: minimum fish size, possession limit, and/or seasons) necessary to

constrain the recreational harvest to the specified limit. This schedule of publication would allow a final rule for recreational management measures to be effective by approximately May 1.

If conservation equivalency is recommended the following guidelines must also be addressed.

1. Under conservation equivalency, states will not be allowed to implement measures by mode or area unless the proportional standard errors (PSEs) of MRFSS landings estimates by mode or area for that state are less than 30%. PSE expresses the standard error of a landings estimate as a percentage of that estimate, and is a measure of the precision of the landings estimate. The 30% PSE was chosen as a threshold by the Council and Board.
2. The states would use state-specific tables to develop and implement recreational management measures to achieve the necessary reduction. Tables would be adjusted for to account for effectiveness of the regulations. It would be the responsibility of the states to determine which possession limits, size limits, and closed seasons would constrain their landings to the harvest limit.
3. Implementation of approved equivalent measures by the states as recommended by the Council/Board must be a compliance criterion under the Commission plan. The Council/Board will forward its recommendation to NMFS, with necessary supporting documents, for review. Proof of implementation will be required to fulfill the compliance criterion.
4. States that do not propose conservation equivalent measures or states that did not receive a determination of conservation equivalency from the Board will be required to implement the precautionary default measures, unless the Board gives the state a chance to recalculate management measures, following the guidelines set forth by the Council and Board. In this case, the Board would detail the procedures by which the state can develop alternate measures.
5. Once a state receives a determination of equivalency from the Board, the Commission will recommend to the Regional Administrator that a notification be published in the Federal Register to waive the annual Federal summer flounder measures specified under Sec. 648.100(c) and to notify vessel permit holders of the equivalent measures approved by the Board for landing summer flounder in that state.
6. Since conservation equivalency would allow all states to establish unique measures, the issue of applicability and enforcement would be addressed. Currently, NMFS issues only charter/party permits for the recreational summer flounder fishery in the EEZ. Section 648.4(b) of the regulations specifies permit conditions that will have to be modified to address conservation equivalency. Specifically, any person who applies for a fishing permit must agree as a condition of the permit that the vessel and the vessel's fishing activity, catch, and pertinent gear (without regard to whether such fishing activity occurs in the EEZ or landward of the EEZ, and without regard to where such fish or gear is possessed, taken or landed), is subject to all requirements of part 648, unless exempted from such requirements. All such fishing activities, catch, and gear will remain subject

to all applicable state requirements. Except as otherwise provided, if a requirement of part 648 and a management measure required by a state or local law differ, any vessel owner permitted to fish in the EEZ for any species managed under part 648 must comply with the more restrictive requirement. Federal permit holders who land in states with an approved conservation equivalent program in place would have the permit conditions in § 648.4(b) waived. Those vessels would be required to abide by the appropriate requirements of the state in which they land summer flounder. Federal permit holders possessing or landing summer flounder in a state that failed to implement conservation equivalent measures, would be bound by the precautionary default measures. A waiver/exemption would be authorized by the RA and entered by a notice in the *Federal Register*. Permit holders would be notified via mailing. NMFS recommended that the Council and Board consider the following two exemption options:

**Option A** (Preferred Option). The Federal permit condition would be waived/exempted for vessels landing in a state with an approved conservation equivalent program. Those vessels would be required to abide by the appropriate state requirements.

**Option B** (Non-preferred Option). Vessels fishing in the EEZ would be subject to the regulations of the state where the vessel is registered or homeported, or where the fish are landed, whichever is more restrictive, as currently specified in the interim rule.

The general consensus of the Council and Board at the first framework meeting was that Option A is the more enforceable of the two alternatives.

This alternative revises the system of conservation equivalency established by interim action used in 1999 and 2000. Specifically, individual states would not have the choice between conservation equivalent measures and coastwide measures. Instead, the Council and Board would decide to use either conservation equivalent measures or coastwide measures. The interim measures have allowed states to adopt coastwide measures that may be more liberal than equivalent measures, thus compromising the effectiveness of the measures to control harvest.

## **3.2 Alternative to Preferred Management Measures**

### **3.2.1 Non-preferred Alternative 1: conservation equivalency by subregions**

Under this alternative the coastwide recreational harvest limit would be divided into three subregions: Northern (MA, RI, CT), Central (NY, NJ, DE), and southern (MD, Potomac River Fisheries Commission [PRFC], VA, and NC). Region-specific tables would be used to determine which possession limits, size limits, and closed seasons would constrain recreational landings to the coastwide recreational harvest limit (Tables 4 and 5). Tables would be adjusted for each region, to account for past effectiveness of the regulations. The states within the subregion would choose a subregional size limit, possession limit, and closed season that would constrain landings to the appropriate level. If this alternative was chosen subregions would not be allowed to implement measures by mode or area unless the PSE of mode or area for that subregion is less than 30%. PSE expresses the standard error of a landings estimate as a percentage of that estimate. The management measures within the subregion would be the same for each state in that subregion.

Using the size and possession limit tables, a size limit of 15.5 inches and a possession limit of 8 fish would reduce landings by 19.5% in the Northern subregion, 30.4% in the Central subregion, and 35.7% in the southern subregion. A closed season from January 1 through May 26 and August 15 through December 31 (open season from May 27 through August 14) in the Northern subregion would further reduce landings by 24.3%. A closed season from January 1 to May 26 and October 1 to December 31 (open season from May 27 to September 31) in the Central subregion would further reduce landings 13.9%. A closed season from January 1 through March 31 and October 1 through December 31 (open season from April 1 to September 31) in the southern subregion would further reduce landings by 7.0%. These combinations of minimum fish size, possession limit, and closed season would be sufficient to reduce landings by at least 41%, relative to 1998 landings in each subregion. However, states within each subregion may still be affected inequitably by the subregional measures. For example, the southern subregion management measures referred to above may result in a 22.9% reduction in landings for Virginia and a 62.6% reduction in North Carolina (Non-preferred Alternative 1 in Table 6).

### **3.2.2 Non-preferred Alternative 2: conservation equivalency by state using subregional data**

Under this alternative, individual states within subregions would develop equivalent measures using appropriate subregional size limit, possession limit, and season tables to achieve the coastwide recreational harvest limit. The subregional data sets are larger and more precise than the state-specific data sets. Subregional tables would be used, by individual states within each subregion, to determine which possession limit, size limit, and closed season would constrain recreational landings to the coastwide recreational harvest limit (Tables 4 and 5). Tables would be adjusted for each state to account for past effectiveness of the regulations. If this alternative were chosen states would not be allowed to implement measures by mode or area unless the PSE by mode or area for that subregion is less than 30%. PSE expresses the standard error of a landings estimate as a percentage of that estimate. States would bring a proposal before the Board to be approved in the same manner as the Preferred Alternative.

For example, if each subregion was required to reduce landings by 41% relative to 1998 landings, a size limit of 15.5 inches and a possession limit of 8 fish and a closed season from January 1 through March 31 and October 1 through December 31 (open season from April 1 to September 31), would result in a 42.7% reduction in landings in the southern subregion. The state of Virginia could choose this alternative. However, North Carolina could use the same regional data to develop an alternative that included a 15 inch size limit with a 5 fish bag limit and closed season from January 1 through May 26 (open season from May 27 through December 31) for a total reduction of 42.4%.

### **3.2.3 Non-preferred Alternative 3: state by state allocations**

Under this alternative the coastwide recreational harvest limit would be allocated to the states based on historic landings. Options for base periods could be a five year period before the recreational fishery was regulated (1988-1992), a ten year period before the recreational fishery was regulated (1983-1992), or 1998, the most recent year that regulations were consistent from state to state. Table 7 indicates percentages of landing for different base periods for each state from Maine through North Carolina. The difficulty with this management measures is choosing

a base period that is reflective of the current status of the fishery. The most recent year's landings may reflect a regulation effect rather than the status of the fishery. Choice of a period of years before the regulations went into effect may be a better indication of the historical status of the fishery. States would be responsible for developing management measures that ensure that allocations are attained. If this alternative were chosen subregions would not be allowed to implement measures by mode or area unless the PSE by mode or area for that state is less than 30%. PSE expresses the standard error of a landings estimate as a percentage of that estimate.

Prior to 1999, recreational management measures were determined by deciding which limits would constrain the previous year's landings to the recreational harvest limit for the current year. For the fishing year 2000, the Council and Board decided that 1999 landings could not be used to determine management measures to attain the recreational harvest limits for 2000 because management measures differed from state to state in 1999. Instead they recommended that the Council and Board base 2000 reductions on 1998 data. The use of a base year to determine how much of a reduction is necessary on a state-by-state basis to achieve the coastwide recreational harvest limit is a form of state by state allocation.

#### **3.2.4 Non-preferred Alternative 4: coastwide management measures (no action alternative)**

Under this alternative, the recreational summer flounder fishery would be managed as it was from 1993 to 1998. Coastwide recreational management measures would be developed by the Council and Board using tables to determine which size limit, possession limit, and closed season would constrain coastwide landings to the recreational harvest limit. Those measures would be implemented by the states to achieve the limit, i.e., recreational management measures would be consistent from state to state. However, coastwide measures may result in unequal impacts among states.

This alternative is also available under the Preferred Alternative with one exception. Coastwide seasons were established with the provision that allowed states to shift the closure within the same wave. In general, states used this provision to maximize fishing opportunities for the fishermen in their states resulting in little or no effect on coastwide recreational landings. This provision, which would still be available under this alternative, is not available under the Preferred Alternative.

#### **3.2.5 Non-preferred Alternative 5: states have choice of conservation equivalent or coastwide management measures**

This alternative would continue the conservation equivalency system currently in place under the interim rule, which allows states to choose either coastwide measures or equivalent measures to achieve the coastwide recreational limit (Non-preferred Alternative 5).

In the fishing years 1999 and 2000 the Council and Board chose coastwide management measures to achieve the recreational harvest limit for 1999 and 2000 fishing season. Each state then had to choose to implement the coastwide management measures or adopt conservation equivalent measures that resulted in the same percentage reduction in landings as the coastwide management measures using state-specific data. In general, states chose the alternative that would result in the lowest reduction in landings in their state.

## **4.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT**

### **4.1 Description of the Stock**

#### **4.1.1 Species Range and Distribution**

Summer flounder range and distribution are described in Sections 2.2.1 and 2.2.1.1.1 of Amendment 12. There is no additional information to modify this section at this time.

#### **4.1.2 Status of the Stock**

The status of the summer flounder stock is re-evaluated annually. The most recent assessment, completed in June, 2000 indicates that the summer flounder stock is overfished and overfishing is occurring with respect to the overfishing definition. The complete assessment is detailed in the “31<sup>st</sup> Stock Assessment Review Committee Consensus Summary of Assessment” (NEFSC2000).

The latest assessment indicates that the stock is overfished and overfishing is still occurring relative to the Amendment 12 overfishing definitions. However, the fishing mortality rate estimated for 1999 is 0.32, a significant decline from the 1.31 estimated for 1994. In addition, total stock biomass has increased substantially since 1991 and spawning stock biomass has increased each year since 1993 to 64.8 million pounds, the highest value in the time series. Projections indicate that if the TAL in 2000 is not exceeded, total stock biomass will exceed the biomass threshold in January, 2001. 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 32 to 38 million fish. The assessment estimated the 1999 year class to be the smallest since 1988 at 19 million fish. However “retrospective analysis shows that the VPA tends to underestimate recent year-classes.”

#### **4.1.3 Stock Characteristics and Ecological Relationships**

The stock characteristics and ecological relationships of summer flounder are fully described in section 5.3 of Amendment 2. Additional information can be found in the SAW-31 documents (NEFSC 2000). The following is taken from the “Advisory Report on Stock Assessment.”

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 1999 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,  $F_{\text{threshold}} = F_{\text{target}} = F_{\text{max}} = 0.26$  (21% exploitation). The fishing mortality rate has declined substantially since 1997 and was estimated to be 0.32 (25% exploitation) in 1999, but is still 23% 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 0.72 in 1998-1999. 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 (1968-1999) peaked during 1976-1977, and in 1999 was 90% of that peak. 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 1999 was estimated to be 41,400 mt, which is 39% of the biomass target of  $B_{\text{MSY}} = 106,400$  mt, and 78% of the biomass threshold of one-half  $B_{\text{MSY}} = 53,200$  mt.

The arithmetic average recruitment from 1982 to 1999 was 40 million fish at age 0, with a median of 38 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 47 million fish, was above average. The 1996-1998 year-classes, ranging between 32 and 38 million fish, are estimated to be about average. The 1999 year-class, at 19.2 million fish, is estimated to be below average. 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% from 1983 to 1989 (18,800 mt to 5,200 mt), but has since increased with improved recruitment and decreased fishing mortality to 29,300 mt in 1999. The age structure of the spawning stock has expanded, with 78% at ages 2 and older, and 10% at ages 5 and older. Under equilibrium conditions at  $F_{\text{max}}$ , however, about 85% of the spawning stock biomass would be expected to be ages 2 and older, with 50% at ages 5 and older.

#### **4.1.4 Feeding and Predation**

Feeding and predation of summer flounder is found in Section 2.2.6 of Amendment 12. There is no additional information to modify this section at this time.

### **4.2 Description of Habitat**

#### **4.2.1 Inventory of Environmental and Fisheries Data**

A complete inventory of environmental and fisheries data that describes summer flounder habitat is located in Section 2.2.1.1 of Amendment 12. There is no additional information to modify this section at this time.

#### **4.2.2 Habitat Requirements by Life History Stage**

Summer flounder habitat requirements by life history stage are completely described in Section

2.2.1.1.3 of Amendment 12. There is no additional information to modify this section at this time.

#### **4.2.3 Description and Identification of Essential Fish Habitat**

A complete description and identification for summer flounder is found in Section 2.2.2 of Amendment 12. There is no additional information to modify this section at this time.

#### **4.2.4 Fishing Activities that May Adversely Affect EFH**

A general description of fishing activities that may adversely affect habitat is found in Section 2.2.3 of Amendment 12.

#### **4.2.5 Options for Managing Adverse Effects from Fishing**

A general description of options for managing adverse effects from fishing is found in Section 2.2.4 of Amendment 12.

#### **4.2.6 Identification of Non-Fishing Activities and Associated Conservation and Enhancement Recommendations**

A complete description of the activities identified to have the potential to impact EFH and recommendations to alleviate these impacts is located in Section 2.2.5 of Amendment 12. There is no additional information to modify this section at this time.

#### **4.2.7 Research and Information Needs**

Research and information needs for summer flounder is found in Section 2.2.7.1 of Amendment 12. There is no additional information to modify this section at this time.

#### **4.2.8 Review and Revision of EFH Components of FMP**

A complete description of review and revision of EFH components of the FMP is found in Section 2.2.8 of Amendment 12. There is no additional information to modify this section at this time.

### **4.3 Description of the Human Environment**

#### **4.3.1 Description of Fishing Activities and the Economic Environment**

##### **4.3.1.1 Commercial Fishery**

The commercial fishery for summer flounder is fully described in Amendments 2 and 10. From 1980-1998 commercial summer flounder landings have comprised 62.2% of the total summer flounder landings (Table 7). 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, slightly in excess of the quota of 12.35 million lb. Commercial

landings in 1994 and 1995, were 14.52 and 15.38 million lb, respectively. In 1996, landings declined to 12.95 million lb which were about 16 percent in excess of the initial quota of 11.11 million lb. In 1997, landings were approximately 8.81 million lb which were about 5 percent in excess of the initial quota of 8.38 million lb. Commercial landings increased to 11.21 million lb in 1998. Annual commercial landings from 1993 to 1998 were less than the 16.59 million lb landed in 1992, before quota implementation, but with the exception of 1997, were substantially larger than the 9.25 million lb landed in 1990.

Beginning in 1993, the states have used trip limits and seasons to manage the quota share allocated to their state. The quotas are different for each state and the seasonal distribution of the quota and trip limits vary from state to state as well.

The ex-vessel 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 and 1997 was \$20.8 million and \$15.5 million, respectively. Adjusted average prices (1996 dollars) for summer flounder increased from \$1.57 per pound in 1993 to \$1.72 per pound in 1997, and ranged from \$1.57 to \$1.89 for the 1993-1997 period. In 1998, summer flounder commercial landings were valued at \$18.7 million and average exvessel price (nominal value) for summer flounder was estimated at \$2.82 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 likely associated with supply responses, with higher prices occurring during the summer months.

#### **4.3.1.2 Recreational Fishery Description**

The summer flounder recreational fishery is described in detail Section 7.2 of Amendment 2. From 1980-1998 recreational summer flounder landings have accounted for 37.8% of the total summer flounder landings (Table 7). Recreational landings have fluctuated since Amendment 2 regulations were implemented in 1993. Recreational landings increased to 7.68 million lb in 1993 from 7.14 million lb, in 1992. In 1994, recreational landings increased to 9.06 million lb and then declined to 5.50 million lb in 1995. In 1996 and 1997, landings were 10.38 million lb and 11.86 million lb, respectively. In 1998, recreational landings increased to 12.53 million lb, then decreased to 8.39 million lb in 1999. However, recreational landings in 1999 were 0.98 million lb above the allowable recreational harvest limit of 7.41 million lb. Recreational landings have been less than the recreational harvest limits in only two of the last seven years (1994 and 1995; Table 8).

Marine Recreational Fishery Statistics Survey (MRFSS) catch data for the period 1990-1999 (ME-NC) indicate that 95% of summer flounder were caught in state waters (Table 9). During this period, New Jersey caught the majority of the summer flounder accounting for 43% of the total landings from Maine through North Carolina, followed by New York and Virginia with 19% and 15%, respectively (Table 10). The remainder of the states each caught less than 10% of the coastwide landings.

MRFSS catch data (1990-1999) indicate that 84% of summer flounder were caught by private and rental boats (Table 11). Private vessels range in size and value from small inshore skiff to

large offshore yachts. It is not possible to determine the percentage of each type of vessel used for summer flounder fishing or the expenditures by sub-class of vessel. It is probable that most of the private vessels used are larger than skiffs and therefore involve sizeable expenditures by sub-class of vessels for procurement and maintenance thus contributing greatly to measures of economic impact. However, it is likely that private vessels are also used to fish for species other than summer flounder and for several non-fishing purposes. Therefore, any expenditure and/or cost data attributed to summer flounder fishing would have to be prorated to account for this multi-purpose use.

In addition to private and rental boats, 10% of summer flounder were caught from party and charter boats and 6% of the summer flounder were caught from shore, based on 1990-1999 MRFSS data (Table 11). In 1985, a total of 454 party and 1,627 charter boats operated out of the Atlantic coast ports from Maine through North Carolina (SFI 1988). These vessels generated revenues of \$101 million in 1985. The Northeast permit application database indicates that a total of 569 vessels held federal summer flounder party/charter permits in 1998. Analysis of VTR data indicate that 308 vessels participated in the summer flounder fishery in 1998. However, documentation of the demand for summer flounder fishing on party and charter boats and cost breakdowns per trip for specific regions along the coast are lacking.

The contribution of summer flounder to the total catch (by number of fish) of party/charter vessels from Maine through Virginia, varied by month and state, for the period 1996-1998 (Table 12). The contribution of summer flounder to the total catch of party/charter vessels fluctuated throughout the year, ranging from less than 1% in January, February, March, April, November and December to 23% in July, with the largest proportion (about 13%) of summer flounder caught from May through September.

In 1985, Atlantic coast direct sales related to recreational fishing amounted to \$2.6 billion (SFI 1988). These sales and services required 42 thousand person years of labor and generated wages of \$522 million (SFI 1988). The report prepared by SFI (1988) also included estimates of the economic activity specifically associated with summer flounder. The estimates disaggregated the regional economic impacts of summer flounder based on the percent of total trips where summer flounder were reported as the target species. The minimum estimate uses the target percent as given. The maximum estimate assumes that those individuals who did not identify a target species have the same distribution of species preferences as those who did express a preference. The resultant ranges of estimates of the economic activity associated with the 1985 recreational summer flounder fishery on the Mid-Atlantic region are: retail sales -- \$110.0 to 152.8 million (10.5% to 14.6% of the region total) million; person years of employment -- 1,795 to 2,494 (10.5% to 14.6% of the region total); and wages and salaries -- \$22.4 to \$31.1 million (10.5% to 14.5% of the region total) (SFI 1988).

According to MRFSS data, the number of recreational fishing trips for all modes combined as reported by anglers indicating that the primary species sought was summer flounder on the North Atlantic and Mid-Atlantic subregions was 4,230,627 (451,718 North Atlantic subregion; and 3,778,909 Mid-Atlantic subregion) in 1999. Using the number of recreational fishing trips that targeted summer flounder and the proportion of recreational trips by mode, for all species combined, it can be estimated that 206,977 shore-based and 244,695 boat-based trips (15,539 party/charter trips; 229,156 private/rental trips) targeted summer flounder in the North Atlantic

subregion in 1999. It can also be estimated that 1,408,777 shore-based and 2,369,376 boat-based trips (243,740 party/charter trips; 2,125,636 private/rental trips) targeted summer flounder in the Mid-Atlantic subregion in 1999. An estimate of total expenditures made to go fishing for summer flounder can be calculated by multiplying the number of trips by an estimate of average cost per day, but it is not possible to estimate the total non-monetary benefit without more sophisticated statistical techniques which allow estimation of the marginal value per trip.

The total value recreational anglers place on the opportunity to fish can be divided into actual expenditures and a non-monetary benefit associated with satisfaction. In other words, anglers incur expenses to fish (purchases of gear, bait, boats, fuel, etc.), but do not pay for the fish they catch or for the enjoyment of many other attributes of the fishing experience (socializing with friends, being out on the water, etc.). Despite the obvious value of these fish and other attributes of the experience to anglers, no direct expenditures are made for them, hence the term "non-monetary" benefits. In order to determine the magnitude of non-monetary benefits, a demand curve for recreational fishing must be estimated. In the case of summer flounder, as with many recreationally sought species, a demand curve is not available. Part of the problem in estimating a demand curve is due to the many and diverse attributes of a recreational fishing experience: socializing, weather, ease of access and site development, catch rates, congestion, travel expenditures, and costs of equipment and supplies, among others. A recreational angler's willingness-to-pay for summer flounder must be separated from the willingness-to-pay for other attributes of the experience. Holding all other factors constant (expenditures, weather, etc.), a decrease in the catch (or retention rate) of summer flounder would decrease demand and an increase in the catch (or retention rate) should increase demand. Each change will have an associated decrease/increase in expenditures and non-monetary benefits.

Although a recreational demand curve for summer flounder is unavailable, some studies have estimated the value of a recreational fishing day. Rockland (1983) presented value per trip for marine recreational fishing at nine sites in Delaware. This study used the Travel Cost Method with a variety of estimation approaches. The range of average values for the boat fishing was \$20.58 to \$39.90 per day, whereas the range for shore fishing was \$37.47 to \$62.53 per day. A study of recreational striped bass fishing on the Atlantic coast presented estimates of \$39 to \$169 per day (Norton *et al.* 1983). A 1982 study conducted for the state of Florida derived estimates of \$18.97 to \$57.99 per day for all marine species (Bell *et al.* 1982).

A more recent study by Strand *et al.* (1991) also estimated average total cost for day trips by mode, for selected states along the Atlantic coast (Table 13). Included in the estimates were costs for travel and services, where services could include costs for bait, tackle, cleaning, fuel, pier fees, and boat fees. Fishing from the beach was the least costly, ranging from \$13.77 per day in New York to \$44.44 per day in Delaware. Charters and rentals were the most expensive, ranging from \$52.25 per day for a rental in Maryland to \$237.03 per day for a rental in North Carolina (Table 13). Steinback *et al.* (1999) estimated that the average party/charter boat fee paid by anglers was \$52.00 in the Northeast Region in 1994.

Summer flounder continues to be an important component of the recreational fishery. Estimation of primary species sought as reported by anglers in recent MRFSS intercept surveys indicates that summer flounder has increased in importance in the U.S. North Atlantic and Mid-Atlantic subregions, but has decreased in the South Atlantic subregion. The number of

recreational anglers indicating that summer flounder is their primary species sought in the North Atlantic and Mid-Atlantic subregions have increased by 152 percent and 16 percent, respectively, from 1991 to 1998.

Clearly, the economic impacts associated with Atlantic coast recreational fishing for summer flounder are significant. However, estimates of aggregate economic value are not currently available. Addressing the economic value associated with marine recreational fishing when developing FMPs is important. Ideally, the value that anglers are willing to pay for the recreational opportunity should be considered when evaluating FMPs that affect both the recreational and commercial fisheries. The potential to catch and ultimately consume fish is an integral part of the recreational experience, though studies have shown that non-catch related aspects of the experience are often as highly regarded by anglers as the number and size of fish caught. Recreational fishing contributes to the general well being of participants by affording them opportunities for relaxation, experiencing nature, and socializing with friends. Since equipment purchase and travel related expenditures by marine recreational anglers have a positive effect on local economies, maintenance of healthy fish stocks is important.

#### **4.3.1.3 Exports and Imports**

Japan continues to be the most important export market for summer flounder. Exports of summer flounder are difficult to identify since summer flounder are included under a variety of export codes, making it 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 1.76 to 3.96 million lb (800 to 1,800 mt) in 1993-1997 (Asakawa pers. comm.). Fresh whole U.S. summer flounder 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 auction 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 is not be considered to be of the same quality, and therefore is unlikely to become a 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) into the US decreased from 5.92 million lb (valued at \$4.54 million) in 1996 to 5.39 million lb (valued at \$4.44 million) in 1997. In 1998, 7.23 million lb of summer flounder valued at \$4.67 million entered the country for consumption (NMFS). Importers generally tend to import flounders when domestic exvessel prices reach \$2 per pound. South American 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).

### 4.3.2 Port and Community Description

The recreational summer flounder fishery is important to many communities along the East Coast. However, the data are not available to identify to what extent communities are dependent upon the recreational fishery for summer flounder. Port level data are available from VTR data for party/charter boat landings, which account for only 10% of the recreational summer flounder landings. These 1999 data indicate that, from Maine through North Carolina, 8,258 party/charter trips in 53 ports kept at least 1 pound of summer flounder. Since these data only represent 10% of the summer flounder landings, the dependence of a few representative ports on recreational fishing will be addressed. The dependence of these ports on recreational fisheries is described in *Fishing Ports of the Mid-Atlantic* (McCay and Cieri 2000) and *Social and Cultural Impact Assessment of the Highly Migratory Species Fisheries Management Plan and the Amendment to the Atlantic Billfish Fisheries Management Plan* (Wilson and McCay 1998).

The Council retained Dr. Bonnie J. McCay and Marie Cieri of Rutgers University to prepare a background document (McCay and Cieri 2000) on social and economic profiles of the fishing ports and coastal counties of the Mid-Atlantic region. This research covered ports in New York, New Jersey, Delaware, Maryland, Virginia, and North Carolina. Primary sources of information for the McCay and Cieri (2000) report include: (1) federal census and employment data, analyzed for the counties associated with the commercial fisheries of each state; (2) 1998 NMFS weighout data including landings, by species, gear-type, and port, together with similar data, by county, from the state of North Carolina; and (3) field visits and interviews.

McCay and Cieri (2000) includes descriptions of recreational fishing presence in fishing ports. It provides descriptive information on the recreational fisheries, as well as other activities including land use issues in the ports. Since the objective was to study commercial fishing ports, a quantitative assessment of recreational fisheries was not performed. The only detailed social and cultural analyses of recreational fisheries in McCay and Cieri (2000) was for Cape May, New Jersey; Brielle, New Jersey; and Watchapreague, Virginia.

Wilson and McCay (1998) document the social and cultural impacts of the Highly Migratory (HMS) Species FMP and the current amendment to the Atlantic Billfish FMP. This report focused on social and cultural impacts to ports within 5 states. These ports were chosen because: (1) they each had important fisheries affected by the HMS and billfish FMPs and (2) they were distributed evenly along the coast. For each state, a profile of basic census data was compiled, and two communities that were likely to be affected by these FMPs were visited. In these communities qualitative interviews were done with fishers, fishing crew, processors, leaders of fishing organizations, and suppliers. While Wilson and McCay (1998) does focus on the impact of the HMS and billfish FMPs it does contain useful representative information about the dependence of ports in Massachusetts, New Jersey, and North Carolina on recreational fishing.

The following is a general discussion quoted from Wilson and McCay (1998) on the dependence of the ports of Hatteras NC, Brielle NJ, New Bedford MA, and Gloucester MA on recreational fishing. Although the following was written in the context of recreational fishing of bluefin tuna, it provides a general description of recreational fishing in these communities.

A general profile of each state that catches at least 1% of the recreational summer flounder landings follows.

## MASSACHUSETTS

The following state profile on Massachusetts and profiles on the fishing communities of Gloucester and New Bedford, MA were excerpted from Wilson and McCay (1998).

### STATE PROFILE

#### *Demographic and Economic Characteristics*

The population for Massachusetts in the 1990 Census was 6,016,425 residents. The educational attainment in Massachusetts was such that nearly 80% of the residents 25 and older were high school graduates in 1990. The unemployment rate in this state was 6.7% of the civilian labor force. Industries that were important sources of employment include *retail* (employing 16% of working residents), *manufacturing durable goods* (employing 12% of working residents), and *health services* (employing 10% of working residents); *agriculture forestry and fisheries* industries only employed approximately 1% of the working population of Massachusetts. The per capita income of Massachusetts in 1989 was \$17,224.

#### *Recreational Fishery*

In 1996, there were 429 saltwater anglers in Massachusetts; these anglers account for approximately 1% of the total number of saltwater anglers in the United States that year. Seventy-four percent of those anglers were residents of Massachusetts and 26% were nonresidents. There were 3,953 days of saltwater fishing in Massachusetts in 1996; these days accounted for nearly 4% of the total days of saltwater fishing in the United States that year. Eighty-five percent of those days were by residents of Massachusetts and 15% were by nonresidents. Approximately 74,000 the Massachusetts saltwater anglers fished for flatfish in 1996 (FWS 1997).

In 1996, expenditures by saltwater anglers in Massachusetts totaled \$221,680,025; this accounted for nearly 3% of the total U.S. expenditures by saltwater anglers that year. Saltwater fishing in Massachusetts had an economic output of \$424,631,426 (1.7% of the U.S. total), generated wages and salaries of \$119,005,086 (1.7% of the U.S. total) and created 4,957 jobs (1.7% of the U.S. total; ASA 1997).

VTR data indicate that 7 ports in Massachusetts accounted for 3.2% of the 1999 party charter trips from Maine through North Carolina. The two ports with the greatest number of trips were Falmouth ( 35.7% of MA trips) and Harwichport (54% of MA trips). Party/charter trips that caught summer flounder were not reported for Gloucester and New Bedford.

The following description of the communities of Gloucester and New Bedford, MA from Wilson and McCay (1998) were written in the context of the HMS and billfish FMPs. Although the information does not pertain directly to summer flounder it does give some background on the dependence of these communities on recreational fishing. This information may be representative of many communities along the coast. This level of detail is not available for Many recreational fishing communities from Maine through North Carolina.

## **GLOUCESTER COMMUNITY PROFILE**

“Gloucester is found on Cape Ann, which is located in northeastern Massachusetts, approximately thirty miles from Boston. One of the earliest American settlements, Gloucester also earns its distinction as the oldest American seaport. In fact, before settlement, European vessels fishing the waters off Cape Ann for cod in the summer (NOAA 1996). Today, Gloucester remains one of the top ports in the Eastern United States.

“Gloucester offers a diverse community consisting of working class and ethnic populations, as well as generations of wealthy families and summer tourists. A prominent feature of Gloucester is the artist population in Rocky Neck, a small peninsula located across the harbor on Cape Ann; Rocky Neck is one of the United States oldest art colonies (Anon. 1998a). The Cape Ann Symphony and the Gloucester Theater Company are also prominent in Gloucester culture. Aside from the commercial fishing fleet, the working waterfront is the site of important economic activity; in recognition of its importance, the city strives to prevent residential development along the waterfront (Anon. 1998b). Whale watching is also an important marine related industry; Gloucester is one of the few seaport towns in the United States where whales come so close to shore (Anon. 1998a).

### **DEMOGRAPHIC PROFILE**

#### *Population*

“The population of Gloucester is 28,716, as reported in the 1990 Census. Population estimates for 1996 show about a 5% increase since 1990. According to the 1990 Census, men and women accounted for 48% and 52% of this population, respectively.

#### *Racial and Ethnic Composition*

“A look at the racial composition of Gloucester reveals a racially homogeneous population. The population is 99.4% Caucasian, with relatively low counts of African-American, Asian and American Indian race populations.

“The dominant cases of single ancestry in Gloucester are Italian (14.0% of the population), English (7.0%), Irish (6.3%) and Portuguese (6.4%). While both the Portuguese and Italian populations are active in the fishing fleet of Gloucester, the groundfish fishery is dominated by Italians and Sicilians. While ethnicity is often cited as a major difference when comparing the fishing communities of Gloucester and New Bedford, it is often merely one factor among many linked to the characteristics and history of each region (Hall-Arber 1996). When compared to the Portuguese fishing families of New Bedford, the Sicilian community has not maintained as strong of ties to their ancestral country.

#### *Age Structure*

“The 1990 Census shows that in Gloucester, 46% of the population are age fifteen through forty-four. Eighteen percent of the population is under fifteen while the remaining 36% are above forty-four; approximately twice as many persons over forty-four as compared to those under eighteen suggests an aging populace.

### *Marriage*

“According to the 1990 Census, approximately 56% of the population of Gloucester 15 years and older are presently married. Twenty-seven percent have never been married, 8% are divorced and 9% are widowed. Of those who are widowed, 82% are women and only 18% are men.

### *Household Composition*

“In Gloucester, there are a total of 11,550 households with average of 2.47 persons per household. Over half of those households contain married couple families; nearly a quarter of all households contain married couple families with children under eighteen. The number of female householders with children and no husband present are six times more prevalent than male householders with children and no wife present. Thirty four percent of the households in Gloucester are non-family households. Over a quarter of the householders in Gloucester are over age sixty-five.

“Of the 13,125 housing units in Gloucester, 88% are occupied and 12% are vacant. Of the occupied housing units, 58% are owner-occupied and 42% are renter-occupied. Of the vacant housing units, 23% are available for rent and 9% are available for sale. Over half of the vacant housing units (53%) are used for seasonal or recreational use.

### *Educational Trends*

“In Gloucester, school enrollment is approximately 22% of the population three years and over. Of people 25 years and older, 75.5% are high school graduates. In Gloucester, fishermen often finish formal schooling by the time they reach fifteen; this is especially true for those fishermen who are immigrants (Hall-Arber 1996).

### *Fishing Related Associations*

“One of the most prominent fishing association in Gloucester is the Gloucester Fishermen’s Wives Association (GFWA). This wives association, established in the late 1960s, offers support to the fishing and seafood industry.

### *Economic Characteristics*

“Income The per capita income reported for Gloucester in the 1990 Census is \$16,044; this is considerably higher than the per capita income for New Bedford (\$10,923), although fishermen’s incomes in Gloucester tend to be lower than those of New Bedford fishermen (Hall-Arber 1996).

“Employment According to the 1990 Census, the unemployment rate in Gloucester is 6.8% of the labor force. Of the employed labor force, less than one percent are in the armed forces. In the civilian employed population, 53% are men and 47% are women. Thirty-three percent of the population over 16 do not participate in the labor force.

“Seventy-three percent of the employed population of Gloucester work as wage or salary earners in private, for-profit companies. Approximately 10% of Gloucester’s employed population are government workers. Eight percent of Gloucester’s workers are self-employed.

“*Managerial/ professional* (27%) and *technicians/ administrative* (28%) occupations are most frequently reported occupations by Gloucester’s employed population. *Farming, forestry and fishing* occupations account for 2.8% of the occupations in Gloucester

“Employment by Industry The industries in Gloucester that employ the greatest number of workers are the *Manufacturing* (durable and nondurable goods - 22%), *Professional and related services* (22%) and *Retail* (16%) sectors. Less than 4% of the employed population, or 548 employees, in Gloucester work in the *agriculture, forestry, and fisheries* industry sector.

“Fishing Related Business When support industries such as ice companies and seafood dealers are taken into consideration, 40% of Gloucester’s economy is based on fishing (Hall-Arber 1996). Attempts to diversify within as well as outside the fishing industry has given Gloucester ‘optimism’ towards its economic future. Not content to serve as a bedroom community, a status attained by its proximity to Boston, Gloucester is encouraging development in the light manufacturing and tourism industries as well as projects such as added value and marketing of seafood.

## FISHERIES PROFILE

“Before settlement, European vessels fished the waters off Cape Ann for cod in the summer (NOAA 1996); in fact, for centuries dried cod was a major export for Gloucester. Gloucester is known as the oldest American seaport, established as such 372 years ago. Today, year round groundfishing is the dominant fishing activity; though not as prominent, inshore lobstering is also a major fishing activity in Gloucester (NOAA 1996).

“Most recreational fishing tourists that come to Gloucester are from the Northeast. There are people who want to go for sharks because they are big, thrilling fish but one respondent estimated that three times as many people come for Bluefin tuna than for sharks. The recreational shark is a catch and release fishery. About sixty percent of the 300 year round boats at the largest marina have general category permits and about 40% do not. During the Bluefin tuna season thirty to fifty boats will come just for the season, while generally that many of the non-tuna fishing boats find the Bluefin tuna season a congenial time to go elsewhere. Many of the people that come for the season are on family vacations as well as fishing. Bluefin tuna fishing is not a family activity. Fathers go alone and the family will go to the beach or do visit other tourist attractions. This adds to the community-wide economic benefits that come from the recreational Bluefin tuna fishery. Many of the year round non-tuna fishing boats remain during the season and, because the bluefin tuna season is in the summer, there are also many tourists who bring their boats to Gloucester at this time without being interested in the fishery. This had causes conflict. The family boats are in the same harbor as the bluefin tuna boats that leave at 3:00 am. Marinas try to deal with this by concentrating the most serious tuna boats on one dock.

“The Gloucester charter fleet is about 15 boats in two marinas. Most of the Gloucester charter captains work at other jobs during the off season. Many are teachers. The earliest charter fishing starts in April for cod mackerel, haddock and pollock. Bass starts late May and is good all summer, as is offshore cod fishing. There are a few other minor species. Finding reliable mates is an ongoing problem. Newspaper ads get a lot of applications from commercial fishers and some are hired. The fleet has seen a number of problems with drinking, drugs and generally young, unreliable crew.

“Of the three retail tackle shops in Gloucester, only one specializes in offshore fishing. At that store 85% of the business is related bluefin tuna fishing, both commercial and recreational.

When the season (bluefin) is open for two weeks in the summer the shop is very busy. Then business will slow down until about five days before the September opening and it get really busy again. Most of the customers are from out of town. Restricted fishing days are good for his business. People come in to buy supplies and do repairs when they would otherwise just carry on fishing. Bluefin tuna gear is very expensive. The reels cost \$800-1000 and are useful for shark and bluefin only. People tend to want the highest quality gear when they are going after bluefin tuna and few people seem concerned about price. The tackle shop works on bluefin tuna gear all year. In winter they repair and build rods. Shark is also important. The shark recreational fishery has its own set of equipment. It is smaller than bluefin tuna but people still want top quality.

“One specific conflict between the recreational and commercial bluefin tuna fishers in Gloucester is that the ‘weekend warriors’ fuel the recreational economy. The commercial fishers, however, prefer that the closures be on the weekends because of the problems associated with crowding boats run by amateur fishers.

“The closure of the bluefin tuna quota has a dramatic affect on Gloucester's economy. Many recreational fishers are from out of state and they leave when the season closes. Restaurants close earlier when the season is closed. Respondents are particularly troubled by the uncertainty of not knowing when the quota will be filled or which days will be open. They get about 24 hours notice of the season closing. They make estimates based on the available schedule but they know that it will change. Having consecutive closed days also makes business planning easier.”

Table 14 reports the affects of the closure of bluefin tuna fishing on the fuel sales at a large marina in Gloucester that serves both private and charter boats. “Overall, sales on closed days average 33% less than those on open days. Clearly, other boating activities account for significantly less fuel consumption than bluefin tuna fishing. The suggestion of the importance of ‘weekend warriors’ bluefin tuna fishers is also evident. Overall, 48% of fuel sales take place on weekends. Closures that take place on weekdays cause a 24% drop in sales, while closures on weekends cause a 33% drop in sales. Finally, people often fuel their boats the day before they fish. If open days just before closures are counted as closed days, the affect of closures on fuel sales increases to a 40% drop.”

## **NEW BEDFORD COMMUNITY PROFILE**

“New Bedford is a long and narrow city along the coast of southern Massachusetts where it faces the city of Fairhaven across the water. Recently named one of the top ten ‘green cities’ in the country (MADHCD 1998), New Bedford faces the problems associated with its urban setting such as low education levels and high unemployment. The working waterfront and its industry have become important economically as the manufacturing base of the city crumbles. Once the ‘whaling capital of the world,’ today New Bedford possesses one, if not the, largest fishing fleets in the eastern United States (NOAA 1996).

### **DEMOGRAPHIC PROFILE**

#### *Population*

“For the 1990 Census, the population of New Bedford was 99,922. This population was comprised of 47% male and 53% female residents. The 1993 and 1996 population estimates show a decrease in population by 3% of the 1990 figure.

#### *Racial and Ethnic Composition*

“The racial composition of New Bedford’s population is 88% White, 4% Black and less than 1% of American Indian and Asian races each.

“By far the most dominant ethnic group in the community is the Portuguese, accounting for nearly 36% of the population. Also noteworthy is, that at 7% of the population, people of sub-Saharan African descent are the second largest ethnic group in New Bedford. The Portuguese community are the major ethnic group in the groundfish fleet in New Bedford. When compared to the Sicilian fishing families of Gloucester, this Portuguese community has maintained strong ties to their ancestral country (Hall-Arber 1996). During the 1970s and 80s, New Bedford also had a large Norwegian population that were involved in the fisheries, primarily as scallopers. However, fewer are present in the fisheries today because ‘most of us have educated our children out of the fishing industry (Hall-Arber 1996).’

#### *Age Structure*

“Approximately 44% of New Bedford’s residents are between the ages of fifteen and forty-four. Twenty-one percent of the population is under fifteen and 35% are over forty-four.

#### *Marriage*

“According to the 1990 Census, approximately 49% of the population of New Bedford 15 and older are married. Twenty-eight percent have never been married, 10% are widowed and 8% are divorced. Of those widowed, approximately 15% are men and 85% are women.

#### *Household Composition*

“There are 38,646 households in New Bedford with an average of 2.51 persons per household. Nearly 70% are family households; fifty percent are married-couple family households, 3% are family households with male householders and 17% are family households with female householders. Thirty-four percent of the households in New Bedford include children under 18 years old. Thirty percent of all householders are over 65 years old. According to the 1990 census there are 41,760 housing units in New Bedford, of which 92.9% are occupied. Of the occupied housing units, 43.8% are owner occupied and 56.2% are renter occupied. Of the vacant housing units, only 1.8% are vacant due to seasonal use.

#### *Educational Trends*

“Only half (49.6%) of New Bedford’s residents 25 and older are high school graduates according to the 1990 Census. Over thirty percent of the population has not been beyond ninth grade.

“In New Bedford, fishermen often finish formal schooling by the time they reach fifteen; this is especially true for those fishermen who are immigrants (Hall-Arber 1996). The schools in New Bedford seem to be having trouble addressing the cultural diversity necessary for the success of the educational system.

#### *Economic Characteristics*

“Income The per capita income for New Bedford was \$10,923, according to the 1990 Census; this is considerably lower than the per capita income reported for Gloucester (\$16,044), although fishermen’s incomes in New Bedford tend to be higher than those of Gloucester fishermen (Hall-Arber 1996).

“Employment New Bedford’s unemployment rate is 12.2% of the civilian work force. Less than 1% of the employed work force is in the armed forces. In the civilian employed population, 52% are male workers and 48% are female workers. Forty percent of the residents over 16 do not participate in New Bedford’s labor force.

“Seventy-five percent of employees are private for profit wage and salary workers. Nearly 15% of New Bedford’s workers are employed by the local, state or federal government. Self-employed workers only constitute 4% of the employed residents of New Bedford.

“Technicians and administrative occupations (27%) and operators, fabricators and laborers (26%) were the most frequently reported occupations in the 1990 Census. *Farming, forestry and fishing* constitute nearly 3% of New Bedford occupations.

“Employment by Industry In New Bedford, the largest industries by the number of people employed are *professional and related services* (21%), *retail trade* (17%) and *manufacturing of durable* (12.5%) and *nondurable* (15.3%) goods. Once an essential industry in New Bedford, the textile industry has since closed many factories, contributing to the downturn in the city’s economy (Hall-Arber 1996). Another gap in the economy has been caused by the departure of the Polaroid plant, considered to be a major employer. *Agriculture, forestry and fisheries* industries employ 1248 people, or approximately 3% of New Bedford’s employed residents over 16. However, due to the restricted fisheries, employment has declined not only in harvesting but also in seafood processing (Hall-Arber 1996)

## FISHERIES PROFILE

“New Bedford is an old fishing community. Many of its members are descended from Portuguese fishing families and kinship networks are an extremely important influence on employment patterns in the fishing industry (Doeringer *et al.* 1986). The Portuguese families are very close and many trace their families back to fishers in Portugal. One respondent describes how when he was 5 years old he would go fishing tied to the mast of his grandfather's boat. All the boys in his generation were fishers except one. Now his extended family as 8 and his sons all fish, but they are not encouraging their sons to fish.

“New Bedford has learned a great deal about how to survive crises in fisheries. The Fishermen's Family Center began in 1994 in response to the collapse in the groundfish fishery with held from the Federal Government. Thirty two boats in New Bedford were removed through the by back program. With help from the Center, ex-fishers are finding jobs, particularly in the marine trades, computers and the trucking industry. The marine trade jobs tend to be in NY, NJ and Boston. Other industries in New Bedford have been supportive of the fishers through the crisis and extended family networks have helped. Getting hired by relatives helps many fishers to get off-boat jobs, giving them flexibility to fish when they can.

### *Recreational Fishing in New Bedford*

“The offshore recreational industry in New Bedford is concerned with bluefin tuna and shark. Charter customers in New Bedford are tourists coming from all over the country. Most of these customers have planned ahead to do fishing. Charter boats in New Bedford do not do pickup charters. There are 9 marinas in New Bedford harbor, which also includes Fairhaven. None of them specialize in particular species. One respondent estimated that there are about 7 total charter boats in the harbor, of which, only one specializes in offshore. This captain spends winters in Florida and summers in New Bedford. Another charter captain goes offshore sometimes as well. Offshore charters target bluefin tuna and shark. As is the custom where general category permits are common, when bluefin tuna are caught they belong to the boat. The one charter captain that specializes in off shore fishing has a general category permit and sometimes fishes for bluefin tuna without charter customers. For shark he imposes his own size limits which are more stringent than the one proposed under the HMS FMP. He also imposes his own minimum bluefin tuna size limit of 75 inches.

“Shark tournaments are quite important in promoting business in the area, they bring in curious people because it is a dangerous and exciting fish. The shark tournaments offer prizes but not extremely large ones. The tournaments attract repeat people, and there is an important ‘reunion’ dynamic. Tournament participants generate a great deal of money. One shark tournament is held here in New Bedford. There are also billfish tournaments nearby at Block Island, Nantucket, Falmouth Offshore Grand Prix and Shag Harbor, but none in New Bedford. While recreational shark fishing is mainly catch and release fishing, respondents argue that tournament prizes in this area cannot be done by catch and release. This is because they go too far offshore (100 miles) to make taking observers practical. They believe that the loss of the trophy fish exemption for tournaments would shut the tournaments down.

“Most charters boats in the New Bedford area are owner operated. Respondents report that it can be hard to find a suitable mate because the business is seasonal. They are not willing to hire unemployed commercial guys because they are rough. They need people with tact. Being a charter mate is always a secondary job and they always have to make accommodation with the primary job.”

## **RHODE ISLAND**

### **STATE PROFILE**

#### *Demographic and Economic Characteristics*

The population for Rhode Island in the 1990 Census was 1,003,464 residents. The educational attainment in Rhode Island was such that nearly 72% of the residents 25 and older were high school graduates, in 1990. The unemployment rate in this state was 6.8% of the civilian labor force. Industries that were important sources of employment include *retail trade* (employing 15% of the working residents), *manufacturing durable goods* (employing 14% of the working residents), and *health services* (employing 9% of the working residents); *agriculture forestry and fisheries* industries only employed approximately 1% of the working population of Rhode Island. The per capita income of Rhode Island in 1989 was \$14,981.

### *Recreational Fishery*

In 1996, there were 107,834 saltwater anglers in Rhode Island; these anglers account for less than 1% of the total number of saltwater anglers in the United States that year. Forty-eight percent of those anglers were residents of Rhode Island and 52% were nonresidents. These anglers participated in 947,116 days of saltwater fishing in 1996; these days accounted for less than 1% of the total days of saltwater fishing in the United States that year. Sixty-eight percent of those days were by residents of Rhode Island and 32% were by nonresidents. Approximately 20,000 the Rhode Island saltwater anglers fished for flatfish in 1996 (FWS 1997).

In 1996, expenditures by saltwater anglers in Rhode Island totaled \$90 million; this accounted for about 1% of the total U.S. expenditures by saltwater anglers that year. Saltwater fishing in Rhode Island had an economic output of \$154 million (1% of the U.S. total), generated wages and salaries of \$42 million (1% of the U.S. total) and created 2000 jobs (1% of the U.S. total; ASA 1997).

VTR data indicate that 4 ports in Rhode Island accounted for 2.6% of the 1999 party charter trips from Maine through North Carolina. The most important port with the greatest number of trips was Point Judith (90% of RI trips).

## **CONNECTICUT**

### **STATE PROFILE**

#### *Demographic and Economic Characteristics*

The population for Connecticut in the 1990 Census was 3,287,116 residents. The educational attainment in Connecticut was such that nearly 79.2% of the residents 25 and older were high school graduates, in 1990. The unemployment rate in this state was 6.8% of the civilian labor force. Industries that were important sources of employment include *retail trade* (employing 13% of the working residents), *manufacturing durable goods* (employing 12% of the working residents), and *finance, insurance, and real estate* (employing 9% of the working residents); *agriculture forestry and fisheries* industries only employed approximately 1% of the working population of Connecticut. The per capita income of Connecticut in 1989 was \$20,189.

### *Recreational Fishery*

In 1996, there were 178,000 saltwater anglers in Connecticut; these anglers account for approximately 1% of the total number of saltwater anglers in the United States that year. Eighty-one percent of those anglers were residents of Connecticut and 19% were nonresidents. These anglers participated in 1.7 million days of saltwater fishing in 1996; these days accounted for less than 1% of the total days of saltwater fishing in the United States that year. Eighty-seven percent of those days were by residents of Connecticut and about 13% were by nonresidents. Approximately 51,000 the Connecticut saltwater anglers fished for flatfish in 1996 (FWS 1997).

In 1996, expenditures by saltwater anglers in Connecticut totaled about \$93 million; this accounted for nearly 1% of the total U.S. expenditures by saltwater anglers that year. Saltwater fishing in Connecticut had an economic output of \$171million (1% of the U.S. total), generated wages and salaries of \$47 million (1% of the U.S. total) and created 1,810 jobs (1% of the U.S. total; ASA 1997).

VTR data indicate that 6 ports in Connecticut accounted for 0.5% of the 1999 party charter trips from Maine through North Carolina. The most important port with the greatest number of trips was Noank ( 35.8% of CT trips).

## **NEW YORK**

### **STATE PROFILE**

#### *Demographic and Economic Characteristics*

The population for New York in the 1990 Census was 17,990,455 residents. The educational attainment in New York was such that nearly 74.8% of the residents 25 and older were high school graduates, in 1990. The unemployment rate in this state was 6.2% of the civilian labor force. Industries that were important sources of employment include *retail trade* (employing 13% of the working residents), *health services* (employing 9% of the working residents), and *educational services* (employing 8% of the working residents); *agriculture forestry and fisheries* industries only employed approximately 1% of the working population of New York. The per capita income of New York in 1989 was \$16,501.

#### *Recreational Fishery*

In 1996, there were 476,000 saltwater anglers in New York; these anglers account for approximately 1% of the total number of saltwater anglers in the United States that year. Eighty-seven percent of those anglers were residents of New York and 13% were nonresidents. These anglers participated in 5.1 million days of saltwater fishing in 1996; these days accounted for about 1% of the total days of saltwater fishing in the United States that year. Eighty-eight percent of those days were by residents of New York and 12% were by nonresidents. Approximately 209,000 the New York saltwater anglers fished for flatfish in 1996 (FWS 1997).

In 1996, expenditures by saltwater anglers in New York totaled \$558 million; this accounted for nearly 6% of the total U.S. expenditures by saltwater anglers that year. Saltwater fishing in New York had an economic output of \$1 billion (4% of the U.S. total), generated wages and salaries of \$249 million (4% of the U.S. total) and created 9,633 jobs (3% of the U.S. total; ASA 1997).

VTR data indicate that 12 ports in New York accounted for 36.0% of the 1999 party charter trips from Maine through North Carolina. The most important ports with the greatest number of trips were “Other Nassau” (39.2% of NY trips; 14% of US trips), Montauk (20.5% of NY trips), and Brooklyn (15.4% of NY trips).

The following Nassau County Profile was taken directly from McCay and Cieri (2000).

***Nassau County Profile*** (includes the fishing ports of Mount Sinai, Oceanside, Point Lookout and Freeport)

#### *Population*

“According to the 1990 Census, Nassau County had a population of 1,287,348. Females outnumbered males by a small amount, 3%. Rural areas claimed less than 1% of the population, and no one resided on a farm.

### *Racial and Ethnic Composition*

“Eighty-six percent of the Nassau County population was white while 8.6% of the population was black. American Indian and Asian each made up a small percentage of the population. The Hispanic population was also small, at 6%. Of the population, 86.8% was native. Of this 86.8%, 88.9% were born in New York. The largest declared ancestry was Italian (313,289 people) followed by Irish (256,182 people) and German (213,487 people).

### *Age Structure*

“According to the 1990 Census, the 25 to 44 year-old age group was the largest. It comprised 31.1% of the population. Of the population, 21.8% was under 18 years of age and 14.2% was over 65 years of age.

### *Household Composition*

“There were 431,515 total households in Nassau County. Of these total households, 79.8% were family households and 10.2% were headed by single women. There were, on average, 2.94 persons per household. Of the total households, 17.1% were occupied by householders living alone.

“Of the 431,515 occupied housing units, 80.4% were owner occupied and 19.6% renter occupied. Of the 14,777 vacant houses in Nassau County, 2,862, or 19.4%, were used for seasonal, recreational, or occasional use. Median value of owner occupied units was \$209,500 and median rent was \$678. The homeowner vacancy rate was 1.2% and the rental vacancy rate was 4.1%.

### *Educational Trends*

“Of the 881,037 people age 25 or older in Nassau County, 84.2% held a high school diploma or higher, and 30% held a bachelor's degree or higher.

### *Income*

“Per capita income for the County was \$23,352 in 1989 and median household income was \$54,283. Of the 1,267,148 people for whom poverty was determined in 1989, 47,192 people, or 3.7%, were below the poverty line. Of the 47,192 people below the poverty line, 34,902 were 18 years of age or older.

### *Employment*

“Of 1,039,774 people 16 years of age or older in Nassau County, 66.6% were in the labor force. Of these, 99.8% were in the civilian work force, of which 4.1% were unemployed. More recent figures for the unemployment for the metropolitan area of Nassau and Suffolk Counties were 3.9% in 1997 and 3.2% in 1998. Overall, unemployment rates were steady throughout 1997 and 1998.

### *Employment Industries*

“Of the 661,486 employed persons 16 years of age or older in Nassau County, less than 1% were employed in the agriculture, forestry, and fisheries industries sector. There were 71 fishers in 1990. The largest sector of all was administrative support occupations, including clerical, at 19.7% followed by professional specialty occupations at 17.5%. The next largest sectors were executive, administrative, and managerial occupations; retail; sales; finance, insurance, and real

estate; and health services.

### *Racial and Gender Composition of the Fishing Industry*

“In Nassau County, in 1990, there were 14 captains or officers of fishing vessels, all of which were white men. There were also 57 occupational fishers, 40 of whom were white males and 17 black males.”

## **NEW JERSEY**

The following state profile on New Jersey was excerpted from Wilson and McCay (1998).

### **STATE PROFILE**

#### *Demographic and Economic Characteristics*

The population for New Jersey in the 1990 Census was 7,730,188 residents. The educational attainment in New Jersey was such that nearly 77% of the residents 25 and older were high school graduates, in 1990. The unemployment rate in this state was 5.7% of the civilian labor force. Industries that were important sources of employment include *retail* (employing 15% of the working residents), *manufacturing* (durable and nondurable goods, employing 8% and 9% of the working residents respectively), and *construction* (employing 6% of the working residents); *agriculture forestry and fisheries* industries only employed approximately 1% of the working population of New Jersey. The per capita income of New Jersey in 1989 was \$18,714.

#### *Recreational Fishery*

In 1996, there were 841 saltwater anglers in New Jersey; these anglers account for approximately 2% of the total number of saltwater anglers in the United States that year. Sixty-three percent of those anglers were residents of New Jersey and 37% were nonresidents. There were 10,366 days of saltwater fishing in New Jersey in 1996; these days accounted for approximately 10% of the total days of saltwater fishing in the United States that year. Eighty-four percent of those days were by residents of New Jersey and 16% were by nonresidents. Approximately 444,000 the New Jersey saltwater anglers fished for flatfish in 1996 (FWS 1997).

In 1996, expenditures by saltwater anglers in New Jersey totaled \$746,904,429; this accounted for nearly 9% of the total U.S. expenditures by saltwater anglers that year. Saltwater fishing in New Jersey had an economic output of \$1,483,741,878 (5.9% of the U.S. total), generated wages and salaries of \$414,464,135 (6.2% of the U.S. total) and created 16,112 jobs (5.6% of the U.S. total; ASA 1997).

VTR data indicate that 15 ports in New Jersey accounted for 55.5% of the 1999 party charter trips, from Maine through North Carolina. The most important ports with the greatest number of trips were Cape May (28.4% of NJ trips; 15.4% of US trips), Point Pleasant (14.7% of NJ trips, Belmar (14.4% of NJ trips), Barnegat Light (11.7% of NJ trips), Highlands (7.6% of NJ trips), “Other Cape May” (6.2% of NJ trips), and Brielle (4.8% of NJ trips).

The following Cape May Profile was taken directly from McCay and Cieri (2000).

## CAPE MAY

### FISHERIES PROFILE

“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 lbs., 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 (Table 15). Most are used for a wide variety of finfish species (56). Some are also used for scallops; Cape May has a long history of combined or alternating fin-fishing and scalloping. Squid is very important: In 1998 17% of Cape May's landed value came from *Illex* squid and another 22% from *Loligo* squid (Table 16). Much of the squid is processed locally as is 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 used, accounting for 15% of the total value of Cape May's landings in 1998. Angler (monkfish) are caught with scallop dredges as well as gill-nets, otter trawls, and scallop otter trawls (1.8% of landed value). Dogfish catches are now relatively small (0.3% of total landings in 1998).

#### *Field Observations and Interviews, Cape May (Lower Township), NJ, June 1999*

“Commercial and recreational fishing docks are scattered around Cape May or, more properly, Lower Township, but centered in an area known as Ocean Drive, a road which leaves the main highway and crosses the marshes toward Wildwood, and Schellenger's Landing, just over a large bridge that connects the mainland with the center of Cape May and its beaches.

“Our visit to Cape May reinforced what we later learned at other ports in the Mid-Atlantic region, that commercial fishing businesses and uses of the waterfront are lower priority than recreational and resort-oriented uses within the community. For example, the 1988 ‘harborfront enhancement’ master plan and other documents emphasize ‘full-service’ recreational marinas as ‘...the most economically viable marina option to both the investor and the community at large.’ The local Chamber of Commerce carries brochures for local charter and party boat and recreational marinas, as well as restaurants, hotels and bed-and-breakfast accommodations, etc. They could not come up with any information on commercial fishing in Cape May, despite the fact that this is the largest fishing port in New Jersey and one of the largest on the Atlantic seaboard. For this reason, we start with an examination of planning and zoning.

### *Planning and Zoning*

“Although the fishing port is known as Cape May, in fact it is not located in the city of Cape May but rather in neighboring ‘Lower Township,’ part of Cape May County. The Lower Township planning director stated that the constant association of Cape May and the fishing industry is a sore spot for Lower Township because Lower Township would like to be identified with the fishing community. He said that people realize fishing is an economic boon to the area and that they feel pretty positive about it. He said there are only a few conflicts with people who live near the boats.

“The planner said that most conflicts over land use by the fishing industry occur when new residential developments are sited next to fishing areas. The new residents complain about noise and claim that the piling up of gear is unsightly. He mentioned one example, new condos not far from Schellenger’s Landing, where a combination fish market, dock, and restaurant and a number of large fishing boats are found.

“Private recreational boating and fishing marinas are said to be a powerful political force in the township. In 1989 the planner interviewed said he conducted a study to site a public boat ramp. Planning board members reacted negatively to this proposal to provide free public access when some of the private marinas had launching ramps where people without slips could pay for boat launching. Although he worked with the Army Corps of Engineers and the state DEP to develop plans for five possible sites, and the state itself developed plans for another site, nothing has happened.

“Regarding land use conflicts vis a vis wetlands, especially along Ocean Drive, the informant said there has not been a significant amount of conflict, even though there have been several expansions of existing facilities. For example, at one particular Marina, which already had 440 slips (according to manager of a bait and tackle shop at the marina) 380 more slips are being added, but no wetlands are being converted for this. All that was needed to add the slips was a waterfront development permit from the DEP, local permits, and a site plan. The parking lot was already filled in when the wetlands act went into effect in 1972. One large clamming business, (see below), expanded land-wise when processing was added 6 years ago, but once again, the land used was already filled in, according to our informant.

“Schellenger’s Landing, just over the bridge leading to the city of Cape May, is zoned ‘marine general business’ with allowance for expansion of the marine industrial character. A large restaurant-fish market-packing dock complex has been expanding. It is a very popular place for tourists, who like to look at the fishing boats while they are eating lunch or dinner. Its large parking lot was once the site of another bar and restaurant. We were unable to talk with anyone at this complex. The planner estimated that 500 people work in the company’s fishing, processing, fresh fish market and restaurant enterprises.

“Next to that complex is a marine railway, which our informant said might have been converted to condos if it were not for the founder’s grandson, who modernized in order to be able to work on steel boats. According to our informant, the founder’s grandson was afraid that tourists would be annoyed by his business, but it turns out that they love to watch him power-washing the boats from the porch of the restaurant next door. Other marine-related businesses in and around the landing include two recreational marinas, two marine suppliers, two bait and tackle shops, a

whale research center, and a 'marlin and tuna club.' Also there are a pizza shop, a motel, a bar, a wildlife art gallery, an antique store, two restaurants, and a gasoline station. Some cater to people in the fishing industry and some do not.

"Further expansion of the fishing industry, commercial or recreational, is limited by the high cost of land near the waterfront. According to our informant, a 150' x 136' non-waterfront plot, seen on the planning map, that was being offered for \$350,000 five or six years ago, would go for \$400,000 now. As he put it, 'That's awfully expensive to be used to store your fishing equipment.' Another informant pointed to vacant buildings nearby, which had been intended for a deli and an antique store. Real estate costs proved too high for businesses like these. Even though there is considerable car and boat traffic at the landing, demand for homes is high. Many of the houses were built with use variances.

"Lower Township has three 'marine development' zones, located along Ocean Drive at Two Mile Landing and at Shaw Island and Cresse Island adjacent to Wildwood Crest. These areas are currently used by recreational boats. Across from Shaw I. is a new development, where 325 new slips are being put in. It is interesting to note that it was originally planned as a condominium development but now appears to be mainly a marina.

"There is also a place off Richardson's Road, adjacent to Rte. 47, where four fishing boats are docked at a small service building. It does not appear as 'marine development' on the zoning map, however, our informant knows of it. A woman who lives near where the boats are docked stated that the man who mostly uses them is an elderly fisherman. One of the boats that the elderly fisherman uses is clearly a lobster boat and one resembles a crabber, which is old army green. Two other boats are also docked here.

"Cape May City does have several areas with zoning 'uses by right' that include fishing-related uses such as piers, launching ramps, boat building and repair, retailing of goods and services oriented to marine or recreational activity, and so forth. None of these apparently hosts commercial fishing businesses, nor does an area zoned 'mixed use.' It appears that by fishing what is meant in zoning is recreational fishing. A woman in the zoning office said that they do not deal at all with commercial fishing, at least not in the 12 years she has worked there.

"There has been a fair amount of friction between the recreational and commercial fishermen, including name-calling, some of which has even been printed in the newspaper. However, some commercial boats are found amongst the various marinas. For example, a lobster boat was docked next to a marina on Shore Drive. Like many vessels in this area, it was registered in Philadelphia. Offshore lobstering is an important fishery even this far south; the owner of this boat reportedly moved here recently and is doing very well. At another marina, a small commercial vessel pulled up to refuel; the men on board had come down from Port Norris and were on their way out to fish with pots for conch. Their season was just beginning.

"We visited a complex on a saltwater creek (Mill Creek) that includes a marina, bait and tackle, marine supply, charter boats. The marina itself is small, about 28 slips. Access to this particular area is now difficult for large vessels because of silting, due to the canal built between Cape May and the mainland. (Saltwater intrusion of the water supply is another problem linked to the canal). The marina is one of four owned by the owner of several party boats. Another of the

marinas owned by this person has over 400 slips and is still building; it caters exclusively to recreational boats.

*Fishing-Related Businesses:*

“Schellenger’s Landing is the most visible center of fishing in the Cape May area. A large restaurant-fish market-packing dock complex is a very popular place for tourists, who like to look at the fishing boats while they are eating lunch or dinner. Its parking lot was once the site of another bar and restaurant. We were unable to talk with anyone at this complex. The planner estimated that 500 people work in the company’s fishing, processing, fresh fish market and restaurant enterprises. At the time of our visit, there were 13 fin-fishing, lobstering, and other fishing vessels docked at various sites around the landing, several of which came from Hampton, Virginia and North Carolina ports. Cape May has long been used by fishermen from other states.

“Ocean Drive is the location of several important commercial fishing businesses. The first is a company with a long history in the area, as a wholesale distributor, exporter, and processor. The company's ‘The focus for the past 18-20 years has been on high volume, low value species’ such as mackerel, herring, squid and menhaden, according to the person we interviewed, who has been with the company for 25 years. They also deal with a little of everything else.

“He said that over the last 15 years there has not been much change within the company except the growth of its processing capacity, mainly within the last five years. The company distributes and exports more than it processes. The processing that does occur involves turning squid into calamari. Otherwise, they check for species, size and quality, and freeze and pack for the market. Our informant said they do very little local business, and that which they do is only in wholesaling. Exports to foreign countries (all frozen) constitute 50% to 60% of their business. He said that the countries vary from year to year, depending on the market. The domestic market is 40% to 50% of the business. Of that, 15% to 20% is made up of fresh fish that goes to Philadelphia, New York, Boston and the Carolinas. The rest is frozen and sent to other processors and distributors throughout the country.

“The company has expanded by taking over the Two Mile Landing dock, which is across a 50-cent toll bridge on the way to Wildwood. It is being upgraded and will be used for large, long-range freezer trawlers and freighter vessels carrying mackerel and herring. The company owns only a half share in two boats. It works almost exclusively with independents, most of who have been dealing with the company ‘for generations.’ He mentioned one example, a local family of Swedish background. Most of the boats are local, though a few come from the South and from New England.

“Fourteen boats work with this company full-time. They are all trawlers, though a couple of boats have the capacity to purse seine as well. All of the boats dock at this company, which provides them with fuel, ice and electricity. The boats are 85’ to 145’ in size and generally use 3- to 5-man crews except the freezer boats, which have 8 to 9 crew members. They fish as far east as offshore Massachusetts and as far south as North Carolina. They go 40 to 100 miles offshore to as much as 300 fathoms. Our informant said that they are just beginning the Illex squid season, and are also bringing in menhaden.

“The company has 75 to 80 employees who are not on the boats. He said they live in towns from Cape May to Bridgeton. The ethnic make-up is approximately 40% Hispanic, 40% white and 20% Asian, black, and other. Most of the Hispanics have been with the company a long time and live in Bridgeton, NJ. He also estimated that 65% to 70% of the workers are male.

“This company has been on its property since 1954 and has had some problems with physical expansion due to laws governing conversion of the surrounding wetlands. Our informant said that New Jersey is very strict about this, much more so than most states. He said this was one reason they decided to acquire the dock at Two Mile Landing.

“Two Mile Landing has a commercial dock, being upgraded. There is a pleasure boat marina next to this dock, as well as a para-sailing facility and a company that charters pleasure trips. There are also 2 restaurants at the landing, one quite large. An informant at the larger restaurant said that most of their fish and seafood that they serve is local and that the chef buys it from local wholesalers. The local types that they get are flounder, scallops, clams, swordfish, tuna, whole lobsters and mako shark. The crabs they get are from Maryland, the lobster tails are from New Zealand, and the salmon is from Norway. She also mentioned that local people sometimes try to sell to the restaurant directly, but that they ‘only buy from legitimate places.’

“We interviewed the owners of a neighboring and also large seafood company. It has a retail store and a processing factory. The permanent staff numbers about 20 people, mostly local, six to eight of whom work in the retail store/fish market. The rest work in the processing plant. At the time of our visit there were 35 or 40 contract laborers (mostly ‘Vietnamese’) brought in from Philadelphia, as well as four or five African-Americans. The contract laborers had been working consistently for a month, packaging squid, the dominant species being processed here in recent times.

“One of the owners said that handling squid as they were was not profitable, not even a ‘stopgap measure,’ but the regulations were forcing them to any markets they could. Their traditional dominant markets are squid, flounder, sea bass, porgies and clams/quahogs.

“The owners said that they have lost two thirds of their gross volume in the last eight years due to regulations. They said that they can't compete with the prices of the imported, processed product. They believe that other countries are making big money at their expense. They were recently given an extra squid quota in exchange for their cooperation on a change in the season opening for squid. They accepted the quota but said that now their boats are having a problem bringing in the quota because of the poor timing. They complained about how limited their boats have become by the regulations that force them to fish only for certain species in very limited windows of opportunity.

“Fifteen boats work for this company. Dealing with the declining volume problem by increasing the number of boats would mean having ‘...to steal them from other dealers or from other states who are themselves limited.’ They emphasized that no one is willing to risk building another boat with such a limited, unstable future for the industry looming overhead. The company had recently built a couple of large-capacity freezers and has expanded its dock over the years.

“A third commercial fishing business in the Ocean Drive area owns one surf clam/ocean quahog vessel, a freezer trawler, 7 wet boats and 2 refrigerated sea water vessels. Our first informant, who runs the dock, said that they go for both clams and fin fish, however recently they have been bringing in mainly squid and mackerel. As noted in The New York Times, August 10, 1997, the owner of this company. ‘They also own a freezer trawler, 7 wet boats and 2 refrigerated sea water vessels. Our first informant, who runs the dock, said that they go for both clams and fin fish, however recently they have been bringing in mainly squid and mackerel.’ As noted in The New York Times, August 10, 1997, the owner of this company ‘is the only one to work in 7 of the state’s top 12 fisheries: clams, squid, scallops, flounder, menhaden, porgie and mackerel.’ The only fisheries his boats do not engage in are long-lining for tuna and pot fishing.

“The company also off-loads about 8 independent boats and has another clam offloading dock in Point Pleasant. According to its owner, at this facility there are 15 shore employees, approximately 20 seasonal packers, and 45 crew on the boats. He tries to keep the crews of the boats small in size, for efficiency, but this increases the problem of finding appropriate, trained workers. The boats range in size from 75’ to 125’ and take crews of 4 to 7. Our first informant said that they have had to hire a number of transients from Virginia (for scalloping) and Massachusetts because it has been getting more difficult to find local workers for the jobs. He added that sometimes the boats cannot go out because they do not have enough properly trained crew members. Crews are paid by shares, which he said vary. Typical shares are 60/40 and 55/45, boat to crew.

“This seafood businessman has been involved in several leadership positions and organizations. Together with representatives of other Cape May/Wildwood businesses, he started and supports the Cape May Seafood Association, which has a director and a budget of about \$100,000 a year. It has had problems, including competition with a group called Families and Friends of the Fishermen, which started up early in the 1990s in the wake of ITQs as well as conflicts over horseshoe crabs and menhaden fishing. He recently helped start a state-wide organization, the Garden State Seafood Association, which employs a professional lobbyist in the state capital. He has also been involved in collaborative research among industry, university, and government to improve knowledge about surf clam and ocean quahog stock assessments and gear selectivity for scup and squid fisheries.

“According to the owner, this business has had little experience with land-use conflict because it is far removed from the main tourist areas of Cape May. It has been at this location since 1976 and owns 10 acres. However, there have been complaints about tractor trailers and equipment out in the yard creating an eyesore. ‘If Lower Township enforced the regulations, we would be in trouble for all the s\_\_\_ lying around.’ He said he thinks many people consider the fishing companies ‘scenic,’ but that they are ‘neither significantly supported by nor discouraged by local policies.’

“Regarding the study of fishing communities, the owner was very cynical, stating that it is conducted by the council just to placate communities. He says he wants to help management, but that management is working backwards. He thinks that the only things that constitute the public good vis a vis fishing are preserving biodiversity and keeping seafood affordable for people. He thinks the most important question for management is whether it should be done by input controls (e.g., time and gear management) or output controls (e.g., ITQs).

“A large sea clam facility is located on Ocean Drive across from two of the finfish processing companies described above. It bought out another large company in 1994. Until about 1992 this facility was used to steam shuck surf clams and ocean quahogs (mainly the latter), shipping the shucked meats elsewhere for cooking and canning or freezing. It also owned and operated a fleet of vessels. It was expanded and redesigned in 1992 to be a full-scale shucking and processing facility, the ultimate in vertical integration, but engineering problems combined with wastewater management problems led to abandonment of shucking. In 1994 the parent company sold this plant to another company, which also purchased the vessels and some of the ITQ held. The plant now buys shucked meat from other plants and processes ocean quahogs and surf clams in various forms and has begun to diversify into other food products. It now employs about 130 persons in a highly automated process, and the workers are primarily from the local region. Two of its five vessels are not being used for clamming; the other three are contracted out to others in the industry.

#### *Party Boats, Charters and Whale-Watching*

“Cape May has a substantial recreational fishery, both ‘for-hire’ and private boat. We observed four party boats at one of the marinas. Two were specializing in 8 hour trips for black sea bass and flounder, and two were doing 4 hour trips ‘for just about anything’ during our visit in early June, 1999. ‘Canyon’ fishing is also important here, involving long trips out to the waters of Baltimore canyon for pelagics. (The owner of one of the recreational marinas developed a condominium community specifically for private boat owners and customers of charter boats who identify themselves as ‘canyon’ fishers).

“Whale watching has emerged as a profitable alternative or adjunct to recreational fishing charters. The naturalist/tour guide on a catamaran run by a whale watching enterprise mentioned that her family owns the center, and her father used to run a party boat out of Cape May. She said that he decided to get into whale watching because he thought that he would make more money at it, and the business has proven to be very successful. The whale watches run from April 15 – Dec. 1. The boat holds 150 people, and she says they are full or nearly full most of the time. They not only search out whales but also dolphins (she said there are 2,000 dolphins in the area during the summer).

“Her boyfriend also owns a 55-foot charter boat. She says that despite the regulations and diminished fish stocks, sport fishing out of Cape May is great because of all the nearby canyons and the different varieties of fish including marlin, shark, tuna, mahi mahi, and some sailfish. She says they mostly do tag and release from her boyfriend’s boat. It is her feeling that the regulations are harsher for the charters than for the commercial fishermen.

“On the dock there was a group of charter captains drinking beer who were not that interested in talking about the fishing community, but one did say that the people who charter their boats are mostly from Philadelphia.

“Our informant also said that there has been some antagonism between the commercial fishermen and the sport fishermen. She did say that she has a good relationship with some of the bunker fishermen, who sometimes tell her where the bunker are running to help her locate whales (whales eat bunker). She also mentioned a story about some ducks she used to feed at the docks. She became very attached to them over time and then all of a sudden they disappeared.

She suspects that the Vietnamese fishermen who work on one of the boats docked at Schellenger's Landing killed them and ate them. She is really upset about it.

“She said that because of the regulations, fish stocks have been increasing in Delaware Bay. She said that every charter boat and party boat had been fishing in the bay that day, which was June 8th.

“She said that most of the fishermen she knows live in Cape May and Wildwood, though some fisherman live as far as one hour north. She said that it is not that expensive to live in Cape May and Wildwood if you are there year-round. She said that while you have to pay \$5,000 for a 2-bedroom apartment for the period between June and September, you only have to pay \$500-\$600/month for the same apartment for the remainder of the year. She also mentioned that there are a lot of family-oriented fishing businesses in the area. ‘We want it that way. Why would we want anyone else?’

### *Fishing and the Larger Community*

“A fisherman's memorial is at the end of Missouri Ave. (off of Pittsburgh Ave.). It portrays a woman and a child looking out to sea. A fishermen's wives organization, now defunct, played a major role in creating this memorial. The inscription says,

“‘Dedicated to the fishermen lost at sea - 1988  
He hushed the storm to a gentle breeze,  
And the billows of the sea were stilled’

“There is also a bronze plaque for fishermen lost at sea on the Washington St. pedestrian mall.

“A Seafood Festival in Cape May had been moribund for a while until it was taken over by the Chamber of Commerce in the mid-1990s. When asked whether the commercial fishers in the area had been involved in organizing or supporting the seafood festival, a representative of the Chamber of Commerce said that there is a ‘non-existent relationship between us and them. We tried, they tried, but it never worked out.’ One of the seafood company owners interviewed expressed concern that such a festival was run to display commercial fishers as a ‘peep show’ for the public, or for preserving some fabricated sense of community heritage, rather than to promote specific products. Besides, he said, fishers need to work for a living and cannot take time for these festivals.

“We talked with quite a few people about how the fishing industry connects to the larger community. One, who works at a large seafood company, said that as far as a connection with the larger community is concerned, the fishing industry has ‘always been a very important and integral part of the community here. But it has also been very unrecognized, more often than not by choice. It's not like New England – people do not think of this as a fishing community... fishing provides a lot of the jobs. If a guy or girl did not mind working hard, they could do super well. Some people used to make a lot of money, and then 80% of them blew it. Now it has changed a lot over the last 6 to 10 years. But still there are some people making money.’ He thinks that the fishing is coming back in the area, though there are still a lot of problems, ‘some caused by ourselves, some that we have no control over.’

“When asked about the fishing industry and tourism, our informant said that most of the industry has been ‘low key by choice.’ He said that the one place where tourists have been cultivated is at a company that developed a seafood market and restaurant-bar at its dock. Other businesses ‘don’t encourage the tourist link because there is no real benefit to the company.’ (A pamphlet This Week in Cape May lists a 45-minute ‘Fisherman’s Wharf Tour’ that is scheduled to occur four times in May and June at the above-mentioned dock and fish packing plant. The tours are sponsored by the Mid-Atlantic Center for the Arts in Cape May City.)

#### *Bar/hangout*

“One of our informants says the bar/hangout is Mayer’s Bar behind Captain’s Cove. He also said that it used to be a rough place; for example, there was a shooting there involving fishermen in the early 1980s. A different informant said that the bar/hangout was Carney’s, located on Beach Drive, however, she may have been referring to the hangout for the sport fishermen. She said that she and all her friends are members of the Cape May Marlin and Tuna Club, which is a private, non-profit club requiring dues, and that is where they tend to go. She said the bar is ‘like a family’ where people tell lots of fish stories.

“Coffee: One of our informants said that the place to get coffee is the Lobster House coffeehouse for both charter and commercial fishermen.”

The following description of the communities of Barnegat Light, NJ excerpted from Wilson and McCay (1998) and Brielle, NJ from McCay and Cieri (2000) were written in the context of the HMS FMP. Although the information does not pertain directly to summer flounder it does give some background on the dependence of these communities on recreational fishing, which may be representative for many communities along the coast. This level of detail is not available for all recreational fishing communities from Maine through North Carolina.

### **BARNEGAT LIGHT COMMUNITY PROFILE**

“Barnegat Light is one of the 11 municipalities on Long Beach Island, a large ‘barrier beach’ island that helps form the seaward boundary of Barnegat Bay. This small town with less than one square mile in area is located on the northern end of the barrier island. The town is named after its famous lighthouse that guided ships for generations along the New Jersey coast. The name Barnegat originates from ‘Barendegat,’ a Dutch name meaning ‘inlet of breakers’ (Beck 1963).

“Until recently in order to reach the ocean, boats had to go through one of New Jersey's narrow and often dangerous inlets, a factor that has worked against major maritime development, in contrast with beach-oriented tourism. In 1995, the infamous inlet’s fierce currents were tamed by the forty-five million dollar Army Corps of Engineers project that constructed a south jetty along with a three-quarter-mile beach, a fishing pier, and affords bird watching opportunities (Anon. 1994). Commercial and recreational fishing have a long tradition here, as they once did in the community of Beach Haven on Long Beach Island, which is now only private boat marinas and residential condominiums.

## DEMOGRAPHIC PROFILE

### *Population*

“According to the 1990 Census, this small seashore town, with less than one square mile in area, has a population of 681 (U.S. Bureau of the Census 1990). There are 1.8 males for each female.

### *Racial and Ethnic Composition*

“The major race of the town is White, comprising 99.6% of the population. The Black component makes up the remaining fraction of a percent for the racial composition. American Indian, Eskimo, Asian, Pacific Islander and any other races are not represented in the racial composition of the Barnegat Light population.

“The ethnic composition, based on single ancestry, is primarily European. German ancestry has the highest percentage with 12.2%. The second highest ranked ancestry, which is Irish (4.7%), is followed by three ancestries in close percentage range: English (3.8%), Italian (3.1%), and Polish (2.8%).

### *Age Structure*

“The age structure in Barnegat Light is that of an aging population. Thirty-three percent of the population is between age 15 to 44. The 45 to 64 years age bracket and the 65 and over age bracket, which are the two eldest cohorts, comprise 57% of the population. The remaining population are under age 15.

### *Marriage*

“According to the 1990 Census, 60% of the population of Barnegat Light 15 years and older are presently married. Nineteen percent have never been married, 11% are divorced and 9% are widowed. Of those who are widowed, 72% are women and only 28% are men.

### *Housing Composition*

“According to the 1990 Census, Barnegat Light has 342 households with an average of 1.99 persons per household. Out of this total, there are approximately 62% family households and 38% non-family households.

“According to the 1990 Census, the total number of housing units in Barnegat Light is 1,187, of which 28% are occupied and 62% are vacant. Of the occupied housing units, approximately 82% are owner-occupied and 18% are renter-occupied. Over three quarters of the vacant housing units (86%) are used for seasonal or recreational use.

### *Education Trends*

“In terms of educational attainment, 84.9% of the persons 25 years and older are high school graduates.

### *Economic Characteristics*

“*Income* According to the 1990 Census, the per capita income for Barnegat Light in 1989 was \$25,973. This level of income is in line with the per capita income of Brielle (\$24,027), but is considerably higher than the per capita income for the state (\$18,714).

“Employment Of the residents 16 years and older, 51% participate in the civilian labor force. The unemployment rate for Barnegat Light is only 1% of the civilian labor force; this is considerably lower than the state unemployment rate (5.7%).

“In looking even closer at the workforce through examining the worker’s class, 64.1% of the number employed comprise the *private for profit wage and salary workers; self-employed workers* are 21% of the working population.

“Employment by Industry The highest percentages of employment by occupation are *managerial/professional* with 32.4% and *technicians/administrative* with 31.4%. *Precision production, craft, and repair*, which has 13.9 %, is the third ranking occupation. *Farming, forestry, and fishing* occupations has 10.3%.

“Local Business In looking at the small town of Barnegat Light, it becomes apparent that the small businesses are very reliant on the summer tourist economy and the year round fishing industry. This is apparent with all of the summer and beach houses, the seashore shops and convenience stores along the main boulevard to and through Barnegat Light. The tourist surf shops, souvenir shops, small grocery and convenience stores, fish markets, and even the electronics and repair shops advertise goods and service catering to the needs of their consumers. It also becomes apparent that the town relies fixedly on its commercial fishing industry year round. According to a resident, the commercial fishing becomes the stalwart economic sector for the town in the winter through employing as many as 150 local people to work at the marinas.

## FISHERIES PROFILE

“Throughout the interviews and meetings, several citizens and business owners from the Barnegat Light community emphasized the significant role the fishing industry has in sustaining and preserving their community. The marinas are the major source of taxes for the community, according to representatives of the community's taxpayers association. Two of the five marinas are primarily dependent on the commercial fisheries. An owner of one of the marinas told us that 80% of their overall income comes from the commercial fishing industry, for fuel and other services. Although there is a lot of recreational fishing, the amount of fuel and other services sold to recreational fishermen is tiny compared with what is sold to commercial fishers. One marina owner said that for fuel, the ratio is about 40 or 50 commercial to one recreational. In addition, small businesses are able to stay open all year because of the fishing industry, and this has stabilized the community so that it has the lowest crime rate on the island.

“According to another respondent, the fishing industry is an integral part of the social and economic livelihood of Barnegat Light. In examining the fishing industry of the town, Barnegat Light is one of Ocean County’s most important ports. Of the 1993 Ocean County landings totaling 28.5 million tons, the port totaled 3.8 million but the value of these landings was \$9.1 million dollars, which calculates to be 39% of the Ocean County landings value (New Jersey Department of Agriculture 1995). Many members of the East Coast’s Longline fleet, scallop vessels, and a fleet of in-shore gillnetters reside at this port (NJ FishNet 1997). Recreational and charter boats also utilize and work from this port.

“There are five marinas in Barnegat Light. The two largest docks have 36 full-time resident commercial boats, approximately 40 recreational and charter boats, and some transients. Commercial fishing boats work out of these docks year round. The three remaining docks can each accommodate approximately 30 - 35 boats, most of which are recreational boats and charter/ party boats, with a few headboats. Most of the recreational and sportfishing fishing boats that utilize this port are here for part of the year, usually from May or June through early October.

“One dock is completely occupied by commercial boats, the owners are also commercial fishermen. These commercial boats include seven scallopers, ten longliners that fish for tuna, swordfish, and tilefish, and about nine inshore-fishing net boats. All the boats are privately owned (New Jersey FishNet 1997). Three offloading stations are part of this dock. During the slow to steady seasons, five or six locally hired full-time employees, the boat captain and crew perform the offloading. Additionally, dock hands are hired locally for the busy season. The choice for marketing and sale of the fresh fish can either be done by the captain or by the owners of the dock. The owners of the dock sell some of the catch to fresh fish markets in Boston, Philadelphia, Maryland and New York with the remaining being sold to local restaurants, retailers, wholesalers or at their own fish market, which is open from April to October (McCay 1993).

“The second of the largest docks accommodates ten commercial boats, fifteen charter boats, and twenty-five recreational vessels. This dock is primarily an offloading facility and can accommodate up to five vessels for offloading. During offloading, there are two people working the docks to help the captain and crew. The marketing and sales of the fish is done by the boat captain, who sells the fresh fish to local fish markets (McCay 1993).

“The Barnegat Light port is known for its offshore longliner fishery. Today it focuses on the tunas (yellowfin, bigeye) for most of the year and swordfish part of the year. A few continue bottom longlining, for tilefish, caught in deep waters of the outer continental shelf and canyons. The longlining tradition derives from a winter handline and longline fishery for cod, which lasted through the first part of this century and was prosecuted by Scandinavian immigrants among others. Tilefish were well known by the old-timers of Barnegat Light but markets were poor. In 1969 a captain began tilefishing again. In the early 1970s he and others cooperated in successfully creating a domestic market for tilefish, and this soon emerged as a major focus of the longliners of Barnegat Light, as well as Montauk, New York and, more recently, Point Judith, Rhode Island. The fleets developed rapidly, attracting even some of the charter boat fishermen. They diversified into pelagic longlining, for swordfish and tunas, as tilefish catch rates diminished. Others moved into sea scalloping.

“Although Barnegat Light is mainly a longliner fishing community, there is also a small group of coastal gill-netters plus seven large sea scallopers. And like all ports in the region, it has a significant recreational fishery, with an equally long tradition. The longliner fleet is side by side with the party boats at one of the docks. Indeed, one of the families is involved in both commercial and party boat fishing, including offshore ‘canyon’ fishing for HMS. The HMS longliner fishery and the scallop fishery are the most important in economic and social terms. Consequently, declines in allowable catches, seasons, trip limits, and, for the scallopers, days-at-sea are threatening the fishing community. There are few viable options. According to the

mayor, a commercial fishermen himself, 'September 30th, it's doomed.' That is when the actions required by the new overfishing requirements come into place for HMS and scallopers.

"In regards the effects regulations and policy implementation have on the fishery, the regulatory system intensifies the economic marketing problems. The manager of one of a major local fish dock said that the management process creates derby fishing, through the opening and closing of seasons. This means that small businesses such as his have trouble keeping their markets. A good example is the shark management plan, which has two periods, one beginning January 1st, when boats in this area have no access, and the other beginning July 1st, when the rush for sharks results in a glut on the market. This is also true for weakfish and fluke management. Millions of dollars are lost, he said, because of derby fishing.

"In terms of loss of revenue due to regulations, the sentiment of the fishermen seem to be that the federal government needs to let the 'hardworking fishermen' make a living or 'pay' the fishermen every time they are not allowed to fish for one of their target species.

"Instances were shared of occasions when policy implementation practices damaged the economy of local businesses because the federal plan came out after or during the fishing fleet and local businesses made adjustments to gear, trip plans, and orders for costly supplies and equipment. Fishermen attempt to adjust and cooperate with the management plans for the betterment of the fish resource, but the fishermen expressed their frustration that soon after they make adjustments, either the regulations change or new regulations come into affect that further impact the commercial fisheries target species and reduce alternatives. The adjustments made by commercial fishermen are often the only alternatives to sustaining their interests and livelihood in the commercial fishing industry. Fishermen and their community have strong concerns that the commercial fisheries future is in jeopardy due to the management agency's policy practices and implementation.

"To the old-timers, the nature of the fishery has already changed profoundly in part because of the way regulations are applied, forcing people to specialize in different fisheries, rather than to be able to combine them or switch from one to the other. Now they are 'boxed in,' which increases pressure on fish. For example, the swordfish fishermen have nothing else to turn to; tuna quotas are way down and the market is poor for some of the tunas; there is a moratorium on tilefishing, hurting the longliners that moved away from that fishery in recent years; and the fishery for monkfish is very poor, with tight restrictions coming on line. Two local boats converted from swordfishing to monkfishing, at great expense, but failed to come in under the deadline for limited entry in that fishery. One option some captains from this port have taken is to go to other countries to fish, but that is not proving sustainable because once they have taught people in those countries, they are typically replaced by lower-cost captains.

"Another change in the fishery is that crews, at least for the pelagic longliners and the scallopers, are less likely than before to come from local communities. Local job opportunities in construction and the service industries for tourism compete with working as a deckhand on a fishing boat, particularly with so many restrictions, declining catches, and poor markets, and thus crew come from other regions, where there are fewer opportunities, such as Nova Scotia, some of the southern states.

“One sign of change in this fishing community that has intensified in the past 3 to 5 years is the loss of welders, woodworkers, mechanics, and others needed to support the fisheries. There used to be a full-time welder and a couple of part-time welders in Barnegat Light. The full-time welder has been gone for over 3 years. Local carpenters have been gone for about 5 years. Whereas it once took a few minutes or maybe an hour or day to get help, now it can take a week. You can no longer get these services in town, or even within the region.

“Some of the longliners of Barnegat Light have become distant-water operations, going to the Grand Banks of Newfoundland or even the waters off Greenland, as well as the Caribbean, Brazil, and other distant fishing grounds. The owner of one major fleet, of 6 longliners, left Barnegat Light recently. His vessels were among the dozen or so very large longliners that found a 31,600-trip limit too restrictive, and thus left the Atlantic Ocean for the Pacific Ocean.

“Others strongly prefer to work closer to home, to take shorter trips. As one of the captains said, ‘I never wanted to be a gypsy, going to Puerto Rico, Hawaii, to fish.’ His father, one of the pioneers, explained further, ‘I never wanted any of our boats to go anywhere but Barnegat Light....We have our own troubles, no need to go someplace else to find it, ‘ referring to troubles with crew, engine break downs, buyers in distant ports. The options of those who resist going to other ports are far more restricted. The HMS plan, to close all areas north of 39 degrees north, Toms Canyon to the Hague Line, to pelagic longliner fishing to protect bluefin tuna, is thus very scary to them.

“Taking their boats to distant waters, as has the one fleet owner mentioned earlier, remains an option, but it is very disruptive of family and community --the loss of that fleet has already had major impacts on local businesses. Recognition of the links between the pelagic longline fishery and the community itself is a reason why those who run the fishing docks, together with leaders of the community, are struggling to find ways to deal with problems in the fisheries. Another concern of local residents is that decline or demise of the commercial fisheries is likely to transform the use of the waterfront, bringing in condominium development where marinas are now, an outcome which many long-term residents find undesirable. Even more, the fisheries are perceived as part of the identity of this community. Hence, that would be ‘the end of Barnegat Light as we know it.’ For fishing families, the changes are even more significant. As one said, ‘There's no future in it,’ and sons and daughters are being discouraged from going into the business.

“In closing, one respondent expressed his feeling about the regulations’ effects on Barnegat Light in saying, ‘For years, we have tried to maintain our town, our community and provide for our people, as opposed to other towns that are more transit towns. The laws seem to sacrifice the maintenance of our town.’ The respondents from the community of Barnegat Light were in agreement when they heard the respondent make the previous remark.”

## **BRIELLE COMMUNITY PROFILE**

“The Borough of Brielle is located in the southernmost region of Monmouth County.

Brielle borders the Manasquan River. Becoming an independent Borough in 1919, the name Brielle was given to the new borough. Its name originates from being liken to a town in Holland named 'Brielle' (Brielle Chamber of Commerce 1994).

## DEMOGRAPHIC PROFILE

### *Population*

“Brielle has a population of 4,406. The projected population for 2005 is 4,634. The population per square mile is 2,670 (Monmouth County 1998); Brielle is 1.65 square miles in area. The ratio of male to female is approximately 1:1 with 2,123 males and 2,283 females (U.S. Census of 1990).

### *Racial and Ethnic Composition*

“The racial composition of the town is predominantly White with 93.7%. The Black segment of the population makes up 5.5%. The American Indian, Eskimo, or Aleut populous represent less than a percent with 0.8%.

“The ethnic composition, based on single ancestry, is primarily European. Irish ranked first with 10.1%. German ranked second with 6.9%. The third ranked single ancestry is English (5.5%).

### *Age Structure*

“According to the 1990 Census, approximately 36% of the residents are 15 to 44 years of age in Brielle. Nearly 50% of the residents are over age 44, while only 16% are under age 15; the predominance of people over age 44 suggests an aging populace.

### *Marriage*

“According to the 1990 Census, nearly 60% of the population of Brielle 15 years and older are presently married. Twenty-two percent have never been married, 10% are divorced and 8% are widowed. Of those who are widowed, 87% are women and only 13% are men.

### *Household Composition*

“The total number of households in Brielle is 1,735; these average 2.54 persons pe household (U.S. Bureau of Census 1990). Out of this total, there are approximately 75% family households and 25% non-family households.

“According to the 1990 Census, there are 1,986 housing units in Brielle, of which 87% are occupied and 13% are vacant. Of the occupied housing units, approximately 82% are owner-occupied and 18% are renter-occupied. Over half of the vacant housing units (52%) are used for seasonal or recreational use.

### *Education Trends*

“In terms of educational attainment, approximately 91% of the persons 25 years and older are high school graduates.

### *Economic Characteristics*

“Income According to the 1990 Census, per capita income for Brielle in 1989 was \$24,027. This level of income is similar to that of Barnegat Light (\$25,973), but is considerably higher than the state per capita income of \$18,714 for the same year.

“Employment Of the residents 16 years and older, 63% participate in the civilian labor force. The unemployment rate for Brielle is 6.9% of the civilian labor force; this is only a bit higher than the state unemployment rate (5.7%). According to the U.S. 1990 Census, no one in Brielle is employed in the Armed forces.

“The highest percentages of employment by occupation are *managerial/professional* with 44.7% and *technicians/administrative* with 31.5%. Less than 1% of the employed population is represented by the *farming, forestry, and fishing* occupations. About seventy-three percent of the employed population comprise the *private for profit wage and salary workers*. The *local government workers* and *self-employed workers* are in close percentage range for second ranking with 8.5% and 8.4%.

“Employment by Industry In the industry sector, for employed persons 16 years and over, *professional and related services* represents nearly 27% of the percent employed population. *Agriculture, forestry and fisheries* represent 1.6% of the employed population.

“The following field Observations and interviews on recreational fishing at Point Pleasant/Brielle area, NJ are excerpted from McCay and Cieri (2000).

“Funding and time constraints precluded our studying the recreational fisheries as much as the commercial fisheries in the Mid-Atlantic region. However, we are able to discuss some aspects of the recreational fisheries of the Point Pleasant area because of our involvement in a separate study, for NMFS, on the social and cultural dimensions of highly migratory species management (Wilson and McCay 1998). The following is based in part on the results of a meeting with charter and party boat captains, journalists, tackle shop owners, and other interested parties in July 1998.

“The Borough of Brielle is located in the southernmost region of Monmouth County, across the Manasquan River from Point Pleasant. Its 1990 population was 4,406, and nearly 50% of the population were over 44, reflecting its role as one of the many Jersey Shore communities attracting retirees. From a fisheries perspective, its bait and tackle shops and charter and party boat fleet, and marinas, may be considered part of the ‘Port of Manasquan’ which involves Brielle, Point Pleasant Beach, Point Pleasant, and Manasquan, centering on both the Manasquan River and Manasquan Inlet.

“It is an area where recreational fishermen are as ‘traditional’ as commercial fishermen are. The context of our meeting was a socio-economic study of impacts of proposed alternatives for the management of tuna and sharks (Wilson and McCay 1998). Bluefish management was another topic that loomed large at the time. Other species being managed at state, interstate, and federal levels are also important to the area's recreational fisheries, including summer flounder, tautog, black sea bass, scup, Atlantic mackerel.

“The ‘Port of Manasquan’ is one of the most important of the ‘inlet’ ports along the barrier beach complex that makes up the New Jersey coast. It has been a center of both recreational and commercial fishing since the early 1800s. Within the memory of the people we talked with, there were at least 100 working charter boats in the port. Today Brielle has 21 charter/party boats of which 14 are ‘full-time’ headboats. There are 64 charter/party boats in Point Pleasant. The boats usually fish relatively close to shore for fluke, bluefish, and other species. The majority who fish offshore are private boats with or without NMFS angler permits for bluefin tuna.

“With regard to the pelagic fisheries, the area has historically, and until recently, been a bluefin tuna port. More generally, New Jersey has had a recreational school bluefin fishery long before longliners, purse seiners and general categories developed their fisheries. In the Brielle/Point Pleasant area, bluefin tuna, particularly the smaller schooling tuna, still remain important for some periods of the year, at least when the northern management area is open for bluefin tuna fishing. According to historical documents found by a respondent, in the 1890s ‘catboats’ from nearby Long Island were engaged in a bluefin tuna recreational fishery. In the 1930s there is documentation of huge catches by boats from ports of northern New Jersey, including Brielle/Point Pleasant. In one month of 1939, the weekly scores of northern New Jersey boats showed 19,998 bluefin tuna. In contrast, in 1998, the entire coast wide quota was 269 MT, or about 19,000 fish, the same amount, and for the whole year, not just one month.

“Here, as elsewhere in New York and New Jersey, the highly migratory species fisheries are often known as the ‘canyon’ fisheries, because they take place along the edges and deep waters of the Baltimore and Hudson underwater canyons, as well as around eddies and at the edge of the continental shelf. In the past, we were told, bluefin tuna could be caught on day trips in coastal waters, as well as the canyons, and they were the major source of profit for the charter boat fleet here (and elsewhere in New Jersey and the larger Mid-Atlantic). At one time, the full-time ‘canyon fishermen’ included hundreds of inshore bluefin tuna boats, ‘6-pack’ boats (i.e. smaller charter vessels certified to carry no more than 6 passengers; also known as ‘uninspected’ boats). One respondent recalls, 20 years ago, about 20 miles out in the Hudson Canyon, seeing 300 boats fishing for tuna one night. Now, the boats have to go 80 miles offshore, on two day trips, dealing with the risks of the weather. The canyon fishery is now much farther offshore, and the canyon fisheries for tunas are thought of as extra opportunities for charter boat captains, whose regulars might occasionally ask for offshore tuna trips. Increasingly, the pelagic canyon fisheries out of the port of Manasquan as well as Cape May and other recreational ports are prosecuted by private owners of expensive, large boats rather than for-hire operations. Recent improvements in the U.S. economy have once again fueled investment in expensive offshore fishing boats, and this is a major contribution to New Jersey's economy. The majority of the private boats used and bought in the Cape May area, for example, are built in New Jersey.

“It must be emphasized that New York and New Jersey still have viable canyon fisheries, and they are extremely important. The Hudson Canyon offshore fishery, of the Brielle/Point Pleasant fleet, really started 15 to 20 years ago, and they rely heavily on it for the fall fishery. This fishery has diminished, and the smaller, less powerful boats are gone. We were told that now ‘there's no such thing as owner-operated boats,’ just the boats of the larger fleets. The smaller boats have difficulty with the offshore, canyon fishery. One respondent said that on a recent

Labor Day weekend, there were maybe 100 boats out fishing, but other, less popular nights, only 3 or 4 at the most, and he's often all alone.

“Regulations have had a major impact on the charter and head boat business. In 1998 the local charter boats were generally unable to book tuna trips because of bag limits. They ... ‘can't get people to take the boat out if they're allowed to keep only one fish apiece.’ Inspected vessels (over 6 passengers) are not allowed to bring in any more than 3 fish/1 trip. ‘Twelve passenger’ boats can not book on bluefin tuna. One of the charter boat owners/captains said his business did a study of the four ‘busiest captains’ of the thirty they have (none are full-time). In 1991 they averaged 30-35 tuna trips each. In 1996 they averaged 10-12 trips. In 1997 they had one trip among the four. None of the captains had booked tuna trips for 1998. One of the captains shared his experience, beginning over 20 years ago in Montauk, New York making shark and tuna charter trips. In 1987, in New Jersey, still almost all charter trips were shark and tuna. But in 1998, he has had only two shark charters, a few more tuna charters. He estimates the business for sharks and tuna is about 10% of what it was before.

“Today, bluefish has generally replaced the tunas as the important inshore/offshore recreational fishery in northern New Jersey. This is a major turn around. According to a respondent, in 1949, there were 438 bluefish landed versus 11,000 bluefin tuna, in one week in the northern New Jersey ports. These were mostly schooling bluefin. There are large runs of ‘school’ bluefin tuna out there now, but ‘you can't catch them and get the trips, ‘that is, you are not allowed to catch enough of them, or with enough certainty, to get people to charter trips in advance. This fishery collapsed, in the late 1960s, after the advent of purse seiners in 1967. Respondents also pointed out that, according to a 1947 tackle shop publication, there were 193 full-time charter boats in New Jersey then, compared with fewer than 50 today. The difference, several people said, was due to ‘bluefin tuna taken away.’

“Billfish are more often a by-catch in this fishery, compared with the southern part of New Jersey where they are an important directed fishery and the focus of a major tournament, the Mid-Atlantic, alleged to be the ‘richest’ marlin and tuna tournament in the world, according to the money paid out, for most of the 1990s. However, even in northern New Jersey billfish are important to the offshore canyon trips. At one time there were inshore trips for white marlin. And, according to a tackle shop owner in Brielle that caters to the offshore sports fishermen, the private boat owners at the Brielle docks want to catch billfish. This is a big part of the tackle shop business, representing a significant profit. Marlin lures cost up to \$60, and people usually buy 6 or so at a time. There might be 25 or 30 boats in July and August doing this.

“Swordfish has always basically been a commercial fishery in this area. There was a directed recreational fishery out of Shinnecock, New York, a very elite fishery. But now it is a valued and very rare by-catch. Local and other commercial boats landed swordfish, and tunas, in Point Pleasant for some years, particularly when an importer/exporter had a dock there in the 1980s-early 1990s.

“There are 8 tackle shops in the Brielle/Point Pleasant area: 5 in Brielle, and others in Point Pleasant, Point Pleasant Beach, and Manasquan. There are two more that service primarily the shore and bank fishermen who fish Manasquan Inlet. Some are heavily dependent on offshore HMS fishing. One respondent says that his business depends on HMS for 70% of its overall

sales. The regulatory system has the power to shut them down, and the uncertainties and last minute changes in regulations make it very difficult: 'For bluefin tuna, we have to anticipate in November or December for the next year; tackle is ordered, made for us, and by the time the regulations come out--or don't come out, as was the case this year, reverting to last year's regulations--people don't buy the equipment and I still have to pay for it.' He and others have requested from NMFS a buy-back similar to what was arranged for the New England commercial fishing fleet. Similarly, in Cape May, tackle shop owners perceive a crisis, and some are considering moving to southern states.

"In the Magnuson-Stevens Act's 'National Standard 8,' on fishing communities, there is no recognition of recreational fishing communities. People interviewed agreed that this was somehow lost in the rush of getting the 1995 Sustainable Fisheries Act through. More generally, there is a tremendous lack of knowledge of the history of these fisheries. And a problem is 'that we don't have receipts' to verify how important the catches have been.

"The theme of the importance of learning from the fishermen as well as finding ways to respect and use 'anecdotal data' came up often in our interviews. A few comments here will indicate the nature of a much longer and more detailed discussion. 'This area is the most productive, sailing out of Manasquan Inlet, 50 or 100 miles in any direction.' 'We know all the canyons, far better than any scientist.' 'We know, but when we get to these meetings it's ignored, it's almost completely ignored.' On yellowfin tuna: 'I started the 'chunking' fishery out there, in the canyon. You can't go on receipts [to identify what is happening with the fishery]; you have to talk to the people who are there all the time.'

"The representatives of this sports-fishing community differ from those who advocate solely catch-and-release fishing, or catch-and-release except for tournaments, as for example in Cape May. Instead, they emphasize the importance, among their clients, of bringing fish home to eat and to share with others, and hence the importance of reasonable bag limits to their ability to continue to serve these clients. The Brielle/Point Pleasant fishermen are concerned that many of the recreational fishing representations who have tried to be leaders in conservation have gone too far in the protectionist, rather than conservationist, direction. Yes, they agree, there's the need to be careful, to protect the fish, but what about livelihoods, the business side? The participants frequently stated that the catch-and-release movement was 'spearheaded by an elitist few...' against the interests of 'hard working, factory, city people' who came fishing 'to fill up their bags with fish and bring them home for the neighborhood.' However, even very wealthy people want to bring home some of the fish they catch.

"Sports-fishing communities, including those who pay for the privilege of fishing, have different reasons for fishing. A news release of a report done in conjunction with the American Sportfishing Association was said to have reduced the recreational fishing experience to opportunities to catch fish and to tell stories. However, in this port, the majority of fishermen also want to bring some fish home, to eat and share, which has increased the negative impact of small bag limits. One of the large party and charter boat fleets in this port estimates that 85-90% of the over 4 million people they have taken out fishing over the years 'wanted to walk home with fish.' Reducing the experience also marginalizes the interests of people who fish from the banks and shores as well as on party boats and rentals. It also affects tackle shops: 'I work behind the counter [at a tackle shop], and I hear it everyday. It's not tangible data, but 'tangible

impressions. 'I hear someone talking about bluefin tuna: { 'I don't bother with that any more, I can't take any home to eat.' } You can't translate that into tangible data on fish tackle sales, but you know it makes a difference.' "

## **DELAWARE**

### **STATE PROFILE**

#### *Demographic and Economic Characteristics*

The population for Delaware in the 1990 Census was 666,1658 residents. The educational attainment in Delaware was such that nearly 77.5% of the residents 25 and older were high school graduates, in 1990. The unemployment rate in this state was 5.2% of the civilian labor force. Industries that were important sources of employment include *retail trade* (employing 13% of the working residents), *manufacturing nondurable goods* (employing 10% of the working residents), and *finance, insurance, and real estate* (employing 8% of the working residents); *agriculture forestry and fisheries* industries only employed approximately 2% of the working population of Delaware. The per capita income of Delaware in 1989 was \$15,854.

#### *Recreational Fishery*

In 1996, there were 148,000 saltwater anglers in Delaware; these anglers account for less than 1% of the total number of saltwater anglers in the United States that year. Forty-four percent of those anglers were residents of Delaware and 56% were nonresidents. These anglers participated in 1.6 million days of saltwater fishing in 1996; these days accounted for less than 1% of the total days of saltwater fishing in the United States that year. Sixty-one percent of those days were by residents of Delaware and 39% were by nonresidents. Approximately 77,000 the Delaware saltwater anglers fished for flatfish in 1996 (FWS 1997).

In 1996, expenditures by saltwater anglers in Delaware totaled \$159 million; this accounted for nearly 2% of the total U.S. expenditures by saltwater anglers that year. Saltwater fishing in Delaware had an economic output of \$256 million (1% of the U.S. total), generated wages and salaries of \$62 million (1% of the U.S. total) and created 3,125 jobs (1% of the U.S. total; ASA 1997).

VTR data indicate that 3 ports in Delaware accounted for 2.2% of the 1999 party charter trips from Maine through North Carolina. The most important port with the greatest number of trips was Lewes (55.6% of DE trips).

## **MARYLAND**

### **STATE PROFILE**

#### *Demographic and Economic Characteristics*

The population for Maryland in the 1990 Census was 4,780,753 residents. The educational attainment in Maryland was such that nearly 78.4% of the residents 25 and older were high school graduates, in 1990. The unemployment rate in this state was 4.7% of the civilian labor force. Industries that were important sources of employment include *retail trade* (employing 14% of the working residents), *public administration* (employing 11% of the working residents),

and *other professional and related services* (employing 8% of the working residents); *agriculture forestry and fisheries* industries only employed approximately 1% of the working population of 2,756,579. The per capita income of Maryland in 1989 was \$17,730.

#### *Recreational Fishery*

In 1996, there were 498,000 saltwater anglers in Maryland; these anglers account for approximately 1% of the total number of saltwater anglers in the United States that year. Sixty-six percent of those anglers were residents of Maryland and 34% were nonresidents. These anglers participated in 5.34 million days of saltwater fishing in 1996; these days accounted for nearly 1% of the total days of saltwater fishing in the United States that year. Seventy-seven percent of those days were by residents of Maryland and 23% were by nonresidents. Approximately 132,000 the Maryland saltwater anglers fished for flatfish in 1996 (FWS 1997).

In 1996, expenditures by saltwater anglers in Maryland totaled \$308 million; this accounted for nearly 4% of the total U.S. expenditures by saltwater anglers that year. Saltwater fishing in Maryland had an economic output of \$582 million (2% of the U.S. total), generated wages and salaries of \$159 million (2% of the U.S. total) and created 7,291 jobs (3% of the U.S. total; ASA 1997).

VTR data indicate that 1 port (Ocean City) in Maryland accounted for 0.3% of the 1999 party charter trips from Maine through North Carolina.

## **VIRGINIA**

### **STATE PROFILE**

#### *Demographic and Economic Characteristics*

The population for Virginia in the 1990 Census was 6,189,197 residents. The educational attainment in Virginia was such that nearly 78.8% of the residents 25 and older were high school graduates, in 1990. The unemployment rate in this state was 4.7% of the civilian labor force. Industries that were important sources of employment include *retail trade* (employing 13% of the working residents), *public administration* (employing 8% of the working residents), and *educational services* (employing 7% of the working residents); *agriculture forestry and fisheries* industries only employed approximately 2% of the working population of 3,719,613. The per capita income of Virginia in 1989 was \$15,713.

#### *Recreational Fishery*

In 1996, there were 377,000 saltwater anglers in Virginia; these anglers account for approximately 1% of the total number of saltwater anglers in the United States that year. Sixty-six percent of those anglers were residents of Virginia and 34% were nonresidents. These anglers participated in 5.2 million days of saltwater fishing in 1996; these days accounted for nearly 1% of the total days of saltwater fishing in the United States that year. Ninety percent of those days were by residents of Virginia and 10% were by nonresidents. Approximately 143,000 the Virginia saltwater anglers fished for flatfish in 1996 (FWS 1997).

In 1996, expenditures by saltwater anglers in Virginia totaled \$201 million; this accounted for nearly 4% of the total U.S. expenditures by saltwater anglers that year. Saltwater fishing in

Virginia had an economic output of \$399 million (2% of the U.S. total), generated wages and salaries of \$111 million (2% of the U.S. total) and created 5,373 jobs (3% of the U.S. total; ASA 1997).

VTR data indicate that 3 ports in Virginia accounted for 0.8% of the 1999 party charter trips from Maine through North Carolina. The most important ports with the greatest number of trips were Northampton (33.8% of VA trips) and Virginia Beach (64.6% of the VA trips).

The following observations on Wachapreague, Virginia were excerpted from McCay and Cieri (2000). The authors report that the level of detail that follows was not possible for their report but should be included in FMPs. However it is impossible to provide this level of detail for all communities that are dependent on summer flounder because only 10% of the recreational summer flounder landings are available at the port level.

In November 1999 Dr. Peter Fricke, of the Sustainable Fisheries Division of the National Marine Fisheries Service, researched the status of Wachapreague as a 'fishing community' under the definition of the Magnuson-Stevens Act. His brief study, done by consulting U.S. Census and state and federal fisheries data and making phone calls to port agents and other knowledgeable persons, shows what can and should be done for individual ports when and if they are identified as critical for particular FMPs. With his permission, McCay and Cieri (2000) reproduced his report on Wachapreague which was prepared in response to review of the spiny dogfish FMP of the New England and Mid-Atlantic Fishery Management Councils.<sup>1</sup>

"Wachapreague, VA is a small rural, non-farming community on the Atlantic Ocean side of the Eastern Shore of the Chesapeake Bay. It lies in Accomack County and is approximately 60 miles North of Norfolk, VA and the same distance South of Salisbury, MD. Wachapreague provides a sheltered harbor behind a series of barrier islands lying offshore to the East, and is close to U.S 13, a major highway connecting Norfolk and the Carolinas with eastern Maryland, Delaware and Philadelphia. At the time of the 1990 Census, Accomack County had a population of 31,703 and Wachapreague had 313 residents. The town is incorporated, and has three marinas that provide local moorage. Two of these marinas are privately owned, and in addition to moorings each provides a launching ramp, a bait and tackle shop, and a restaurant. The town owns and operates the third marina, which also has a launching ramp. A fish packing house is located next to the seawall, which provides dockage for four vessels owned by the packinghouse. Other businesses in the community include a grocery and a hotel. Respondents report that employment and commercial activity in the community peak in the summer months. Most businesses are reported to rely on the participants in recreational fisheries for their principal earnings, and the commercial fisheries for a year-round trading base. Table 17 presents a demographic profile of Wachapreague, VA.

"Once known as the 'flounder capital of the world,' Wachapreague continues to be actively involved in recreational fisheries. The marinas provide some 100 slips between them, with between 40 and 50 private recreational fishing boats moored for the full season. Other transient

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<sup>1</sup> Peter Fricke. 1999. *Communities in the Spiny Dogfish Fishery*. Silver Spring, MD: National Marine Fisheries Service, Sustainable Fisheries Division. Draft November 12, 1999

boats use the marina slips, but the greatest use of the facilities is reported to be by trailerable boats launched from the ramps by fishermen traveling from the Norfolk area, Maryland and Delaware. It was reported that, during the summer flounder season (mid-April to mid-September), parking spaces in the community are non-existent at weekends and on holidays because of street parking by boat trailers and towing vehicles. Seven charter boats were reported to be based in Wachapreague year-round, and another eight to ten charter boats, from as far away as Florida, operated from Wachapreague during the flounder season. The charter and party boats homeported in Wachapreague hold Federal permits for Atlantic tuna angling (5), Atlantic tuna general (1), black sea bass (1), NE Multispecies groundfish (1), scup (1), squid-mackerel-butterfish (1), and summer flounder (1).

"Principal inshore recreational fisheries are for summer flounder (fluke), croaker (hardhead) and spot. Striped bass (rockfish), red drum, black drum and sea trout (weakfish) are also reported to be taken inshore. The offshore recreational fishery (mid-June to mid-September) is for bluefin tuna, yellowfin tuna, dolphin (dorado; mahi-mahi), wahoo, white marlin, blue marlin and sharks. The marinas and local sportfishing organizations sponsored nine recreational fishing tournaments in 1997.

"The commercial fisheries prosecuted by local and transient vessels are spiny and smooth dogfish, flounder, striped bass (rockfish), weakfish (sea trout), scup, black sea bass, mackerel, butterfish, blue crab, shad, quahogs and clams, conch and whelks. Most vessels using the port facilities are reported to be less than fifty feet in length, and operated by a skipper and a crew of two or three fishermen. In 1997, the Virginia Marine Resources Commission (VMRC) reported that 19 commercial fishermen (watermen) licensed by the VMRC made landings of inshore fish species in Wachapreague. Four vessels are owned by the local packinghouse, and are homeported in Wachapreague. Seasonally, the 'conch fleet' of vessels, many homeported at Tangier Island in Chesapeake Bay, lands their catches in Wachapreague. Respondents estimate that of 40 vessels in the conch fleet, some 15 land their catches in the community at one time or another during the season. In the dogfish fisheries, the local gillnet vessels are often joined by 3 or 4 transient vessels from North Carolina and between 5 and 10 vessels from the conch fleet. These transient vessels follow the fishery along the coast from the Hampton Roads to Ocean City, using the ports closest to their fishing grounds.

"In 1997, spiny dogfish comprised 65.2 percent of commercial landings by weight and 40.7 percent by value, of all reported landings at Wachapreague. Other landings are made, such as conch, which are trucked by fishermen to other ports and sold there to dealers. These landings will appear in the port-of-sale's landing data and will not be attributed to Wachapreague. Moreover, landings from fishing operations within the three-mile territorial sea or for fish, such as conch, for which Federal permits are not required, do not always appear in the NMFS weighout data. This information is reported to the Commonwealth of Virginia's VMRC as a condition of state permits.

"Two dealers holding Federal permits operate in Wachapreague. One dealer operates the packinghouse, the second offloads from vessels into trucks for direct delivery to retail establishments or processors in other communities. The packinghouse in Wachapreague holds a range of Federal permits for local fisheries that require them, and most reports of landings are provided by this facility to NMFS. In addition to packing the landings of the vessels fishing in

the territorial sea and exclusive economic zone, the Wachapreague packinghouse also is reported to pack finfish and crab landings from Chesapeake Bay fisheries which are trucked to the facility across the peninsula. The packinghouse is family operated and employs 8 to 10 staff on a seasonal basis. The packed products are shipped to seafood processors by tractor-trailer. It is reported that a dedicated tractor-trailer hauls dogfish, during the season, to processing plants in Massachusetts.

"Wachapreague is an established community, and recognizes its roots in fisheries and agriculture with an annual community fair and exhibits of old photographs and memorabilia. A preponderance of the County and Wachapreague's residents (79 percent) lived in Accomack County in 1985. However, 70 percent of Wachapreague's residents lived in the same house in 1985 as they did in 1990, in contrast to 60 percent of Accomack County residents. The depth of the roots of the community can be seen in the 1990 Census data.

"Wachapreague has an elderly population compared to Accomack county; 41.5 percent of Wachapreague's residents were over the age of 65 years and only 16.2 percent of the residents under 25 years of age in 1990. In Accomack County residents over 65 years of age formed 18.5 percent of the population, while those under 25 years of age comprised 31.7 percent at the time of the 1990 Census. The residents of Wachapreague are white; in 1990 no members of minority groups lived in the community. In contrast, the white residents of Accomack County formed 65 percent of the county's population in 1990.

"The gender balance of the populations of Wachapreague and Accomack County was similar; 47.5 percent male and 52.5 percent female. However, household composition differed markedly between Wachapreague and Accomack County in 1990, due to the distinctive population age structures. In Wachapreague most residents lived in two-person households (46.5 percent of 159 households) and 34.6 percent of the households had one resident. In Accomack County, 38.7 percent of the 12,646 households had three or more persons living together, 34.1 percent of the residents lived in two-person households while 27.2 percent lived alone.

"Of the 313 persons resident in Wachapreague in 1990, 106 were employed in the work force. Of those employed, 32 persons (30.2 percent) worked in the community. In fact 77.4 percent of Wachapreague's work force were working in Accomack County or Wachapreague itself, while 17 percent worked in Northampton County or the Norfolk/Hampton Roads area to the South. Six persons (5.6 percent of the work force) were employed out of state, in Maryland. In Accomack County as a whole, in contrast, only 13 percent of the work force (13,643 persons) worked in their communities of residence, while 84.5 percent worked within the County. Some 882 persons (6.4 percent of the workforce) commuted south to Northampton County or Norfolk/Hampton Roads, and 1,229 persons (9 percent) worked out of state in Maryland. The employment patterns of commuters in part reflects Wachapreague's location in the southern third of Accomack county and the availability of unskilled and semi-skilled work in the poultry farms and packinghouses of the Delmarva Peninsula.

"The educational attainments of the residents of Wachapreague and Accomack County as a whole differed. Of the residents over 25 years of age in Wachapreague (n=262), one-third had not completed high school graduation requirements compared to two-fifths of County residents over 25 years of age (n=21,643). In Wachapreague, 14.1 percent had acquired a tertiary

education qualification compared to 13.4 percent of residents of Accomack County over 25 years of age.

"While three of Wachapreague's 313 residents lived on farms, no one declared income from farming in 1990. The 1990 census shows that 8 persons were employed in farming, forestry or fishing industries and 5 in farming, forestry or fishing occupations. Employment in transportation was 12 persons. The census also indicates that 58.5 percent of the Wachapreague work force was in the private-for-profit sector and 21.6 percent was self-employed. Information provided by respondents comports with this census data. Since the majority of fishermen are paid on a 'share' basis, they are deemed, for tax purposes, to be self-employed. Employment on the four local commercial vessels would be between 12 and 16 persons, and the local charter fleet of seven vessels would provide seasonal employment for between 14 and 18 persons. Year-round employment at the private marinas was estimated to be 8 persons, with seasonal employment up to 15 persons. The packinghouse was estimated to employ 8 to 10 persons year round, with additional staff hired as necessary. Obviously, County residents would fill some of these jobs, since only 32 Wachapreague residents were reported to work in the community.

"The median income of Wachapreague households in 1989 was \$19,917, while that of Accomack County households was \$20,431. The older population in Wachapreague introduced significant differences in the income patterns between community households and County households. Of the 159 households in Wachapreague 59.1 percent (94 households) reported earned income in 1989, compared to 74.3 percent of Accomack County households. In Wachapreague, 36.4 percent of the households received retirement income and 56 percent of households received Social Security payments. In contrast, only 18 percent of Accomack County households received retirement income while 37.3 percent of County households received Social Security payments.

"To summarize, Wachapreague demonstrated in 1990 the profile of a rural town with an older, retired population with some 41 percent of residents receiving income in the form of transfer payments from retirement funds and/or Social Security. Of the employed residents of the town, only one-third works within the community. Thus approximately 70 percent of the working population earned income from sources other than the community's businesses. The businesses of the town are fishery-oriented, with respondents suggesting that direct employment and earnings in the recreational and commercial fishery sectors are split 2:1 between the two sectors. Since the recreational fishery is highly seasonal, peak employment in Wachapreague may exceed 100 jobs at the height of the summer season.

"The dependence of some 20 percent of community households for income earned from fishing related activities indicates that this is a fishery dependent community economically. As noted it is estimated that two-thirds of this income is related to recreational fisheries and one-third to commercial fisheries. The proportion of long-term residents, fishing related community events and activities, and the number of retirees, indicate that the social and cultural needs of the population are satisfied by this water-front community and that fishing, both commercial and recreational, is substantially engaged in by the residents of the community.

"With regard to the dogfish fishery, the packinghouse and its vessels employ some 20 persons. Any changes in the dogfish fishery would directly impact these persons and this business.

Alternative employment might be available in an expansion of the services related to the recreational fishery and in charter-boat operations in the long-term, but more likely displaced packinghouse employees would need to find work in the poultry processing and trucking businesses of Accomack County and the Delmarva Peninsula. For the watermen affected by any changes in the dogfish fishery, the future is less bright. Dogfish make up 65.2 percent, by weight, of the catches landed in Wachapreague, and thus a major portion of the local vessels seasonal round of fishing. The recreational fishery is largely a small-boat and trailer fishery, and future opportunities to enter the seasonal charter fisheries would require a significant upward demand in charter boat services. In a worst case scenario of loss of the dogfish fishery due to stock failure or management action, the community would probably lose a significant portion of its community-based winter employment, and would have to rely on seasonal recreational fishery-related employment and businesses."

## **NORTH CAROLINA**

The following state profile on North Carolina and profiles on the fishing communities of Hatteras and Wanchese, NC were excerpted from Wilson and McCay (1998).

### **STATE PROFILE**

#### *Demographic and Economic Characteristics*

According to the 1990 U.S. Census, North Carolina had a population of 6,628,637 residents. Educational attainment in North Carolina was such that 70% of the population 25 years and older were high school graduates, in 1990. The unemployment rate was 4.8% of the civilian labor force. Employment was greatest in the *retail* industry (employing 16% of the working residents); *manufacturing of durable and nondurable goods* was also important sources of employment for residents of North Carolina. *Agriculture, forestry and fisheries* industries employed nearly 3% of the working residents of North Carolina. The per capita income in 1989 was \$12,885.

*Recreational Fishery* In 1996, there were 770,000 saltwater anglers in North Carolina; these anglers account for approximately 2% of the total number of saltwater anglers in the United States that year. Fifty-five percent of those anglers were residents of North Carolina and 45% were nonresidents. There were 5,677 days of saltwater fishing in North Carolina in 1996; these days accounted for nearly 6% of the total days of saltwater fishing in the United States that year. Sixty-five percent of those days were by residents of North Carolina and 35% were by nonresidents. Approximately 291,000 the North Carolina saltwater anglers fished for flatfish in 1996 (FWS 1997).

In 1996, expenditures by saltwater anglers in North Carolina totaled \$673,291,743; this accounted for nearly 8% of the total U.S. expenditures by saltwater anglers that year. Saltwater fishing in North Carolina had an economic output of \$1,285,277,129 (5.1% of the U.S. total), generated wages and salaries of \$356,590,362 (5.4% of the U.S. total) and created 19,379 jobs (6.7% of the U.S. total; ASA 1997).

The following description of the communities of Hatteras and Wanchese, NC excerpted from Wilson and McCay (1998) were written in the context of the HMS FMP. Although the

information does not pertain directly to summer flounder it does give some background on the dependence of these communities on recreational fishing, which may be representative for many communities along the coast. This level of detail is not available for all recreational fishing communities from Maine through North Carolina.

VTR data indicate that 1 port in North Carolina (“Other Dare County”) accounted for 0.7% of the party charter trips in 1999, from Maine through North Carolina.

## **HATTERAS COMMUNITY PROFILE**

“Hatteras Village is a rural community at the southern end of Hatteras Island on North Carolina's Outer Banks. Hatteras Island is the ‘classic example’ of a dynamic barrier island, which is bordered by the Atlantic on the east and Pamlico Sound on the west. Noted for its vast marine resources, the area is also an important point of departure for marine vessels, and has historically been considered a strategic location on the coast of North America during war (ICMRD 1993).

“Geographic isolation adds to the local character of Hatteras. Respondents said that it is a place where people feel safe. Some people leave their houses unlocked. It feels safer because it is an isolated island community. A ferry leaves Hatteras to go to neighboring Ocracoke Island. Usage of the ferry is very in the summer when you can bet get cars backed up for a half a mile. The village is quite and insular and ‘made up of a lot of people who came here to get away from something.’

## **DEMOGRAPHIC PROFILE**

### *Population*

“The 1990 Census population for Hatteras Township is 2,675; Hatteras Township consists of the communities of Avon, Buxton, Frisco and Hatteras. Fifty-two percent of this population consisted of men, and 48% were women.

### *Racial and Ethnic Composition*

“The racial composition of Hatteras is largely White (99%) with less than one percent each of Black and American Indian races. In the past and as well as today, Hatteras only has small populations of ethnic minorities. The most frequently cited single ancestries in Hatteras were English and United States ancestry; the ancestry of the community is of predominantly European descent.

### *Age Structure*

“Forty-five percent of the population of Hatteras were between 15 and 44 according to the 1990 Census. There were nearly twice as many people over forty-four (36%) in Hatteras as there were people under fifteen (19%).

### *Marriage*

“In Hatteras, 66% of the population over 15 is currently married. Of those who are not married, 21% have never been married, 6% are widowed and 7% are divorced. While only 17 men in Hatteras are widowed, 108 women in Hatteras are widowed. Differences in marriage status

between the sexes is also evident in that 121 men and only 41 women in Hatteras are divorced.

### *Household Composition*

“The 1990 Census reports 1,078 households for Hatteras with an average of 2.38 persons per household. Nearly 70% of these households are family households; fifty-nine percent of all households are married couple family households. Approximately thirty percent of all households are with children under 18, while nearly 19% of all householders are over 65.

“In 1990, there were a total of 1,861 housing units in Hatteras, as reported by the US Census. Fifty-eight percent of these housing units were occupied; of these, 798 were owner occupied and 279 were renter occupied. There were 784 vacant housing units in 1990, 63% of which were utilized seasonally.

### *Educational Trends*

“In Hatteras, 74.4% of the population 25 and over are high school graduates. Cape Hatteras School in Buxton is the educational facility utilized by school aged residents of Hatteras; this facility provides schooling for all levels from kindergarten to the twelfth grade. The school also serves as a forum for interaction by the members of the communities on the island (ICMRD 1993).

### *Economic Characteristics*

“In the 18<sup>th</sup> century, Hatteras established itself as a seaport community, where activities included whaling and exporting/ importing. However, due to the dynamics of the barrier island geography, Hatteras Inlet was closed in 1764, only to be opened up again during a large storm in 1846 (ICMRD 1993). Since World War II the economy of the Hatteras community has depended on charter and commercial fishing as the major sources of local income; tourism also serves as an important economic activity.

“Seasonal variation in the local economy of Hatteras is due to the presence of three ‘seasons’ (ICMRD 1993). In the spring, revenue begins to pick up during weekend and holiday tourism; it is during this period of time (April to May) that approximately 30 boats from the commercial fleet become active in charter fishing. The second season, approximately June through August, begins when schools let out for the year and family vacations are frequent. The third ‘season’ is the fall, when fishing, surfing and windsurfing are the dominant activities.

“Income The per capita income for Hatteras according to the 1990 Census is \$12,796; this approximately the same as the state per capita income (\$12,885) Compared to the community at large, only a few commercial fishermen have had considerable financial success; business owners in the fishing industry, such as marina and restaurant owners, have been relatively financially successful (ICMRD 1993).

“Employment In Hatteras, the labor force consists of approximately 70% of the 2,109 people over 16 years old (Census 1990). Armed forces employees make up nearly 3% of the labor force. There are 1,378 civil employees; 58% are men and 42% are women. The unemployment rate in Hatteras is 4.2% of the civilian labor force.

“In Hatteras, 57% of employees are *private for profit wage and salary workers*. Tourism and recreation are major industries in Hatteras in terms of employment (ICMRD 1993). Commercial fishing is also a major occupation on Hatteras Island, where there are approximately 500 to 600 part and full time commercial fishermen; recreational fishing is a source of seasonal employment (ICMRD 1993). According to the 1990 Census, twenty-one percent of employed persons work for the local (8%), state (7%) or federal (6%) government; these public sector jobs include ferry workers (ICMRD 1993). *Self-employed workers* make up 16% of the employed work force.

“When combined, *managerial, professional, technician, and administrative* jobs account for nearly half of the occupations reported in the 1990 Census. *Farming, forestry and fishing* jobs are held by 6% of those employed in Hatteras.

“Employment by Industry In Hatteras, *retail trade* is the largest industry sector with respect to number of workers, accounting for 26% of the employed persons over 16 years old . *Construction* (16%) and *professional and related services* (11%) industries are also important employers. *Agriculture, forestry and fisheries* industries employ 6% of Hatteras’s employed work force.

“Fishing Related Businesses In Hatteras there are five seafood wholesalers and one retail market; there are three marinas (GTE yellow pages, 1998). Businesses in surrounding communities such as Manteo and Buxton also add to the marine economy.

## FISHERIES PROFILE

“Hatteras Village is almost totally dependent on fishing. While non-fishing tourists, especially windsurfers, are attracted to beaches elsewhere on the island, Hatteras Village's own beaches are less appealing. Tourists come to Hatteras because they want to fish. Our oldest respondent told us that when he was growing up the only thing to do was fish. He remembers one morning, fifty years ago, counting some 260 boats going out of the harbor. They were gillnetting for trout and croakers and ‘caught a lot more fish than is being caught now.’ The recreational and charter fishing industry's history is just as proud. The wall of one charter boat office is covered with captioned pictures displaying the history of the Albatross Fleet. In 1937, the four sons of a commercial fisherman went into the charter business. Their first sailfish was caught in 1940. Tarpon and dolphin began in 1940. They hired a publicist to spread the word about big game fishing in Hatteras. They caught their first marlin in 1951. In 1952, the first blue marlin was caught by a lady. In 1962, The Albatross III caught a world record, 810 lb blue marlin. The headline on a yellowing copy of a 1958 New York City newspaper article proclaims the shocking news of an ‘Angler Deliberately Releasing a Blue Marlin!’ (Hurley 1958). The angler was Jack Cleveland of Greenwich CT fishing on the Albatross.

### *Marinas and Charters*

“A charter boat captain related that newcomers are amazed at how good the fishing is. Ditton *et al.* (1998) did a survey of both private and charter boat anglers in Hatteras in the winter of 1997. Their results support the captain's assertion. They found that of 644 anglers, 46 percent agreed with the statement ‘I caught more fish than I expected on this trip’ and 42 percent agreed that they ‘could not imagine a better fishing trip.’ The winter season is bluefin tuna. In early spring they get puppy drum on the beach, and offshore yellowfin tuna, dolphin, wahoo and marlin.

Sailfish come in June. In the summer with the warm water they get 'all fish': flounder, cobia, speckled trout, drum, wahoo, marlin and sailfish. In the fall are flounders, king mackerel and rockfish.

"The marinas are 100 percent fishing related. Over the course of the year most people come to fish with their boats, both trailer boats and over water boats. A marina owner estimates that half of the parties are all men and about half families. The families go to the beach, the shops, and amusements such as go cart tracks. The winter bluefin tuna fishing brings a greater percentage of the trips to the charter fleet. In their census of fishing trips during the bulk of the 1997 winter season, Ditton *et al.* (1998) found only 27 percent of bluefin tuna fishing trips were in private boats and the rest in charter boats. Ditton *et al.* (1998) found 51 charter boats in Hatteras in January.

"Make up charters, where marinas organize the parties, are becoming more and more common. A captain estimated that his marina did 140 make up charters in the past year. The majority of the charter customers are after a good experience with offshore fishing. One captain, who has been chartering for many years, believes that the motivations of the charter customers are changing. He describes the current group as people who want to get away from city jobs and have fun with something really different. A lot of them are outdoorsmen in other areas. The fishing puts them in touch with wild creatures. The 'game hogs,' meaning those primarily interested in getting a lot of 'meat,' have dwindled. He sees the customers as will to accept limits when they are imposed. Often they are more willing to accept limits than people who have fished all their lives. Meat, however, is still an important motivation for all anglers except for billfish anglers. In fact, another captain, who does about a quarter of his business on billfish, sees the growing catch and release ethic as having reduced angler interest in marlins.

"Captains say it is very hard to find a year round mate. The college students who work in the summer can make more money when they graduate. It's a good lifestyle for a college student, but to find someone year round they have to like to fish. These are more skilled fishers and they want their own boats. One captain said that 'of the boats that are fishing year round, you can bet that the mates that they have are looking for a boat to fish in the future.' He estimates that about one in five mates are married and supporting a family.

"Because Hatteras attracts top sport fishers from around the world, the issues of minimum sizes and trophy fish take on special significance. One captain, by his account and that of others, attracts people who come specifically to fish for world records. They are interested in setting records by catching smaller bluefin tuna on fly rods. In 1997 fishing for fish between 27" and 73" was closed on March 2<sup>nd</sup>. Between, March 5<sup>th</sup> to March 18<sup>th</sup>, he had four different groups of people coming to fish for bluefin tuna for world records; and they all canceled because they could not keep a world record fish even if they caught it. Few anglers want to release bluefin tuna. Ditton *et al.* (1998) found that 60 percent opposed catch and release only for bluefin tuna. Keeping trophy fish 'means a lot to someone who has paid a thousand dollars to go out fishing' the marina owner said.

"The 'charter business is not native sons any more' said one respondent. A captain estimated that where the village had 15 charter boats ten years ago there are now 40. These are the charter boats that stay here all year round. Transient charters come for the 'cream of the crop,' particularly the

bluefin season. Ditton *et al.* (1998) found 51 charter boats in the village during the 1997 bluefin season. There is tension between the local charter boats and the transient charters because of increased competition for both fish and customers. One new charter boat is a state-of-the-art luxury boat with fish finding electronics, a stereo, a microwave and air conditioning. The locals argue that he could get \$1500 a day but instead charges but a little more than the going rate. He has announced that he intends to take business from people. However, they say that the charter fleet has not reached a saturation point and that the customers are still happy. The charter captains say they generally work well together. There is also tension with private recreational fishers who following the charter boats to see where they fish.

“Another long-time, local fisherman is running two party boats. He is finding more and more ways to make the party boat a family excursion. He does pirate trips and other special off shore trips. He also does birding trips.

### *Commercial Fishing*

“Commercial fishing in Hatteras is very similar to the small scale fishery described in the Wanchese profile. The only active commercial fishing organization is the Hatteras-Ocracoke Auxiliary of the North Carolina Fishermen's Association, which has been organized since 1992. In the current Hatteras fleet there are 5 boats of the 35 or so small gill net boats that go shark longlining during the shark season. They lost income through shark closings and quotas. Some have incidental permits for the bluefin tuna but they cannot reach the incidental matching ratio. Others have general category permits, but that season opens after the fish have passed. These small boat fishers are dependent on a very diverse fishery. What disturbs them the most is the possibility of limited entry systems. They fish five or six species a year but do not always fish the same ones every year. They are afraid that they will not be fishing sometime when landings are counted for some system based on current participation.”

## **WANCHESE COMMUNITY PROFILE**

“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’ (Howell Cutchin 1997). Although ultimately unsuccessful, the first American colony was Roanoke Island; today, a local theater group’s re-enactment of this historical event is a popular tourist attraction (ICMRD 1993). 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 (Howell Cutchin 1997).

“Throughout the nineteenth century, the commercial fishing industry expanded, due in part to the involvement of the first postmaster (ICMRD 1993). This postmaster owned or financed most of the commercial fishing boats in Wanchese; he also established a system of credit for the fishermen at his store, which was paid off when they brought in their catches. During that time, almost all of the residents of Wanchese were commercial fishermen. 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.

“Wanchese's first fish house was begun in 1936 by the grandfather of the current generation that still runs two fish houses in the community, one of which related this history. His son fished the first trawler in Wanchese in the 1950s. He took a little 65' wooden boat and converted it into a fishing trawler. The grandfather stayed and helped packing boats but he was a gillnetter at heart and would rather be catching fish. In those days they were fishing more in Pamlico and Albermarle Sounds than in the ocean. They beached 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 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.

## DEMOGRAPHIC PROFILE

### *Population*

“The 1990 Census population for Wanchese to be 1,374 residents; however, this count is not entirely accurate since the Census includes Nags Head and Roanoke Island with Wanchese (ICMRD 1993). This population consisted of 51% men and 49% women. Population estimates since 1990 were not readily available for Wanchese.

“The relative absence of seasonal change in population for Wanchese departs from the normal pattern of seasonal variation found in the surrounding communities. Since commercial fishing is central to the economy of Wanchese, it does not see the shifts in population that occur due to tourism in the summer months (ICMRD 1993).

### *Racial and Ethnic Composition*

“In 1990, the population of Wanchese primarily consisted of White residents (98%), although a little over 1% of its residents were American Indian. The ethnic composition of Wanchese is primarily European ancestry; nearly 29% of the residents of Wanchese claim United States ancestry.

### *Age Structure*

“Forty-six percent of the population of Wanchese are between the ages of 15 and 44 years old. The even age structure is shown by the nearly equal percentage of young and old - 26% below 15 years and 27% above 45 years.

### *Marriage*

“In Wanchese, 18% of the population over 15 has never been married. Nearly 69% of the population is currently married. Less than 5% are widowed; approximately 8% are divorced.

### *Household Composition*

“According to the 1990 Census, there are 503 households in Wanchese which have an average of 2.69 persons per house. Nearly 63% of these are married couple family households. Of the family households without married couples, three percent are family households with male householders and eleven percent are family households with female householders. The remaining 24% of households are non-family households.

“There are 583 housing units in Wanchese, of which 88% are occupied. Of the vacant housing units, 14% are vacant due to seasonal usage.

#### *Educational Trends*

“In Wanchese, sixty-seven percent of the population 25 and over are high school graduates, according to the 1990 Census.

“The only educational facility located in Wanchese is the private Wanchese Christian Academy, founded by the Wanchese Assembly of God members in the 1970s (ICMRD 1993). Public schooling is found at the Dare County schools in Manteo; this school system has elementary, middle and high school facilities. The College of Albemarle has a satellite campus in Manteo; secondary education offered by the college at this site includes a boat-building course (ICMRD 1993).

#### *Fishing Associations*

“Fishing related associations include the Oregon Inlet Users Association and the North Carolina Fisheries Association. The former is involved with supporting the plans for jetties at Oregon Inlet; they are responsible for organizing both the Wanchese Seafood Festival and the Blessing of the Fleet. The latter is a trade organization of seafood dealers and commercial fishermen from the state; two members of the 18 member Board of Directors are from Wanchese (ICMRD 1993).

#### *Economic Characteristics*

“Income The 1989 per capita income for Wanchese was \$10,830. This is below the state per capita income (\$12,885) and the per capita income for Hatteras (\$12,796).

“Employment Trends Of the 984 Wanchese residents 16 years old and over, 85% participate in the civilian labor force. The unemployment rate is 10.0% of the civilian labor force; of this unemployment rate, 2% consists of male unemployment and 8% is female unemployment.

Of the employed work force in Wanchese, approximately 57% are men and 43% are women. The number of working women has been on the rise, due in part to the increase in opportunities for women outside the home created by tourist businesses in the beach communities surrounding Wanchese (ICMRD 1993).

“According to the 1990 Census, 61% of the working population in Wanchese is employed in private for profit jobs. Jobs in the private sector are largely related to the area’s commercial fisheries (ICMRD 1993). Most of these workers are self-employed; the Census figures show that nearly 19% are self-employed workers. Government jobs are considered desirable due to the security and consistency in contrast with the fishing industry (ICMRD 1993); figures from the 1990 Census show that nearly 17% of the workers are employed with the local, state or federal government.

“Employment by Industry Nearly 20% of the employed persons over 16 in Wanchese are working in the *agriculture, forestry and fisheries* industries; this is the highest rating industrial sector for employment. These industries are followed by *retail trade* (19%) and *professional and related services* (16%) in terms of employment of Wanchese residents. *Farming, forestry and*

*fishing* occupations are held by nearly 19% of the Wanchese employed population. Other prevalent occupations are *technician and administrators* (25%) and *managers and professional* (17%).

“Unlike the surrounding communities, Wanchese has very little seasonal variation in employment resulting from tourism; what seasonal fluctuations do exist are caused by the availability of the fisheries resources and are countered by the flexibility and opportunistic nature of the Wanchese fishermen (ICMRD 1993). This flexibility is now being threatened; this is addressed below. However, the tourism industries in the surrounding communities do provide seasonal employment opportunities to residents of Wanchese.

*Fishing Related Businesses* There are approximately 117 small businesses in Wanchese, 44 of which are commercial or charter fishing businesses (ICMRD 1993). Some of the more prominent local businesses are described below. Support industries, such as boat builders and seafood packers, are also of great importance to the commercial fisheries.

“There are three major fish houses in Wanchese. One, which specializes in scallop and flounder, has fourteen boats which include trawlers, scallop boats and smaller boats for gill netting as well as two scallop boats in Alaska (ICMRD 1993). They have three packaging and processing houses, a fish-packing house and a processing and freezing operation; These are located in North Carolina, Virginia and Massachusetts. Seafood is distributed locally and nationally by truck and internationally by air freight. The second, which specializes in hooked fish, is an important seafood distributor; this company is the most affected by the HMS FMP. While only operating one boat, this company buys regularly from 35 local and over 70 non-local boats. The third, which specializes in bulk fish, packs the fish from its own two vessels; transportation of their product is set up through an agreement with the Wanchese Fish Company (ICMRD 1993).

“The Wanchese Seafood Industrial Park was constructed in 1980 by the state; it is operated by the North Carolina Department of Commerce. According to the brochure put out by North Carolina Power in 1995, the park has, among other features, ‘30 acres of leasable land,’ ‘a 15-acre deep water harbor,’ and ‘1,500 feet of commercial-style concrete docks.’ There are currently seven seafood related businesses located at the park (ICMRD 1993).

“Part of the Wanchese Seafood Industrial Park project were plans for inlet stabilization. Originally, the seafood park that now takes up half of the newly expanded Wanchese harbor was voted down by the people in the community. The reason they finally put it in was because of the issue of a jetty for Oregon Inlet, which is the most direct route for Wanchese boats to get to open ocean. The state argued that if they were going to spend a hundred million dollars on a jetty the federal government should dredge the harbor, as part of the agreement of the Mateo (Shallowbag) Bay Project (ICMRD 1993). At that time, the harbor was half as wide as it is now. They dredged it out and piled the spill in the area which is now occupied by the park. They put a cement dock in as well. The state essentially came back to the Wanchese community and said if you want a jetty at Oregon Inlet, you have to have the seafood park first. At first they revolted and then acquiesced because of the importance of the Inlet. They had been trying to get the jetty since the 1950s. Ironically, they still haven’t gotten it jetted. The industrial park is also the scene of the annual blessing of the fleet, which is put on by the Oregon Inlet Users Association.

## FISHERIES PROFILE

### *Wanchese as a Multispecies Fishery*

“A central fact about fishing in Wanchese's is the large number of commercially important species that they catch. Many respondents emphasized how they have to be versatile to survive, particularly because they face quick changes in water temperatures. They suggest that Wanchese is much more of a mixed fishery than in the north where people can fish the same species year round. Among the highly migratory species they fish for swordfish, shark, and tuna. Yellowfin tuna is particularly important but they also catch bigeye and bluefin tuna. Because of the weather, summer is the time that they tunas and swordfish are accessible to the medium sized boats that can both gillnet and longline, and late summer is a slow time for everything else. A captain of one of these medium size boats, however, said that he would prefer to stick with shark fishing year round because of the danger of going for tuna and swordfish farther off shore. They gillnet for dogfish, bluefish, Spanish mackerel, trout, and croakers. The latter two are important in the winter and the Spanish mackerel is important in the spring and fall. They bottom fish for bass and grouper. There are a number of gillnet boats that switch over to charter fishing in the summer. Large trawl boats fish for squid in the summer and a smorgasbord of weakfish, croaker, and flounder in the winter. Squid requires them to travel north. There are now less than fifteen of these trawl boats that stay at Wanchese. The biggest shark months are April to June but their quota is in January and July. Medium sized boats go north to fish for shark. Large longliners fish for swordfish, tuna and dolphin.

“Market considerations are crucial in deciding what to fish. Traditionally, when January comes the larger longliners go shark fishing until the season would close and then try to fish for tuna or swordfish. They use many of these fish to service the restaurants in the local area with a fresh product and they are able to market it better because they pack it fish themselves rather than buying it. Because of this market they would stay fishing for swordfish and mainly tuna until the fall. If the shark season were open at that time, they would want to shark fish September and October. The season, however, is in January and July. Shark trip limits have also made shark fishing less economical for larger boats. Many steam north to fish shark off New York.

“The combination of this shifting multispecies fishery and management leads to a complaint voiced by nearly every Wanchese fisher and fish dealer. Wanchese fishers are used to jumping from species to species, but management causes everyone to jumps at the same time. As one respondent put it ‘this may be good for a specific species at a specific time but it is not good for the whole system.’ The price of the fish dives when fishers have to shift their effort all to the same species. Some marginal fishers get driven out when these shifts happen. A respondent associated this observation with the fact that there used to be 7-8 Black fishers, and now there are only two. This effect is especially felt when the fishing is good. Another respondent, a fish dealer, said ‘We had a tremendous amount of fish this winter, one of the busiest winters in a long time. The price of fish was cheaper all winter because everyone was fishing on the same thing. [My] personal trawlers scalloped and floundered. When floundering closed, we had to flynet, fishing for the same fish as gill netters in small boats. We caught a lot, but got nothing for it. I have 350,000 lbs of croakers left, that were caught in March, frozen.’

“The multispecies nature of the fishery led one respondent to suggest that the loss of the shark quota did not have a major impact in Wanchese because of the number of alternatives. The

switch from longlines to gillnets takes a substantial investment at first, but it is then just a day or two to change the gear. Others disagreed, arguing that this initial investment is a hefty one if you are going to do it right. A net reel costs \$3000 and will last three or four years. Nets often need to be replaced every year. One gillnet captain spent \$6000 on nets last year. A longline tackle supplier explained that shifting between longline gear can also be expensive. Tuna longline gear can be shifted to shark longline gear fairly cheaply, they need different hooks, leads and buoys. This is not true the other way round because shark fishing tends to damage the mainline.

“The major fish houses tend to specialize, one of them in hook fisheries. This house reports that shark (including dogfish) is now 40 percent where it was 25 percent in the recent past. Tuna is now 40 percent where it was 50 percent. Swordfish is now 10 percent where it was 15 percent. The remainders are bluefin tuna and dolphin. This house packs between seventy and one hundred different boats through the course of a year. They pack about thirty-five or forty on a full time basis when they are in this area. They develop an ongoing relationship with these boats. When they are in this area, they will come to that dock and their fish is unloaded even if it is not the species that the house does most of its business in. They also provide dockage fee of charge.

“The closeness of the kinship and other historical networks in the community allows for flexible cooperation that matches the flexibility of the fishery. For example, one fish house provides freight for all the houses on a flexible, contingency basis. Another house has two tractor trailers and if that house has less than 10,000 lbs one day they take their freight on the first house's trucks. Another uses this service when he has under 5,000 lbs, because he has one small truck. The house that provides the freight service used to have seven trucks, however, now they have four.

### *Issues of Crew and Ownership*

“Hiring and managing crew is getting increasingly difficult. This is especially true for the larger boats that need people who can stay out longer. There is a lot of turnover in fishing crews, particularly when boats have to shift fisheries and the revenue drops. It used to be that job alternatives, carpentry and building for the tourist industry are common examples, did not pay as well as fishing. This is often no longer the case. Including the captain, gillnet boats take two or three people, smaller longliners take three people, the larger longliners try to have four but sometimes fish with three. Many respondents reported seeing a trend where those people who are available for this work were transients or people who cannot find employment elsewhere. There have been problems with alcohol, drugs dependability and crew creating trouble in the general community. Several respondents reported that they had or knew of boats that were not fishing specifically because they could not find crew to hire.

“Wanchese is a conservative, rural community where major fishing business decisions have hinged on interpretations of how the Sabbath should best be honored. Some boat owners are very disturbed at the prospect of dealing with drunkenness, drugs and theft in crew. This goes beyond simply management headaches, people in Wanchese want, as they have in the past, to give jobs to people who are going to contribute to stable community that reflects their values. One boat owner said ‘this is what makes me want to quit. I can handle dealing with regulations, I can’t deal with the crew. You have to deal with people you wouldn’t want to associate with. The good people are just giving it up and trying to find shore jobs.’ Successful fishers from prominent fishing families are discouraging their children from going into fishing.

“Many captains and boat owners are searching for alternatives. Fishing is an industry that allows people to make a good living based on skills and knowledge that do not come from formal education. As one respondent put it, ‘a guy who’s making \$1000 a week fishing with no education is not going to get a job on land for \$1000 a week.’ Selling boats is difficult. There are few buyers. Searching for buyers and listing the boat for sale makes it even more difficult to find and keep crew. People are leaving fishing for carpentry and building for the tourist industry. Many go into running charter boats.

“Another fisher was very concerned about the effect of management politics, particularly the increased tension between the commercial and recreational communities, on the community and the people in it. ‘It’s getting worse because of the propaganda... I’ve never wanted to admit it until now, I won’t be fishing in a couple years. One, if you really care about what you are doing, it consumes you. Even though you have groups and organizations, everybody don’t represent everybody’s interests. You can’t be at every meeting. When you look at the schedules of the meetings, you’ve got to do one or the other. This is a community and it is dividing us and it will get worse.’ ”

## **5.0 CONSISTENCY WITH APPLICABLE LAWS**

### **5.1 The Framework Action Relative to the National Standards**

Section 301(a) of the MSFCMA states: "Any fishery management plan prepared, and any regulation promulgated to implement such plan pursuant to this title shall be consistent with the following National Standards for fishery conservation and management." The following is a discussion of the standards and how this framework meets them:

#### **5.1.1 National Standard 1 - Overfishing Definition**

*“Conservation and management measures shall prevent overfishing while achieving, on a continuous basis, the optimum yield from each fishery for the United States fishing industry.”*

Currently, the recreational summer flounder fishery is managed through an annual evaluation process based on a coastwide recreational harvest limit. This limit is evaluated annually to ensure that the fishing mortality rate specified in the FMP is met. The purpose of the proposed action is to ensure that summer flounder coastwide recreational harvest limit is achieved on an annual basis. Therefore, the proposed action is consistent with National Standard 1.

#### **5.1.2 National Standard 2 - Scientific Information**

*“Conservation and management measures shall be based upon the best scientific information available.”*

The analyses in this framework are based on the best scientific information available. The measures required to achieve the coastwide recreational harvest limit are based on 1998 data because that is the most recent year that management measures were consistent from state to state. Therefore, it is the most recent year that can be analyzed in this manner. In addition, the

status of the summer flounder stock is reviewed annually by NEFSC Stock Assessment Workshop process. Therefore, this framework is consistent with National Standard 2.

### **5.1.3 National Standard 3 - Management Units**

*“To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.”*

Summer flounder is managed as a single unit throughout its range, from Maine through North Carolina. The proposed action does not alter the management unit.

### **5.1.4 National Standard 4 - Allocations**

*“Conservation and management measures shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.”*

Summer flounder migrations may result in differences in availability to the recreational fishery in each state. These differences make it difficult to choose coastwide management measures that are equitable to all geographic regions. The purpose of the proposed action is to ensure that the summer flounder recreational coastwide harvest limit is achieved equitably among the states. Therefore the Framework action is consistent with National Standard 4.

### **5.1.5 National Standard 5 - Efficiency**

*“Conservation and management measures shall, where practicable, consider efficiency in the utilization of the fishery resources; except that no such measure shall have economic allocation as its sole purpose.”*

The management program implemented by the Amendments to the Summer Flounder FMP are intended to allow the fishery to operate at the lowest possible cost (e.g., fishing effort, administration, and enforcement) given the FMP’s objectives. The objectives focus on the issues of administrative and enforcement costs by encouraging compatibility between federal and state regulations since a substantial portion of the fishery occurs in state waters. The management measures proposed in this framework action place no restrictions on processing, or marketing and no unnecessary restrictions on the use of efficient techniques of harvesting. Therefore the proposed action is consistent with National Standard 5.

### **5.1.6 National Standard 6 - Variations and Contingencies**

*“Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.”*

The management program was developed to be compatible with and reinforce the management efforts of the states and the Commission. The purpose of the proposed action is to take into account the seasonal variation in availability of summer flounder to recreational fisheries in different states, so that management measures that achieve the coastwide recreational harvest limit are equitable to all states. Therefore, the proposed action is consistent with National Standard 6.

#### **5.1.7 National Standard 7 - Cost and Benefits**

*“Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.”*

The management regime was developed to be compatible with and reinforce the management efforts of the states and the Commission. The provisions of this framework have been adopted by the Commission. Therefore, this framework is consistent with National Standard 7.

#### **5.1.8 National Standard 8 - Communities**

*“Conservation and management measures shall, consistent with the conservation requirements of the Magnuson-Stevens Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.”*

The reliance of ports and communities on recreational fisheries on the Atlantic coast is described in Section 4.3.3. The data is not available to determine which communities are specifically dependent on the recreational summer flounder fishery. As such a general description of the importance of marine recreational fishing for each state that catches more than 1% of the recreational summer flounder landings and the description of seven representative recreational fishing communities were provided.

The number of recreational fishing trips taken in the summer flounder fishery from 1991 to 1999 is shown in Table 8. The number of recreational summer flounder fishing trips have varied from year to year. However, there does not appear to be a downward trend in the party/charter boat sector market demand for summer flounder trips as a result of recreational measures implemented through this FMP. Reasons for this variation can include party/charter boats targeting more abundant species and lack of availability of summer flounder due to environmental variability. As such, port and communities with a strong party/charter business presence are not likely to be affected negatively by the recreational management program implemented in this fishery. However, recreational management measures may positively benefit fishing communities in the long-term by increasing summer flounder biomass levels.

The purpose of the proposed framework adjustment is to ensure that the coastwide recreational harvest limit is achieved through measures that are equitable to each state. Therefore, most if not all of the fishing communities along the US east coast will be positively impacted by the FMP in the long-term. Therefore, the Framework is consistent with National Standard 8.

### 5.1.9 National Standard 9 - Bycatch

*“Conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.”*

The term "bycatch" means fish that are harvested in a fishery, but that are not sold or kept for personal use. Bycatch includes the discard of whole fish at sea or elsewhere, including economic discards and regulatory discards, and fishing mortality due to an encounter with fishing gear that does not result in capture of fish (i.e., unobserved fishing mortality). Bycatch does not include fish released alive under a recreational catch-and-release fishery management program. A catch-and-release fishery management program is one in which the retention of a particular species is prohibited. In such a program, those fish released alive would not be considered bycatch.

There is a significant recreational fisheries for summer flounder. About 53% of all summer flounder landed in 1998 were landed by recreational anglers. A high portion of the summer flounder are caught and released after capture (Table 18). It is estimated that 10% of the summer flounder that are caught and released by anglers die after release, i.e, the majority of the fish are released alive and are expected to survive after release. The fish that survive are not defined as bycatch under the SFA. The Council and Board believe that information and education programs relative to proper catch and release techniques for summer flounder, scup, black sea bass and other species caught by recreational fishermen should help to maximize the number of these species released alive.

Current recreational management measures, including possession limits, size limits, and closed seasons, could effect the discards of summer flounder. The effects of the possession limit would be greatest at small limits and be progressively less at higher limits. The size limit would have similar effects but the level of discarding will be dependent upon the levels of incoming recruitment and subsequent abundance of small fish. Seasonal effects would differ depending on the length of the season and the amount of summer flounder. However, the management system proposed in this framework is designed to allow states flexibility to implement management measures that meet their fisheries' needs, reducing the opportunity for bycatch.

The Council and Board can currently implement annual changes in recreational management measures in response to changes in fishermen behavior or an increased level of discards. In addition, the framework adjustment procedure implemented in Amendment 12 would allow for additional flexibility so that the Council and Board can respond more quickly to changes in the fishery through the implementation of new management measures or the modification of existing measures.

Minimum size limits, bag limits and seasons have proven to be effective management tools in controlling fishing mortality in the recreational fishery. A notable example is the recent success in the management of the Atlantic coast striped bass fishery. The recreational striped bass fishery is managed principally through the use of minimum size limits, bag limits and seasons. When these measures were first implemented, release rates in the recreational striped bass fishery exceeded 90%. However, the quick and sustained recovery of the striped bass stock after

implementation of these measures provides evidence of their effectiveness in controlling fishing mortality in recreational fisheries.

The recreational management system proposed in this FMP represents the most effective tool for managing the recreational summer flounder fishery. The implementation of the proposed management system is necessary to satisfy National Standard 1, and is intended to end overfishing and rebuild the stock to levels which produce MSY. By maximizing the number of fish released alive, the Council has also satisfied National Standard 9 by minimizing bycatch mortality to the extent practicable. Therefore the Framework action is consistent with National Standard 9.

#### **5.1.10 National Standard 10 - Safety at Sea**

*“Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.”*

The recreational management system proposed in this framework should not affect the vessel operating environment, gear loading requirements or create derby style fisheries (i.e., the use of possession limits and a flexible closed seasons minimizes derby style fishing) for summer flounder. The Council developed this FMP and subsequent amendments with the consultation of industry advisors to help ensure that this was the case. In summary, the Council has concluded that the proposed framework will not impact or affect the safety of human life at sea. Therefore the Framework action is consistent with National Standard 10.

#### **5.2 Other Magnuson-Stevens Fishery Conservation and Management Act Requirements**

Section 303(a)(12) of the MSFCMA requires the Councils to assess the type and amount of fish caught and released alive during recreational fishing under catch and release fishery management programs and the mortality of such fish, and include conservation and management measures that, to the extent practicable, minimize mortality and ensure the extended survival of such fish. This requirement has been addressed under Section 5.1.9 of this framework.

Section 303(a)(13) of the MSFCMA requires the Councils to include a description of the commercial, recreational, and charter fishing sectors which participate in the fishery and, to the extent practicable, quantify trends in landings of the managed fishery resources by the commercial, recreational, and charter fishing sectors. The description of fishing activities for the summer flounder fishery was presented in Section 7 (Description of Fishing Activities) of Amendments 2, and 10 and Section 4.3.1.1 of this framework. Additional information pertaining to the recreational and charter fishing sectors is presented in Section 4.3.1 and below in Section 5.2.1 (Additional Characterization of the Recreational and Party/Charter Fisheries).

Section 303(a)(14) of the MSFCMA requires that to the extent that rebuilding plans or other conservation and management measures which reduce the overall harvest in a fishery are necessary, any harvest restrictions or recovery benefits are allocated fairly and equitably among commercial, recreational, and charter fishing sectors in the fishery. This requirement was addressed under the Section 3.4 (The Framework Action Relative to the National Standards) in Amendments 2, 8, 9, and 10 and Section 5.0 of this framework action.

## **5.2.1 Additional Characterization of the Recreational and Party/Charter Fisheries**

### **5.2.1.1 1990 survey of charter and party boats**

The charter and party boat industry is important in several states in the management unit of this FMP. On average for the period 1986-1997, 11% of the summer flounder (number of fish) landed by anglers from Maine to North Carolina were caught from party or charter boats (MRFSS).

To provide additional information on this segment of the industry, the Council conducted a survey of charter and party boat owners in the summer of 1990 with the purpose of acquiring information in support of management efforts for the summer flounder, scup, and black sea bass fisheries. A mailing list was compiled from the NMFS vessel permit files, including all vessels which indicated they were involved in party and charter activities (permit Category 2). The list included 402 vessels.

However, it is important to note that since this survey was conducted, summer flounder and black sea bass have generally increased, and scup landings have generally declined, reflecting changes in availability, abundance and/or anglers interest. As such, some of the results obtained from this survey may not accurately describe current fishing trends (e.g., interest and demand for summer flounder, scup, or black sea bass, desirability of summer flounder, scup, or black sea bass, etc.).

Consultation with Council members yielded concerns that a number of vessels did not hold federal permits, and would not be included in the survey. Representatives from New Jersey, New York, and Virginia supplied the Council with lists supplementing the NMFS permit files, and an additional 190 questionnaires were mailed.

A total of 592 surveys were sent out to 13 east coast states (Table 19). Massachusetts, New Jersey, New York, and Virginia were most heavily represented, accounting for 80% of survey mailings.

A total of 172 of the 202 surveys returned to the Council were usable. The 30 returns which could not be used were inappropriate mailings that fell into the following general categories: did not charter/fish in 1989; private boat, not for hire; dive boat, primarily after lobsters; returned as undeliverable by Post Office; or sold boat. Usable returns equaled 29% of total mailings, with the percentage ranging from approximately 20% - 50% for individual states.

Some of the analyses conducted on the survey divided the responses into "Party boat" versus "Charter boat" categories. Typically, charter vessels are thought of as hiring out for a day's fishing to a small number of individuals at a cost of over \$100 per person. They provide a high level of personal attention to the passengers and will make special efforts to find the particular species of interest to their clients.

"Party boats" are generally larger vessels which run on a fixed schedule and carry from 10 to 100 passengers, averaging around 20. They offer fewer options and less attention to passengers, yet charge much lower fares than charter boats (in the \$20 - \$40 range).

In order to have the ability to differentiate between these two groups, the data were partitioned based on the reported number of passengers each vessel could carry. Examination of the data showed a logical division between those vessels which reported carrying 8 or fewer passengers, and those able to carry more than 8. The average fee charged per person dropped significantly for those vessels carrying more than 8 passengers. For purposes of this analysis, then, "charter boats" are defined as those boats carrying 8 or fewer passengers, and "party boats" those which may carry 9 and above. It is recognized that charter boats are generally licensed for six passengers and, in fact, responses to another question indicated that the average charter boat carried 6 passengers (SD = 0.4), while the average party boat carried 53 (SD = 32), so it is quite likely that the respondents which indicated they owned a charter boat that carried eight people were including the captain and mate whereas in the subsequent question they were referring to the six paying passengers.

The first question on the survey attempted to gauge the interest or demand which party and charter boat customers exhibited for common species (or species groups). Given a five point scale, owners were asked to rank each species as being: 1 = Low, 2 = Somewhat Low, 3 = Moderate, 4 = Somewhat High, or 5 = High in interest to their customers. Calculating mean values of responses allows comparison of the different species using a single number for each.

Spot ranked as the most desirable fish for party boats (mean interest = 4.7), illustrating its importance to the well-represented boats of Virginia (Table 20). It was followed by bluefish (4.6), summer flounder (3.6), Atlantic Mackerel (3.5), and striped bass (3.5). Black sea bass was ranked seventh (3.2) and scup was ranked next to last (2.2). The top four fish which party boats reported catching were: bluefish (4.0), Atlantic mackerel (3.5), spot (3.4), and black sea bass (2.9).

Charter boat owners reported a preference ordering similar to that of party boats for their customers, with the exception that large pelagics took the second ranked spot along with bluefish (Table 20). Black sea bass and scup were ranked at the bottom of the list with mean interest of 2.1 and 1.4, respectively. The top six species were: spot (4.6), large pelagics (3.9), bluefish (3.9), striped bass (3.7), sharks (other than dogfish) (3.2), and summer flounder (3.2).

In 1989, the average party boat customer traveled 67 miles, with a standard deviation (SD) of 43 miles. The farthest party boat customer traveled 695 miles (SD = 1,125 mi.). In 1989, the average charter boat customer traveled 123 miles (SD = 194 mi.). The farthest charter boat customer traveled 727 miles (SD = 914 mi.).

Charter boat respondents indicated that 38% of their customers were more interested in a particular species, 15% were more interested in fishing enjoyment, and 46% were about equally interested in each. For party boats, the responses were 43% for a particular species, 12% for the fishing experience, and 45% equally for each.

For charter boats, 89% of the respondents were both owner and operator (7% just owner, 5% just captain). The party boat responses were 94% owner and captain, 2% just owner, and 4% just captain. Only 14% of the charter boats were used year round (86% seasonally), while 18% of the party boats were used year round (82% seasonally). The average charter boat carried 6 passengers (SD = 0.4), while the average party boat carried 53 (SD = 32).

Thirty six percent of the charter boat respondents indicated that they fished commercially in 1989, with 91% of those fishing commercially from the charter boat and 9% from another boat. For party boats, 26% of the respondents indicated they had fished commercially in 1989, with 69% of those fishing commercially from the party boat and 31% from another boat.

On a scale of 1 (almost none) to 5 (almost all), respondents were asked what part of their personal earnings in 1989 came from party and charter boat fishing, commercial fishing, or other sources. For charter boat respondents the mean answers were: charter or party boat fishing, 2.2; commercial fishing, 1.5; and other sources, 4.0. For party boat respondents the mean answers were: charter or party boat fishing, 3.2; commercial fishing 1.3; and other sources, 2.4.

Respondents were also asked what their perception of fishing success was for 1989 and what they thought their customers' perceptions of 1989 fishing success was. Ranking was on a scale of 1 (good) through 3 (bad). For charter boats, the operators reported a mean of 2.1 (SD = 0.7) for their own view and 1.9 (SD = 0.7) for their customers. For party boat operators, their own perception was 2.2 (SD = 0.6), while they thought their customers would rate the season at 2.0 (SD = 0.6).

The survey included a series of questions to determine how the respondents felt business was in 1989 compared to 1985. Both charter and party boats made slightly fewer trips in 1989 compared to 1985 (Table 21). The days per trip and/or trips per day were essentially unchanged. They operated fewer days per week, on average, and carried slightly fewer customers. The average price per trip increased from \$121.80 to \$149.50 for charter boats and \$26.20 to \$29.20 for party boats. The average number of fish taken per customer for charter boats fell from 10.9 to 8.3 for charter boats and from 15.2 to 9.9 for party boats between 1985 and 1989. The number of crew members stayed relatively constant. The average cost per trip rose from \$96.10 to \$131.10 for charter boats and from \$113.30 to \$146.60 for party boats during the period.

### **5.2.1.2 Marine Recreational Descriptive Statistics**

In 1994, sportfishing surveys were conducted by NMFS in the Northeast Region (Maine to Virginia) to obtain demographic and economic information on marine recreational fishing participants from Maine to Virginia. Data from the surveys were then used to access socioeconomic characteristics of these participants, as well as to identify their marine recreational fishing preferences and their perceptions of current and prospective fishery management regulations. This information will be used in future stages of the research to estimate statistical models of the demand for marine recreational fishing for eight important recreational species. The information that follows is excerpted and paraphrased from a preliminary report by Steinback *et al.* (1999).

"Marine recreational fishing is one of the most popular outdoor recreational activities in America. In 1992, the lowest level of participation during the last ten years, approximately 2.57 million residents of coastal states in the Northeast Region participated in marine recreational fishing in their own state. Participation increased approximately 5% in 1993 (2.7 million) and increased another 14% in 1994 (3.1 million), exceeding the ten-year average of 2.9 million. Although the total number of finfish caught in the Northeast Region has declined over the past

ten years effort (trips) has remained relatively stable. An estimated 22.4 million fishing trips were taken in 1994, up from 19.3 million in 1993."

The following discussion contains demographic and socioeconomic characteristics of anglers, as well as their preferences, attitudes, and opinions, toward recreational fishing activities and regulations. There was little or no difference in mean age across subregions. "The largest proportion of anglers in both subregions were 36-45 years old (NE=28%, MA=25%). However, New England anglers were younger than Mid-Atlantic anglers. Results show that participation in marine recreational fishing increased with age, peaked between ages of 36 to 45, and subsequently declined thereafter. The resultant age distribution is similar to the findings of other marine recreational studies. However, the distribution is not reflective of the general population in these subregions. Bureau of the Census estimates indicate population peaks between the ages of 25 to 34 in both subregions, declines until the age of 64 and then increases substantially." The complete distribution of recreational anglers by age for both subregions is as follows: less than 18, 25.2% in NE and 25.6% in MA; between the ages of 18-24, 9.8% in NE and 9.7% in MA; between 25-34, 16.4% in NE and 17.0% in MA; between 35-44, 16.3% in NE and 16.2% in MA; between 45-54, 11.5% in NE and 11.8% in MA; between 55-64, 8.2% in NE and 8.4% in MA; and 65 and over, 12.6% in NE and 11.3% in MA. In this survey, anglers under the age of 16 were not interviewed and are not included in the analysis.

In both subregions, at least 88% of the anglers (age 25 and over) had obtained at least a high school degree (NE=91%, MA=88%). "While the educational background is similar across subregions, a greater portion of the anglers in New England earned college or post graduate/professional degrees (NE=29%, MA=23%). The shape of the educational distribution essentially mirrored the general population in both subregions. However, the average number of anglers without a high school degree was considerably lower than Bureau of the Census estimates (age 25 and over) for the general population. On the other hand, it appears that anglers in New England and the Mid-Atlantic earned less post graduate/professional degrees than Bureau of Census estimates."

When anglers were asked to describe their racial or ethnic origin, almost all of the anglers interviewed in both subregions considered themselves to be white (NE=95%, MA=90%). "In the Mid-Atlantic, most of the remaining individuals were black (7%), leaving 3% to be of other ethnic origins. In New England, the remaining anglers were evenly distributed across other ethnic origins. The high occurrence of white fishermen is representative of the general population of the coastal states in New England. Approximately 94% of the population in 1993 was estimated to be white. However, in the Mid-Atlantic, the percentage of white anglers was considerable higher than Bureau of Census populations estimates, and the percentage of black fishermen was 12% lower."

When anglers were asked to indicate from a range of categories what their total annual household income was, only minor differences between subregions were found. "The largest percentage of household incomes fell between \$30,001 and \$45,000 for both subregions (NE=27%, MA=26%). In comparison to the general population, anglers' annual household incomes are relatively higher in both subregions...Results are consistent with previous studies which showed that angler household incomes are generally higher than the population estimates."

If it is assumed that "years fished" is a proxy for "experience," the survey data shows that anglers in New England are relatively less experienced than anglers in the Mid-Atlantic. The distribution of recreational anglers years of experience is as follows: 0-5 years of experience, 22% in NE and 16% in MA; 6-10 years of experience, 10% in NE and 10% in MA; 11-15 years of experience, 13% in NE and 14% in MA; 16-20 years of experience, 9% in NE and 9% in MA; 21-25 years of experience, 12% in NE and 12% in MA; 26-30 years of experience, 13% in NE and 12% in MA; and 30 or more years of experience, 21% NE and 26% in MA.

On average, it was found that New England anglers spent more on boat fees, lodging, and travel expenses than Mid-Atlantic anglers. "During the follow-up telephone portion of the survey, anglers that fished from a party/charter boat or a private/rental boat were asked how much they personally spent on boat fees for the trip in which they were interviewed. Boat fees averaged \$61.00 per trip in New England and \$51.00 in the Mid-Atlantic." Two categories of lodging expenses were obtained. "The first category (Lodging (>0)) is an estimate of the mean lodging expense per night for those anglers who indicated they spent at least one night away from their residence and personally incurred a lodging cost. Subsequently, the second category (Lodging (all)) is an estimate of mean lodging expenses across all overnight anglers, regardless of whether an angler incurred a lodging expense. Per night costs were estimated by dividing total lodging costs for the trip by the number of days the angler was away from his/her residence on the trip." Anglers that personally incurred lodging expenses spent \$58.00 on average per night in New England and \$47.00 per night in the Mid-Atlantic. "Across all overnight anglers, per night lodging expenses in New England averaged \$29.00 and in the Mid-Atlantic, \$21.00." Anglers expenditures also included money spent on gas, travel fares, tolls, and ferry and parking fees. "One-way travel expenditures averaged \$11.00 in New England and \$8.00 in the Mid-Atlantic per trip. Therefore, if arrival costs are tantamount to departure costs, average round-trip travel expenses would approximate \$22.00 in New England and \$16.00 in the Mid-Atlantic."

Survey results show that over 50% of the anglers in both subregions indicated boat ownership (NE=51%, MA=53%). These results were obtained when anglers were asked if anyone living in their household owns a boat that is used for recreational saltwater fishing.

Regarding the duration of the interviewed trip, "at least 80% of the anglers in both subregions indicated they were on a one-day fishing trip (NE=80%, MA=84%). One-day fishing trips were defined to be trips in which an angler departs and returns on the same day. Less than one fourth of the respondents indicated the day fishing was part of a longer trip which they spent at least one night away from their residence (NE=20%, MA=16%)."

"Respondents were asked why they chose to fish at the site they were interviewed... 'Convenience' and 'better catch rates' were the main reasons why anglers chose fishing sites in both subregions. Forty-nine percent of the anglers in New England and 57% of the anglers in the Mid-Atlantic indicated 'convenience' as either first or second reason for site choice. 'Better catch rates' was the first or second stated reason for site choice by 51% of the anglers in New England and 50% of the anglers in the Mid-Atlantic. Other notable responses were 'always go there,' 'boat ramp,' 'access to pier,' and 'scenic beauty.'...Results indicate that although anglers chose fishing sites for many different reasons, sites that offered good catch rates and were convenient attracted the most anglers."

Recreational anglers were asked to rate recreational fishing against their other outdoor activities during the last two months. Specifically, they were asked if fishing was their most important outdoor activity, their second most important outdoor activity, or only one of many outdoor activities? "Over 60% of the respondents in both subregions (NE=61%, MA=68%) reported marine recreational fishing was their most important outdoor activity during the past two months. Less than 30% in both subregions (NE=27%, MA=20%) said recreational fishing was only one of many outdoor activities." This is consistent with national outdoor recreation surveys carried over the past three decades indicating that fishing is consistently one of the top outdoor recreational activities in terms of number of people who participate.

Recreational anglers ratings of reasons (7 preestablished reasons) for marine fishing are presented in Table 22. More than 65% of the anglers in both subregions said that it was very important to go marine fishing because it allowed them to: spend quality time with friends and family (NE=81%, MA=85%); enjoy nature and the outdoors (NE=89%, MA=87%); experience or challenge of sport fishing (NE=69%, MA=66%); and relax and escape from my daily routine (NE=83%, MA=86%). "The reasons that were rated as not important by the largest proportion of anglers consisted of: catch fish to eat (NE=42%), to be alone (NE=55%, MA=58%), and to fish in a tournament or when awards were available (NE=79%, MA=73%). In the Mid-Atlantic, although to catch fish to eat was rated as being somewhat important by the largest proportion of anglers (40%), approximately 31% felt that catching fish to eat was very important. However, in New England, only 20% concurred. It is clear from these responses that marine recreational fishing offers much more than just catching fish to anglers. Over 80% of the respondents in both subregions perceived recreational fishing as a time to spend with friends and family, a time to escape from their daily routine, and time to enjoy nature and outdoors. While catching fish to eat is somewhat important to anglers, findings of this survey generally concur with previous studies that found non-catch reasons are rated highly by almost all respondents while catch is very important for about a third and catching to eat fish is moderately important for about another third."

"The economic survey sought to solicit anglers opinions regarding four widely applied regulatory methods used to restrict total recreational catch of the species of fish for which they typically fish: (1) limits on the minimum size of the fish they can keep; (2) limits on the number of fish they can keep; (3) limits on the times of the year when they can keep the fish they catch; and (4) limits on the areas they fish. Anglers were asked whether or not they support or opposed the regulations." As indicated in Table 23, strong support existed for all regulatory methods in both subregions. Limits on the minimum size of fish anglers could keep generated the highest support in both regions (NE=93%, MA=93%), while limits on the area anglers can fish, although still high, generated relatively lower support (NE=68%, MA=66%).

Regulations which limit the number of fish anglers can keep ranked second (NE=91%, MA=88%). The results from this solicitation indicate that recreational anglers in the Northeast Region appear to be conservation oriented and generally support regulations employed to restrict total catch. Not surprisingly, when analyzing anglers' opinions regarding the four widely applied regulatory methods, it was found that anglers in all modes indicated strong support for the regulatory measures. With minimum size limits generating the strongest support, followed by catch limits, seasonal closures, and lastly, area closures (Table 24). "Although party/charter, private/rental, and shore respondents did offer varying degrees of support for each of a selection

of regulatory measures, similar support existed across all modes. Support was highest for common regulatory methods currently being implemented in New England and the Mid-Atlantic (e.g., size and bag limits), than for area and seasonal closures."

## 5.2.2 Essential Fish Habitat Assessment

This EFH assessment is written to fulfill the requirement of 50 CFR part 600.920 (g) which states:

*"EFH Assessments--(1) Preparation requirement. For any Federal action that may adversely affect EFH, except for those activities covered by a General Concurrence, Federal Agencies must provide NMFS with a written assessment of the effects of that action on EFH."*

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 EFH designations for summer flounder, scup, and black sea bass, as approved in Amendment 12 are:

### 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 °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 °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 °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 °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 °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 °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 °F seem to be the minimum requirements. Structured habitats (natural and man-made), sand and shell are usually the substrate preference.

### **5.2.2.1 Fishing Impacts to Summer Flounder, Scup, and Black Sea Bass EFH**

Summer flounder, scup, and black sea bass are demersal species that have associations with substrates, SAV, and structured habitat (Packer and Griesbach 1998, 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

This framework only proposes a management system for the recreational fishery. The principal recreational gear used to harvest summer flounder is hook and line. Hook and line gear has minimal detrimental impacts to marine habitats. Lines may modify the structural component of the habitat, but any impacts would be short-term and temporary. Because of the limited length of time this gear is deployed, effects at the community and ecosystem levels are not detectable. In addition, the action proposed in this framework will not increase fishing effort relative to the status quo. As such, the proposed action will not adversely impact summer flounder, scup, or black sea bass EFH. Indirect impacts of marinas and recreational boating on habitat were addressed in Section 2.2.5.6 of Amendment 12. These are not direct impacts of fishing gear, and therefore are not regulated under this FMP. Measures for conservation and enhancement of EFH, with regards to marinas and recreational boating were suggested in Amendment 12.

## **5.3 Environmental Impacts of the Alternatives**

This EA presents an analysis of the impacts on the environment of the preferred and alternative actions considered in this framework. Each alternative provides a method to constrain the recreational summer flounder fishery to the coastwide recreational harvest limit. The purpose and need for this action is described in Section 2.0. A detailed description of the alternatives considered for this action is presented in Section 3.0. These alternatives are analyzed in terms of biological, economic, social impacts, and effects on marine mammals, turtles and sea birds. Descriptions of the physical environment, biological environment, human environment, and protected species potentially affected by this action are in Sections 4.2, 4.1, 4.3, 5.6.3.1 of this framework, respectively. The environment in which the summer flounder fishery is prosecuted was described in further detail by the Council in Amendments 2, 10, and 12. The nature of the

overall management program for summer flounder was examined in detail in the Environmental Impact Statement (EIS) prepared in Amendment 2.

### **5.3.1 Biological Impacts**

The **Preferred Alternative** and **Non-preferred Alternatives 1 - 4** proposed in this framework will not alter the rebuilding schedule for summer flounder nor the procedure for setting the annual recreational harvest limit. Each alternative provides a method to constrain the recreational summer flounder fishery to the coastwide recreational harvest limit. As such, the Preferred Alternative and Non-preferred Alternatives 1 - 4, proposed in this framework are not expected to result in significant negative biological impacts relative to the status quo. Overall, they should result in positive biological impacts since the stock would be rebuilt (Table 25).

**Non-preferred Alternative 5** would mean a greater probability of an overage of the recreational harvest limit, which would allow overfishing to continue and impede rebuilding the stock. Therefore, Non-preferred Alternative 5 is expected to result in long-term negative biological impacts to the summer flounder stock (Table 25).

### **5.3.2 Economic Impacts**

#### **5.3.2.1 Preferred Alternative: annual decision by the Council and Board for (a) conservation equivalency by state for all states or (b) coastwide management measures**

The implementation of this alternative would revise the current system of conservation equivalency, such that states would not have the choice between conservation equivalent measures or coastwide measures. The Council and Board, with the advice of the Summer Flounder Monitoring Committee, would establish the recreational harvest limit and choose recreational management measures to achieve the harvest limit on a coastwide basis. On an annual basis, the Council and Board would decide whether to (a) allow states to develop state-specific conservation equivalent management measures that result in the same constraint on landings as the coastwide measures or (b) use the coastwide measures specified by the Council and Board to achieve the coastwide recreational harvest limit. It would not include the provision that allows states to shift closed seasons within waves. This alternative would reduce the probability that an overage of the coastwide recreational harvest limit would occur, relative to the current system. This alternative would mean a greater probability of the recreational harvest limit being achieved, which would reduce overfishing and continue rebuilding the stock.

In addition, this alternative allows states to choose equivalent measures in order to deal with burden issues associated with the implementation of coastwide measures. Equivalent recreational management measures would allow the fishery to operate during critical fishing periods for each state, while still achieving conservation goals. This would allow the summer flounder fishery to operate in a way that minimizes potential adverse economic effects in specific states relative to the status quo.

This alternative gives states more flexibility than the coastwide system (status quo). This alternative may also create confusion because anglers operating from adjacent ports could be

fishing under significantly different rules. It is likely that this could result in party and charter boat customers patronizing vessels operating in states with less stringent management measures.

This alternative is not expected to result in a significant negative economic impact to the recreational summer flounder fishery, relative to the status quo. Table 6 presents a comparison of predicted reductions in landings associated with all six alternatives, based on a coastwide recreational harvest limit of 4,107,100 fish and 1998 landings. This alternative would allow states to minimize the burden of seasonal closures, meaning a more equitable constraint of landings amongst the states during the rebuilding period, as indicated in Table 6. As such, this alternative could result in short-term positive economic impacts, relative to coastwide management measures (status quo). This measure would also result in a greater probability of achieving the harvest limit. As such, this alternative would result in long-term positive economic impacts as the stock rebuilds. A rebuilt stock could result in an increased harvest limit, increased availability of summer flounder to anglers, and an increase in participation in the recreational fishery. Table 25 presents a comparison of the environmental impacts of all the alternatives.

### **5.3.2.2 Non-preferred Alternative 1: conservation equivalency by subregions**

Non-preferred alternative 1 allows flexibility for different management measures in geographic regions to alleviate the possible inequity of coastwide management measures. The use of regional data means larger, more precise data sets to determine management measures. This precision is indicated by the PSEs for the state and subregional data sets (Table 26). PSE expresses the standard error of the estimate as a percentage of the estimate and is a measure of precision. More precise data will increase the probability that the target landings will be achieved. This alternative recognizes subregional differences in availability of summer flounder in the recreational fishery. It would allow for identical regulations in states within each of the three subregions. However, it could also cause confusion and resentment among participants in neighboring states from different areas, for example Connecticut and New York. This alternative may also create confusion because anglers operating from adjacent ports could be fishing under significantly different rules. It is likely that this could result in party and charter boat customers patronizing vessels operating in states with less stringent management measures.

Under this alternative, regions can choose equivalent measures in order to deal with burden issues associated with the implementation of coastwide measures. Equivalent recreational management measures would allow the fishery to operate during critical fishing periods for each region while still achieving conservation goals. This would allow the summer flounder fishery to operate in a way that minimizes potential adverse economic effects in specific regions relative to the status quo.

This alternative is not expected to result in a significant negative economic impact to the recreational summer flounder fishery, relative to the status quo. Table 6 presents a comparison of predicted reductions in landings associated with all six alternatives, based on a coastwide recreational harvest limit of 4,107,100 fish and 1998 landings. This alternative would allow states to minimize the burden of seasonal closures. As such, this alternative would result in short-term positive economic impacts, relative to coastwide management measures (status quo). This measure would also result in a greater probability of achieving the harvest limit. As such,

this alternative would result in long-term positive economic impacts as the stock rebuilds. A rebuilt stock could result in an increase in harvest limit, increased availability of summer flounder to anglers, and an increase in participation in the recreational fishery.

### **5.3.2.3 Non-preferred Alternative 2: conservation equivalency by state using subregional data**

Non-preferred alternative 2 allows flexibility for different management measures in individual states using larger, more precise regional data sets. States can choose equivalent measures to avoid burden issues associated with the implementation of coastwide measures. Equivalent recreational management measures would allow the fishery to operate during critical fishing periods for each state while still achieving conservation goals. This would allow the summer flounder fishery to operate in a way that minimize potential adverse economic effects in specific states.

This alternative gives states more flexibility than the coastwide system. It would also make states accountable for achieving their allocation. This alternative may also create confusion because anglers operating from adjacent ports could be fishing under significantly different rules. It is likely that this could result in party and charter boat customers patronizing vessels operating in states with less stringent management measures.

This alternative is not expected to result in a significant negative economic impact to the recreational summer flounder fishery, relative to the status quo. Table 6 presents a comparison of predicted reductions in landings associated with all six alternatives, based on a coastwide recreational harvest limit of 4,107,100 fish and 1998 landings. This alternative would allow states to minimize the burden of seasonal closures. As such, this alternative would result in short-term positive economic impacts, relative to coastwide management measures (status quo). This measure would also result in a greater probability of achieving the harvest limit. As such, this alternative would result in long-term positive economic impacts as the stock rebuilds. A rebuilt stock could result in an increased harvest limit, increased availability of summer flounder to anglers, and an increase in participation in the recreational fishery.

### **5.3.2.4 Non-preferred Alternative 3: state by state allocations**

Under this alternative the coastwide recreational harvest limit would be allocated to the states based on historic landings. Options for base periods include a five year period before the recreational fishery was regulated (1988-1992), a ten year period before the recreational fishery was regulated (1983-1992), or 1998 landings, the most recent year that regulations were consistent from state to state. A difficulty with this alternative is choosing a base period that is reflective of the current status of the fishery. Landings from base periods may reflect the historic status of the fishery or current regulations. This alternative gives states more flexibility than the coastwide system. It would also make states accountable for achieving their allocation. This alternative may also create confusion because anglers operating from adjacent ports could be fishing under significantly different rules. It is likely that this could result in party and charter boat customers patronizing vessels operating in states with less stringent management measures. However, this alternative would reduce the probability that an overage of the coastwide recreational harvest limit would occur, relative to the current system.

This alternative is not expected to result in a significant negative economic impact to the recreational summer flounder fishery, relative to the status quo. This measure would also result in a greater probability of achieving the harvest limit. As such, this alternative would result in long-term positive economic impacts as the stock rebuilds. A rebuilt stock could result in an increased harvest limit, increased availability of summer flounder to anglers, and an increase in participation in the recreational fishery.

#### **5.3.2.5 Non-preferred Alternative 4: coastwide management measures (no action alternative)**

The current FMP uses coastwide management measures to achieve the recreational harvest limit. Although coastwide seasons were established with a provision that allowed states to shift the closure within the same wave, coastwide seasons continued to result in an inequitable burden on some states. This alternative reduces confusion among anglers about different management measures in adjacent states and subregions. It would reduce the probability that party/charter boat customers would travel to states seeking less stringent limits. In addition, this alternative would reduce the probability that an overage of the coastwide recreational harvest limit would occur, relative to the current system of conservation equivalency (under the interim final rule).

This alternative may result in a greater adverse short-term economic impact to some states because of inequitable closed season (Table 6). However, it would decrease confusion among recreational anglers in adjacent states and reduce the likelihood that anglers would seek out states with less stringent management measures. The overall result of this alternative would be the positive long-term economic benefits of a rebuilt stock, i.e. an increase in harvest limit, availability of summer flounder to anglers, and participants in the recreational fishery.

#### **5.3.2.6 Non-preferred Alternative 5: states have choice of conservation equivalent or coastwide management measures**

This alternative is not viable because it could allow the harvest limit to be exceeded. This alternative would allow states to choose to implement conservation equivalent measures or the coastwide measures. The resulting management measures may not constrain landings equally in each state (Table 2). For example, in 1999 the Council determined that recreational summer flounder landings had to be reduced by 41%. Three New England states implemented the coastwide measures while the remainder of the states implemented conservation equivalent measures. Based on numbers, the coastwide landings were affected differently in each state (Table 2). Coastwide, the landings by weight resulted in an overage of about 1 million lb. Conservation equivalency can only be equitable and achieve conservation goals if each state is required to constrain landings equally to attain the recreational harvest limit.

This alternative would increase the probability that the coastwide recreational harvest limit would be exceeded. Even though a recreational overage cannot be deducted from the TAL, an overage factors into the cumulative impact on the stock. Overages in one year may result in lower bag limits, larger minimum sizes, 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 in subsequent years.

As the probability of exceeding the recreational harvest limit increases, overfishing could impede the rebuilding of the stock. The short-term negative economic impacts would be more stringent management measures the following year. The long-term negative economic impact of this alternative could be a longer rebuilding period.

### **5.3.3 Social and Community Impacts**

The **Preferred Alternative** and **Non-preferred Alternatives 1 - 3** proposed under this framework will not alter the rebuilding schedule for summer flounder nor the procedure for setting the annual recreational harvest limit. Each alternative details a method to constrain the recreational summer flounder fishery to the coastwide recreational harvest limit. These alternatives would allow states and/or subregions to customize seasonal closures to meet specific regional cultural and social needs of the recreational summer flounder fishery (e.g., maintaining traditional fishing seasons). However, these alternatives may result in confusion of fishermen operating from adjacent ports that could be operating under significantly different rules. These alternatives could also result in party and charter boat customers patronizing vessels operating in states with less stringent limits. Once the stock is rebuilt long-term social benefits of these alternatives should be realized through a sustainable summer flounder fishery (Table 25).

**Alternative 4** could result in coastwide closed seasons that are not equitable or do not meet need the specific cultural and social needs of some states (e.g., traditional fishing seasons). However, this alternative would likely reduce confusion among anglers in adjacent states and reduce the likelihood of party/charter boat customers traveling to states with less stringent management measures. Once the stock is rebuilt long-term social benefits of this alternatives should be realized through a sustainable summer flounder fishery.

**Non-preferred Alternative 5** would mean a greater probability of exceeding the recreational harvest limit. This would allow overfishing to continue and impede the rebuilding of the stock. Negative social impacts could result if the stock rebuilding is slowed or the stock is not rebuilt (Table 25).

### **5.3.4 Endangered Species and Other Marine Mammals Protection Act**

This framework only addresses the recreational fishery for summer flounder. The principal gear used in the recreational summer flounder fishery is hook and line. Recreational gears are not categorized in the final List of Fisheries for 1999 for the taking of marine mammals by commercial fishing operations under Section 114 of the Marine Mammal Protection Act (MMPA) of 1972. In addition, the proposed action will not change recreational fishing effort. As such, minimal interaction is expected between hook and line gear and protected species. Therefore, proposed action and alternatives are not expected to have any adverse impacts on endangered or threatened species or marine mammal population.

### **5.3.5 Finding of No Significant Impacts**

Having reviewed the environmental assessment and the available information relating to the proposed 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

## **5.4 Regulatory Impact Review and Review of Impacts Relative to the Regulatory Flexibility Analysis**

### **5.4.1 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.

Also included is a Review of Impacts Relative to the Regulatory Flexibility Analysis. The Regulatory Flexibility Act (RFA) requires the federal rulemaker to examine the impacts of proposed and existing rules on small businesses, small organizations, and small governmental jurisdictions. A description of the summer flounder fishery can be found in Section 4.3 of this framework. In addition, a complete description of the need for, and management objectives of, the proposed action can be found in Sections 1.0 and 2.0 of this framework.

### **5.4.2 Evaluation of E.O. 12866 Significance**

In order for fishery managers to continue to use conservation equivalency as a tool to regulate the summer flounder recreational fishery, the Council and Board must amend the FMP to include conservation equivalency (a complete description of the current management system and proposed alternatives was presented in Sections 1, 2, and 3 of this document).

This framework does not propose management measures, but rather a management system to constrain the recreational summer flounder fishery to the coastwide recreational harvest limit. It allows states to customize summer flounder recreational management measures in order to deal with burden issues associated with the implementation of coastwide measures. Equivalent recreational management measures would allow the fishery to operate during critical fishing periods for each state, while still achieving conservation goals. This would allow the summer flounder fishery to operate in a way that minimizes potential adverse economic effects in specific states relative to the status quo (coastwide management measures). Table 6 details the predicted reductions associated with all six alternatives, based on a coastwide recreational harvest limit of 4,107,000 and 1998 landings. Table 6 indicates that some alternatives create a larger burden on some states.

This management system gives states more flexibility than the coastwide system (status quo). This alternative may also create confusion because anglers operating from adjacent ports could be fishing under significantly different rules. It is likely that this could result in party and

charter boat customers patronizing vessels operating in states with less stringent management measures.

Generally, it is difficult to estimate how specific recreational management measures will affect party/charter boat trips or revenues. This difficulty arises from the lack of information to empirically estimate how sensitive party/charter boat anglers might be to proposed actions. However, the decrease in party/charter boat revenues associated with the implementation of proposed management measures can be estimated by multiplying the changes in the number of party/charter boat fishing trips by the average fee paid by anglers. Specific impacts of coastwide and/or conservation equivalency measures cannot be evaluated until specific management measures are known. As an example, the process for evaluating the potential impacts of proposed management measures on the decrease of party/charter boat revenues can be estimated by multiplying the changes in the number of party/charter boat fishing trips by the average fee paid by anglers. (MRFSS data can be employed to estimate the number of party/charter boat trips that would be affected by proposed management measures.)

In addition, if the proposed regulations affect the number and size of the fish that can be kept or landed and do not prohibit anglers from engaging in catch and release fishing, the overall losses are likely to be less severe. While keeping fish is moderately important to anglers in the Mid-Atlantic, over 42% of anglers in New England in 1994, indicated that catching fish to eat was not an important reason for marine fishing (Steinback *et al.* 1999). Although these anglers are not likely to be the ones constrained by recreational management regulations, findings of this study generally concur with previous studies that found non-catch reasons for participating in marine recreational fishing were rated much higher than keeping fish for food. In combination with the numerous alternative target species available to anglers, the findings of the Steinback *et al.* (1999) study suggest that at least some of the potentially affected anglers would not reduce their effort when faced with the landings restrictions proposed under recreational management regulations.

The proposed management system is necessary to prevent anglers from exceeding the recreational harvest limit. Summer flounder recreational data indicate that in only two of the last seven years (1994 and 1995) recreational landings have been less than the recreational harvest limits (Table 8). In 1998, recreational landings of summer flounder were 12.53 million lb. The summer flounder recreational landings in 1998 were 5.12 million lb over the recreational harvest limit for that year. For 1999, recreational landings were 0.98 million lb above the allowable recreational harvest limit of 7.41 million lb.

Table 9 details the proportion of summer flounder harvested in state and federal waters. On average (1993-1998), approximately 95% of the harvested summer flounder (both number and weight) came from state waters. As such, if states implement equivalent measures, approximately 5% of the harvested summer flounder will be affected by the proposed federal measures and 95% of the harvested summer flounder will be affected by state measures. Since there is no mechanism to deduct overages directly from the recreational harvest limit, any overages to the recreational harvest limit must be addressed by way of adjustments to the management measures (fish size, bag limit and/or season). A system that maintains recreational landings in line with recreational harvest limits will contribute to the recovery of the summer stock.

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. In fact, the proposed action will allow states to set management measures to summer flounder fishery following traditional fishing practices. As such, having little effect on fishing practices and activities.

In 1985, Atlantic coast direct sales related to recreational fishing amounted to \$2.6 billion (SFI 1988). These sales and services required 42 thousand person years of labor and generated wages of \$522 million (SFI 1988). The report prepared by SFI (1988) also included estimates of the economic activity specifically associated with summer flounder. The estimates disaggregated the regional economic impacts of summer flounder based on the percent of total trips where summer flounder were reported as the target species. The minimum estimate uses the target percent as given. The maximum estimate assumes that those individuals who did not identify a target species have the same distribution of species preferences as those who did express a preference. The resultant ranges of estimates of the economic activity associated with the 1985 recreational summer flounder fishery on the Mid-Atlantic region are: retail sales -- \$110.0 to 152.8 million (10.5% to 14.6% of the region total) million; person years of employment -- 1,795 to 2,494 (10.5% to 14.6% of the region total); and wages and salaries -- \$22.4 to \$31.1 million (10.5% to 14.5% of the region total) (SFI 1988).

According to MRFSS data, the number of recreational fishing trips for all modes combined as reported by anglers indicating that the primary species sought was summer flounder on the North Atlantic and Mid-Atlantic subregions was 4,230,627 (451,718 North Atlantic subregion; and 3,778,909 Mid-Atlantic subregion) in 1999. Using the number of recreational fishing trips that targeted summer flounder and the proportion of recreational trips by mode for all species combined it can be estimated that 206,977 shore-based and 244,695 boat-based trips (15,539 party/charter trips; 229,156 private/rental trips) targeted summer flounder in the North Atlantic subregion in 1999. It can also be estimated that 1,408,777 shore-based and 2,369,376 boat-based trips (243,740 party/charter trips; 2,125,636 private/rental trips) targeted summer flounder in the Mid-Atlantic subregion in 1999. An estimate of total expenditures made to go fishing for summer flounder can be calculated by multiplying the number of trips by an estimate of average cost per day, but it is not possible to estimate the total non-monetary benefit without more sophisticated statistical techniques which allow estimation of the marginal value per trip. Steinback et al. (1999) estimated that the average party/charter boat fee paid by anglers was \$52.00 in the Northeast Region in 1994.

The total value recreational anglers place on the opportunity to fish can be divided into actual expenditures and a non-monetary benefit associated with satisfaction. In other words, anglers incur expenses to fish (purchases of gear, bait, boats, fuel, etc.), but do not pay for the fish they catch or for the enjoyment of many other attributes of the fishing experience (socializing with friends, being out on the water, etc.). Despite the obvious value of these fish and other attributes of the experience to anglers, no direct expenditures are made for them, hence the term "non-monetary" benefits. In order to determine the magnitude of non-monetary benefits, a demand curve for recreational fishing must be estimated. In the case of summer flounder, as with many recreationally sought species, a demand curve is not available. Part of the problem in estimating a demand curve is due to the many and diverse attributes of a recreational fishing experience: socializing, weather, ease of access and site development, catch rates, congestion,

travel expenditures, and costs of equipment and supplies, among others. A recreational angler's willingness-to-pay for summer flounder must be separated from the willingness-to-pay for other attributes of the experience. Holding all other factors constant (expenditures, weather, etc.), a decrease in the catch (or retention rate) of summer flounder would decrease demand and an increase in the catch (or retention rate) should increase demand. Each change will have an associated decrease/increase in expenditures and non-monetary benefits.

The proposed management system should not cause a decrease in the demand for party/charter boat trips. The proposed management system would allow states to promulgate management measures that not only meet coastwide conservation goals but also allow anglers in these states to continue to participate in the summer flounder recreational fishery, while maintaining traditional fishing practices. This measure would also result in a greater probability of achieving the rebuilding schedule, relative to the current system of conservation equivalency (under the interim rule). As such, this alternative would result in long-term positive economic impacts as the stock rebuilds. A rebuilt stock could result in an increased in quota, increased availability of summer flounder to anglers, and an increase in participation in the recreational fishery.

The proposed 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 proposed 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 fishery in the EEZ. Third, the proposed action will not materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of their participants. And, fourth, the proposed action does 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.

### **5.4.3. Paper Reduction Act of 1995**

As stated in Section 5.6.3.5 below, this framework does not propose new reporting or recordkeeping measures. There are no changes to existing reporting requirements.

## **5.5 Review of Impacts Relative to the Regulatory Flexibility Analysis**

### **5.5.1 Introduction and Methods**

The Regulatory Flexibility Act (RFA) requires the federal rulemaker to examine the impacts of proposed and existing rules on small businesses, small organizations, and small governmental jurisdictions. In reviewing the potential impacts of proposed regulations, the agency must either certify that the rule “will not, if promulgated, have a significant economic impact on a substantial number of small entities,” or prepare an Initial Regulatory Flexibility Analysis. 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 category of small entities likely to be affected by the proposed action are party/charter boats harvesting summer flounder. This proposed action could affect any party/charter vessel holding an active federal permit for summer flounder as well as vessels that fish for summer flounder in state waters. Data from the Northeast permit application database indicates that in 1999 there

were 569 vessels permitted to take part in the summer flounder fishery in the EEZ. Analysis of VTR data indicates that 308 party/charter vessels participated in the summer flounder fishery in 1998.

As it was indicated in the RIR, this framework does not propose management measures, but rather a management system to constrain the recreational summer flounder fishery to the coastwide recreational harvest limit. It allows states to customize summer flounder recreational management measures in order to deal with burden issues associated with the implementation of coastwide measures. Equivalent recreational management measures would allow the fishery to operate during critical fishing periods for each state, while still achieving conservation goals. This would allow the summer flounder fishery to operate in a way that minimizes potential adverse economic effects in specific states relative to the status quo. Table 6 details the predicted reductions associated with all six alternatives based on a coastwide recreational harvest limit of 4,107,000 fish and 1998 landings. Table 6 indicates that some alternatives create a larger burden on some states.

This management system gives states more flexibility than the coastwide system (status quo). This alternative it may create confusion because anglers operating from adjacent ports and fishing under significantly different rules. It is likely that this could result in party and charter boat customers patronizing vessels operating in states with less stringent management measures.

The proposed management system would apply to the following small entities: summer flounder party/charter permit holders, as well as those actively participating in the fishery. While permit holders represent the universe of entities whose normal activities might be directly affected by these regulations - whether or not the individual permit holder chooses to fish in a given year - impacts may also be felt by a smaller group of permitted entities, namely, those who actively participated, i.e. landed fish, in 1998. Latent fishing power (in the form of unfished permits) represents a real and considerable force to alter the impacts on a fishery, but vessels actively participating in the fishery are dependent on a particular species. It is impossible to predict how many - or who - will or will not participate in these fisheries in the future.

There is very little information available to empirically estimate how sensitive party/charter boat anglers might be to specific recreational management measures and how these will affect party/charter boat trips or revenues. In addition to this, data on costs and revenues for party/charter vessels are not available in the NMFS files containing vessel data. However, as it was indicated in Section 5.4.2 of the RIR/RFA, the decrease in party/charter boat revenues associated with the implementation of proposed management measures can be estimated. This figure can then be divided by the total number of party/charter vessels participating in the fishery to derive potential average impact. Specific impacts of coastwide and/or conservation equivalency measures cannot be evaluated until specific management measures are known. The analysis of the proposed management systems presented in this RFA are qualitative in nature. However, it allows to assess potential impacts associated with the various management systems. The MAFMC invites public comment on this RFA.

## **5.5.2. Recordkeeping and Reporting**

As stated in Section 5.6.3.5 of this document, this framework does not propose new reporting or recordkeeping measures. There are no changes to existing reporting requirements.

## **5.5.3 Analysis of Impacts of Proposed Management Systems**

### **5.5.3.1 Preferred Alternative: annual decision by the Council and Board for (a) conservation equivalency by state for all states or (b) coastwide management measures**

The preferred alternative (management system) would allow the Council and Board to decide on an annual basis whether to (a) allow states to develop state-specific conservation equivalent management measures that result in the same constraint on landings as the coastwide management measures or (b) specify coastwide measures to achieve the coastwide recreational harvest limit. This management system revises the current system of conservation equivalency (under the interim final rule) such that states would not have the choice between conservation equivalent measures or coastwide measures. This alternative would reduce the probability that an overage of the coastwide recreational harvest limit would occur, relative to the current system. This alternative would mean a greater probability of the recreational harvest limit being achieved, which would reduce overfishing and continue rebuilding the stock.

This management system will not alter the rebuilding schedule for summer flounder nor the procedure for setting the annual recreational harvest limit. This would allow states to deal with burden issues associated with the implementation of coastwide recreational management measures (Alternative 4: No action alternative).

Summer flounder recreational data indicate that in only two of the last seven years (1994 and 1995) recreational landings have been less than the recreational harvest limits (Table 8). In 1998, recreational landings of summer flounder were 12.53 million lb. The summer flounder recreational landings in 1998 were 5.12 million lb over the recreational harvest limit for that year. For 1999, recreational landings were 0.98 million lb above the allowable recreational harvest limit of 7.41 million lb.

Since there is no mechanism to deduct overages directly from the recreational harvest limit, any overages to the recreational harvest limit must be addressed by way of adjustments to the management measures (fish size, bag limit and/or season). The preferred alternative would reduce the probability that an overage of the coastwide recreational harvest limit would occur, relative to the current system. This alternative would result in a greater probability of the recreational harvest limit being achieved, which would reduce overfishing and continue rebuilding the stock.

On average (1990-1999), approximately 95% of the harvested summer flounder (both number and weight) came from state waters (Table 9). As such, under the preferred alternative conservation equivalent measures implemented by states would affect 95% of the harvested summer flounder and federal coastwide measures would affect 5% of the harvested summer flounder.

Summer flounder harvested by party/charter vessels from 1990-1999 averaged 10% of the recreational landings (Table 11). Each state's contribution of summer flounder to the total catch of party/charter vessels fluctuated throughout the year, ranging from less than 1% in January, February, March, April, November and December to 23% in July, with the largest proportion (about 13%) of summer flounder caught from May through September (Table 10). Under this management system states could implement equivalent recreational management measures which would allow the fishery to operate during critical fishing periods while still achieving conservation goals. This would allow the summer flounder fishery maintain traditional fishing practices and operate in a way that dissipates potential adverse economic effects in specific states.

In addition, findings of Steinback *et al.* (1999) detail regional differences in angler preferences. These findings indicate that keeping fish is moderately important to anglers in the Mid-Atlantic, while over 42% of anglers in New England in 1994 indicated that catching fish to eat was not an important reason for marine fishing. These regional differences indicate that flexibility in management measures by state may benefit anglers.

The general discussion presented in the previous six paragraphs regarding recent recreational landings and harvest limits; overages in the recreational fishery; recreational harvest by area; characteristics of the recreational fishery by mode; and anglers preferences also apply to the other management systems discussed in this document.

This management system is not expected to negatively impact a significant number of party/charter boats participating in this fishery, relative to the status quo. However, as indicated in Section 5.5.1 of the RIR/RFA, specific impacts of coastwide and/or conservation equivalency measures cannot be evaluated until specific management measures are known. This alternative would allow states to minimize the burden of seasonal closures, meaning a more equitable constraint of landings across states during the rebuilding period (Table 6). As such, this alternative would result in short-term positive impacts to party/charter boats operating in this fishery, relative to the status quo. This measure would also result in a greater probability of achieving the rebuilding schedule, relative to the current system of conservation equivalency (under the interim rule). As such, this alternative would result in long-term positive impacts to the party/charter boat participants in this fishery, as the stock rebuilds. A rebuilt stock could result in an increase in harvest limit, increased availability of summer flounder to anglers, and an increase in participation in the recreational fishery.

### **5.5.3.2 Non-Preferred Alternative 1: conservation equivalency by subregions**

The first non-preferred alternative would implement a management system where subregions are allowed to choose equivalent measures in order to deal with burden issues associated with the implementation of coastwide measures. This management system will not alter the rebuilding schedule for summer flounder nor the procedure for setting the annual recreational harvest limit. This would allow subregions to deal with burden issues associated with the implementation of coastwide recreational management measures (Alternative 4: No action alternative).

This alternative is not expected to result in negative impacts to a significant number of party/charter boats in the recreational summer flounder fishery, relative to the status quo. This

alternative would allow subregions to minimize the burden of seasonal closures, meaning a more equitable constraint of landings across subregions during the rebuilding period (Table 6). As such, this alternative would result in short-term positive impacts to party/charter boats participating in this fishery, relative to coastwide management measures (status quo). This measure would also result in a greater probability of achieving the rebuilding schedule, relative to the current system of conservation equivalency (under the interim rule). As such, this alternative would result in long-term positive impacts to the party/charter boats participating in this fishery, as the stock rebuilds. A rebuilt stock could result in an increase in harvest limit, increased availability of summer flounder to anglers, and an increase in participation in the recreational fishery.

#### **5.5.3.3 Non-preferred Alternative 2: conservation equivalency by state using subregional data**

The second non-preferred alternative would implement a management system where states choose conservation equivalent measures using regional data (e.g., possession/size limit and season tables). This allows states to deal with burden issues associated with the implementation of coastwide measures. This management system will not alter the rebuilding schedule for summer flounder nor the procedure for setting the annual recreational harvest limit. This would allow states to deal with burden issues associated with the implementation of coastwide recreational management measures (Alternative 4: No action alternative).

This alternative is not expected to result in negative economic impacts to a significant number of party/charter boats participating in the recreational summer flounder fishery, relative to the status quo. This alternative would allow states to minimize the burden of seasonal closures, meaning a more equitable constraint of landings in geographic regions during the rebuilding period. As such, this alternative would result in short-term positive impacts to the participants, relative to coastwide management measures (status quo). This measure would also result in a greater probability of achieving the rebuilding schedule, relative to the current system of conservation equivalency (under the interim rule). As such, this alternative would result in long-term positive impacts to the participants of this fishery, as the stock rebuilds. A rebuilt stock could result in an increase in harvest limit, increased availability of summer flounder to anglers, and an increase in participation in the recreational fishery.

#### **5.5.3.4 Non-preferred Alternative 3: state by state allocations**

The third non-preferred alternative allocates the coastwide recreational harvest limit to the states based on historic landings. This alternative would allow states to have complete control over their management measures in order to deal with burden issues associated with the implementation of coastwide measures (Alternative 4: No action alternative). However, allocations from base periods may not reflect the current status of the fishery.

This alternative is not expected to result in a negative impacts to a significant number of party/charter boats participating in the recreational summer flounder fishery, relative to the status quo. This measure would also result in a greater probability of achieving the rebuilding schedule, relative to the current system of conservation equivalency (under the interim rule). As such, this alternative would result in long-term positive impacts to the participants, as the stock

rebuilt. A rebuilt stock could result in an increase in harvest limit, increased availability of summer flounder to anglers, and an increase in participation in the recreational fishery.

#### **5.5.3.5 Non-preferred Alternative 4: coastwide management measures (no action alternative)**

The fourth non-preferred alternative is the “no action alternative” and uses coastwide recreational management measures to achieve the coastwide recreational harvest limit, as under the current FMP. In the past, seasons were either inconsequential in constraining landings for some states or resulted in an inequitable burden on some states (Table 2). However, this alternative would reduce the probability that an overage of the coastwide recreational harvest limit relative to the current system of conservation equivalency (under the interim final rule).

This alternative may result in a short-term impacts to the party/charter boats participating in the recreational summer flounder fishery, in some states, due to inequitable closed seasons. It would decrease confusion among recreational anglers in adjacent states and reduce the likelihood that anglers would seek out states with less stringent management measures. The overall result of this alternative would be the positive long-term benefits of a rebuilt stock, i.e. an increase in harvest limit, availability of summer flounder to anglers, and participants in the recreational fishery.

#### **5.5.3.6 Non-preferred Alternative 5: states have choice of conservation equivalent or coastwide management measures**

The fifth non-preferred alternative is the current system of conservation equivalency under the interim final rule. This alternative is not viable because it allows overfishing to continue to occur, by allowing states to choose to implement conservation equivalent measures or the coastwide measures. The result is management measures that may not constrain landings equally in each state. For example, in 1999 the Council determined that recreational summer flounder landings had to be reduced by 41%. Three New England states implemented the coastwide measures while the remainder of the states implemented conservation equivalent measures, constraining landings inequitably among states (Table 2). Coastwide, the landings by weight resulted in an overage of 0.98 million lb. This alternative will allow overfishing on the summer flounder stock to continue, which may cause long-term adverse economic impacts on small entities.

This alternative will continue to allow states to have a choice between implementation of conservation equivalent measures or coastwide measures, states would most likely choose the alternative for the highest landings level. As such, this alternative would potentially result in short-term positive impacts to party/charter boats in some states. However, it would mean a greater probability of exceeding the recreational harvest limit, which would allow overfishing to continue and impede rebuilding the stock. As management measures (fish size, bag limit, and/or season) continue to be adjusted to reduce overages negative economic impacts may result with more stringent management measures following quota overages. The long-term negative economic impact of this alternative is recreational summer flounder fishery that is not sustainable.

## **5.5.4 Summary of Impacts**

This framework does not propose management measures, but a management system to constrain the recreational summer flounder fishery to the coastwide recreational harvest limit. Currently, the recreational summer flounder fishery is managed through an annual evaluation process based on a coastwide recreational harvest limit. Coastwide management measures, including minimum fish size, possession limits, and/or closed seasons are used to constrain landings to the coastwide recreational harvest limit (Non-preferred Alternative 4). However, summer flounder migrations may result in differences in availability to the recreational fishery in each state. These differences make it difficult to choose coastwide management measures that are equitable to all geographic regions. The proposed action is intended to allow states to customize summer flounder recreational management measures in order to deal with burden issues associated with the implementation of coastwide measures. This would allow each state to set management measures to maintain traditional fishing practices. As such, the Preferred Alternative and Non-preferred Alternatives 1-3 discussed in this document are not expected to result in negative short-term impacts to a significant number of party/charter boats participating in the recreational summer flounder fishery compared to the status quo. Non-preferred Alternative 4, the status quo, may result in closed season that are a greater burden to some states. This alternative may result in negative short-term impacts to the party/charter boat participants in some states. However, the Preferred Alternative and Non-preferred Alternatives 1-4 will result in the positive long-term impacts of a rebuilt stock, i.e. an increase in quota, availability of summer flounder to anglers, and participants in the recreational fishery. Non-preferred Alternative 5 will allow overfishing on the summer flounder stock to continue. Although it may result in some short-term positive impacts to the party/charter boat participants in the summer flounder fishery, it will cause long-term negative impacts on the participants as the stock is not rebuilt. Alternatives 1-4 are likely to decrease the possibility of overages.

## **5.6 Other Applicable Laws**

### **5.6.1 FMPs**

This FMP is related to other plans to the extent that all fisheries of the northwest Atlantic are part of the same general geophysical, biological, social, and economic setting. U.S. fishermen usually are active in more than a single fishery. Thus regulations implemented to govern harvesting of one species or a group of related species may impact on other fisheries by causing transfers of fishing effort.

### **5.6.2 Treaties or International Agreements**

No treaties or international agreements, other than GIFAs entered into pursuant to the MSFCMA, relate to this fishery.

## 5.6.3 Federal Law and Policies

### 5.6.3.1 Impacts on Protected Species Under the Endangered Species Act and Marine Mammal Protection Act

There are numerous species which inhabit the management unit of this FMP that are afforded protection under the Endangered Species Act (ESA) of 1973 (i.e., for those designated as threatened or endangered) and/or the Marine Mammal Protection Act of 1972 (MMPA). Eleven are classified as endangered or threatened under the ESA, while the remainder are protected by the provisions of the MMPA. Marine mammals include the northern right whale, humpback whale, fin whale, minke whale, harbor porpoise, white-sided dolphin, bottlenose dolphin, common dolphin, harp seal, harbor seal and gray seal. The status of these and other marine mammal populations inhabiting the Northwest Atlantic has been discussed in detail in the U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments. Initial assessments were presented in Blaylock, *et al.* (1995) and are updated in Waring *et al.* (1999).

This framework only addresses recreational fishing for summer flounder. The principal gear used in the recreational summer flounder fishery is hook and line. Recreational gears are not categorized in the final List of Fisheries for 1999 for the taking of marine mammals by commercial fishing operations under Section 114 of the Marine Mammal Protection Act (MMPA) of 1972. As such, minimal interaction is expected between hook and line gear and protected species.

The protected species found in New England and Mid-Atlantic waters are listed below.

**Endangered:** Right whale (*Eubalaena glacialis*), Humpback whale (*Megaptera novaeangliae*), Fin whale (*Balaenoptera physalus*), Sperm whale (*Physeter macrocephalus*), Blue whale (*Balaenoptera musculus*), Sei whale (*Balaenoptera borealis*), Kemp's ridley (*Lepidochelys kempi*), Leatherback turtle (*Dermochelys coriacea*), Green sea turtle (*Chelonia mydas*) Shortnose sturgeon (*Acipenser brevirostrum*).

**Threatened:** Loggerhead turtle (*Caretta caretta*)

**Species Proposed for ESA listing:** Harbor porpoise: (*Phocoena phocoena*).

**Other marine mammals:** Other species of marine mammals likely to occur in the management unit include the minke whale (*Balaenoptera acutorostrata*), white-sided dolphin (*Lagenorhynchus acutus*), white-beaked dolphin (*Lagenorhynchus albirostris*), bottlenose dolphin (*Tursiops truncatus*), [coastal stock listed as depleted under the MMPA], pilot whale (*Globicephala melaena*), Risso's dolphin (*Grampus griseus*), common dolphin (*Delphinus delphis*), spotted dolphin (*Stenella* spp.), striped dolphin (*Stenella coeruleoalba*), killer whale (*Orcinus orca*), beluga whale (*Delphinapterus leucas*), Northern bottlenose whale (*Hyperoodon ampullatus*), goosebeaked whale (*Ziphius cavirostris*) and beaked whale (*Mesoplodon* spp.). Pinnipeds species include harbor (*Phoca vitulina*) and gray seals (*Halichoerus grypus*) and less commonly, hooded (*Cystophora cristata*) harp (*Pagophilus groenlandicus*) and ringed seals (*Phoca hispida*).

### **5.6.3.1.1 Protected Species of Particular Concern**

#### **5.6.3.1.1.1 North Atlantic Right Whale**

The northern right whale was listed as endangered throughout its range on June 2, 1970 under the ESA. The current population is considered to be at a low level and the species remains designated as endangered (Waring *et al.* 1999). A Recovery plan has been published and is in effect (NMFS 1991). This is a strategic stock because the average annual fishery-related mortality and serious injury from all fisheries exceeds the Potential Biological Removal (PBR).

North Atlantic right whales range from wintering and calving grounds in coastal waters of the southeastern US to summer feeding grounds, nursery and presumed mating grounds in New England and northward to the Bay of Fundy and Scotian shelf (Waring *et al.* 1999). Approximately half of the species' geographic range is within the area in which the summer flounder fishery is prosecuted. In the management area as a whole, right whales are present throughout most months of the year, but are most abundant between February and June. The species uses mid-Atlantic waters as a migratory pathway from the winter calving grounds off the coast of Florida to spring and summer nursery/feeding areas in the Gulf of Maine.

NMFS designated right whale critical habitat on June 3, 1994 (59 FR 28793). Portions of the critical habitat within the action area include the waters of Cape Cod Bay and the Great South Channel off the coast of Massachusetts, where the species is concentrated at different times of the year.

The western North Atlantic population of right whales was estimated to be 295 individuals in 1992 (Waring *et al.* 1999). The current population growth rate of 2.5% as reported by Knowlton *et al.* (1994) suggests the stock may be showing signs of slow recovery. However, considerable uncertainty exists about the true size of the current stock (Waring *et al.* 1999).

#### **5.6.3.1.1.2 Humpback Whale**

The humpback whale was listed as endangered throughout its range on June 2, 1970. This species is the fourth most numerically depleted large cetacean worldwide. In the western North Atlantic humpback whales feed during the spring through fall over a range which includes the eastern coast of the US (including the Gulf of Maine) northward to include waters adjacent to Newfoundland/Labrador and western Greenland (Waring *et al.* 1999). During the winter, the principal range for the North Atlantic population is around the Greater and Lesser Antilles in the Caribbean (Waring *et al.* 1999).

About half of the species' geographic range is within the management area of the summer flounder FMP. As noted above, humpback whales feed in the northwestern Atlantic during the summer months and migrate to calving and mating areas in the Caribbean. Five separate feeding areas are utilized in northern waters after their return; the Gulf of Maine (which is within the management unit of this FMP) is one of those feeding areas. As with right whales, humpback whales also use the Mid-Atlantic as a migratory pathway. Since 1989, observations of juvenile humpbacks in that area have been increasing during the winter months, peaking January through March (Swingle *et al.*, 1993). It is believed that non-reproductive animals may be establishing a

winter feeding area in the Mid-Atlantic since they are not participating in reproductive behavior in the Caribbean. It is assumed that humpbacks are more widely distributed in the management area than right whales. They feed on a number of species of small schooling fishes, including sand lance and Atlantic herring.

The most recent status and trends of the for the Western North Atlantic stock of humpback whales are given by Waring *et al.* (1999). The current rate of increase of the North Atlantic humpback whale population has been estimated at 9.0% (CV=0.25) by Katona and Beard (1990) and at 6.5% by Barlow and Clapham (1997). The minimum population estimate for the North Atlantic humpback whale population is 10,019 animals, and the best estimate of abundance is 10,600 animals (CV=0.07; Waring *et al.* 1999).

#### **5.6.3.1.1.3 Fin Whale**

The fin whale was listed as endangered throughout its range on June 2, 1970 under the ESA. The fin whale is ubiquitous in the North Atlantic and occurs from the Gulf of Mexico and Mediterranean Sea northward to the edges of the arctic ice pack (Waring *et al.* 1999). The overall pattern of fin whale movement is complex, consisting of a less obvious north-south pattern of migration than that of right and humpback whales. However, based on acoustic recordings from hydrophone arrays, Clark (1995) reported a general southward "flow pattern" of fin whales in the fall from the Labrador/Newfoundland region, south past Bermuda, and into the West Indies. The overall distribution may be based on prey availability, and fin whales are found throughout the management area for this FMP in most months of the year. This species preys opportunistically on both invertebrates and fish (Watkins *et al.* 1984). As with humpback whales, they feed by filtering large volumes of water for the associated prey. Fin whales are larger and faster than humpback and right whales and are less concentrated in nearshore environments.

Hain *et al.* (1992) estimated that about 5,000 fin whales inhabit the northeastern United States continental shelf waters. Shipboard surveys of the northern Gulf of Maine and lower Bay of Fundy targeting harbor porpoise for abundance estimation provided an imprecise estimate of 2,700 (CV=0.59) fin whales (Waring *et al.* 1999).

#### **5.6.3.1.1.4 Loggerhead Sea Turtle**

The loggerhead turtle was listed as "threatened" under the ESA on July 28, 1978, but is considered endangered by the World Conservation Union (IUCN) and under the Convention on International Trade in Endangered Species of Flora and Fauna (CITES). Loggerhead sea turtles are found in a wide range of habitats throughout the temperate and tropical regions of the Atlantic. These include open ocean, continental shelves, bays, lagoons, and estuaries (NMFS& FWS 1995). In the management unit of this FMP they are most common on the open ocean in the northern Gulf of Maine, particularly where associated with warmer water fronts formed from the Gulf Stream. The species is also found in entrances to bays and sounds and within bays and estuaries, particularly in the Mid-Atlantic.

Since they are limited by water temperatures, sea turtles do not usually appear on the summer foraging grounds in the Gulf of Maine until June, but are found in Virginia as early as April.

They remain in these areas until as late as November and December in some cases, but the large majority leave the Gulf of Maine by mid-September. Loggerheads are primarily benthic feeders, opportunistically foraging on crustaceans and mollusks (NMFS & FWS 1995). Under certain conditions they also feed on finfish, particularly if they are easy to catch (*e.g.*, caught in gillnets or inside pound nets where the fish are accessible to turtles).

A Turtle Expert Working Group (TEWG 1998) conducting an assessment of the status of the loggerhead sea turtle population in the Western North Atlantic (WNA), concluded that there are at least four loggerhead subpopulations separated at the nesting beach in the WNA (TEWG 1998). However, the group concluded that additional research is necessary to fully address the stock definition question. The four nesting subpopulations include the following areas: northern North Carolina to northeast Florida, south Florida, the Florida Panhandle, and the Yucatan Peninsula. Genetic evidence indicates that loggerheads from Chesapeake Bay southward to Georgia appear nearly equally divided in origin between South Florida and northern subpopulations. Additional research is needed to determine the origin of turtles found north of the Chesapeake Bay.

The TEWG analysis also indicated the northern subpopulation of loggerheads may be experiencing a significant decline (2.5% - 3.2% for various beaches). A recovery goal of 12,800 nests has been assumed for the Northern Subpopulation, but current nests number around 6,200 (TEWG 1998). Since the number of nests have declined in the 1980's, the TEWG concluded that it is unlikely that this subpopulation will reach this goal given this apparent decline and the lack of information on the subpopulation from which loggerheads in the WNA originate. Continued efforts to reduce the adverse effects of fishing and other human-induced mortality on this population are necessary.

The most recent 5-year ESA sea turtle status review (NMFS & USFWS 1995) highlights the difficulty of assessing sea turtle population sizes and trends. Most long-term data comes from nesting beaches, many of which occur extensively in areas outside U.S. waters. Because of this lack of information, the TEWG was unable to determine acceptable levels of mortality. This status review supports the conclusion of the TEWG that the northern subpopulation may be experiencing a decline and that inadequate information is available to assess whether its status has changed since the initial listing as threatened in 1978. NMFS & USFWS (1995) concluded that loggerhead turtles should remain designated threatened but noted that additional research will be necessary before the next status review can be conducted.

Sea sampling data from the sink gillnet fisheries, Northeast otter trawl fishery, and Southeast shrimp and summer flounder bottom trawl fisheries indicate incidental takes of loggerhead turtles. Loggerheads are also known to interact with the lobster pot fishery. The degree of interaction between loggerheads and the summer flounder recreational fishery is unknown. However, by analogy with other fisheries (*i.e.*, South Atlantic) interactions are expected to be minimal.

#### **5.6.3.1.1.5 Leatherback Sea Turtle**

The leatherback is the largest living sea turtle and ranges farther than any other sea turtle species, exhibiting broad thermal tolerances (NMFS & USFWS 1995). Leatherback turtles feed primarily

on cnidarians (medusae, siphonophores) and tunicates (salps, pyrosomas) and are often found in association with jellyfish. These turtles are found throughout the management unit of this FMP. While they are predominantly pelagic, they occur annually in Cape Cod Bay and Narragansett Bay primarily during the fall. Leatherback turtles appear to be the most susceptible to entanglement in lobster gear and longline gear compared to the other sea turtles commonly found in the management unit. This may be the result of attraction to gelatinous organisms and algae that collect on buoys and buoy lines at or near the surface.

Nest counts are the only reliable population information available for leatherback turtles. Recent declines have been seen in the number of leatherbacks nesting worldwide (NMFS & USFWS 1995). The status review notes that it is unclear whether this observation is due to natural fluctuations or whether the population is at serious risk. It is unknown whether leatherback populations are stable, increasing, or declining, but it is certain that some nesting populations (e.g., St. John and St. Thomas, U.S. Virgin Islands) have been extirpated (NMFS 1998).

Sea sampling data from the southeast shrimp fishery indicate recorded takes of leatherback turtles. As noted above, leatherbacks are also known to interact with the lobster pot fishery. However, by analogy with other fisheries (i.e., South Atlantic) interactions are expected to be minimal.

#### **5.6.3.1.1.6 Kemp's Ridley Sea Turtle**

The Kemp's ridley is probably the most endangered of the world's sea turtle species. The only major nesting site for ridleys is a single stretch of beach near Rancho Nuevo, Tamaulipas, Mexico (Carr 1963). Estimates of the adult population reached a low of 1,050 in 1985, but increased to 3,000 individuals in 1997. First-time nesting adults have increased from 6% to 28% from 1981 to 1989, and from 23% to 41% from 1990 to 1994, indicating that the ridley population may be in the early stages of growth (TEWG 1998).

Juvenile Kemp's ridleys inhabit northeastern US coastal waters where they forage and grow in shallow coastal during the summer months. Juvenile ridleys migrate southward with autumnal cooling and are found predominantly in shallow coastal embayments along the Gulf Coast during the late fall and winter months.

Ridleys found in mid-Atlantic waters are primarily post-pelagic juveniles averaging 40 cm in carapace length, and weighing less than 20 kg (NMFS 1998). After loggerheads, they are the second most abundant sea turtle in Virginia and Maryland waters, arriving in there during May and June and then emigrating to more southerly waters from September to November (NMFS 1998). In the Chesapeake Bay, ridleys frequently forage in shallow embayments, particularly in areas supporting submerged aquatic vegetation (Lutcavage and Musick 1985; NMFS 1998). The juvenile population in Chesapeake Bay is estimated to be 211 to 1,083 turtles (NMFS 1998).

The model presented by Crouse *et al.* (1987) illustrates the importance of subadults to the stability of loggerhead populations and may have important implications for Kemp's ridleys. The vast majority of ridleys identified along the Atlantic Coast have been juveniles and subadults. Sources of mortality in this area include incidental takes in fishing gear, pollution and

marine habitat degradation, and other man-induced and natural causes. Loss of individuals in the Atlantic, therefore, may impede recovery of the Kemp's ridley sea turtle population.

Sea sampling data from the northeast otter trawl fishery and southeast shrimp and summer flounder bottom trawl fisheries has recorded takes of Kemp's ridley turtles. However, by analogy with other fisheries (i.e., South Atlantic) interactions are expected to be minimal.

#### **5.6.3.1.1.7 Green Sea Turtle**

Green sea turtles are more tropical in distribution than loggerheads, and are generally found in waters between the northern and southern 20°C isotherms (NMFS 1998). In the western Atlantic region, the summer developmental habitat encompasses estuarine and coastal waters as far north as Long Island Sound, Chesapeake Bay, and the North Carolina sounds, and south throughout the tropics (NMFS 1998). Most of the individuals reported in U.S. waters are immature (NMFS 1998). Green sea turtles found north of Florida during the summer must return to southern waters in autumn or risk the adverse effects of cold temperatures.

There is evidence that green turtle nesting has been on the increase during the past decade. For example, increased nesting has been observed along the Atlantic coast of Florida on beaches where only loggerhead nesting was observed in the past (NMFS 1998). Recent population estimates for the western Atlantic area are not available. Green turtles are threatened by incidental captures in fisheries, pollution and marine habitat degradation, destruction/disturbance of nesting beaches, and other sources of man-induced and natural mortality.

Juvenile green sea turtles occupy pelagic habitats after leaving the nesting beach. At approximately 20 to 25 cm carapace length, juveniles leave pelagic habitats, and enter benthic foraging areas, shifting to a chiefly herbivorous diet (NMFS 1998). Post-pelagic green turtles feed primarily on sea grasses and benthic algae, but also consume jellyfish, salps, and sponges. Known feeding habitats along U.S. coasts of the western Atlantic include shallow lagoons and embayments in Florida, and similar shallow inshore areas elsewhere (NMFS 1998).

Sea sampling data from the scallop dredge fishery and southeast shrimp and summer flounder bottom trawl fisheries have recorded incidental takes of green turtles. However, by analogy with other fisheries (i.e., South Atlantic) interactions are expected to be minimal.

#### **5.6.3.1.1.8 Shortnose Sturgeon**

Shortnose sturgeon occur in large rivers along the western Atlantic coast from the St. Johns River, Florida (possibly extirpated from this system), to the Saint John River in New Brunswick, Canada. The species is anadromous in the southern portion of its range (i.e., south of Chesapeake Bay), while northern populations are amphidromous (NMFS 1998). Population sizes vary across the species' range with the smallest populations occurring in the Cape Fear and Merrimack Rivers and the largest populations in the Saint John and Hudson Rivers (Dadswell 1979; NMFS 1998).

Shortnose sturgeon are benthic and mainly inhabit the deep channel sections of large rivers. They feed on a variety of benthic and epibenthic invertebrates including molluscs, crustaceans (amphipods, chironomids, isopods), and oligochaete worms (Vladykov and Greeley 1963; Dadswell 1979). Shortnose sturgeon are long-lived (30 years) and mature at relatively old ages. In northern areas, males reach maturity at 5-10 years, while females reach sexual maturity between 7 and 13 years.

In the northern part of their range, shortnose sturgeon exhibit three distinct movement patterns that are associated with spawning, feeding, and overwintering periods. In spring, as water temperatures rise above 8° C, pre-spawning shortnose sturgeon move from overwintering grounds to spawning areas. Spawning occurs from mid/late April to mid/late May. Post-spawned sturgeon migrate downstream to feed throughout the summer.

As water temperatures decline below 8° C again in the fall, shortnose sturgeon move to overwintering concentration areas and exhibit little movement until water temperatures rise again in spring (NMFS 1998). Young-of-the-year shortnose sturgeon are believed to move downstream after hatching (NMFS 1998) but remain within freshwater habitats. Older juveniles tend to move downstream in fall and winter as water temperatures decline and the salt wedge recedes. Juveniles move upstream in spring and feed mostly in freshwater reaches during summer.

Shortnose sturgeon spawn in freshwater sections of rivers, typically below the first impassable barrier on the river (*e.g.*, dam). Spawning occurs over channel habitats containing gravel, rubble, or rock-cobble substrates (NMFS 1998). Additional environmental conditions associated with spawning activity include decreasing river discharge following the peak spring freshet, water temperatures ranging from 9 -12 C, and bottom water velocities of 0.4 - 0.7 m/sec (NMFS 1998).

#### **5.6.3.1.1.9 Seabirds**

Most of the following information about seabirds is taken from the Mid-Atlantic Regional Marine Research Program (1994) and Peterson (1963). Fulmars occur as far south as Virginia in late winter and early spring. Shearwaters, storm petrels (both Leach's and Wilson's), jaegers, skuas, and some terns pass through this region in their annual migrations. Gannets and phalaropes occur in the Mid-Atlantic during winter months. Nine species of gulls breed in eastern North America and occur in shelf waters off the northeastern US. These gulls include: glaucous, Iceland, great black-backed, herring, laughing, ring-billed, Bonaparte's and Sabine's gulls, and black-legged caduceus. Royal and sandwich terns are coastal inhabitants from Chesapeake Bay south to the Gulf of Mexico. The Roseate tern is listed as endangered under the ESA, while the Least tern is considered threatened (Safina pers. comm.). In addition, the bald eagle is listed as threatened under the ESA and is a bird of aquatic ecosystems.

Like marine mammals, seabirds are vulnerable to entanglement in commercial and recreational fishing gear. The interaction has not been quantified in the recreational fishery, but impacts are not considered significant. Human activities such as coastal development, habitat degradation and destruction, and the presence of organochlorine contaminants are considered the major threats to some seabird populations. Endangered, threatened or otherwise protected bird species,

including the roseate tern and piping plover, are unlikely to be impacted by the gear types employed in the recreational summer flounder fishery.

### **5.6.3.2 National Marine Sanctuaries**

In addition to the issue of general habitat degradation, several habitats within the summer flounder management unit are protected under the National Marine Sanctuaries Act of 1973. National marine sanctuaries are allowed to be established under the National Marine Sanctuaries Act of 1973. Currently, there are 11 designated marine sanctuaries that create a system that protects over 14,000 square miles (National Marine Sanctuary Program 1993).

There are two designated national marine sanctuaries in the area covered by the FMP: the Monitor National Marine Sanctuary off North Carolina, and the Stellwagen Bank National Marine Sanctuary off Massachusetts. There are currently five additional proposed sanctuaries, but only one, the Norfolk Canyon, is on the east coast. The Monitor National Marine Sanctuary was designated on January 30, 1975, under Title III of the Marine Protection, Research and Sanctuaries Act of 1972 (MPRSA). Implementing regulations (15 CFR 924) prohibit deploying any equipment in the Sanctuary, fishing activities which involve “anchoring in any manner, stopping, remaining, or drifting without power at any time” (924.3(a)), and trawling (924.3(h)). The Sanctuary is clearly designated on all National Ocean Service (NOS) charts by the caption “protected area.” This minimizes the potential for damage to the Sanctuary by fishing operations. Correspondence for this sanctuary should be addressed to: Monitor, NMS, NOAA Building 1519, Fort Eustis, VA 23604.

NOAA/NOS issued a proposed rule on February 8, 1991 (56 FR 5282) proposing designation under MPRSA of the Stellwagen Bank National Marine Sanctuary, in Federal waters between Cape Cod and Cape Ann, Massachusetts. On November 4, 1992, the Sanctuary was Congressionally designated. Implementing regulations (15 CFR 940) became effective March 1994. Commercial fishing is not specifically regulated by the Stellwagen Bank regulations. The regulations do however call for consultation between Federal agencies and the Secretary of Commerce on proposed agency actions in the vicinity of the Sanctuary that “may affect” sanctuary resources. Correspondence for this sanctuary should be addressed to: Stellwagen Bank NMS, 14 Union Street, Plymouth, MA 02360.

Details on sanctuary regulations may be obtained from the Chief, Sanctuaries and Resources Division (SSMC4) Office of Ocean and Coastal Resource Management, NOAA, 1305 East-West Highway, Silver Spring, MD 20910.

### **5.6.3.3 Indian Treaty Fishing Rights**

No Indian treaty fishing rights are known to exist in the fishery.

### **5.6.3.4 Oil, Gas, Mineral, and Deep Water Port Development**

While Outer Continental Shelf (OCS) development plans may involve areas overlapping those contemplated for offshore fishery management, no major conflicts have been identified to date. The Councils, through involvement in the Intergovernmental Planning Program of the MMS,

monitor OCS activities and have opportunity to comment and to advise MMS of the Councils' activities. Certainly, the potential for conflict exists if communication between interests is not maintained or appreciation of each other's efforts is lacking. Potential conflicts include, from a fishery management position: (1) exclusion areas, (2) adverse impacts to sensitive biologically important areas, (3) oil contamination, (4) substrate hazards to conventional fishing gear, and (5) competition for crews and harbor space. The Councils are unaware of pending deep water port plans which would directly impact offshore fishery management goals in the areas under consideration, and are unaware of potential effects of offshore FMPs upon future development of deep water port facilities.

#### **5.6.3.5 Paper Work Reduction Act of 1995**

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

The Council is not proposing measures under this regulatory action that require review under PRA. There are no changes to 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 vessel permit for summer flounder, scup, or 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.

#### **5.6.3.6 Impacts of the Plan Relative to Federalism**

The Framework action does not contain policies with federalism implications sufficient to warrant preparation of a federalism assessment under Executive Order 12612.

### **5.6.4 State, Local, and Other Applicable Law and Policies**

#### **5.6.4.1 State Management Activities**

This Framework action will apply to all states from Maine to North Carolina. This includes Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Potomac River Fisheries Commission, Maryland, Virginia, and North Carolina,.

### **Compliance**

The Commission has established compliance criteria as a part of the interstate management process for summer flounder. This Framework action only modifies the compliance criteria that

pertain to the summer flounder recreational fishery. The following compliance criteria that are listed in the previous amendments will remain unchanged:

- Commercial size limits and mesh requirements
- Commercial quota provisions
- Commercial fishery closure ability
- Recreational harvest limit
- Permit and reporting requirements
- Area closures
- Gear restrictions

This Framework action establishes the following compliance criteria:

- All states must implement recreational size limits, recreational possession limits, and recreational seasonal limits in order to achieve a conservation equivalent management program as determined by the Management Board and Council.
- All states must implement either a state-specific conservation equivalent management program or a specific coastwide measures to achieve the coastwide recreational harvest limit. The Management Board and Council will decide annually which approach is to be taken. If it is decided that state-specific management measures were to be used in a given year, states could only use state-specific measure, not a coastwide alternative.
- States can only implement conservation equivalent management measures that have been approved by the Summer Flounder, Scup, and Black Sea Bass Management Board.

Compliance with Commission management plans is reviewed annually by the Management Board and Plan Review Team through a process outlined in the Interstate Fisheries Management Program (ISFMP) Charter. Each year, the Plan Review Team prepares an FMP status report that documents landings and compliance for each state. If a state is out of compliance with the required management measures the Team forwards a recommendation of non-compliance to the Management Board. The Board then reviews the recommendations of the Plan Review Team and, if it determines a state is out of compliance, forwards a recommendation of non-compliance to the ISFMP Policy Board. The Policy Board considers the recommendation and makes a final compliance determination.

States often voluntarily adopt management measures that are more restrictive than the federal management program.

#### **5.6.4.1.1 Compliance Reporting Contents and Schedules**

The Compliance reporting requirements will remain unchanged relative to Amendment 12 to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan.

#### **5.6.4.1.2 Procedures for Determining Compliance**

Procedures for determining a state's compliance with the provisions of a fishery management plan are contained in section 7 of the Interstate Fisheries Management Program Charter (ASMFC 1998). The following compliance determination will be done in addition to the

Summer Flounder, Scup, and Black Sea Bass FMP Monitoring Committee activities. The following represents compliance determination procedures as applied to this plan:

The Plan Review Team (PRT) will continually review the status of state implementation, and advise the Management Board at any time that a question arises concerning state compliance. The Plan Review Team will review state reports submitted under annually and prepare a report by August 1 for the Management Board summarizing the status of the resource and the fishery and the status of compliance on a state-by-state basis.

Upon review of a report from the PRT, or at any time by request from a member of the Management Board, the Management Board will review the status of an individual state's compliance. If the Management Board finds that a state's approved regulatory and management program fails to meet the requirements of this section, it may recommend that the state be found out of compliance. The recommendation must include a specific list of the state's deficiencies in implementing and enforcing the FMP and the actions that the state must take in order to come back in compliance.

If the Management Board recommends that a state be found out of compliance as referred to in the preceding paragraph, it shall report that recommendation to the ISFMP policy Board for further review according to the Commission's Charter for the Interstate Fisheries Management Program.

The State that is out of compliance or subject to a recommendation by the Management Board under the preceding subsection may request at any time that the Management Board reevaluate its program. The state shall provide a written statement concerning its actions which justify a reevaluation. The Management Board shall promptly conduct such reevaluation, and if it agrees with the state shall recommend to the ISFMP Policy Board and the Commission shall deal with the Management Board's recommendation according to the Commission's Charter for the Interstate Fisheries Management Program.

#### **5.6.4.1.3 Adaptive Management Process**

The Commission will participate in the framework process to adjust management measures. The Commission's Summer Flounder, Scup, and Black Sea Bass Management Board will attend all Council framework meetings. During the framework process the Management Board will solicit public participation by submitting all proposed changes to each interested state for public comment.

In accordance with the Commission's Interstate Fisheries Management Program Charter each fishery management plan may provide for changes within the management program to adapt to changing circumstances. Changes made under adaptive management shall be documented in writing through addenda to the fishery management plan. The Management Board shall in coordination with each relevant state, utilizing that states established public review process, ensure that the public has an opportunity to review and comment upon proposed adaptive management changes. The states shall adopt adaptive management changes through established legislative and regulatory procedures. However, the states may have a large range of procedures and time frames involved with adjusting and implementing fishery regulations.

#### **5.6.4.2 Impact of Federal Regulations on State Management Activities**

The action proposed in this framework is identical to that proposed by the Commission for the coastal states.

#### **5.6.4.3 Coastal Zone Management Program Consistency**

The Coastal Zone Management Act (CZM) of 1972, as amended, provides measures for ensuring stability of productive fishery habitat while striving to balance development pressures with social, economic, cultural, and other impacts on the coastal zone. It is recognized that responsible management of both coastal zones and fish stocks must involve mutually supportive goals.

The Council must determine whether the FMP will affect a state's coastal zone. If it will, the FMP must be evaluated relative to the state's approved CZM program to determine whether it is consistent to the maximum extent practicable. The states have 45 days in which to agree or disagree with the Councils' evaluation. If a state fails to respond within 45 days, the state's agreement may be presumed. If a state disagrees, the issue may be resolved through negotiation or, if that fails, by the Secretary.

The FMP will be reviewed relative to CZM programs of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina. Letters will be sent to all of the states listed along with a hearing draft of the FMP. The letters to all of the states will state that the Council concluded that the FMP would not affect the state's coastal zone and was consistent to the maximum extent practicable with the state's CZM program as understood by the Council.

### **6.0 COUNCIL REVIEW AND MONITORING OF THE FMP**

A complete description of council review and monitoring of the FMP can be found in Section 9.4.1 of Amendment 2. There is no additional information to modify this section at this time.

### **7.0 LIST OF PREPARERS**

This framework was prepared by the following members of the MAFMC staff: Dr. Christopher M. Moore, Valerie M. Whalon, José L. Montañez, and Richard J. Seagraves. Lou Chiarella of NMFS Habitat Division assisted in documenting the potential gear impacts to Summer Flounder, Scup, and Black Sea Bass EFH

### **8.0 AGENCIES AND ORGANIZATIONS**

In preparing this Framework action, the Council and ASMFC consulted with the NMFS, New England and South Atlantic Fishery Management Councils, Fish and Wildlife Service, Department of State, and the states of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and North Carolina through their membership on the Council. As noted in Section 5.6.4.3, states that are

members within the management unit will also be consulted through the Coastal Zone Management Program consistency process.

## 9.0 REFERENCES

- American Sportfishing Association (ASA). 1997. *1996 Sport Fishing Participation and Economic Impact*. <http://www.asafishing.org/economic/index.cfm>
- Anon. 1994. "Barnegat Light: Tiny Town A Constant Guiding Light For All" *Beacon*, October 27, 1994.
- Anon. 1998. "Glimpse at Gloucester" Gorton's. [http://www.gortons.com/lore\\_glimpse.html](http://www.gortons.com/lore_glimpse.html)
- Barlow, J., and P. J. Clapham. 1997. A new birth-interval approach to estimating demographic parameters of humpback whales. *Ecology*, 78: 535-546.
- Beck, H.C. 1963. *More Forgotten Towns of Southern New Jersey*. New Brunswick, NJ: Rutgers University Press, 1963.
- Blaylock, R.A., J.W. Hain, L.J. Hansen, D.L. Palka, and G.T. Waring. 1995. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments. NOAA Tech. Mem. NMFSSEFSC-363.
- Brielle Chamber of Commerce. 1994 "The Diamond Jubilee Souvenir Booklet: Brielle 1919-1994"
- Clark, C.W. 1995. Application of U.S. Navy underwater hydrophone arrays for scientific research on whales. *Rep. Int. Whal. Commn.* 45: 210-212.
- Carr, A.F. 1963. Panspecific convergence in *Lepidochelys kempii*. *Ergebn. Biol.*, 26: 298-303.
- Crouse, D.T., L.B. Crowder, H. Caswell. 1987. A stage based population model for loggerhead sea turtles and implications for conservation. *Ecology* 68(5):1412-1423.
- Dadswell, M.J. 1979. Biology and population characteristics of the shortnose sturgeon, *Acipenser brevirostrum*, LeSueur 1818 (Osteichthyes: Acipenseridae), in the Saint John River Estuary, New Brunswick, Canada. *Can. J. Zool.* 57:2186-2210.
- Doeringer, P.B., P.I. Moss, and D.G. Terkla 1986. "Capitalism and Kinship: Do Institutions Matter in the Labor Market?" *Industrial and Labor Relations Review* 40(1):48-60.
- Hain, J.H.W., M.J. Ratnaswamy, R.D. Kenney, and H.E. Winn. 1992. The fin whale, *Balaenoptera physalus*, in waters of the northeastern United States continental shelf. *Rep. Int. Whal. Comm.* 42: 653-669.
- Hall-Arber, M. 1996. "Hear me speak: Italian and Portuguese women facing fisheries management" *Anthropologica* 38(2):221-248.
- Howell Cutchin, J. 1997. "Wanchese: The Outer Banks best kept secret" <http://www.talking-pages.com/villages/wanchese>

Hurley, J. 1958. "An Angler Deliberately Releasing a Blue Marlin!" New York Mirror.

The Institute for Coastal and Marine Resources and the Department of Sociology (ICMRD). . 1993. *Coastal North Carolina Socioeconomic Study*, East Carolina University. US Department of the Interior.

Katona, S.K., and J.A. Beard. 1990. Population size, migrations, and feeding aggregations of the humpback whale (*Megaptera novaeangliae*) in the Western North Atlantic Ocean. Rep. Int. Whal. Comm., Special Issue 12: 295-306.

Knowlton, A.R., S.D. Kraus, and R.D. Kenney. 1994. Reproduction in North Atlantic right whales (*Eubalaena glacialis*). Can. J. Zool. 72: 1297-1305.

Lutcavage, M. and J.A. Musick. 1985. Aspects of the biology of sea turtles in Virginia. Copeia 1985(2):449-456.

Massachusetts Department of Housing and Community Development. 1997. "New Bedford, Bristol County: Narrative" Community Profiles, Newbedford.com, New Bedford, MA <http://www.newbedford.com/>

McCay, B. 1993.

McCay, B. and M. Cieri. 2000. Fishing Ports of the Mid-Atlantic. Department of Human Ecology, Cook College, Rutgers the State University, New Brunswick, NJ. Prepared for Mid-Atlantic Fishery Management Council, Dover, DE.

MAFMC (Mid-Atlantic Fisheries Management Council). 1988. Fishery management plan for the summer flounder fishery. Dover, DE. 157 p. + append.

Monmouth County Department of Public Information & Tourism and the Department of Economic Development. 1998. *Discover Monmouth County*, Volume 10.

National Marine Fisheries Service. 1998. Endangered Species Act Section 7 consultation, biological opinion, and conference. Consultation in accordance with Section 7(a) of the Endangered Species Act Regarding the Federal Monkfish Fishery. National Marine Fisheries Service, Northeast Regional Office, Gloucester, MA. December 21, 1998.

National Marine Fisheries Service 1991. Final recovery plan for the northern right whale (*Eubalaena glacialis*). Prepared by the Right Whale Recovery Team for the National Marine Fisheries Service. 86 pp.

National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1995. Status reviews for sea turtles listed under the Endangered Species Act of 1973. NMFS, Silver Spring, Maryland. 139 p.

NOAA. 1996. An appraisal of the social and cultural aspects of the multispecies groundfish fishery in New England and the Mid-Atlantic regions. Silver Spring, MD

New Jersey Department of Agriculture. 1995 “The Status and Condition of New Jersey’s Marine Fisheries and Seafood Industries: Charting a Course For the Future.” New Jersey Department of Agriculture.

New Jersey FishNet. 1997. “Fishing New Jersey (NJ)-Party Boats-Charter Boats-Tackle Shops-Fishing” Reports Finore Marketing Services <http://www.fishingnj>

Northeast Fisheries Science Center (NEFSC). 2000. Report of the 31<sup>st</sup> Northeast Regional Stock Assessment Workshop: Stock Assessment Review Committee Consensus Summary of Assessments. NEFSC Ref. Doc. 00-14, 00-15.

Packer, D. and S. Griesbach. 1998. Life History and Habitat Requirements of Summer Flounder, *Paralichthys dentatus*. USDC, NMFS, Highlands, NJ.

Rockland, D. 1983. An economic analysis of Delaware’s recreational/commercial conflict. Unpub. diss. Univ. of Delaware.

SFI (Sport Fishing Institute). 1988. Economic activity associated with marine recreational fishing in 1985. Volumes: I - National and regional estimates, II - State-level and species-level estimates, and III - Future participation in marine recreational fishing. Sport Fishing Institute, Washington, D.C.

Steimle, F., C. Zetlin, P. Berrien, D. Johnson, S. Chang, and the EFH Information Team. 1998a. FMP EFH Source Document: Scup, *Stenotomus chrysops* (Linnaeus 1766), Life History and Habitat Use in the Mid-Atlantic Bight. USDC, NMFS, Highlands, NJ.

Steimle, F., C. Zetlin, P. Berrien, D. Johnson, S. Chang, and the EFH Information Team. 1998b. FMP EFH Source Document: Black Sea Bass, *Centroprista striata* (Linnaeus), Life History and Habitat Use in the Mid-Atlantic Bight. USDC, NMFS, Highlands, NJ.

Steinback, S., and J. O’Neil. 1999. Summary report of methods and descriptive statistics for the 1994 northeast region marine recreational economic survey. NOAA, NMFS, NEFSC, Woods Hole, MA and Department of Marine Affairs, Univ of RI, Kingston, RI.

Swingle, W.M., S.G. Barco, T.D. Pitchford, W.A. McLellan, and D.A. Pabst. 1993. Appearance of juvenile humpback whales feeding in the nearshore waters of Virginia. Mar. Mamm. Sci. 9:309-315.

Turtle Expert Working Group. 1998. An assessment of the Kemp's ridley (*Lepidochelys kempii*) and loggerhead (*Caretta caretta*) sea turtle populations in the Western North Atlantic. NOAA Technical Memorandum NMFS-SEFSC-409. 96 pp.

United States Bureau of the Census. “1990 Census.” United States Census Bureau, <http://venus.census.gov/cdrom/lookup/900014093>

United States Fish and Wildlife Service (FWS). 1997. *1996 National Survey of Fishing, Hunting, and Wildlife Associated Recreation*. <http://www.census.gov/aprd/interiorfhw/tables.pdf>

Wilson, Douglas and Bonnie J. McCay. 1998 Social and Cultural Impact Assessment of the Highly Migratory Species Management Plan and the Amendment to the Atlantic Billfish Management Plan. Prepared for the Highly Migratory Species Office, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce, July 1998. New Brunswick, NJ: The Ecopolicy Center, Rutgers the State University.

Table 1. The predicted percent reductions associated with the 1999 coastwide management measures (15 inch minimum size limit, 8 fish possession limit, open season from May 29-September 11) based on 1998 landings (numbers of fish) data.

State	% Reduction for size and bag limit at 100% effectiveness	% State-specific effectiveness based on 1994-1998 average	Net % Reduction for bag and size limit <sup>a</sup>	State-specific seasonal reduction	Total Predicted Reduction <sup>b</sup>
Massachusetts	1.9	90.0	1.7	9.0	10.7
Rhode Island	13.6	91.5	12.4	8.3	20.7
Connecticut	11.4	90.7	10.3	10.1	20.4
New York	13.5	90.3	12.2	13.7	25.9
New Jersey	15.7	88.9	14.0	27.7	41.7
Delaware	11.5	90.5	10.4	12.2	22.6
Maryland	32.7	80.6	26.4	11.4	37.8
Virginia	8.3	93.0	7.7	14.0	21.7
North Carolina	55.8	65.1	36.3	33.3	69.6
<b>Coastwide<sup>c</sup></b>	<b>21.8</b>	<b>100.0</b>	<b>21.8</b>	<b>23.3</b>	<b>45.1</b>

<sup>a</sup> {Column 1\*(Column 2/100)}

<sup>b</sup> (Column 3+Column 4)

<sup>c</sup> Based on coastwide tables.

Table 2. Summer flounder recreational management measures for 1999 by state and the predicted and actual percent reduction in landings (number of fish) for each state in 1999 relative to 1998.

State	Minimum Size in inches	Possession Limit	Open Season	1998 Landings	1999 Landings	Predicted %	Actual %
Massachusetts	15	8	May 29 - Sept. 11	383,447	175,457	10.7	54.2
Rhode Island	15	8	May 29 - Sept. 11	394,907	432,087	20.7	-9.4
Connecticut	15	8	May 29 - Sept. 11	261,401	215,716	20.4	17.5
New York	16	8	Jan. 1 - Dec. 31	1,230,402	760,828	39.3	38.2
New Jersey	15.5	8	May 15 - Oct. 11	2,728,286	1,506,723	37.4	44.8
Delaware	15	8	Jan. 1 - July 14 Aug. 8 - Dec. 31	218,933	180,920	36.5	17.4
Maryland Bay Coastal	15 15.5	8 8	May 8 - Dec. 31 April 15 - Nov. 30	206,057	226,983	33.8 <sup>c</sup>	-10.2
Potomac River Fisheries Commission	15	4	May 1 - Dec. 31	N/A	N/A	N/A	N/A
Virginia	16	8	Jan. 1 - July 23 Aug. 1 - Dec. 31	1,164,527	379,048	38.7 <sup>d</sup>	67.5
North Carolina	15	8	Jan. 1 - Dec. 31	391,136	237,394	36.3	39.3
<b>Coastwide</b>	<b>15</b>	<b>8</b>	<b>May 29 - Sept. 11</b>	<b>6,979,096</b>	<b>4,115,156</b>	<b>45.1</b>	<b>41.1<sup>f</sup></b>

Source: MRFSS data.

<sup>a</sup> {(Bag and size limit reduction for state-specific effectiveness)+ season reduction }

<sup>b</sup> Negative sign means an increase in landings.

<sup>c</sup> Average of bay and coastal.

<sup>d</sup> Average of PRFC and Virginia.

<sup>e</sup> Based on coastwide tables.

<sup>f</sup> Based on actual reduction in numbers of fish.

N/A = Not Available

Table 3. NMFS recommendation for procedures under preferred alternative.

<b>August</b>	
Council/Board recommend recreational harvest limit.	
<b>October</b>	
MRFSS data available for current year through wave 4.	
<b>November</b>	
Monitoring Committee meeting to develop recommendations to Council:	
Overall % reduction required.	
Use of coastwide measures or state conservation equivalency.	
**Precautionary default measures.	
**Coastwide measures.	
<b>December</b>	
Council/Board meeting to make recommendation to NMFS	
State Conservation Equivalency.	
or	
Coastwide measures.	
<u>State Conservation Equivalency Measures</u>	-State specific conservation equivalency measures with precautionary default measures, or
<b>Late December</b>	-Coastwide measures.
Commission staff summarizes and distributes equivalency guideline to states.	
<b>Early January</b>	<u>Coastwide Measures</u>
Council staff submits recreational measure package to NMFS. Package includes:	<b>Early January</b>
Overall % reduction required.	Council staff submits recreational measure package to NMFS. Package includes:
- Recommendation to implement conservation equivalency and precautionary default measures (Preferred Alternative).	-Overall % reduction required.
-Coastwide measures (Non-preferred Alternative).	-Coastwide measures.
States submit conservation equivalency proposals to ASMFC.	<b>February 15</b>
<b>January 15</b>	NMFS publishes proposed rule for recreational measures announcing the overall % reduction required and Coastwide measures.
ASMFC distributes state conservation equivalency proposals to Technical Committee.	
<b>Late January</b>	<b>April</b>
ASMFC Technical Committee meeting:	NMFS publishes final rule announcing overall % reduction required and Coastwide measures.
-Evaluation of proposals.	
-ASMFC staff summarizes Technical Committee recommendations and distributes to Board.	
<b>February</b>	
Board meeting to approve/disapprove proposals and submits to NMFS within two weeks, but no later than end of February.	
<b>March 1 (on or around)</b>	
NMFS publishes proposed rule for recreational measures announcing the overall % reduction required, state conservation equivalency measures and precautionary default measures (as the preferred alternative), and coastwide measures as the non-preferred alternative.	
<b>March 15</b>	
During comment period, Board submits comment to inform whether conservation equivalency proposals are approved.	
<b>April</b>	
NMFS publishes final rule announcing overall % reduction required and one of the following scenarios:	

\*\*Precautionary default measures - measures to achieve at least the % required reduction in each state, e.g., one fish possession limit and 15.5 inch bag limit would have achieved at least a 41% reduction in landings for each state in 1999.

\*\*Coastwide measures - measure to achieve % reduction coastwide.

Table 4. The effect of various size and possession limits on 1998 summer flounder recreational landings by subregion. These subregion specific tables contain the proportional reduction in number of summer flounder landed assuming regulations are 100% effective.

**Northern Subregion  
Maine through Connecticut**

Bag	Size (TL inches)			
	-	15	15.5	16
1	0.675	0.687	0.693	0.712
2	0.438	0.475	0.488	0.541
3	0.288	0.335	0.383	0.461
4	0.195	0.253	0.309	0.409
5	0.134	0.200	0.265	0.381
6	0.084	0.165	0.235	0.360
7	0.058	0.138	0.210	0.346
8	0.037	0.117	0.195	0.337

**Central Subregion  
New York through Delaware**

Bag	Size (TL inches)			
	-	15	15.5	16
1	0.509	0.553	0.613	0.670
2	0.258	0.346	0.467	0.545
3	0.147	0.263	0.395	0.487
4	0.085	0.212	0.346	0.440

<b>5</b>	0.051	0.188	0.325	0.422
<b>6</b>	0.031	0.171	0.309	0.410
<b>7</b>	0.016	0.156	0.304	0.409
<b>8</b>	0.003	0.146	0.304	0.409

Table 4 (continued). The effect of various size and possession limits on 1998 summer flounder recreational landings by subregion. The subregion specific tables contain the proportional reduction in number of summer flounder landed assuming regulations are 100% effective.

**Southern Subregion  
Maryland through North Carolina**

<b>Bag</b>	<b>Size (TL inches)</b>			
	<b>-</b>	<b>15</b>	<b>15.5</b>	<b>16</b>
<b>1</b>	0.428	0.539	0.607	0.668
<b>2</b>	0.195	0.347	0.460	0.549
<b>3</b>	0.106	0.283	0.407	0.502
<b>4</b>	0.074	0.261	0.390	0.494
<b>5</b>	0.055	0.248	0.382	0.486
<b>6</b>	0.038	0.238	0.374	0.478
<b>7</b>	0.025	0.230	0.365	0.469
<b>8</b>	0.012	0.221	0.357	0.461

Table 5. Percent reduction (%) in landings associated with various closed season for summer flounder for each subregion.

<b>NORTHERN</b>	
<b>Closed Season</b>	<b>%</b>
January 1 - April 30	1.01
January 1 - May 26	4.79
January 1 - May 31	6.23
January 1 - June 30	24.05
August 1 - December 31	37.58
August 15 - December 31	19.52
September 1 - December 31	5.45
September 15 - December 31	1.31
<b>CENTRAL</b>	
<b>Closed Season</b>	<b>%</b>
January 1 - April 30	2.79
January 1 - May 26	8.13
January 1 - May 31	9.73
January 1 - June 14	15.49
September 1 - December 31	22.73
September 15 - December 31	13.72
October 1 - December 31	5.77
October 15 - December 31	2.27
<b>SOUTHERN</b>	
<b>Closed Season</b>	<b>%</b>
January 1 - March 31	2.22
January 1 - April 30	7.75
January 1 - May 26	17.57
January 1 - May 31	20.11
September 15 - December 31	9.78
October 1 - December 31	4.80
October 15 - December 31	2.55
November 1 - December 31	1.29

Table 6. The predicted reductions in landings (number of fish), associated with the proposed alternatives, based on a coastwide recreational harvest limit of 4,107,100 fish and 1998 landings.

<i>Description of Alternatives</i>		<i>state by state/ coastwide</i>	<i>subregional</i>	<i>state by state using subregional data</i>	<i>state by state quotas</i>	<i>coastwide</i>	<i>state by state or coastwide</i>
<b>State/ Subregion</b>	<b>1998 Landings (number of fish)</b>	<b>Preferred Alternative %</b>	<b>Non-preferred Alternative 1<sup>a</sup> %</b>	<b>Non-preferred Alternative 2 %</b>	<b>Non-preferred Alternative 3<sup>b</sup> %</b>	<b>Non-preferred Alternative 4<sup>c</sup> %</b>	<b>Non-preferred Alternative 5<sup>d</sup> %</b>
Massachusetts	383,447	41.0	48.4	41.0	86.0	10.7	10.7
Rhode Island	394,907	41.0	40.5	41.0	83.7	20.7	20.7
Connecticut	261,401	41.0	48.9	41.0	82.1	20.4	20.4
<b><i>Northern Subregion</i></b>			<b>43.8</b>				
New York	1,230,402	41.0	34.8	41.0	40.1	25.9	39.3
New Jersey	2,728,286	41.0	44.7	41.0	31.1	41.7	37.4
Delaware	218,933	41.0	28.9	41.0	20.3	22.6	36.5
<b><i>Central Subregion</i></b>			<b>44.3</b>				
Maryland	206,057	41.0	38.7	41.0	-24.8	37.8	33.8
Virginia	1,164,527	41.0	22.9	41.0	47.7	21.7	38.7
North Carolina	391,136	41.0	62.6	41.0	29.0	69.6	36.3
<b><i>Southern Subregion</i></b>			<b>42.7</b>				
<b>Coastwide<sup>e</sup></b>	<b>6,979,096</b>	<b>41.0<sup>e</sup></b>	<b>43.6<sup>f</sup></b>	<b>41.0<sup>e</sup></b>	<b>43.9<sup>e</sup></b>	<b>30.1<sup>e</sup></b>	<b>31.1<sup>e</sup></b>

Footnotes continued on next page.

Table 6 (continued). The predicted reductions in landings (number of fish), associated with the proposed alternatives, based on a coastwide recreational harvest limit of 4,107,100 fish and 1998 landings.

<sup>a</sup> These reductions were calculated using the sample subregional management measures relative to 1998. The reductions of subregional management measures in individual states were also calculated. The sample subregional management measures are as follows.

North Subregion: 15.5 inch size limit, 8 fish possession limit, closed season January 1 through May 26 and August 15 through December 31

Central Subregion: 15.5 inch size limit, 8 fish possession limit, closed season January 1 through May 26 and October 1 through December 31

South Subregion: 15.5 inch size limit, 8 fish possession limit, closed season January 1 through May 26 and October 1 through December 31

<sup>b</sup> Assumes a base period of 1988-1992 (Table 7).

<sup>c</sup> Assumes 1999 coastwide measures.

<sup>d</sup> Assumes 1999 management measures under current system of conservation equivalency (under the interim rule).

<sup>e</sup> Average of all states.

<sup>f</sup> Average of three subregions.

Table 7. Percentage of coastwide recreational landings, 1983-1992, 1988-1992, and 1998 for each state from Maine through North Carolina.

<b>State</b>	<b>1983-1992 (%)</b>	<b>1988-1992 (%)</b>	<b>1998 (%)</b>
Maine	0.00	0.00	0.00
New Hampshire	0.04	0.15	0.00
Massachusetts	2.57	1.31	5.49
Rhode Island	2.11	1.57	5.66
Connecticut	2.18	1.14	3.75
New York	16.39	17.95	17.63
New Jersey	47.42	45.79	39.09
Delaware	3.07	4.25	3.14
Maryland	4.11	6.26	2.95
Virginia	15.19	14.82	16.69
North Carolina	6.91	6.76	5.60
Total	100.00	100.00	100.00

Source: MRFSS data.

Table 8. Commercial and recreational landings of summer flounder ('000 lbs), Maine to North Carolina, 1980-1998.

<u>Year</u>	<u>Comm</u>	<u>Rec</u>	<u>Total</u>	<u>% Comm</u>	<u>% Rec</u>
1980	31,215	38,222	69,437	45.0%	55.0%
1981	21,056	10,081	31,137	67.6%	32.4%
1982	22,928	18,233	41,161	55.7%	44.3%
1983	29,549	27,970	57,518	51.4%	48.6%
1984	37,765	18,765	56,530	66.8%	33.2%
1985	32,353	12,490	44,843	72.1%	27.9%
1986	26,866	17,861	44,727	60.1%	39.9%
1987	27,053	12,167	39,220	69.0%	31.0%
1988	32,377	14,624	47,001	68.9%	31.1%
1989	17,913	3,158	21,071	85.0%	15.0%
1990	9,257	5,134	14,392	64.3%	35.7%
1991	13,722	7,960	21,681	63.3%	36.7%
1992	16,599	7,148	23,746	69.9%	30.1%
1993	12,599	7,680	20,279	62.1%	37.9%
1994	14,524	9,063	23,587	61.6%	38.4%
1995	15,382	5,503	20,885	73.7%	26.3%
1996	12,955	10,376	23,331	55.5%	44.5%
1997	8,807	11,857	20,664	42.6%	57.4%
1998	11,209	12,528	23,737	47.2%	52.8%
Avg 80-98	21,273	13,238	34,512	62.2%	37.8%

Source: NMFS Weighout data and MRFSS data.

Table 9. Number of summer flounder recreational fishing trips, recreational harvest limit, and recreational landings from 1991 to 2000.

<b>Year</b>	<b>Number of Fishing Trips<sup>a</sup></b>	<b>Recreational Harvest Limit (mill lbs)</b>	<b>Recreational Landings of Summer Flounder (mill lbs)<sup>b</sup></b>	<b>Recreational Landings of Summer Flounder (mill fish)<sup>b</sup></b>
1991	4,645,993	None	7.96	6.07
1992	3,751,815	None	7.15	5
1993	4,829,252	8.38	8.83	6.49
1994	5,761,918	10.67	9.33	6.7
1995	4,742,194	7.76	5.50	3.38
1996	5,086,347	7.41	10.38	7.38
1997	5,620,055	7.41	11.86	7.16
1998	5,296,982	7.41	12.53	6.98
1999	N/A	7.41	8.49	4.12
2000	N/A	7.41	N/A	N/A

Source: MRFSS data.

N/A=Not Available

<sup>a</sup> 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. Source: MRFSS.

<sup>b</sup> From Maine to North Carolina.

Table 10. The percent of summer flounder recreational harvested by area (Maine to North Carolina), 1990-1999.

Year	Harvested (A+B1) (number of fish)		Harvested (A+B1) (lbs)	
	% State < 3 mi	% EEZ > 3 mi	% State < 3 mi	% EEZ > 3 mi
1990	94.9	5.1	96.7	3.3
1991	96.4	3.6	97.2	2.8
1992	97.2	2.8	96.6	3.4
1993	97.3	2.7	97.4	2.6
1994	96.6	3.4	96.6	3.5
1995	95.9	4.1	95.9	4.1
1996	94.3	5.7	93.5	6.5
1997	90.8	9.2	90.7	9.3
1998	93.9	6.1	94.0	6.0
1999	88.0	12.0	88.4	11.6
Average	94.5	5.5	94.7	5.3

Source: MRFSS data.

Table 11. Recreational summer flounder landings (numbers) by state (Maine through North Carolina), 1990-1999.

	<u>ME</u>	<u>NH</u>	<u>MA</u>	<u>RI</u>	<u>CT</u>	<u>NY</u>	<u>NJ</u>	<u>DE</u>	<u>MD</u>	<u>VA</u>	<u>NC</u>	<u>Total</u>	<u>% of Total</u>
1990		25,688	31,587	40,720	17,707	975,947	1,460,301	135,538	173,874	420,960	511,263	3,793,585	7.06
1991		1,872	47,237	76,554	65,545	1,009,831	3,034,975	173,395	282,623	1,165,821	209,794	6,067,647	11.29
1992		-	55,828	72,514	109,418	458,211	2,799,076	286,281	321,133	692,865	206,781	5,002,107	9.31
1993	98	247	136,801	134,501	77,216	1,208,119	323,519	368,014	241,659	711,178	380,682	3,582,034	6.67
1994		59	164,939	174,284	316,007	1,855,451	2,826,431	230,479	81,715	665,152	388,172	6,702,689	12.47
1995		99	105,896	119,533	188,531	579,239	1,303,958	99,608	139,697	639,609	149,546	3,325,716	6.19
1996		-	89,002	357,247	282,054	788,024	3,324,028	480,946	153,580	1,175,389	346,717	6,996,987	13.02
1997			220,234	254,024	243,842	1,206,254	3,742,162	201,443	64,226	946,688	287,951	7,166,824	13.34
1998	-	-	383,447	394,907	261,401	1,230,402	2,728,286	218,933	206,057	1,164,527	391,136	6,979,096	12.99
1999		-	175,457	432,087	215,716	760,828	1,506,723	180,920	226,983	379,048	237,394	4,115,156	7.66
Total	98	27,965	1,410,428	2,056,371	1,777,437	10,072,306	23,049,459	2,375,557	1,891,547	7,961,237	3,109,436	53,731,841	
% of Total	0.00	0.05	2.62	3.83	3.31	18.75	42.90	4.42	3.52	14.82	5.79		

Source: MRFSS data.

Table 12. Recreational summer flounder landings (in number) by mode, 1990-1999.

	<u>Area</u>	<u>New England</u>	<u>Mid-Atlantic</u>	<u>North Carolina</u>	<u>Total</u>	<u>% of Total</u>
1990	Shore	16224	95802	149872	261898	7%
	Party/Charter	799	412429	14	413242	11%
	Private/Rental	98678	2658390	361377	3118445	82%
	Total	115701	3166621	511263	3793585	100%
1991	Shore	9434	505091	50878	565403	9%
	Party/Charter	8375	589002	231	597608	10%
	Private/Rental	173399	4572552	158685	4904636	81%
	Total	191208	5666645	209794	6067647	100%
1992	Shore	25623	199947	49903	275473	6%
	Party/Charter	954	374214	77	375245	8%
	Private/Rental	211183	3983404	156801	4351388	87%
	Total	237760	4557565	206781	5002106	100%
1993	Shore	37490	186643	118093	342226	5%
	Party/Charter	14110	999299	55	1013464	16%
	Private/Rental	297273	4578547	262535	5138355	79%
	Total	348873	5764489	380683	6494045	100%
1994	Shore	46806	216969	183408	447183	7%
	Party/Charter	24851	808740	2772	836363	12%
	Private/Rental	583633	4633519	201993	5419145	81%
	Total	655290	5659228	388173	6702691	100%
1995	Shore	19269	173040	49595	241904	7%
	Party/Charter	6991	259517	841	267349	8%
	Private/Rental	387799	2329554	99110	2816463	85%
	Total	414059	2762111	149546	3325716	100%
1996	Shore	22400	134104	50425	206929	3%
	Party/Charter	5051	650526	4301	659878	9%
	Private/Rental	700852	5137337	291991	6130180	88%
	Total	728303	5921967	346717	6996987	100%
1997	Shore	27467	195039	32560	255066	4%
	Party/Charter	21689	907185	1762	930636	13%
	Private/Rental	668945	5058548	253628	5981121	83%
	Total	718101	6160772	287950	7166823	100%
1998	Shore	43772	242872	29671	316315	5%
	Party/Charter	25952	332920	1904	360776	5%
	Private/Rental	970032	4972412	359561	6302005	90%
	Total	1039756	5548204	391136	6979096	100%
1999	Shore	34011	157323	22908	214242	5%
	Party/Charter	19376	281216	214	300806	7%
	Private/Rental	769873	2615963	214272	3600108	87%
	Total	823260	3054502	237394	4115156	100%
Total	Shore	282496	2106830	737313	3126639	6%
	Party/Charter	128148	5615048	12171	5755367	10%
	Private/Rental	4861667	40540226	2359953	47761846	84%
	Total	5272311	48262104	3109437	56643852	100%

Source: MRFSS data.

Table 13. The percentage (%) contribution of summer flounder to the total catch by party charter vessels, 1996-1998.

<b>STATE</b>	<b><u>JAN</u></b>	<b><u>FEB</u></b>	<b><u>MAR</u></b>	<b><u>APR</u></b>	<b><u>MAY</u></b>	<b><u>JUN</u></b>	<b><u>JUL</u></b>	<b><u>AUG</u></b>	<b><u>SEP</u></b>	<b><u>OCT</u></b>	<b><u>NOV</u></b>	<b><u>DEC</u></b>	<b><u>TOTAL</u></b>
CT	0.00	0.00	0.00	0.00	1.38	1.12	3.75	1.77	0.47	0.00	0.00		1.32
DE				0.01	10.43	13.86	3.72	12.74	7.15	2.06	0.12	0.00	5.72
ME		0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.22	0.06	0.00	0.00	0.04
MD	0.00	0.00	0.00	0.00	2.63	4.36	11.09	7.09	0.78	0.65	0.00	0.00	2.41
MA	0.00	0.00	0.00	0.00	0.01	0.43	2.57	0.59	0.22	0.00	0.00	0.00	0.61
NH				0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NJ	0.00	0.00	0.00	0.08	4.07	13.38	19.49	25.45	15.57	5.03	0.22	0.01	11.94
NY	0.00	0.00	0.20	0.47	49.01	51.63	56.40	42.17	16.63	3.74	0.78	0.00	32.81
NC	0.00	0.00	0.00	0.00	1.86	2.53	3.25	7.94	0.36	0.00	0.00		2.45
RI	0.00	0.00	0.00	0.00	1.58	9.88	15.13	2.23	0.84	0.01	0.33	0.00	3.45
VA			0.00	0.05	0.06	0.18	1.36	1.48	0.11	0.90	9.02	0.00	1.66
Total	0.00	0.00	0.02	0.09	13.09	19.39	22.65	18.97	12.91	3.89	0.63	0.01	13.37

Source: Vessel Trip Report data.

Table 14. Average total cost<sup>a</sup> for a day trip, by mode for selected states (1980-1989). Source: Adapted from Strand *et al.* 1991

State	Mode					
	Pier	Beach	Party	Charter	Rental	Private
New York	\$16.09	\$13.77	\$43.35	\$59.88	\$78.19	\$44.38
New Jersey	21.1	16.32	45.36	146.66	92.41	40.93
Delaware	34.15	44.44	69.69	73.66	<sup>b</sup>	40.33
Maryland	21.71	23.31	57.27	181.08	52.25	41.19
Virginia	20.14	15.2	36	74	122.47	44.5
North Carolina	24.85	18.69	137	222.81	237.03	53.03

<sup>a</sup> Travel and services (services might be composed of a combination of the following: costs for bait, tackle, cleaning, fuel, pier fees, and boat fees).

<sup>b</sup> Not enough observations for precise estimates.

Table 15. Average daily boat fuel sales (US\$). Figures are from July and August 1997, “Include Lag” column includes the day before a closure in the closed category.

Status	All Days	Weekends	Weekdays	Include Lag
Open	2510 N=30	4059 N=10	1736 N=20	2747 N=24
Closed	1677 N=32	2737 N=8	1324 N=24	1650 N=38

Source: Wilson and McCay 1998.

Table 16. Landings by gear type, Cape May, NJ, 1998.

GEAR TYPE: CAPE MAY, NJ	LBS. (%)	VALUE (%)
Handline	0.0	0.0
Longline, Pelagic	0.0	0.3
Otter Trawl, Fish	68.9	61.9
Otter Trawl, Scallop	0.5	7.7
Troll Line, Tuna	0.0	0.0
Gill Net, Sink	0.2	0.5
Gill Net, Drift	0.1	0.1
Purse Seine, Other	0.0	0.0
Purse Seine, Menhaden	23.9	6.7
Dredge, Scallop	0.9	15.4
Menhaden Trawl	3.4	0.6
Pots & Traps, fish	0.1	0.7
Pots & Traps, Conch	0.1	0.4
Pots & Traps, Lobster Offshore	0.2	2.6
Dredge, Crab	0.1	0.3
Dredge, SCOQ	1.4	2.9
Unknown	0.0	0.0

Total Landings, rounded, 1998: 87,244,700 lbs.

Total Value, rounded, 1998: \$25,757,200 dollars

Source: McCay and Cieri 2000.

Table 17. Landings by major species, Cape May, NJ, 1998.

MAJOR SPECIES: CAPE MAY, NJ	LBS. (%)	VALUE (%)
Atlantic Herring	2.9	1.0
Summer Flounder	0.9	3.9
Lobster	0.2	2.5
Atlantic Mackerel	20.9	8.2
Menhaden	24.1	6.8
Sea Scallop	1.1	21.9
Scup	1.7	6.1
Squid, Illex	34.1	16.9
Squid, Loligo	8.3	22.0
Surf Clam	1.4	2.9
Black Sea Bass	0.4	2.2

Number of Species: 69

Other species of MAFMC interest, by percentage of total value, 1998: Bluefish (0.2), Butterfish (0.5), Smooth dogfish (0.0), Spiny dogfish (0.1), Tilefish (0.0).

Source: McCay and Cieri 2000.

Table 18. Demographic profile of Wachapreague, VA.

Item	Number	Employment or value
Population*	313 persons	
Households*	159 households	
Pop. Aged >64*	41%	
Workforce*	106 persons	
Live and work in community*	32 persons	
Household income*		
Transfer income	40 percent	
Earned income	60 percent	
Fishery businesses		
Marinas	3	5 persons FTE**
Bait & tackle	2	4 persons FTE
Boat ramps	3	1 person FTE
Restaurants	3	12 persons FTE
Hotel	1	8 persons FTE
Fish dealers	2	3 persons FTE
Packinghouse	1	8 persons FTE
Grocery	1	3 persons FTE
Commercial boats (all)	25 approx.	(75 persons seasonally)
Homeported	5	15 persons FTE
Transients:		
Other VA.	14	
Out-of -State	6 approx.	
Charter boats (all)	15 approx.	(35 persons seasonally)
Homeported	7	9 persons FTE
Transients	8 approx.	
Recreational boats		
Year-round	40-50 approx.	
Commercial fish landings (all)	362,167 pounds (100%)	\$110,104 (100%)
Dogfish	236,000 pounds (65%)	\$44,480 (41%)

Source: McCay and Cieri 2000.

\* 1989 Bureau of Census data. All other information is for 1997.

\*\* FTE ~ full time equivalent employees; estimate of year round employment

Table 19. Charter and party boat survey distribution and returns, 1990.

<u>State</u>	<u>Number Sent</u>	<u>Usable Returns</u>	<u>Non-usable Returns</u>
ME	24	5	1
NH	21	5	-
MA	80	17	9
RI	15	7	2
CT	17	4	2
NY	92	24	3
NJ	159	51	6
PA	16	7	1
DE	14	3	-
MD	4	2	-
VA	143	44	5
NC	1	1	-
FL	6	2	1
Total	592	172	30

Table 20. Relative Customer Interest and Success in Catching Selected Species in 1989. (1 = Low, 2 = Somewhat Low, 3 = Moderate, 4 = Somewhat High, and 5 = High).

Species	Charter		Party	
	1985 (mean)	1989 (mean)	1985 (mean)	1989 (mean)
Large pelagics (marlin, tuna)	3.9	2.4	3.1	2.8
Sharks (other than dogfish)	3.2	2.4	2.1	1.9
Bluefish	3.9	3.9	4.6	4.0
Atlantic mackerel	2.4	3.0	3.5	3.5
Summer flounder	3.2	1.9	3.6	1.5
Scup	1.4	1.7	2.2	2.0
Black sea bass	2.1	2.6	3.2	2.9
Hakes	1.4	1.6	2.3	2.5
Groundfish (cod, haddock, yellowtail)	3.0	2.6	3.0	2.4
Weakfish	3.1	1.7	3.3	1.7
Striped bass	3.7	2.5	3.5	1.7
Other: spot	4.6	3.9	4.7	3.4

Table 21. Party and charter boat operating experience in 1985 and 1989.

	Charter		Party	
	1985 (mean)	1989 (mean)	1985 (mean)	1989 (mean)
Ave. number of trips per year	57.0	50.0	142.0	130.0
Ave. number of trips per day	1.0	1.0	1.3	1.4
Ave. number of days per trip	3.2	3.1	5.0	4.6
Ave. number of anglers per trip	5.2	5.1	20.9	19.5
Ave. trip price per customer (\$)	121.8	149.5	26.2	29.2
Ave. number of fish Taken per customer	10.9	8.3	15.2	9.9
Ave. number of crew members	1.4	1.4	2.1	2.0
Ave. cost of fuel & supplies (\$)	96.1	131.1	113.3	146.6

Table 22. Recreational anglers' ratings (mean) of reasons for marine fishing, by subregion.

Statement	New England			Mid-Atlantic		
	Not Important	Somewhat Important	Very Important	Not Important	Somewhat Important	Very Important
To Spend Quality Time with Friends and Family	4.4%	14.3%	81.3%	3.0%	12.0%	85.0%
To Enjoy Nature and the Outdoors	1.4%	10.1%	88.5%	1.1%	11.6%	87.3%
To Catch Fish to Eat	42.2%	37.4%	20.4%	29.3%	40.1%	30.6%
To Experience the Excitement or Challenge of Sport Fishing	6.2%	24.9%	68.8%	8.4%	26.0%	65.6%
To be Alone	55.0%	27.9%	17.1%	57.7%	25.8%	16.4%
To Relax and Escape from my Daily Routine	3.4%	13.3%	83.3%	2.6%	11.9%	85.5%
To Fish in a Tournament or when Citations are Available	78.6%	14.0%	7.4%	73.4%	17.1%	9.5%

Source: Steinback *et al.*, 1999.

Table 23. Recreational anglers' ratings (mean) of fishing regulation methods, by subregion.

Type of Regulation	New England		Mid-Atlantic	
	Support	Oppose	Support	Oppose
Limits on the Minimum Size of Fish You Can Keep	92.5%	7.5%	93.2%	6.8%
Limits on the Number of Fish You Can Keep	91.1%	8.9%	88.3%	11.7%
Limits on the Times of the Year When You Can Keep the Fish You Catch	78.8%	21.2%	77.1%	22.9%
Limits on the Areas You Can Fish	67.9%	32.1%	66.0%	34.0%

Source: Steinback *et al.*, 1999.

Table 24. Recreational anglers' ratings (mean) of fishing regulation methods, by mode.

Type of Regulation	Party/Charter		Private/Rental		Shore	
	Support	Oppose	Support	Oppose	Support	Oppose
Limits on the Minimum Size of Fish You Can Keep	92.1%	7.9%	94.4%	5.6%	90.1%	9.9%
Limits on the Number of Fish You Can Keep	87.9%	12.1%	90.0%	10.0%	87.7%	12.3%
Limits on the Times of the Year When You Can Keep the Fish You Catch	79.2%	20.8%	78.3%	21.7%	75.0%	25.0%
Limits on the Areas You Can Fish	74.4%	25.6%	65.9%	34.1%	63.6%	36.4%

Source: Steinback *et al.*, 1999.

Table 25. A comparison of the environmental impacts of the alternatives.

Alternative	Biological Impacts	Economic Impacts	Social Impacts
<p><b>Preferred Alternative:</b></p> <p>annual decision by the Council and Commission for (a) conservation equivalency by state for all states or (b) coastwide management measures</p>	<p><b>Positive:</b> will not alter rebuilding schedule, stock will be rebuilt</p>	<p><b>Positive:</b> 1) increase probability recreational harvest limit would be achieved, reduce overfishing, and continue rebuilding stock relative to current system; 2) allow states to deal with burden issues associated with coastwide measures; 3) allow states to operate during critical periods</p> <p><b>Negative:</b> 1) create confusion among anglers in adjacent ports with different regulations; 2) customers could patronize adjacent ports with less stringent rules</p>	<p><b>Positive:</b> 1) would allow states or sub-region to customize seasonal closures to meet specific regional cultural and social needs of the recreational summer flounder fishery; 2) long-term social benefits of rebuilt stock through a sustainable fishery</p> <p><b>Negative:</b> 1) create confusion among anglers in adjacent ports with different regulations; 2) customers could patronize adjacent ports with less stringent rules</p>
<p><b>Non-preferred Alternative 1:</b></p> <p>conservation equivalency by subregions</p>	<p><b>Positive:</b> will not alter rebuilding schedule, stock will be rebuilt</p>	<p><b>Positive:</b> 1) increase probability recreational harvest limit would be achieved, reduce overfishing, and continue rebuilding stock relative to current system; 2) allow subregions to deal with burden issues associated with coastwide measures; 3) allow subregions to operate during critical periods 4) more precise data sets; 5) same regulations in some adjacent ports</p> <p><b>Negative:</b> 1) create confusion among anglers in adjacent ports with different regulations; 2) customers could patronize adjacent ports with less stringent rules</p>	<p><b>Positive:</b> 1) would allow states or sub-region to customize seasonal closures to meet specific regional cultural and social needs of the recreational summer flounder fishery; 2) long-term social benefits of rebuilt stock through a sustainable fishery</p> <p><b>Negative:</b> 1) create confusion among anglers in adjacent ports with different regulations; 2) customers could patronize adjacent ports with less stringent rules</p>
<p><b>Non-preferred Alternative 2:</b></p> <p>conservation equivalency by state using subregional data</p>	<p><b>Positive:</b> will not alter rebuilding schedule, stock will be rebuilt</p>	<p><b>Positive:</b> 1) increase probability recreational harvest limit would be achieved, reduce overfishing, and continue rebuilding stock relative to current system; 2) allow states to deal with burden issues associated with coastwide measures; 3) allow states to operate during critical periods 4) more precise data sets; 5) same regulations in some adjacent ports</p> <p><b>Negative:</b> 1) create confusion among anglers in adjacent ports with different regulations; 2) customers could patronize adjacent ports with less stringent rules</p>	<p><b>Positive:</b> 1) would allow states or sub-region to customize seasonal closures to meet specific regional cultural and social needs of the recreational summer flounder fishery; 2) long-term social benefits of rebuilt stock through a sustainable fishery</p> <p><b>Negative:</b> 1) create confusion among anglers in adjacent ports with different regulations; 2) customers could patronize adjacent ports with less stringent rules</p>
<p><b>Non-preferred Alternative 3:</b></p> <p>state by state allocations</p>	<p><b>Positive:</b> will not alter rebuilding schedule, stock will be rebuilt</p>	<p><b>Positive:</b> 1) increase probability recreational harvest limit would be achieved, reduce overfishing, and continue rebuilding stock relative to current system; 2) give states more flexibility than coastwide system; 3) make states accountable for achieving allocation</p> <p><b>Negative:</b> 1) difficulty in choosing a reflective base period; 2) create confusion among anglers in adjacent ports with different regulations; 3) customers could patronize adjacent ports with less stringent rules</p>	<p><b>Positive:</b> 1) would allow states or sub-region to customize seasonal closures to meet specific regional cultural and social needs of the recreational summer flounder fishery; 2) long-term social benefits of rebuilt stock through a sustainable fishery</p> <p><b>Negative:</b> 1) create confusion among anglers in adjacent ports with different regulations; 2) customers could patronize adjacent ports with less stringent rules</p>
<p><b>Non-preferred Alternative 4 (no action alternative):</b></p> <p>coastwide management measures</p>	<p><b>Positive:</b> will not alter rebuilding schedule, stock will be rebuilt</p>	<p><b>Positive:</b> 1) reduces confusion among anglers over different management measures in adjacent states and subregions relative to current system; 2) reduce probability that customers would travel to different states seeking less stringent limits; 3) increase probability recreational harvest limit would be achieved, reduce overfishing, and continue rebuilding stock</p> <p><b>Negative:</b> 1) greater adverse short-term economic impact to some states because of inequitable closed seasons</p>	<p><b>Positive:</b> 1) could result in seasonal closures that are not equitable or don't meet the cultural and social needs of some states; 2) reduce confusion among anglers in adjacent ports with different regulations; 3) customers would not patronize adjacent ports with less stringent rules 4) long-term social benefits of rebuilt stock through a sustainable fishery</p>
<p><b>Non-preferred Alternative 5 (current system):</b></p> <p>states have choice of conservation equivalent or coastwide management measures</p>	<p><b>Negative:</b> greater probability of an overage of the recreational harvest limit, allow overfishing to continue, impede rebuilding the stock</p>	<p><b>Negative:</b> 1) increase the probability that the coastwide recreational harvest limit would be exceeded; 2) in short-term may result in more stringent limits; 3) in long-term - overfishing could impede rebuilding the stock; 4) may not constrain landings equally in each state</p>	<p><b>Negative:</b> 1) increase the probability that the coastwide recreational harvest limit would be exceeded, overfishing would impede rebuilding the stock and negative social impacts would result if rebuilding is slowed, or if the stock is not rebuilt</p>

Table 26. A comparison of the proportional standard error (PSE) for state and subregional recreational summer flounder landings (in numbers of fish) in 1998, Massachusetts-North Carolina. PSE expresses the standard error of the estimate as a percentage of the estimate and is a measure of precision.

<b>State</b>	<b>Landings</b>	<b>PSE</b>	<b>Subregion</b>	<b>Landings</b>	<b>PSE</b>
MA	383,447	12.8	North	1,039,755	8.5
RI	394,907	13.0			
CT	261,401	20.1			
NY	1,230,402	9.6	Central	4,177,621	6.4
NJ	2,728,286	8.8			
DE	218,933	11.4			
MD	206,057	16.0	South	1,761,450	6.3
VA	1,164,257	8.6			
NV	391,136	9.2			

Source: MRFSS data.

Note: The landings and PSEs are not available separately for PRFC, from Virginia.