

(2000) estimated that the total expenditure (direct economic impact) associated with the 1999 Pirates Cove Billfish Tournament, not including registration fees, was approximately \$2,072,518. The total expenditure (direct economic impact) associated with the 2000 Virginia Beach Red, White, and Blue Tournament was estimated at approximately \$450,359 (Thailing, *et al.*, 2001). These estimated direct expenditures do not include economic effects that may ripple through the local economy leading to a total impact exceeding that of the original purchases by anglers (*i.e.*, the multiplier effect). Less direct, but equally important, fishing tournaments may serve to generally promote the local tourist industry in coastal communities. In a survey of participants in the 1999 Pirates Cove Billfish Tournament, Ditton, *et al.*, (2000) found that almost 80 percent of tournament anglers were from outside of the tournament's county. For this reason, tourism bureaus, chambers of commerce, resorts, and state and local governments often sponsor fishing tournaments.

### **3.6 Community and Social Update**

According to National Standard 8 (NS 8), conservation and management measures should, consistent with conservation requirements, attempt to both provide for the continued participation of a community and, to the extent practicable, minimize the economic effects on the community. The information presented here addresses new data concerning the social and economic well-being of participants in the fishery and considers the impact of significant regulatory measures enacted in the past year.

#### **3.6.1 Overview of Current Information and Rationale**

The Magnuson-Stevens Act requires, among other things, that all FMPs include a fishery impact statement intended to assess, specify, and describe the likely effects of the measures on fishermen and fishing communities (§303(a)).

The National Environmental Policy Act (NEPA) also requires federal agencies to consider the interactions of natural and human environments by using a “systematic, interdisciplinary approach which will ensure the integrated use of the natural and social sciences...in planning and decision-making” (§102(2)(A)). Moreover, agencies need to address the aesthetic, historic, cultural, economic, social, or health effects which may be direct, indirect, or cumulative. Consideration of social impacts is a growing concern as fisheries experience increased participation and/or declines in stocks. The consequences of management actions need to be examined to better ascertain and, if necessary, mitigate impacts of regulations on affected constituents.

Social impacts are generally the consequences to human populations that follow from some type of public or private action. Those consequences may include alterations to the ways in which people live, work or play, relate to one another, and organize to meet their needs. In addition, cultural impacts which may involve changes in values and beliefs that affect people's way of identifying themselves within their occupation, communities, and society in general are included under this interpretation. Social impact analyses help determine the consequences of policy action in advance by comparing the status quo with the projected impacts. Although public hearings and scoping meetings provide input from those concerned with a particular action, they do not constitute a full overview of the fishery.

While geographic location is an important component of a fishing community, the transient nature of HMS may necessitate permitted fishermen to shift location in an attempt to follow the fish. Because of this characteristic, management measures for HMS often have the most identifiable impacts on fishing fleets that use specific gear types. The geographic concentrations of HMS fisheries may also vary from year to year as the behavior of these migratory fish is unpredictable. The relationship between these fleets, gear types, and geographic fishing communities is not always a direct one; however, they are important variables for understanding social and cultural impacts. As a result, the inclusion of typical community profiles in HMS management decisions is somewhat difficult as geographic factors and the use of a specific gear type have to be considered.

NMFS (2001) guidelines for social impact assessments specify that the following elements are utilized in the development of FMPs and FMP amendments:

1. The size and demographic characteristics of the fishery-related work force residing in the area; these determine demographic, income, and employment effects in relation to the work force as a whole, by community and region.
2. The cultural issues of attitudes, beliefs, and values of fishermen, fishery-related workers, other stakeholders, and their communities.
3. The effects of proposed actions on social structure and organization; that is, on the ability to provide necessary social support and services to families and communities.
4. The non-economic social aspects of the proposed action or policy; these include life-style issues, health and safety issues, and the non-consumptive and recreational use of living marine resources and their habitats.
5. The historical dependence on and participation in the fishery by fishermen and communities, reflected in the structure of fishing practices, income distribution and rights.

The information used in the 1999 FMP and the 1999 Billfish Amendment was obtained through a contract with Dr. Doug Wilson, from the Ecopolicy Center for Agriculture, Environmental and Resource Issues at Rutgers, the State University of New Jersey. Dr. Wilson and his colleagues completed their field work in July 1998. Their study considered HMS that have important commercial and recreational fisheries extending along the Atlantic and Gulf Coast from Maine to Texas and in the Caribbean. The study investigated the social and cultural characteristics of fishing communities in five states and one U.S. territory: Massachusetts, New Jersey, North Carolina, Florida, Louisiana, and Puerto Rico. These areas were selected because they each have important fishing communities that could be affected by measures included in the 1999 FMP and the 1999 Billfish Amendment, and because they are fairly evenly spread along the Atlantic and Gulf Coast and the Caribbean. For each state or territory, a profile of basic sociologic information was compiled, with at least two coastal communities visited for further analysis. Towns were selected based on HMS landings data, the relationship between the geographic communities and the fishing fleets, the existence of other community studies, and

inputs from the Advisory Panels for HMS and Billfish. Complete descriptions of the study results can be found in Chapter 9 of the 1999 FMP and Chapter 7 of the Billfish Amendment.

In 2002, NMFS contracted the Virginia Institute of Marine Science (VIMS) at the College of William and Mary to re-evaluate several of the baseline communities and, specifically, to determine if the 1999 HMS FMP had a negative social impact on the communities dependent upon HMS. The 2005 report provided a brief overview and examination of changes in social and economic structures of communities which land HMS. The analysis of change since the 1999 HMS FMP regulations were implemented was based on demographics, landings information, and informal interviews with individuals from three different communities. Some of the report's findings are incorporated into the community profiles in Chapter 9 of this document.

### **3.6.2 Social Impacts of Selected 2005 Regulatory Actions**

*Final Rule Implementing Atlantic Bluefin Tuna Quota Specifications for 2004 (70 CFR 43, March 7, 2005)*

This action set BFT quotas for each of the established domestic fishing categories and sets General category effort controls for the 2004 fishing year (June 1, 2004 – May 31, 2005) and established a catch-and-release provision, in addition to the tag-and release provision, for recreational and commercial BFT handgear vessels during a respective quota category closure.

The action was not expected to have any significant, positive or negative, social or economic impacts. The final action was expected to have modest positive social and economic impacts, by implementing the ICCAT-recommended adjusted BFT TAC for the United States in the western Atlantic management area of 1,489.6 mt. The action was not expected to have highly controversial effects on the human environment. There were no highly uncertain effects associated with this action due to the fact that the BFT fishery has been in operation for years. Thus, implementing the 2002 ICCAT BFT quota recommendation is consistent with the past, would not set a new precedence, and would provide positive economic impacts due to the application of the additional BFT quota. Although controversial issues associated with the BFT fishery remain, they are beyond the scope of this particular rulemaking and will be addressed in future regulatory and FMP amendments. The action is not expected to have substantial adverse impacts on public health and safety. Fishing activity or behavior would not change, although fishing effort may increase slightly as a result of this action.

*Final Rule Implementing Atlantic Bluefin Tuna Quota Specifications and General Category Effort Controls for 2005 (70 FR 108, June 7, 2005)*

This action set BFT quotas for each of the established domestic fishing categories and set General category effort controls for the 2005 fishing year (June 1, 2005 – May 31, 2006). NMFS also established the restricted fishing days to extend the General category BFT fishery into the late season for the southern Atlantic region. This action implemented the recommendations of the International Commission for the Conservation of Atlantic Tunas (ICCAT), as required by the Atlantic Tunas Convention Act, and were implemented to achieve domestic management objectives under the Magnuson-Stevens Fishery Conservation and Management Act.

NMFS prepared an EA for the final rule, concluding that the action is not expected to have any significant, positive or negative, social or economic impacts. The selected action was expected to have modest positive social and economic impacts, by implementing the ICCAT-recommended adjusted BFT TAC for the United States in the western Atlantic management area of 1,489.6 mt and is consistent with the ICCAT recommendation regarding the eight-percent tolerance of school BFT harvest. The action is not expected to be highly controversial on the human environment. There are no highly uncertain effects associated with this action due to the fact that the BFT fishery has been in operation for years. The action is not expected to have substantial adverse impacts on public health and safety. Fishing activity or behavior would not change, although fishing effort may increase slightly. For further background information, please see the Environmental Assessment and associated Final Regulatory Flexibility Analysis for this rule, [http://www.nmfs.noaa.gov/sfa/hms/Tuna/05\\_Specs\\_Final\\_EA.RIR.FRFA.0523.pdf](http://www.nmfs.noaa.gov/sfa/hms/Tuna/05_Specs_Final_EA.RIR.FRFA.0523.pdf).

### **3.6.3 Summary of New Social and Economic Data Available**

#### **3.6.3.1 2005 Social Science Publications**

The following two reports were delivered in 2005. An additional two reports, completing the community profiles for the Gulf of Mexico, are currently in peer review. Both reports are summarized in the abstract below.

Impact Assessment. 2005. *Identifying communities associated with the fishing industry in Alabama and Mississippi*. La Jolla, California. (NOAA-NMFS-Contract WC133F-02-SE-0297). p.661.

Impact Assessment. 2005. *Identifying communities associated with the fishing industry in Louisiana*. La Jolla, California. (NOAA-NMFS-Contract WC133F-02-SE-0297). p. 661.

*Abstract.* The research has been conducted for NOAA Fisheries Southeast Regional Office (SERO), in fulfillment of its goal to effectively manage the various fisheries upon which residents of certain towns and cities in the Gulf of Mexico have depended and/or continue to depend, to greater and lesser degrees, for economic and social purposes. A systematic methodology was developed to investigate and describe Gulf communities likely to exhibit some or all of the attributes of “fishing communities” as defined by the Magnuson-Stevens Fishery Conservation and Management Act as Amended (the Magnuson Act; MSFCMA), and by National Standard 8 (NS-8). The project methodology emphasized: (a) collection and geospatial analysis of various fishing license, landings, economic, and demographic attribute data, and (b) collection and analysis of a variety of descriptive economic and social data considered viable indicators of fishing community status. The scope of this study is quite large, encompassing 30 communities in three counties in Alabama, 14 communities in three counties in Mississippi, and 106 communities in Louisiana. The overarching goal of the project was to provide the information needed to make preliminary determinations about whether, or to what degree, each community fits the federal definition of “fishing community.” This report provides: (a) fisheries-relevant narrative description of historic and contemporary life in the study parishes, cities, and towns, (b) tabular and spatial description of fisheries infrastructure and services, and fleet characteristics specific to those study areas; and (c) preliminary assessment of the manner in, and degree to which, each study town or city does or does not approximate the National Standard 8 definition of fishing community. As the final version of these reports is being submitted

immediately following the passage of Hurricane Katrina in late August of 2005, the reports and associated data may also serve as a timely and accurate baseline for assessing the effects of the event on the study counties, cities, and towns, and their residents.

Jacob, S., M. Jepson, and F.L. Farmer. 2005. *What you see is not always what you get: Aspect dominance as a confounding factor in the determination of fishing dependent communities.* *Human Organization* 64(4):374-385.

*Abstract.* Many residents of coastal towns believe that they live in communities that are economically dependent upon commercial fishing. However, employment data indicate that fishing is a relatively minor economic component of many of these communities. We apply the concept of aspect dominance from the field of ecology to help explain this discrepancy. In addition we explore other forms of ecological dominance in regard to perceptions of fishing dependence. A key idea is that residents and sometimes researchers confuse forms of ecological dominance with economic dependence. Our study relied upon secondary and key informant data for six Florida coastal communities. In addition, we conducted a random telephone sample with 1,200 residents of these villages to establish their perceptions of the importance of commercial fishing to their communities.

Sutton, S.G., and R.B. Ditton. 2005. *The substitutability of one type of fishing for another.* *North American Journal of Fisheries Management* 25:536-546.

*Abstract.* We investigated the willingness of saltwater anglers in Florida and Texas to substitute other types of fishing for the type of fishing they most preferred. Anglers were asked if there was a suitable substitute for their most preferred species and, if so, what species would provide them with the same satisfaction and enjoyment as their most preferred species at the same cost. Most anglers (86 percent) reported that other species would provide acceptable substitutes for their preferred species and were able to identify acceptable substitutes from a list of common saltwater species in Texas and Florida. Logistic regression was used to determine the effects of demographic and fishing participation variables on willingness to substitute. Willingness to substitute was positively related to years of education and negatively related to age and the importance placed on trophy-seeking experiences. Also, females were more willing to substitute than males. Results suggest that for some species substitution behavior in response to biologically or managerially imposed constraints on fishing activity could result in increased effort for other species in the saltwater fisheries of Texas and Florida.

### **3.6.3.2 Summary of Social Data and Information for FEIS**

This document consolidates all of the community profiles from previous HMS management plans or amendments and updates the community information, where possible. To ensure continuity with the 1999 HMS FMP and previous amendments, if a community was selected and described as being involved with an HMS fishery, the same community was included in this assessment. The communities profiled were originally selected due to the proportion of HMS landings, the relationship between the geographic communities and the fishing fleets, the existence of other community studies, and input from the HMS and Billfish Advisory Panels. The communities selected for detailed study are Gloucester and New Bedford, Massachusetts; Barnegat Light and Brielle, New Jersey; Wanchese, and Hatteras Township, North Carolina; Pompano Beach, Fort Pierce, Madeira Beach, Panama City Beach, and Islamorada, Florida; Boothville/Venice and Dulac, Louisiana; and Arecibo, Puerto Rico. These

communities are not intended to be an exhaustive list of every HMS-related community in the United States; rather the objective is to give a broad perspective of representative areas.

The demographic profiles in this document have been modified to include the same baseline information for each community profiled; as a result, most of the tables include more information than portrayed in the 1999 HMS FMP and its amendments. The demographic tables still use both 1990 and 2000 Bureau of the Census data for comparative purposes. The descriptive community profiles include the same information provided by the Wilson, *et al.*, (1998) and Kirkley (2005) analyses with some new information provided by Impact Assessment, Inc (2004) on the Gulf of Mexico communities. Unlike the Wilson, *et al.*, (1998) study used in the 1999 HMS FMP, it was not possible to undertake field research for this assessment.

This assessment also reviewed the HMS permit databases to incorporate information about residence. This information was also used to identify additional HMS-related fishing communities that should be profiled in the future. Six GIS maps were generated to identify the communities where angler, charter/headboat, HMS dealers (tunas, shark, and swordfish combined), commercial tuna (all gear categories combined), directed and incidental shark, and swordfish (directed, incidental, and handgear combined) permit holders reside (Figure 9.1 to Figure 9.6). In past community profile and social impact analyses, it was difficult to identify where recreational HMS fishermen were located because no data were available for the number of recreational fishermen, as well as recreational landings by community. Previous social impact assessments report on charter fishing operations, fishing tournaments, and related activities to identify the scope of recreational fishing for each of the communities described. The information provided by the HMS permit databases should facilitate the identification of recreational HMS communities that should be profiled in the future.

### **3.6.3.3 HMS Community Profile Needs**

For future social impact analyses, the HMS permit databases, landings information, and HMS APs should be consulted to determine the most appropriate community profiles for HMS-related fisheries. The 2005 HMS permit data indicate that several new community profiles should be developed and some of the previously profiled communities may no longer be as significantly involved in the fishery as they were in the past (Figure 9.1 to Figure 9.6). Wakefield, Rhode Island should be considered due to the number of commercial tuna and swordfish permit holders in the area. Montauk, New York has a large concentration of charter/headboat, commercial tuna, and HMS dealer permit holders in the community. A large number of Cape May, New Jersey residents hold an HMS angling, charter/headboat, shark and/or swordfish permits. Morehead City, North Carolina is home to a number of HMS angling, charter/headboat, and commercial tuna permit holders. Each of these towns is actively involved with more than one sector of the HMS fisheries and therefore be impacted by any changes to HMS regulations.

While the permit holders in Puerto Rico and the Virgin Islands are not as numerous as the permit holders on the U.S. mainland, HMS fisheries are active in these two areas and several of the communities benefit from those activities. Due to the number of HMS permit holders in these areas, future HMS actions should consider developing community profiles for Christiansted, St. Croix, as well as San Juan, Guaynabo, Aguadilla, Mayaguez, and/or Vega Baja,

Puerto Rico. While NMFS may have community profiles describing these areas, an HMS-specific community profile should be developed for these towns to best determine the impact of changes to HMS-related regulations.

### **3.7 International Trade and Fish Processing**

Several regional fishery management organizations (RFMOs) including ICCAT have taken steps to improve collection of international trade data to further international conservation policy for management of HMS. While RFMOs cannot re-create information about stock production based on trade data, this information can be used provisionally to estimate landings related to these fisheries, and to identify potential compliance problems with certain ICCAT management measures. United States participation in HMS related international trade programs, as well as a review of trade activity, is discussed in this section. This section also includes a review of the available information on the processing industry for Atlantic HMS species.

#### **3.7.1 Overview of International Trade for Atlantic HMS**

##### **3.7.1.1 Trade Monitoring**

The United States collects general trade monitoring data through the U.S. Bureau of Customs and Border Protection (CBP; imports) and the U.S. Bureau of the Census (Census Bureau; exports and imports). These programs collect data on the amount and value of imports and exports categorized under the Harmonized Tariff Schedule (HTS). Many HMS have distinct HTS codes, and some species are further subdivided by product (*e.g.* fresh or frozen, fillets, steaks, etc.). NMFS provides Census Bureau trade data for marine fish products online for the public at <http://www.st.nmfs.gov/st1/trade/index.html>. Some species, such as sharks, are grouped together, which can limit the value of these data for fisheries management when species specific information is needed. These data are further limited since the ocean area of origin for each product is not distinguished. For example, the HTS code for Atlantic, Pacific, and even Indian Ocean bigeye tuna is the same.

Trade data for Atlantic HMS are of more use as a conservation tool when they indicate the flag of the harvesting vessel, the ocean of origin, and the species for each transaction. Under the authority of ATCA and the Magnuson-Stevens Act, NMFS collects this information while monitoring international trade of bluefin tuna, swordfish, southern bluefin tuna, and frozen bigeye tuna. These programs implement ICCAT recommendations and support rebuilding efforts by collecting data necessary to identify nations and individuals that may be fishing in a manner that diminishes the effectiveness of ICCAT fishery conservation and management measures. Copies of all trade monitoring documents associated with these programs may be found on the NMFS HMS Management Division webpage at <http://www.nmfs.noaa.gov/sfa/hms/>. These and several other trade monitoring programs established by NMFS for HMS are described in further detail below.

##### **3.7.1.2 Bluefin Tuna Statistical Document**

The trade of bluefin tuna is tracked internationally as a result of the ICCAT recommendation to implement the Bluefin Statistical Document (BSD) program