Involvement of State Fishery Managers in White Marlin Conservation: A Case Study

Jill T. Stevenson, *Maryland Department of Natural Resources, Fisheries Service, 580 Taylor Avenue, Tawes States Office Building, B-2, Annapolis, MD 21401*

Abstract: The Maryland Department of Natural Resources, Fisheries Service, is charged with stewardship of coastal and inland fishery resources and management of fishermen who fish in our waters. Maryland's involvement in fishery management is not restricted only to state waters. We also have been actively involved in influencing national and international fisheries policy for Atlantic white marlin *(Tetrapturus albidus),* particularly in 2002. The effort is two-fold; it utilizes traditional methods of fishery management through an advisory process and, in later years, has included non-traditional processes including partnerships with fishing organizations and environmental advocacy groups. In the future, state fishery managers could consider additional non-traditional strategies such as requesting protection for white marlin under the Convention for the International Trade of Endangered Species and through information exchange programs with small developing coastal nations. This paper discusses our experience regarding white marlin management in 2002 and explores further opportunities for state fishery managers to influence international fishery management policy. I conclude that state fishery managers can work most effectively in non-traditional fishery management processes, i.e., through formal and informal mechanisms, by forming partnerships with user groups that share common goals and with the intention of influencing domestic and international fish conservation and management.

Proc. Annu. Conf. Southeast Assoc. Fish and Wildl. Agencies 56:95–104

Part of the mission of Maryland's Fisheries Service is to manage for sustainable fishery resources, resources that include freshwater impoundments and streams, tidal rivers, and coastal bays. These resources also include management of species in offshore waters along the Maryland coast, species anglers seek when they flock to the "White Marlin Capital of the World" in Ocean City, Maryland.

The offshore recreational fishery in Maryland targets many species in addition to white marlin, including yellowfin *(Thunnus albacares)* and bluefin tuna *(Thunnus thynnus),* blue marlin *(Makaira nigricans),* and several species of large coastal, small coastal, and pelagic sharks. In addition, dolphinfish (mahi; *Coraphaena hippurus*) and wahoo *(Acanthocybium solanderi)* are also caught. Of all these species, marlins, due to their jumping abilities and strength, are among the most prized fish species for offshore Maryland anglers. White marlin, in particular, is a cultural icon for the offshore fishing community.

Why Should Maryland Fishery Managers Get Involved?

Participation in management of white marlin by Maryland fishery managers initially seemed contradictory: no marlin fishing takes place in Maryland's state waters, no state fishing license is required for retaining marlin, and no commercial sale is allowed of the species. The Federal government is responsible for management of this fishery. However, Maryland fishery managers have focused attention on this unique resource due largely to the declining stock biomass, high levels of fishing mortality, and the social and economic value of the recreational fishery.

The overfishing of white marlin encourages all interested parties to devote resources to long-term conservation and development of a sustainable fishery. The white marlin stock is severely overfished; the population is thought to be at approximately 12% of the target biomass level. More importantly, overfishing continues to occur at high levels (8 times the target fishing mortality rate; Standing Comm. for Res. and Stat. 2002). This occurs in spite of the fact that white marlin are largely considered incidental catch in targeted longline and purse seine fisheries for tunas and swordfish. Due to the relatively low productivity of white marlin, fishing effort on this species potentially could continue at a sustainable level on the target species (tunas and swordfish) while having a detrimental effect on white marlin. Maryland fishery managers, like others coast wide, are concerned about the status of this species and seek adequate protection of the resource.

While it is difficult to evaluate the value of the white marlin recreational fishery to Maryland because anglers catch a range of species (e.g., billfish and tunas) while trolling offshore, we do know that anglers who target billfish are experienced (Ditton and Stoll in press). This commitment to angling translates into a willingness to pay for the experience. In Texas, billfish anglers fished twice as frequently as other licensed saltwater anglers and spent more money than other anglers and tourists in general (Ditton and Stoll in press). Along the Atlantic coast, the economic value of billfishing has been estimated at $19 million (Ditton and Stoll in press). Maryland's coastal communities rely on the income generated by this natural resource and the opportunity it provides for recreation and tourism.

Maryland fishery managers and those from other states routinely participate in traditional domestic management processes established by the National Marine Fisheries Service (NMFS). We have also recently participated in non-traditional fishery management activities such as partnering with environmental advocacy and fishing organizations to achieve specific goals.

Maryland's Involvement in Traditional Fishery Management of White Marlin in the Past

Atlantic white marlin are managed throughout their range by a regional fishery management organization, the International Commission for the Conservation of Atlantic Tunas (ICCAT), comprised of approximately 34 member countries/entities. The ICCAT meets annually to assess the status of the stocks in its purview, develop

and adopt conservation and management recommendations that are binding for all members, and evaluate compliance with previously implemented management measures. The ICCAT also adopts non-binding resolutions.

The NMFS has established the ICCAT Advisory Committee, which is comprised of members of the public and state fishery managers. Members provide input on the development of the U.S. position in anticipation of international negotiations that occur annually at the ICCAT meeting. Maryland fishery officials often participate in the activities of this advisory committee, setting research priorities and identifying issues of concern through participation in Species Working Groups. However, the Committee has no authority to shape U.S. foreign policy and while state agency representatives participate in the public process of ICCAT through membership on the Committee, they seldom attend ICCAT meetings and therefore do not have the opportunity to discuss their conservation goals directly with members of international delegations. It is therefore crucial that state fishery management officials effectively convey their concerns to NMFS representatives in some other fashion.

Once NMFS fishery managers return from the annual ICCAT meeting they endeavor to implement international recommendations under domestic management procedures, including under the framework of fishery management plans (e.g., Atlantic Billfish Fishery Management Plan). State fishery managers routinely participate in this domestic management process, as members of the Atlantic Billfish Advisory Panel. Neither the ICCAT Advisory Committee nor the Billfish Advisory Panel has authority to implement management measures.

On various issues, state fishery managers generally have been successful influencing domestic fishery management through involvement in advisory bodies, diligent efforts to comment on Federal budget formulation, and participation in constituent workshops. However, coast-wide, state fishery managers are not as experienced at non-traditional ways to achieve conservation and management goals such as partnering with other states and organizations to raise awareness of national and international fishery conservation issues. Because of the concern that our traditional involvement in white marlin management has not improved the adequacy of management measures, Maryland fishery managers pursued non-traditional domestic and international conservation efforts on behalf of white marlin.

The responsibility to conserve this species for the long-term rests with the member nations of ICCAT. Despite the long-term recognition of overfishing of Atlantic white marlin, ICCAT only recently has adopted management measures that should result in decreased fishing mortality rates. Over the last 6 years ICCAT has adopted recommendations to collect additional data on white marlin, and more recently has adopted a rebuilding plan that limits landings of this species (Table 1). While the stock status evaluations are uncertain, recent projections indicate that the apparent intent of ICCAT has some potential in the short term for stabilizing the stock biomass near current levels (Standing Comm. for Res. Stat. 2002). ICCAT management measures may not be sufficient, however, to protect this species in the long-term due to illegal, unregulated, and unreported fishing and fishing that is out of compliance with ICCAT recommendations (White Marlin Status Review Team 2002).

Table 1. History of white marlin management at the International Commission for the Conservation of Atlantic Tunas (ICCAT).

Year-Action
1997-Recommendation (binding): Reduce, starting in 1998, landings by 25% from 1996 levels (except artisanal fisheries); requires voluntary release of live animals from fishing gear
1998-Recommendation: Cap landings to 1999 levels
1999-Resolution (non-binding): Improve Recreational Fishery Statistics; Scientists to examine effects of recreational fisheries on species
2000-Recommendation: Two-phase rebuilding program
Phase I: Reduce uncertainty in stock assessment Longline and purse seine landings must be maintained at ≤ 33% of 1999 landings 100% release of animals brought to boat alive from fishing gear 5% observer coverage; 10% coverage of U.S. tournaments U.S. landing cap (blue and white marlin combined, 250 fish) Minimum sizes in recreational fisheries
Phase II: Conduct stock assessments in 2002 Scientists to develop stock recovery scenarios by 2002 Develop and adopt rebuilding program to support maximum sustainable yield
2001-Recommendation: Amends marlin rebuilding plan to change reference period for landings reductions; delay stock assessment date for blue marlin; directs scientists to develop stock recovery scenarios
2002-Recommendation: Extended Phase I of rebuilding program through 2005; maintains the requirement to release all live marlins that are caught incidentally by purse seine and longline vessels.

In addition, ICCAT recommendations exempt from compliance with management measures a potentially expanding fleet of artisanal fishermen (small-scale directed fisheries for white marlin occur in Ivory Coast and South American waters). This exemption has a rational basis; the larger industrial fisheries have the largest impact on the stock. However, no measures have been established to prohibit expansion of small-scale directed fisheries into larger scale fisheries with the same or different gears.

Nor does U.S. legislation, responsible for domestic conservation of white marlin, provide adequate protection of Atlantic white marlin. The reason is that U.S. fishermen are responsible for a small percentage of white marlin mortality (approximately 6%; Standing Comm. for Res. Stat. 2002). Therefore, despite the recent development of a comprehensive amendment to the Fishery Management Plan for Atlantic billfish (NMFS 1999), NMFS does not have authority to control the most influencing factor on white marlin stock decline, international fishing mortality, through the fishery management plan process. Domestic legislation does not require the United States to develop specific international negotiating policy, nor does it control the outcome of ICCAT deliberations or activities of other fishing nations.

As a result of the existing framework for management of white marlin, ICCAT

is ultimately responsible for maintaining healthy stocks and managing for sustainable long-term fisheries. In the event that a U.S. citizen is not optimistic about ICCAT's ability or inclination to protect white marlin (based on his or her conservation ethics), that person can seek recourse through a variety of non-traditional but formal processes, for example, protection under the Endangered Species Act (ESA) or the Convention for the International Trade in Endangered Species (CITES). Citizens can also embark on other informal conservation efforts such as educational/awareness campaigns. Seldom have state fishery management officials pursued any of these options.

Non-Traditional Partnerships

Collaborations with other states and environmental groups may strengthen support for protection of white marlin. We participate with many of these groups in traditional fishery management processes and we seek to continue other conservation efforts, outside the formal process. Due to resource constraints, Maryland has benefited from pooling resources to pursue conservation projects for white marlin.

Recognizing these shared goals, Maryland fisheries officials and members of other organizations (World Wildlife Fund, National Audubon Society, other states) have met frequently in an attempt to develop ideas for non-traditional white marlin conservation actions, including public education activities. Potential areas highlighted for collaboration include addressing ICCAT compliance issues, addressing expanding directed fisheries in small coastal nations, and considering supporting existing conservation activities to increase public awareness and understanding of the issue.

In August 2002, 10 east coast states banded together to send a letter to the U.S. Secretaries of Commerce and State regarding the general need for white marlin conservation. Despite some media coverage, we have not yet received a reply indicating the commitment of the Bush administration to this issue.

Addressing ICCAT Compliance Issues

Many fishery managers have concerns about the adequacy of ICCAT management measures due to non-compliance by member and non-member nations. ICCAT has a process in place to evaluate compliance and assess penalties for countries that are not complying with ICCAT recommendations. Processes for addressing non-compliance also exist outside the ICCAT framework; the United States can establish import restrictions against non-compliant countries.

In October 2002, Maryland, South Carolina, Georgia, New Jersey, World Wildlife Fund, and National Audubon Society, petitioned the Secretaries of Commerce and Interior to certify the European Union pursuant to the Pelly Amendment to the Fisherman's Protective Act of 1967 (22 U.S.C. Sec. 1978) for non-compliance with ICCAT white marlin recommendations. As of December 2002, the U.S. government had not responded. The petition required a significant amount of analysis and collation of compliance data and information. State fishery managers do not typical-

ly have significant expertise in legal affairs so they may only be able to lend technical expertise to an effort such as this. However, through partnerships with other organizations such as environmental advocacy groups on shared issues, Maryland fishery managers were able to take advantage of the strengths of those groups that included access to extensive legal experience and grassroots organizing.

Other Non-Traditional Strategies that We Could Consider

Outside of fishery management mechanisms exist authorities designed to protect species in somewhat non-traditional contexts; they do not operate by just controlling fishermen's activities, they also address other factors. State fishery managers could select these strategies in the future to pursue white marlin conservation.

Information Sharing Program to Address Expanding Directed Fisheries

While there are opportunities for influencing the culture of large fishing nations such as Spain and Taiwan, it is unlikely that state fishery managers would have the abilities/resources to target such an audience. This is unfortunate because, if successful, making strides with these countries would yield considerably more protection for white marlin. However, states should consider what gains can be made in an arena where they are experienced and effective; that is, management of small-scale fisheries.

Island nations in the Caribbean and developing coastal states in South America and west Africa may not have the fishery management infrastructure to control domestic or international fishing in their territorial waters, nor may they have any legislation to support fishery management needs, including authority to require permitting and reporting of their own vessels. Those responsible for resource protection in many small developing nations, like those of us in coastal states in the United States, are inclined to better manage their fisheries but managers are constrained by 1) limited budgets which restrict their ability to collect data, enforce management measures, etc., 2) limited knowledge of fishing activities in state water due to a lack of data collection, 3) political will to increase economic returns at expense of long-term conservation goals, and 4) differing cultures/ethics/regulations in nearby waters that are managed by other nations. If funding were available, state fishery managers and their partners could create a program of information sharing with small developing coastal nations to address management of artisanal fisheries, which might lead to the development of conservation incentives.

Such a relationship would rely on the state fishery manager's specific expertise in artisanal fisheries management because state fishery managers face many of the same challenges as developing countries. Faced with limited budgets for surveys, stock assessments, and enforcement activities, state fishery managers are not able to hire enough biologists or policymakers to address these needs (e.g., daily catch limits are regulated but no observer coverage is possible and too few enforcement agents are able to observe offloadings).

Nor do the states typically have complete knowledge of fishing activities that

take place in their waters. For example, in Maryland we do not require all fishermen to be permitted or collect detailed catch and bycatch data in all fisheries. This lack of knowledge could prevent effective management and conservation. State fishery managers have experience facing political will that does not always respond to increased conservation measures or increased enforcement of regulations. In Maryland, state politicians must balance the health of the economy and traditional fishing communities with the health of the resource. They are often interested in increasing economic returns associated with fish species, but they struggle to balance that desire with long-term conservation goals.

Other similarities between small developing coastal nations and U.S. coastal states are also evident. Maryland shares many stocks of fish (and fishermen) with neighboring states whose state waters are in close proximity and whose fishery managers and politicians do not share common conservation goals. For example, Maryland fishermen fish in Maryland and Virginia waters of Chesapeake Bay but comply with different sets of regulations in each state. Despite all of these challenges, Maryland, like other states, has developed coping mechanisms that are often effective and that are often transferable to other regions, including small coastal nations. If funding could be secured from an outside source, an "exchange" program may be one in which state fishery managers could excel.

ESA Petition to Address Bycatch of Marlin in Non-directed U.S. Fisheries

In 2001, the ESA was selected by certain petitioners as a possible mechanism that operates outside traditional fishery management for protection of white marlin. In this case, a Status Review Team was formed to evaluate white marlin under ESA listing criteria, including a state representative member from Maryland, Virginia, and Massachusetts. Status Review Team members compiled information, evaluated analyses and the risks of extinction, and discussed the significance of each listing factor during the summer of 2002. This proved to be an excellent way for state fishery management officials to provide expertise on the status and management of this species. The ESA, in and of itself, however, is likely inadequate to protect white marlin because of its limited authority (i.e., the law cannot be applied to the activities of other nations.)

While state fishery managers often participate in ESA status review teams because of their technical expertise relating to population levels and threat to those populations, they do not often petition the Federal government for protection of fish species themselves. In fact, most states have their own endangered species programs in place that can be invoked to protect species that occur within state boundaries. For species such as white marlin, however, which are shared by many coastal states, it would be necessary to seek protection under a broader umbrella than the state endangered species program. Because an ESA petition requires only technical information related to fisheries management, state fishery managers could effectively use this tool for other species, if they deemed it necessary. For species that are threatened by more than one country, it would be necessary to seek protection under an even broader authority, namely an international one.

Convention on the CITES Petition to Address Trade

CITES provides an international mechanism to list endangered and threatened species (including marine fish) that can be protected through trade restrictions. Populations listed for protection under Appendix I of CITES are threatened with extinction and are being driven down by international demand for the species in the marketplace. CITES Appendix II species require less protection but trade of these species is controlled to avoid overutilization.

Although many white marlin are sold in local markets once offloaded from commercial purse seine and longline vessels, potentially many more are shipped to the Asian markets, specifically the Japanese market. White marlin could likely benefit from a CITES Appendix II listing; however, a listing may not be as important as a petition itself. In 1991, bluefin tuna harvest was largely driven by Japanese trade and the international market and Sweden announced its proposal for a CITES Appendix I listing. This drew the attention of the international community who feared fishing might be restricted as a result of trade restrictions (Safina 1993), contributing to a cut in harvest quotas that year by ICCAT. The Swedish proposal was ultimately withdrawn, but it served to increase international attention on the species, and produced, although not entirely by itself, increased debate over conservation and trade monitoring of the species.

It is probable that a white marlin petition to CITES could raise similar awareness by ICCAT. ICCAT member nations have been slow to adopt conservation measures that would benefit white marlin for several reasons. There is a great deal of uncertainty in the stock assessment and many countries prefer to manage in a risk-prone rather than a risk-averse context. Secondly and most importantly, countries know that protection of white marlin means reducing fishing mortality on the species. Since this species is caught incidentally in a multi-species fishery, vessels would need to decrease their overall fishing effort in order to protect marlin. The United States is somewhat isolated in its view of marlin conservation due to the highly valuable recreational fishery that the stock supports. A CITES petition may bring the attention of other countries on this species, which would ultimately place ICCAT's deliberations under greater scrutiny. Maryland fishery managers are currently considering the effectiveness of developing broad-based support for a CITES petition.

Maryland is also considering participating in or supporting strategies to address white marlin management through increased public education and awareness. Existing non-regulatory programs are generally long-term, although programs of shorter duration that have specific targets may be as or more effective at raising awareness.

Recreational anglers in the United States have promoted recreational fishing experiences in other parts of the world. These promotional activities have led to increased involvement in the fishery management process and stewardship of the resource. For example, the Bahamian government prohibits the use of longline gear in State waters largely to protect the economically more valuable recreational fishing industry (predominantly billfish tournaments and trips). This has increased awareness of the need for conservation and could result in lowering fishing mortality in those waters; however, it would not likely have a stock-wide effect.

Lessons Learned

Given the inadequacy of traditional fishery management measures to protect Atlantic white marlin in the long-term, Maryland fishery managers deemed it necessary to engage in this issue in non-traditional ways. However, budgetary constraints in the coming fiscal year will force us to streamline our priorities. Despite a significant expenditure of time advocating for long-term white marlin conservation through organizing partnerships of states and environmental advocacy groups and compiling information with regard to the Pelly Amendment petition, Maryland has not yet received any significant "bang for the buck" from a conservation standpoint. We must consider other approaches to conservation of this stock that can effect change and are not particularly resource-intensive (e.g., create partnerships to develop incentives) or develop alternative funding sources through working with our non-traditional partners.

We will continue to identify fishery management priorities in Maryland for which there is a likelihood of achieving tangible results, realizing we could be more successful in the white marlin arena if domestic policy reflected our conservation philosophy. In considering how we can best be effective, we must balance the need for conservation of white marlin with other fishery management and stewardship responsibilities in our state.

Maryland's positive experience with becoming more active in non-traditional fishery management activities regarding white marlin conservation has resulted in new relationships with other state fishery management agencies and environmental advocacy groups. However, the Pelly Amendment petition and other activities have not yet resulted in improved conservation of the white marlin resource due to the small impact the United States has on such an internationally exploited resource. Maryland fishery managers should continue to identify other more effective activities to protect this resource, while weighing this issue as a priority against other state fisheries issues.

There is potential for development of an exchange program, funded by private or public funds, that would encourage state fishery managers to share their coping mechanisms with fishery managers from other small coastal nations. Completing stock assessments with limited data, participating in regional organizations with neighbor states, collecting data cooperatively with fishery participants, and other strategies could be useful if offered to others. Both sides are likely to benefit and the end result could well be a transfer of cultural philosophies as well.

The traditional fishery management strategy has been for the United States to develop multi-lateral relationships with potential allies in the fishery management process. Trilateral meetings to discuss ICCAT issues are held regularly with Japan and Canada, who share some common goals with the United States. While occasionally the United States has worked with small nations in the past, it does not typically maintain long-term programs/relationships with the governments of small developing coastal states. Developing and maintaining these relationships and establishing formal knowledge transfer programs could be important to fishery conservation and

management, particularly with respect to white marlin. State fishery managers may be the critical link in this type of effort.

Admittedly, the best mechanism for conservation and management of white marlin is through ICCAT, however progress has been slow and state fishery managers have little control over ICCAT negotiations and no control of their outcome. Without creative strategies, international fishery management for white marlin will continue as it has traditionally under ICCAT's purview. Domestic management will also continue pending the results expected in 2005 of an additional review for listing under the ESA.

Despite a lack of resources and myriad other priorities, coastal state fishery managers must focus attention on internationally-managed species such as white marlin because these fish are likely at dangerously low levels and they support fishing communities in many states. More importantly, state fishery managers bring a unique perspective to this issue; they may be able to lend information or expertise, particularly in non-traditional activities. State fishery managers may be uniquely qualified to develop formal education or information exchange programs because they have faced and overcome many of the same challenges faced by fishery managers in small coastal developing states.

Where state fishery managers can't provide direct expertise, they can act as technical and management experts, bringing attention to this issue. Such collaborations with other organizations may lead to increased awareness of white marlin stock status. These mechanisms may yield important results domestically and internationally. After all, Maryland DNR's mission includes inspiring people to enjoy Maryland's natural resources, even if those resources are shared with other coastal states and countries.

Literature Cited

Ditton, R.B. and J.R. Stoll. 2003. The social and economic perspective on recreational billfish fisheries. Mar. Freshwater Res. 54(4): in press.

National Marine Fisheries Service. 1999. Amendment One to the Atlantic Billfish Fishery Management Plan. Natl. Oceanic and Atmos. Admin., Silver Spring, Md.

Safina, C.J. 1993. Bluefin tuna in the West Atlantic: negligent management and the making of an endangered species. Conserv. Biol. 7:229–234.

Standing Committee for Research and Statistics (SCRS). 2002. Report of the SCRS, International Commission for the Conservation of Atlantic Tunas. Madrid, Spain, 30 Sep–4 Oct 2002 194pp.

White Marlin Status Review Team. 2002. Atlantic white marlin status review document. Rep. to Natl. Mar. Fish. Serv., Southeast Reg. Off., 3 Sep 2002. 49pp.