

Recreational Pelagic Fishing and Economic Opportunity on Colombia's Caribbean Coast

ABSTRACT

In many places, recreational fishing is becoming more popular and more influential on local economies. With a growing economy and tremendous opportunity for a vibrant recreational fishery, Colombia is one such location. Building off work completed in the Northern Caribbean, recreational billfish anglers were surveyed in several locations on the Caribbean coast of Colombia, in order to begin to understand the potential for recreational fisheries here. Anglers were asked about their fishing attitudes and behaviors, as well as about their annual expenditures. Survey participants spent an average of \$2,534 and indicated that they target a wide variety of species, primarily for the sport of catching fish, rather than the harvest. While there is much room for further education, many behaviors such as a preference for catch and release lend themselves to improved conservation practices. Overall, there are many indicators that Colombia is a prime location for further study and encouragement of a sustainable recreational fishery.

INTRODUCTION

Throughout the world, fisheries are in crisis due to a combination of factors such as overexploitation, pollution, ecosystem changes and cultural changes (Arlinghaus, Cooke & Cowx 2010). While much of the focus has been on marine commercial fisheries, the need for a more thorough examination of recreational fisheries is increasingly important. (Cowx & Arlinghaus 2008).

The significance of sportfishing to the economy, to the fishery, and to the community has long been overlooked, often because of a lack of clear organization and political voice. The idea that fishes for sport are targets for hunting, not management, has deep historical roots (Martin 1979) that have continued to prevail over efforts towards conservation.

This idea is changing, however, as more investigations of the importance of recreational fishing are completed. The FAO Code of Conduct for Responsible Fisheries (FAO 1995), which focuses primarily on marine commercial fisheries, has prompted several international bodies to develop a similar document for recreational fisheries (EIFAC 2008). Increasingly, the socio-economic and ecological importance of sport fishing is being recognized in industrialized countries (Arlinghaus et al 2002; Cooke & Cowx 2004; NMFS 2015) and transitional economies (Mike & Cowx 1996; Cowx 2002; Arismendi & Nahuelhual 2007; Potts et al 2009) alike.

With a burgeoning economy, a wealth of recreational fishing opportunities in two oceans, and a little-studied fisheries sector, Colombia presents an excellent opportunity to examine fisheries practices and motivations. This report builds upon prior work done by Carter et al (2012), which looked at sport fishing in two United States territories – the U.S. Virgin Islands and Puerto Rico. This series of work done by the Billfish Foundation (TBF) continues a history of socioeconomic studies from which stronger and smarter recreational

billfish policies have been constructed (Ditton & Grimes 1995; Ditton et al 1996; Jimenez et al. 2010; Southwick et al. 2010, 2013).

METHODOLOGY

As this report is a continuation of the work done by Carter et al (2012), much of the survey methodology has remained the same. Surveys were distributed in the fall of 2012 via paper copy and online. Survey participants were recruited through tournament outreach, as well as through fishing clubs.

Seventy-seven surveys were returned overall, but many were returned in varying levels of completeness. Due to this, unless indicated otherwise, the number of responses is 54.

Responses to several questions, such as the number of fish caught and the fate of the fish, were inconsistent. In those instances, information provided on the fate of the fish was relied on throughout the report. For example, if a participant did not report catching a particular species, but did report releasing or eating that species, it was assumed that the participant did indeed catch that species, although these numbers were taken out of the analysis for catch numbers. If a species was listed as targeted, but no other information was provided, we assumed that none of that species was caught. With tuna species, if there was a number provided for amount of the species caught, but no fate data provided, it was assumed the participant did eat that tuna species. Likewise, for billfish species reflected as caught without accordant fate data, it was assumed the species was released.

Participants were asked to indicate the amount spent in 11 categories. The number of participants that provided this information varied depending on the category, so the total amount spent was calculated, as well as the average amount across each category, with zero values removed. Values were also converted from Colombian Pesos to United States Dollars for 24 of the records provided. All conversions were completed in July 2013.

SURVEY RESULTS

Demographics

All respondents (54) listed Colombia as their country of residence. Location within Colombia varied, with about 40% dwelling in the northern portion in the country, closest to the Caribbean, including Cartagena, and the remaining participants living in cities in central Colombia. Unsurprisingly, the largest segment of respondents came from the capitol city of Bogotá (43.2%), which is the largest and wealthiest metropolitan area in Colombia (CIA 2013).

Fishing Motivations

Participants were asked to rank their motivation for fishing, with one being the highest, and nine being the lowest. The number of responses varied for each of the options, so the

average score for each is listed here.

FISHING MOTIVATIONS	AVERAGE SCORE
Catch and release fish for sport	2.5
Spend time with family and friends	2.8
Spend time outdoors	4.3
Participate in a fishing tournament	4.3
Obtain fish for eating	4.5
Relaxation	4.6
Catch a trophy fish	5.2
Travel and adventure	5.6
Earn money as a fishing guide	8.1

Table 1. Motivations for fishing, as indicated by participants. A score of 1 was the highest and 9 was the lowest. The average score is reported here.

Species Targeted and Success

Of the 54 participants, 50 indicated their preferred target species. Of these 100% indicated that they target billfish of some kind. Blue marlin and sailfish were the most popular billfish species, having been targeted by 90% (45 participants) of surveyed fishermen. White marlin were targeted by 12 participants (24%); swordfish by eight participants (16%) and spearfish by four participants (8%).

Of the 50 respondents that indicated one or more preferred target species, 100% selected at least one species of tuna. Yellowfin were the most popular species with 46 participants (92%) indicating that they targeted these fish, followed by albacore (60%), bluefin (34%), bigeye (28%), and other tuna species (10%).

Fate of Targeted Species

There existed a great disparity in the fate of the fish caught between types. For billfish of all species, release was the most popular option, followed by consumption. Tagging does not appear to be common practice. No respondents indicated selling any billfish species into a local market although several reported donating billfish, presumably for food. The

fate for tuna species was quite different, with the majority of respondents indicating that they eat tunas that have been caught and fates that imply the fish was ultimately eaten (donation and selling) were the next most common responses. No participants indicated tagging tunas of any species, and only four participants indicated releasing tunas (Figure 1)

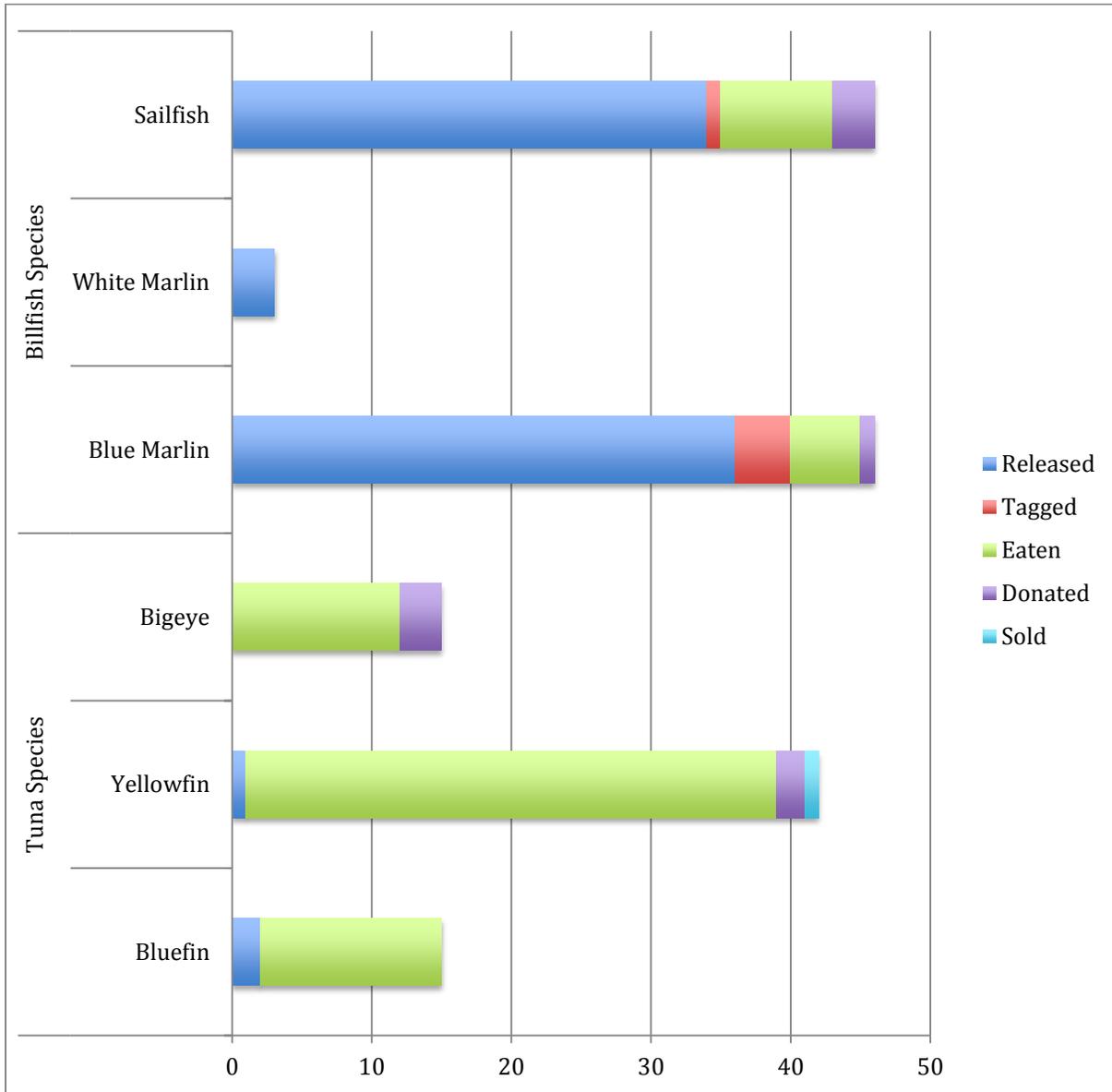
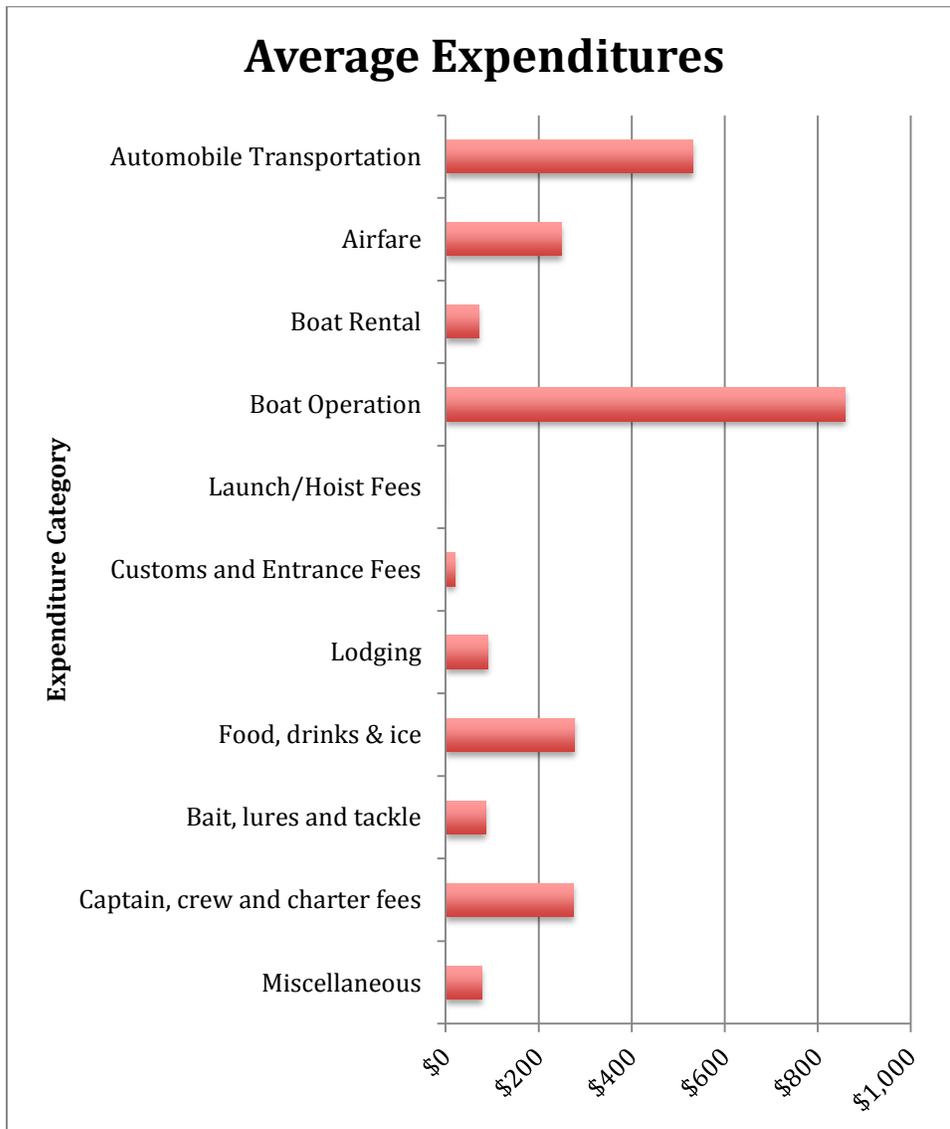


Figure 1. Fate of fish species that were caught by participants. Billfish and tuna species were all reported as caught by respondents with varying fates. The numbers indicate the participants that reported this fate for each species.

Revenues and Costs

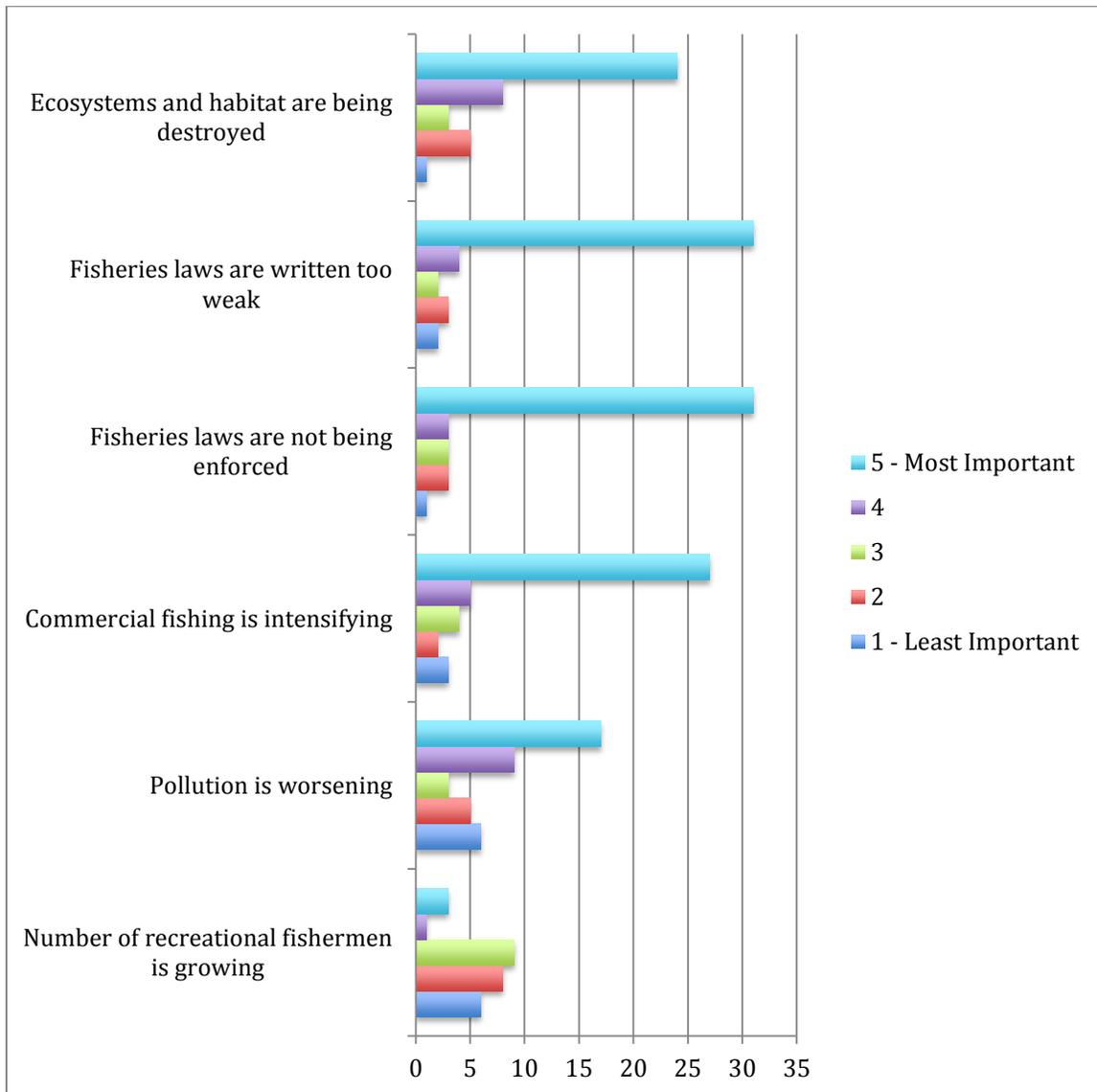
Across the 43 participants that reported expenditures, a total of \$67,797 USD was spent, with an average of \$2,534 per participant. These expenses fell into 11 categories, which included automobile transportation (\$13,277 total spent), airfare (\$4,469), boat rental (\$1,201), boat operation (\$27,460), customs and entrance fees (\$300), lodging (\$1,265), food, drinks and ice (\$9,983), bait, lures and tackle (\$2,486), captain, crew and charter fees (\$6,039), launch/hoist fees (\$0) and miscellaneous costs (\$1,319). The average amount spent per category is reported in figure 2.



Perceived Conflicts

Participants were asked to rank the conflicts they saw as posing the greatest risk to

recreational fisheries. While several participants chose instead to assign the same score to multiple entries, a clear picture of the perceived threats to recreational fishing emerges. The conflicts that were reported as being most important were “fisheries laws are not being enforced” and “fisheries laws are written too weakly.” Closely following were the perceptions that “commercial fishing is intensifying” and “ecosystems and habitat are being destroyed,” The issue of “pollution is worsening” and “the number of recreational fishermen is growing” ranked lowest as concerns.



DISCUSSION

While every community certainly has its own character, strengths and challenges, a review of the results from this survey in Colombia reveals some important similarities and differences from the prior study in the Northern Caribbean. Therefore, the survey results

used for this report are not simply examined in a vacuum, but within the context of the results from Puerto Rico and the US Virgin Islands as described in Carter et al. (2013) as well.

Demographics -

Interestingly, 60% of respondents indicated they lived some distance from the Caribbean coast, where this study was focused. Those fishers coming from the capital city, Bogota, and other large cities in the central portion of the country traveled in excess of 600 kilometers in order to reach Cartagena, Santa Marta and other waterfront cities.

Colombia has great potential to increase the numbers of recreational fishers in their Caribbean waters. As the largest cities in the country are some distance from the Caribbean coast, it may be that the in-country potential is limited by constraints of travel and population; however, as no respondents indicated that they were from outside the country, international fisheries tourism is an area that may be ripe for development. International tourism is recognized to have a positive effect of the long-term economic growth through a number of channels, including stimulating investments in new infrastructure, contributing to other industries, either directly or indirectly, and generating employment and income. Colombia is currently one of the main destinations in Latin America, earning a greater percentage of its GDP from tourism than many of its neighbors, including Argentina, Brazil and Uruguay. Although it is a leader amongst South American countries, there is much room for growth in this sector, and there is a need for public policies that support development initiatives for potential tourist attractions and strengthen domestic and international demand (Brida et al., 2009).

Fishing Motivations and Behavior -

As in locations surveyed in the northern Caribbean (Carter et al. 2012), the fishing community in Colombia indicated that it is the experience of fishing (catch and release of fish and spending time with family) that motivates them most to participate in recreational angling. This emphasis on the experience rather than the landing of fish lends itself to the development of a recreational fishery with the potential for long term sustainability. As the benefit of releasing fish to be caught again is already clearly recognized, making the connection necessary for reporting, and even tagging catches will be a simpler transition. Given the stated motivations that value experience over product, fishers in Colombia may be willing to accept a more restrictive management regime, including size and bag limits, if it allows for an improved fishing experience overall (Oh et al. 2005).

The low numbers for tagging is likely due to extremely recent exposure to the practice, access to supplies and the education necessary for tagging safely and effectively. Representatives from The Billfish Foundation estimates that the practice of tagging was introduced between five and ten years ago, with a recent increase in outreach efforts, including demonstrations and lectures given at one of the largest fishing clubs in Cartagena, Club de Pesca.

Fate

Encouragingly, the majority of respondents reported releasing billfish. Given that only a few respondents reported eating any of their catch, and even fewer reported donating any of it (presumably to be eaten by others), an inference can be made that most of the billfish caught by respondents were released. Nevertheless, the low tagging numbers suggest that major education and outreach opportunities remain. With many respondents citing “catching and releasing fish for sport” as their primary motivation, this should be a relatively easy transition.

As in locations previously surveyed in the northern Caribbean (Carter et al. 2012), tunas were overwhelmingly consumed (eaten, donated or sold) over any other fate. This is hardly surprising, in either location, given the popularity around the world of tuna as a food item. However, in light of the stated motivations emphasizing the experience rather than the landing of fish, it is a bit surprising that only four respondents of the 47 that reported catching a tuna species) reported releasing tuna.

Managing billfish species for their recreational value creates a far greater economic yield than harvest for commercial or personal consumption purposes (NOAA 1988). It is well documented that recreational fisheries are often an economic boon to the communities where they are practiced (Ditton & Grimes 1995; Ditton et al 1996; Mike & Cowx 1996; Arlinghaus et al 2002; Cowx 2002; Cooke & Cowx 2004; Arismendi & Nahuelhual 2007; Potts et al 2009). In addition, Ditton and Stoll (2003), found that billfish anglers spend large amounts of money on fishing trips (\$1950 to \$3766), even more so than anglers of other species. It can be assumed that expenditures would be similar in Colombia as in Costa Rica, due to the need for air travel, hiring charter boats, local guides and food and accommodations.

Revenues and Costs

From the expenditures reported, it was somewhat surprising to see the relatively low amount spent on charter and captain’s fees and boat rental costs, as compared to operational costs of what is presumed to be privately owned vessels. Approximately \$7,200 was spent on rentals and charters versus nearly \$27,500 on operational costs. Fishing club and marina representatives confirm this to be true – there are few vessels in the rental fleet and few charter vessel operations (A. Abuchaibe, F. Barraza, & P. Rodriguez, personal communication). Fishing primarily occurs off of boats that are owned by the anglers. At present, this makes it difficult for a visitor to engage in offshore fishing, however, by the same token, there is potential for growth in this arena.

Perceived Conflicts

When asked to rank the perceived conflicts to successful recreational fishing, the most common responses from participants were regarding fisheries laws, the impact of commercial fishing and the destruction of essential habitat. Colombia has few regulations regarding fisheries, in general, and none that specifically address sportfishing, it is not surprising that this is presented as a problem. With a general emphasis on the experience

rather than the harvest, billfish anglers are more likely to prefer a more restrictive management regime (Oh & Ditton 2006). Steps are being taken to address the lack of government involvement in recreational fisheries, such as the aforementioned recreational fishing code of conduct based on the FAO document of the same title (AUNAP 2012; FAO 1995). However, as the document is new, and relies on voluntary participation, there is much work to do in the regulation and management of the recreational fishery.

“Commercial fishing is intensifying” was the next most common response to this question. While it is difficult to determine exact numbers of commercial vessels operating in Colombian waters, anecdotal reports indicate that, indeed, there is more effort from commercial vessels, primarily from countries other than Colombia (A. Abuchaibe, F. Barraza, & P. Rodriguez, personal communication). Anglers in the Caribbean region of Colombia argue that these vessels are targeting sport fish species, leaving few for recreational anglers and creating environmental damage in their wake (LG Illigde, personal communication). Neighboring Venezuela has seen a fourfold increase in small longline fishing vessels between 1986 and 2000, and it can be assumed that Colombia has seen a similar increase (Marcano et al 2004). These vessels, while often targeting tunas and swordfish, incidentally capture numerous other species, mainly billfishes (Marcano et al 2004).

With an increase in commercial fishing pressures, the availability of targets for recreational fishers will clearly decrease. In locations such as the United States, where there is currently no market for billfishes, it is the anglers that take the credit for the rehabilitation and conservation of these fish stocks. In other locations, such as Costa Rica, stock depletion due to commercial exploitation lessen the chances of a successful fishing trip by up to 25% (Ditton & Stoll 2003).

The last of the greatest perceived conflicts was “ecosystems and habitat are being destroyed.” Reports of dynamite and other blast fishing are common in the coastal areas of Colombia, destroying essential habitat for many commercially important species (P. Rodriguez, personal communication).

As an interesting point of comparison, the billfish anglers in the USVI and in Puerto Rico both indicated that fisheries law were not being enforced was the primary concern, but that fisheries laws are written too weak ranked only fourth. Both of these areas, as territories of the United States, are bound by the various rules and regulations for US waters, which are clearly more restrictive than in Colombia, where there are none. Despite having a stringent regulatory atmosphere, all the rules cannot meet their purpose if they are not properly enforced. An important consideration for Colombian regulators then will be not only to create regulations to manage the fishery, but also to ensure that the resources exist to enforce them.

Conclusion

Colombia has a great potential, and incentive, to increase the number of recreational fishers in their waters, particularly in the Caribbean. No survey participants indicated that

they were from out of the country, which may indicate that there is an untapped population of international fishing tourists. The current focus of the recreational pelagic fishery is on the Colombian coast, but as infrastructure begins to develop on the Pacific, tourism, both domestic and international should be encouraged here as well.

Special attention should be paid to the development of catch and release tournaments in the region. Tournament participants tend to be some of the best educated anglers in terms of conservation practices. The government should work with non-governmental organizations, such as the Billfish Foundation, and fishing clubs, to encourage tournament creation and participation. With an increase in the number of tournaments, Colombia may see an increase in responsible fishermen visiting and contributing to the local economy. The focus of participants in this survey on catching fish for sport, rather than for food or other use, could lead to a greater willingness and desire to participate in tournaments. In addition, as the benefit of releasing fish over harvesting them is already recognized in this fishing community, the transition to various conservation methods should be an easy one.

Few people surveyed participated in tagging, or even reporting efforts, which can largely be attributed to lack of exposure to the practice. Through a greater presence of organizations like the Billfish Foundation and their partners, not only the technique, but also the importance of these practices can be shared with the fishing community. In addition, working with tournaments to include tagging as an event policy may help expand the practice beyond just tournaments.

Overall, efforts to reach out to anglers to observe good fishing practices, as in the Code of Conduct, first with voluntary, and then mandated compliance should continue. Gaining “buy-in” by the fishing community is essential for this effort to be successful, as it is an attempt to regulate the recreational fishing industry after years of operating under the radar. Outreach and education will help to make anglers understand the necessity for these measures in order to have a successful fishery for years to come.

As this work is the first of its kind in Colombia, there is tremendous potential for further investigations, including a similar study conducted on the Pacific coast and a study to determine the economic impacts of recreational fishing in this region.

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