

POTENTIAL IMPACTS OF BERMUDA'S MARINE RESERVE ON SPORTFISHING TOURISM



*The Need
to Explore
Other Options*

ECONOMIC RETURNS CAN FLOW TO COASTAL NATIONS

that Implement Billfish Conservation Measures

Sportfishing eco-tourism is a strong economic driver for communities.

Visiting anglers are driven by the likelihood of catching a lot of billfish.

Anticipated quality of a billfishing trip greatly influences anglers' destination choices.

Anglers most often select fishing destination where commercial fishing is restrained.

Responsible management of billfish can maximize catch rates and economic returns to communities.

As of 2011, more than 3.2 million anglers fished outside of the United States (excluding Canada) at least once in the previous five years. Anglers have many options when it comes to where they travel to fish, and countries must give particular attention to the socio-economic benefits generated from sportfishing when making decisions that could impact their sportfishing industry. **With only 0.3% of these anglers reported to have taken their last fishing trip to Bermuda, there is great potential for increasing tourism from sportfishing in Bermuda.**¹



created Of the visitors who visited Panama that did not fish, 30% said they would be interested in fishing on a subsequent trip to Panama.

ISLA MUJERES, MEXICO - *Marlin* and *Sport Fishing* magazines, both international publications with widespread circulation in the sportfishing community recognized Isla Mujeres, Mexico on the Yucatan peninsula as being one of the “most desired sailfishing destinations.” *Marlin* rated

Isla as Number Three among its “Easy Billfish Destinations” to fish for Atlantic sailfish. *Sport Fishing* magazine rated Isla Mujeres in their “Top 20 Sailfish Hot Spots” of the world.

PANAMA - A 2011 study of sportfishing in Panama estimated more than 86,000 visitors fished while in Panama and spent \$97 million USD on trip-related expenses. Visiting anglers generated \$170.4 million USD in total retail and business-to-business sales, supported more than 9,500 Panamanian jobs, and increased Panama's Gross Domestic Product (GDP) by \$48.4 million USD.²

Of these visitors, 22,000 anglers visited Panama for the sole purpose of fishing, while 64,000 said they fished while in Panama, but it was not the primary purpose of their trip. Comparatively, the anglers who visited primarily to fish spent over 5 times more money while *in Panama* than those who visited and spent only a portion of their trip fishing.

For every additional angler that visits Panama, the Gross Domestic Product (GDP) increases by \$562 USD and for every 10 sportfishing anglers that visit, one new Panamanian job is

The objective of a recent study on tourism and fishing in Isla Mujeres was to establish a value for each sailfish caught and released. This study was based on anglers' “willingness to pay,” which was directly related to their anticipated catch rate where good conservation and management of the species was in place. In Isla Mujeres anglers catch and release on average 15-20 sailfish a day in the winter and early spring high season, with exceptional days yielding catch and release rates of 50 plus fish a day. A key contributor to the quality of this fishing is a 50 mile conservation buffer zone around the islands in which neither commercial longline or purse seine vessels can fish. The recapture rate for sailfish tagged in this region is 44.4%, which documents that the fish caught and released are surviving to become available for additional tourists and locals to catch on another day. Tourists spend money on charter boats, hotels, restaurants and other local



businesses. Some of these anglers visit to fish in tournaments, which contribute additional revenues into the local economy. The survey estimated that anglers were willing to pay \$89.41 for each additional sailfish caught in a day.

COSTA RICA - A study in Costa Rica revealed that in 2009 \$599,000 generated into the Annual Gross Domestic Product of the nation was linked directly to sportfishing tourism. This influx of wealth was generated by 283,783 tourists mainly from the U.S. and Canada.

The survey reported that of the \$467 million spent, \$329 million was for travel, including lodging (\$119million), restaurants (\$15.6 million), flights and fishing services (\$88 million) and land transportation in the country (\$6 million). These expenditures generated over 30,000 jobs in Costa Rica. The annual household income of visiting anglers averaged nearly \$200,000 with about 70% of those with incomes in excess of \$125,000. In terms of gross creation of new capital the sportfishing sector produced \$279 million and in tax revenues they generated \$77.8 million to the nation.

LOS CABOS, MEXICO - A study in 2007 and 2008 estimated that 354,013 anglers, mostly international tourists, fished in waters of the Los Cabos region. They spent approximately \$1,785 each for lodging, charter boats, food, transportation, tackle, fuel and a lot of other things. The economic effects then rippled through the local economy creating: \$636.6 million USD in retail sales – new dollars, created 24,426 jobs, produced \$245.5 million in local and federal tax revenues and \$1.25 billion in total

economic activity. Tourists who fish in the region are estimated to provide 24.1% of total dollars injected in to the region, including cruise ship visitors.

With more visiting anglers Caribbean nations could surpass the economic returns to the Costa Rica and Los Cabos, but it requires making sportfishing a priority industry that requires positive conservation and management measures from government fisheries offices and support from government tourism and sport offices. **Potential creation of a no-take marine reserve would have negative impacts on sportfishing tourism and decrease the socio-economic benefits generated.**



GOOD CON\$ERVATION PAY\$

BERMUDA SPORTFISHING

A SOCIO-ECONOMIC PERSPECTIVE ON SPORTFISHING IN BERMUDA

The *Bermuda National Tourism Master Plan* calls for the expansion of game/sport fishing as a ‘business opportunity’ with the goal of becoming an ‘internationally recognized sports fishing site.’

Currently, it is estimated that nearly 10,000 anglers visit Bermuda on an annual basis.³ While a formal study of the economic impacts of non-tournament recreational anglers visiting Bermuda has yet to be performed, the economic benefits from sportfishing can be estimated by comparing Bermuda to other similar popular sportfishing destinations—many of which generate millions of dollars in economic benefits, increased tax revenues, and job creation.

Fishing, both recreational and commercial, is a very important tradition in Bermuda with a storied history. The first charter operations in Bermuda began in the 1950’s and the first Bermuda ‘grander’ blue marlin (over 1000 pounds) was caught in 1984, forever putting Bermuda on the map as a sportfishing destination. Every year dozens of foreign boats and international anglers travel to Bermuda to fish the world famous waters surrounding Bermuda. The billfish tournaments during the summer months, including the Bermuda Triple Crown Series, are estimated to generate nearly \$5 million USD a year in direct economic impact.

According to the *National Economic Report of Bermuda for 2012*, nearly 232,000 visitors traveled to Bermuda by air and nearly 380,000 came by cruise ship, spending \$253.6 million and \$72.7 million, respectively. Minimal compared to the billfish tournament owners and guests who were estimated to spend approximately \$150,000 and \$4,000, respectively. Visitors arriving by air only spent \$1100, while cruise passengers spent significantly less, at under \$200 dollars, while in Bermuda.

Conservative estimates can be used for comparative purposes regarding expenditures of anglers visiting Bermuda to fish. Three different studies estimate the expenditures of visitors arriving by air (\$1,100 USD per visitor), the average expenditure of angler fishing in Panama (\$2,000 USD¹), and the average expenditure per guest of the billfish tournaments (\$4,000 USD³). Knowing that visiting anglers spend money on charter fees, hotels, local transportation, food, and entertainment, the approximately 10,000 anglers who come to Bermuda annually to fish spend a significant amount of

money while in Bermuda. Using the value for an average visitor arriving by air to Bermuda, \$11 million new dollars would be expended. Increasingly, an estimated \$20 million USD is generated in Bermuda annually by visiting anglers if the average expenditures from anglers in Panama, a similar sportfishing destination, is used. Estimating with an upper limit of \$4,000 USD per visitor, the estimated expenditure per guest during the Bermuda billfish tournaments, the annual direct expenditures by visiting anglers would be nearly \$40 million USD in Bermuda.

SOCIO-ECONOMIC BENEFITS OF BERMUDA BILLFISH TOURNAMENTS

Between 2001 and 2012, approximately 50% of the sportfishing boats fishing the billfish tournament series have been visiting boats from outside of Bermuda, bringing more socio-economic benefits per person than the average tourist to Bermuda. It is estimated that each visiting boat owner spends at least \$100,000 dollars while in Bermuda. During the 2012 billfish tournament season, a total of 30 sportfishing boats visited from outside of Bermuda, generating a source of new money of at least \$3 million USD. Participating tournament anglers who chartered boats spent an estimated \$25,000 while in Bermuda. Additionally, guests of boat owners or team representatives spent an estimated \$4,000 per person while in Bermuda.

Furthermore, individuals tied to sportfishing tourism spend more money and stay longer than the average tourist in Bermuda. Half of the individuals surveyed by the Bermuda Triple Crown reported staying in Bermuda for more than 21 days and participating in several other activities other than fishing, including shopping (70%), dining (80%), golfing (40%), snorkeling or diving (60%), and sightseeing (60%). Additionally, 60% of the visitors fishing the tournaments in Bermuda had been to the country more than 11 times and would recommend Bermuda to friends, demonstrating a recurrent source of new money coming into Bermuda.

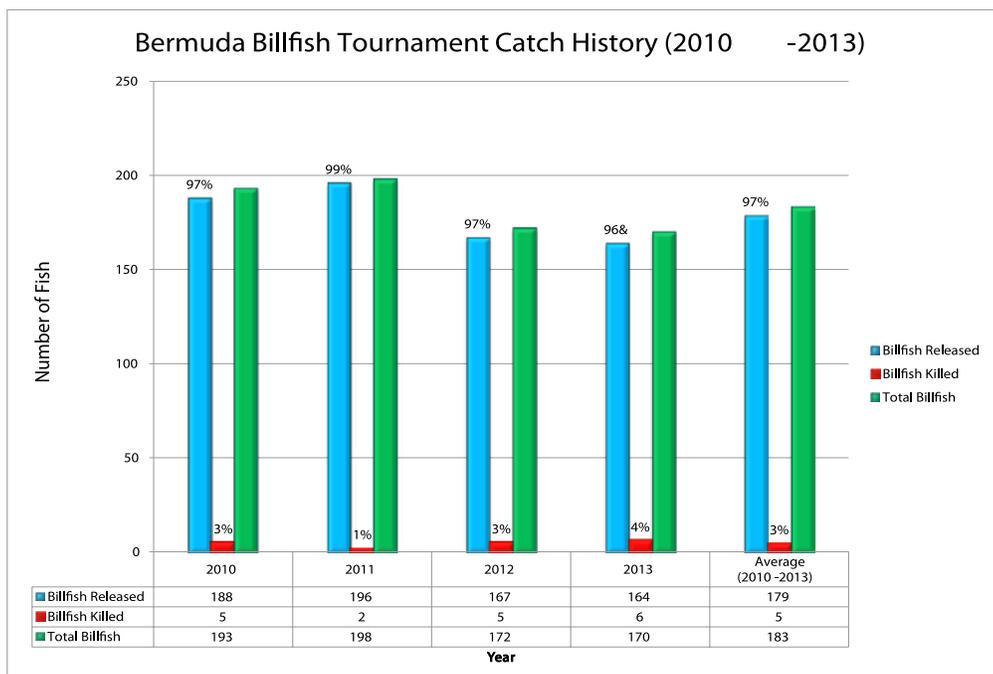
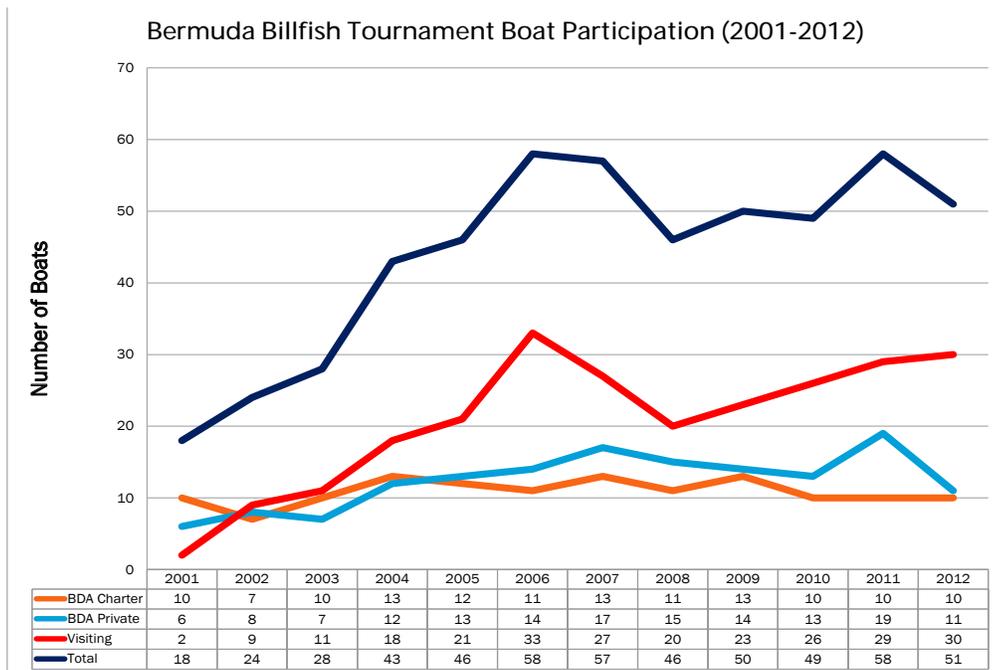
A more formal socio-economic study needs to be performed to gauge the total economic benefits generated from sportfishing, including business-to-business spending, employment, and increases in gross domestic product (GDP). This brief outlook at direct economic impacts does not address the socio-economic benefits associated with non-market values, particularly an angler’s willingness to pay (WTP) to travel to Bermuda to fish. Billfish anglers are willing to pay disproportionately more to catch the large blue marlin for which Bermuda is known.

BILLFISH TOURNAMENT ECONOMICS

RECENT BILLFISH TOURNAMENT CATCH HISTORY IN BERMUDA

In Bermuda, it is more common to see boats flying billfish release flags upon returning to the dock during billfish tournaments than it is to see a dead blue marlin being weighed. Over the past four summers (2010-2013), **the Bermuda billfish tournaments have released more than 98% of the billfish caught in the tournament, with 715 billfish released and only 18 billfish being weighed for points.** In 2011 alone, 199 billfish (99%) were released in the 11 days of tournament fishing, and only two blue marlin

(1%) were weighed. Compared to other tournaments throughout the world, the billfish tournaments in Bermuda set a precedent for release percentages. Additionally, they set an example for increased conservation measures by establishing the minimum weight for a qualifying blue marlin at 500 pounds, far exceeding almost all of the minimum size requirements for blue marlin in tournaments in the United States.



MARINE PROTECTED AREAS

Overview

Marine protected areas (MPAs) implementation is recognized by some in the scientific and environmental communities as a potential tool for maintaining biodiversity by protecting against unsustainable fishing practices and habitat degradation.⁴ However, many examples exist in which poor planning of an MPA has led to a failure to provide any conservation benefits while also causing significant economic losses for stakeholders⁵. Balancing ecological requirements with the needs of stakeholders is the most important consideration in the creation of a successful MPA⁶. Regardless of the location or design of a MPA, it is necessary that all stakeholders take the time to fully understand the issues involved and the potential impacts of an MPA. Without the acceptance and approval from all stakeholders, MPAs in any capacity cannot function properly and will fail to meet intended goals³.

Most importantly, MPAs are not a “cure-all” as some environmental groups claim, but rather can be used in conjunction with other management measures. In Australia, some regions of the Coral Sea Commonwealth Marine Reserve (CSCMR) took a “lock-out” management approach by establishing vast no-take zones. Many respected scientists strongly criticized this “all-or-

nothing” approach and advocated that in many regions, no-take zones are likely to be ineffective and unnecessary for the successful conservation of biodiversity.⁷ By some estimates, no-take reserves are predicted to lead to economic losses ranging in the billions of dollars for stakeholders. As a result, MPAs remain a contentious issue in Australia and in other regions⁸.

International guidelines for MPAs emphasize that the proper creation of a MPA necessitates a holistic approach, incorporates the needs of all users, and requires that decisions be based upon the best available science, “not on the lobbying of a powerful few.”⁹ Within any type of planning, transparency in the decision making process is of the utmost importance and it is crucial for all relevant information to be made readily available to the public. Currently, MPAs across the world that fail to incorporate these principles are leaving stakeholders feeling disenfranchised and failing to achieve any long-term conservation success.



IUCN GUIDELINES AND PROTECTED AREA CATEGORIES

The World Commission on Protected Areas (WCPA), established under the International Union for Conservation of Nature (IUCN), is the world's leading director of protected areas. The WCPA develops guidelines for determining levels of protection, which in turn dictate the management of activities permitted within individual MPAs. IUCN guidelines state that protected area categories are “not intended to be hierarchical”, that no classification category is better than another, and that the “choices should be based on the primary objective(s) stated” within the management plan.¹⁰

Several distinct protected area categories for an MPA allow for a range of objectives that vary from preserving an area for scientific research to conserving an area for sustainable use. However, the category of a protected area does not directly reflect the level of management, and there are numerous factors that should be taken into consideration when assigning the category, including size of the reserve, current activities, existing management and enforcement capacity.

Under WCPA guidelines, a no-take marine reserve in Bermuda for the purpose of preserving an area for scientific research would be classified as Category Ia, the highest level of protection for a MPA. Under this category, virtually all activities (extractive research, whale watching, diving, recreation, catch and release fishing) would be prohibited.¹¹ WCPA also advises that this category of protected area is best utilized in smaller areas due to the strict regulation of activities and difficulty of enforcement.

Before defaulting to making the majority of Bermuda's EEZ a no-take marine reserve, a true comparison of alternatives must be evaluated to meet not only the ecological needs of the environment, but also the socioeconomic developmental needs of Bermuda. Developing a large no-take marine reserve could severely hinder potential economic gains and diminish current activities of great importance to Bermuda.

Matrix of Permitted Activities Appropriate For Each IUCN Protected Area Category¹

Activities	Ia	Ib	II	III	IV	V	VI
Research: non-extractive	Y*	Y	Y	Y	Y	Y	Y
Non-extractive traditional use	Y*	Y	Y	Y	Y	Y	Y
Restoration/enhancement for conservation (e.g. invasive species control, coral reintroduction)	Y*	*	Y	Y	Y	Y	Y
Traditional fishing/collection in accordance with cultural tradition and use	N	Y*	Y	Y	Y	Y	Y
Non-extractive recreation (e.g. diving, boating)	N	*	Y	Y	Y	Y	Y
Large scale low intensity tourism (i.e. whale watching)	N	N	Y	Y	Y	Y	Y
Shipping (except as may be unavoidable under international maritime law)	N	N	Y*	Y*	Y	Y	Y
Problem wildlife management (e.g. shark control programmes)	N	N	Y*	Y*	Y*	Y	Y
Research: extractive	N*	N*	N*	N*	Y	Y	Y
Renewable energy generation (windmills)	N	N	N	N	Y	Y	Y
Restoration/enhancement for other reasons (e.g. beach replenishment, fish aggregation, artificial reefs)	N	N	N*	N*	Y	Y	Y
Fishing/collection: recreational	N	N	N	N	*	Y	Y
Fishing/collection: long term and sustainable local fishing practices	N	N	N	N	*	Y	Y
Aquaculture	N	N	N	N	*	Y	Y
Works (e.g. harbours, ports, dredging)	N	N	N	N	*	Y	Y
Untreated waste discharge	N	N	N	N	N	Y	Y
Mining (seafloor as well as sub-seafloor)	N	N	N	N	N	Y*	Y*
Habitation	N	N*	N*	N*	N*	Y	N*

Key:

No	N
Generally no, unless special circumstances apply	N*
Yes	Y
Yes because no alternative exists, but special approval is essential	Y*
* Variable; depends on whether this activity can be managed in such a way that it is compatible with the MPA's objectives	*

¹ Day J., et al., 2012

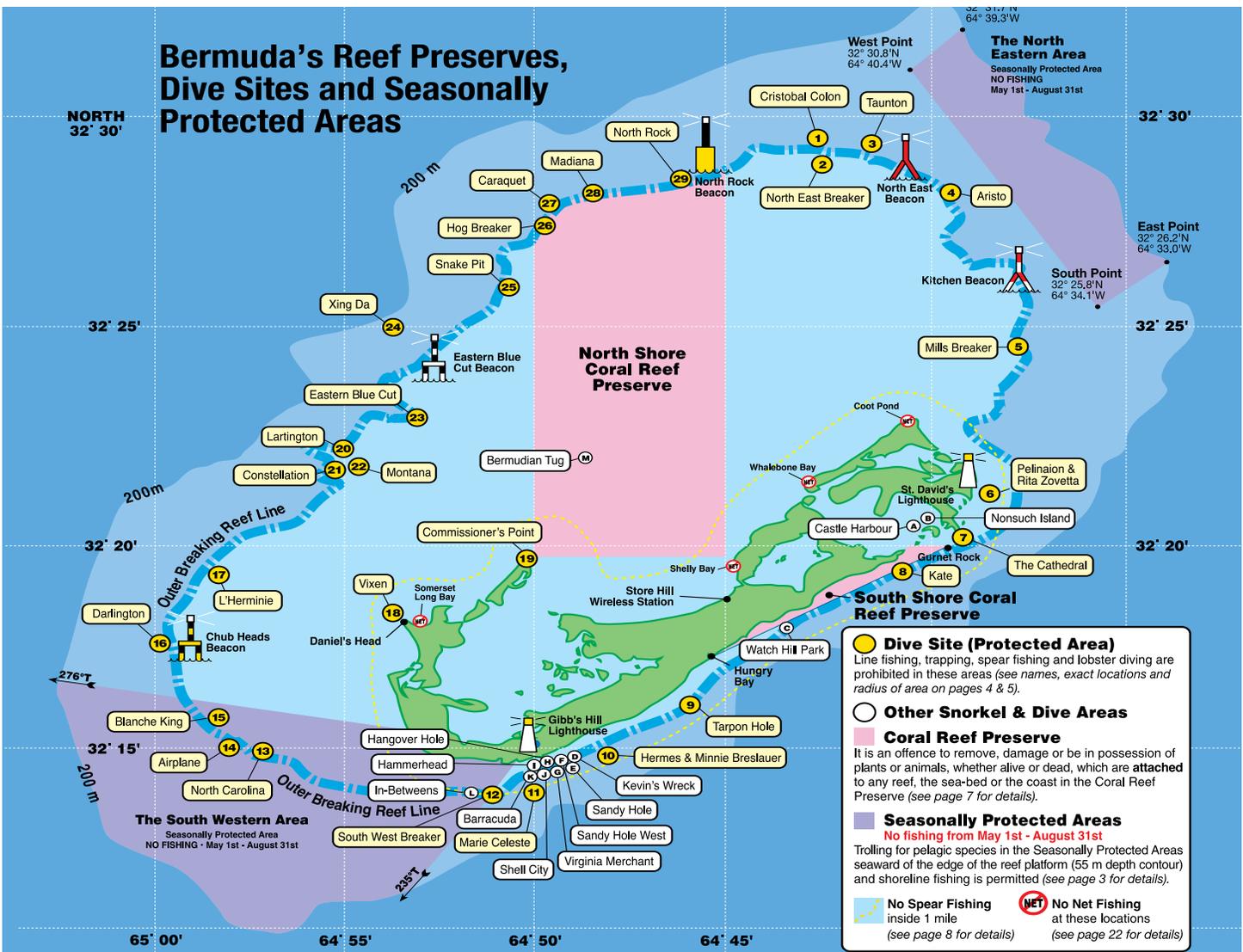
EXISTING RESERVES AND MANAGEMENT IN BERMUDA

The extensive network of MPAs and fisheries regulations in Bermuda are built upon Bermuda's long history of sustainably managing its resources and strong protection of its marine habitats. Dating back to the 1620's, Bermuda has taken significant steps to protect their natural resources, inshore habitats and reefs that are of great ecological, economical, and cultural importance.¹² Under the United Nations Convention on the Law of the Sea (UNCLOS), Bermuda has "sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources" within its EEZ as well as the ability to restrict the fishing by foreign vessels.¹³

Currently, 7% (294.74 km²) of Bermuda's entire marine area (4,236.11 km²) is classified as a protected area. Within Bermuda there are 29 dive sites, twelve marine parks, two seasonal fisheries protected areas, and two coral reef preserves. **Of these protected areas, a total of 30 are currently managed as no-take.** With

existing marine protected areas in addition to fisheries regulations in place, Bermuda (although a territory) would meet the Jakarta Mandate (Conservation of Biological Diversity) of protecting 10% of its marine ecosystems.¹⁴

Through the utilization of traditional fisheries and resource management practices, Bermuda has shown its ability to sustainably manage its marine resources and must be commended for having a rich history of conservation. Destructive, unsustainable fishing practices such as the use of nets, fish pots, and bottom trawling have been prohibited in both inshore and offshore fishing grounds. As a UK Overseas Territory (OT), Bermuda falls under the regulations and quota allocations set forth by the International Commission for the Conservation of Atlantic Tunas (ICCAT). Commercial, offshore fishing is also strictly regulated and there is currently only one active pelagic longline licensed vessel operating within its waters.⁸

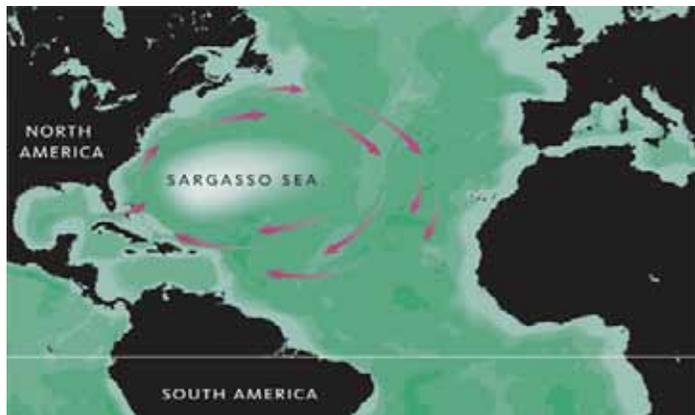




FLAWS: Failure to Address Justifications for the Establishment of a Marine Reserve

IS A NO-TAKE MARINE RESERVE THE BEST SOLUTION? IT IS NOT THE ONLY OPTION

The consultation document for the proposed marine reserve in Bermuda, *Bermuda's Exclusive Economic Zone and its Future*, lists several threats to Bermuda's offshore waters and incorrectly makes comparisons between marine reserves and national parks. Unlike national parks on land, MPAs are multidimensional, more difficult to enforce, and face a much greater influence from processes that cannot be controlled (tides, ocean currents, changing sea temperatures). Due to the location of Bermuda and the nature of marine environments, a marine reserve would provide minimal protection from pollution, shipping, and global climate change as indicated in the consultation document. A no-take marine reserve would simply not make any greater impact on these problems than the regulations already in place in Bermuda. The Sargasso Sea itself is located within a large ocean gyre that concentrates pollutants. Sources of pollution to Bermuda's waters originate from numerous global ocean currents that transport pollutants from distant sources, a problem that the establishment of a no-take marine reserve would not mitigate.



The strict management of fisheries in Bermuda already prohibits destructive, unsustainable forms of fishing (i.e. trawling, nets, fish pots) and enforces current commercial fishing regulations. Without justification for a no-take zone or other large time-area closures based on scientific findings, rather than philosophical grounds, detrimental outcomes could result for Bermuda. The consultation document and other related publications consider impacts on several species, including American and European eels, as well as several highly migratory species (HMS) such as billfish, tuna, and sharks. By nature, HMS travel great distances throughout their lives, migrating through EEZ's of many nations, and typically only spend a brief period of time in Bermuda's waters¹⁵. The areas that Bermuda is considering protecting only represent a small range of habitat utilized by these species and thus would not provide adequate protection for them. Additionally, a marine reserve would

provide little benefit to endangered eel species threatened by the loss of freshwater habitat, pollutants, and changing oceanic conditions.¹⁶ Rather than an approach based on the philosophy that a no-take marine reserve would be beneficial for Bermuda's ecosystem and the greater Sargasso Sea, a more comprehensive approach to finding a solution needs to be evaluated based on scientific findings.

ENFORCEMENT – HOW WOULD A NO-TAKE MARINE RESERVE BE IMPLEMENTED AND ENFORCED?

A large Marine Protected Area similar to that proposed in the offshore waters of Bermuda presents numerous logistical challenges and significant expenses for enforcement. **The United Kingdom (UK) House of Parliament questions the ability of the UK Overseas Territories (OTs) to effectively implement, fund, and enforce regulations required of a Marine Protected Area.**¹⁷ The estimated annual support costs for managing activities within the proposed Bermuda marine reserve is \$175,000 USD, a 42% increase in the enforcement budget, and comes as an additional cost to the estimated \$300,000 USD required to develop the management plan.¹⁴ Independent evaluations estimate annual support costs for a marine reserve to run as high as \$1,000,000 USD.¹⁸

With the lone ability to legally enforce Bermuda's EEZ, the low number of marine officers and prosecutions illustrates deficient enforcement capacity to curtail the illegal, unreported, and unregulated (IUU) fishing within Bermuda's waters. The continued, yet undocumented, IUU fishing activity in Bermuda carries a maximum fine up to \$2.5 million USD¹⁹, yet cannot be enforced due to lack of resources. Without the ability to effectively enforce current regulations, a potential reserve will not provide any additional benefits, but will simply create a park with the illusion of protection. As a result, Bermuda will fail to demonstrate to the international community commitment to protecting its own waters, and ultimately the wider protection of the Sargasso Sea. Bermuda should not rely upon outside enforcement such as the UK or the United States Coast Guard for protection of its own waters.





HERMUDA
TAG GAME
1
HERMUDA

TIP GEAR

SHORTFALLS OF MPAS AND LESSONS LEARNED FROM THE CORAL SEA COMMONWEALTH MARINE RESERVE IN AUSTRALIA

Like Bermuda, Australia boasts a strong history of marine conservation and diverse marine resources, which led to the development of the Coral Sea Commonwealth Marine Reserve (CSCMR) within Australia's national network of marine protected areas (MPAs). The development of these MPAs remains a very contentious issue, illustrating the need for sound science in the decision-making process to ensure a balance between conservation and the needs of users. **Numerous groups and scientists from Australia argued against the establishment of the Coral Sea marine reserve, stating it was unnecessary and without scientific justification.**



The socioeconomic analysis of the marine reserve drew the greatest concern from Australians, many of whom felt that the government rushed social assessments and greatly underestimated the potential losses for key stakeholders. **Independent assessments conducted for the Cairns region estimated the annual losses from the Coral Sea reserve at AUD \$462 million, magnitudes greater than the initial government estimate of AUD\$ 166 million⁸.**

The development of the CSCMR has had a negative impact on the charter sportfishing and tourism industry in Queensland and New South Wales. **The controversy and confusion surrounding the creation of the reserve caused charter boats to suffer a significant decrease in trips and numbers of visiting anglers to the region.**

One charter operator experienced AUD \$220,000 in cancellations just one week after the announcement of the marine reserves.²⁰ Further estimates predict the Coral Sea marine reserve will create an annual loss of AUD \$15 million to the charter industry and it is believed that half of all the charter boats in the region are at serious risk to close down. Like Bermuda, the Cairns region of Queensland is considered a top destination for billfish anglers. A complex socioeconomic analysis is not needed to explain that a decrease in the number of visiting anglers to Bermuda is not only detrimental to the tourism industry in Bermuda, but could also force a significant portion of the charter fleet to close down. Many of which are commercial fishermen and critical in providing fresh seafood to Bermuda.

PUBLIC CONSULTATION – A NEED FOR INFORMED VOICES IN THE DEBATE

The results from public consultation for the Coral Sea marine reserve demonstrated this method is not always an effective way of gauging public perceptions and often fails to ensure that all relevant stakeholders and issues are addressed⁶. In many cases, public consultation favors groups that are politically savvy, well-funded, and have the resources to influence the general public. Relying on this form of public participation can obscure important social issues, as some groups use sheer numbers and lobbying ability to influence the political processes, which is inconsistent with the principles of impact assessments. In Australia,

stakeholders are frustrated with the involvement of powerful, international environmental groups and their ability to influence the design of the reserves. **In the first round of public consultation, conservation groups generated 99.7% of all submissions and some estimate that 90% of all submissions came from outside of Australia.** The Australian stakeholders impacted by the reserve were clearly not properly represented, which could lead to further distrust of the government and a disregard for the regulations of a reserve.

POTENTIAL IMPACTS AND LOSSES FOR BERMUDA DECREASED SPORTFISHING TOURISM

Despite the potential development of a marine reserve proposed as little as 85 miles and as great as 140 from shore, recreational fishing for billfish does regularly occur within the limits of the potential marine reserve. Fishing in this area is typically done by visiting vessels during their transit to Bermuda, but the emerging trend in sportfishing to find new fishing opportunities in unexplored areas like distant seamounts is becoming more common. Due to the bathymetric features further offshore in Bermuda (Muir Seamounts), there is great potential for the growth of fishing in the waters around Bermuda. Optimal fishing conditions for billfish, tuna, and other pelagics are in constant flux due to changing oceanographic conditions, but with the use of advanced satellite forecasting more boats are utilizing these services (including the majority of visiting boats participating in the Triple Crown Championship) to find



optimal fishing conditions. Often this means fishing further offshore and outside of traditional fishing grounds such as Challenger and Argus Bank. The creation of a no-take marine reserve that does not allow recreational fishing could have a detrimental impact on the sportfishing in Bermuda. Another growing trend in sportfishing is the use of mother-ship operations which involve a large vessel that serves as a base of operations for sportfishing boats in remote areas. The nature and logistical challenges to conduct these operations make it inherently expensive and therefore attracts a wealthier clientele.

It has been documented that the establishment of marine reserves is a strong deterrent in choosing a destination for visiting anglers. Visiting boat owners and anglers to Bermuda will simply choose another destination such as the Bahamas, U.S. Virgin Islands, or other destinations throughout the Caribbean given they have the discretionary spending and means to do so. The establishment of marine reserve in Bermuda's waters would prohibit sportfishing vessels from exploring distant fishing grounds as well as prevent the development of any potential mothership operations. The 'lock-out' philosophy of a no-take marine reserve could give the perception to visiting anglers that fishing in Bermuda is becoming more difficult and could deter visiting vessels because many of them fish while on their transit to Bermuda from the US or other countries.

PROHIBITS ANY FUTURE UTILIZATION OF THE EEZ FOR ECONOMIC BENEFIT

The potential losses that a marine reserve would create are not limited to recreational fishing. There is great potential for Bermuda to expand their offshore fisheries as exemplified in the exploratory longline project conducted in 2007.²¹ In just two months which

fishing was conducted an estimated 24,960 lbs. (11.3 mt) of swordfish was caught. Using the average 2011 price of swordfish landed in the United States, a potential revenue of \$103,584 could be generated. North Atlantic swordfish stocks are now fully rebuilt and the use of handgear in the United States is being promoted as a sustainable alternative to pelagic longlines that encourages new entrants to the fishery and subsequently allows for better utilization of resources and increased economic gains.

The potential no-take marine reserve would limit or prohibit the development of new fisheries and eliminate the possibility to create new jobs, economic diversification and additional food security for Bermuda. Any potential gains from seafloor mining or offshore aquaculture would be prohibited with the establishment of a no-take marine reserve, further limiting potential economic gains for Bermuda.²²



CONCLUSIONS AND RECOMMENDATIONS

The consultation document, *Bermuda's Exclusive Economic Zone and its Future*, takes an all-or-nothing approach to managing Bermuda's EEZ. From the onset, the scope of the consultation document focused on only one solution—a no-take marine reserve. The report failed to present any other options that are commonly used around the world to effectively manage marine resources that would still allow Bermuda to demonstrate to the international community their leadership in ocean conservation. Simply calling a large portion of Bermuda's EEZ a no-take zone may be the easiest solution, but both the public and government officials must realize that until this point, scientific evidence has yet to be presented that a no-take marine reserve will actually benefit any more than the status quo with the regulations already in place.

The consultation document should have addressed whether or not a **Marine Protected Area would be a beneficial solution to protect portions of Bermuda's EEZ.** The different classifications of MPAs would allow Bermuda to create a management plan that utilizes a multi-faceted approach to manage its EEZ. As done in Australia and other MPAs around the world, zones of different IUCN categories, including small no-take zones (Ia), could be established that permit different activities including commercial fishing, large-scale tourism, seafloor mining, whale watching, and recreational fishing. For example, one zone could allow catch and release fishing only, while other areas would allow harvesting of different species. According to IUCN guidelines, a no-take marine reserve (Ia), would not even permit extractive research or commercial tourism such as whale watching.

Similar to the current network of no-take and closed fishing zones implemented in the near-shore waters of Bermuda, a network of different marine protected areas with varying classifications would provide Bermuda with more flexibility in the management of their marine resources and leave the door open to future activities that could create large socio-economic benefits for the country. A network of MPAs with different IUCN categories would demonstrate Bermuda's initiative for leadership in conservation.

As stated in several documents, the desire by the Government of Bermuda to utilize its EEZ for food security and economic diversification as well as continue to maximize the economic benefits accrued from its EEZ does not match the potential outcome of a no-take marine reserve. If the government wishes to implement only one zone that will allow activities currently ongoing in Bermuda while still conserving their marine resources, the level of protection would need to be IUCN Category IV. Other potential activities such as seafloor mining would require IUCN VI. IUCN IV would "maintain, conserve and restore species and habitats" and is the highest level of protection that would permit recreational fishing as well as certain forms of commercial fishing and would allow for the development of an offshore fishery.

It is imperative that before Bermuda moves forward in any direction, it should conduct its own, comprehensive ecological and



socio-economic impact assessment for a potential marine protected area. The government cannot rely solely upon documents presented from outside parties like PEW and assume that they are unbiased. Bermuda would be cheating itself if the impacts from potential alternatives were not fully evaluated and stakeholders were not incorporated into the entire process. Bermuda must utilize the best available science to ensure that a balanced approach is taken.

If Bermuda wishes to maintain its high-end tourism and promote sportfishing, effectively enforcing against IUU fishing in the EEZ (as already made possible by international agreements) would greatly improve the image of Bermuda and likely generate more visiting anglers. A no-take marine reserve would not provide any greater enforcement capabilities that what is already in place in Bermuda. Research conducted by The Billfish Foundation found that visiting anglers to Costa Rica indicated their awareness of fishing regulations as motivation in choosing a destination. More than 50% of respondents stated they would be more likely to return to a destination if the commercial harvest of gamefish was restricted.²³

As presented, The Billfish Foundation does not believe a potential no-take marine reserve is warranted or will be effective in achieving the desired goals. Given the likelihood for potential socio-economic losses from decreased sportfishing tourism and other activities in Bermuda, the costs severely outweigh the benefits. With a well-established network of MPAs already implemented and a rich history of safeguarding its marine resources, Bermuda should not take the easy road by simply creating a no-take marine reserve. Rather, other options should be explored that allow economically important activities so that Bermuda continues to be recognized for its commitment toward marine conservation.



ENDNOTES

1. Southwick, 2012\
2. The Billfish Foundation, 2013
3. Jacobs, 2010
4. Agardy et al., 2011
5. Mora and Sale, 2011
6. Voyer et al., 2012
7. Diggles, 2011
8. Cummings Economics, 2012
9. Gjerde, 2008
10. Dudley, 2008
11. Day, 2012
12. Faiella, 2003
13. United Nations, 1982
14. Sustainable Development Department, Government of Bermuda 2013
15. Graves et al., 2002
16. Sargasso Sea Alliance, 2012
17. Parliamentary Office of Environment & Technology, 2012
18. Iverson, 2012
19. Ministry of Environment, Government of Bermuda, 2012
20. Australian Marine Alliance, 2012
21. Marine Resources and Fisheries Enforcement, Government of Bermuda, 2009
22. Lafoley et al., 2011
23. Southwick Associates Inc. et al, 2008

“Here is your country. Cherish these natural wonders, cherish the natural resources, cherish the history and romance as a sacred heritage, for your children and your children’s children. Do not let selfish men or greedy interests skin your country of its beauty, its riches or its romance.”

-Theodore Roosevelt



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