

# Caribbean Billfish Project

Working with stakeholders to develop business cases for the sustainable management and conservation of billfish species throughout the Caribbean.



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## What is the Caribbean Billfish Project?

The goal of the Caribbean Billfish Project (CBP) is to recapture lost wealth and contribute to sustainable livelihoods in the Western Central Atlantic region through investment in economically, technically and ecologically feasible billfish fisheries management and conservation approaches. The objective is to develop business plans for one or more long-term pilot projects aimed at sustainable management and conservation of billfish within the Western Central Atlantic Ocean.

The CBP has 4 components:

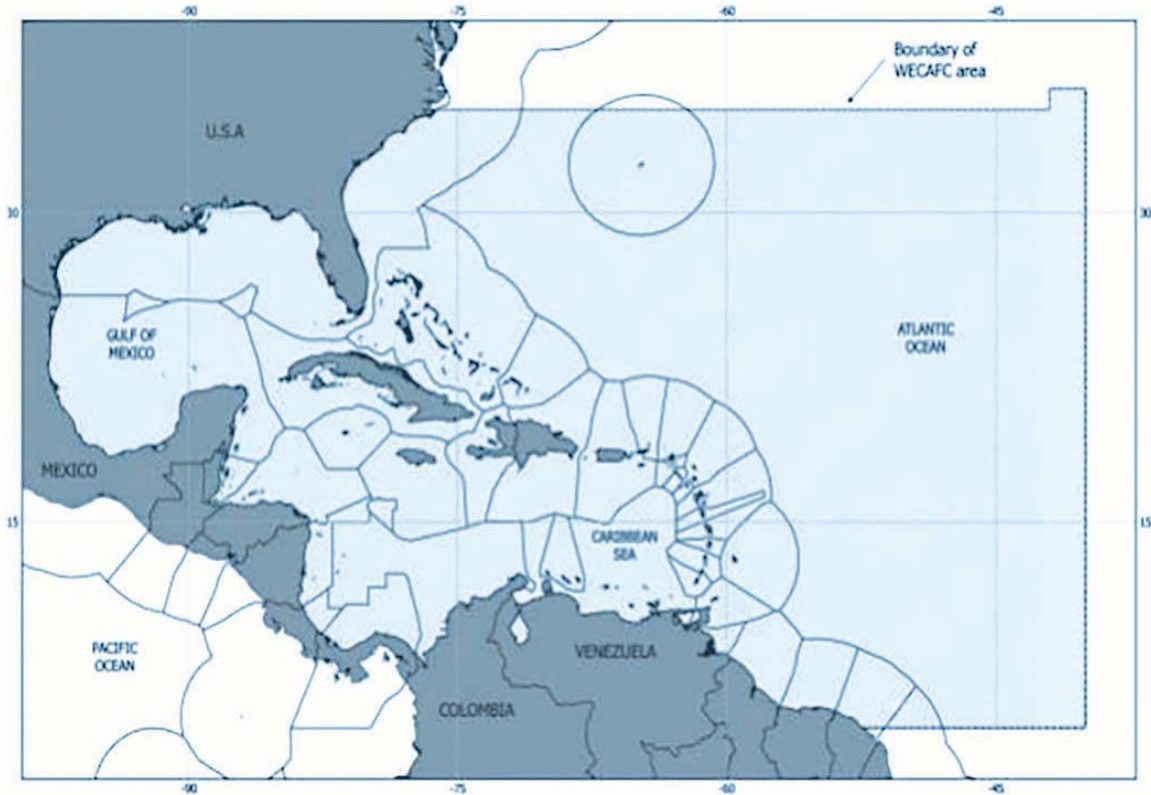
1. Generating value and conservation outcomes through innovative management.
2. Strengthening regional billfish management and conservation planning.
3. A Functional and Responsive Consortium on Billfish Management and Conservation (CBMC).
4. Business plans developed for pilot investments in sustainable management and conservation of billfish.

# List of Acronyms

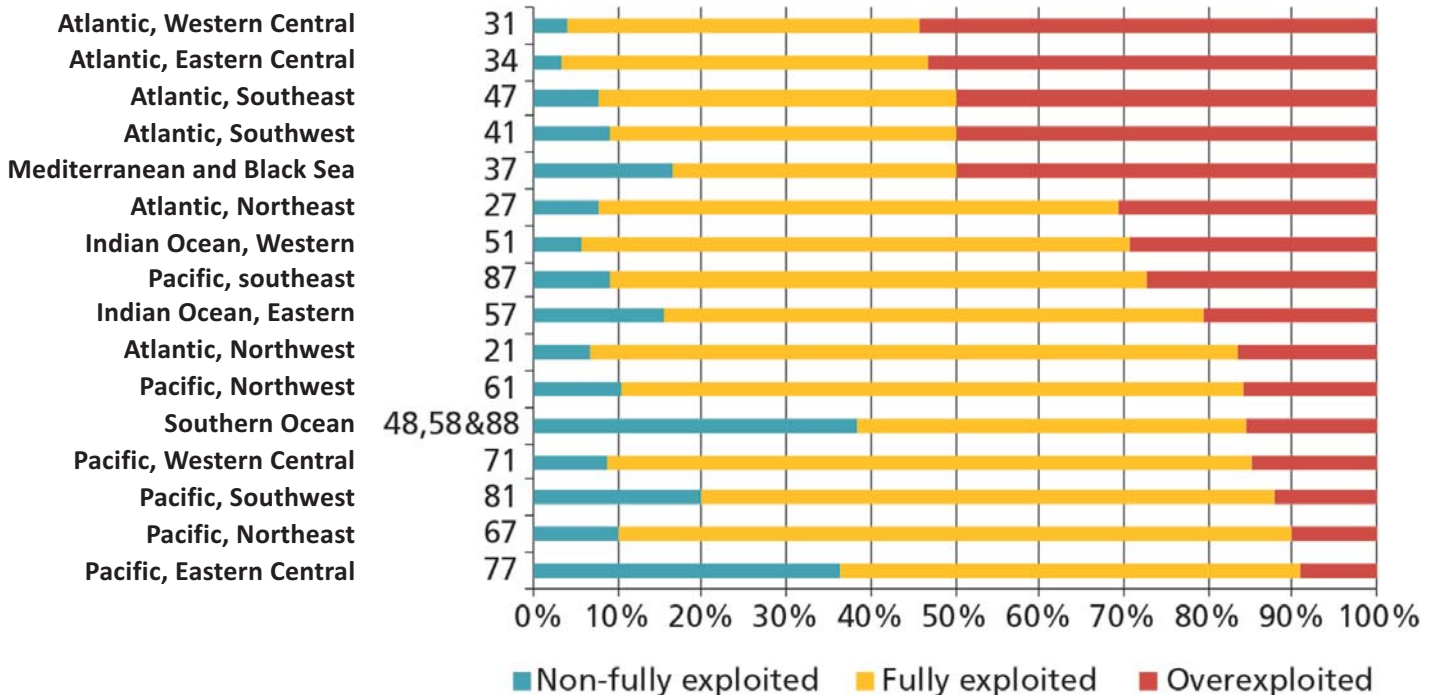
<b>CBMC</b>	Consortium on Billfish Management and Conservation
<b>CFMC</b>	Caribbean Fisheries Management Council
<b>CI</b>	Conservation International
<b>CNFO</b>	Caribbean Network of Fisherfolk Organizations
<b>CRFM</b>	Caribbean Regional Fisheries Mechanism
<b>FAD</b>	Fish Aggregating Devices
<b>GGFA</b>	Grenada Game Fishing Association
<b>ICCAT</b>	International Commission for the Conservation of Atlantic Tunas
<b>IUU</b>	Illegal, Unreported and Unregulated
<b>IGFA</b>	International Game Fish Association
<b>OSPESCA</b>	Central America Fisheries and Aquaculture Organization
<b>RFMO</b>	Regional Fisheries Management Organization
<b>RFB</b>	Regional Fisheries Body
<b>WECAFC</b>	Western Central Atlantic Fishery Commission



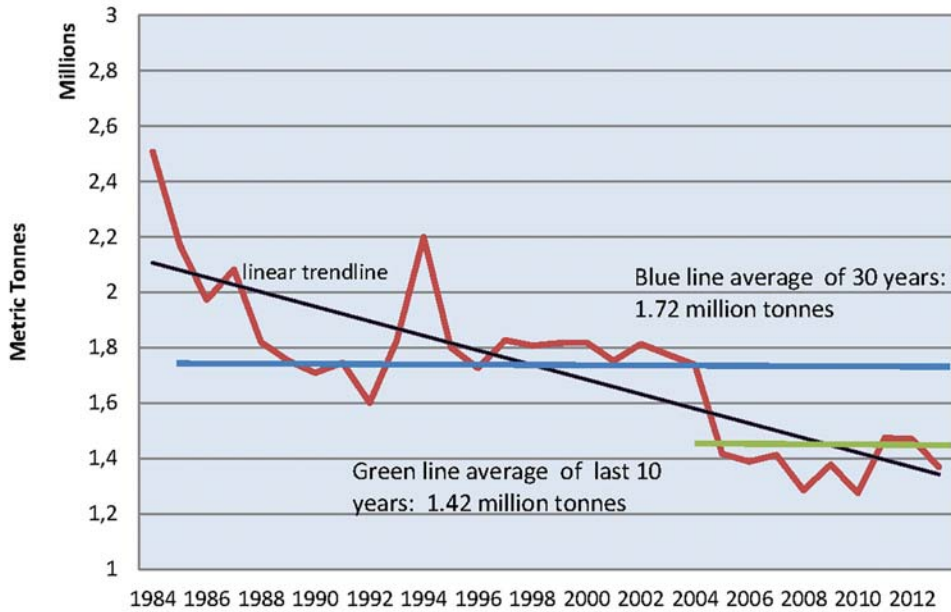
# Caribbean Fisheries Context



The proximity of many Caribbean nations, each having their own Exclusive Economic Zone to manage, makes it difficult to ensure that regionally cooperative management of the harvests shared from highly migratory billfish species stocks are sustainable.

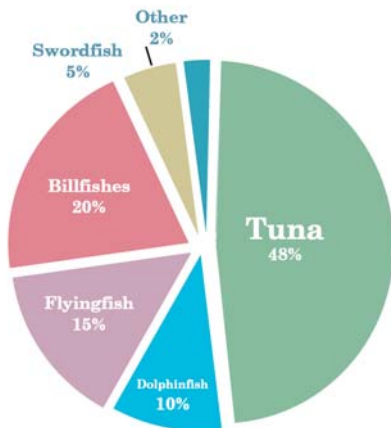
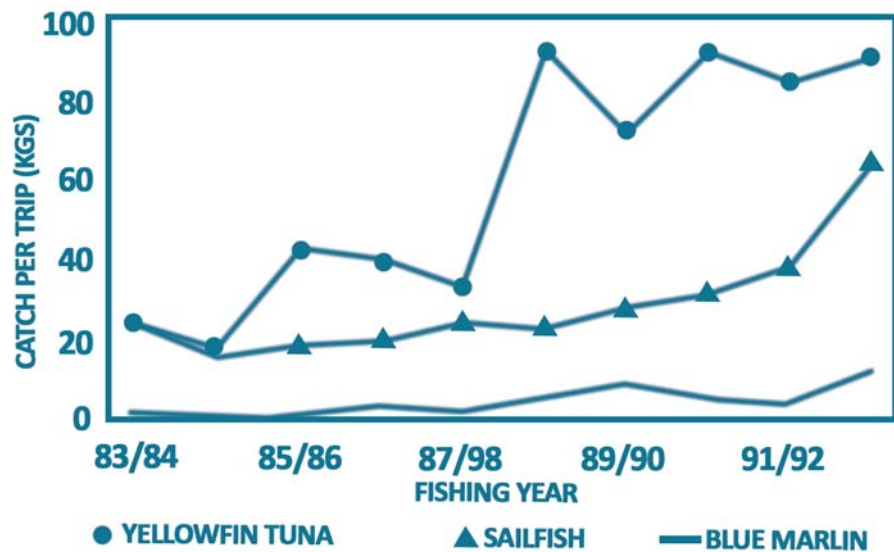


The Western Central Atlantic (FAO Area 31) is the most overfished region in the world.

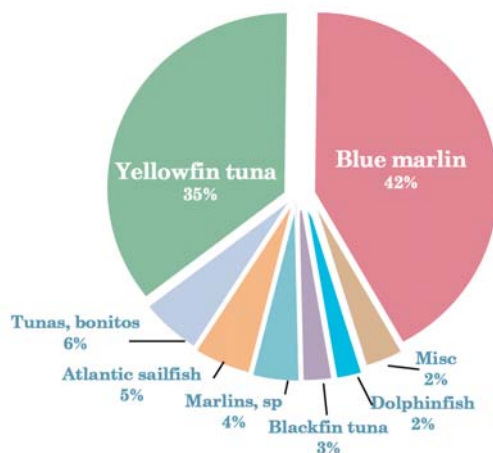


Overall fishery harvests in the region show a declining trend. With the overfishing and decline of reef and inshore fisheries, pelagic fish resources have become one of the focuses of fisheries enhancement and expansion programmes in the region. Commercially targeted pelagic species include billfishes

Billfish increasingly contribute to long-line harvests, especially when fishers set surface lines and use live baits



Mean annual long-line catch composition by percent weight of recorded landings in Barbados longline fishery (2001-2005).



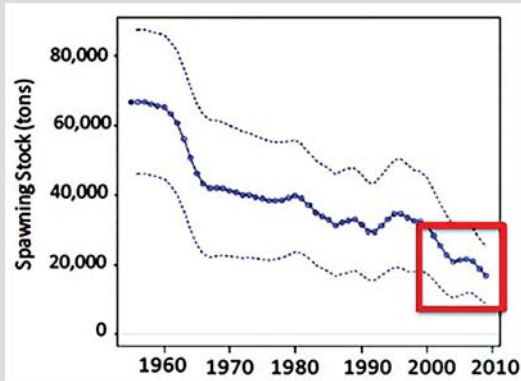
During the 2008 billfish season (June-November) blue marlin contributed over 40% of the catch by small scale fishers using FADs in Martinique

# The status of billfish stocks in the Caribbean



**Blue Marlin**

Atlantic-wide ICCAT stock assessments show decline in abundance and spawning stock biomass

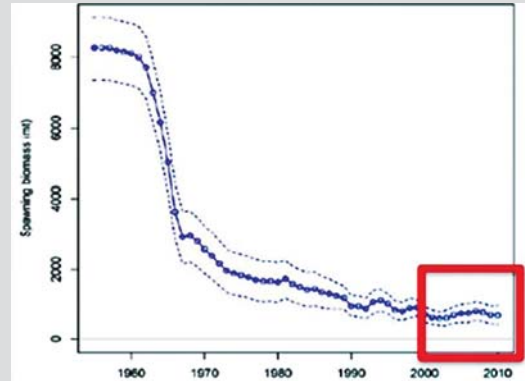


Years of known overfishing **23**  
12yr landings decrease within Area 31 **27%**



**White Marlin**

Atlantic-wide ICCAT stock assessments show decline in abundance and spawning stock biomass

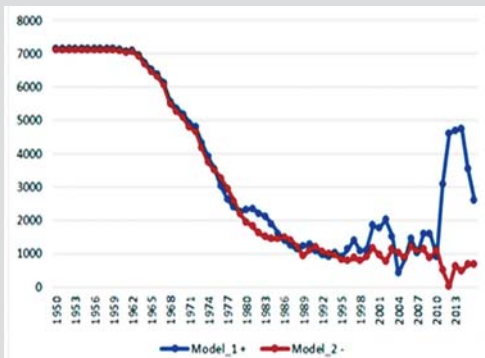


Years of known overfishing **30**  
12yr landings decrease within Area 31 **50%**

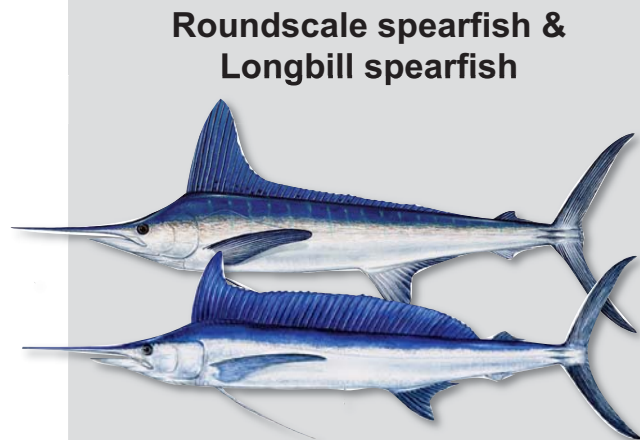


**Sailfish**

West & East Atlantic ICCAT stock assessments show declines in abundance and spawner stock biomass



Years of known overfishing **10**  
12yr landings decrease within Area 31 **45%**



**Roundscale spearfish & Longbill spearfish**



Years of known overfishing **?**  
12yr landings decrease within Area 31 **?**

# Project Component 1:

## Generating value and conservation outcomes through innovative management



The value of billfish resources to both commercial and recreational fisheries in the Caribbean. Author – Brad Gentner. Available at - <http://www.fao.org/3/a-i6178e.pdf>

Billfish are more financially valuable alive as targets in high value recreational catch & release fisheries than they are as a source of cheap protein through commercial harvests.

Survival of billfish from catch-and-release practices is high. Recreational fisheries of billfish and related tourism can provide sustainable and lucrative livelihood options for other fishers. Innovative management can minimize conflicts at sea between fishery sectors, and/or reduce commercial billfish harvests, something that's already occurring successfully in some sites.



Recreational fisheries economic impact manual developed and applied in Martinique and the Bahamas.

Authors – Rob Southwick, Brad Gentner, D'Shan Maycock and Myriam Bouaziz. Available at - <http://www.fao.org/3/a-i6148e.pdf>

**Martinique** – Resident recreational fisheries directly provides 610 jobs (compared to 724 in commercial fisheries) and indirectly supports 1033 jobs (compared to 3000 in commercial fisheries), making it an important sector in terms of supporting employment and livelihoods of the people in Martinique.

**Bahamas** – 89% of fishers are visitors making annually expenditures in the order of US\$ 527 million and contributing a significant US\$ 411 million to the nation's overall GDP. Bahamian recreational fisheries also supports more than 18,000 jobs.



Caribbean fisheries legal and institutional study: findings of the comparative assessment and country reports.

Authors – Cristina Leria. Available at - <http://www.fao.org/3/a-i6175e.pdf>

The fisheries legislation of nations within the Area 31 (Western Central Atlantic) was assessed, with detailed reports covering 12 countries. Despite legal and institutional differences there is scope to sustainably harvest billfish through introduction of innovative fisheries management and co-management approaches.

Fisheries policies and legislations are now being updated in various Caribbean nations, using the findings of this assessment.



### Pilot trial in Grenada

At sea circle-hook trials on Grenadian longlines are linking tuna value maximization and fishing operations with billfish stock impact reductions. Circle hooks ensure that more billfish remain alive for release, allowing the tuna targeting longline fleet to harvest within its billfish quota. Incentives are also being developed for longliners to reduce their billfish stock impacts.

Grenada became a member of the International Commission for the Conservation of Atlantic Tunas (ICCAT) in 2017 and seeks to set a good example for the Caribbean.

Successes can be spread regionally after these trials provide proof of concept.



### Pilot trial in Dominican Republic

The project is developing options to resolve the intensifying conflicts occurring between small-scale commercial and recreational fishers around Fish Aggregating Devices (FADs). Expanding and standardizing agreeable resolutions, some of which were already being trialed independently, will provide opportunities for billfish conservation through innovative fishery management. Simultaneously, the project is promoting improvements in the management of FAD fisheries while incentivizing billfish harvest reductions.

Successes can be spread regionally after trials provide proof of concept.

# Project Component 2:

## Strengthening regional billfish management and conservation planning



Report of workshop on recreational fisheries statistics in the Caribbean. Available at - <http://www.fao.org/3/i8241en/i8241EN.pdf>

38 representatives from 13 Caribbean countries discussed how to improve recreational fisheries data collection. The workshop increased the regional capacity to collect fishery management informing data from recreational fisheries. The recreational fishery subsector appears to be very capable of providing invaluable data and information, which can contribute to effective fisheries management decision-making processes.

A FAO Smartforms template for recreational fishery data capture was finalized and endorsed for implementation to feed a regional billfish fisheries database at the WECAFC Secretariat.



Study on the use and design of rights and tenure based management systems for transboundary stocks in the Caribbean. Author – Brad Gentner. Available at - <http://www.fao.org/3/a-i6071e.pdf>

Applying rights based fishery management in developing nations is often a challenge. Introducing rights based approaches for pelagic stocks even more so. Recognizing that securing user's rights to fisheries resources, along with appropriate incentives will promote sustainable actions by fishers, a desk study was done to review existing systems. The desk study looked into options to end the unsustainable "race to fish" and common property and open access resource regimes, while also increasing wealth among fishery participants.

Various options of potential rights structures with differing right strengths and levels are described and compared to guide potential application in the Caribbean.



Fishery Performance Indicator (FPI) studies in Grenada and Dominican Republic. Will be published shortly.

Authors – Brad Gentner, Freddy Arocha, Chris Anderson, Pablo Obregon, Raymon van Anrooy. Available at - <http://www.fao.org/3/i8833EN/i8833en.pdf>

FPI studies evaluate the effectiveness of fishery management systems in aligning ecosystem health and human well-being. They also help identify opportunities for investment into more sustainable fisheries, and towards improving fishery system efficiencies. The studies in Grenada and the Dominican Republic assessed the performance of recreational and various longline and FAD fisheries in these two countries. This study was supported by Conservation International and provided valuable fishery overviews while guiding value chain improvements.



Reports of three regional meetings on Caribbean billfish management and conservation. The 3rd report is available at - <http://www.fao.org/3/a-bs244b.pdf>

The third meeting of the Recreational Fisheries Working Group was attended by 35 representatives from 13 nations and relevant organizations. Project achievements and developing concepts were discussed, as was the latest billfish information available from ICCAT stock assessments. A WECAFC recommendation on billfish management was developed for regional implementation, and a draft Caribbean Billfish Management Plan achieved technical endorsement from the experts.



Caribbean Billfish Management and Conservation Plan. This plan will be published shortly.

This plan provides the key actions to be taken at regional level, within the next 5 years towards rebuilding the billfish stocks and improving the sustainability of billfish harvests in the Caribbean. Suggested interventions align and expand upon current recommendations of ICCAT. The plan proposes adaptive management actions, following data collection improvements, scientific advice and monitoring of management results. The WECAFC Scientific Advisory Group endorsed the plan in November 2017, and it is expected to achieve regional endorsement for implementation in 2019.



# Project Component 3:

## A Functional and Responsive Consortium on Billfish Management and Conservation (CBMC)

The CBMC is a group of fisheries organizations and NGOs, represented by fisheries scientists, marine biologists, fisheries managers, fisheries economists and other stakeholders. The CBMC aims to guide efforts to improve the management and conservation of billfish in the Caribbean. With its secretariat at IGFA headquarters, its members generate advice on technical and scientific subjects in support of regional level decision making processes for conservation and management of billfish resources. Biological, ecological, social, economic and management aspects of billfish fisheries are discussed by the CBMC.

### CBMC partner organizations

International Game Fish Association



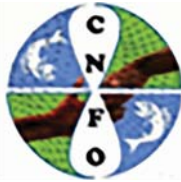
Western Central Atlantic Fishery Commission (WECAFC)



Caribbean Regional Fisheries Mechanism (CRFM)



Caribbean Network of Fisherfolk Organisations (CNFO)



Central American Fisheries and Aquaculture Organization (OSPESCA)



Conservation International (CI)



Study on the status of billfish resources and billfish fisheries in the Western Central Atlantic. Authors – Nelson Ehrhardt and Mark Fitchett. Available at - <http://www.fao.org/3/a-i6204e.pdf>

Intense exploitation for more than six decades has depleted billfish stocks on an Atlantic Ocean wide scale. Declining stock trends are expected to continue if no further interventions are made. The WECAFC area contains critically important habitats for billfish species. Ongoing fishery developments in the Caribbean are reducing the potential tourism value these stocks represent through recreational fisheries.



A Willingness to Pay study investigated the values that recreational fishers assign to billfish fisheries opportunities in the Caribbean. The study also explored potential methods through which recreational anglers would be willing to financially support billfish conservation efforts. Authors – Brad Gentner and John Whitehead. Available at - <http://www.fao.org/3/i9667EN/i9667en.pdf>

Recreational anglers in the Caribbean value the capture of a single additional billfish during a day of fishing at USD 761, and that value increases to USD 1 494 if the billfish is considered to be trophy size. Large expenditures by recreational fishery stakeholders in the Caribbean, and this sectors noted commitment to reducing billfish stock impacts, highlighted that recreational fisheries deserve greater recognition and incorporation within fisheries management decision making processes.

# Project Component 4:

## Business plans developed for pilot investments into the sustainable management and conservation of billfish

The project is supporting the development and testing of opportunities and incentives to secure the sustainability of Caribbean billfish harvests.

### Grenada

Circle hook fishing trials, stakeholder engagements and bio-economic modelling are producing opportunities for investment into mechanisms that incentivize, support and monitor billfish harvest reductions alongside improved catches, increased values and greater export market access for tunas.



Hook options



Harvest storage & handling



Tuna grading & evaluation for export

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### Dominican Republic

Engaging with stakeholders to standardize and institutionalize fishery co-management mechanisms reducing conflicts between recreational and commercial fishers.

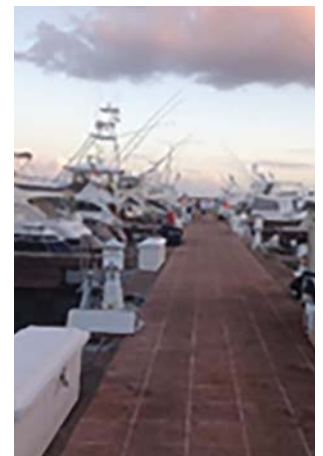
Incentivizing billfish harvest reductions through innovative management, particularly during spawning seasons, while developing best practices for FAD fisheries management. Options are being tested for region wide implementation at a later stage.



Small scale fishers



Stakeholder engagements seeking sustainable agreements



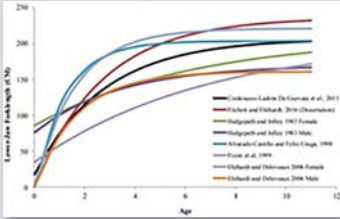
Recreational fishers

# Ongoing or planned studies and other work



Assessments of mercury concentrations in the flesh of Caribbean caught billfish are underway. Over 140 billfish tissue samples have already been collected from sailfish, white and blue marlin and are being analyzed by an independent research facility in Europe. Citizen consumption rate surveys have also been completed to provide vital context to the mercury concentration results.

High mercury concentrations in billfish meat may pose a risk to public health as Caribbean markets for billfish meat continue to develop. Resulting consumption advice will support the healthy and sustainable consumption of Caribbean caught billfish in the future.



The statistical parameters used to estimate growth of Atlantic billfish in current stock assessments will be reviewed for accuracy, prioritized and updated to improve the accuracy of future assessments.

Improved accuracy of assessments representing the latest stock conditions will improve the effectiveness of science based fisheries management decision making processes.



A financial evaluation of the annual billfish fishing tournament in Grenada and its contribution to the local economy is being conducted. Collaboration with the newly formed Grenada Game Fishing Association (GGFA) is taking place to develop a WECAFC contact list for recreational fishery organizations in the Caribbean.

The collection and standardized formatting of historical data from recreational fisheries organizations is also being planned through the GGFA, to better inform fisheries management in the Caribbean.



Improving data collection from recreational and artisanal fisheries is planned through standardized digital templates, while also implementing standardized logbook formats for commercial fishers in the Caribbean.

Collected data will feed into a regional database to improve the efficiency of data analyses, while ensuring timely provision of Caribbean billfish data to ICCAT in support of future stock assessments.



Value chain studies are ongoing in Grenada and the Dominican Republic with support from Conservation International. Increased understanding of current fisheries and market structures will inform opportunities for investment in the fisheries.

Value chain improvements supported by the project will be linked to billfish sustainability targets and provide stakeholders with incentives to reduce billfish harvests while establishing traceability in the value chain for tunas and billfishes.



Fisheries legislation updates are being supported in Grenada and Dominican Republic to enable innovations in the management of commercial and recreational fisheries.

# Supporting documents developed through project actions

- Endorsed WECAFC Recommendation on Billfish Management and Conservation
- Endorsed WECAFC Recommendation on Recreational Fisheries Management
- Updated WECAFC Recommendation on FAD Fisheries Management
- WECAFC Recommendation and report on sustainably maximizing the ecological and financial efficiency of longline fisheries in the Caribbean region
- Grenada signatory as an ICCAT member, with Dominican Republic considering the same
- Report comprehensively defining FAD effects upon fisheries, and suggesting regional management needs to promote sustainability in FAD associated fisheries
- Minimum requirements for logbooks and other data collection platforms to support improved data collection, comparability, sharing and use
- Posters & brochures on vessel markings and registrations to support the combatting of IUU fishing for shared fish stocks (Port State Measures and IUU workshop report)
- Inputs from the project to technical workshops on:
  - Shark fisheries management and conservation, supporting crossover of shared stock management needs and best practices for linked fisheries
  - IUU Fishing, contributing to the establishment of an authorized vessel register and IUU vessel lists in the region
  - Regional Fisheries governance, building capacity among fisheries sector stakeholders for the management of transboundary resources

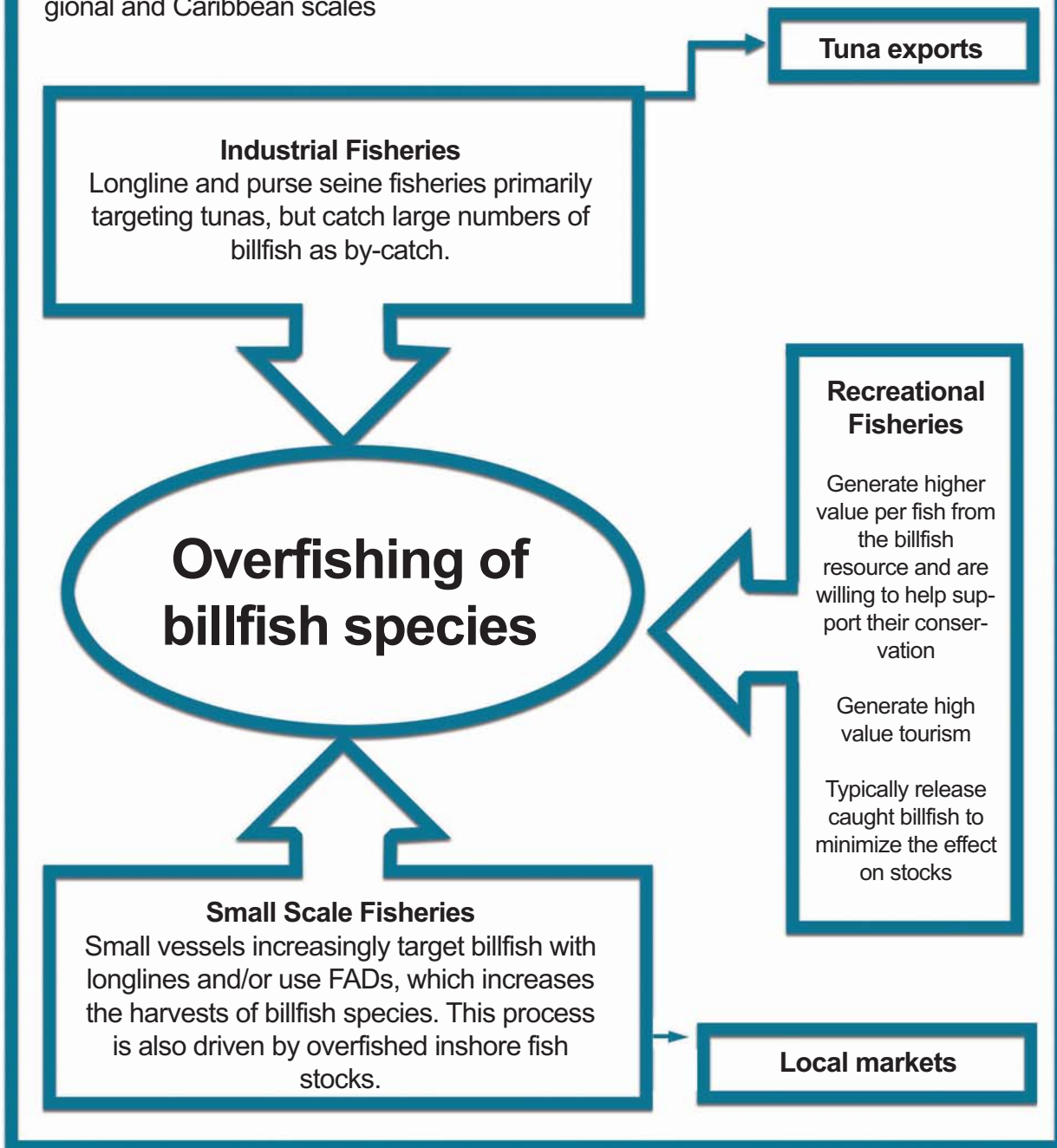


Image by sportfishimages.com

# Current management and context for the fisheries capturing billfish species in the Caribbean

**RFMO = ICCAT** – Atlantic Ocean wide management of tuna and billfish stocks  
Conducts stock assessments and manages fisheries by setting quotas and other regulations or management recommendations

**RFBs = WECAFC, CRFM, OSPESCA; and regional partners CFMC and CNFO** –  
Regional organizations collaborate to guide sustainable fisheries management on regional and Caribbean scales



# What is WECAFC?

The Western Central Atlantic Fishery Commission (WECAFC) is an advisory body, established in 1973. This commission is the Executing Agency of the Caribbean Billfish Project. WECAFC comprises of 33 member countries and the European Union, including coastal states whose territories are situated within the area of the Commission, states whose vessels engage in fishing in the area of competence. The WECAFC area of competence covers a total area of 17 million km<sup>2</sup>, including 9.4 million km<sup>2</sup> high seas area. The main role of WECAFC is the promotion of the effective conservation, management and development of the living marine resources in the area of competence, in accordance with the FAO Code of Conduct for Responsible Fisheries, as well as addressing common problems of fisheries management and development faced by the respective members. The WECAFC Secretariat, which is supported by the Food and Agriculture Organization of the United Nations (FAO) is located in Barbados.

More information on WECAFC can be found at: <http://www.fao.org/fishery/rfb/weca/c/en>

Below in blue is the competence area and member states (dark grey) of the WECAFC

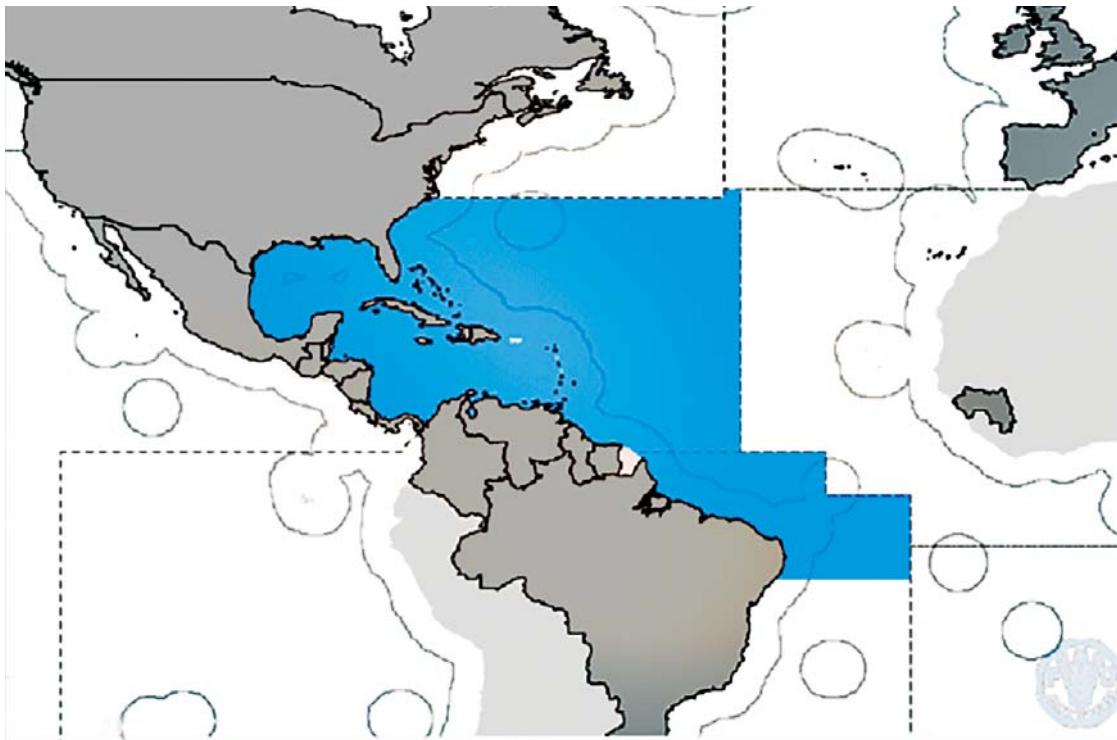


Image by sportfishimages.com

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Food and Agriculture Organization of the United Nations





