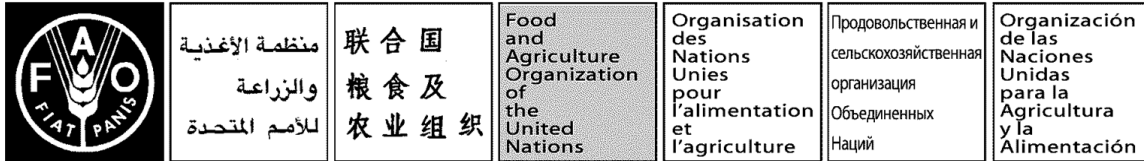


November 2018

E**WESTERN CENTRAL ATLANTIC FISHERY COMMISSION (WECAFC)****NINTH SESSION OF THE SCIENTIFIC ADVISORY GROUP (SAG)****Bridgetown, Barbados, 19-20 November 2018****Draft Regional Strategy on the Management of bycatch and discards in Latin American and Caribbean [WECAFC] bottom trawl [shrimp and groundfish] fisheries**

1. The following document is the working document for the Regional Strategy on the Management of Bycatch and Discards in Latin American and Caribbean bottom trawl fisheries. The strategy is an output of the REBYC-II LAC project and currently under development through a participatory process.
2. The Scientific Advisory Group should elaborate on the following requests:
 - a. Review the current document and provide technical and scientific advice on its contents, this includes any technical or practical gaps.
 - b. Provide guidance and/or instructions on the development of the Regional Strategy, including critical partners and other crucial stakeholders.
 - c. Consider the Regional Strategy in the regional WECAFC context and recommend a pathway for its implementation. This might include advice on the relationship of the Strategy to other WECAFC documents as well as the best steps to enhance its uptake amongst WECAFC members.

1. Introduction

a. Background

In 2013-2015, during the development of the project on Sustainable Management of Bycatch in Latin American and Caribbean Shrimp Fisheries, (REBYC-II LAC), participating countries noted the lack of a regional mechanism or strategy that guides the management of bycatch in bottom trawl fisheries. They noted reports of the old WECAFC Working Group on Shrimp and groundfish that improved practices in bottom trawling required increased coordination and communication as well as a common approach.

As such, they requested FAO, through WECAFC, to lead the development of a strategy on bycatch management in trawl fisheries that ensured a common approach across borders. By following a common approach and using the same language and action steps, partners and countries can strengthen regional collaboration and improve information and technology transfer. REBYC-II LAC partners also considered that the development of this common strategy was a mechanism to involve countries in the region that were unfortunately not participating directly in the project. This is also a key recommendation of the International Guidelines on Bycatch Management and Reduction of Discards.

As such, the REBYC-II LAC project was given the mandate to develop Regional Strategy on Bycatch Management in Tropical Shrimp/Bottom Trawl Fisheries for Latin America and the Caribbean. This is the first working document for this strategy.

The elements and items of this draft strategy were drafted during expert workshops and consultations held under the auspices of the REBYC-II LAC project. Hopefully the Scientific Advisory Group may provide their insight to this draft strategy after which it will be shared with CRFM/OSPESCA and other regional partners for consultation at regional, national and local levels.

b. Definition of bycatch

Paragraph 2.4.1 of the International Guidelines on Management of Bycatch do not provide an agreed definition of bycatch *“because of the very diverse nature of the world’s fisheries, historical differences in how bycatch has been defined nationally, ambiguities associated with bycatch related terminologies and choices of individual fishers on how different portions of their catch will be used. Also, there are functional interpretations of bycatch that include catch that a fisher did not intend to catch but could not avoid, often did not want or chose not to use. There are also regulatory interpretations of bycatch in fisheries management plans and these types of interpretations may not necessarily coincide.”*

To execute this strategy effectively, the following definitions are agreed upon¹.

Target Catch -- The catch of a species or species assemblage which is primarily sought in a fishery.
[Bycatch and discards- Retained catch of non-targeted species as well as the portion of the catch returned to sea because of economic, legal or personal considerations. Catch of non-targeted species, both retained or returned to sea dead or alive]

Countries themselves must determine more specific definitions in the context of their national fisheries management regulations and practices.

c. Why a regional strategy?

Regional collaboration in bycatch management is necessary, considering the transboundary nature of the marine environment and resources. This is especially true with respect to bottom/shrimp trawl fisheries where many of the bycatch issues and concerns are shared across the region. Well-tested and effective solutions benefit all countries in the region, particularly considering the increasingly strict import requirements established by the large seafood markets of North America and the European Union. Regional organizations such as CRFM, OSPESCA and WECAFC must lead the effort to implement this strategy and strengthen and promote experience sharing and mobilization of political support. With the help of RFBs – CRFM, OSPESCA and WECAFC – regional cooperation that allows for experience-sharing and mobilization of political support for action will be promoted.

In this context, WECAFC, CRFM and OSPESCA have all passed resolutions calling for the implementation of the International Guidelines on the Management of Bycatch and Discards.

A regional strategy on the management of bycatch in bottom/shrimp trawl fisheries establishes a framework for the support and collaboration required to improve the sustainability of these fisheries.

2. Vision

Reduce unsustainable bycatch and discards in Latin American and Caribbean bottom/shrimp trawl fisheries to the maximum extent possible by applying the International Guidelines on Bycatch Management and Reduction of Discards and working in collaboration with fishers and other stakeholders through an Ecosystem Approach to Fisheries.

3. Strategy Objectives

- a. **Apply an Ecosystem Approach to Fisheries for the management of bycatch and discards** using management best practices, where all species caught in a defined unit must be considered for management and where management plans and measures must reflect bycatch and discards.
- b. **Improve data collection and monitoring procedures** and updating national and regional fishery statistics databases. This includes collecting regular catch composition surveys, monitoring landings and logbook reports and using on-board observers. It also includes data collection on socio-economic variables that are drivers of bycatch and discards such as fisher/boat income, ex-vessel prices, cost distribution and market availability.
- c. **Reduce unsustainable bycatch with Turtle Excluding Devices (TED) and Bycatch Reduction Devices (BRD)** and developing improved BRD devices through standard methodologies that include participatory research and technology transfer.
- d. **Mainstream the use of spatial and temporal measures** to reduce bycatch, protect critical species, protect vulnerable life history stages and minimize impacts on vulnerable habitats.

- e. **Utilize sustainable bycatch** by promoting investment and government support in viable value chains. This includes the potential for utilizing bycatch in school and community feeding programs.
- f. **Strengthened communication, coordination and information sharing** through regional partners to disseminate best practices in bycatch management. WECAFC/CRFM and other regional partners to provide best technical support available and monitor the implementation of the strategy.

4. Strategic Actions

A. Managing Bycatch through an Ecosystem Approach to Fisheries.

1. The management of bycatch and discards in Latin American and Caribbean bottom trawl fisheries follows an Ecosystem Approach to Fisheries that considers ecological and human well-being as well as an enabling governance framework.
2. Fisheries management frameworks, including management plans and legislation include regulations and or rules for the management of bycatch and discards.
3. Management plans consider ecosystem and stock boundaries rather than political boundaries and consider all other users of same resource and marine space.
4. Management plans that consider bycatch are created in the context of livelihoods and prevention of damage to public goods.
5. Management plans that consider bycatch must consider impacted species including other fishery or non-fishery species including birds, mammals, turtles and habitats (deep-water reefs, benthic invertebrates)

B. Data Collection and Fishery Evaluation

Accurate and timely data collection is crucial to understand the catch composition of bottom/shrimp trawl fisheries in the region. Strengthened monitoring systems allow improved understanding of the impact of bycatch on shrimp and ground fisheries as well as the impact on other fishery species and the of the ecosystem in general.

- **Action step 1:** Strengthen data collection protocols in the region utilizing available data collection methods such as log-books and landings data. Update data collection protocols to standardize bycatch reporting methodologies across the region. Strengthen data access and sharing policies.

- **Action step 2:** Where possible, implement regular on-board data collection methods, including the use of observers, to validate logbook data and more accurately assess discarded bycatch or when not possible use methods such as last haul rule in Guyana, cameras, etc.
- **Action step 3:** Include bycatch and catch composition data into existing national fisheries data collection and statistics systems and/or databases. Cross-reference catch and habitat data to relate catches to habitat types.
- Possible data parameters required for bycatch management are as follows:

Parameter	Variables
Biological: Catch and Discard Variables	
Target species/species group	species (or species group)
Total Catch	weight; number, number of baskets/bins/boxes; holds (volume)
Target Species Composition	sampled species; number of baskets/bins/boxes/holds by species
Average sizes	sampled fish species, length, weight, catch weight by size grades
Bycatch composition	sampled fish species, length, weight, catch weight by size grades/ spp identification /retained species biomass
Discards	Species composition; weight; number of baskets/bins/boxes; whole/macerated
Ratios	Bycatch ratio, discard ratio
CPUE	Catch per tow. Catch/ per day. Bycatch/ tow
ETP/TEP composition/morphology	Threatened, endangered or protected species, size/length/weight/composition/ # spp.
Habitat	Quality/ area/ degradation index / add a bit of information
Abundance	CPUE/ Stock assessment/ stock size, catch rate/ mean size/ recruitment
Economic: Production and earnings variables	
Product type	whole round/green; gutted; boned; headed; fins off; fillet; skin on/off; loin; mince; surimi; fish meal (from whole fish/discards/broken or sour/ offal etc.); consumer packs
Product storage	whole frozen; IQF; hold frozen; storage temperatures; dry; brine; salted; fresh
Product packaging	individually marked and packed (e.g. tunas); carton (type and weight); bag (type and weight); basket (type and weight); barrel
Processing equipment	machine type; production rate, availability
Total Revenue from fishing	Revenue per tow/ annual seasonal revenue/ per trip
Net profit from fishing	Revenue minus costs
Landings value	Harvest/catch values by species or group. Value of catch/ trawl type/ gear type
Price of products (value added)	market/export price, ex vessel price (for both target and non-target species)

Cost of bycatch and discards	Loss of future opportunity; cost of habitat damage; income loss/gain across sub-sectors
Fishing Gear/Effort Variables	
Gear	Gear type
Construction	mesh, material, doors, TED, grids, escape doors, diversions etc.
TED/BRD	Material, type, location, size
Trawl Size	Length, depth, headline, foot rope, lazy rope, tickler chain,
Deployment	bottom/mid-water
Subsidiary vessels	dinghies, scout, net boat
Electronics	beacons, sounder, mass sensors, GPS, depth finder AIS
Markings	gear number, vessel identification
Trawl	date, time, speed, positions for "gear set, "on bottom" "at school" closed, off bottom, haul start, on surface, trawl track
Socio-Economic Variables	
Number of persons employed in fishery	Employees by primary, secondary and tertiary sectors, disaggregated by age sex and job category. Time spent in occupation
Unemployment/employment	Unemployment in region/community/nation or #/% of locals in fishery
Earnings	earnings for each crew member/ earnings for each fishing household
Food security	quantity of landings for food/nonfood uses (catch and bycatch); bycatch contribution to local diets; nutrient gains/losses
Earning distribution	Wages as % of cost/ wages in relation to minimum national wage/ revenue distribution on vessel
Poverty	Poverty levels in fishery/community
Livelihoods	Income/earnings from fishing or associated activities
Gender	Disaggregated gender data/role of women/power distribution/ % of workers that are female, young, male.
Governance Variables	
Normative laws	Number/existence of regulations/laws/ policy/management plans
Policies and objectives	Presence of long term and prioritized policies
Compliance	Fisheries patrols, arrests, sanctions, enforcement/
Transparency	Available information on decision-making/ participation
Management capacity	Management plans/ management staff, fisher knowledge of plans
Management response	Management measures- spatial, temporal closures. Gear regulations, effort regulations, input regulation
Participation	Committees/ Council, participation of fishers/community members in fisheries meetings

Organization strength	Number of organizations, # of member in organizations, # of meetings, perceived influence on decision making
Capacity	Capacity of staff in institutions/fishery organizations, # of trainings, improved knowledge transfer
Data availability and capture	General data availability, fishery information system, ease of access, use in fishery

C. Unsustainable Bycatch Reduction

WECAFC Members will continue to develop and implement bycatch reduction measures. Bycatch reduction measures focus on improvements in fishing practices. These include the use of larger mesh sizes and other changes to the shape and size of trawl nets. Most efforts are now centered on fishing gear innovations such as the use of Turtle Excluder (TED) and Bycatch Reduction Devices (BRD). Spatial and temporal measures may also be introduced to protect critical areas, life-stages and habitats as well as vulnerable, endangered and protected species. Across the region, management plans and framework must be updated to mandate the implementation of bycatch reduction practices in all bottom/shrimp trawl fisheries.

These recommendations guide the strategy to develop bycatch reduction technologies in the Bottom/Shrimp Trawl Fisheries of Latin America and the Caribbean.

Recommendation 1: Apply the guiding actions for Development of Bycatch Reduction Devices

Guiding action 1

1. All bycatch reduction processes incorporate the fishing sector and other stakeholders for the entire continuum of activities. This includes the participation of fishers, researchers, government, NGOs and others from the start of planning or inception activities through field trials, result dissemination, and implementation of the chosen technologies.

Guiding action 2

1. Bycatch reduction measures must be evaluated against baseline data.

Required data:

- a. Catch composition baselines across years and seasons
- b. Identification of vulnerable, endangered or critical species
- c. Location of fishing areas
- d. Operational costs

Preferred data:

- a. Social and economic importance of bycatch
- b. Ecological baseline
- c. Consolidation of information in databases

Guiding action 3

1. Goals and objectives – All countries should establish specific national objectives and targets for bycatch reduction processes. This includes:
 - a. Type and quantity of bycatch targeted by reduction measures.
 - b. Type and quantity of bycatch that can be landed.
2. All countries must establish an objective to reduce the catch of ETP species, and vulnerable life history stages of target and bycatch species.

Guiding step 4

1. All countries must establish a research and development protocol for bycatch reduction devices that is agreed to by fishery stakeholders and that is designed with a scientifically rigorous methodology.
 - a. Taking into consideration the above, it is advantageous to allow fishers to manipulate/" play" or test devices independently so that they are better adjusted to daily operations.
 - b. Fisher innovations must still be field tested under the scientifically rigorous methodology mentioned above.
2. To greatest extent possible, research results should be shared between countries to decrease cost to single country of testing of new fishing gear.

Guiding step 5

1. WECAFC Members promote the communication of the processes and results of their bycatch reduction activities. An information sharing system under WECAFC management will serve as a conduit to share the results of bycatch reduction technology development activities. This system includes the REBYC-II LAC Project web-site, as well as an open Access forum that facilitates regional discussions.

Guiding step 6

1. All WECAFC partners must emphasize results sharing and capacity building activities to improve the private sector's fishing practices. This might include:
 - a. Field visits or monitoring to evaluate bycatch reduction activities
 - b. Joint training for fishers, researchers and other involved stakeholders
 - c. Follow-up by trained international experts on fishing technology.
- **Recommendation 2:** All WECAFC countries should seek guidelines to further develop, test, regulate and enforce bycatch reduction technologies, including turtle excluder devices and bycatch reduction devices.

- **Recommendation 3:** Evaluate the use of spatial and temporal measures to reduce high volumes of bycatch or critical/vulnerable species.
- **Recommendation 3:** FAO, NOAA, EU and other international partners will provide technical training and build capacity to introduce and apply bycatch reduction technologies in (bottom trawl) fisheries.
- **Recommendation 4:** Through a participatory and transparent process, countries shall update rules and regulations to mandate the use of bycatch reduction technologies and best practices.

D. Sustainable Bycatch Utilization

a. Principles for Bycatch Utilization

- Principle 1: Bycatch utilization must only be promoted if it falls within sustainable levels.
- Principle 2: Evaluate the economic, social and environmental feasibility of utilizing bycatch.
- Principle 3: Support the development of business plans and mobilize private and public investment to create value chains derived from bycatch.
- Principle 4: Explore the viability of utilizing bycatch in school or community feeding programs, non-food products. This could provide fishers with a fixed source of demand and protect from significant price drops or market fluctuations.

b. Action Plan for Bycatch Utilization:

1. Define bycatch composition

- ▶ Most WECAFC members have a basic understanding of catch composition and of the species with utilization potential. A first step is to update or complete this information and integrate spatial, temporal and fleet distribution considerations into the data. Fleet distribution considerations include, for example, expansion of trawling into deeper waters and new resources.
- ▶ Countries and partners must define what species or families may be processed together. This may increase supply for a production process (surimi or silage, for example).

2. Define viable bycatch utilization systems/technologies

- ▶ A variety of utilization systems/technologies are available. Utilization programs must define what is the most viable processing system.
- ▶ On-board handling protocols and training are a pre-requisite to effective bycatch utilization systems. Training is required.

3. Establish a pathway for change

- ▶ Government participation is crucial, particularly through public policy and by incorporating bycatch utilization into existing strategic programmes. These changes may be generated through:
 - A public purchasing programme that secures bycatch products for various purposes.
 - Government credits and other low-cost loans to finance bycatch utilization processes.
 - Modify legal and policy frameworks to improve the enabling environment for bycatch utilization (ex. review prohibitions on transshipments) and that engage the sector.
 - Connect various ministries and institutions responsible for promoting healthy diets, consumption, technologies, entrepreneurship, etc.
- ▶ In the private sector, consistent and good revenues are a driver of change. However, the private sector should also consider a paradigm shift in the fishery that includes improved auto-enforcement of regulations and investments in food security. Private sector enterprises should develop pilot utilization projects (in coordination with government and others). This will also necessarily require the involvement, active participation and guidance from the academic and food technology sector.
- ▶ Facilitate international coordination to collaborate on utilization practices and technologies and open potential markets for bycatch derived products.

4. Identify critical institutional changes and pathways

- ▶ Critical institutions for success include Agriculture Ministries, Fisheries Ministries/Departments, Natural Resource/Environmental Ministries, Social Development Ministries and Education Ministries. Research and technological institutions are also common throughout the region and are critical to the success of new food processing initiatives.

5. Identify crucial actors to promote change

- ▶ The private sector is the crucial actor of improved utilization. It must have proactive participation in utilization initiatives, in collaboration with government. Core representatives from fisher organizations and associations are responsible not only for communicating with government, but also relaying information and generating change within their member constituencies.

6. Establish Milestones for Change

- ▶ Each country should establish critical milestones for change regarding utilization. While the REBYC-II LAC hopes to reduce discards by 20%, regional partners must define how much of this reduction shall be due to decreases in bycatch and how much due to improved utilization.

E. Strengthened communication, coordination and information sharing

a. Further Inputs Required

- **Recommendation 1:** Ensure and promote use and access to data related to bycatch, including those collected under item B of the strategy.
- **Recommendation 2:** Develop science networks and forums on bycatch in trawling. This includes the CRFM/WECAFC/IFREMER Working Group on Shrimp and Groundfish of the North Brazil-Shelf, the WECAFC-FIRMS data management partnership and the WECAFC/OSPESCA/CRFM tri-partite coordination committee.

F. Strategy Implementation

a. Further inputs required