

**4th (Virtual) Meeting of the WECAFC/CRFM/IFREMER Working Group on Shrimp and Groundfish
of the North Brazil-Guianas Shelf**

18-19 November 2020

Guianas-Brazil Shrimp and Groundfish - Subregional Fisheries Management Strategy

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Goal

Provide strategic direction for the sustainable use of shared shrimp and groundfish fisheries resources of the Guianas-Brazil Shelf.

Preamble

During the 3rd Meeting of the WECAFC/CRFM/IFREMER Working Group on Shrimp and Groundfish of the North Brazil-Guianas shelf there was a review of a draft subregional EAF management plan for the shrimp and groundfish fisheries. The draft plan assumes that, at least for the short term, implementation of subregional plans and objectives will be through the implementation of harmonised national plans. A future arrangement may emerge whereby there is joint management of shared resources under the subregional plan but this is not a prerequisite to beginning effective subregional management now.

Fisheries management plans are generally expected to provide short to medium term guidance to managers and industry. In addition, strategic plans are also formulated, to meet the longer term objectives which may be defined in other documents, such as the strategic plan for bycatch reduction. As this process is a first attempt to operationalise a subregional plan for these resources, it will address both the strategic direction in this document and the specifics of a subregional fisheries management plan in the complementary document, Guianas-Brazil Subregional Fisheries Management Plan.

This Guianas-Brazil Subregional Fisheries Management Strategy will be one of the documents that provide guidance to the annual or short term planning process. Other strategic guidance documents, such as the Regional Strategy on Shrimp Bycatch and the RPOA on IUU fishing, are reflected here as well. Strategic issues addressed here include defining the institutional arrangement for subregional fisheries management planning, establishing GEAF objectives and indicators, implications of the RPOA on IUU fishing and, elements of the regional strategy on bycatch in trawl fisheries.

Institutional Arrangements for Subregional Fisheries Management

Existing Multilateral Fisheries Institutions in the subregion

Suitable institutional arrangements need to include the full scope of the Guianas-Brazil shelf which adjoins six countries (Brazil, French Guiana, Guyana, Suriname, Trinidad and Tobago, and Venezuela).

There are several fisheries relevant institutions currently in place for the Guianas-Brazil sub-region although none is presently a competent subregional decision-making body or forum for management of these shared resources.

Western Central Atlantic Fisheries Commission (WECAFC)

WECAFC is the FAO advisory regional fisheries body whose area of competence includes this sub-region. From the revised statutes of WECAFC, approved by the FAO Council in November 2006, the general objective of the Commission is “Without prejudice to the sovereign rights of coastal States, the Commission shall promote the effective conservation, management and development of the living marine resources of the area of competence of the Commission, in accordance with the FAO Code of Conduct for Responsible Fisheries, and address common problems of fisheries management and development faced by members of the Commission.”.

Working Group on Shrimp and Groundfish

Of particular significance is the WECAFC/ CRFM/ IFREMER Working Group on Shrimp and Groundfish in the North Brazil-Guianas Shelf. This body originated in the 1990s as an *ad hoc* working group but has been constituted as a standing body of WECAFC since 2012. The working group is to provide scientific and management advice for the sustainable management of the shrimp and groundfish resources of the Northern Brazil-Guianas shelf. The terms of reference specifically note that many stocks are shared and the terms of reference should be applied sub-regionally as well as nationally.

Caribbean Regional Fisheries Mechanism (CRFM)

The CRFM was established in 2003 “To promote and facilitate the responsible utilization of the region's fisheries and other aquatic resources for the economic and social benefits of the current and future population of the region”. The 17 member states are CARICOM member states and associated states. The CRFM includes a Ministerial Council, a Fisheries Forum, and a Technical Unit/Secretariat. Of specific interest to shrimp and groundfish management is the CRFM Continental Shelf Fisheries Working Group. Although three sub-regional countries are CRFM member states, the geographical scope is incomplete due to the absence of Brazil, French Guiana, and Venezuela.

Profile of Future Institutional Arrangement

Structure

A subregional institutional arrangement for management planning for the shared shrimp and groundfish resources of the Guianas-Brazil shelf needs to:

- Be part of a multilevel subregional ocean governance system (local, national, subregional, regional and global)
- Provide a forum for transboundary governance of living marine resources which supports
 - The exchange and combination of data and information on shared resources
 - Making decisions on management objectives for shared resources
 - Evaluation of the status and trends in shared resources and identify measures needed to reach management objectives for shared resources
- Operate in a regular and timely manner
- Fully engage all relevant states and interested parties

The following elements are proposed for a subregional decision-making capacity, reflecting recent experience in the region and successful multilateral fisheries bodies elsewhere. These arrangements would support the planning and implementation of EAF management required for subregional management, building on the existing Shrimp and Groundfish Working Group.

- **Sub-regional Technical Forum**
A regular (annual or more frequent) regional technical forum (e.g. Shrimp and Groundfish WG) at which management plans and actions can be reviewed and refined, in line with defined strategies. This forum would instigate and guide research, conduct or review stock assessments, advise on management and conservation measures, review results from such work, and to provide the best available scientific advice to the decision-making forum.
- **Sub-regional Decision-making Forum**
A regular (annual or biannual) regional decision-making forum (e.g. Shrimp and

Groundfish Ministerial Committee) which will set the strategic directions for subregional FMP and establish agreed EAF management plans. The primary tasks of this forum would be to receive and review the advice from the technical forum, consider the recommendations therein, and finalise decisions on all aspects of the subregional FMP for shrimp and groundfish.

- **Technical Forum Subcommittees**

Regular meetings of standing and *ad hoc* subcommittees of the regional technical forum for addressing planning, implementation, stock assessment, and research needs on an ongoing basis to support the fisheries management planning process. Each subcommittee would have specific and bounded terms of reference e.g. Subcommittee on statistics and data; Subcommittee for stock assessment; or *ad hoc* subcommittees established to address particular issues. Subcommittee schedules may include more frequent meetings than the regional technical forum.

- **Secretariat**

Effective operation of the above advisory and decision-making process will require continuous support from an established secretariat. The primary function of the secretariat is to ensure the timely completion and dissemination of FMPs as approved by the Decision-making forum. This will require managing and supporting the process logistics (meetings, travel, data, rapporteurs, and report production) and dissemination of results through publications and websites. Of particular logistical note is the need to establish and maintain a standardised and accessible data repository covering all the stocks and areas to be managed. This secretariat function may eventually be part of a larger entity with wider scope and areal extent (WECAFC, CRFM, or other).

Although not part of the multilateral structure the National Intersectoral Committees in each country will be critical to:

- Provide the linkage between countries and the regional institutional processes
- Facilitate access to local and national information and expertise required for the regional assessment
- Promote engagement of local and national partners to conduct research and monitoring for the regional assessment.

Monitoring and evaluation with the Governance Effectiveness Evaluation Framework

Monitoring and evaluation of the strategic planning and direction is completed using the Governance Effectiveness Assessment Framework (GEAF). The GEAF comprises a set of indicators in seven categories: governance architecture, governance process, stakeholder engagement, social justice, ecosystem pressure, ecosystem state and human well-being (Annex 1). These indicators are aimed at providing a comprehensive picture of progress with the regional strategy. The first, baseline period, for the indicators will be 2011-2015. For each indicator a target point or direction will be needed.

The indicators bring together national information at a strategic level to provide an overall picture of the marine environment and fisheries at the regional level. Therefore, each country will need to put in place the means of acquiring the necessary national level information for input to the regional monitoring and evaluation. National level monitoring should be tailored to the national needs but be compatible with the regional approach. It may be more detailed than the regional information needed. Appendix 1 shows which indicators require national level input.

Ensuring that the GEAF M and E is carried out and reported on would be the responsibility of the subregional mechanism proposed above. It would require dedicated resources to acquire the data and information needed, analyse and report on it. The reporting would be to the Technical Forum of the subregional mechanism which would then prepare recommendations for the Decision Making Forum. An output of the M and E would be a report on marine ecosystems and fisheries in the subregion aimed at informing decision-makers and their advisors and providing appropriate background to the recommendations of the technical committee.

Regional Plan of Action to Prevent, Deter and Eliminate IUU Fishing

In July of 2019, the WECAFC endorsed a Regional Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated (IUU) Fishing in WECAFC Member Countries (2019-2029). The WECAFC RPOA-IUU (Attached as Annex 2) has been developed by the joint Regional Working Group on IUU fishing (RWG-IUU) of WECAFC which includes two sub-regional organizations, the Caribbean Regional Fisheries Mechanism (CRFM) and the Organization for Fisheries and Aquaculture of Central America (OSPESCA). It was endorsed at the 17th Session of WECAFC in July 2019 and ready for implementation at national and regional levels. The timeframe for this RPOA-IUU is 10 years, commencing in 2019, with systematic reviews at regular intervals, using the joint WECAFC/CRFM/OSPESCA RWG-IUU as a mechanism for this. The RPOA-IUU is an important link between the implementation of the International Plan of Action to Prevent, Deter and Eliminate IUU Fishing (IPOA-IUU) and the formulation of National Plans of Action to Prevent, Deter and Eliminate IUU fishing (NPOA-IUU) and corresponding measures to combat IUU fishing in WECAFC Member States.

The WECAFC RPOA-IUU identifies 28 measures and actions to combat IUU fishing in the region and to fulfil the WECAFC Member States' obligations in their different capacities as port, flag, coastal and market States through regional cooperation, consistent with relevant international fisheries instruments. Four main aspects are considered: (1) policy and legal framework; (2) operations and monitoring, control and surveillance (MCS); (3) regional cooperation and information-sharing; and (4) capacity development. Measures specified in the RPOA-IUU that are of a longer-term nature are reflected in this Subregional Fisheries Management Strategy document while the measures of a more operational nature are reflected in the corresponding Subregional Fisheries Management Plan.

Policy and Legal Framework

Both the Subregional Fisheries Strategy, and the Subregional Fisheries Management Plan, for shrimp and groundfish depend on a policy and legal framework which recognises and enables multilateral action. To this end, the RPOA-IUU outlines the need for National Plans of Action to implement the IPOA-IUU, the need for subregional countries to have ratified, adopted, or acceded to, the various multilateral instruments in support of conservation and fisheries management, and for countries to have updated laws, regulations and policies, which are aligned with the requirements of combatting IUU fishing. These are described in measures 1 to 7.

The RPOA-IUU also calls for regional action to develop cooperative measures to limit possibilities to continue IUU fishing operations. Requirements include common policy and action with respect to registering, licensing and chartering fishing vessels in the subregion, establishing regional or subregional records of fishing vessels which meet international norms, establish and maintain lists of known IUU vessels and operators, and to record

catch and trade documentation meeting international norms and standards. These are described in measures 8 to 12.

Operations and Monitoring Control and Surveillance related actions

This section of the RPOA-IUU includes 8 specific measures (13 to 20), to establish or strengthen MCS and enforcement procedures to identify IUU operators, take action against them, and enforce the relevant laws. In particular, the RPOA-IUU identifies the need for regional standards and coordination of of MCS operations, vessel markings, and information exchange. While these measures are specific to anti-IUU fishing efforts, they are equally valuable for national MCS efforts in general.

Information exchange and cooperation at regional level

The 6 measures (21 to 26) included in this section of the RPOA-IUU provide guidance on the means to share information amongst multilateral agencies and stakeholders, to eliminate gaps or avoidance in anti-IUU efforts, and to provide means for quantitative monitoring of IUU activities. These systems can and should also form the basis for fisheries management information such as stock assessments and management effectiveness.

Capacity Development

The final section of the RPOA-IUU includes two measures aimed at guiding the training and capacity building efforts needed to establish the systems and capabilities outlined in the preceding sections. These include data collection, data analysis and information sharing; law enforcement; international coordination; and other tools and technology to strengthen national and regional MCS and fisheries management capacity.

Regional Strategy on the Management of bycatch and discards

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. They called upon the strategy to be short and concise, respecting the fact that these fisheries take place in the continental shelf, but stressing that 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 of November 2019, a working document has been prepared 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. This calls on the Shrimp and Groundfish Working Group of the North Brazil Shelf to elaborate on the following requests:

1. Review the current document and provide technical and scientific advice on its contents, this includes any technical or practical gaps.
2. Provide guidance and/or instructions on the development of the Regional Strategy, including critical partners, senior government officials, and other crucial stakeholders.
3. 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.

Annex 1. CLME+ Shrimp and Groundfish Governance Effectiveness Assessment Framework (GEAF) Monitoring and Evaluation indicators

	Can be developed at the regional level alone
	Requires input from countries to be aggregated at the regional level

Guiding Questions to be Addressed by Indicators	Indicator	National input?
Fisheries		
Architecture		
Are arrangements in place to address fisheries governance at regional/subregional levels?	Strength (combination of completeness and coverage)	N
Is there a mechanism for integrating regional/subregional fisheries policy cycles at the policy level?	Yes/no	N
Are there mechanisms in place to ensure national coordination and national-regional interaction?	NIC scores	Y
Process		
Are there regional/subregional policies in place for fisheries? (WECAFC, OSPESCA, CRFM, OECS)	Yes/no	N
Are there regional/subregional strategic plans in place for fisheries? By stocks of which some are shared and some national	Yes/no	N/Y
Are there regional/subregional management plans in place for fisheries?	Yes/no	N/Y
Is there regional/subregional (harmonised) legislation in place for fisheries?	Yes/no	N/Y
Are there regional/subregional (harmonised) regulations in place for fisheries?	Yes/no	N/Y
Is there evidence that the processes for fisheries are conducted according to agreed principles?	Yes/no	N/Y
Is there evidence of integration as per the mechanism referred to under architecture above	0 = not in place 1 = temporary mechanism in place 2 = permanent mechanism in place	N
Ecosystem stressors (pressure)		
Is fishing effort at the agreed upon level for the region/subregion for each of the indicator stocks? ¹	0 = no agreed level 1 = effort/catch higher	Y

¹ Shrimps and prawns (Seabob, *X. kroyeri*, *Farfantepenaeus brasiliensis*, *F. subtilis*, *F. notialis*, *Litopenaeus schmitti*)

Groundfish (Sea trout *Cynoscion virescens*, Grey snapper, *Cynoscion acoupa*, Jamaica weakfish, *Cynoscion jamaicensis*, Bangamary *Macrodon ancylodon*, Butterfish *Nebris microps*, Whitemouth croaker *Micropogonias furnieri*, Gillbacker *Sciades parkeri*, Sharks, rays)

Guiding Questions to be Addressed by Indicators	Indicator	National input?
	2 = effort/catch at agreed level 3 = effort/catch lower 4 = no response 9 = not applicable	
Is the use of destructive gear minimised for each of the key fisheries?	0 = not an issue 1 = not minimised 2 = destructive gear minimised 4 = no response 9 = not applicable	Y
Has IUU fishing been minimized	0 = not an issue 1 = not minimised 2 = destructive gear minimised 4 = no response 9 = not applicable	Y
Ecosystem State		
Are fish stocks at sustainable levels? (summary of questions listed below)	Unknown, Underexploited, Fully exploited, Overexploited, Depleted	N
Are deep slope snapper/grouper stocks at sustainable levels? (by indicator species)	Unknown, Underexploited, Fully exploited, Overexploited, Depleted	Y
Are shrimp and groundfish stocks at sustainable levels? (by indicator species)	Unknown, Underexploited, Fully exploited, Overexploited, Depleted	Y
Are large pelagic fish stocks at sustainable levels? (by indicator species)	Unknown, Underexploited, Fully exploited, Overexploited, Depleted	N
Stakeholder Engagement		
Are fisheries agreements well subscribed to by countries?	Percent of countries	N
Are fisheries stakeholders participating in regional/subregional processes	Number	N
Are country fisheries agencies participating in regional/subregional fisheries processes	Percent of countries	N
Are other regional IGOs participating in regional/subregional fisheries processes?	Percent of IGOs	N
Are regional fisheries NGOs participating in regional/subregional processes?	Number	N
Are regional fisheries private sector bodies participating in regional/subregional fisheries processes?	Number	N
Are regional environmental NGOs participating in regional/subregional fisheries processes?	Number	N
Social Justice		
Status of implementation of FAO SSF guidelines relating to social justice in SSF?		Y
Are there national policies regarding the participation of women in fisheries?	Yes/no	Y
Are there national policies regarding the preservation of cultural traditions in fisheries?	Yes/no	Y

Deepwater snapper and grouper (Southern red snapper, Vermilion snapper, Silk snapper)

Guiding Questions to be Addressed by Indicators	Indicator	National input?
Are there national policies regarding the participation of disadvantaged groups and minorities in fisheries?	Yes/no	Y
Are there national policies regarding the equitable access to the resource for all stakeholder categories fisheries?	Yes/no	Y
Are there national policies regarding the distribution of benefits between small-scale and large-scale fisheries?	Yes/no	Y
Do regional fisheries agreements include specific reference to disadvantaged groups and minorities? Social justice issues as per the above list??	Yes/no	N
Are the measures taken to reduce fishing pressures socially just (differentially negatively impacting certain groups), Include measures to mitigate impacts	Yes/no	Y
Human Well-Being		
Do regional fisheries agreements refer to human well-being issues as listed below?	Yes/no	N
Have fisher folk incomes increased?	Income over time relative to per capita or poverty levels	Y
Has incidence of malnutrition in fishing communities decreased?	Measure of malnutrition in fishing communities (Protein deficiency?)	Y
Has loss of cultural identity with fisheries resources and traditions been reduced?	Perception of retention or loss of significance of fish, fishing, marine ecosystems as part of culture (narrative or by interview)	Y
Has food security been improved/assured?	Assurance of future supply of fish for consumption (percentage of stocks optimally managed) Fisher's access to resources	Y
Has fish loss/waste been reduced?	Amount of waste (percentage of fish lost/wasted nationally)	Y
Has fisher safety at sea been improved?	Change in fishing related death and injury (per capita fishing related deaths and injuries among fishers)	Y
Pollution		
Architecture		
Are arrangements in place to address marine pollution governance at regional/subregional levels?	Strength (combination of completeness and coverage)	N
Are there mechanisms for integrating regional/subregional pollution policy cycles at the policy level?	0 = not in place 1 = temporary mechanism in place 2 = permanent mechanism in place	N
Are there mechanisms in place to ensure national-regional interaction?	NICs scores	Y
Process		
Is there regional/subregional policy in place for pollution? (UNEP, CCAD, CAR/RCU, CARPHA)	Yes/No	N

Guiding Questions to be Addressed by Indicators	Indicator	National input?
Are there regional/subregional strategic plans in place for pollution?	Yes/No	N
Are there regional/subregional management plans in place for pollution?	Yes/No	N
Is there regional/subregional (harmonised) legislation in place for pollution?	Yes/No	N
Are there regional/subregional (harmonised) regulations in place for pollution?	Yes/No	N
Is there evidence that the processes for pollution are conducted according to agreed principles?	Yes/No	N
Pressure		
Are land-based sources of pollution inputs reduced to agreed upon levels? Urban wastewater	0 - no agreed level 1 - treatment worse than agreed level 2 - at agreed level 3 - treatment better than agreed level	Y
Are land-based sources of pollution inputs reduced to agreed upon levels? River inputs	0 - no agreed level 1 - treatment worse than agreed level 2 - at agreed level 3 - treatment better than agreed level	Y
Are land-based sources of pollution inputs reduced to agreed upon levels? Groundwater	0 - no agreed level 1 - treatment worse than agreed level 2 - at agreed level 3 - treatment better than agreed level	Y
Are land-based sources of pollution inputs reduced to agreed upon levels? Solid waste	0 - no agreed level 1 - treatment worse than agreed level 2 - at agreed level 3 - treatment better than agreed level	Y
Are marine-based sources of pollution reduced to agreed upon levels? oil pollution	0 - no agreed level 1 - treatment worse than agreed level 2 - at agreed level 3 - treatment better than agreed level	Y
Are marine-based sources of pollution reduced to agreed upon levels? solid waste pollution	0 - no agreed level 1 - treatment worse than agreed level 2 - at agreed level 3 - treatment better than agreed level	Y
Are marine-based sources of pollution reduced to agreed upon levels? wastewater pollution	0 - no agreed level 1 - treatment worse than agreed level 2 - at agreed level 3 - treatment better than agreed level	Y
State		
Are there national marine water quality standards?	Yes/No	Y
Is marine water quality at agreed upon levels? For each of the selected parameters ²	0 = no standard 1 = Within standards (better) 2 = In excess of standards (worse)	Y
Marine water quality monitoring	Yes/No	Y
Marine water quality info in recreational waters publicly available	Yes/No	Y
Marine water quality info in other waters publicly available	Yes/No	Y
Stakeholder Engagement		

² Fecal coliform, Total suspended solids, pH, Fats, oil and grease, Dissolved oxygen, BOD, PAHs in std, Heavy metals in std, Nitrogen and phosphorous compounds, Other compounds

Guiding Questions to be Addressed by Indicators	Indicator	National input?
Are pollution agreements well subscribed to?	Percent of countries	N
Are pollution stakeholders participating in regional/subregional processes	Number	N
Are country environmental agencies participating in regional/subregional pollution processes	Number	N
Are other regional IGOs participating in regional/subregional pollution processes?	Number	N
Are regional pollution NGOs participating in regional/subregional processes?	Number	N
Are regional environmental private sector bodies participating in regional/subregional pollution processes?	Number	N
Are regional environmental NGOs participating in regional/subregional pollution processes?	Number	N
Social Justice		
Do regional pollution agreements include specific reference to disadvantaged groups and minorities?	Yes/no	N
Are the measures taken to reduce pollution pressures socially just (differentially negatively impacting certain groups)	Narrative	Y/N
Human Well-Being		
Has pollution reduction protection benefitted human health?	Illness due to contamination or vector borne diseases (per capita incidence of water related illness/disease)	Y
Has pollution reduction benefitted livelihoods	Income over time relative to per capita or poverty levels	Y
Aesthetics improved	Beach garbage, water quality aesthetics (narrative?)	Y
Has pollution reduction resulted in improved access to recreational amenity areas	Quality of protected areas and recreational waters (narrative?): Garbage, water quality within standards in the recreational water	Y
Has loss of cultural identity with coastal ecosystems and resources been reduced?	Perception of retention or loss of significance of fish, fishing, marine ecosystems as part of culture	Y
Habitat Degradation and Biodiversity		
Architecture		
Are arrangements in place to address habitat degradation governance at regional/subregional levels?	Strength (combination of completeness and coverage)	N
Are there mechanisms for integrating regional/subregional habitat degradation policy cycles at the policy level?	0 = not in place 1 = temporary mechanism in place 2 = permanent mechanism in place	N
Are there mechanisms in place to ensure national-regional interaction?	NICS scores	Y
Process		

Guiding Questions to be Addressed by Indicators	Indicator	National input?
Is there regional/subregional policy in place for habitat degradation/biodiversity? (UNEP, CBD, CCAD)	Yes/no	N
Are there regional/subregional strategic plans in place for habitat degradation/biodiversity?	Yes/no	N
Are there regional/subregional management plans in place for habitat degradation/biodiversity?	Yes/no	N
Is there regional/subregional (harmonised) legislation in place for habitat degradation/biodiversity?	Yes/no	N
Are there regional/subregional (harmonised) regulations in place for habitat degradation/biodiversity?	Yes/no	N
Is there evidence that the processes for habitat degradation/biodiversity are conducted according to agreed principles?	Based on survey	N
Pressure		
Are spawning/breeding areas adequately protected at a regional/subregional level? For various resources. ³	0=no agreed level of protection 1= area of protection lower than agreed 2= area of protection at agreed level 3= area of protection needed above agreed level 4 = not applicable	Y
Is representative coastal and marine habitat protected. By habitat type. ⁴	Area protected (or percent of area)	Y
State		
Has coastal and marine habitat loss been halted or reversed?	Composite of below categories	Y
Has mangrove loss been halted or reversed?	0 = Not monitored 1 = significant loss 2 = measurable loss 3 = no change 4 = measurable gain 5 = significant gain	Y
Has coastal wetland loss been halted or reversed?	0 = Not monitored 1 = significant loss 2 = measurable loss 3 = no change 4 = measurable gain 5 = significant gain	Y
Has any other coastal and marine habitat loss been halted or reversed?	0 = Not monitored 1 = significant loss 2 = measurable loss 3 = no	Y
Overall quality of coastal and marine habitats	Composite of below	
Quality of seagrass beds	0 = Not monitored 1 = significantly degraded 2 = measurably degraded 3 = no change 4 = measurably improved 5 = significantly improved	
Quality of mangroves	0 = Not monitored 1 = significantly degraded	

³ Spawning/breeding areas for finfish, Breeding areas for seabirds, Breeding areas for turtles, breeding areas for cetaceans protected, breeding areas for sharks

⁴ deep slope reef, seagrass beds, mangrove, coastal wetlands, pelagic ecosystems, muddy bottom shelf

Guiding Questions to be Addressed by Indicators	Indicator	National input?
	2 = measurably degraded 3 = no change 4 = measurably improved 5 = significantly improved	
Quality of deep slope reef	0 = Not monitored 1 = significantly degraded 2 = measurably degraded 3 = no change 4 = measurably improved 5 = significantly improved	
Quality of pelagic ecosystems	0 = Not monitored 1 = significantly degraded 2 = measurably degraded 3 = no change 4 = measurably improved 5 = significantly improved	
Quality of muddy bottom continental shelf	0 = Not monitored 1 = significantly degraded 2 = measurably degraded 3 = no change 4 = measurably improved 5 = significantly improved	
Stakeholder Engagement		
Are habitat degradation and biodiversity agreements well subscribed to?	Percent of countries	N
Are country environmental agencies participating in regional/subregional habitat degradation processes	Percent of countries	N
Are habitat conservation stakeholders participating in regional/subregional processes	Number	N
Are country environmental agencies participating in regional/subregional habitat conservation processes	Number	N
Are other regional IGOs participating in regional/subregional habitat conservation processes?	Number	N
Are regional habitat conservation NGOs participating in regional/subregional processes?	Number	N
Are regional environmental private sector bodies participating in regional/subregional habitat degradation processes?	Number	N
Are regional environmental NGOs participating in regional/subregional habitat conservation processes?	Number	N
Are biodiversity conservation stakeholders participating in regional/subregional processes	Number	N
Are country environmental agencies participating in regional/subregional biodiversity conservation processes	Number	N
Are other regional IGOs participating in regional/subregional biodiversity conservation processes?	Number	N
Are regional biodiversity conservation NGOs participating in regional/subregional processes?	Number	N
Are regional environmental private sector bodies participating in regional/subregional fisheries processes?	Number	N

Guiding Questions to be Addressed by Indicators	Indicator	National input?
Are regional environmental NGOs participating in regional/subregional biodiversity conservation processes?	Number	N
Social Justice		
Do regional habitat degradation/biodiversity agreements include specific reference to disadvantaged groups and minorities?	Yes/no	N
Are the measures taken to reduce habitat degradation and biodiversity pressures socially just (differentially negatively impacting certain groups)	Narrative	Y
Human Well-Being		
Has habitat protection benefitted human health	Illness due to contamination or vector borne diseases (per capita incidence of water related illness/disease)	Y
Has biodiversity conservation benefitted livelihoods	Income over time relative to per capita or poverty levels	Y
Aesthetics improved	Beach garbage, water quality aesthetics (narrative?)	Y
Has habitat/biodiversity protection resulted in improved access to recreational amenity areas	Quantity and quality of protected areas	Y
Has loss of cultural identity with coastal ecosystems and resources been reduced?	Perception of retention or loss of significance of fish, fishing, marine ecosystems as part of culture	Y

**Annex 2. Regional Plan of Action to Prevent, Deter and Eliminate
Illegal, Unreported and Unregulated (IUU) Fishing in WECAFC
Member Countries (2019-2029)**