

CLME⁺ Sub-Project # 3:
EAF for the Eastern Caribbean
Flyingfish

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Abbreviations/Acronyms

CANARI	Caribbean Natural Resources Institute
CARICOM	Caribbean Community
CCCFP	Caribbean Community Common Fisheries Policy
CLME	Caribbean Large Marine Ecosystem
CNFO	Caribbean Network of Fisherfolk Organisations
CRFM	Caribbean Regional Fisheries Mechanism
DPSIR	Driver Pressure Status Impact Response
DSS	Decision Support System
EAF	Ecosystem Approach to Fisheries
EBM	Ecosystem Based Management
EEZ	Exclusive Economic Zone
EU	European Union
FAC	Fishery Advisory Committee
FAD	Fish Aggregating Device
FAO	Food and Agriculture Organisation of the United Nations
FIRMS	Fishery Resources Monitoring System
FMP	Fisheries Management Plan
GEA	Governance Effectiveness Assessment
GEAF	Governance Effectiveness Assessment Framework
GEF	Global Environmental Facility
ICT	Information Communication Technology
IFREMER	Institut Français de recherche pour l'exploitation de la mer (French Research Institute for Exploitation of the Sea)
IUU	Illegal, Unreported and Unregulated fishing
KAP	Knowledge, Attitudes and Practices
LMR	Large Marine Resources
M&E	Monitoring and Evaluation
MCS	Monitoring, Control and Surveillance
MOU	Memorandum of Understanding
MSY	Maximum Sustainable Yield
NIC	National Inter-sectoral Committees
OECS	Organisation of Eastern Caribbean States
OT	Overseas Territory
PWG	Pelagic Working Group
RSS	Regional Security System
SAP	Strategic Action Programme
SPCR	Strategic Programme for Climate Resilience
SPS	Sanitary and Phyto-sanitary
TDA	Transboundary Diagnostic Analysis
UN	United Nations

UNDP	United Nations Development Programme
UWI	University of the West Indies
WECAFC	Western Central Atlantic Fishery Commission
WG	Working Group

1. Situation Analysis

1.1. Flyingfish fisheries in the CLME⁺ region

In the central western Atlantic, the four-wing flyingfish supports commercially important pelagic fisheries in three geographically separate areas: the eastern Caribbean islands, the southern Netherlands Antilles and northeast Brazil. Tagging and genetic studies suggest that there is a distinct, single stock of four-wing flyingfish (*Hirundichthys affinis*) within the eastern Caribbean area extending from Dominica to Trinidad and Tobago.

The four-wing flyingfish is essentially an annual species. The strong seasonal variation in catches is probably due to a combination of:

- peak seasonal spawning behaviour (flyingfish being much more readily caught when spawning)
- their variable abundance resulting from high post spawning mortality and a one-year lifespan, such that there is a gap in between successive adult cohorts occurring between July and October when adults are dead and juveniles have not yet grown into the fishery (recruited)

Flyingfishes are an important prey group for a number of large pelagic predators such as bigeye tuna, dolphinfishes, billfishes, blackfin tuna as well as squids.

The four-wing flyingfish supports important small-scale fisheries in the region in terms of employment generation (with an important role for women in the processing sector), food security and supply of bait for fisheries targeting large pelagic fish species. Like other small-scale fishers in the Caribbean, fishers involved in flyingfish fisheries often belong to the lower socio-economic strata of society (CRFM, 2012c).

1.2. Eastern Caribbean stock

Flyingfish fisheries fishing the southeastern Caribbean stock are concentrated in the southern end of the Lesser Antilles chain. Barbados, Tobago, Martinique and Saint Lucia all have large flyingfish fisheries and to a lesser extent Dominica and Grenada. Barbados accounts for about two thirds of the regional catch. Compared to other countries in the region, Barbados also adds more value to flyingfish catches through processing and sale to the tourism sector. Altogether 1,700 boats of small to medium size are engaged in flyingfish fisheries. The annual value of the flyingfish catch in Barbados alone is estimated at USD 15 million (Hunte *et al.*, 2007).

The flyingfish fishery is of particular importance to Barbados. In 2007 there were 167 iceboats and 242 dayboats (pirogues) (Parker, 2010). The total annual recorded catch of flyingfish in Barbados was 2,292 tonnes in 2009 (CRFM, 2012a). The average annual recorded catch of flyingfish between 1997 and 2009 was 1,736 tonnes, fluctuating from a low of 922 tonnes in 2006 to a high of 2,680 tonnes in 1998. In the case of Barbados, flyingfish accounted for approximately 62 percent of fish landings by weight over the period 1998-2007. More than 90 percent of the catch is landed by the ice-boat and day boat fleets. The flyingfish fishery is the most important fishery in Barbados employing 2,000 fishers, 500 vendors as well as 325 persons employed as de-boners or workers in fish processing plants (FAO, 2012). While the vast majority of fishers are male, it is the women who are employed mainly in the processing operations.

Other countries in the area also have important flyingfish fisheries. In Trinidad and Tobago, the flyingfish fishery is located on the Caribbean Sea coast of the island of Tobago. By 2008 there were 51 pirogues and 8 iceboats (Caesar *et al.*, 2010), but the catches of these vessels through time are not known. The main fishing craft currently used is the fibreglass pirogue, ranging from 6.7–9.8 m. The number of boats involved in the fishery between 1988 and 2008 averaged 50 boats per season (FAO, 2010). In Saint Lucia, 331 vessels were engaged in the flyingfish fishery in 2007 (FAO, 2010). According

to figures provided by the Department of Fisheries, the total flyingfish catch of Saint Lucia was 109.35 tonnes in 2010. The total annual catch of flyingfish in Martinique was 47.6 tonnes in 2009 and 64.6 tonnes in 2010. There are no targeted commercial flyingfish fisheries in Saint Vincent and the Grenadines. In the case of Dominica there has been a shift from the flyingfish fishery to the large pelagic fishery within the last eight years due to the increased use of fish aggregating devices (FADs). The annual flyingfish landings in Dominica were reported to be 54.22 tonnes in 2011 (Commonwealth of Dominica, 2012, p. 11).¹

The fishing effort for flyingfish is highly seasonal (December – June), driven by the seasonal availability of both flyingfish and the large pelagic species, particularly dolphinfish. The most recent estimates of fishing effort in the sub-region, in terms of the number of fishing trips during which flyingfish were caught, were assembled by Medley *et al.* (2008) for Barbados, Tobago and St. Lucia for the period 1988-2008. The mean total number of flyingfish fishing trips conducted per year by the fleets of these three countries over this period is in excess of 78,200. Barbados day boats account for the majority of fishing trips averaging 43,300 trips per year, followed by Barbados ice boats averaging around 21,800 trips per year. Tobago day boats contribute on average 10,800 trips per year, while Saint Lucia day boats make some 2,300 trips per year.

Flyingfishes are caught as they form large schools and aggregate to spawn around floating objects on which they deposit their sticky eggs to maintain buoyancy. The fishing gears employed consist primarily of: (i) floating surface gillnets (or driftnets) attached to the boat; (ii) mats of floating palm fronds or sugarcane leaves prepared for attracting flyingfish in search of suitable floating spawning substrate, and hence which serve as FADs (called 'screealers' in Barbados); and (iii) handheld dip nets. While the flyingfish fishery is a directed fishery, it is at the same time part of a multi-species, multi-gear fishery, which also targets regional large pelagic species. When travelling to the fishing ground and while gillnets are soaking, stationary or trolled, hooks and lines are used for regional large pelagic species such as dolphinfish, wahoo and other species. Flyingfish is also used as bait to catch these species.

A regionally coordinated scientific evaluation in 2008 indicated that based on available data the stock of flyingfish in the Eastern Caribbean appears not to be overfished with respect to the objective of maximum sustainable yield. Estimated average annual landing between 2002 and 2007 was 2,512 tonnes FAO (2010). The maximum recorded annual catch at the time of the evaluation was 4,700 tonnes. A 2008 assessment indicated that an annual catch trigger reference point of 5,000 tonnes should be established, at which point action would need to be taken to avoid overfishing.

An important ecosystem linkage of flyingfish concerns the growing longline fisheries for large pelagics in the region. These fisheries depend to an unknown degree on flyingfish fisheries for bait. Beach seine fisheries also provide bait for longlining. This seems to be particularly important in Trinidad and Tobago and Grenada with their growing longline fisheries.

A 2011 assessment explored the bio-economic dynamic impacts of managing the multi-fleet and multispecies flyingfish fishery and undertook risk analysis of alternative fishery management decisions (CRFM 2011). The results of this preliminary dynamic bio-economic analysis were, among other things, that under the currently existing open access conditions in the fishery, harvest rates in the neighbourhood of 5,000 tonnes/year - which was estimated to occur when fishing mortality > 0.16 - could result in a temporary collapse of this pelagic fishery. However, current fishing mortality levels were estimated to be 0.11 (CRFM 2011). CRFM (2011) also determined that limitation of fishing effort to current levels offered a 74% probability of remaining above the target biomass level and 0% of falling below the corresponding limit reference point. The multi-species nature of this fishery involves additions to the flows of revenues to the fishery over time coming from the harvest of valuable large pelagic species like dolphinfish, tunas, and wahoo, among others. Therefore, under open access,

¹ Additional information on social and economic indicators of the importance of flyingfish fisheries in the Eastern Caribbean is provided by FAO (2010, p. 71) and in country reports.

fishermen will not react by reducing their effort when encountering lower biomass levels of flyingfish because the other species harvested will tend to cover the variable costs of the fishing trip.

In view of the significance of the Eastern Caribbean fourwing flyingfish commercial fisheries, the CRFM, in collaboration with WECAFC and with support provided during the corresponding case study under the CLME Project (GEF ID 1032), developed and finalized a Sub-regional Management plan (Sub-regional FMP) for Flyingfish in the Eastern Caribbean. The plan takes into account the relevant provisions of two key CRFM instruments, the Agreement on the Establishment of the Caribbean Community Common Fisheries Policy (CCCFP), and the 2010 Castries (St. Lucia) Declaration on Illegal, Unreported and Unregulated (IUU) Fishing. The Sub-regional FMP was endorsed by the 15th Sessions of WECAFC, by the Caribbean Fisheries Forum in April 2014, and by the CRFM Ministerial Council in May 2014, following extensive consultation with stakeholders at both the national and regional levels, and is now cleared for voluntary, regional implementation by CRFM Member States. The general management objectives outlined in the Sub-regional FMP are: a) sustained flyingfish resources (biological objective), b) optimal use of the flyingfish resource for long-term benefits (socio-economic objective) and c) sustained ecosystem health (ecological objective).

1.3. Flyingfish fisheries and the CLME⁺ Strategic Action Programme (SAP)

Due to the socio-economic and ecological importance of flyingfish to the CLME⁺ region, a specific sub-strategy relating to flyingfish fisheries was included under Strategy 5 of the CLME⁺ Strategic Action Programme (SAP). Sub-Strategy 5A of the SAP aims to enhance the governance arrangements for implementing an ecosystem approach to flyingfish fisheries in the CLME⁺ region. Under this sub-strategy, a number of short-term (0-5 years) and medium-term (6-10 years) actions were agreed upon:

- | | |
|----------------------|---|
| 5A.1 [Short] | <i>Strengthen the FAO-WECAFC and CRFM sub-regional arrangements for the assessment and management of the flyingfish fisheries including the establishment of a decision-making capacity for management;</i> |
| 5A.2 [Short] | <i>Establish and operationalise a formal agreement between the CRFM and France on the management of the flyingfish fisheries;</i> |
| 5A.3 [Short, Medium] | <i>Operationalise and strengthen an integrated, sub-regional Decision Support System (DSS) for the flyingfish fisheries (in coordination with the large pelagics arrangements);</i> |
| 5A.4 [Short, Medium] | <i>Strengthen the FAO-WECAFC and CRFM capacity to develop, adopt and implement management and conservation measures for the flyingfish fisheries (full policy cycle implementation);</i> |
| 5A.5 [Short, Medium] | <i>Implement the CRFM/FAO-WECAFC Sub-Regional Management Plan for Flyingfish Fisheries in the Eastern Caribbean;</i> |
| 5A.6 [Short, Medium] | <i>Develop and implement education and awareness building initiatives to improve understanding and enhanced stakeholder commitment and participation in decision-making in the flyingfish fisheries.</i> |

2. Baseline analysis (problems, opportunities & gaps)

2.1. Socio-economic and ecological aspects

A number of socio-economic issues in the flyingfish fishery are outlined in the respective Sub-Regional Fisheries Management Plan. Some of these concerns include:

- a. constrained access for far-ranging vessels (e.g. Barbadian ice-boat fleet) and other near-ranging fleets (e.g. French boats) to fishing areas occupied by the shared *H. affinis* stock;
- b. market gluts as a result of bunched landings and inadequate distribution leads which in turn lead to lowered incentive to catch flyingfish when plentiful;
- c. marked seasonality in availability of *H. affinis* leading to discontinuous market supply and seasonal fishing effort;
- d. high energy costs in the processing sub-sector;
- e. inadequate post-harvest technology to ensure a good quality product and reduce fish wastage;
- f. difficulties producing cost-competitive export of fresh flyingfish or fish products;
- g. labour shortage and lack of adequate blast freezing facilities for processing plants;
- h. vulnerability and poverty of fishers and their families and household members;
- i. lack of, or inadequate, safety equipment and navigational training of crew for some boat types;
- j. difficulty in accessing credit and insurance in the fisheries sector

Resolution of some of these issues requires a detailed analysis of the value chain to identify specific problem areas, the causes and feasible intervention points, so as to secure and enhance the livelihoods of persons involved in the sector. Specific attention should be given to the role of women who comprise the major portion of the processing component of this sector. In addition, there is a need for building capacity of fishing communities to engage in small business enterprises.

Ecological issues of relevance to the eastern Caribbean flyingfish and the pelagic ecosystem relate to:

- a. the negative impacts of sea and land-based human activities (e.g. oil and gas exploration, shipping, pollution, shoreline erosion, runoff) on the marine ecosystems;
- b. unsustainable fishing practices, open access & largely unmonitored fishery;
- c. the impacts of climate change

Critical habitat for adult four-wing flyingfish is the open ocean with availability of floating objects to use as substrate for spawning. However, spawning areas can also be in coastal waters such as the shelf area off the northwest coast of Tobago. Anecdotal information suggests that sea-based, human activities such as oil and gas exploration and shipping, and pollution derived from these activities, can have negative impacts on the abundance of flyingfish. Addressing these impacts remains a critical gap which will not be addressed by this Sub-Project. Such a gap is likely best addressed by national environmental agencies through an integrated coastal zone management approach.

Another ecological challenge is the fact that traditional flyingfish fishing practices are, by their very nature, unsustainable. The fish are caught when in a mature, spawning state, as they are attracted to devices deployed to aggregate them and become entangled in gillnets. *H. affinis* is a batch spawner that reaches maturity at about 5 months of age, with individual fish spawning several times between the November to July spawning season. Spawning batches could be up to about 7,000 eggs per fish. There are two peak spawning periods, a minor one from November to January, and a more significant one around April to May. A common fishing method entails use of fish aggregating devices to attract the flyingfish to spawn, but some fishers remove the aggregating devices from the water after fishing.

Oftentimes these devices are covered with flyingfish eggs that would otherwise have contributed to recruitment to the fishery the following season. Exploration and evaluation of alternative, more sustainable, fishing technology for the capture of flyingfish has not yet been conducted. Spill-over effects associated with ecological linkages are also likely to result if flyingfish is overfished. This is because flyingfishes are an important component of the pelagic food web (Heileman *et al.*, 2008), with a confirmed trophic dependence of dolphinfishes (*coryphaenids*) on flyingfishes in the eastern Caribbean (Mohammed *et al.*, 2008). Dolphinfishes are vulnerable to any substantial decrease in the abundance of flyingfish, even without any change in fishing pressure on dolphinfish itself.

Climate variability and change are predicted to impact the distribution range of pelagic fish resources with possible consequences in terms of decreased production and availability to small-scale fishers and decreased contribution to food security. The investigation of these socio-economic and ecological impacts at a geographic scale useful for application of disaster risk management and climate change adaptation measures at the national and sub-regional levels will be undertaken by the CRFM for the marine component of the Strategic Program for Climate Resilience (SPCR) – Regional Track, which is being supported by the Climate Investment Fund and being executed by a network of regional organizations within CARICOM.

2.2. Governance & management arrangements: challenges and gaps

A number of governance issues and constraints of pertinence to flyingfish fisheries are outlined in the Sub-Regional Fisheries Management Plan for Flyingfish in the Eastern Caribbean. These issues include:

- a. Gaps in the regional mechanisms for managing shared resources;
- b. Inadequate development of participatory management with all stakeholders at national and sub-regional levels;
- c. Inadequate fishery information and statistics (particularly socio-economic data) for planning and management;
- d. Illegal, unreported and unregulated fishing;
- e. Lack of, or inadequate, monitoring surveillance and enforcement

Effective implementation of the Sub-regional Fisheries Management Plan for Flyingfish in the Eastern Caribbean necessitates a coordinated and integrated approach to governance and management among a range of levels - local, sectoral, national and sub-regional. While elements of these components in the overall governance framework existed during the first phase of the CLME Project, there were two weaknesses in the framework (governance architecture) and processes for building awareness of stakeholders at the broad level and in facilitating their inputs in management decision-making.

Firstly, the French Caribbean Overseas Departments (Martinique and Guadeloupe) also exploit the eastern Caribbean flyingfish (transboundary) resource, but are not Members of the CRFM. As a consequence, while technical input of the French in developing the Sub-Regional Fisheries Management Plan (FMP) for Flyingfish in the Eastern Caribbean was facilitated through the CRFM Annual Scientific Meetings, the final decision-making regarding proposed management measures in the Plan was made without the benefit of inputs from the range of stakeholders Martinique and Guadeloupe. Although CRFM Member States, through endorsement of the sub-regional FMP, are committed to collaboration in the conservation, management and sustainable use of the flyingfish resources and associated ecosystems, the absence of a mechanism for collaboration between the CRFM and France threatens to hamper full application of an ecosystem approach to assessment and management of flyingfish fisheries in the region. Attempts to negotiate an agreement for collaboration between the CRFM and France in the sustainable use, conservation and management of the flyingfish resources and other shared fisheries resources and in combating IUU fishing during the first phase of the CLME Project were unavoidably delayed due to differences in political structure

between CARICOM and France and the need to identify the most feasible approach and appropriate points of contact for success. A brief was prepared in 2013 which discusses and makes recommendations regarding the appropriate approach for policy level/political engagement of France in respect of its Overseas Caribbean Department of Martinique and Guadeloupe. The CRFM Ministerial Council, in October 2014, endorsed establishing a formal CRFM-France relationship within the context of a broader CARICOM-wide cooperation initiative. It is noted however, that the WECAFC, of which France is a Member, has a significant role to play in fostering regional collaboration in the sustainable use, conservation and management of shared LMRs.

The second weakness in the governance framework was that the mechanisms for the participation of the full range of stakeholders, including civil society and the private sector, in the management discussion during the first phase of the CLME Project, either did not exist or if they did, were not effectively utilized. The critical functional linkage between the roles and responsibilities of national fisheries and environmental authorities was also not evident in several cases.

The poor quality of data on flyingfish fisheries remains a significant challenge in efforts to assess the status of the stock with some acceptable degree of confidence and to quantify reference points for key indicators (e.g. maximum sustainable yield (MSY), or maximum sustainable spawning stock biomass) used in fisheries management. There is a high degree of uncertainty in the existing historical time series data on total catches (meaning fish caught to be used as bait and as a food source for humans) at both the national and regional levels and the associated relative fishing effort among various categories of vessels both within and among countries. As a consequence, the precautionary 5000 tonnes catch trigger point suggested in the 2008 assessment (Medley *et al.*, 2010) was based on an examination of reported annual catches from seven countries exploiting the resource at varying periods between 1950 and 2007 rather than the estimate of MSY generated in the assessment model. Although there was high uncertainty in the MSY estimate, scientists and managers at the third meeting of the WECAFC Ad-Hoc Working Group on Flyingfish in the Eastern Caribbean did agree in principle to precautionary target and limit reference points in relation to MSY but again these could not be quantified due to the poor quality of data used in the assessment model. As well, although the 2008 assessment indicated that the stock was not overfished or experiencing overfishing, the model assumed homogenous stock distribution, i.e. it was not structured to examine incidences of local depletion which are likely to impact fisheries at the national level. Such a level of assessment necessitates that all countries improve the quality of their fisheries data at both the spatial and temporal levels by updating their data collection systems accordingly. Such improvement will also enable catches from IUU fishing to be incorporated in future assessments and management decisions. It should be noted that there is no policy for the sharing of data and information among States harvesting flyingfish. This situation continues to pose a major challenge in efforts to conduct regional stock assessments for shared LMRs to inform decision-making.

Another challenge in the management arrangement pertains to the ecological linkage between flyingfish and large pelagic fishes and the multi-fleet, multi-gear and multi-species nature of some of the fisheries that target both resources simultaneously. This creates difficulty in estimating the effective fishing effort directed at capture of flyingfish in any given fishing trip, a necessary statistic for refined assessment of the status of the resource and for improved interpretation of management recommendations that are linked to existing levels of fishing effort. The complexity of the fishery also necessitates that management decision-making considers the ecological, social and economic impacts of proposed management measures on both the flyingfish and associated large pelagic fisheries. A 2011 assessment explored the bio-economic dynamic impacts of managing the multi-fleet and multispecies flyingfish fishery and undertook risk analysis of alternative fishery management decisions (CRFM, 2011). As noted earlier, the results of this assessment indicated that in the current open access fishery, lower biomass levels of flyingfish will not automatically induce fishers to lower their catches, because considerable revenue is earned from the capture of a range of large pelagic species in association with the flyingfish, to cover the variable cost of fishing trips. Furthermore, the 2008 assessment estimated a catch trigger-point of 5000 tons, which if reached, would require

management actions, such as catch quotas, or effort controls, to reduce exploitation rates by 30% to allow the resource to recover its natural fluctuations over time. That noted, currently there are no systems in place to effectively regulate catch or fishing effort and estimation of the current exploitation rate in the context of the current effort by fleet and country remains to be undertaken.

There has been significant research on the biology and management of the four-wing flyingfish (Oxenford *et al.*, 2007), with some preliminary work on its trophic ecology (Mohammed *et al.*, 2008) as well as attempts to assess the status of the stock using a stock-recruitment model with Bayesian analysis as well as a bio-economic model. Under the CLME Project (GEF ID 1032), preliminary operational objectives, indicators and reference points were identified for monitoring and evaluation of the performance management measures (Ferrier and Singh-Renton, 2012). Application of the EAF brings additional challenges due to the expanded data and information requirements for decision-making. To address these information needs the Sub-regional FMP (CRFM, 2014) identifies specific areas for further analyses that seek to determine the costs and earnings in the fishery across the region and compare economic and financial performance as well as value-addition among selected countries in the eastern Caribbean as well as a socio-economic study of fishers and examination of the conditions of work within the sector to inform measures for livelihood enhancement and better work conditions. Evaluations of the impacts of sea and land-based human activities on the ecology of flyingfish and productivity of the related marine ecosystems as well as assessments to improve the understanding and estimation of risks associated with climate change and variability are also recommended. Additional bio-economic analyses that consider the ecological linkages among pelagic species in the fishery and stock fluctuations as a consequence of changing environment and improvements in the objectives, indicators and reference points for monitoring and evaluation of management are also key areas for further work.

The CLME project supported activities that led to the adoption of the sub-regional management plan for Eastern Caribbean Flyingfish. As this plan is being implemented at present, efforts are expected to focus on data improvements, use of more refined assessment methodologies for determining the status of flyingfish stocks, and further development of an actively functioning coordinated mechanism for reviewing and implementing any proposed management measures for long term sustainability of the stocks. At the national level, while several countries may have articulated national fisheries management plans these plans do not address the flyingfish fishery specifically in sufficient detail. CRFM Member States that exploit the flyingfish and associated large pelagic fish resources are at varying stages in development of the required legislation that would facilitate implementation of a licensing system, a common management tool used worldwide. Such a system allows the flexibility to place controls on fishing areas, gears, fishing times among other management measures. The Sub-Regional FMP indicates that overall management of the flyingfish fisheries should be improved by harmonizing fisheries management legislation to address licensing and registration systems. Additionally, Monitoring, Control and Surveillance (MCS) systems need to be strengthened, as there is a powerful argument for the regulation of maritime activity and if enforcement of policy or legislation is to be ensured, then there is no alternative to the monitoring of compliance (Read, 2006). There is “an increasing awareness of the many challenges to maritime security, their inter-connectivity and the multiple effects they can have across a spectrum of disciplines ... (requiring) ... cooperation at all levels ... to effectively prevent and combat threats to maritime security ... (and) ... at the national level, where the responsibility for various aspects of maritime security rests with different departments and agencies, it will be important to establish an effective decision-making structure and agree on procedures for inter-agency coordination in order to make maximum use of available resources to conduct maritime surveillance, reporting and interdiction, and also to enable effective cooperation with other States” (United Nations, 2007).

Monitoring of compliance is an important requirement for detection and correction of violations, provision of evidence for enforcement action and evaluation of progress by establishing compliance status (Read, 2006). That CARICOM Member States have already given this some consideration is clear since these States have agreed to put in place regional management systems in relation to border

control, maritime operations and intelligence and information-sharing (CARICOM 2006). In this regard, for example, the OECS States (in collaboration with Barbados) give effect to their maritime security interventions through the Regional Security System (RSS) which is an international agreement for the defence and security of the Eastern Caribbean region². Member States cooperate in the prevention and interdiction of traffic in illegal narcotic drugs, in national emergencies, search and rescue, immigration control, **fisheries protection**, customs and excise control, maritime policing duties, natural and other disasters, pollution control, combating threats to national security, the prevention of smuggling, and in the protection of off-shore installations and exclusive economic zones. The RSS also provides training for joint land and maritime operations, disaster relief, anti-drug operations and anti-terrorism and intelligence gathering and sharing.

CRFM Member States have finalised manuals of procedures for fisheries enforcement and prosecution, within the framework of a regional strategy for fisheries Monitoring Control and Surveillance.

2.3. Recent progress towards the implementation of EAF

In recent years there have been several initiatives towards adoption and implementation of the EAF. These initiatives include:

- (1) The development and approval of a Sub-regional Fisheries Management plan (Sub-regional FMP) for Flyingfish in the Eastern Caribbean: this initiative was among the agreed actions and measures to be taken by the members of the Western Central Atlantic Fisheries Commission (WECAFC) under its 2012 “Resolution on strengthening the implementation of international fisheries instruments” and under its endorsed Programme of Work. The plan is consistent with the Draft Agreement on the Establishment of the Caribbean Community Common Fisheries Policy (CCCFP) and is also expected to address joint actions proposed in the 2010 Castries (St. Lucia) Declaration on Illegal, Unreported and Unregulated (IUU) Fishing of the Caribbean Regional Fisheries Mechanism (CRFM). The Sub-regional FMP was endorsed by the Caribbean Fisheries Forum in April 2014 as well as the CRFM Ministerial Council through Resolution in May 2014, following extensive consultation with stakeholders at both the national and regional levels, and is now cleared for voluntary, regional implementation by CRFM Member States.
- (2) Establishment of a CRFM Ministerial Sub-Committee on Flyingfish Fisheries: This Sub-Committee was established in 2011 to provide policy direction and supervise the development and cooperative arrangements for improved governance and management of the flyingfish fishery to achieve optimum sustainable social and economic benefits for the people of the region. The main objective of the Sub-Committee is to contribute, through cooperation and consultation, to the long-term conservation, management and sustainable use of the shared flyingfish resources, and protect and safeguard the ecosystems in which they are found in the Eastern Caribbean. The full Terms of Reference of the Sub-Committee are provided in Annex 1.
- (3) Establishment of the CRFM/WECAFC Working Group on Flyingfish in the Eastern Caribbean, through a decision by the 14th Session of the WECAFC (2012): The Working Group was established to facilitate the achievement of such sub-regional flyingfish management objectives, through the application of international best practices consistent with the precautionary, ecosystem and participatory approaches to fisheries management. Specifically, the Working Group is required to monitor, evaluate and advise on the status of implementation of the Sub-regional flyingfish fisheries management plan (FMP); advise on the status of the fishery and provide technical support to national implementation of management measures agreed under a Sub-regional FMP. The Terms of Reference of the Working Group is provided in Annex 2.

² The 7 member nations are: Antigua and Barbuda, Barbados, Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines

- (4) Commitment of the CRFM Ministerial Council towards implementation of EAF: The Ministerial Council issued a Policy Statement at its Seventh Meeting in Barbados on 31 May 2013. It called upon CRFM Member States and partner organisations to strengthen their commitment to, and implementation of the ecosystem approach to fisheries and aquaculture, through fisheries legislation, policies, plans and management arrangements at regional, national and local levels. The Council reaffirmed and declared the ecosystem approach to fisheries and aquaculture as a key guiding principle for CRFM, including network partner organisations, to ensure the long-term conservation and sustainable use of aquaculture and marine living resources.
- (5) A number of analyses were supported under the Global Environment Facility-funded Project on Sustainable Management of the Shared Living Marine Resources of the Caribbean Large Marine Ecosystem (CLME) and Adjacent Regions, which provided a range of data and information in support of the EAF assessment and management of the eastern Caribbean flyingfish fishery. These analyses included an assessment of the dynamic bioeconomic impacts of managing the multi-fleet and multi-species flyingfish fishery with estimates of associated management reference points; and risk analysis of fishery management strategies (CRFM, 2011). In addition, a multi-criteria analysis used inputs from stakeholders to identify and prioritize management objectives for the fishery (CRFM, 2012 b). The CRFM Annual Scientific Meeting served as a Forum for the conceptualization, validation and peer review of the respective analyses.

2.4. “BaU” versus the alternative scenario

From the previous sections, it has become clear that there is a need to move from a sectoral species-based approach, to an ecosystem-based approach to the flyingfish fishery (EAF), which gives critical attention to ecological (inter-species) linkages and which fully considers the different human communities and their multiple stakes in these fish stocks and their hosting ecosystem.

Progressive implementation of an ecosystem-based approach to the management of the flyingfish resource will contribute to more efficient fishing activities within an economically viable and competitive small-scale fisheries sector, securing a fair standard of living for those who depend on fishing flyingfish and taking the interests of consumers into account. The significant trophic, technical and economic linkages between the flyingfish fisheries and the fisheries targeting large oceanic pelagic species (e.g. dolphinfish, wahoo, tunas, billfishes) further provide strong justification for the adoption and implementation of an ecosystem approach to the management of these fisheries.

In May 2014 a Regional Fisheries Management Plan (FMP) for Flyingfish in the Eastern Caribbean was approved by the CRFM Ministerial Council, for voluntary regional implementation. This FMP is consistent with the precautionary, ecosystem and participatory approaches to fisheries assessment and management. Based on the distribution of the four-wing flyingfish the FMP stipulates the minimum appropriate management unit for the four-wing flyingfish as the combined Exclusive Economic Zones (EEZs) of the Eastern Caribbean states, from Dominica south to Tobago according to FAO (2010). Measures at both the national and regional levels are to be put in place for an integrated approach to implementation of the FMP for effective EAF management of the shared resource. As a consequence, national management plans are to be developed and implemented; national data collection systems are to be strengthened and national licensing systems established.

Although the FMP applies to CRFM Member States for which the flyingfish fishery is of real interest, it is important that non-CRFM countries in the region that target the same stock cooperate in its assessment and management. Such action, by the French Overseas Departments in particular, necessitates regional networking and harmonisation of the respective approaches. During the UNDP/GEF *foundational capacity and trust building project “CLME”* (GEF ID 1032) between 2009 and 2014, technical collaboration between the CRFM and IFREMER was facilitated at the CRFM Annual Scientific Meetings; however, similar collaboration at the political and direct stakeholder levels remains a challenge. As a consequence, review of the draft FMP by direct stakeholders in the French

Overseas Departments was not possible, neither was agreement in principle at the political level with the management measures proposed in the FMP. The GEF-supported CLME⁺ project aiming to catalyse implementation of the CLME⁺ SAP offers an opportunity to further strengthen the technical linkages between CRFM Member States and the French Overseas Departments as well as to develop governance linkages by engaging French decision-makers and stakeholders in discussions on the results from stock and bio-economic impact assessments, and new/adapted management recommendations and associated reference points proposed for eastern Caribbean flyingfish.

A transition from the traditional approach described under the baseline entails several incremental costs. Generally, in the absence of support from the GEF to help cover these incremental costs, the required national level inter-sectoral coordination and regional level agency and country networking necessary for the multiple-objective approach required by EAF, as well as the harmonisation of the approach for a shared resource, are not likely to be achieved in the given time frame. As a consequence delivery of all outputs listed under Section 3.3.2 are likely to be delayed, or may become impossible.

3. Project Strategy

3.1. Rationale

This Sub-Project aims at contributing to the delivery of Output 3.2. (O3.2.) under COMPONENT 3 of the main CLME⁺ Project Document: *“Transition to an ecosystem approach for the Eastern Caribbean flyingfish fisheries demonstrated”* It has been developed in response to the corresponding calls for action under (a) the **CLME⁺ Strategic Action Programme (SAP)**, politically endorsed at the regional level in 2013 and (b) the approved Regional Fisheries Management Plan (FMP) for Flyingfish in the Eastern Caribbean.

More specifically, in the case of the CLME⁺ SAP, the CLME⁺ Flyingfish Sub-Project can be linked to SAP Sub-Strategy 5A (and Strategy 5):

- **Sub-Strategy 5A: Enhance the governance arrangements for implementing an ecosystem approach for flyingfish fisheries**
- *Strategy 5: enhance the governance arrangements for implementing an ecosystem approach for pelagic fisheries.*

In addition to this, Actions under SAP Strategies 1, 2 and 3, and under CLME⁺ Project COMPONENTS 1, 2, 4 and 5 will further facilitate the implementation of this Sub-Project, as they help building the support base for its activities, and for the continuation of efforts beyond the Sub-Project’s lifespan.

Sub-Project activities will build upon:

- the concept of **interactive governance**, defined as *the whole of interactions among public, civil and private actors taken to solve societal problems and to create societal opportunities; including the formulation & application of principles guiding those interactions and care for institutions that enable and control them*
- the findings from the **governance assessments**, conducted under the CLME Project (GEF ID 1032)
- progress and results from **other related regional and national-level efforts**

Sub-Project activities will further give due attention in the context of *interactive governance* (societal interactions and the creation of societal opportunities) to gender equality and the empowerment of women.

It is broadly recognized that the ultimate, over-arching goal of the implementation of the EAF approach for flyingfish fisheries –i.e. **maximized, sustainable contributions from the resource to human well-being in the region**- will only be achievable in the medium- (6-10 year time frame) to long term (10-20 years). Even so, this over-arching goal constitutes a critically important primary reference for the shaping of the CLME+ Sub-Project’s objectives, outcomes, outputs and activities.

Giving due consideration to the above, the project strategy and logical framework for the Flyingfish Sub-Project have been shaped around the different components of the **Governance Effectiveness Assessment Framework (GEAF)**; TWAP Project, GEF ID 4489; Figure 1).

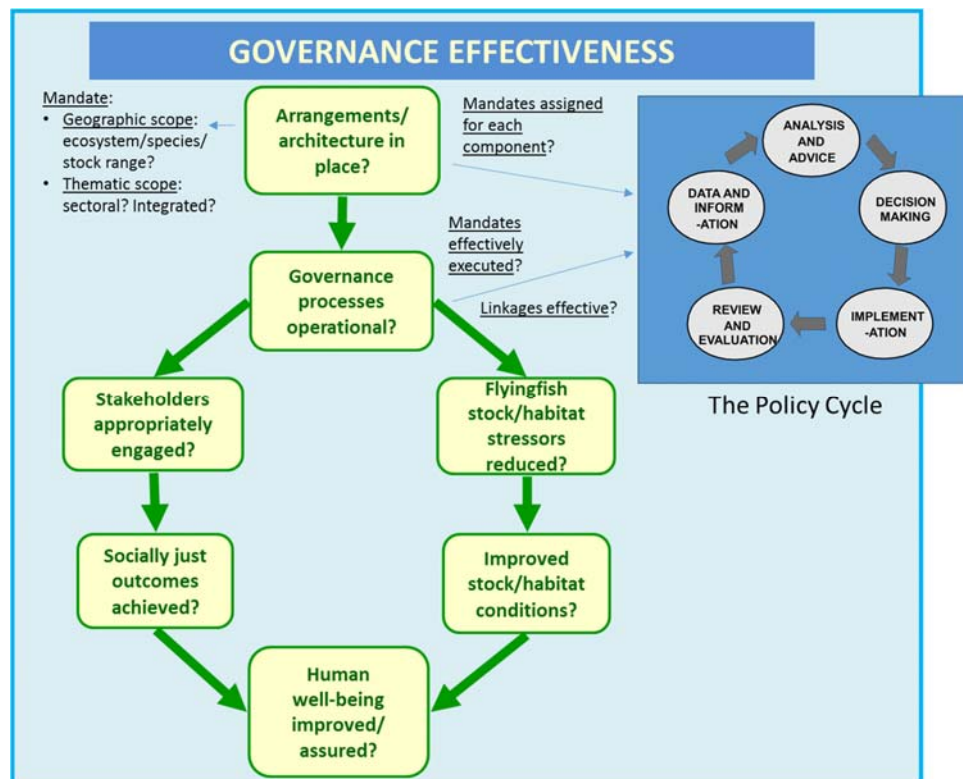


Figure 1. The “Governance Effectiveness Assessment” (GEAF) framework³ developed under the “TWAP” Project links improved socio-economic and ecosystem/stock conditions to more effective governance arrangements and enhanced policy cycle implementation

With the over-arching goal to optimize benefits from the resource for the enhancement of human well-being in mind, and cognizant that the implementation timeframe for this Sub-Project is limited to a maximum of 4 years, the Sub-Project’s focus will be on implementation of the Sub-Regional Fisheries Management Plan for Flyingfish in the Eastern Caribbean, and more specifically on the following related and inter-linked components of the GEAF framework:

1. Further enhancement and operationalization of transboundary governance arrangements and processes;
2. Enhanced data and information management for decision-support;
3. Enhanced stakeholder participation in all aspects of the management process;
4. Implementation of enhanced stock management/stress reduction measures;
5. Enhancement of livelihoods and by extension human well-being;

³ Gender considerations (equality, empowerment of women) will be included as inherent elements of the assessments under each one of the left-most and central components of the GEAF framework.

6. Adaptive management facilitated

Reference is made in the context of Item 1 above - *the operationalization of governance processes* - to the 5 components of the policy cycle (see the inset in the upper-right corner of Figure 1).

The strengthening of the data and information collection and management capacity, within and among the relevant institutional arrangements, will indeed be of great importance to facilitate the establishment of an enhanced baseline, and to define common medium- and long-term targets especially for the following components of the GEA framework:

1. Four-wing flyingfish stock status;
2. Human well-being in association with the status of four-wing flyingfish stock and fisheries as well as associated stocks of, and fisheries for large pelagic species

During the project, and following a participatory approach, the preliminary –and rather generically formulated- targets included in this proposal will need to be fine-tuned and validated or revised, as the currently existing data gaps are gradually being filled.

The participatory approach will need to ensure that the full range of key stakeholders, across the different levels and sectors, is involved. It is thus precisely through the operationalization of the enhanced governance arrangements under the Sub-Project that the processes of more comprehensive stakeholder involvement, and of enhanced target setting/revision will be facilitated.

Under an adaptive management approach, baseline values and targets relating to respectively the current versus the desired status of flyingfish stocks and associated socio-economic benefits (Figures 1 and 2) can then be periodically reviewed and (where applicable) revised. Such information will assist the different stakeholder groups (governments, civil society stakeholders and private sector) in the implementation of the combination of responses that will be needed to achieve the specified targets.

DPSIR FRAMEWORK (Driver-Pressure-State-Impact-Response)

(slightly modified version – CLME)

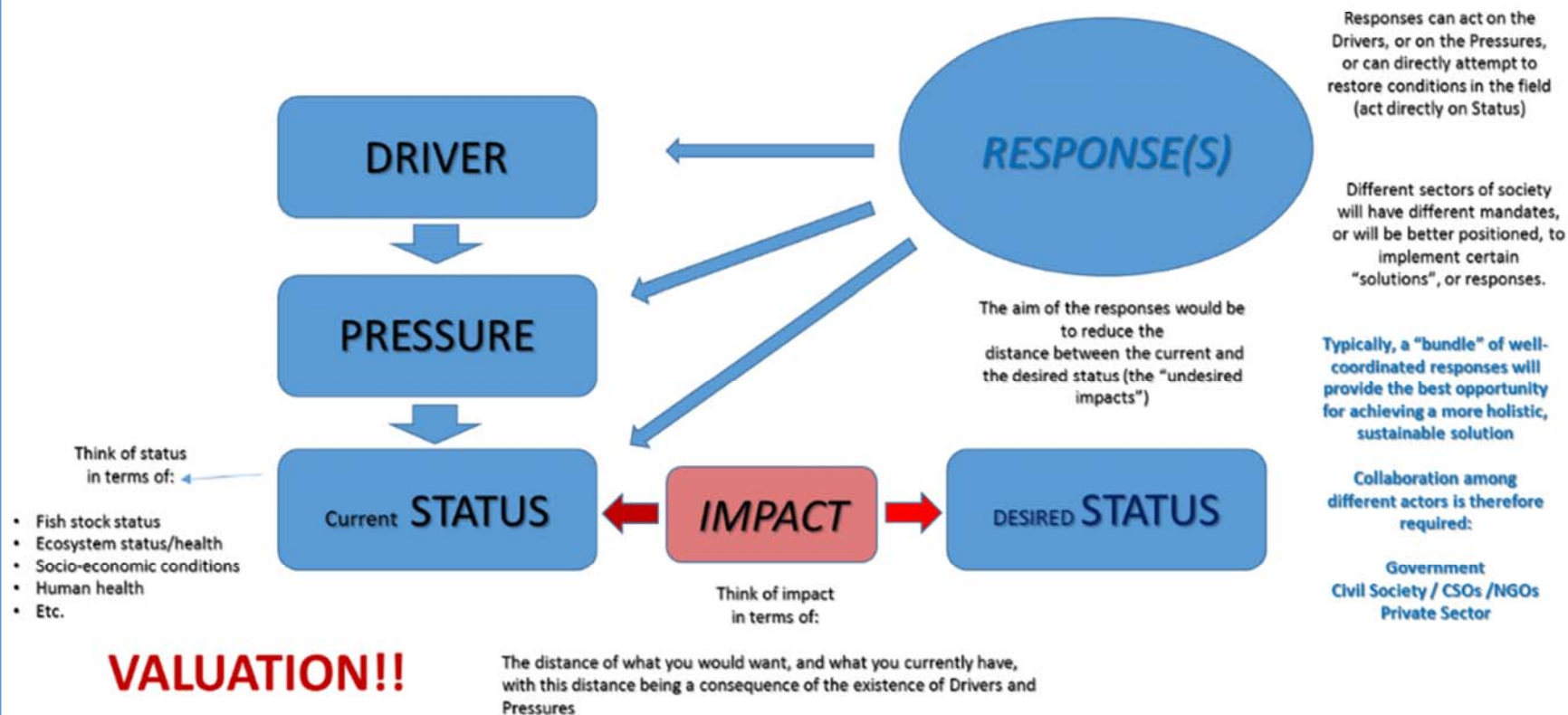


Figure 2. The Driver-Pressure-State-Impact-Response (DPSIR) framework as a tool to support the implementation of the Sub-Project

3.2. Incremental reasoning

Incremental costs covered through the UNDP/GEF foundational capacity and trust building project “CLME” allowed several innovative analyses to be performed, that the region would otherwise not have been able to execute. These analyses informed the further development of the Sub-regional Fisheries Management Plan (FMP) for Flyingfish in the Eastern Caribbean, a task that was initiated under the previous WECAFC Ad-Hoc Working Group on Flyingfish in the Eastern Caribbean. This Sub-regional FMP is the first of its kind to be approved by the CRFM Ministerial Council for cooperation in the sustainable use, conservation and management of a shared fisheries resource in the region. Also supported by the CLME Project’s funding of incremental costs, the 10-year Strategic Action Programme (SAP) for shared living marine resources management was developed and politically endorsed. The SAP includes a particular sub-strategy that calls for actions towards the adoption of EAF in the flyingfish fisheries.

As a consequence of the former, during the first five years following SAP endorsement, it will now be critical to capitalize upon the initial momentum developed under the CLME Project, for example through the execution of the Eastern Caribbean Flyingfish Sub-Project under the 5-year CLME⁺ Project. The GEF (co-)funded Sub-Project activities will put special emphasis on addressing root causes and barriers to the implementation of EAF for Eastern Caribbean Flyingfish fisheries, but also demonstrate practical management measures “on-the-ground”.

It will demonstrate means to move from BaU to EAF in a meaningful geographic subregion of the CLME⁺, and will catalyse more region-wide adoption and implementation of EBM/EAF, by fostering the replication and up-scaling of Sub-Project results.

The move from BaU to EAF will however involve additional costs which at this stage cannot be fully covered by the countries themselves. It is therefore highly likely that in the absence of GEF support towards meeting these incremental costs, achieving the alternate scenario of EAF (versus BaU) would be considerably delayed.

More specifically, incremental cost funding from the GEF will be of critical importance to: further advance the shift from the previously geographic focus of flyingfish management (i.e. a national-level approach) to a regional, stock-based approach; test full policy cycle runs at the sub-regional and national levels (relative to the implementation of the EAF assessment and management of the four-wing flyingfish in the Eastern Caribbean); enhance stakeholder participation (stronger involvement and engagement of the diverse range of stakeholders, with strengthened NICs and FACs and including civil society and private sector) in taking further concrete steps towards EAF; enhance data collection, management and exchange in support of improved, transboundary decision-making; and to kick-start the coordinated implementation of compatible/harmonized management and stress reduction measures, and the monitoring and evaluation of progress and (preliminary) results.

3.3. Objectives, outcomes and outputs

3.3.1 Objectives

The objectives of the Sub-Project are four-fold, to:

- a. Foster long-term human well-being of the (direct and indirect) stakeholders of the Eastern Caribbean flyingfish fishery through optimized, sustainable stock management and use
- b. Full policy cycle implementation at the sub-regional level, through the review, updating, adoption and implementation of the sub-regional management plan for flyingfish fisheries
- c. Full policy cycle implementation at the national level
- d. Capture and disseminate best practices and lessons learnt, for the replication and up-scaling of the EAF approach in other CLME⁺ fisheries

These Sub-Project objectives are well aligned with the general management objectives of the approved Sub-Regional Fisheries Management Plan: (a) long-term sustainability of the flyingfish resource (biological objective), (b) optimal use of the flyingfish resource for long-term benefits (socio-economic objective) and (c) sustained ecosystem health (ecological objective).

Responsible management in the face of uncertain information on the true status of the flyingfish stock and uncertainties relating to impacts from climate change, requires a precautionary approach.

3.3.2 Outcomes, outputs and activities

OUTCOME 1: Governance arrangements in place and operational

This outcome addresses several components of the policy cycle, but focuses mainly on the decision-making component. This Sub-Project focuses on strengthening the governance framework at the sub-regional and national levels through support for completion of at least 1 policy cycle, which will help build additional necessary capacity among the respective entities for effective implementation of the EAF. Consequently, under **Output 1.1** the CRFM Ministerial Sub-Committee on Flyingfish is expected to take an active role in reviewing and evaluating new information generated under the project and during implementation of the flyingfish management plan, and the views and suggestions of the range of stakeholders at varying levels in the context of the EAF, so as to propose updated management recommendations for approval by the CRFM Ministerial Council. Further, recognizing that long-term sustainability of the flyingfish resources will be more effective with the cooperation of the French Overseas Departments that exploit the same stock, engagement of these Departments at the political level is addressed under **Output 1.2**. Such engagement, currently being pursued and supported through CRFM co-financing, is expected to facilitate discussion and agreement on cooperative arrangements for management of the flyingfish resources, to inform elements of a related Memorandum of Understanding. This approach is mindful that the overall regional fisheries governance arrangement to be established under the CLME⁺ will facilitate active cooperation for the sustainable use, conservation and management of all shared living marine resources through an expected regional commitment. In addition, recognizing the varying success in the establishment of the NICs and their engagement in the management process during the CLME Project, capacity-building of existing NICs and FACs to participate effectively in the EAF management process will be addressed under **Output 1.3**, which is distinct from, yet linked to, CLME⁺ Project Output 1.2 *Inter-sectoral coordination mechanisms (including science-policy interfaces, as feasible)* (in the main CLME⁺ Project Document) that seeks to address the arrangements necessary for establishment of the NICs and mechanisms for their sustainability beyond the CLME⁺ project. Output 1.3 seeks to engage the range of stakeholders in meaningful dialogue, exchange of data and information and active engagement in the management process. Meetings of any existing NICs, FACs and other entities performing similar

roles will be facilitated to discuss the EAF, critical issues pertaining to flyingfish management and development of National Management Plans. Recognizing the impacts of lack of availability, or access to required data sets for decision-making and M&E processes, **Output 1.4** will deliver a sub-regional data policy, a key component needed to give firmly grounded support to the EAF approach for the flyingfish fishery policy cycle. A formal arrangement for the sharing of data and information within the CRFM has currently not yet been implemented. The formal arrangement proposed will impose an obligation on the part of Member States to share data and information to improve the knowledge base for management decision-making in the EAF context. Work under Output 1.4. will be linked to the work under CLME+ Project Output 1.4.

Output 1.1. Strengthened CRFM Ministerial Sub-Committee, through completion of at least 1 policy cycle, and adoption of updated recommendations for policy & management decisions in the context of the EAF for eastern Caribbean Flyingfish

Proposed activities under this output include:

- a. Improved education of the Sub-Committee on flyingfish EAF management issues, through continued access to and processing of technical information on the EAF approach to management of flyingfish
- b. Direct experience gained by the Sub-Committee from the review and adoption of updated recommendations for the management of eastern Caribbean Flyingfish arising from the new information generated under the Sub-Project that coincides with the period of implementation of the first flyingfish management plan;

Output 1.2. Active cooperation between CRFM and France at the political level regarding flyingfish conservation and management, through active participation in negotiation and flyingfish management meetings

Proposed activities under this output include:

- a. Participation of French authorities with responsibility for fisheries in meetings of the CRFM Ministerial Sub-Committee on Flyingfish (Co-financed by CRFM);
- b. Support for the continued development of management partnership/cooperation agreement between the CRFM and France

Output 1.3. Engagement of National Inter-sectoral Committees (NICs) and Fisheries Advisory Committees (FACs), through meaningful participation of fishers, civil society and private sector in the management process

Proposed activities under this output include:

- a. Convene annual meetings for awareness-building and discussions on:
 - (1) Implementation of the ecosystem approach to fisheries;
 - (2) Eastern Caribbean flyingfish management issues, taking into account present and emerging management needs, including the need to establish a list of authorized fishing vessels, introduce measures to reduce and eliminate IUU fishing practices, to reduce possible impacts of present fishing strategies on long-term flyingfish recruitment, and to improve resilience to climate change and climate variability impacts.;
 - (3) national-level implementation of the sub-regional FMP;

(4) Refinement of flyingfish Sub-regional FMP to include additional management measures, as identified and required to reduce the impacts of fishing, climate and environmental change

Output 1.4. Sub-regional data policy for EAF management (decision-support), incorporating data, information and indicators for monitoring performance of the Sub-Regional FMP for flyingfish in the Eastern Caribbean, and by this means for incorporation into updated FMP by end of 1st policy cycle.

Proposed activities under this output include:

- a. Formulation and review of a CRFM sub-regional data policy, taking into account the needs and experiences of implementation of the Sub-regional Flyingfish FMP.
- b. Finalization of the CRFM sub-regional data policy.

OUTCOME 2: Enhanced data and information management for decision-support

The issue of access to existing information, necessary for EAF management decision-making on the Eastern Caribbean flyingfish, by a range of stakeholders, will be addressed under **Output 2.1**. Such information will be consolidated and made easily available through an online keyword search facility. By this means, this output will also contribute data and information on the Eastern Caribbean flyingfish resource and fisheries to the respective global inventories of the FIRMS (FAO) consistent with the agreed arrangements at the 15th Session of WECAFC. In support of strengthening the EAF information and knowledge base **Output 2.2** comprises a number of analyses, as identified in the Sub-regional FMP, to provide new information for generation of updated management advice in support of the EAF, including refined operational objectives, indicators and reference points (quantified) to facilitate effective monitoring and evaluation of management performance. In addition to providing new information, the execution of these projects also serves: (1) to identify the key data and information requirements for the EAF management of Eastern Caribbean flyingfish and their sources at varying levels (local, sectoral, national, sub-regional) and (2) to test the elements that could make up a regional DSS, through identification of practical and feasible options regarding the mechanisms and processes for data and information exchange. Consequently, this output will make recommendations for development of a DSS based on the lessons learnt and experiences gained. Finally, consistent with the requirement for improved catch and effort data this output will, through national annual reporting by CRFM Member States, improve the quality of current data available for assessment of the status of the flyingfish resource. Additional information on the ecological and socio-economic impacts of climate change on pelagic fisheries and options for mainstreaming disaster risk management and climate change adaptation at the national level are key outputs of the previously mentioned SPCR-Regional track, which will also serve to strengthen the EAF information and knowledge base developed under the CLME+ Project.

Output 2.1. Improved stakeholder access to data and information of relevance to application of the EAF assessment and management of eastern Caribbean flyingfish and improved availability of data and information to the global community by year 3.

Proposed activities under this output include:

- a. Establishment of CRFM data and information repository for EAF management of Eastern Caribbean flyingfish, which would include identification and electronic consolidation of all published data and information;
- b. Development of an online, keyword searchable, bibliographic database with facility for download of published documents;

- c. Addressing any copyright issues which may impact on the sharing of data and information;
- d. Support update of FIRMS resource and fisheries inventories for the eastern Caribbean stock of four-wing flyingfish.

Output 2.2 Strengthened EAF information and knowledge base by year 3.

Proposed activities under this output include:

- a. Updated, as well as broadened, multi-objective assessment of the eastern Caribbean flyingfish fisheries to:
 - i. Determine the bio-economic and ecological status of the stock;
 - ii. Quantify baseline estimates of indicators and derive estimates for management reference points;
 - iii. Provide updated recommendations in support of adaptive EAF management.
- b. Comprehensive and gender-sensitive valuation (social and economic) of the current and potential future contribution of flyingfish and associated pelagic fisheries to food security (socio-economic), income (costs and earnings) and employment (socio-economic) and ecosystem goods and services (ecological), with recommendations for enhancement of the livelihoods and improvement of the conditions of work for fishers and processors – study to focus on 4 countries participating in the fishery;
- c. Availability of new information for EAF management and policy cycle implementation support (funded under the respective outputs and shared under Output 2.1):
 - i. Options for value chain problem-solving (Output 5.2);
 - ii. Refined operational objectives, indicators and reference points for monitoring and evaluation of management measures, with socio-economic objectives incorporating goals for achieving gender equality and youth development (linked to Outputs 1.3 and 3.2).
 - iii. National level recommendations made consistent with the sub-regional FMP, including provisions for further development of data collection systems (Outputs 4.1 and 4.2)
 - iv. National vessel census for quantifying existing fishing effort and fishing capacity (Output 4.3)
 - v. Revised Sub-regional Fisheries Management Plan for Flyingfish in the Eastern Caribbean (Output 6.2), taking into account present and emerging management needs, including the need to establish a list of authorized fishing vessels, to reduce and eliminate IUU fishing practices, to reduce possible impacts of present fishing strategies on long-term flyingfish recruitment, and to guarantee resilience to climate change and climate variability impacts.
- d. Monitoring and evaluation of management performance at the national and regional levels (Output 6.2)
- e. Identification of key data and information requirements, associated sources of data and information and the mechanisms for data and information sharing at the regional, national, sectoral and local levels to inform development of a DSS;
- f. Formulation of a proposal to inform development of a decision support system.

OUTCOME 3: Stakeholder participation in the management process enhanced

Stakeholder empowerment (with special attention to gender considerations), through increased awareness of fisheries and environmental issues and related impacts on livelihoods, human well-being, poverty alleviation, food security and other socio-economic as well as ecological consequences is necessary to facilitate their informed participation in the management process.

Output 3.1 addresses this issue through improved education and awareness-building of the NICs and FACs, facilitated by the production and dissemination of information customized to the target audience. The activity is expected to contribute to the overall CLME+ Communications Strategy which will target a range of stakeholders at varying levels (general public, decision-makers, advisors, fishers, processors, civil society, private sector/business) as outlined under CLME+ Project Output 2.4 Overarching CLME+ Communication Strategy, with central and decentralised components and responsibilities. In addition, Output 3.1 of this Sub-Project will quantify improvements in education and awareness of the NICs and FACs on issues pertaining to flyingfish management in the EAF context. Active stakeholder involvement in the EAF management process will be addressed under **Output 3.2**. Through a number of national consultations stakeholders will be engaged in identifying solutions for addressing socio-economic, ecological and governance issues and for refining the management operational objectives, indicators and reference points to facilitate monitoring and evaluation of implementation of the Sub-regional and national management plans. In addition, such consultations will provide for broad stakeholder review of any proposed amendments to the Sub-regional management plan. It is expected that outputs of stakeholder consultations will be considered by the FACs and NICs within the wider governance framework, to facilitate the provision of management advice to the national authorities with responsibility for fisheries and the environment initially, and later extended during SAP implementation to other authorities (e.g. via the NICs to planning and development, trade, social development, etc.). This output will also contribute to testing of the overall policy cycle and in particular, the level of stakeholder engagement in the respective process.

Output 3.1 Education and public awareness-building improved in at least 4 of the countries participating in the fishery by project end.

Proposed activities under this output include:

- a. Production and dissemination of a mini-documentary on the flyingfish fishery, scientific and management issues, approaches to management, proposed management measures, legislation and enforcement, and highlighting challenges and opportunities in respect of gender and youth. Proposed dissemination options include posting on the CRFM, CLME+ Project and CNFO websites; airing on national television, posting on Youtube, shared with Fisheries Departments, Ministries with responsibility for the Environment, WECAFC Secretariat and French Overseas Departments;
- b. Production and dissemination of educational materials on the EAF, Sub-Regional Fisheries Management Plan for Flyingfish in the Eastern Caribbean and the associated roles and responsibilities of the NICs and FACs in planning and decision-making.
- c. Conduct of surveys on knowledge, attitudes and practices (KAP) on the ecosystem approach to managing flyingfish fisheries at the beginning and end of the project period to quantify the effectiveness of stakeholder awareness and EAF management engagement activities implemented under the Sub-Project.

Output 3.2 Full range of stakeholders involved in EAF management by project end.

Proposed activities under this output include:

- a. At least three national stakeholder consultations in at least four countries participating in the flyingfish fishery, allowing for representative participation by gender and by youth, to discuss ecological, socio-economic and governance issues, to identify feasible options for management within the context of the EAF, including development, implementation, monitoring and evaluation of national management plans, validation of outputs from research activities and proposals for updates of the Sub-regional FMP for onward transmission through the policy cycle, overall flyingfish governance performance,

- including communication and reporting methods and performance, and recommendations on all of the above for onward transmission through the policy cycle;
- b. Conduct of KAP surveys at the beginning and end of the project period to ascertain the whether the level of stakeholder engagement in the policy cycle has improved.

OUTCOME 4: Management/stress reduction measures defined, and implementation initiated

The Sub-Regional FMP for Flyingfish in the Eastern Caribbean proposes a number of management measures and identifies specific actions for improvement in management (pp 34 – 35 In CRFM, 2014). The Sub-Project will assist in implementing some of the proposed measures and actions, but due to the complex and time-consuming processes for national endorsement of the respective initiatives it is not likely that the desired end result will be achieved in all cases within the 5-year time frame of the Project, though the outlook is better during the 10-year period for SAP implementation. Assistance to selected CRFM Member States in customizing the Sub-regional FMP to suit the national situation, i.e. to identify and prioritise national level activities and available resources for implementation, is addressed under **Output 4.1**. The NICs and FACS are expected to play a key role in this initiative. **Output 4.2** addresses key issues of data deficiencies identified in the Sub-regional FMP. Specifically, through a review of fishing operations, including distribution and marketing systems and identification of other agencies (e.g., governmental, non-governmental, private sector) which record data and information of relevance to fisheries management, feasible options, including strengthened in-country institutional linkages (integrated data collection systems), for expanding and improving the available data and information-base to support the EAF assessment and management will be recommended and the required resources for implementation identified. Recognizing however, the financial and human resource constraints, and the lack of a mechanism for sustainable long-term financing, this activity will also provide recommendations for the optimal use of the existing resources in improving data requirements in the EAF context. **Output 4.3** seeks to address the critical need for implementation of a basic fisheries management tool – a vessel licensing system, stipulated as one of the management measures under the Sub-regional FMP. Output 4.3 is directly linked to Output 1.3: *“Key regional policies, declarations and/or regulations, and associated national-level legislation and/or plans, are appropriate to enable effective EBM/EAF in the CLME”*, in the main Project Document. While current fisheries acts may make provisions for vessel licensing systems, the enabling legislation may not exist and arrangements to support national vessel licensing systems varies among countries. Assistance will be provided to review existing national fisheries legislation and to provide recommendations and options for the way forward, including model legislation, for consideration of the respective countries. In addition, vessel censuses will be conducted to estimate existing fishing effort and fishing capacity, which are key fisheries statistics required to inform management decision-making, particularly fishing effort controls.

Output 4.1 The sub-regional FMP for flyingfish implemented in at least the major harvesting countries by year 2

Proposed activities under this output include:

- a. Support for National-level planning, promotion and implementation of the sub-regional FMP;
- b. National stakeholder consultations (funded under Output 3.2) and meetings of the NICs and FACS for FMP monitoring and evaluation (funded under Output 1.3);
- c. Refinement of national-level management recommendations based on FAC and NIC FMP monitoring and evaluation reports, and taking into account the need to incorporate present and emerging management needs, including the need to establish a limited vessel entry system, to reduce and eliminate IUU fishing practices, to reduce possible impacts of present fishing strategies on long-term flyingfish recruitment, and to improve resilience to climate change and climate variability impacts.

Output 4.2 Recommendations for further development of national data collection systems in support of the EAF assessment and management of the eastern Caribbean Flyingfish fishery in at least 3 major harvesting countries participating in the fishery by year 3

Proposed activities under this output include:

- a. Review of fisheries operations and related data collection systems as well as general national data collection systems in 3 countries
- b. Provide recommendations for improvements in national data collection systems to be incorporated into the FMP update upon completion of the first policy cycle.

Output 4.3 Model national vessel licensing regulations formulated for adoption in accordance with legislation, and census of flyingfish vessels by year 3, used to establish list of authorized fishing vessels.

Proposed activities under this output include:

- a. Assessment of samples of national fisheries legislation in respect of licensing arrangements – if provisions are already made for licensing of fishing vessels then (b);
- b. Develop model regulations, consistent with management recommendations in the Sub-regional FMP;
- c. Conduct national censuses of flyingfish fishing vessels, which would allow measurement of fishing capacity required for imposing fishing effort regulations.

OUTCOME 5: Long-term enhancement of livelihoods/human well-being facilitated

The Sub-Project serves to advance the respective process towards long-termed enhancement of livelihoods and human well-being. Firstly, **Output 5.1** ensures that based on the socio-economic findings under **Output 2.2** appropriate management advice is formulated for consideration of decision-makers and incorporated in the revised Sub-regional FMP for flyingfish in the eastern Caribbean. Secondly, **Output 5.2** provides livelihood enhancement options informed by a value-chain analysis that investigates several critical issues pertaining to marketing and trade including those highlighted in the Sub-regional FMP (e.g., market gluts and inadequate distribution leads, inadequate post-harvest technology, discontinuous market supplies due to species seasonality, difficulties in producing cost-competitive export products). Further, based on the results and recommendations of the value chain analysis as well as the valuation studies under Output 3.2, activity proposals designed to enhance livelihoods and human well-being will be addressed under **Output 5.3**. Capacity-building activities in specific communities in key areas/topics identified will be incorporated into the activity proposals and coincide with their implementation.

Output 5.1 Updated Management recommendations to enhance livelihoods and human well-being (with due attention to gender equality and youth development issues), in at least three countries participating in the fishery by year 3.

The proposed activities under this output include:

- a. Updated EAF management recommendations that incorporates socio-economic information from Outputs 2.2 and 5.2 as well as recommendations for enhancement of the livelihoods, improvement of the conditions of work of fishers and processors and value-chain problem solving;

Output 5.2 Value-chain problem solving - feasible options for added value, improved SPS and distribution and marketing identified in at least three countries participating in the fishery by year 3.

The proposed activities under this output include:

- a. Awareness-building of stakeholders on purpose of study and associated benefits;
- b. Value chain analysis – identification of feasible options for value addition, improved SPS and distribution and marketing, and incorporation of information into updated sub-regional FMP and management recommendations.

Output 5.3 Capacity-building to facilitate enhanced livelihoods and human well-being in at least three countries participating in the fishery by project end.

The proposed activities under this output include:

- a. Development and implementation of 1-2 activity proposals to facilitate livelihood enhancement, focused either on increasing market or livelihood opportunities from current levels, and taking into account gender equality and youth development considerations.
- b. Support for implementation of 1-2 activity proposals, which will include hands-on training of the stakeholders involved in proposal development and implementation, as well as core business and management skills.

OUTCOME 6: Adaptive Management facilitated

Periodic assessments of overall performance and progress towards the ultimate objective of enhanced human well-being from sustainable use of the flyingfish resources will be conducted through the use of the Governance Effectiveness Assessment (GEAF) Framework, including an assessment for each component of the policy cycle. The use of this framework will facilitate the adoption of an adaptive management process, and will ensure that processes remain aligned with, and directed to this overarching objective (**Output 6.1.**). Through annual reports of the Caribbean Fisheries Forum and the CRFM Pelagic Fisheries Working Group (PWG) and CRFM/WECAFC Working Group on Flyingfish in the Eastern Caribbean, monitoring of the performance of management measures proposed in the Sub-regional FMP, at both the national and regional levels, will also be addressed here. As well, a comprehensive evaluation of FMP performance will be undertaken and based on the findings, along with other outputs of the Sub-Project, management strategies will be adapted to better achieve the stated goals (sustained fishery resource (biological); optimal use of the fishery for long-term benefit (socio-economic); sustained ecosystem health (ecological)). In addition, the Sub-regional FMP will be updated to capture the new information generated, new and adapted management strategies as well as proposals for medium/long-term sustainable financing mechanism(s)/plans. This updated Sub-regional FMP, having undergone the review process at various governance levels, will be presented for endorsement by the CRFM Ministerial Sub-Committee on Flyingfish and approved by the CRFM Ministerial Council.

Lessons learnt and best practices will be shared with coordinators of the other two EAF Sub-Projects (Spiny Lobster, Shrimp and Groundfish) and at various fora (national and regional) to facilitate replication and up-scaling of the EAF approach in other CLME+ fisheries, and –through Component 5 of the main project - other LMEs. This information-sharing, will be addressed under **Output 6.2** with specific products customized to the various target audiences.

The post-project financing needs are addressed under **Output 6.3**, and will include commitment of additional resources to ensure continuation of the efforts towards full-scale implementation of EAF for the flyingfish fishery beyond the CLME+ Sub-Project lifespan. As explained previously, this will include the development of management finance-sharing arrangements.

Output 6.1: Management performance reviewed and management strategies adapted on completion of policy cycle.

The proposed activities under this output include:

- a. Review and report by the CRFM on implementation of FMP at the national level based on management measures, operational objectives, indicators and reference points outlined in the 2014 Sub-Regional FMP as well as discussion on medium/long-term sustainable financing mechanisms;
- b. Review and report by the CRFM PWG and the CRFM-WECAFC Working Group on Flyingfish in the Eastern Caribbean reports on implementation of FMP at regional level.
- c. Comprehensive assessment/evaluation of management performance based on (a) and (b) above;
- d. Meetings of the CRFM PWG and the CRFM-WECAFC Working Group on Flyingfish to review and update FMP - based on scientific studies, NIC and FAC inputs (as formulated from broader stakeholder inputs), monitoring and evaluation of FMP performance as well as inclusion of medium/long-term sustainable financing mechanism(s)/plans.
- e. Updated FMP and management measures considered and approved by CRFM Ministerial Sub-Committee and by the CRFM Ministerial Council to complete the policy cycle.

Output 6.2: Sharing of lessons learnt and best practices from full policy cycle implementation by project end.

The proposed activities under this output include:

- a. Critical assessment of performance of all components of the policy cycle with recommendations for improvements at each stage of the policy cycle.
- b. Validation of assessment;
- c. Production of information briefs on lessons learnt and best practices targeted at a range of stakeholders (national and regional partners).

Output 6.3: Additional co-financing leveraged for sub-project implementation and formally adopted sub-project after-life plan.

The proposed activities under this output include:

- a. Agreement on additional resources to be mobilised by the major parties, CRFM, WECAFC, and Member States for continued EAF approach to flyingfish management.
- b. Preparation and adoption at CRFM and WECAFC levels of post-project plan, with budget sharing arrangements incorporated and resource mobilisation strategy defined.

3.4. Project indicators and impact monitoring

For the CLME⁺ Sub-Projects, the conceptual approach to project progress & impact monitoring will be similar to the one adopted for the main UNDP/GEF CLME⁺ Project. This approach is reflected in the structure and content of the Results Framework contained under Section 4 of this document. It is based on the GEF indicator categories for project monitoring & evaluation (M&E) (**Figure 3**), and enriched with additional categories stemming from the work developed under the TWAP Project (GEF

ID 4489, see also Figure 4). Under the project's M&E framework, (draft) SMART⁴ targets have been associated with the different project outputs.

With its strong focus on being a catalyst for enhanced, transboundary governance processes, many of the Sub-Project's Indicators will fall under the category of "**Process Indicators**".

It will therefore be of critical importance to continuously link processes and obtained progress/results back with, and periodically re-evaluate them from the perspective of the over-arching goal to which the project is expected to contribute, i.e. maximized, sustainable contributions from the flyingfish resource to human well-being and socio-economic development. In this context, periodic fine-tuning and/or revision of planned processes may be needed, as preliminary results are evaluated and additional knowledge is acquired. Such will demand an adaptive (project) management approach.

In line with the above, preliminary "**Stress Reduction**" and, as feasible, "**Ecosystem/Stock Status**" and "**Socio-economic Status**" Indicators and associated Targets are to be defined, following –to the extent that such is possible during the Sub-Project inception phase - a consultative/participatory approach. Where such was not possible yet during the project preparation phase, baseline values for indicators will be identified using the best information available to date. These values will need to be updated as better information becomes available as a consequence of the implementation of activities under the Sub-Project.

For certain of the (draft) targets currently set under the project results framework, a fine-tuning and/or formal revision and adoption of their values by a broad group of (relevant) stakeholders⁵ will not be feasible until the transboundary governance arrangements and processes that will facilitate such broader stakeholder participation have been made operational. The operationalization of these processes is expected to be achieved through the activities associated with esp. Outcome 1 and 2 of the Sub-Project.

Certain of these project indicators and their associated baseline values and targets can then also become part of the overarching, longer-term Monitoring & Evaluation Framework for SAP implementation, and contribute to the "*State of the Marine Ecosystems and associated living resources*" reporting that will be supported through CLME+ Project Component 5.

⁴ SMART indicators are: Specific, Measurable, Achievable, Relevant and Time-bound

⁵ i.e. beyond the governance bodies, country representatives and organizations that actively participated in the development of the current Sub-Project proposal

Causal-Chain Analysis

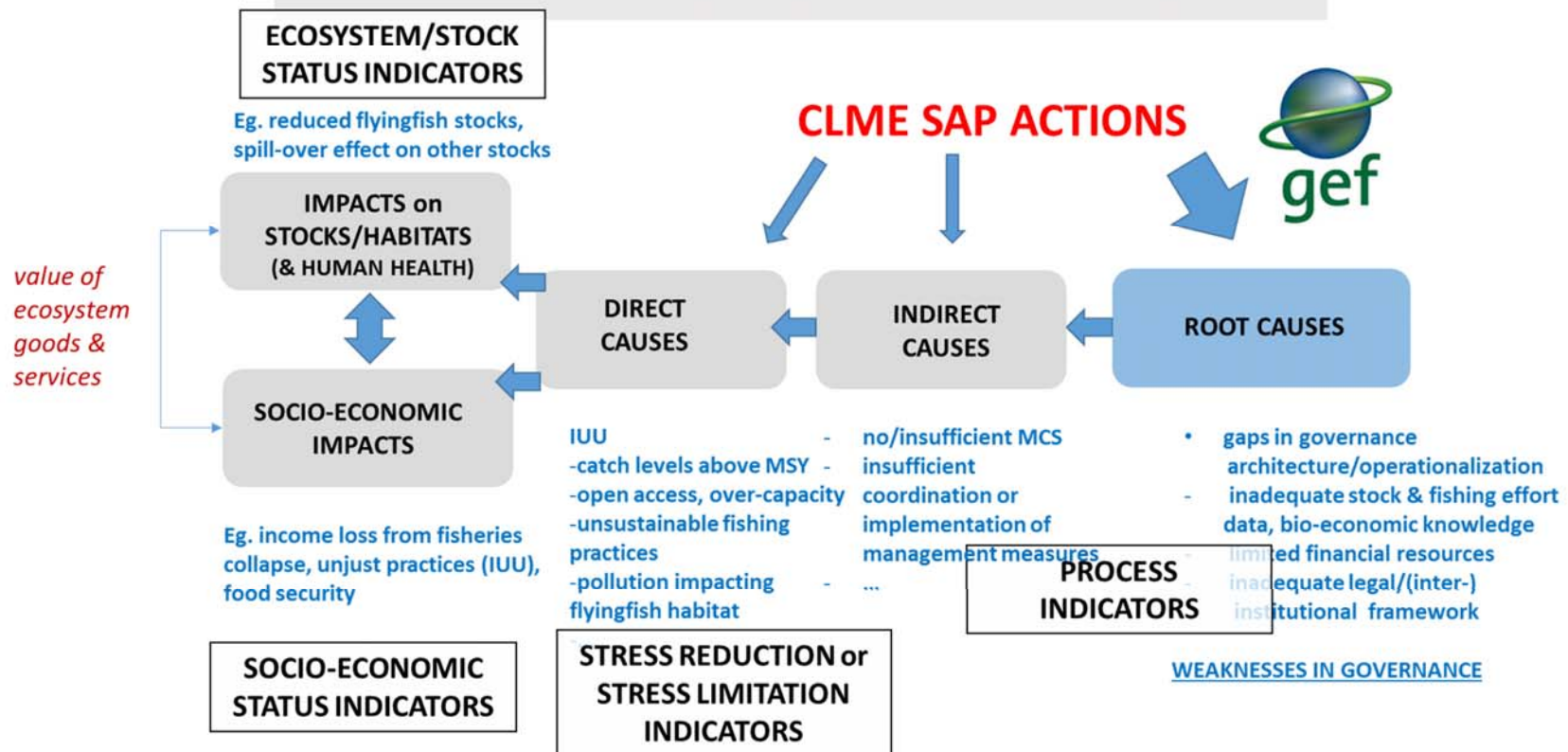


Figure 3. The different types of indicators typically used for the monitoring and evaluation of results under GEF (co)funded International Waters Projects

Associations between the components of the GEAF framework (which was used to structure the Sub-Project strategy, described under Section 3) and **(a)** the different Sub-Project components, and **(b)** impact monitoring indicator types, are illustrated in the figure below.

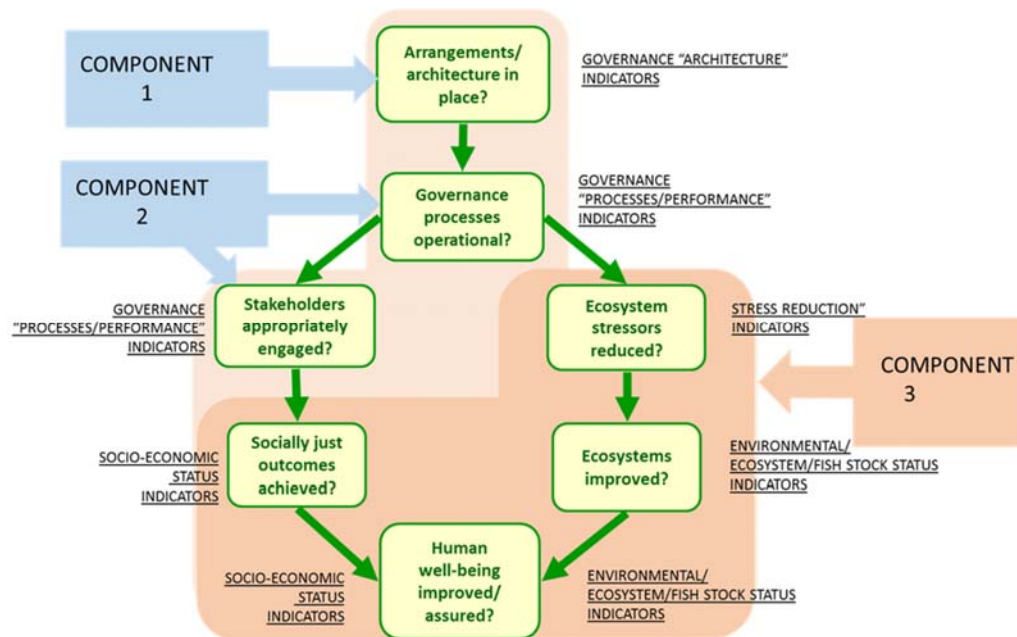


Figure 4. Association between the elements of the GEAF framework, and (a) the sub-project components and (b) the different project impact monitoring indicator types

It is intended that during the sub-project's inception phase, the project objectives, indicators and reference points will be further fine-tuned and developed through a participatory approach. They will then be used to steer and inform the sub-project management process, and to guide monitoring and evaluation of its implementation.

3.5. Risks and assumptions

As a consequence of the multi-country and multi-stakeholders nature of the project, the current absence of an RFB - with an associated decision-making body - that encompasses all countries and territories fishing for the eastern Caribbean flyingfish, together with the differences in customs/culture, language, legal and management frameworks, there are a series of risks the project will have to deal with, and a number of assumptions it will have to work under. Combined, the dynamics of risks, and the periodic review (and revision, where applicable) of assumptions, will **justify the adoption** by the Sub-Project, of an **adaptive approach to project management and implementation**.

Risks and assumptions, identified or made during the project preparation phase, have been given due consideration during project design.

- Political and governance considerations

There is a risk that political turn-over and the inertia typical of an evolution away from Business-as-Usual schemes, together with the more-or-less fixed periodicity and timeframes proper of regional,

sub-regional and national-level political and governance processes, may impact on the speed with which targets set under this Sub-Project can be met.

In order to mitigate to the best possible extent this risk, due consideration has been given during the project design to strong ownership over the project by the relevant RFBs; further, project milestones and targets have been defined to the best possible extent in alignment with the established frequencies and expected timeline of relevant native planning and decision-making events in the region

However, it is to be noted that delays in the operationalization of the CLME⁺ Project, beyond the currently anticipated initiation of the project during the first months of 2015, will impact on the feasibility of some of the currently defined targets, included under the Project Results Framework in this document. In such case, a critical revision of the results framework (incl. a re-evaluation and alignment of targets with the calendar of native governance processes) will need to be made during the project inception phase.

Risks further include lack of (interest in) cooperation among range states for sustainable management of Eastern Caribbean flyingfish and related fishing activities and ineffective management of an important prey species within the ecosystem. Mitigation measures include increased awareness of decision makers and stakeholders as well as legally binding agreements. Another risk is that France may not become a formal political partner but institutional arrangement under WECAFC exists, and technical engagement may minimize this risk by way of provision of data and information to inform scientific analyses and update of FMP. Additionally, work under the main Project will be conducted on the establishment of a region-wide, permanent fisheries coordination mechanism, which would then also encompass the different dependent territories.

Other risks are the limited or uncertain funding levels of governments and (sub-)regional organizations; shifts in political priorities (e.g. as a consequence of natural disasters), and difficulties in reaching consensus among the different countries and stakeholders; the cost of improving critical data & information sets; aversion to change on the side of stakeholders (e.g. fishers, intermediaries, consumers); etc.

Lack of political will or priority is likely to cause delays in amendments to legislation, establishment of MCS, improved data collection strategies at national level resulting in ineffective management of flyingfish resource and inability to complete the policy cycle for the full package of management measures under the (prospective) management plans, within the timeframe available to the Sub-Project. Mitigation measures include interventions at high decision-making levels to gain necessary support, and, where feasible and meaningful, the early implementation of selected, high priority management measures at the pilot/demo scale: early results from the demonstration of measures will be critical to maintain political and stakeholder buy-in and secure further donor support.

In consideration of the above, there will be a need to identify and/or forge strong political and technical leadership in the region, as well as good lobbying capacity. Involvement and participation of stakeholders should be improved. Limited (political will for) inter-sectorial communication and stakeholder participation may delay proper decision making, or affect the legitimacy and/or buy-in for decision and associated actions. Recurrent administrative and technical turn-over can lead to substantial delays in implementation.

- Legal considerations

Regional and national legal frameworks are often still not sufficiently harmonized. Many of the regional regulations are not binding; in practical terms, the concept of “voluntary implementation” makes such regulations subject to an increased risk of non-compliance. Measurable impacts from the

expected Outcomes, especially at the level of stress reduction or environmental or socio-economic conditions, may take (much) more than 5 years to manifest themselves, at levels other than the local scale. Weak (capacity to enforce or ensure) compliance with regulations hinders the possibility of reaching goals and targets “in the field”.

- Considerations of human, technical and financial capacity

Technical data and info on the fisheries sector is not always compiled, analyzed and made available to the users and for decision making. Limitations on national government funding have an influence on the availability of (qualified/sufficiently trained or experienced) human and technical resources. Often, limitations persist in the awareness/understanding of the importance of developing a knowledge base for decision making. There could be difficulties in reaching consensus on technical matters for decision making.

- Lack of coordination among different projects and initiatives

Full achievement of projected targets will also depend on effective collaboration among the different relevant programmes, projects and initiatives that will take place in the region during the Sub-Project lifespan, and on the effective leveraging of additional co-financing support. The broad political endorsement of the CLME+ SAP, with its sub-strategy on flyingfish fisheries, and the central role of the CRFM in the execution of the Sub-Project, will facilitate collaborative efforts and synergies among the different initiatives relevant to the flyingfish fisheries. Efforts under the main Project to further expand, consolidate and strengthen the CLME+ Partnership will further contribute to this. Work on the Outputs under Component 6 (Outcome 6) will deal with the issue of additional financial support, and the M&E mechanism to be established under this component will help track progress, to ensure that targets can be achieved within the available time frame.

A critically important risk is that efforts towards EAF supported through the GEF contribution would come to a stall at project end. For this reason, the Sub-Project will work on a strategy, to be delivered by sub-project year 3, to ensure the continuity of efforts beyond the sub-project lifespan.

3.6. Cost effectiveness, sustainability and replication potential

Cost effectiveness

Sub-Project activities will be embedded within the context of a sub-regional priority, set under the FMP and meetings of the CRFM Fisheries Forum and Ministerial Council. This means that the project will be able to build upon past and ongoing efforts at sub-regional and national levels, which in turn will result in the high cost effectiveness of the GEF investment under this Sub-Project. Strategic coordination of efforts with other national, sub-regional and even global initiatives will further enhance cost effectiveness. Cost effectiveness will further also be increased through the outputs under Outcome 6 of the sub-project, in particular those relating to replication, up-scaling and long-term sustainability of activities and results:

The **replication potential** of the Sub-Project is substantial because:

The sub-project has been designed in such a way as to enable **cost-effective replication and up-scaling** of best practices and lessons learnt from the implementation of activities in a limited sub-set of countries, across the wider range of CLME+ states.

At the level of the efforts toward the adoption of EAF, replication will be facilitated across the Sub-Projects under CLME+ Project Document Component 3, as all sub-projects have been shaped around

a common conceptual framework: the Governance Effectiveness Assessment Framework (GEAF). The use of this framework, developed under the TWAP Project (GEF ID 4489) and adopted by the CLME⁺ Project will not only facilitate replication within the context of the suite of CLME⁺ Sub-Projects, but also among other efforts to adopt the EAF approach, both within the CLME⁺ region and beyond.

Sustainability of progress and results obtained through the CLME⁺ Sub-Project's contributions will be ensured as:

- (a) the sub-project's design foresees for strong ownership over the project activities by those organizations and institutions at the sub-regional and national level that have a formal long-term mandate for the management of the four-wing flyingfish resource
- (b) the timeline of sub-project activities and milestones will be aligned as much as possible with the timeline of the relevant existing governance processes in the CLME⁺ region
- (c) the development and region-wide adoption of a monitoring & evaluation (M&E) framework to track progress towards EAF for the four-wing flyingfish fisheries in the CLME⁺, including the definition of medium- to long-term targets in terms of desired status of flyingfish stocks, and associated desired socio-economic benefits, will trace a roadmap for action which will extend beyond the sub-project life span itself
- (d) the development of a project after-line plan, to be delivered by the end of sub-project year 3, is embedded as a specific output (O6.3.) in the sub-project's logical framework under Outcome 6

3.7. Beneficiaries and stakeholder involvement plan

In the medium and long term, the most important beneficiaries of the four-wing flyingfish Sub-Project activities are expected to be the peoples (both women and men) of the southern island chain that make a living, or benefit in any other way, out of the sustained existence of the four-wing flyingfish resource. In this context, the stakeholder groups on which the Sub-Project activities will mostly focus are: fisherfolk, and stakeholders along the value chain. "*End consumers*" of the four-wing flyingfish resource will of course also be beneficiaries of the project outcomes.

In the shorter term, the Sub-Project activities are expected to strengthen those organizations and institutions that have been given a mandate linkable to, or of relevance for the over-arching objective of the CLME⁺ fourwing flyingfish Sub-Project.

These include (sub-)regional fisheries bodies, and fisheries ministries and technical departments at the country level, plus their peers involved in the management of the marine environment and/or other fisheries. Within the context of integrative, interactive governance, this "*public sector*" stakeholder group should be expanded to also include fisherfolk, relevant civil society and private sector representatives with key roles relevant to the four-wing flyingfish policy and management cycles.

Achieving sustainable flyingfish fisheries, as a means to sustain livelihoods and promote socio-economic development in the CLME⁺, can also be of strategic importance in the context of the other objectives of the CLME⁺ Project, and the over-arching objectives of the CLME⁺ SAP.

Beneficiary countries: **Countries involved:** CRFM Member States (in particular Barbados, Grenada, Trinidad and Tobago, Saint Lucia, and Dominica) and French Islands (esp. Martinique)

Other Countries Benefitting: WECAFC countries with pelagic fisheries (due to ecological linkage, flyingfish being an important prey species); all CLME⁺ countries adopting, or aiming to adopt EAF

(through the exchange of lessons learnt and best practices, obtained from early flyingfish EAF approach results).

Involvement in project implementation of key stakeholders linkable to the four-wing flyingfish policy and management cycles will be secured through the project management & execution arrangements -specifically designed for this purpose- described under Section 6 and through the provisions made for this purpose under the Sub-Project logframe (see Section 4) and budget (see Section 5). Special attention will be given under the stakeholder involvement plan to gender equality and the empowerment of women.

Stakeholder involvement is expected to take place through the implementation of the project activities. Periodic reviews, and, whenever applicable, revisions of the stakeholder involvement plan may take place during project execution under the concept of adaptive project management.

4. Project Results Framework

Outcome & Outputs	Indicators	Baseline	Milestones & Targets SPY_X = X th year of implementation of the Sub-Project SPE = Sub-Project End	Source of verification
OUTCOME 1. GOVERNANCE ARRANGEMENTS IN PLACE AND OPERATIONAL				
Output 1.1 Strengthened CRFM Ministerial Sub-Committee and Ministerial Council, through completion of at least 1 policy cycle, and adoption of updated recommendations for policy & management decisions in the context of the EAF for Eastern Caribbean flyingfish	As a result of completion of at least 1 policy cycle, updated management recommendations that address socio-economic, ecological, governance and management issues, adopted by CRFM Ministerial Sub-Committee and Ministerial Council	2011 Terms of Reference for the Ministerial Sub-Committee; First 2 meetings of the Sub-committee, convened in October 2012 and February 2013	Recommendations updated at least during 1 policy cycle, incl. on new or revised management measures (<i>e.g. reductions or limitations in fishing pressure, as applicable</i>) to take into account the performance and new information generated from updated data and information reviews and analyses during completion of the the policy cycle facilitated by this sub-project, to guarantee EAF targets relating to: stability of flyingfish stock biomass, ecosystem health, consolidated and/or enhanced socio-economic benefits, etc.; Adoption of the updated Sub-Regional FMP incorporating updated, refined management measures by the CRFM Ministerial Sub-Committee on flyingfish and also CRFM Ministerial Council by year 4	Reports/Minutes of meetings of Ministerial Sub-Committee, Ministerial Council;
Output 1.2 Active cooperation between CRFM and France at the political level regarding flyingfish (FF) conservation and management, through active participation in negotiation and flyingfish management meetings	Number of Ministerial Sub-Committee and/or Ministerial Meetings in which there is participation by French Overseas Territories (OTs); CRFM-France cooperation negotiation activities Formal CRFM-FRANCE management cooperation agreement;	Politically endorsed CLME ⁺ SAP, with Sub-Strategy on EAF for flyingfish fishery and associated action relating to collaboration with France; Minutes of past Ministerial Council meetings with recommendations on stepwise process for improving cooperation with French OTs in conservation, management and	Active cooperation between CRFM and France at the technical/scientific level by SPY1; Participation by French OTs in at least 2 Ministerial Sub-Committee and/or Ministerial Council Meetings during the Sub-Project lifespan; Formal management cooperation agreement developed by Sub-Project Year 3 (SPY3); Management cooperation agreement endorsed by relevant authorities in SPY4; Active cooperation at the political and stakeholder levels during SPY4, reflected in the cooperation arrangements laid out in the updated FMP	Reports/Minutes of CRFM Ministerial Sub-Committee meetings and CRFM Working Group Meetings; Elements of an MoU aimed at development of management partnership between CRFM and France; Updated Sub-Regional FMP document, reflecting the cooperation arrangements with France in respect of Eastern Caribbean flyingfish

Outcome & Outputs	Indicators	Baseline	Milestones & Targets SPY_X = X th year of implementation of the Sub-Project SPE = Sub-Project End	Source of verification
	Active cooperation between CRFM and France at technical/scientific, political and stakeholder levels	sustainable use of FF Resources, and approved also by CARICOM COTED; Legal advice provided by CARICOM; Previous collaboration with France at the technical level; Brief/Aide Memoire (May 2013) developed to determine the appropriate approach for policy level/political engagement of France		
Output 1.3 Engagement of National Inter-sectoral Committees (NICs) and Fisheries Advisory Committees (FACs), through meaningful participation of fishers, civil society (F/CS) and private sector (PS) in the management process	As a result of completion of at least 1 policy cycle, updated management recommendations from NICS and FACs pertaining to EAF management of Eastern Caribbean Flyingfish Numbers of stakeholder consultations, Stakeholder reports on FMP implementation	CRFM Consultancy Reports on Stakeholder Identification and Analysis of the Eastern Caribbean Flyingfish Fishery and the Large Pelagic Fishery in the Wider Caribbean	Annual meetings convened with NICs and FACs in at least the major harvesting countries participating in the fishery to discuss issues in flyingfish management and to provide inputs for the up-dating of the 2014 sub-regional FMP; different stakeholder groups represented at annual meetings; Recommendations from NICS/FACS, obtained with Fisher/Civil Society & Private Sector participation, formulated in at least the major harvesting States; to be achieved at the latest by Sub-Project End (SPE)	Reports/participants' lists of meetings of NICs and FACs; incl. written recommendations for updating the FMP and for EAF management of flyingfish

Outcome & Outputs	Indicators	Baseline	Milestones & Targets SPY_X = X th year of implementation of the Sub-Project SPE = Sub-Project End	Source of verification
Output 1.4 Sub-regional data policy for EAF management (decision-support), incorporating data, information and indicators for monitoring performance of the Sub-regional FMP for flyingfish in the Eastern Caribbean, and by this means for incorporation into updated FMP by end of 1 st policy cycle	Data Policy document	Draft CCCFP; CRFM Data Policy outline in Report of 3rd Annual CRFM Scientific Meeting	Draft Data Policy for EAF completed during SPY1, with inputs at technical level by all harvesting countries through joint Working Groups (CRFM + France); Stakeholder consultations on Data Policy completed by end of SPY 2; Data policy endorsed by CRFM Ministerial Council by SPY3 for incorporation into updated FMP and taking into account cooperation agreement arrangements being developed between CRFM and France.	Reports of CRFM Forum, Ministerial Council, CRFM-WECAFC Working Group on Flyingfish, CRFM Pelagic Fisheries Working Group; CRFM Ministerial Council-endorsed Data Policy document
OUTCOME 2. ENHANCED DATA AND INFORMATION MANAGEMENT FOR DECISION-SUPPORT				
Output 2.1 Improved stakeholder access to data and information of relevance for the application of the EAF assessment and management of eastern Caribbean flyingfish, and improved availability of data and information to the	CRFM flyingfish data and information repository, with search engine, accessible to stakeholder publics Number of relevant publications sourced; Online repository activity report (page hits, downloads, access by various publics, etc.);	Publications from the CLME Project flyingfish case study; Technical and scientific documents used to develop the 2014 version of the Sub-Regional FMP	Structure of online bibliographic database developed and integrated into CRFM website by SPY1; ongoing online bibliographic database development throughout Sub-Project; All documents generated under the flyingfish case study of the CLME Project sourced by SPY1; Sourcing of published documents, including those generated by the CLME+ flyingfish Sub-Project, ongoing throughout Sub-Project execution; all documents produced under CLME+ flyingfish Sub-Project sourced by SPE;	CRFM website; Website of national fisheries departments; FIRMS; SAP M&E and State of reports/web portals; Online materials; Website statistics/reports of online access to bibliographic database and document downloads;

Outcome & Outputs	Indicators	Baseline	Milestones & Targets SPY_X = X th year of implementation of the Sub-Project SPE = Sub-Project End	Source of verification
global community by year 3	National flyingfish fishery data and information inventories available in CRFM data and information repository; Sub-regional flyingfish resource data and information inventory available in CRFM flyingfish data and information repository; CRFM engagement in FIRMS-WECAFC Partnership;		Downloads registered for at least 30% of the sourced documents; downloads registered from at least 66% of CRFM countries fishing the flyingfish stock, by SPE; National flyingfish fisheries data inventories submitted to FIRMS by SPY2; annual submissions throughout sub-project period; Sub-regional flyingfish resource data inventory submitted to FIRMS within one year following update of resource assessment; CRFM engaged in FIRMS-WECAFC Partnership by FPY3	Presence of national flyingfish fisheries data and information inventories in CRFM flyingfish data and information repository; Sub-regional flyingfish resource data and information inventory in CRFM flyingfish data and information repository
Output 2.2 Strengthened EAF information and knowledge base by year 3	Updated, and broadened EAF management advice, covering the full range of EAF objectives, and including options to address remaining gaps and the proposed DSS, e.g. Socio-economic and ecological importance of flyingfish and associated large pelagic fisheries evaluated.	Existing, agreed sub-regional ECFMP and existing range of objectives, indicators and reference points Existing sampling plans of CRFM Member States (descriptions of national sampling plans, as contained in CRFM Annual Scientific Meeting Reports); Report of CRFM Workshop to develop a draft strategy to strengthen capacity in	Application of improved assessment methods for estimation of total catches, fishing effort, and EAF reference points by SPY2; Generation of updated recommendations for EAF management, taking into account results of valuation analysis and FMP social and economic objectives, national vessel census information, FMP performance and any required changes in EAF for data and information needs Proposal to facilitate development of management DSS completed by SPY3	CRFM updated flyingfish fishery assessment Reports and EAF management advice; Fishery valuation report Report of FMP performance report and updated FMP; Report on any changes in EAF data and information requirements National vessel census reports Proposal to facilitate development of DSS

Outcome & Outputs	Indicators	Baseline	Milestones & Targets SPY_X = X th year of implementation of the Sub-Project SPE = Sub-Project End	Source of verification
		the areas of fisheries statistics and information; Reports of the CRFM's Data, Methods and Training Working Group WECAFC and CRFM flyingfish assessment reports (2008 onwards)		
OUTCOME 3. STAKEHOLDER PARTICIPATION IN THE MANAGEMENT PROCESSES ENHANCED				
Output 3.1 Education and public awareness-building improved in at least 4 of the countries participating in the fishery by project end	Public Education and awareness building materials produced; Various publics targeted with the education and awareness building materials; Type of dissemination media, and adequacy to reach substantial percentage of target public; Dissemination levels; KAP indicators	CRFM website; Sub-regional FMP, approved in 2014; CRFM's stakeholder brief on the Sub-regional FMP; Flyingfish Stakeholder analysis conducted during CLME Project	Mini-documentary completed in SPY2, and produced for use by various media and various publics; Additional educational materials produced by SPY2, with target public including, as a minimum, policy-makers, NICs and FACs in at least 4 countries Materials disseminated in all countries/territories fishing the eastern Caribbean flyingfish stock, by Sub-Project end; KAP surveys completed in Sub-Project Year 1 (baseline) and Sub-Project Year 4; results show improvement in public education and awareness by 65-70% Sub-Project Year 4	awareness building materials; annual reports of meetings of CRFM Sub-Ministerial Committee; reports of meetings of NICs and FACs; reports of KAP surveys
Output 3.2 Full range of stakeholders involved in EAF management by project end	Number of stakeholder consultations to discuss flyingfish management issues in the context of EAF, with adequate	Flyingfish Stakeholder analysis conducted during the CLME Project (GEF ID 1032); Sub-Regional FMP;	At least 3 national stakeholder consultations convened in each of 4 countries by SPY3; KAP surveys completed in SPY1 (baseline) and SPY4; quantitative results reflective of substantial improvement of stakeholder engagement by 65-70% in the policy cycle process assessed by SPY4;	Reports of national stakeholder consultations for informing updated Sub-regional fisheries management plan for flyingfish;

Outcome & Outputs	Indicators	Baseline	Milestones & Targets SPY_X = X th year of implementation of the Sub-Project SPE = Sub-Project End	Source of verification
	representation by gender; Number of stakeholder reports for addressing the range of EAF issues in the flyingfish fishery, with gender equality and youth development issues considered; Demonstrated improvement in the level of stakeholder engagement in the policy cycle;	Report on Evaluation of Multi-Criteria Analysis as tool for improving information in multi-objective decision-making;	Representative stakeholder input reflected in revised, feasible management measures, refined operational objectives, indicators and reference point for M&E of plan implementation, taking into account especially also gender and youth development issues	Reports on analysis of data and information from national stakeholder consultations, with gender equality and youth development issues considered; Reports from KAP surveys;
OUTCOME 4. MANAGEMENT MEASURES, including STRESS REDUCING and/or STRESS LIMITING MEASURES DEFINED, AND IMPLEMENTATION INITIATED				
Output 4.1 The Sub-Regional FMP for flyingfish implemented in at least the major harvesting countries by year 2	Active use of FMP to guide national level activities in at least 4 countries, e.g. reflected by NIC and FAC activities such as consultations and reports	First version of Sub-Regional Flyingfish Fisheries Management Plan endorsed by CRFM Ministerial Council in 2014, with conventional management reference points only and with ad hoc stakeholder inputs;	(Milestone) Updated and broadened management recommendations produced under the different Sub-Project outputs (e.g. Output 2.2,) that take into account EAF management needs, and with emphasis on stress reducing/limiting measures identified as necessary; (Target) Updated Sub-Regional FMP by SPY3, which includes stress reduction/limiting measures, as required for sustainable stock management, and initiated during SPY 4. The updated FMP includes relevant indicators and associated targets from the GEAF-based M&E framework (Output 6.1) (as far as feasible/applicable) and results from the relevant outputs of this Sub-Project	NIC and FAC Meeting reports/minutes; CRFM reports; Updated FMP Physical & digital copies of the original, and updated version of the FMP;

Outcome & Outputs	Indicators	Baseline	Milestones & Targets SPY_X = X th year of implementation of the Sub-Project SPE = Sub-Project End	Source of verification
Output 4.2 Recommendations for further development of national data collection systems in support of the EAF assessment and management of the Eastern Caribbean flyingfish fishery in at least 3 major harvesting countries by year 3	Number of EAF-based national data collection systems reviewed and EAF data collection gaps identified with options for improvement	National reports documenting existing data collection systems for flyingfish; Preliminary operational objectives, indicators and reference points were identified for monitoring and evaluation of the performance management measures under the CLME Project	Stakeholder consultations on the national data collection systems in SPY 2; Agreement on and implementation of improved data collection systems by SPY3;	Reports from stakeholder consultations; Report on improved data needs endorsed by the respective authority for implementation (digital and/or paper copies). National reports on implementation of improved data collection systems
Output 4.3 Model national vessel licensing regulations formulated for adoption in accordance with legislation, and census of flyingfish vessels by year 3, used to establish list of authorized fishing vessels	draft model regulation(s) to facilitate implementation of vessel licensing systems for Eastern Caribbean flyingfish by year 2; number of countries with updated information on the number of fishers, fishing vessels, and characteristics of vessels engaged in the flyingfish fishery by year 3;	Existing fisheries legislation and regulations on vessels registration and licensing; National reports providing existing data and information on fisheries characteristics, and to inform development of model regulations and licensing systems	Approved model regulation(s) to facilitate implementation of vessel licensing systems, by SPY3; Updated national census of flyingfish fishing vessels by SPY 3; Approved list of authorized fishing vessels for flyingfish by SPY3	Report of consultancy – options for the way forward in implementing vessel licensing systems with draft model regulations; CRFM reports confirming approval of model regulations; Reports of national censuses of flyingfish fishing vessels (to include all vessel types, commercial and bait fisheries); Approved model vessel licensing regulation

Outcome & Outputs	Indicators	Baseline	Milestones & Targets SPY_X = X th year of implementation of the Sub-Project SPE = Sub-Project End	Source of verification
	List of authorized flyingfish vessels ("vessel registry system") by year 3			Approved list of authorized fishing vessels for Eastern Caribbean Flyingfish
OUTCOME 5. ENHANCEMENT OF LIVELIHOODS/HUMAN WELL-BEING FACILITATED (AND TESTED AT THE PILOT SCALE)				
Output 5.1 Updated management recommendations to enhance livelihoods and human well-being (with due attention to gender equality and youth development issues) in at least three countries participating in the fishery by year 3	Management advice, with feasible options for the enhancement of livelihoods and the improvement of the conditions of work of fishers and processors, based on findings obtained/ knowledge acquired under Output 2.2	Diagnostic study to determine poverty and vulnerability levels in CARICOM Fishing Communities. Livelihood and well-being objectives identified in existing FMP	Updated and broadened management recommendations that take into account feasible options for enhanced livelihoods and human well-being in at least the three major harvesting countries and incorporated into the updated sub-regional FMPs (by Sub-Project Year 3	Reports of valuation analysis (social, economic and ecological) conducted under output 2.2; Report on identified options, and corresponding (advisory) communications to NICs, FACs, Ministerial Sub-Committee, Ministerial Council, WECAFC; Reports of meetings of the NICs and FACs; Reports of Joint Meetings of the CRFM PWG and CRFM/WECAFC WG on Flyingfish, the CRFM Forum, Ministerial Sub-Committee and Ministerial Council
Output 5.2 Value-chain problem solving - feasible options for added value, improved SPS and distribution and	Feasible options for added value, improved SPS and distribution and marketing identified; Related indicators identified and reference	National reports providing information on fishery characteristics, CRFM Statistics and Information reports	Value-chain analysis completed and feasible options identified, in 3 countries, by Sub-Project Year 3; options incorporated into advice provided for the up-dating of the sub-regional/national FMPs;	Report of value-chain analysis; Reports of stakeholder consultations; Reports of meetings of the NICs and FACs;

Outcome & Outputs	Indicators	Baseline	Milestones & Targets SPY_X = X th year of implementation of the Sub-Project SPE = Sub-Project End	Source of verification
marketing identified in at least three countries participating in the fishery by year 3	points quantified for M&E of management measures		Indicators/reference points incorporated in the GEAF-based M&E framework (Output 6.1)	Reports of Joint Meetings of the CRFM PWG and CRFM/WECAFC WG on Flyingfish, the CRFM Forum, Ministerial Sub-Committee and Ministerial Council Updated FMP
Output 5.3 Capacity-building to facilitate enhanced livelihoods and human well-being in at least three countries participating in the fishery by project end, with special attention to the role of women	Key stakeholders in selected communities trained in business and financial management (with special attention to the empowerment of women); Business proposals developed and implemented in three fishing communities	CRFM-CNFO capacity building projects; CANARI EU-funded Project	Develop a business activity proposal aimed at enhancing livelihood and human well-being, targeting a major fishing community in three countries, and also with 50% of participants being women; 1 business proposal implemented and evaluated, by Sub-Project end, testing feasibility of proposed options aimed at increasing either market or livelihood opportunities from current levels (with special attention to the role of women) Participants in 3 major fishing communities trained in new business and management skills during implementation phase	Training Workshop reports and participants list (with indication of gender balance); Portfolio of training materials; Business proposal document; Business proposal implementation and evaluation report.
OUTCOME 6. ADAPTIVE MANAGEMENT FACILITATED & CONTINUITY OF EFFORTS ENSURED				
Output 6.1. Management performance reviewed and management strategies adapted on completion of policy cycle	Operational M&E system shaped on the GEAF Framework; Assessment of management performance at the national and sub-regional levels;	CRFM/CLME Eastern Caribbean Flyingfish Case Study – Governance Assessment; TWAP methodology for assessing governance architecture and	Review and analysis of FMP implementation and performance, based on agreed objectives and management actions (e.g. stress reduction, stock & ecosystem/habitat status, and socio-economic status/well-being, as agreed for the existing FMP), by the end of Sub-Project Year 3;	Periodic Sub-Project progress reports; Annual national reports; FMP performance Assessment reports; Reports of CRFM Forum and Ministerial Council Meetings;

Outcome & Outputs	Indicators	Baseline	Milestones & Targets SPY_X = X th year of implementation of the Sub-Project SPE = Sub-Project End	Source of verification
	Recommendations for improving management of flyingfish fisheries in the EAF context	performance (GEF ID 4489); GEF IW Focal Area suggested suite of indicator categories; Adoption of the Governance Effectiveness Assessment (GEA) Framework during the CLME+ Project Preparation Phase; 2014 Version of Sub-regional FMP; Preliminary operational objectives, indicators and reference points were identified for monitoring and evaluation of the performance management measures under the CLME Project	Meetings of WGs to review and update FMP based on FMP implementation and performance; CRFM PWG and CRFM-WECAFC WG meetings and documentation prepared to update FMP and management strategies for Eastern Caribbean flyingfish	Reports of Joint Meetings of CRFM PWG and CRFM-WECAFC Working Group on Flyingfish
Output 6.2 Sharing of lessons learnt and best practices from full policy cycle implementation by Sub-Project end	Production & dissemination of an information brief on lessons learnt & best practices; GEF/CLME+ Sub-Project Experience Note	Lessons learnt from the CLME Project flyingfish case study	Validated recommendations for improvement extracted from assessment of policy cycle performance, by Sub-Project Year 4; At least 1 information brief on lessons learnt and best practices/recommendations in implementing the policy cycle, produced and disseminated among key regional- and national-level stakeholder groups, at relevant national and regional fora, by Sub-Project end;	Policy cycle performance report reviewed and validated. Information briefs, CLME+ Experience Note (printed/digital materials); CRFM and/or WECAFC website, fisheries departments websites; CLME+ Project website, CLME+ M&E portals, State of the Marine Ecosystems and associated living

Outcome & Outputs	Indicators	Baseline	Milestones & Targets SPY_X = X th year of implementation of the Sub-Project SPE = Sub-Project End	Source of verification
			A least 1 GEF/CLME ⁺ Sub-Project Experience Note produced, for dissemination by the CLME ⁺ PCU to the global LME Community of Practice (see also Output 5.3 of the main CLME ⁺ Project Results Framework)	marine resources portals and report
Output 6.3 Formally adopted Sub-Project after-life plan, and additional (co-)financing leveraged	Post-project plan to further advance region-wide adoption of EAF approach for eastern Caribbean flyingfish; Amount of additionally mobilized financial resources	GEF contribution for the flyingfish fishery case study under the CLME Project; GEF contribution for the flyingfish Sub-Project under the CLME ⁺ Project; Co-financing for advancing EAF for the eastern Caribbean flyingfish fisheries, leveraged under the CLME Project; (Pre-)committed an/or expected co-financing levels for the first years of implementation of the Sub-Project; Flyingfish governance assessment completed under the CLME Project; CLME Flyingfish case study reports	Post-project plan developed, and approved by relevant bodies (CRFM, WECAFC, Member States) by Demonstration SPY3; Additional resources mobilized or committed, for at least 50% of the value of the GEF contribution to the CLME ⁺ flyingfish Sub-Project, by at the latest Sub-Project end;	Post-project plan document; Minutes of CRFM, NIC and FAC meetings; Formal (co-)financing commitments;

5. Total budget and work plan

Table 1. Preliminary Budget Breakdown

(GEF contributions only; to be revised/fine-tuned during Project Inception Phase)

PROJECT OUTCOME	OUTPUTS	Amount (USD) Year 1	Amount (USD) Year 2	Amount (USD) Year 3	Amount (USD) Year 4	Total Amount (USD)
1. Governance arrangements in place and operational	O1.1. Strengthened CRFM Ministerial Sub-Committee	10,000	8,000	7,000		25,000
	O1.2. CRFM and France cooperation	5,000	5,000	5,000	5,000	20,000
	O1.3. Engagement of NICs and FACs	5,000	5,000	5,000	5,000	20,000
	O1.4. Sub-regional data policy	15,000	20,000			35,000
	Sub-total	35,000	38,000	17,000	10,000	100,000
2. Enhanced data and information management for decision support	O2.1. Improved access to data and information		30,000	20,000		50,000
	O2.3. Strengthened EAF information and knowledge-base	30,000	20,000	10,000	10,000	70,000
	Sub-total	30,000	50,000	30,000	10,000	120,000
3. Stakeholder participation in the management process enhanced	O3.1. Education & public awareness	30,000	15,000	10,000	20,000	75,000
	O3.2. Stakeholder involvement in EAF management	40,000	15,000	10,000	20,000	85,000
	Sub-total	70,000	30,000	20,000	40,000	160,000
4. Management/stress reduction measures implemented	O4.1. Updated sub-regional management plan					
	O4.2		30,000	10,000		40,000

PROJECT OUTCOME	OUTPUTS	Amount (USD) Year 1	Amount (USD) Year 2	Amount (USD) Year 3	Amount (USD) Year 4	Total Amount (USD)
	Strengthened national data collection systems					
	04.3. National management recommendations consistent with Sub-regional FMP	20,000	20,000	10,000		50,000
	04.4. Facilitate implementation of national licensing systems		27,000	17,000	6,000	50,000
	Sub-total	20,000	77,000	37,000	6,000	140,000
5. Long-term enhancement of livelihoods/human well-being facilitated	05.1. Management advice for enhanced livelihoods	30,000	20,000	10,000		60,000
	05.2. Value-chain problem solving	20,000	15,000	5,000		40,000
	05.3 Capacity building and business proposals	8,000	7,000	10,000		25,000
	Sub-total	58,000	42,000	25,000		125,000
6. Adaptive management facilitated	06.1. Management performance reviewed & adaptive management facilitated		10,000	20,000	30,000	60,000
	06.2. Sharing of lessons learnt and best practices	5,000	5,000	10,000	10,000	30,000
	06.3. After-life plan & additional (co)financing				15,000	15,000
	Sub-total	5,000	15,000	30,000	55,000	105,000
<u>TOTAL</u>						750,000

Table 2. Tentative Work Plan and alignment with relevant regional governance processes
(to be revised during Project Inception Phase)

OUTCOMES & OUTPUTS	2015				2016				2017				2018			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
O1. Governance arrangements																
O1.1.	X	X	X	X	X	X	X	X	X	X	X	X				
O1.2.		X				X	X	X	X	X	X	X	X	X	X	X
O1.3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
O2. Knowledge base & decision-support																
O2.1.	X	X	X	X	X	X										
O2.2.					X	X	X	X	X	X	X	X				
O2.3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
O3. Stakeholder empowerment & participation																
O3.1.	X	X	X	X	X	X	X	X					X	X		
O3.2.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
O4. Management /Stress reduction measures																
O4.1.	X	X	X	X	X	X	X	X								
O4.2.					X	X	X	X	X	X	X	X				
O4.3	X	X	X	X												
O5. Enhanced livelihoods facilitated																
O5.1.												X	X			
O5.2.					X	X	X	X	X	X	X	X				
O5.3												X	X	X	X	X
O6. Adaptive Management Facilitated																
O6.1.		X				X				X	X	X	X	X	X	X
O6.2.		X				X				X				X		X
TENTATIVE ALIGNMENT WITH RELEVANT REGIONAL GOVERNANCE PROCESSES																
	2015				2016				2017				2018			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
WECAFC					IGM								IGM			
CRFM		MC				MC				MC				MC		
CRFM/WECAFC Working Group on Flyingfish in the Eastern Caribbean		ASM				ASM				ASM				ASM		

IGM = Intergovernmental Meeting (WECAFC Session)

MC = Ministerial Council Meeting

ASM – CRFM Annual Scientific Meeting – used as Forum for meeting of CRFM/WECAFC Working Group on Flyingfish in the Eastern Caribbean jointly with meeting of CRFM Pelagic Fisheries Working Group

6. Project management & implementation arrangements

The CLME+ Project Coordination Unit (PCU) will oversee the overall implementation of the CLME+ four-wing flyingfish Sub-Project throughout the implementation period, to:

- ensure its continued alignment with the overall objectives of the CLME+ Project and SAP⁶
- ensure synergies with other related CLME+ Project activities
- promote synergies with other relevant regional initiatives
- promote the timely achievement of the expected Sub-Project outcomes and outputs, and of the associated outputs (targets) under Component 3 of the main CLME+ Project

The implementation of Sub-Project activities itself will be delegated to those organizations, institutions and/or stakeholders with a formal mandate for, broadly recognized (potential) role and/or important stake in the sustainable management of the four-wing flyingfish resource and its associated habitat in the region. The specific role of each partner will be defined in alignment with the scope of the partner organization's mandate, recognized strength or stake.

The implementation arrangement(s) for the Sub-Project between UNOPS GPSO WEC and the prospective partner(s) will be based on formal and/or informal arrangements - in the first case through the establishment of Memoranda of Understanding (MoU) or alternative, equivalent arrangements, and, where financial transactions are involved, on grant agreements (e.g. between UNOPS and CRFM) and/or UN to UN agreements (inter-agency agreements). The specificities of the arrangements will be further fine-tuned, and the arrangements will be put in place during the CLME+ Project inception phase.

In the above context, project management arrangements will contemplate the payment of instalments under the Sub-Project grant to the co-executing partner(s). The payment of instalments will follow, to the best possible extent, a pre-defined (agreed upon) timeline, on which major project milestones will be identified. Payments will be linked to the delivery of mutually agreed upon project deliverables, incl. standardized technical and financial progress reports and initial and/or revised work plans (as applicable).

Coordination of Sub-Project activities among the different sub-project partners and stakeholders will further be supported by the Interim Fisheries Coordination Mechanism, to be established under Component 1 of the main CLME+ Project, during the Project inception phase.

Expected partners under the implementation arrangement(s) include: CRFM, FAO-WECAFC, CERMES/UWI, CNFO, Fisheries Ministries of CLME+ participating countries, relevant civil society and private sector actors, etc.

⁶ Once established, the interim SAP implementation coordination will help ensuring the continued alignment of the sub-project with the CLME+ SAP objectives

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ANNEX I: Ministerial Sub-Committee on Flyingfish Fisheries – Terms of Reference

CARIBBEAN REGIONAL FISHERIES MECHANISM

Ministerial Sub-Committee on Flyingfish Fisheries Terms of Reference

The four-wing flyingfish (*Hirundichthys affinis*) fishery is the single most important small pelagic fishery in the southern Lesser Antilles. It is a shared resource, which is exploited by seven different States (Barbados, Dominica, Martinique, Grenada, St. Vincent and the Grenadines, St. Lucia, and Trinidad and Tobago) producing annual landings of about 3000-4000 metric tons⁷. With expanding fleet capacity and limited cooperation among the States exploiting the flyingfish, there is concern that the resource may become overfished. The States participating in the Caribbean Large Marine Ecosystem (CLME) Project agreed that strengthening governance and management arrangements for the flyingfish should be undertaken as one of the case studies under the Project. The CRFM was therefore contracted to implement this Case Study which will, firstly, review and complete the trans-boundary diagnostic analysis (TDA) for the fishery, and secondly, prepare a SAP which should identify the policy, legal and institutional reforms and investments needed to address the priority trans-boundary problems identified.

The purpose of this initiative is to establish a Ministerial Sub-Committee to provide policy direction and supervise the development of cooperative arrangements for improved governance and management of the flyingfish fishery to achieve optimum sustainable social and economic benefits for the people of the region.

Establishment of Sub-Committee

The Ministerial Council hereby establishes a Sub-Committee on Flyingfish pursuant to Rule 10(1) of the CRFM Rules of Procedure. The Terms of Reference, including, *inter alia*, objective, members, and functions of the Sub-committee are provided below.

Objective

The objective of the Sub-committee is to contribute, through cooperation and consultation, to the long-term conservation, management and sustainable use of the shared flyingfish resources, and protect and safeguard the ecosystems in which they are found in the Eastern Caribbean.

Membership

The Ministerial Sub-Committee on Flyingfish shall consist of:

- (a) CRFM Member States with a real interest in the flyingfish fishery⁸; and
- (b) Any other Caribbean States or Territories having a real interest in the flyingfish fishery⁹, subject to the agreement of the CRFM Ministerial Council.

Functions

⁷ See paragraph 51, page 18 of the UNDP, UNOPS, Project Document, PIMS 2193 – Sustainable Management of the Shared Living Marine Resources of the Caribbean Large Marine Ecosystem (CLME) and Adjacent Regions.

⁸ The CRFM Member States with real interest in the flyingfish are: Barbados, Trinidad and Tobago, Grenada, Saint Lucia, Saint Vincent and the Grenadines, Dominica (See CLME Flyingfish Research Proposal)

⁹ In addition to the six (6) CRFM Members mentioned above, Martinique is also deemed to have a real interest in the fisheries. The intention is, therefore, to provide an opportunity for Martinique to participate in the deliberations of the Sub-Committee if it so desires, subject to the negotiations of a cooperation agreement between the French Islands and the CRFM.

1. The functions of the Flyingfish Sub-Committee shall be to make recommendations for policy decisions to ensure long-term conservation, management and sustainable use of the shared flyingfish resources, and protect and safeguard the ecosystems in which they are found in the Eastern Caribbean.
2. The Sub-Committee shall make recommendations for policy decisions mentioned at paragraph (1) above on the basis of scientific advice provided by the Forum, CRFM/FAO/WECAFC Working Group, UWI, or other competent technical or scientific body.
3. Without prejudice to the generality of paragraphs 1 and 2, the Sub-Committee shall:
 - (1) Review proposals and make recommendations for joint action by Member States and other Cooperating States or Territories in the Caribbean designed to achieve sustainable use of the flyingfish resources;
 - (2) Regularly review reports and recommendations submitted to it regarding the status of the flyingfish stocks and actions required for their conservation and management;
 - (3) Provide a forum for Member States and other Cooperating States or Territories in the Caribbean to discuss and make recommendations on proposed joint conservation and management measures to ensure long-term sustainable use of the flyingfish resources;
 - (4) Provide a forum for Member States and other Cooperating States or Territories in the Caribbean to discuss and propose harmonized monitoring, control and inspection scheme to ensure compliance with conservation and management measures;
 - (5) Review compliance with conservation and management measures adopted by the Ministerial Council or Member States and make such recommendations to the Member States and to take action as may be necessary to ensure their effectiveness;
 - (6) Review the implementation of measures for monitoring, control, surveillance and enforcement adopted by the Ministerial Council or Member States and make such recommendations to Member States or take action as may be appropriate to ensure their effectiveness;
 - (7) Monitor and review information pertaining to IUU fishing and recommend actions to be taken by Member States and other Cooperating States or Territories in the Caribbean to discourage and eliminate such activities;
 - (8) Refer to the Secretariat, Forum, Scientific Meeting (including the Small Coastal Pelagic Working Group and other bodies), or other competent bodies such as FAO/WECAFC or UWI, as may be necessary from time to time, in order to achieve its objectives.
 - (9) Receive and consider reports, proposals and recommendations from the Forum or CRFM Secretariat (or other competent bodies);
 - (10) Perform such other tasks as it may consider necessary or as directed by the Ministerial Council or Member States to ensure sustainable development, conservation and effective management of the flyingfish fishery; and (11) Submit reports of its work to the Ministerial Council.

4. In carrying out its functions, the Sub-Committee shall be guided by the CRFM Agreement 2002, Revised Treaty of Chaguaramas 2001, and relevant principles of international fisheries law found in the 1982 UN Law of the Sea Convention, the 1995 UN Fish Stocks Agreement, the 1995 FAO Code of Conduct on responsible fisheries and associated instruments and any other relevant agreement to which the Member States are signatories.

Meetings

The Sub-Committee may meet during the Annual Meeting of the CRFM Ministerial Council or on other occasions as deemed necessary to fulfil its mandate.

Rules of Procedures

The Rules of Procedure of the CRFM Ministerial Council shall apply to the Flyingfish Sub-Committee pursuant to Rule 10(2) of the CRFM Rules of Procedure.

ANNEX II: CRFM/WECAFC Working Group on Flyingfish in the Eastern Caribbean – ToRs

CRFM/WECAFC Working Group on Flyingfish in the Eastern Caribbean

Conveners: CRFM/WECAFC

TERMS OF REFERENCE

1. BACKGROUND AND RATIONALE¹⁰

The four-wing flyingfish supports important small-scale fisheries in the region in terms of employment generation, food security and supply of bait for fisheries targeting large pelagic fish species. Like other small-scale fishers in the Caribbean, fishers involved in flyingfish fisheries often belong to the lower socio-economic strata of society.

Flyingfish fisheries are concentrated in the southern end of the Lesser Antilles chain. Barbados, Tobago, Martinique and Saint Lucia all have large flyingfish fisheries and to a lesser extent Dominica and Grenada. Barbados accounts for about two thirds of the regional catch. In 2009 the total annual recorded catch in Barbados was 2292 tonnes. There were about 167 ice boats, which account for more than 90% of the catch, and 242 registered day boats in 2007. Compared to other countries in the region, Barbados also adds more value to flyingfish catches through processing and sale to the tourism sector. The annual value of the flyingfish catch in Barbados alone is estimated at USD 15 million. The flyingfish fishery is the most important fishery in Barbados employing 2000 fishers, 500 vendors as well as 325 persons employed as de-boners or workers in fish processing plants.

Other countries in the area also have important flyingfish fisheries. In Trinidad and Tobago, the flyingfish fishery is located on the Caribbean Sea coast of the island of Tobago. The number of boats involved in the fishery between 1988 and 2008 averaged 50 boats per season while in Saint Lucia, 331 vessels were engaged in the flyingfish fishery in 2007. According to figures provided by the department of fisheries, the total flyingfish catch of Saint Lucia was 109.35 tonnes in 2010. The total annual catch of flyingfish in Martinique was 47.6 tonnes in 2009 and 64.6 mt in 2010. There are no targeted flyingfish fisheries in Saint Vincent and the Grenadines. In the case of Dominica there has been a shift from the flyingfish fishery to the large pelagic fishery within the last eight years due to the increased use of FADs. The annual flyingfish landings in Dominica were reported to be 54.22 tonnes in 2011.

Unlike many other commercial species in the region the flyingfish, and in particular the four-wing flyingfish, *Hirudichthys affinis*, which comprises the majority of the flyingfish catch, has been extensively studied. There is a rich information-base on its stock delineation, distribution and biology. Less has been documented however, on the socio-economic, bio-economic and, ecological aspects of the fishery and resource, including the impacts on the population and risks associated with climate change, extreme weather events, and other aspects of global environmental change. Although the stock has been assessed in 2008, the capacity in terms of the maximum number of fishing vessels that should be allowed in the fishery without jeopardizing its long term sustainability has not yet been estimated.

¹⁰ Information taken from the 2012 Draft Sub-Regional Management Plan for Flyingfish in the Eastern Caribbean which should be consulted for the references to information sources.

Results of the 2008 stock assessment suggested that the stock of flyingfish in the Eastern Caribbean is not experiencing overfishing, that catch rates have remained fairly stable even with increased overall catches, and it is unlikely that catches have ever exceeded MSY for this stock. The study identified an annual catch trigger reference point of 5,000 t at which further management action should be taken to ensure the stock does not become overfished, since development beyond this level would have unpredictable consequences. The maximum recorded annual catch to date is 4,700 t. A 2011 preliminary assessment explored the bio-economic dynamic impacts of managing the multi-fleet and multispecies flyingfish fishery and undertook risk analysis of alternative fishery management decisions. Results indicated that, among other things, under open access, harvest rates in the neighbourhood of 5000 ton/year could result in collapse of this pelagic fishery but that this could be averted with catch quotas, or effort controls to reduce exploitation rates by 30% to allow the resource to recover its natural fluctuations over time. The most significant uncertainty in the 2008 and 2011 assessments stem from the poor data available on catches and effort. Improved data collection and monitoring is required to ensure sustainable use of this and other fishery resources.

Under the CLME Project a Flyingfish Case Study was completed by the CRFM. The study included a bio-economic assessment of the fishery (mentioned above); a Multi-Criteria Analysis; a Stakeholder Analysis; a review of existing policies and legislation and establishment of a CRFM Ministerial Sub-Committee on flyingfish.

At the Fourteenth Session of WECAFC, convened in Panama City, Panama from 06 to 09 February 2012, the Commission agreed to *continue all Working Groups (Spiny Lobster, Flying Fish, FADs, Queen Conch, Nassau Grouper/Spawning Aggregations) as joint working groups of WECAFC with partner organizations. It was considered that a leading role could be played by these partners as well.* The Terms of Reference for the CRFM/WECAFC Working Group on Flyingfish in the Eastern Caribbean, among other joint regional Working Groups, was also agreed upon. Between March 2013 and February 2014 two joint meetings of the CRFM Small Coastal Pelagic Fish Resource Working Group and the CRFM-WECAFC Working Group on Flyingfish in the Eastern Caribbean were convened. The joint meetings focused on review of the Draft Sub-Regional Fisheries Management Plan (FMP) for Flyingfish in the Eastern Caribbean, initially drafted in 2002 by Dr Hazel Oxenford and updated in 2008 by Dr Paul Medley (WECAFC Consultants) under the previous WECAFC Ad-Hoc Working Group on Flyingfish, and subsequently updated again in 2012 by Dr Uwe Tietze (CRFM Consultant) under the Caribbean Large Marine Ecosystem Project (CLME Project). The joint meetings also gave direction in respect of national consultations to review the Draft Sub-Regional FMP and associated Draft Resolution of the respective CRFM Ministerial Sub-Committee. As at February 2014, national consultations were convened in four CRFM Member States and the reports made available to the Working Group to continue its work.

The Sixth Session of the WECAFC Scientific Advisory Group, which was convened in Corpus Christi, Texas on 03 November 2013, discussed the TORs of the various Working Groups and made recommendations for their improvement and harmonization. This revised version of the Terms of Reference for the Working Group on Flyingfish in the Eastern Caribbean gives consideration to the SAG recommendations and supports the Caribbean Community Common Fisheries Policy (awaiting endorsement of Heads of Government), the Draft Sub-Regional Fisheries Management Plan for the Eastern Caribbean Flyingfish (to be amended following Member State review and feedback and endorsed by the Caribbean Fisheries Forum and CRFM Ministerial Council Ministerial Sub-Committee on Flyingfish) while giving due cognisance for maintaining transparency and accountability in the operations of the Working Group.

2. ROLE OF THE WORKING GROUP

2.1 Scope

The scope of the Working Group is to facilitate the achievement of management objectives as outlined in the respective sub-regional management plan for flyingfish in the Eastern Caribbean, through the application of international best practices consistent with the precautionary, ecosystem and participatory approaches to fisheries management. These management objectives are: a) sustained flyingfish resources (biological objective), b) optimal use of the flyingfish resource for long-term benefit (socio-economic objective) and c) sustained ecosystem health (ecological objective). The Working Group is to function in a technical and advisory capacity over the period April 2014 to March 2016.

2.2 Specific Terms of Reference for the period 2014 to 2016

- a. Finalize and implement the [2012] Sub-Regional Management Plan for Flyingfish in the Eastern Caribbean;
- b. Finalize and seek adoption by CRFM and WECAFC of a Management Resolution on Eastern Caribbean Flyingfish based on the best available scientific information;
- c. Monitor and evaluate implementation of the [2012] Sub-Regional Management Plan for Flyingfish in the Eastern Caribbean;
- d. Provide advice on the status of the fishery and its management to the CRFM Ministerial Sub-Committee on Eastern Caribbean Flyingfish and to WECAFC;
- e. Consider options for integrating environmental variables in assessment of the status of the resource;
- f. Support the regional and national level implementation of activities outlined under the CLME + (Implementation of Strategic Action Programme) that are aligned with the above Terms of Reference; and
- g. Take other necessary actions on emerging issues pertaining to the sustainable use of Eastern Caribbean flyingfish.

2.3 Mode of Operation

2.3.1 Membership of the Working Group

Membership shall consist of all Member States of CRFM and WECAFC, including Overseas Territories and Departments, with a real interest in the flyingfish fishery. Membership may also include representatives of key flyingfish stakeholders of Member States as well as relevant regional organizations and experts.

2.3.2 Election of Chair of the Working Group

The Working Group shall elect a Chair from among its Members States to serve over the two-year period.

2.3.3 Role of Member States and other Collaborating Countries

- a. To develop or update national fisheries management plans, based on the agreed Sub-Regional Fisheries Management Plan (FMP) for Flyingfish in the Eastern Caribbean;
- b. To implement national fisheries management plans;
- c. To monitor and evaluate implementation of the FMP at the national level;
- d. To report annually to the CRFM/WECAFC Working Group on the progress made in implementation of national FMPs;
- f. To improve the coverage and quality of data nationally to facilitate assessment of the fishery and associated stock as well as monitoring and evaluation of the FMP at the regional level; and

To support the national level implementation of activities outlined under the CLME + (Implementation of Strategic Action Programme) that are aligned with the specific Terms of Reference.

2.3.4 Role of the CRFM Secretariat

- a. To assist with coordination of activities of the Working Group, at the regional level;
- b. To assist with procurement of funds for the activities of the Working Group;
- c. To assist with convening of meetings of the Working Group;
- d. To continue efforts to formalize the relationship between France and the CRFM to facilitate involvement of Guadeloupe and Martinique in the management process;
- e. To promote training in assessment methodologies and other relevant areas of interest identified;
- f. To promote technical assistance and support to research and resource assessment through collaboration with regional and international research partners; and
- g. To coordinate the formulation and adoption of recommendations by the Working Group so as to facilitate the decision-making process at the sub-regional level.

2.3.5 Role of WECAFC Secretariat

- a. To coordinate activities of the Working Group, among CRFM and Non-CRFM Members, at the wider regional level;
- b. To assist with procurement of funds for the activities of the Working Group;
- c. To assist with convening of meetings of the Working Group;
- d. To promote training in assessment methodologies and other relevant areas of interest identified; and
- e. To promote technical assistance and support to research and resource assessment through collaboration with regional and international research partners;
- f. To coordinate the formulation and adoption of recommendations by the Working Group so as to facilitate the decision-making process at the level of WECAFC Area 31.

2.3.6 Communication

Communication is critical to the efficient execution of the work programme of the Working Group, particularly during the inter-sessional periods so as to maximize the quality of outputs. Consequently, each country should designate a National Focal Point for this purpose. The National Focal Point is to liaise with the Convener/ Chair of the Working Group as well as the CRFM and WECAFC Secretariats to facilitate effective implementation of the Terms of Reference and communication among all entities. Available ICT tools, such as the CRFM DGroup and GoToMeeting, should be utilized for this purpose as far as possible. The outputs of the Working Group will be communicated through the CRFM and WECAFC Secretariats to the respective Member States.

2.3.7 Working Group Meetings

Face-to-face meetings of the Working Group should be convened at least once every two years, or as required, if resources are available. Where possible the use of available ICT tools to facilitate electronic meetings should be maximized. Meetings shall be chaired by the Chair of the Working Group.

3. AMENDMENTS TO THE TERMS OF REFERENCE

The Terms of Reference may be amended as required by Member States at the level of CRFM and WECAFC, following each two-year period coinciding with meetings of the WECAFC.