



## Report of the Workshop on Mainstreaming Climate Change Adaptation (CCA), Disaster Risk Management (DRM) and Stewardship into Fisheries Governance and Management of Anguilla, using an Ecosystem Approach to Fisheries (EAF)

under the  
Climate Change Adaptation in the Fisheries of Anguilla and Montserrat Project



22-25 January 2019  
*La Vue Conference Room, South Hill, Anguilla*

## Table of Contents

<b>ACRONYMS/ABBREVIATIONS</b>	<b>iii</b>
<b>1 Introduction</b>	<b>4</b>
<b>2 Objectives</b>	<b>4</b>
<b>3 Approach</b>	<b>5</b>
<b>4 Participants</b>	<b>5</b>
<b>5 Welcome, Introductions and Project Overview</b>	<b>5</b>
<b>6 Setting the Scene</b>	<b>6</b>
6.1 Key concepts of CCA, DRM, EAF & Stewardship and their connections	6
6.2 Sharing knowledge and experience of Fisheries Management Planning and incorporating CCA, DRM	7
6.3 Anguilla's Fisheries Development Plan	10
6.4 Reflections on EAF	10
<b>7 EAF planning process</b>	<b>10</b>
<b>7.1 Step 1 – Initiation and scope</b>	<b>12</b>
<b>7.2 Step 2 – Identification of assets, issues and priorities</b>	<b>13</b>
<b>7.3 Step 3 – Development of Management System</b>	<b>15</b>
<b>7.4 Step 4 – Implementation, Monitoring and Performance Review</b>	<b>16</b>
7.4.1 Activities 4.1 & 4.2- Develop an operational plan and monitor its progress & formalization of the management plan	16
7.4.2 Activities 4.3 & 4.4 - Review performance of the management system & reporting, communication and auditing of performance	16
7.4.3 Distribution of FAO EAF Toolboxes	17
<b>8 Stewardship, CCA, DRM, &amp; Field Trips</b>	<b>18</b>
8.1 Stewardship, CCA & DRM in the AFDP	18
8.2 Field trips	19
<b>9 Small Grants</b>	<b>19</b>
<b>10 Workshop evaluation</b>	<b>20</b>
<b>11 Next steps</b>	<b>21</b>
<b>12 Appendices</b>	<b>22</b>
Appendix 1: Summary Agenda	22
Appendix 2: Participants List	24
Appendix 3: Slide Presentations	28
Appendix 4: Extract from the AFDP Section on Small Coastal Pelagics	29
Appendix 5: Workshop Evaluation	32

#### Suggested Citation

CANARI and CERMES. 2019. Summary Report of the Workshop on Mainstreaming Climate Change Adaptation (CCA), Disaster Risk Management (DRM) and Stewardship into Fisheries Governance and Management of Anguilla, using an Ecosystem Approach to Fisheries (EAF). Report submitted to Climate Change Adaptation in the Fisheries of Anguilla and Montserrat Project. Port of Spain: Trinidad. 59 pp.

#### Disclaimer

This publication has been produced by CANARI and UWI-CERMES as an output of the ***Climate change adaptation in the fisheries of Anguilla and Montserrat*** project. However, the views expressed herein are those of the author, and can therefore in no way be taken to reflect the official opinions of the Department of Fisheries and Marine Resources of Anguilla, the Ministry of Agriculture, Trade, Lands, Housing and the Environment of Montserrat and the Darwin Plus: Overseas Territories Environment and Climate Fund under the Darwin Initiative.

#### Acknowledgements

This workshop report is an output of the ***Climate change adaptation in the fisheries of Anguilla and Montserrat*** project which is being implemented by the Caribbean Natural Resources Institute (CANARI) in partnership with the Department of Fisheries and Marine Resources - Anguilla, Fisheries and Ocean Resources Unit - Montserrat and the Centre for Resource Management and Environmental Studies of the University of the West Indies (UWI-CERMES). The project is funded by the Government of the United Kingdom through the Darwin Plus: Overseas Territories Environment and Climate Fund under the Darwin Initiative.

## ACRONYMS/ABBREVIATIONS

CANARI	Caribbean Natural Resources Institute
CCA	Climate Change Adaptation
CDEMA	Caribbean Disaster and Emergency Management Agency
CERMES	Centre for Resource Management and Environmental Studies
CRFM	Caribbean Regional Fisheries Mechanism
CSO	Civil Society Organisation
DMCA	Disaster Management Coordination Agency
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EAF	Ecosystem Approach to Fisheries
EBM	Ecosystem-based management
EU	European Union
FAC	Fisheries Advisory Committee
FAD	Fisher Aggregation Devices
FAO	Food and Agriculture Organisation
FFO	Fisherfolk organisation
FMP	Fisheries management plan
GIS	Geographic Information System
GPS	Global Positioning System
ICT	Information and Communication Technology
ICZM	Integrated Coastal Zone Management
MATHLE	Ministry of Agriculture, Trade, Housing, Lands and Environment
M&E	Monitoring and evaluation
MEA	Multilateral environmental agreement
OECS	Organisation of Eastern Caribbean States
SES	Social-ecological system
SSF	Small-scale fisheries
UWI	University of the West Indies

## 1 INTRODUCTION

The two Caribbean overseas territories of the United Kingdom (UKOTs), Anguilla and Montserrat, have fisheries sectors that contribute to livelihoods and national food security. In both UKOTs, the fisheries sectors are vulnerable to the impacts of climate variability and change. Increased sea surface temperatures, more intense storms and rising sea levels are expected to trigger a complex series of biophysical and socioeconomic impacts on fisheries. Mainstreaming climate change adaptation (CCA) in their fisheries sector is therefore crucial. Needs assessments led by the United Kingdom Department for International Development in 2012 (DFID, 2012) have highlighted weak planning and low adaptive capacity for both islands.

The University of the West Indies Centre for Resource Management and Environmental Studies (UWI-CERMES) conducted the workshop on mainstreaming Climate Change Adaptation (CCA), Disaster Risk Management (DRM) and Stewardship into fisheries governance and management of Anguilla, using the Ecosystem Approach to Fisheries (EAF) in collaboration with the Caribbean Natural Resources Institute (CANARI). The workshop is an activity under the [Climate Change Adaptation in the Fisheries of Anguilla and Montserrat Project](#). This project is being implemented by CANARI under its Climate Change and Disaster Risk Reduction programme, in partnership with the Department of Fisheries and Marine Resources - Anguilla, Fisheries and Ocean Resources Unit – Montserrat, and UWI-CERMES. The project is funded by the UK Government from the Darwin Plus: Overseas Territories Environment and Climate Fund under the Darwin Initiative.

This training workshop was designed using the methodology and guidance outlined in the Food and Agriculture Organization of the United Nations' (FAO) "**EAF Toolbox: The Ecosystem Approach to Fisheries**" (See <http://bit.ly/EAFToolbox>).

## 2 OBJECTIVES

The overall goal of the workshop was to strengthen the capacity of key policy makers, resource managers and resource users who are directly or indirectly involved in Anguilla's fisheries sector, to mainstream CCA, DRM and stewardship in fisheries governance and management using the FAO's EAF Toolbox. The specific objectives of the EAF training workshop were to:

1. Facilitate knowledge exchange between the project partners and workshop participants on lessons learned from previous fisheries management planning and stewardship initiatives.
2. Demonstrate how EAF, CCA, DRM and stewardship can be practically incorporated into recipient country fisheries/marine management plans of different types, drawing upon existing capacity.
3. Strengthen the capacity of fisheries officers, fisherfolk leaders and other stakeholders in EAF, CCA, DRM and stewardship to improve climate resilience and livelihoods.
4. Determine next steps for enhancing and implementing fisheries/marine management plans and related initiatives that incorporate EAF, CCA, DRM and stewardship in Anguilla.

### 3 APPROACH

The workshop was conducted over a four-day period from January 22-25, 2019. Days 1- 3 focused on EAF integration into fisheries plans and policies and day 4 focused on discussions and participatory planning for stewardship-oriented small grants (incorporating EAF, CCA and DRM) that were available to fisherfolk organisations under the project.

The workshop agenda (see attached at Appendix 1) was designed to engage all participants in sharing their insights, knowledge and experiences in fisheries management and to determine how EAF, CCA, DRM and stewardship can be further integrated into plans and practices. The design allowed participants to consider the application of specific steps, actions and tools that can be realistically used based on the guidance provided by the FAO EAF Toolbox. The format of sessions included plenary presentations and discussions followed by hands-on group work based on the activities outlined in the EAF Toolbox. Hard copies of the EAF Toolbox (six in total) book were provided to predetermined organisations for their use after the workshop.

### 4 PARTICIPANTS

Forty-four participants attended the workshop across the four days including facilitators from CANARI and UWI-CERMES. Participants included fisherfolk, representatives of fisherfolk organisations, civil society organisations with an interest in marine conservation and livelihoods, the Fisheries Authority, and public-sector agencies with an interest in CCA, DRM and coastal and marine management. The full list of participants is attached at Appendix 2.

### 5 WELCOME, INTRODUCTIONS AND PROJECT OVERVIEW

Following participant registration and the noting of their expectations, the workshop had a brief opening with remarks from Ms. Melanie Andrews, Technical Officer, CANARI. She welcomed participants to the workshop and introduced the CERMES EAF training facilitator, Mr. Kerton Jobe. She also provided a brief overview of the *Climate Change Adaptation in the Fisheries of Anguilla and Montserrat Project* (see the [project brief](#)).



**Figure 1: Participants and facilitators from the workshop on mainstreaming Climate Change Adaptation (CCA), Disaster Risk Management (DRM) and Stewardship into fisheries governance and management of Anguilla**

## **6 SETTING THE SCENE**

This section sets out in more detail several of the key concepts used in the workshop.

### **6.1 Key concepts of CCA, DRM, EAF & Stewardship and their connections**

Ms. Andrews briefly explained the concepts of climate change adaptation and disaster risk management to participants (see slides in Appendix 3). She reminded participants of the differences between climate change and its impacts, and climate change adaptation making reference to terminology such as ‘slow onset events’; as well as disaster risk reduction and disaster risk management. She noted that although CCA and DRM are different, there is an increasing zone of convergence that has to be considered in future fisheries management planning.

Mr. Jobe continued by highlighting how fisheries resources have been impacted over the past 5 decades and the increasing awareness by fisheries managers and society of the need to evolve from conventional methods of fisheries management to an ecosystem approach to fisheries management in order to enhance the sustainability of a given fishery. He briefly reviewed the concept of EAF and its acceptance as the way forward by means of legal, environmental and management agreements and initiatives. He then noted the importance of ecosystem stewardship and stated that fishers as well as their dependents need to take more ownership over the preservation, management and sustainable use of the fisheries resources they utilize (see slides in Appendix 3).

## 6.2 Sharing knowledge and experience of Fisheries Management Planning and incorporating CCA, DRM

The main aim of this session was to facilitate knowledge exchange among the workshop participants on notable steps/trends taken towards Fisheries Management Planning, CCA and DRM. Participants were each given adhesive tags on which they wrote their names and how many years of work experience they had in the fisheries sector (or relevant field). Participants were then asked to identify key events which occurred during the 1980s, 1990s, 2000s and 2010s based on their experiences (Figure 2). Drawing upon the collective content, participants were then asked to note the top five most notable events in their fisheries since the 1980s. The five most notable events for each decade, as given by participants, are underlined in Table 1 below.



Figure 2: Participant discussing the notable steps/trends taken towards Fisheries Management Planning, CCA & DRM in Anguilla

Table 1: Participants’ recollection of key events from the 1980s to present day regarding Fisheries Management Planning, CCA and DRM as well as the five most notable events for each decade (underlined).

Decade	FMP	CCA	DRM
1980s	<u>Fisheries Advisor in UK appointed.</u> First Agriculture and Fisheries Department established. Fisheries Department starts selling equipment.	No Climate Change Plan created. <u>Parliamentary Secretary for the Environment appointed.</u> <u>Anguilla Tourist Board Established.</u>	One-person office, no admin support. Hurricane-focused. <u>Anguilla became a member of CDERA, now called CDEMA.</u>



Decade	FMP	CCA	DRM
	<p><u>No Fisheries Management Plan developed.</u></p> <p>Tourism Sector started.</p>		<p>Hurricane Klaus 1984 which sank MV Sarah and Warspite.</p>
1990s	<p><u>Creation of the Department of Fisheries and Marine Resources.</u></p> <p><u>Marine Parks Legislation developed.</u></p> <p>Longline fishing training project.</p> <p>Quality of fish for exportation established.</p> <p><u>Sea turtle harvesting banned.</u></p>	<p><u>Beach profiling commenced.</u></p> <p>Pallet board project.</p> <p>Reef and seagrass bed surveying.</p> <p><u>Public awareness about climate change increased.</u></p> <p>Physical Planning Department created.</p>	<p>Pally Board Project.</p> <p>Gabion baskets used.</p> <p>Shipwrecks sank.</p> <p>Creation of artificial reefs using shipwrecks.</p> <p>Hurricane Luis, Lenny and Jose affected the island.</p>
2000s	<p><u>Anguilla Marine Monitoring Program (2007) implemented</u></p> <p>Fisheries legislation (2008) revised</p> <p>Sea Turtle moratorium extended (2000 &amp; 2005).</p>	<p><u>New Anguilla building codes.</u></p> <p>Climate change green paper developed.</p> <p><u>E Department of the Environment established.</u></p> <p>Draft Environmental Management Bill developed.</p> <p>Anguilla wetlands policy/initiatives.</p> <p><u>Anguilla Biodiversity and Heritage Conservation Act developed.</u></p>	<p>Draft Mitigation Strategy (2009) developed.</p> <p>Draft Physical Planning Bill (2001) developed.</p> <p>Comprehensive Disaster Management Policy (CDM) approved.</p> <p>Anguilla Invasive Species Strategy developed.</p> <p><u>Establishment of the Department of Disaster Management (2005).</u></p> <p><u>Disaster Management Act developed.</u></p> <p>Coastal Slope Policy (2004) developed.</p> <p>Flood Mitigation Monitoring at Sandy Ground (Road Pond).</p>

Decade	FMP	CCA	DRM
			Public Awareness Information Strategy (2008) developed.  Hurricanes: Alberto, Gonsalo, Bertha, Gustav, Beryl and Irma.
2010s	<p>Fisheries Management Plan implemented.</p> <p><u>Marine Protected Areas Act revised.</u></p> <p>Lionfish Invasion.</p> <p>Lionfish Response Strategy developed.</p> <p>Study on mature conch size.</p> <p>Sargassum Management Plan developed.</p> <p><u>Lobster casitas introduced.</u></p>	<p><u>Climate Change Strategy</u> revised and approved.</p> <p>Desalination Plant reintroduced.</p> <p>Bottles recycled.</p> <p><u>Launch of single use plastic bags and utensils.</u></p>	<p><u>Regional (OECS) ICZM policy developed.</u></p> <p>Comprehensive Disaster Management Plan revised.</p> <p>Flood-gate mechanism implemented.</p> <p>Soil composition building project.</p> <p>Major Hurricanes.</p>

Participants reflected on the timeline activity and shared the following comments:

- Development is a progressive activity and it is adaptive!
- Progression seen across the decades.
- There have been efforts to advance environmental legislation and planning.
- There has been development of legal frameworks.
- The diversity of the group helped with knowledge sharing.
- Political influence was seen in getting things done.
- The British government has high influence in getting things done.
- The need for practical on the ground actions vs 'paper'.
- The number of hurricanes has increased over time.
- There has been progressive development of plans and strategies etc.
- Donor agencies have strong influence.
- There has been compliance with multilateral environmental agreements (MEAs) across the decades.
- The eruption and subsequent disaster of Montserrat's volcano had an impact on the DRM agency being formed in Anguilla and other United Kingdom Overseas Territories (UKOTs).
- Joining OECS Organisation of Eastern Caribbean States (OECS) in 1995 was a key turning point.

### 6.3 Anguilla's Fisheries Development Plan

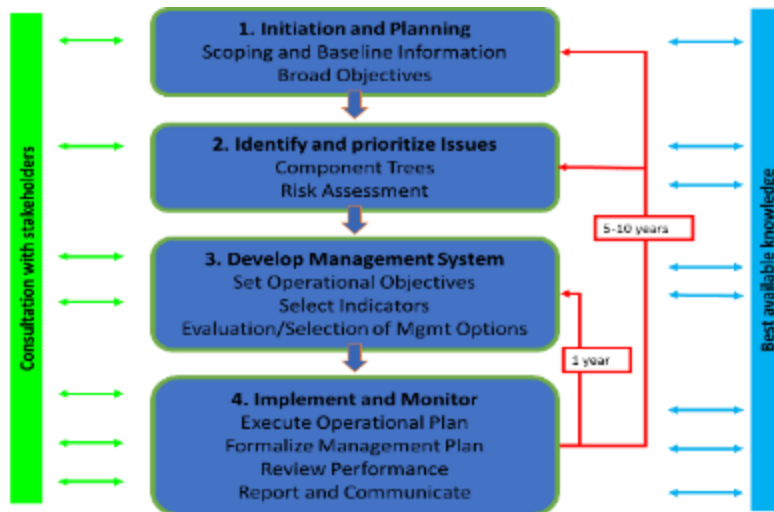
Ms. Kafi Gumbs, Director, Department of Fisheries and Marine Resources (DFMR), gave an overview of Anguilla's Draft Fisheries Management Plan, December 2015-2025. Her presentation included: the overall goal of the plan, a summary of the Anguilla's Draft Fisheries Management Plan; four main elements of the Anguilla's Draft Fisheries Management Plan (capacity building for local fishers and the general public, strategic action plan, fisheries management, special partnership agreements and licensing and along with challenges), and proposed management measures for coastal pelagic 'jacks' species (see slides in Appendix 3). The intention of the DFMR is to formulate and implement a Small Coastal Pelagics Fisheries Management Plan for the jacks fishery using the EAF approach that incorporates CCA, DRM and stewardship. The entire section on small coastal pelagics of the Anguilla's Draft Fisheries Management Plan can be seen in Appendix 4.

### 6.4 Reflections on EAF

Mr. Jobe presented on the sections of Anguilla's Draft Fisheries Management Plan that showed its overall goal, objectives and the realization of those objectives. The purpose of this activity was to show how the key principles of the EAF: (1) appropriate scale, (2) increased participation; (3) cooperation and coordination; (4) good governance; (5) the use of the precautionary approach; (6) multiple objectives; and (7) adaptive management (previously presented in plenary) are reflected (or not) in the overall goal and objectives of Anguilla's Draft Fisheries Development Plan. This is consistent with EAF usually building upon and enhancing conventional management and initiatives rather than having to start from scratch. These provisions are essential in guiding EAF integration and are applicable to each of the four steps of the EAF planning process. During a plenary rapid analysis, the chosen sections of the plan were found and shown to reflect the key principles of EAF.

## 7 EAF PLANNING PROCESS

Since the formulation of the Code of Conduct for Responsible Fisheries (1995), FAO has led the way in developing EAF management planning and implementation through a system that involves completing a series of steps (Figure 3) and activities that are consistent with the application of any risk management system. The FAO's EAF Toolbox (<http://bit.ly/EAFToolbox>) was designed to guide users through each of the four main EAF management planning steps and activities using simplified text and clear instructions. The EAF Toolbox was used as a main resource in the workshop as a guide for the development of a comprehensive Small Coastal Pelagics Fisheries Management Plan for the country of Anguilla. The activities found in the EAF Toolbox were assigned as group work for consideration by participants.



**Figure 3: EAF process (Source: FAO)**

The first and second days of the workshop comprised mainly working group sessions (example shown in figure 4). Participants were arranged into three groups (Group 1, Group 2 and Group 3) each consisting of a mix of representatives from the government, civil society and private sector in order to complete each activity under the EAF planning process. A brief PowerPoint presentation of each of the four steps of the EAF planning process (see presentation slides in Appendix 3) was given before working group activities. Group guidance notes and handouts were also provided to aid participants during each activity. A plenary discussion was facilitated after the completion of each activity to allow participants to share experiences and give feedback on their learning from the exercise. The outputs of group exercises and main discussion points are shared in Sections 8- 11 that follow.



**Figure 4: Participants engaged during group activity**

## 7.1 STEP 1 – INITIATION AND SCOPE

ACTIVITY	GROUP WORK	KEY LEARNINGS
<b>1.1 Initial process planning and stakeholder support</b>		
This activity involved drafting a roadmap to guide the EAF process and determining the level of agency, stakeholder and government support available. The EAF Toolbox provided relevant questions, key actions and tools.	Group 1 answered all 'Relevant questions' on page 11 of EAF Toolbox and conducted a Strength, Weaknesses, Opportunities and Threats (SWOT) analysis of integrating EAF including CCA, DRM and stewardship into Anguilla's Draft Fisheries Management Plan focused on small coastal pelagics.	<ul style="list-style-type: none"> <li>• The need to learn where fisheries management starts and ends, allowing a greater understanding of all the relevant stakeholders involved along with their roles and responsibilities.</li> <li>• The importance of stakeholders coordinating and cooperating in order for fisheries management to be successful.</li> <li>• The realization that some products are seasonal helps in determining how to manage them.</li> </ul>
<b>1.2 Defining the fishery, societal values and high level objectives</b>		
This activity was designed to have participants agree on the scope of the main fishery in their EAF and what community and environmental outcomes are to be achieved. The EAF Toolbox provided relevant questions, key actions and tools.	Group 2 answered all 'Relevant questions' on fishery scope and values of Anguilla's small coastal pelagic FMP using page 16 of the EAF Toolbox.	<ul style="list-style-type: none"> <li>• It was interesting to dive into the scope and see the range of species in small coastal pelagics in Anguilla's fishery.</li> <li>• The need to critically think about fishing methods, as this has significant implications on fish stock.</li> </ul>
<b>1.3 Finalise the scoping and background document</b>		
This activity was designed to document all relevant information on the fishery in a scoping document by formulating the EAF Baseline Report. The EAF toolbox provided relevant questions, key actions and tools.	Group 3 was encouraged to prepare a draft EAF Baseline Report for Anguilla's small coastal pelagic FMP using page 63 of the EAF Toolbox.	<ul style="list-style-type: none"> <li>• Anguilla has a fisheries management plan which includes future plans on managing small coastal pelagics.</li> <li>• The need for more research on ecological aspects of the small coastal pelagics fishery in order to make more informed decisions as it relates to fisheries management planning in Anguilla.</li> <li>• The need for policy and legislation to strongly support implementation of the management plan because without formal support the will ultimately fail.</li> </ul>

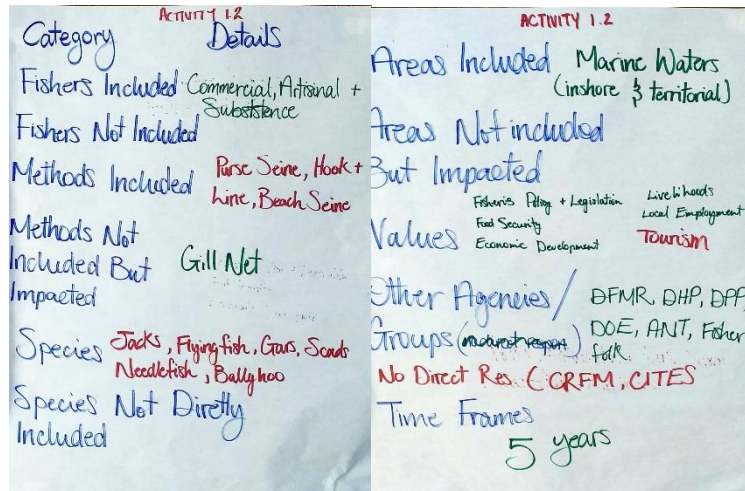


Figure 5: Written notes by working group participants from activities of Step 1 of the EAF planning process

## 7.2 STEP 2 – IDENTIFICATION OF ASSETS, ISSUES AND PRIORITIES

ACTIVITY	GROUP WORK	KEY LEARNINGS
<b>2.1 Asset and issue identification</b>		
<p>This activity encouraged workshop participants to identify all of the relevant issues for Anguilla’s small coastal pelagic fishery and determine precisely which of these needed direct management interventions for the fishery to achieve its objectives. Each group was assigned to address one of the three components of EAF namely: ecological well-being, social and ecological well-being and ability to achieve.</p>	<p>Group 1 identified issues related to the ecological well-being EAF component for Anguilla’s small coastal pelagic fishery using a component list tool found on page 110 of the EAF Toolbox.</p>	<ul style="list-style-type: none"> <li>● Large catches of Jacks occur when the fish come to shore to breed which has a negative impact of the adult stock.</li> <li>● Removing Jacks was observed to have significant implications (more so negative) on the food chain.</li> <li>● Jacks spawning every three months in coastal areas can have negative impacts on populations if overfished.</li> <li>● There are health, safety and quality concerns with the processing of Jacks which should be taken into account and addressed within the FMP.</li> </ul>
	<p>Group 2 identified issues related to the social and economic well-being EAF component for Anguilla’s small coastal pelagic fishery using a component list tool found page 110 of the EAF Toolbox.</p>	<ul style="list-style-type: none"> <li>● There are several disputes/conflicts among fishers and between fishers and the government regarding use and access to fishing grounds.</li> <li>● Increase in the exportation of jacks causes a decrease in local availability for consumption purposes.</li> </ul>
	<p>Group 3 was encouraged to identify issues related to the EAF component “ability to achieve” for Anguilla’s small coastal pelagic fishery using a</p>	<ul style="list-style-type: none"> <li>● There is a need for more resources (physical, human, financial and technical) to do research and development as it relates to Anguilla’s small coastal pelagic fishery.</li> </ul>

	component list tool found on page 111 of the EAF Toolbox.	<ul style="list-style-type: none"> <li>The need to create a policy for formal cooperation between fisheries and police regarding enforcement in the fisheries sector to mitigate conflicts and encourage co-management.</li> </ul>
<b>2.2 Issue prioritisation and risk assessment</b>		
<p>This activity guided participants to prioritise the issues using risk assessment principles to help determine which ones need to be directly managed. Systematic risk assessment and management are not typically paid much attention in FMPs, but they are fundamental to EAF, CCA, DRM and resilience science in general. Each group was encouraged to calculate the level of risk associated with their given EAF component using 'Normal formal risk categories' found on page 117 of EAF Toolbox.</p>	<p>Group 1 prioritised issues related to the ecological well-being of Anguilla's small coastal pelagic fishery.</p>	<ul style="list-style-type: none"> <li>The risk assessment exercise determined that there is only a medium risk of catching juveniles since they are caught during adult spawning.</li> <li>It was interesting to examine ecological threats and note that only few are high and medium risk.</li> </ul>
	<p>Group 2 prioritised issues related to the social and economic well-being of Anguilla's small coastal pelagic fishery.</p>	<ul style="list-style-type: none"> <li>Disputes at times can lead to violent acts.</li> <li>Lack of interest in fishery currently is a medium risk but could become high risk in future generations.</li> </ul>
	<p>Group 3 prioritised issues of Anguilla's small coastal pelagic fishery as it related to the EAF component "ability to achieve".</p>	<ul style="list-style-type: none"> <li>The activity showed the lack of resources (boats and other surveillance equipment) seriously impacts enforcement which leads to greater levels of exploitation.</li> </ul>

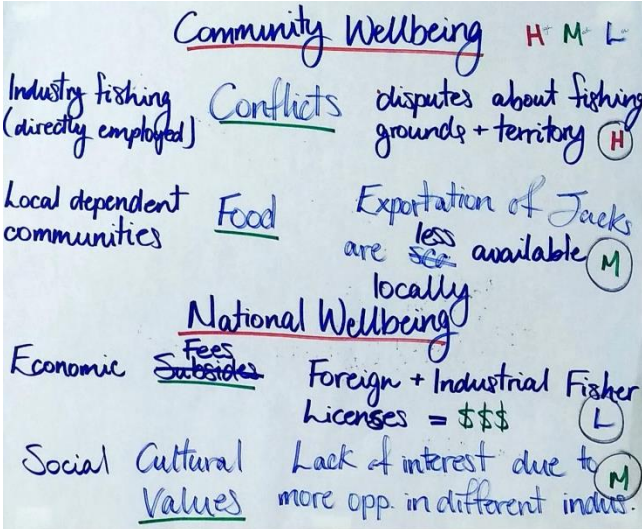


Figure 6: Written notes by working group participants from activities of Step 2 of the EAF planning process

## 7.3 STEP 3 – DEVELOPMENT OF MANAGEMENT SYSTEM

ACTIVITY	GROUP WORK	KEY LEARNINGS
<b>3.1-3.3 Determine operational objectives, Indicator and performance measure selection &amp; Management option evaluation and selection</b>		
<p>Each group was encouraged to create a 'logical framework' using three priority issues (high and medium risk they would have identified in Activity 2.2), which would each have operational objectives, performance measures/limits and management measures.</p>	<p>Group 1 created a logical framework based on three priority issues identified as it related to the ecological well-being of Anguilla's small coastal pelagic fishery.</p>	<ul style="list-style-type: none"> <li>● It is impossible not to harvest jacks with eggs since where they are caught (coastal areas) is also where they spawn.</li> <li>● The need to find management measures that consider socioeconomic aspects e.g. livelihood and income earning capacity of fishers.</li> </ul>
	<p>Group 2 created a logical framework based on three priority issues identified as it related to the social and economic well-being of Anguilla's small coastal pelagic fishery.</p>	<ul style="list-style-type: none"> <li>● The need to have a good understanding of your stakeholders involved in the management of Anguilla's small coastal pelagic fishery.</li> <li>● It would be good to have fisherfolk be stewards to help move management of the industry forward.</li> <li>● The need for government support as it relates to legal and financial support if fisheries management is to be successful.</li> </ul>
	<p>Group 3 created a logical framework based on three priority issues identified for Anguilla's small coastal pelagic fishery as it related to the EAF component "ability to achieve".</p>	<ul style="list-style-type: none"> <li>● Budgetary support is key to determining the type of physical infrastructure where possible to develop that would aid in enhancing the inputs and outputs of the fishery.</li> </ul>



Ability to Achieve Group 3

ISSUE	Operational Objectives	Management Measures	Indicators	Target/Limit reference Point	Means of Verification	Responsibility/ Time Frame
LEGISLATION	Review/Update legislative	Research/Desk review of appropriate leg. Liaise with CANNAR, OBCs, CRFM for tech Support CERMES and Public Consultation Industry Consultation	Review Completed E-mails, Documents Responses to emails Psn's developed for # of meeting held # of attendees # of meetings held NPO Registration FaceBook, WhatsApp Chats	2020 Review completed 2019 Responses rec'd 2019 All meetings held 2020 NPO Reg Govt 2019	Report, Draft Leg, Present Dec's e Emails Rec'd Timing time + dates Report of meeting NPO cert # of lines, Shares Chats	DFMR/GoH 1 yr DFMR 3 months DFMR 3-15 mths DFMR 15-30 mths DFMR/GoH 3-18 mths
Monitoring System of equipment.	To identify and Secure technically Material + Human Resources to ensure an effective monitoring Programme is in Place for ESH Systems to establish base-line data + trends	Needs Analysis/ Assessment conducted Develop budget and funding sources M+E Framework Database of resources with baseline data	Training Needs, Analy HR Needs Assessment Material Needs Budget Dev. Funding Secured # of Monitoring types Monitoring Matrix Implementational Plan Data base devel. Reports generated	2019 TMA/HANA/MNH 2019 Budget Developed 2020 GoH Budget Inc. Donor support 2019 - Matrix comp. 2019 - Plan Dev. 2020 Database developed 2019 -> Reports weekly	Analysis approved Budget approved Donor support rec'd Matrix approved Plan approved Database exists Reports exist	DFMR/Pull Net/ Consultation 1-12 mths

Figure 7: Written notes by working group participants from activities of Step 3 of the EAF planning process

## 7.4 STEP 4 – IMPLEMENTATION, MONITORING AND PERFORMANCE REVIEW

### 7.4.1 Activities 4.1 & 4.2- Develop an operational plan and monitor its progress & formalization of the management plan

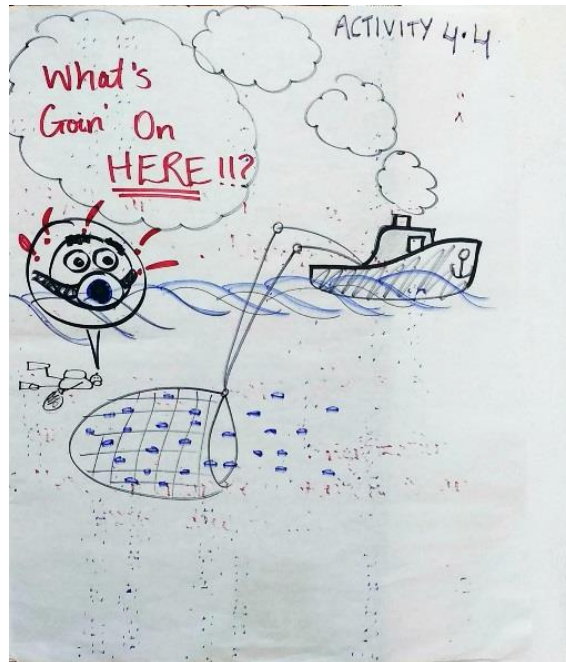
These activities involved developing a plan that outlines all the activities that need to be undertaken to implement the Management System and monitor its progress, with the intention of formalizing the plan and drafting any new legal instruments. Each group answered “relevant questions” in the EAF Toolbox for these activities in a numbered format using flip chart paper.

### 7.4.2 Activities 4.3 & 4.4 - Review performance of the management system & reporting, communication and auditing of performance

These activities prompted participants to regularly review the performance of the management plan and occasionally review the entire management system. The final activity involved keeping stakeholders informed about the fishery performance and ensuring external oversight to assist with community confidence in the management system.

The final activity was supported by a short exercise that encouraged groups to create a simple communication plan and strategy and communicate one key message to a specific target audience in a

creative way. Groups were given 15 minutes to make creative presentations in the plenary session. Groups 1 and 2 combined to present a mix of spoken word, song and hand-drawn graphics (Figure 8) highlighting the negative effects of overfishing and the need for more sustainable ways of fishing. Their target audience was civil society. Group 3 followed with a jingle presentation using character names such as 'Shelly the shellfish' to raise awareness of the need for the fisheries sector to adapt to the impacts presented. Their presentation was tailored to policy makers.



**Figure 8 Hand-drawn graphics by a participant belonging to group 2 used during activity 4.4**

The reflective discussion following all activities under step 4 of the EAF planning process outlined the following:

- In communication always remember to K.I.S.S (Keep It Simple Stupid). Simple and clear communication is more impactful.
- The brainstorming approach was welcomed as it encouraged participants to critically think when going through exercises
- The exercise was found to be very useful and highlighted the fact the communication and the means in which is carried out among stakeholder groups is critical in fisheries planning.

### **7.4.3 Distribution of FAO EAF Toolboxes**

Day two of the workshop ended with the distribution of six FAO EAF Toolboxes to the Department of Fisheries and Marine Resources, the Department of Environment, the Department of Disaster Management, the Anguilla National Trust, the Anguilla Fisherfolk Association and the Airport and Seaport Authority. Recipients were also encouraged to make the toolboxes available to other stakeholders for their use.



Figure 9: Mr. Javed Woods (left) (Port Officer, Anguilla Air and Sea Port Authority) receiving an EAF Toolbox

## 8 STEWARDSHIP, CCA, DRM, & FIELD TRIPS

### 8.1 Stewardship, CCA & DRM in the AFDP

Mr. Jobe briefly recapped Days 1 and 2 of the workshops specifically highlighting the practical EAF process activities, and the concepts of CCA, DRM and stewardship in relation to Anguilla and its future Small Coastal Pelagics Fisheries Management Plan.

Ms. Andrews continued by engaging participants in a plenary discussion on the process of mainstreaming CCA and DRM in Anguilla's Draft Fisheries Development Plan (see the presentation slides in Appendix 3).

Some notable discussion points from the plenary exercise are presented below:

- A climate vulnerability assessment that included Anguilla's fisheries sector was undertaken
- Consideration was given to ecological, social and governance aspects in the vulnerability assessment
- From the vulnerability assessment CCA and DRM actions were identified and prioritised and included in Anguilla's climate change policy. Findings were circulated to the public.
- Needed resources to implement key CCA and DRM actions have to be identified
- Clear results and target indicators specific to CCA and DRM need to be identified
- Anguilla's draft climate change policy (2011) needs to be revised and approved specifically looking at the fisheries sector.

- Monitoring and Evaluation (M&E) needs improvement with regards to CCA within the Anguilla's Fisheries Management Plan.
- Anguilla's Fisheries Management Plan is currently in the implementation phase with review and evaluation expected to be undertaken in 2025 when the plan expires. This would be a key entry point to facilitate revisions in regard to CCA and DRM mainstreaming. However, recommendations could be put forward to have the plan updated before it expires in 2025.
- In terms of facilitating stakeholder input into the review and evaluation phase it was noted that there should be a reactivation of the Fishery Advisory Committee in Anguilla.

## 8.2 Field trips

Day three of the workshop ended with field visits to various sites in Anguilla which demonstrated applications of EAF with CCA, DRM and stewardship. These sites were: the Participatory Three-Dimensional Model (P3DM) and poster of Anguilla at the library located in The Valley, Shoal Bay East, Island Harbour, Sandy Hill, Crocus Bay, Sandy Ground, The Cove West End, Crocus Bay, Sandy Ground, and Island Harbour. Where relevant, discussions included: climate change impacts and adaptation priorities including any recent impacts from Hurricane Irma, coastal erosion/deposition, coastal restoration and resilience focused on beaches, sand dunes and mangroves; how P3DM and spatial planning supports an ecosystem-based approach, including EAF (Figure 10), and opportunities for stewardship.



**Figure 10: Participants and workshop facilitators pose for a picture around the P3DM model of Anguilla**

## 9 SMALL GRANTS

The last day of the workshop primarily targeted fishers and fisherfolk organisations. Relevant government agencies, private and civil society groups who participated in first three days of the workshop were also

invited to attend. Mr. Jobe recapped what had occurred during the prior three days of the workshop by highlighting key concepts used, EAF training activities and stewardship, and the role of fisherfolk in supporting the EAF.

Ms. Andrews continued by briefing newly joined participants about the project and then showed a screening of a participatory video (PV) created by fisherfolk of Anguilla which was followed by a discussion that included: the quality of the PV, who they wanted to share the final video with, what pathways can be used to show the video, and suggested additions to the video. Participants (Figure 11) were then encouraged to come up with possible titles for their PV and vote on the ones they liked the most. The top voted title was found to be '*Anguilla's fishing dilemma*'.

Meeting attendees then discussed potential stewardship-oriented small grant project ideas for EAF with CCA and DRM, how to go about writing a proposal to receive funding and the provision of technical assistance by CANARI throughout the process, if needed.



**Figure 11: Participants of Day 4 of the workshop pose for a photo with Ms. Melanie Andrews (CANARI)**

## **10 WORKSHOP EVALUATION**

An evaluation form (Appendix 5) was administered to workshop participants at the end of the workshop. Respondents (n=14) rated the overall benefits of the workshop highly with 100% (14) indicating that the workshop met its objectives and 100% (14) also noting that it lived up to their expectations. Additional questions asked, as well as a compilation of the responses, can also be found in Appendix 5.

## 11 NEXT STEPS

The workshop concluded with a discussion on next steps. Ms. Andrews outlined the next steps for the project which included:

- Updating of the coastal pelagic and other fisheries management plans under the AFDP to mainstream CCA and DRM, using EAF;
- The finalization of the participatory video developed by fisherfolk; and
- Launch of small grants for two practical action projects on CCA and stewardship by fisherfolk organisations in Anguilla by March 2019. The intended deadlines for fisherfolk organisation small grant proposals is April/May 2019, with implementation from June to December 2019.

## 12 APPENDICES

### Appendix 1: Summary Agenda

Day 1: Tuesday 22 January 2019	
08:30 – 09:00	Registration, social networking and distribution of workshop materials
09:00 – 09:30	Welcome, opening remarks, introductions, expectations and logistics
09:30 - 10:30	Sharing knowledge and experience of EAF, CCA, DRM and stewardship
10:30 – 11:00	<b>Break and group photo</b>
11:00 – 12:30	Introduction to EAF Toolbox and steps 1 & 2 of EAF with CCA and DRM
12:30 – 13:30	<b>Lunch</b>
13:30 – 15:00	Group work: Step 1 -- Initiation and scope
15:00 – 15:30	<b>Break</b>
15:30 – 16:30	Group work: Step 2 -- Identification of assets, issues and priorities
Day 2: Wednesday 23 January 2019	
08:30 – 09:00	Registration and social networking
09:00 – 10:30	Recap of Day 1, lessons learned, insights and innovation Continuation of EAF Toolbox with steps 3 & 4 of EAF with CCA and DRM
10:30 – 11:00	<b>Break</b>
11:00 – 12:30	Group work: Step 3 – Development of a management system
12:30 – 13:30	<b>Lunch</b>
13:30 – 15:00	Group work: Step 4 – Implementation, monitoring, performance review
15:00 – 15:30	<b>Break</b>
15:30 – 16:30	Bringing it together: incorporating EAF with CCA and DRM in fisheries/marine management plans

<b>Day 3: Thursday 24 January 2019</b>	
08:30 – 09:00	Registration and social networking
09:00 – 10:30	Recap of Day 2, lessons learned, insights and innovation. Stewardship and stakeholder engagement in EAF with CCA and DRM
10:30 – 11:00	<b>Break</b>
11:00 – 16:00	Field visits on application of EAF with CCA, DRM and stewardship (with lunch)
<b>Day 4: Friday 25 January 2019</b>	
08:30 – 09:00	Registration and social networking
09:00 – 10:30	Recap of Day 3, lessons learned, insights and innovation Screening and discussion of participatory video created by fisherfolk
10:30 – 11:00	<b>Break</b>
11:00 – 12:30	Discuss stewardship-oriented small grant ideas for EAF with CCA and DRM
12:30 – 13:30	<b>Lunch</b>
13:30 – 15:00	Participatory planning for stewardship small grants and other initiatives Wrap-up, next steps and close



## Appendix 2: Participants List


No.	Name	Telephone (area code 264)	Organisation	Position/Title	Email
1	Douglas Carty (Duggie)	235-8438	Special D Diving		specialddiving@gmail.com
2	Trivon Smith	583-2434/58- 20031		Fisherman	
3	Deniscio Samuel	476-9141	Tilapia Farm		
5	Sam Webster	729-1169		Fisherman	samwebster1961@hotmail.com
6	Sherwin Richardson	584-6469		Fisherman	sherwinrichardson@gmail.com
7	James Freddy Hughes	497-6359		Retired Seaman	
8	Kenyetta Allord	476-1688	AXA Fishermen Society	P.R.O	keallard@hotmail.com
9	Irada Gumbs	235-8907	Fisheries Department	Manager	iradgumbs@gmail.com
10	Vern Smith	581-8668		Fisherman	
11	Otis Smith	583-2488		Fisherman	
12	Otlyn Vanterpool	235-6104	Past Special Advisor to Fisheries		otlynvanterpool@hotmail.com
13	Winston Ryan	235-3225		Fisherman	
14	Sherwin Richardson	584-6469		Fisherman	sherwinrichardson@gmail.com

No.	Name	Telephone (area code 264)	Organisation	Position/Title	Email
15	Kendal Richardson	497-2871	DFMR	Data maintenance technician	kendal.richardson@gov.ai
16	Tacumba Duncan	497-2871	DFMR	Outreach Officer Fisheries and Marine Assistant	tacumba.duncan@gov.ai
17	Rhon A. Connor	497-0217	Department of Environment	Deputy Director	rhon.connor@gov.ai
18	Alwyn Richardson	497-2928	DDM	Program Officer	alwyn.richardson@gov.ai
19	Corlon Fleming	584- 3008	DOA	Agronomist	corlon.fleming@gov.ai
20	Kafi S. Gumbs		DFMR	Director	
21	Dwight Carty	572-4449	Agriculture	Livestock Officer	dwight.carty@gov.ai
22	Kerriel Lewis	584-5883	Lands and Survey	LIS Technician	kerriel.lewis@gov.ai
23	Susan Hodge	584-2710 584-0653	Disaster Management	Program Officer	susan.hodge@gov.ai
24	Keidesha Harrige	583-4051	Lands and Survey	Clerical Officer	keidesha.harrige@gov.ai
25	Othyn Vanterpool	235-6104	Ministry	Assistant Ministerial	othyn.vanterpool@gov.ai
26	Randall Richardson	497-2871	DFMR	Research Officer	randall.richardson@gov.ai
27	Chavez Edwards	497-2871	DFMR	Fisheries Officer	chavez.edwards@gov.ai

No.	Name	Telephone (area code 264)	Organisation	Position/Title	Email
28	Kenroy Rawlinds	497-2871	DFMR	Fisheries Officer	Kenroy.rawlins@gov.ai
29	Ambrele Richardson	235-1502	DHP	Director Health	
30	Sharmer Fleming	497-0217	Department of Environment	Coordinator	
31	Devon Carter	497-5297	Anguilla National Trust	Officer	
32	Giovanni Hughes	497-5297	Anguilla National Trust	Field Officer	
33	Patrick Webster	772-7515		Fisherman	
34	Otis Smith	583-2488		Fisherman	
35	James Carty (Soni)	583-5325		Fisherman	
36	Ralph V.C. Hodge	476-1386		Fisherman	ryhvc48@gmail.com
37	Stafford John	594-9929 497-5392	Physical Planning	Senior Planner	
38	Julian Hughes	497-5392	Physical Planning	Senior GIS Officer	
39	Silvia Erni	497-5392 584-1620	Physical Planning	Senior Planner	
40	Julisha Connor	729-3882	AASPA	Port Officer	
41	Javed Woods	772-7677	AASPA	Port Officer	javed.woods@gov.ai

No.	Name	Telephone (area code 264)	Organisation	Position/Title	Email
42	William Vanterpool	235-7361	Agriculture	Director	william.vanterpool@gov.ai
43	Melanie Andrews	1-868-638-6062 1-868-674-1558	CANARI	Technical Officer Workshop Facilitator	melanie@canari.org
44	Kerton Jobe	1-868-759-5855	CERMES Consultant	- EAF Workshop Facilitator/ Trainer	kerton.job3@gmailcom

# Appendix 3 - Workshop Presentations/Slides




**CLIMATE CHANGE ADAPTATION IN THE FISHERIES OF ANGUILLA AND MONTSERRAT**

**Ecosystem Approach to Fisheries and Stewardship Workshop**  
**Anguilla**

January 22-25, 2019

**WELCOME!!**



**CLIMATE CHANGE ADAPTATION IN THE FISHERIES OF ANGUILLA AND MONTSERRAT**

**Ecosystem Approach to Fisheries and Stewardship Workshop**  
**Anguilla**

January 22-25, 2019

**Climate Change Adaptation and Disaster Risk Reduction**  
**A brief overview**

**There are two kinds of climate change events:**

- “rapid onset” (extreme episodic disasters) e.g. hurricanes, tropical storms, flooding
- and “slow onset” (chronic hazards) events e.g. ocean temperature changes, sea level rise



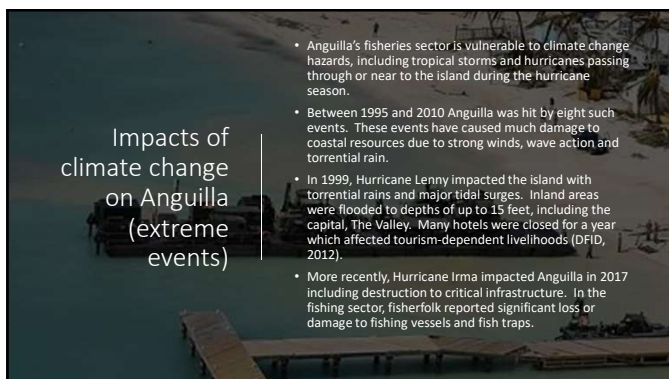
Fisheries and fishing-dependent people are often located in places that are at particularly high risk of extreme events, which can:

- destroy or severely damage infrastructure and assets such as boats, landing sites, post-harvesting facilities and roads. This can result in a decrease in harvesting ability and access to markets, affecting both local livelihoods and the overall economy
- decrease safety at sea, and increase the prevalence of injuries and deaths. Loss of life in fishing communities can affect not only surviving household members but also potentially upset economic and social activities and systems outside the immediate family

**Rapid onset or extreme events**

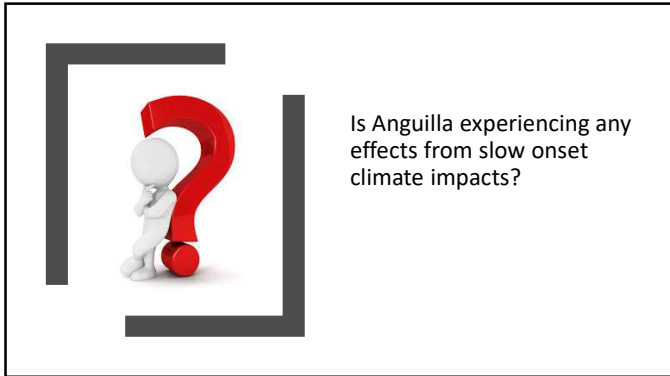
**Impacts of climate change on Anguilla (extreme events)**

- Anguilla’s fisheries sector is vulnerable to climate change hazards, including tropical storms and hurricanes passing through or near to the island during the hurricane season.
- Between 1995 and 2010 Anguilla was hit by eight such events. These events have caused much damage to coastal resources due to strong winds, wave action and torrential rain.
- In 1999, Hurricane Lenny impacted the island with torrential rains and major tidal surges. Inland areas were flooded to depths of up to 15 feet, including the capital, The Valley. Many hotels were closed for a year which affected tourism-dependent livelihoods (DFID, 2012).
- More recently, Hurricane Irma impacted Anguilla in 2017 including destruction to critical infrastructure. In the fishing sector, fisherfolk reported significant loss or damage to fishing vessels and fish traps.



**Slow onset events**

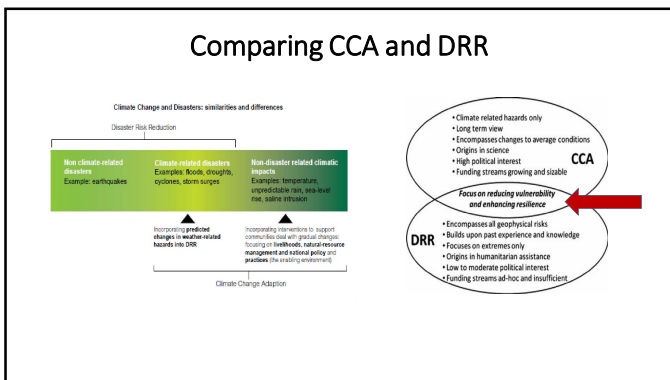
Climate hazard	Potential impacts on fisheries (ecological)	Potential impacts on fisheries (socioeconomic)
<ul style="list-style-type: none"> <li>• Rising sea levels</li> <li>• Increased ocean acidity</li> <li>• Increased ocean temperature</li> </ul>	<ul style="list-style-type: none"> <li>• Habitat alteration and loss e.g. coral bleaching</li> <li>• Reduced abundance and diversity of marine plants and animals</li> <li>• Shifts in distribution of fish species as a result of changes in ocean currents and temperature</li> <li>• Alteration of length and timing of spawning seasons</li> <li>• Alteration in seasonal migration patterns of many pelagic species</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of livelihoods</li> <li>• Reduced income for fisheries dependent households</li> <li>• Loss of coastal lands and displacement of fishing communities</li> <li>• Increased poverty</li> <li>• Inadequate nutrition (notably protein intake)</li> <li>• Reduced food security</li> <li>• Reduced foreign exchange earnings</li> </ul>



Is Anguilla experiencing any effects from slow onset climate impacts?

### Disaster Risk Reduction (DRR) versus Climate Change Adaptation (CCA)

- **DRR** The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events (*Comprehensive Disaster Management Policy, Anguilla*)
- **CCA** is a process by which strategies to moderate, cope with and take advantage of the consequences of climatic events are enhanced, developed, and implemented.



Both DRR and CCA are aimed at building resilience and reducing vulnerability to the impacts of Climate Change

There are three dimensions of vulnerability to climate change: exposure, sensitivity, and adaptive capacity.

**Exposure** is the degree to which people and the things they value could be exposed to climate variation or change;

**Sensitivity** is the degree to which they could be harmed by that exposure; and

**Adaptive capacity** is the degree to which they could lessen the potential for harm by taking action to reduce exposure or sensitivity.

### So what do CCA and DRM actions include?

- Responding to crises that affect the fisheries sector and food and nutrition security by distributing high-quality inputs and tools to fisherfolk affected by crisis.
- Safeguarding livelihoods through early warning systems, timely and accurate assessments, and evidence-based planning. Engaging fisherfolk in alternative livelihoods, value-adding post-harvest technologies and community-based Disaster Risk Management.
- Applying risk and vulnerability reduction measures such as the introduction of aquaculture methods and alternative livelihoods.

### But it also includes...

- Strengthening the institutional environment (e.g. governance arrangements and legislation), improving risk and crisis management, and **mainstreaming DRM and CCA into national and local plans [Focus of this workshop!]**
- Taking actions to improve the resilience of habitats and targeted species to the adverse effects of climate change, including:
  - ✓ strict enforcement of existing marine pollution control protocols and abatement of contamination from land-based sources;
  - ✓ reactivation and expansion of habitat protection and restoration programmes; and
  - ✓ control of unsustainable practices such as overharvesting, and the use of inappropriate harvesting methods

### Recommendations from vulnerability and institutional assessments for Anguilla's fisheries sector



- Create an inventory of past and ongoing adaptation actions for the sector to facilitate institutional memory



- Strengthen institutions and partnerships for improved collaboration amongst departments (e.g. Departments of Environment, Agriculture, Fisheries, Land & Surveys, Physical Planning, Disaster management) and with CSOs (e.g. Anguilla Fisherfolk association, Anguilla National Trust). This would enable a more integrated, cross-sectoral approach to building the resilience of the fisheries sector to climate change



- Create a climate change body such as a National Climate Change Committee to improve the coordination of climate change actions or include the departments which are managing climate change (Environment, Fisheries, Physical Planning, etc.) into the existing National Disaster Management Committee (NDMC)



- Improve the sharing of information between the different institutions which are dealing with climate change



- **Integrate CCA measures into the national fisheries management plan and fisheries policy**



- Mainstream CCA into the National Environmental Management Strategy and Action Plan



- Organisational strengthening of key government agencies, in particular the DFMR, for effective fisheries management and conservation and sustainable use of coastal and marine resources through




- Ensuring sustainable financing through mobilisation of resources via budgetary allocations, grants, public-private partnerships and corporate investment to adequately manage fishing and other marine uses spanning Anguilla's EEZ;



### Building the adaptive capacity of fisherfolk through:

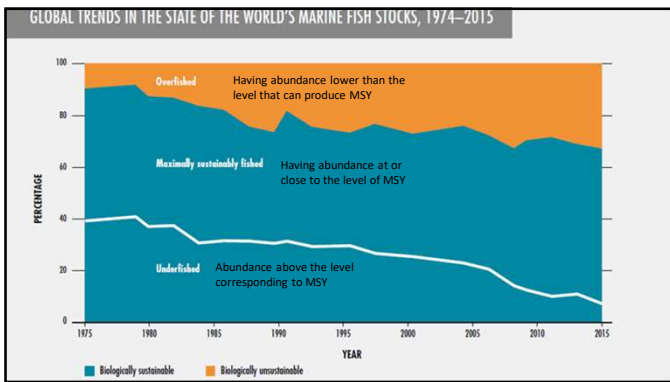
- Training on safety at sea and use of GPS, VHF radio and other telecommunication technologies to assist with navigation, access to early warnings and emergency response;
- Training and support to adopt sustainable fishing practices and technologies to develop sector, including smart FADs, use of underutilised species and alien invasive species (e.g. lionfish), and development of value added products (e.g. smoked tuna);



## Concepts of EAF & Stewardship

Climate Change Adaptation in the Fisheries of Anguilla and Montserrat Project  
Workshop on implementing the ecosystem approach to fisheries (EAF), climate change adaptation (CCA), disaster risk management (DRM) and stewardship in fisheries management planning, 22-25 January 2019, La Vue Conference Room, Anguilla

The Prequel

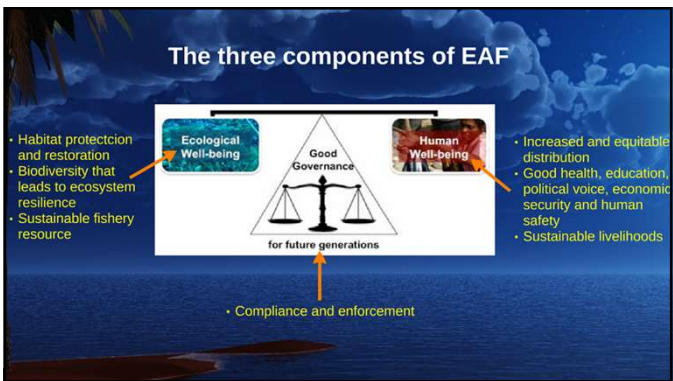


### Why Ecosystem Approach to Fisheries (EAF)?

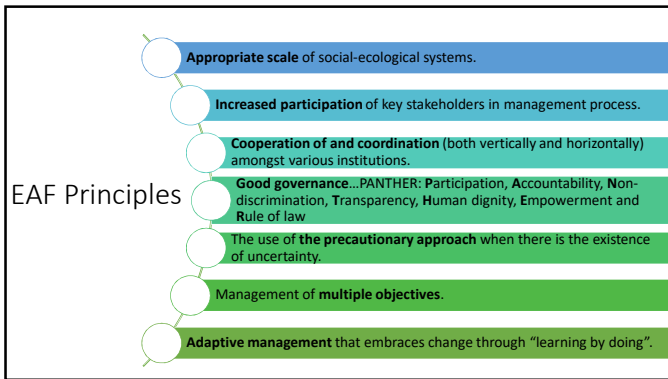
- Poor performance of current management practices and lessons learnt from past FM failures
- Degradation of fishery resources and the marine environment
- Recognition of a wide range of societal interests in marine ecosystems and the need to reconcile these

### Defining the ecosystem approach to fisheries (EAF)

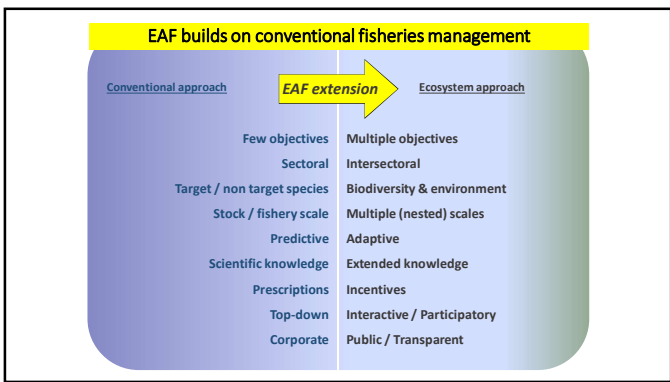
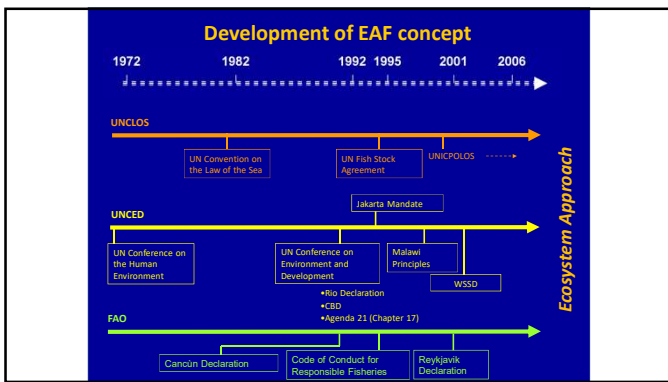
An ecosystem approach to fisheries strives to **balance diverse societal objectives**, by taking account the knowledge and uncertainties about **biotic, abiotic and human components** of ecosystems and their interactions and applying an **integrated approach** to fisheries within **ecologically meaningful boundaries**.







- ### EAF Principles
- None of the principles that underlie the EAF are new. They can all be traced in earlier instruments, agreements, declarations.
  - Implementation of these principles lags behind in relation to their formulation in agreed international instruments.
  - The EAF highlights and reorganizes the principles of sustainable development making their application more imperative.



- ### Common myths and realities about the EAF
- The EAF is not well defined; there are no existing principles and guidelines for implementing EAF
  - The EAF requires a paradigm shift in management institutions and science support
  - There is currently insufficient information available to answer ecosystem questions necessary for applying an EAF
  - It is very difficult, if not impossible, to establish the boundaries necessary to implement EAF
  - MPAs are essential components of EAF
  - EAF is only about the ecological impacts of fisheries and does not account for human dimensions of fisheries management

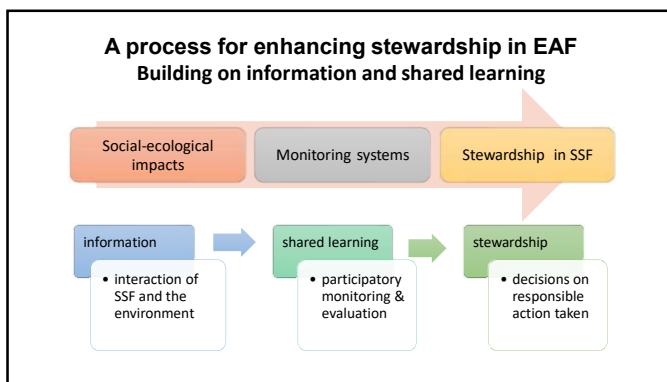
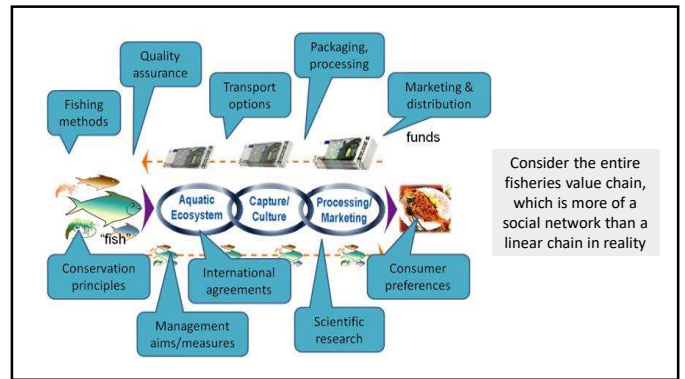
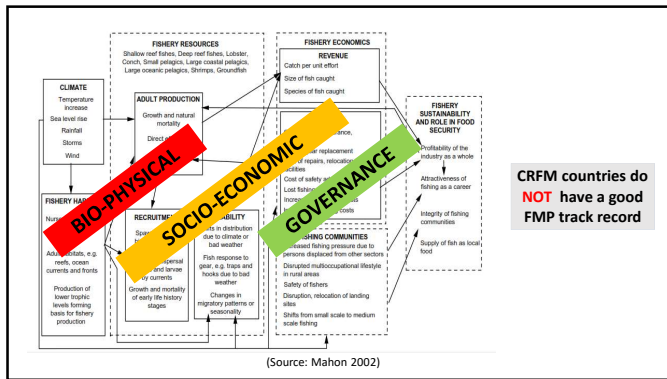
### Vulnerability of Tropical Pacific Fisheries and Aquaculture to Climate Change

Edited by Jhanni D Bell, Jhanna E Johnson and Alistair J Hobday

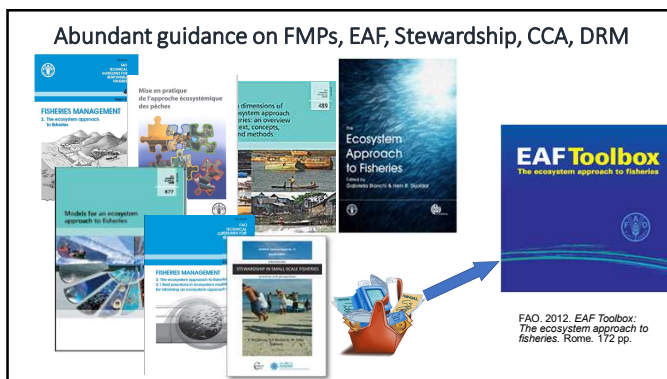
Figure 1.81 Generalized effects of increased greenhouse gases on oceanic and coastal ecosystems in the tropical Pacific.

Pacific millions of dollars mega-study concludes that if fisheries managers did what they know to do from EAF, then climate and other hazard risks are reduced

Not business as usual ... but business as it should be  
Not rocket science ... but the tough decisions remain



- Considering stewardship in EAF**
- Should have a sense of **ownership** over natural resources
  - Need to exercise both individual and collective **responsibility**
  - Demonstrate **accountability** in stewardship within society
  - May anticipate some sort of **reward** for being good stewards (even just the anticipated gratification from future generations)



# Anguilla Fisheries Development Plan

Kafi S Gumbs  
21 April 2016  
Presentation to Executive Council

## Objective of the AFDP

**Diversify Anguilla's economy through the optimal and sustainable utilization of the fisheries resources in Anguilla's EFZ and the creation of specific management plans for existing and potential fisheries**

- EAF
- Best practices
- Precautionary approach

## Summary of the AFDP

Where are we now?	Where do we want to be?	How are we going to get there?	How will we know that we have arrived?
<p>Anguilla marine industry is tourism</p> <p>The fishing industry is underdeveloped</p> <p>No large scale or industrial fishing</p> <p>Fishing is mostly artisanal</p> <p>Fishermen have not yet been able to mobilize and form an industrial fishing company</p> <p>Fishing is conducted on demand</p> <p>Fishing is strongly dependent upon the hospitality industry</p> <p>Fishing has the potential to generate significant revenue for the Government</p> <p>Very little economic output by GOA</p> <p>Most economically valuable fisheries are lobster, reef fish, pelagics and Conch</p> <p>Nearshore coastal resources and coastal fisheries are diminishing and in poor health</p> <p>No processing plants, value added products or meaningful export markets</p> <p>There is a strong demand for fish products</p> <p>Antiquated legislation</p> <p>No community based management</p>	<p>Diversification of the economy</p> <p>Development of the fishing industry through new technology and education</p> <p>Introduction of commercial/industrial fishing</p> <p>Open the fishery using special partnership agreements</p> <p>Fishing focused on 50m from shore</p> <p>Sustainable utilization of the marine resources</p> <p>Increase revenue generation for Government</p> <p>Higher standard of living for fisherfolk</p> <p>Fisherfolk having a greater contribution to the overall GDP</p> <p>Operation of several small scale processing plants and cottage industries</p> <p>New and meaningful export markets</p> <p>Increase economic revenue generation</p> <p>Increase food security</p> <p>Improve health of coastal resources</p> <p>Increase in marine fisheries business</p> <p>Updated and effective legislation</p> <p>Increase ownership and community based management</p>	<p>Political will</p> <p>Outreach and Education</p> <p>Public support and buy in</p> <p>Amendment of legislation</p> <p>Thorough study of the fisheries and associated habitats</p> <p>Increased surveillance, patrols and enforcement</p> <p>Financing for processing plant through private and public venture</p> <p>Schedule of capacity building exercises for fisherfolk and GOA Fisheries staff</p> <p>Issuing of foreign fishing vessel licenses and special partnership agreements (SPA)</p> <p>Implementation of input, output and technical measures specific to each commercial fishery</p> <p>Ecosystem, precautionary and protective approach to fisheries management</p>	<p>Assess the level of awareness and understanding among fisherfolk and general public</p> <p>Measure growth from institutional strengthening of Dept Fisheries staff</p> <p>Review measurable objectives</p> <p>Stakeholder review of management plan operations</p> <p>Public support</p> <p>Post study of the fisheries and associated habitats</p> <p>Fewer violations of marine related laws</p> <p>Increase finances for Government and fisherfolk</p> <p>Improved overall health of coastal resources</p>

## Four main elements of the AFDP

1. Capacity building for local fishers and the general public
  - Stewardship
  - Climate change adaptation/alternative livelihoods
  - Development of the Fisherfolk organizations
  - Hands on training in new fishing techniques
  - Radio, TV, social media infomercials
  - Project funding for various tools and equipment

## Four main elements of the AFDP

### 2. Strategic Action Plan

```

    graph LR
      A[December 2015: Amend legislation necessary for sustainable fisheries development] --> B[December 2015-2016: Begin desk study and pilot project to determine the viability of a pelagic industrial fishery]
      B --> C[April 2016: Depend on results of the pilot project, begin granting industrial/foreign fishing licenses]
      C --> D[January 2016: Focus on developing DPM, fishers and general public capacity on marine related topics, strengthen enforcement and surveillance of marine resources]
      D --> E[December 2020: Scientific revision of the effectiveness of the amended legislation and SPA]
  
```

## Four main elements of the AFDP

### 3. Fisheries Management

**Covers 40 species and or groups of fish; providing the following information**

- General information on the fish or family
- Current regulations & non-binding agreements governing the fishery
- Objectives of the regulations
- Present state of exploitation
- Objectives to be achieved in the management of the fishery
- Management and development measures to be taken
- Monitoring, management indicators and reference points
- Management limitations
- Key dimensions for consideration with the management of the fishery

## Special Partnership Agreements and Licensing

4. Industrial fishing licensing through SPA have the potential to generate over EC\$286,000.00 annually

Hypothetically, if one industrial license is based on 10% of the fishing value for Yellowfin Tuna fishery, at a given quota of:

25,000lbs, at EC\$21.44 per lb (selling cost); 10% of EC\$21.44=\$2.14, \$2.14 X 25,000 = EC\$53,500.00, from one license, per year towards GOA revenue

## Special Partnership Agreements top 3 risk/challenges

Possible risk/challenge	Probability	Impact	Management
No resources to effectively monitor the EFZ	High	High	Random searches & costly fines for violations, joint patrols with SXM & British Military DFMR enforcement arm and vessel
DFMR does not receive additional staff, training and other resources necessary to manage the developing fishing industry	Low	high	Encourage GOA to increase the personal emoluments budget for DFMR annually. Source funding outside of GOA for training and scholarships. DFMR vessel
Local fishers do not upgrade their vessels or use new fishing techniques	Medium	High	Ensure that sufficient training & funding sources are made available to fisherfolk

## Biggest challenge DFMR needs a vessel

- Execute daily work requirements

AMMP late start b/c no vessel

- Special projects

Best 2.0 turtle project started 1 April 2016. Three year project €394,976.00....but no vessel

- Conduct in water contracted work

- Continue generating revenue:

Licenses and permits EC\$18,914.13

Cruise permits EC\$1,186,510.00

Mooring installations EC\$7,975.00

Dive tank fees EC\$2,284.96

**TOTAL EC\$1,215,684.09**

## Coastal pelagics 'JACKS'

- Believed to be 18 species of jacks in the Caribbean & 3 species of Scad in Anguilla waters, it is difficult to differentiate between them
- Uses a purse seine to catch jacks
- Considered as one of the islands main fisheries
- Seasonal fishery
- Fishing effort is at the community level
- NO regulations specifically targeting jacks. Fisheries Act prohibits the use of fish trap wire less than 1.5 inches in diameter and the use of gillnets.
- Present state of exploitation is unknown

## Proposed management measures 'JACKS'

- Research on rounding areas and population dynamics of certain Jack species
- Research on if rounding occurs during reproductive times, and if so certain areas should be closed to this activity during reproductive months
- Collect fish catch data by species so that DFMR would be able to determine the profitability of the species, catch per effort data and other relevant information

## Proposed management measures 'JACKS'

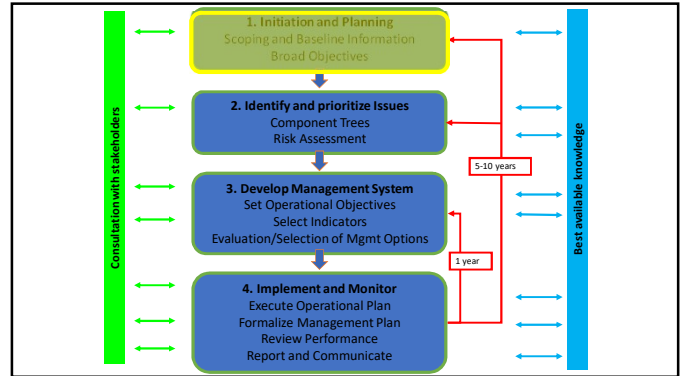
- Protection of Jack habitats and rounding grounds
- Conduct several educational activities about the various species and the fishery
- Introduce minimum size limits for certain species
- Establish catch quotas
- Restrict fishing within Anguilla's Marine Parks
- Ban fishing on all dive wrecks around the island





## INITIATION AND SCOPE (STEP 1) Mainstreaming CCA, DRM & Stewardship into EAF based FMPs

Climate Change Adaptation in fisheries of Anguilla and Montserrat Project  
Workshop on implementing the ecosystem approach to fisheries (EAF), climate change adaptation (CCA), disaster risk management (DRM) and stewardship in fisheries management planning, 28-31 January, Montserrat Cultural Centre, Little Bay



### Step 1 – Initiation and Scope

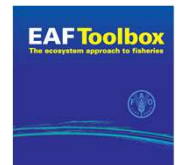
#### Overview of Key activities

- 1.1 Initial process planning and stakeholder support**  
Output: roadmap defining specific methods and tools to be used during the planning process; identification and mobilization of stakeholders
- 1.2 Defining the fishery, societal values and high level objectives**  
Output: definition of the scope of the EAF planning process, including the target fishery, the societal values and objectives, decision to proceed with EAF management
- 1.3 Finalise a scoping (EAF baseline) document**  
Output: a baseline report that clarifies what fishing activities are to be managed, the community objectives to be achieved, social values to be observed and a summary of information about the fishery and its associated resources that may be useful for the remainder of the EAF process.

### 1.1 Initial process planning and stakeholder support

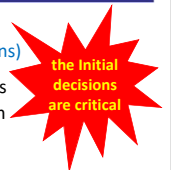
#### Get set

- Ensure adequately preparation to apply EAF
- Be realistic about what it can deliver and when
- Seek formal support for the EAF FMP process



#### Background information (EAF Toolbox relevant questions)

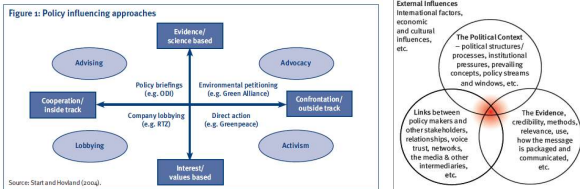
- Collate national policies and international agreements
- Identify information and expertise on fisheries system (stakeholder and/or institutional analysis needed?)
- Summarise relevant climate and disaster information



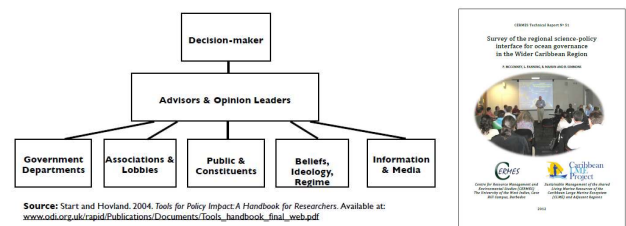
### Stakeholders!

Systematically determine who needs to be a partner in the EAF FMP process, and whose interests and influence are too remote to make this necessary...**stakeholder identification and analysis**

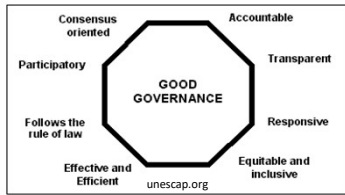
- Examine power, conflict, influence, incentives and other relationships
- Key stakeholders, Primary stakeholders, Secondary stakeholders, combined?



### Power and influence at science-policy interface



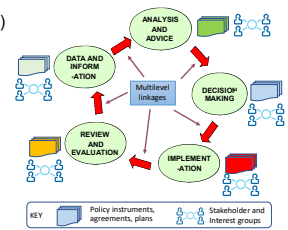
## Participation and good governance



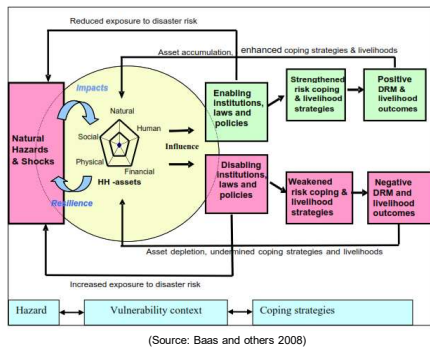
- Ensure that the many 'actors' in the EAF FMP process are properly identified and characterized in terms of their interests and role in the particular circumstance.
- Avoid omitting critical stakeholders from the processes, which would lead eventually to problems with EAF implementation, but also avoid including too many '~stakeholders'
- Helps to promote good governance in the FMP process. **Enhanced Stewardship?** But what policies guide this?

## Institutions (e.g. policy cycles)

- Investigate how formal and informal social rules underpinning interactions (institutions) may shape EAF FMP policy cycle
- Determine what institutions are involved in policy cycles and within key parts of the fishery system
- Formal institutions typically have a legally defined role, structure, and procedures, as in state actors and cooperatives.
- Informal institutions such as those of civil society include business, social or family networks and fisherfolk associations.



- Institutional analysis examines both structures and processes
- Without institutional analysis a clear understanding of the complex interactions and relationships among the actors in fisheries systems is not likely to be achieved.
- This understanding is important in EAF that encompasses CCA and DRM, as it includes many stakeholders from other sectors.



## 1.2 Defining the fishery, societal values and high level objectives

To undertake EAF planning you need to have a clear and agreed definition of the fishery

### Scope

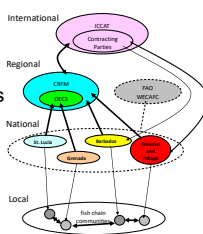
- Explicitly determine what fishing activities, areas, groups will (or won't) be included in the EAF process

### Values

- Determine the key community values to be achieved

## Scope, scale and levels of management

- Clearly outline what fishing activities, fishing groups, target species, geographic regions will be included within the EAF FMP
- Identify other key activities, groups, agencies that need to be included in this system (directly or indirectly) with CCA and DRM to enable the management system to operate
- Clarify who has legislative and/or policy control for the activities, areas and people



## Scope



Disasters



Climate

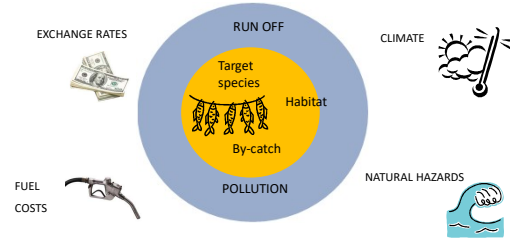


Fisheries

## Addressing issues ... Be strategic!

- **MANAGE** - These come under your direct legislative responsibility. You can generate regulations/management plans etc to deal with these issues. The agency must take full responsibility for these issues
- **INFLUENCE** - These issues are not under your legislative responsibility so you cannot manage them, but as they are under other legislative responsibility (e.g. another agency) you can influence them
- **REACT TO** - These issues are generated by external environment - you cannot manage or influence them. You need to be ready to deal with these issues (e.g. natural changes in the oceanography, changes in currency exchange, market prices, fuel prices) as much as possible

Example: Investigating influence – what you can manage, what you need to adapt to, who are your boundary partners among the stakeholders, etc.



## Sustainable Development Goals



## Societal values

- Ecological
- Social
- Economic
- Cultural
- Political
- Food security
- Avoiding waste

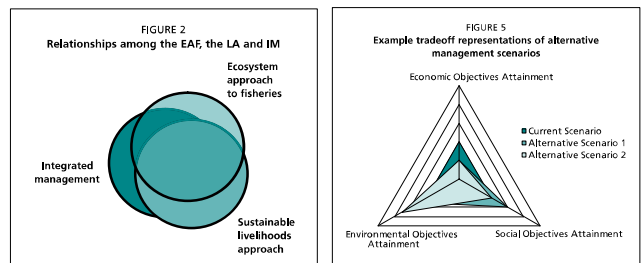
- Define the fishery, societal values and high level goals/objectives
- If you are not clear about what or why you are managing...it will not be a successful process

15

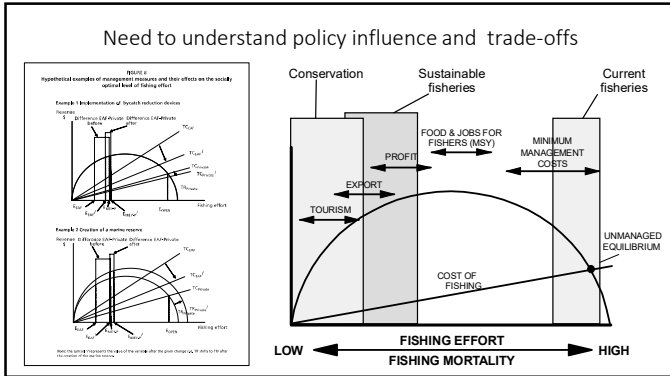
## High level management objectives

- Agreement on a set of management objectives for the fishery that directly reflect relevant community and national values and signed international conventions.
- Examples include food and livelihood security; resource sustainability; economic performance; social amenity; and cultural values (including protection of iconic species).
- Important to reach agreement, or at least a degree of clarity on the high level fishery objectives and their relative priority because these will be essential for the remainder of the EAF planning process.
- The relevant questions and checklists provided in the EAF Toolbox assists with this

Always explicitly consider the trade-offs and choices to be made in all decisions





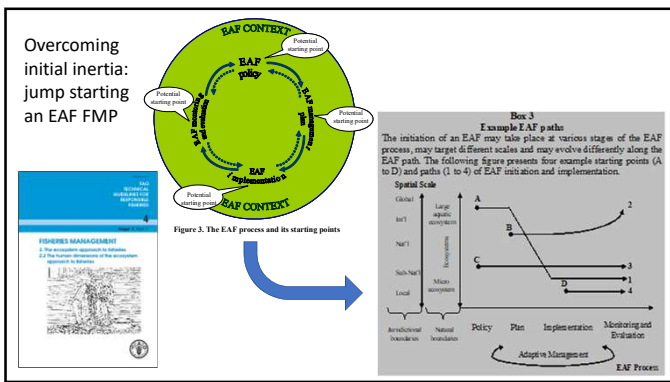


### Toolbox

- Many books and guides available for scoping, planning
- EAF Toolbox has 'personalized' tools proven to be useful

Tools and information sources	Page	Selection criteria					
		Difficulty	Cost	Capacity	Know.	Participation	Time
Consultation tools	50						
Description for completing an EAF Baseline Report	63	Easy	L	L	L	M	S-L
EAF roadmap template	66	Easy	L	L	L	L-M	S
Stakeholder analysis	69	Moderate	L-M	M	L	M-H	S-M
Institutional analysis	73	Moderate	M	M	M	L-M	S
SWOT analysis	76	Moderate	L	L-M	L	M-H	S
Cost-benefit analysis	80	Fairly Hard	M	M	M	L	M

L: Low or Long; S: Short; M: Medium; H: High



### 1.3 Finalization of the scoping and background document

- Document all relevant EAF, CCA, DRM fishery-related information:
  - current fishing policies, management documents, status reports, stock assessments, broader ecosystem issues, community social/economic info
  - Can be informal information, use traditional and local knowledge
- Review entry point and roadmap for FMP and amend if needed
- We create a basis upon which we can build an EAF management plan
- We've gathered relevant background information, identified key stakeholders and defined the fishery, scope and values
- Stakeholders are informed, support has been gathered and authority over different parts of the fishery has been distributed
- Serves as a negotiating text and foundation for the first draft FMP

### EAF Baseline report

**Table of Contents**

**Introduction**  
Summary of main motivations for introducing EAF

**Part 1. Overview of the fishery and resources exploited**

- 1.1. Fishing gear used and areas fished.
- 1.2. Importance of the fishery to local/national/regional economy
- 1.3. Available knowledge on the status of fisheries resources
- 1.4. Legal and administrative frameworks
- 1.5. Management measures
- 1.6. Main stakeholders

**Part 2. Threats to fisheries sustainability**

- 2.1. Threats to Ecological Wellbeing
- 2.2. Threats to Community (human) Wellbeing
- 2.3. Threats to Fisheries Governance (including external drivers)

**References**  
**Annexes**

### Break-out Group Instructions

**Step 1**  
**Initiation and scope**

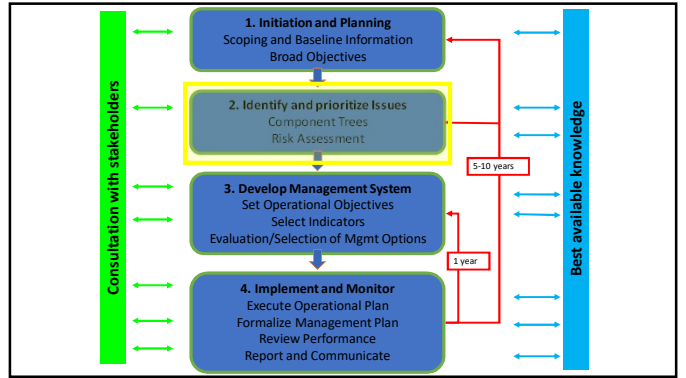
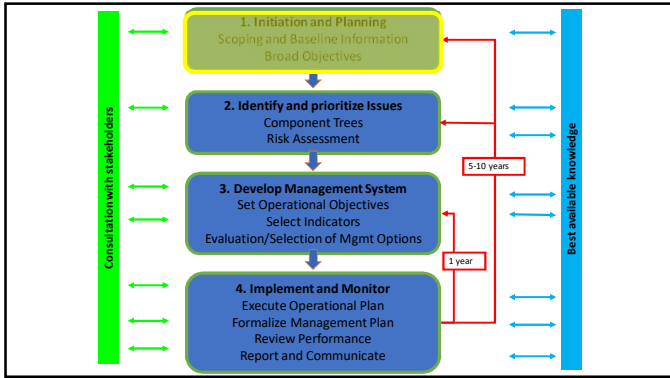
Please divide into **3 groups** consisting of Government, CSO, Private sector representatives

**Activity 1.1:**  
Group 1 to answer all 'Relevant questions' on page 11 of EAF Toolbox & Conduct a SWOT analysis of integrating EAF including CCA, DRM and stewardship into Montserrat's Draft FMP

**Activity 1.2:**  
Group 2 to answer all 'Relevant questions on fishery scope and values of Montserrat Draft FMP using page 16 of EAF Toolbox

**Activity 1.3:**  
Group 3 to prepare a draft EAF baseline report for Montserrat Draft FMP using page 63 of the EAF Toolbox

Time allotted: 13:30 – 15:00 hrs **90 mins** (15 min warning)



### Step 2 – Identification of assets & their priority

#### Overview of Key activities

**2.1. Identification of assets and issues**  
 Output: A complete set of EAF-related issues sorted into ecological assets, social and economic outcomes, governance systems and the threats, drivers and impacts relevant to the fishery.

**2.2. Prioritization of assets and issues using risk assessment**  
 Output: The relative level of risk and priority, plus the recommended level of direct management action or other specific activities, needed to deal with each of the issues.

### 2.1 Identification of issues and assets

The diagram shows a hierarchical structure for 'Fishery' management. It branches into three main areas:
 

- Ecological Wellbeing:** Catches, General Ecosystem.
- Human Wellbeing:** Local, National.
- Ability to Achieve:** Governance, External factors.

 These are categorized under 'Ecological system', 'Social system', and 'Performance' respectively.

Based on the scope and values of the fishery, the next step, which is central to the entire EAF process, is to identify all the relevant issues (assets, outcomes, systems and drivers) associated with the fishery across each of the EAF components (ecological well-being, human well-being and ability to achieve).

### Ecological wellbeing issues e.g. changing catch composition

The illustration shows a fishery with a fishing net. Three overlapping circles represent different time periods:
 

- PAST:** Shows a healthy, diverse fish population.
- PRESENT:** Shows a declining population and 'Fishing down the food web'.
- FUTURE?:** Shows a severely depleted population.

 Source: Pauly et al. Science, 1998

### Social and Economic Wellbeing (Community)

This flowchart details the components of social and economic wellbeing. 'Industry/Fishery (Directly Employed)' includes Fishing, Processing, Income, Injuries, Food, Employment, Distribution, and Cultural Values. 'Local Dependent Community' includes Food, Employment, Resource Dependency, Social Capital, and Attitudes.

### Generic Community and National Wellbeing Trees

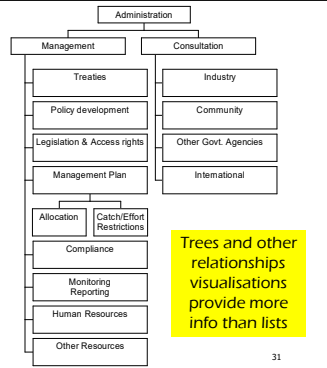
social and economic issues generated by the fishery

The 'National well-being' tree branches into:
 

- Economic:** National Economic Return, Fees, Subsidies.
- Social:** Employment, Food, Cultural Values.

## Ability to achieve – performance issues

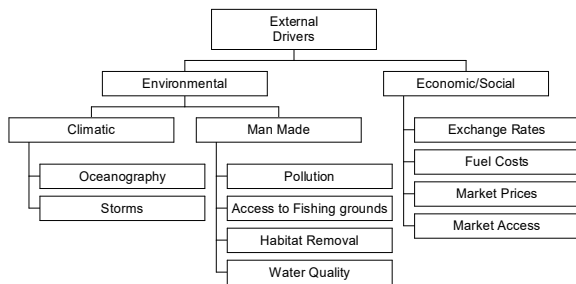
- What governance systems are in place or required to manage ecological impacts and generate social/economic outcomes?
  - Should include fishery management, government, agencies, fishers and community
- What external drivers may be affecting the fishery performance that are not controlled by management?
  - Includes other agencies, world drivers, natural



31

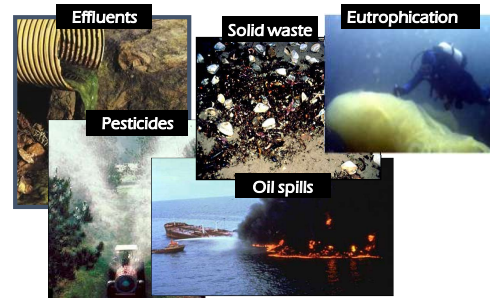
32

## External driver tree particularly useful for CCA and DRM issues



33

## Examples of other human-induced driver interactions with climate and hazards



34

## 2.2 Issue prioritization (choices) via risk assessment

- Many issues are often identified, but there are no resources to manage everything

Component Trees (Issues identified)

Risk Assessment

Low Risk/Priority

Medium-High Risk/Priority

NO DIRECT MANAGEMENT NEEDED

DIRECT MANAGEMENT IS NEEDED

- Prioritization process helps to determine an appropriate level of management

## What is Risk?

Risk is defined as:

- potential that a chosen action or lack of action will lead to an undesirable outcome

Therefore to assess risk you need to know what objectives you want to achieve and to realise that no-action is still a decision with consequent risk

For an EAF FMP, a risk assessment asks:

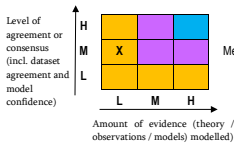
"What is the risk that the FMP system will not meet agreed objectives for each of the identified issues?"

### Impacts of Climate Change on Fish and Shellfish in the Coastal and Marine Environments of Caribbean Small Island Developing States (SIDS)

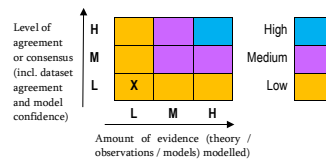
Hazel A. Oenford and Iris Monreale  
 Centre for Resource management and Environmental Science (CERMES), University of the West Indies, Cave Hill, Barbados

#### Confidence Assessment

What is already happening



What could happen in the future



### Knowledge and uncertainty

- There is a fundamental difference between uncertainty and no knowledge, as well as between knowledge and certainty
- There are few issues for which we have **NO knowledge**
- There are few (no) issues for which we have **FULL certainty**
- So a risk assessment can be done with any available data or information since there is **ALMOST ALWAYS uncertainty**
- Determining the most appropriate risk assessment method depends on available data and information, experience of the persons conducting the assessment, and the participation, etc.

### How to assess risks?

- Risk assessments estimate potential consequences under a management regime and determine the likelihood that these consequences will happen.
- The higher the likelihood that a 'worse' consequence may actually occur, the greater is the level of risk. Explain, understand and agree on the scores.

Level	Description	Level	Description
1 Minor	Minimal 'impacts' that are acceptable	1 - remote	Insignificant probability of the consequence to occur
2 Moderate	Maximum acceptable level of 'impact'	2 - unlikely	Some evidence that a particular consequence could occur
3 Major	Above acceptable limit. Wide and long-term negative impacts	3 - possible	The consequence may occur but this is still not likely.
4 Extreme	Well above acceptable limit. Very serious and long term	4 - likely	The particular consequence is expected to occur

CONSEQUENCE LIKELIHOOD

### A Simpler Method of Calculation

Risk Level	Risk Categories	Risk Scores (CxL)	Likely Management Response	Likely Reporting Requirements
Negligible	1	1-2	None	Brief Justification
Low		3-4	No Specific Management	Full Justification needed
Medium	2	6-8	Specific Management/Monitoring Needed	Full Performance Report
High	3	9-16	Increased management activities needed	Full Performance Report

**LOW** – levels of impacts are expected to remain low or the chances of a major impact are very small – highly likely to meet objective even without direct action

**MEDIUM** – Issue is at an acceptable level at the moment and should meet the objective but only if directly managed

**HIGH** – Major problems are already happening or will occur in the near future. Objectives will not be met unless additional actions are undertaken.

### Qualitative Risk Assessment

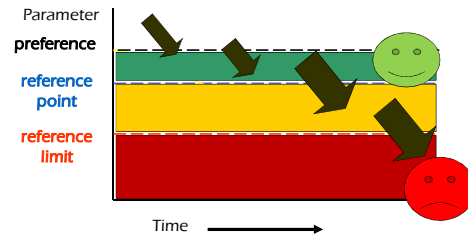
This assessment concluded that it was unlikely that the fishery would generate a moderate level of consequence for the issue and the specific objective. This would be a **LOW RISK**

When assessing risk **you must include what management arrangements are already in place** – or are about to be put in place, unless no action is to be taken regardless of the risk

Likelihood	Consequence			
	Minor	Moderate	Major	Extreme
Remote	1	2	3	4
Unlikely	2	4	6	8
Possible	3	6	9	12
Likely	4	8	12	16

### What is acceptable?

- Be very clear on what is considered an acceptable outcome for each objective
- What is acceptable in one case may not be so elsewhere, or at another time



Conflict among stakeholders can often be due to them assessing different objectives, and from different perspectives and interests. So what one thinks is acceptable will differ from another.

## Products

- All relevant issues for the fishery have been identified
- All stakeholders were involved in the process
- Issues were prioritized using risk assessment
- The EAF FMP can now be developed and will deal efficiently with relevant issues including CCA and DRM.

Tools and information sources	Page	Selection criteria					
		Difficulty	Cost	Capacity	Know.	Participation	Time
Consultation tools	50						
Non formal risk categories	117	Easy	L	L-M	L	H	S
Qualitative risk analysis (C x L)	120	Moderate	L-M	L-M	L	M	S
Quantitative risk analysis	130	Very Hard	H	H	H	L	L
Dot based ranking and prioritisation methods	132	Easy	L	L	L	H	S
Multi-criteria decision analysis	134	Moderate	L-M	M	L-M	L-M	S-M

L: Low or Long; S: Short; M: Medium; H: High

43

## Break-out Group Instructions

### Step 2 Identification of assets, issues and priorities

#### Activity 2.1

- Group 1: Ecological well-being component list (page 110 EAF Toolbox)
- Group 2: Social and economic well-being component list (page 110 EAF Toolbox)
- Group 3: Ability to achieve component list (page 111 EAF Toolbox)

#### Activity 2.2

Each group to assess the level of risk associated with issues (threats) within their given EAF component using 'Normal formal risk categories' (page 118 EAF Toolbox)

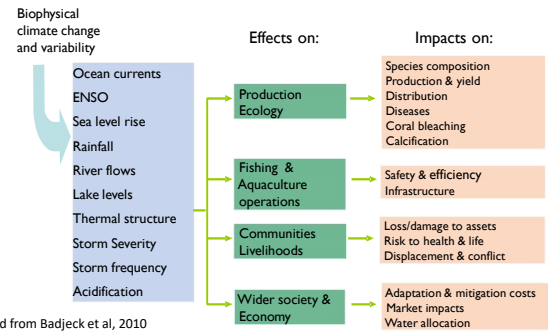


### CLIMATE CHANGE ADAPTATION IN THE FISHERIES OF ANGUILLA AND MONTSERRAT

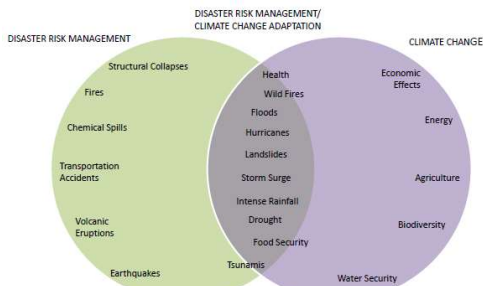
#### Ecosystem Approach to Fisheries and Stewardship Workshop Montserrat

January 28<sup>th</sup> – 31<sup>st</sup> 2019  
Montserrat Cultural Centre, Little Bay

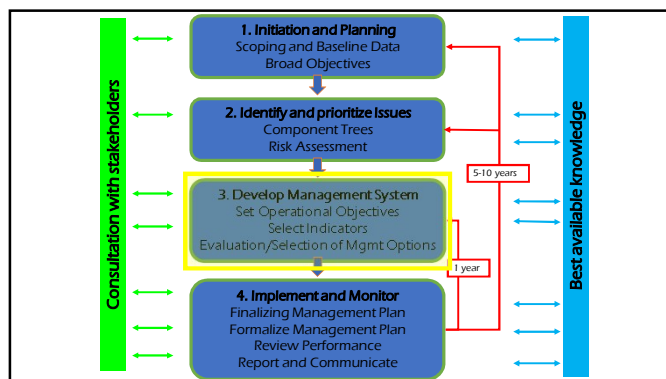
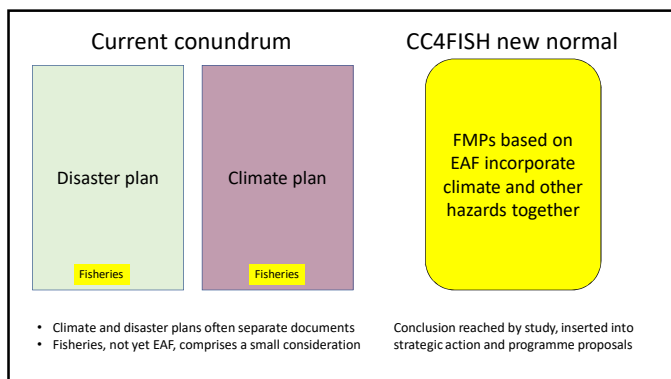
## Vulnerability of fisheries and aquaculture to climate and other hazards



Adapted from Badjeck et al, 2010

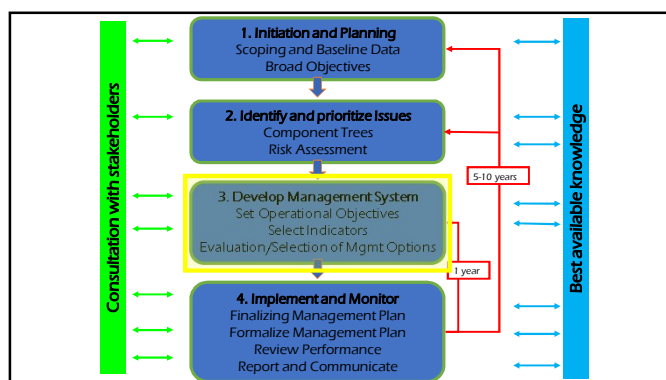


(Source Carby 2012, Synchronising Climate Change and Regional Disaster Risk Reduction, CSGM data rescue and climate change workshop, May 2012)



**Management system**

51



**Step 3 – Develop Management System**  
Overview of Key activities

**3.1. Determining operational objectives**  
Output: development of a set of clear and appropriate operational objectives covering each of the issues that requires direct management.

**3.2. Selection of indicator and performance measures**  
Output: identification of one or more indicators and their associated performance measures that can be used to monitor the performance of each operational objective.

**3.3. Evaluation and selection of management options**  
Output: selection of the most cost-effective set of management arrangements designed to generate acceptable levels of performance for all operational objectives..

**3.1 Operational Objectives – definitions differ**

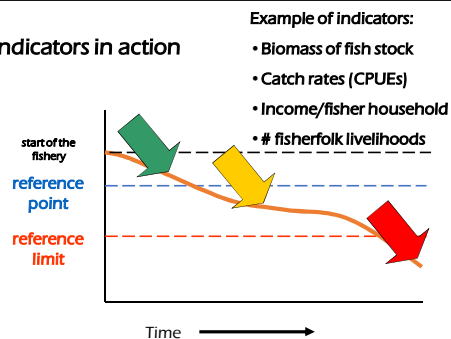
- **Outcome or goal** – A high-level statement of 'how things should be'
- **General objective** – A high-level statement of what is to be attained
- **Strategy** – A linked collection of means or approaches to an objective
- **Outputs, activities and tasks** – A hierarchy of initiatives and their products from major to minor relevance and size within a strategy
- **Operational objective** – An objective that has practical interpretation, usually for a strategy to be implemented; often a SMART objective

**Asks: What specifically for each priority issue do you want the fishery to achieve and why?**

### 3.2 Indicator and performance measure definitions

- **Indicator** – Something that is measured, not necessarily numerically (e.g. number of fish, social unrest as an indicator of local attitudes to management) and used to track an operational objective. An indicator that does not relate to an operational objective is not useful in this context
- **Reference point** – A 'benchmark' value of an indicator, usually in relation to the operational objective. E.g. **target** reference point (where you want to be), **limit** reference point (where you do not want to be) and **trigger/baseline** reference point (where you have come from). A target reference point could serve as an operational objective
- **Performance measure** – A relationship between the indicator and reference point that measures how well intended outcomes are being achieved

### Indicators in action

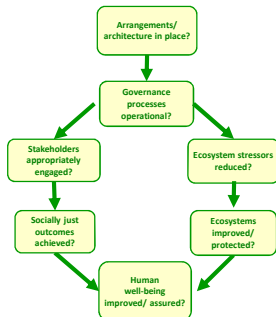


- Example of indicators:**
- Biomass of fish stock
  - Catch rates (CPUEs)
  - Income/fisher household
  - # fisherfolk livelihoods

Step 3.2 Indicator and Performance

### Using indicators helps

- Support management decision making within policy cycle, etc.
- Track progress towards meeting management objectives, hence also management effectiveness
- Communicate effects of impacts of use and of management to a non-specialist audience of stakeholders



### Many indicator tools

- Challenge is to select indicators that are affordable and match the sophistication of the management system and capacity to achieve

Tools and information sources	Page	Selection criteria					
		Difficulty	Cost	Capacity	Know.	Participation	Time
Consultation tools	50						
Reviews and summaries of indicators and performance measures for use in EAF	144	Easy	L-M	M	L-M	L-H	S
Community based monitoring	151	Easy	L	L	L	M-H	S-M
Harvest strategies and control rules	153	Fairly Hard	M	M	M	L-H	S

L: Low or Long; S: Short; M: Medium; H: High

Step 3.2 Indicator and Performance

#### Box 7.2 EXAMPLE OF OPERATIONAL MANAGEMENT SYSTEM FOR HIGH PRIORITY ISSUES IN THE SMALL PELAGIC FISHERIES OF SOUTH AFRICA

##### Issue: impacts of removal of forage fish species on land-based seabirds.

- **Operational objectives**  
Need to maintain viable population size and structure for African penguins, Cape cormorants, Cape gannets and swift terns.
- **Indicator**  
Population size/trend and breeding success of each seabird species.
- **Performance measure/limit**  
Avoid classification as threatened (i.e. including vulnerable, endangered, etc.)
- **Data requirements/availability**  
Need annually to estimate population size, diet and breeding success.
- **Fisheries Management Response**

##### CURRENT

Management of pelagic fish does not explicitly account for dependent species e.g. seabirds.

##### FUTURE

Identify target population levels for seabirds, establish extent of food escapement to meet seabird objectives.

- **Actions if performance limit is exceeded**  
Possibly enforce closed areas and/or TAC.
- **External drivers (factors outside fisheries control that may affect performance against the objective)**  
Major oil spills, climate change, increasing seal population, increasing human activity, poaching and tourism.

Source: FAO (2007)

### 3.3. Evaluation and selection of management options: Methods to assess benefits versus costs

- Benefit/Cost analysis
- Governmental Accounting
- Socio-economic Surveys
- Social Impact Assessment
- Rates of return on investment
- Contingent Valuation
- Travel Cost
- Attitudinal Surveys
- Stated Preference Methods
- Bio-economic Models
- Asset Mapping
- National Systems of Accounts

- Evaluating options can be qualitative using *expert judgment*
- Or can be quantitative using simple or sophisticated methods
- More complex assessments demand more data, time, resources

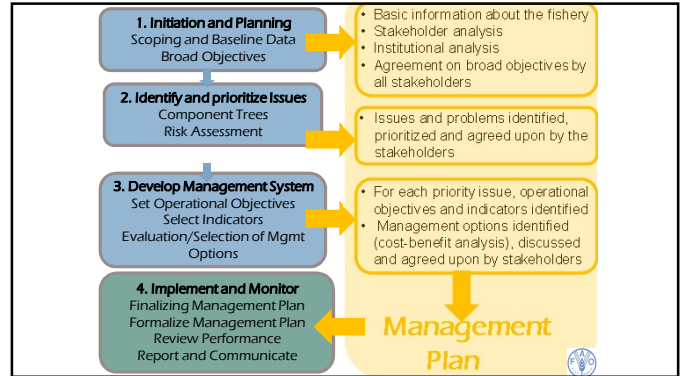
## Toolbox

### Products

- We know what indicators we will examine to determine whether/how well we are meeting our operational objectives
- We have identified what management actions we will take to address our operational objectives

Tools and information sources	Page#	Selection criteria					
		Option	Identification	Cost	Capacity	Know.	Participation
<b>Option Identification</b>							
Consultation tools	50						
SWOT analysis	76	Moderate	L	L-M	L	M-H	S
Management manuals and reviews	155	Moderate	L	M	L	L-M	S-M
Fisheries enforcement and compliance	158	Moderate	M-H	M-H	M	L-M	M-L
Summaries of possible EAF based management responses	*	Easy	L	M	L	L-M	S
Community based techniques	*	Easy	L	M	L	M-H	M
Root cause analysis	*	Moderate	L	M	M	L-M	M
<b>Evaluation</b>							
Consultation tools	50						
Cost-benefit analysis	80	Moderate	L-M	M	M	L	M
Social and economic assessment methods	91	Fairly Hard	M-H	H	H	L	L
Quantitative stock assessment methods	99	Fairly Hard	M-H	H	H	L	L
GIS based and related decision support tools	101	Fairly Hard	M-H	M-H	M-H	L-M	M-L
Multi-Criteria analysis	134	Moderate	L	L	L	L-M	S-M
Management Strategy Evaluation (MSE)	159	Very Hard	M-H	H	H	M-H	L
Review of quantitative ecosystem models	161	Very Hard	H	VH	VH	L	L
Expert judgement or analysis	*	Easy	L	L-M	M-H	M-H	S

L: Low or Long; S: Short; M: Medium; H: High



## Break-out Group Instructions

### Step 3 Development of a management system

Each group to do Activities 3.1, 3.2 & 3.3

High priority issues for each of the EAF components created

Each group to create a 'Logical framework' that has 3 priority issues, which would each have operational objectives, performance measures/limits and management measures

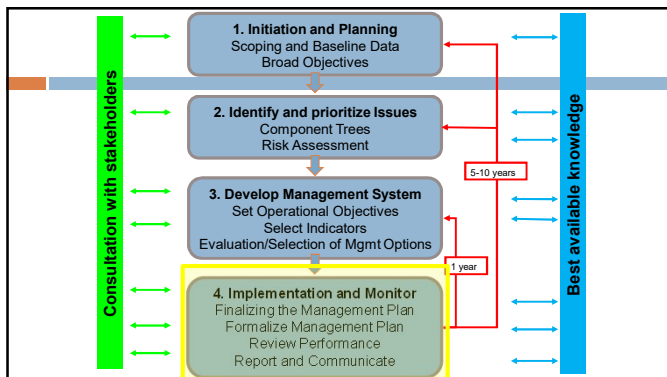
**N.B Examples of operational objectives in this step can be found of pages 140-143 of the FAO EAF Toolbox**

Time allotted: 11:00 – 12:30 hrs **90 mins** (15 min warning)



Learning by doing, monitoring, evaluating and adapting

64



## Step 4 – Implementation and Monitor

### Overview of Key activities

#### 4.1. Formalization of the management plan

Output: formal adoption of the EAF-based management plan.

#### 4.2. Development of an operational plan and monitoring of its progress

Output: elaboration of a detailed operational management plan (what, who, when, where).

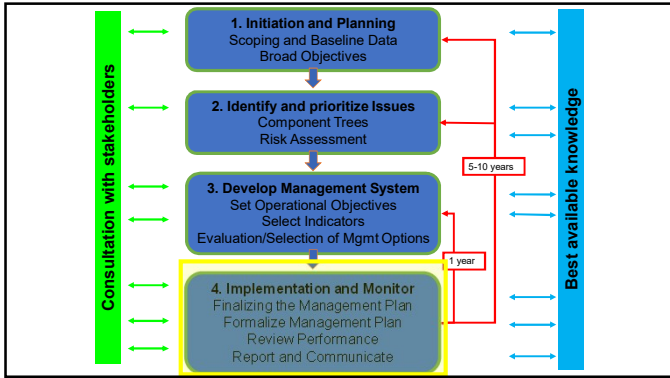
#### 4.3. Review of performance of the management system

Output: regular reports on level of activities completed to execute the operational plan.

#### 4.4. Reporting and communication of performance

Output: periodic reports on the performance of the entire management system in generating acceptable performance for each of the operational objectives and overall community outcomes.





### Developing a FMP document: Key elements

- A description of the fishery(ies) in its current status (social, ecological, economic, etc.)
- Key stakeholders
- Institutional arrangements
- Management objectives
- Key assets and issues identified in relation to the objectives
- Plans to address assets and issues
- Implementation of the FMP with rules for review, including the consultation process

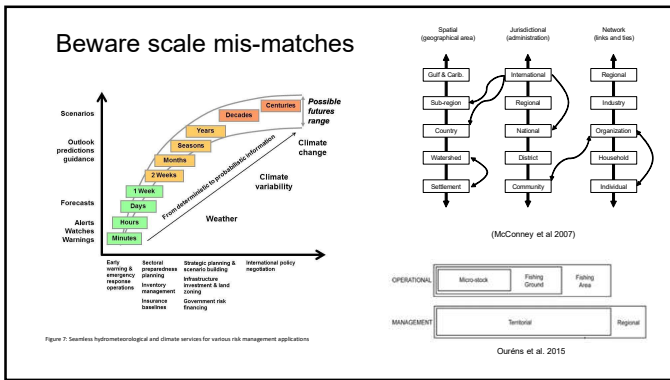
Where, what and who is this about?

What do we want to achieve?

How will we achieve it?

How will we know if we are achieving it or not?

68



### ICT is useful...work smart...e.g. mFisheries modules

**FEWER**

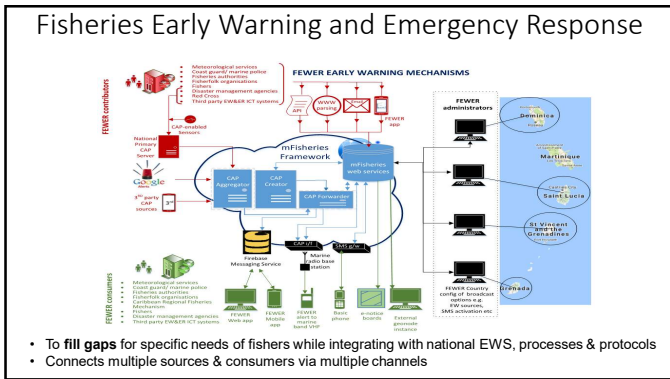
- Emergency Contacts
- Emergency Procedures
- CAP Alerts
- Missing Persons
- Damage Reporting
- Weather Thresholds
- Local Ecological Knowledge

**FEWER Related**

- Weather
- Alerts
- S.O.S.
- Messaging

**Other mFisheries Modules**

- Navigation
- First Aid
- Podcasts
- Photo Diary



### Fisheries and aquaculture emergency response guidance

Common best practice

- Preparedness
- Supporting responsible fisheries and aquaculture
- Flexibility and responsiveness
- Inclusiveness
- Gender mainstreaming

Integrating Gender in Disaster Management in Small Island Developing States: A Guide

## Gender

- Gender norms foster more "risk taking" among men and "risk avoidance" among women, with implications for preparedness and safety in disasters. Women tend to seek out information regarding disasters and pay greater attention to warnings.
- Men and women's roles dictate how they use resources that impact on the environment, how environmental impacts affect their livelihoods differently, and what their risks might be during a natural hazard.
- Women are often found in much smaller numbers in formal and informal decision-making bodies and consultations on disaster risk management and climate change adaptation. They are therefore less likely to receive critical information for emergency preparedness and less likely to participate in decision making and policy development in these fields.

**Box 4.1 EXAMPLE OF THE CONTENTS OF A FISHERIES MANAGEMENT PLAN**

ACKNOWLEDGEMENT

Table of contents

Endorsement of the plan

- 1.0 Purpose of the plan
- 2.0 Process for elaborating the plan
- 3.0 Description of the fishery
  - 3.1 Species exploited
  - 3.2 Present sector management
  - 3.3 Development assistance in fisheries
- 4.0 Rationale
- 5.0 Key policy drivers for the plan
- 6.0 Scope of the plan
- 7.0 Observation on the ecological risk assessment for the plan
- 8.0 Management and operational objectives for the plan
- 9.0 Management measures, performance indicators, operation and reporting on the plan
- 10.0 Institutional arrangements and other considerations for the plan
- 11.0 Cost-Benefit analysis (CBA) for the plan
- 12.0 Review of the plan

Table 1: Logframe for the plan

Annex 1: Main issues identified in the risk assessment

Handbook of the EAF-Nansen project training course on the ecosystem approach to fisheries

### FMP implementation requires knowing

- The specific activities that need to be done in relation to policy
- Who will be responsible for each activity (persons/institutions)
- Whether there are enough resources (people and financial) to undertake each of the identified tasks
- The EAF, CCA and DRM measures within activities, issue by issue
- Monitoring performance regularly to see if the FMP is successful

These will usually be overseen by the primary management authority, but they can be undertaken by other groups that are involved in management planning and the policy cycle

### National Intersectoral Coordination Mechanism (NIC)

Global: Global marine policy cycle

Regional: Caribbean Sea regional policy cycle

National: Fisheries, Tourism, Biodiversity, Land-based pollution

Local

**NIC**  
Scaling up  
Scaling down  
Connecting actors  
Integrating interests

### Statutory Fisheries Advisory Committees for participatory fisheries (co)management

Institutional framework

## Approach to getting started

1. Develop a checklist of issues from the EAF management measures to ensure they are all covered by the FMP operational framework
2. Keep potentially key issues separate until it is clear that activities to address them are identical (e.g. for catch and effort measurement)
3. It may be necessary to separate activities between different areas – inshore, offshore, whole EEZ, high seas, etc. – with different regimes
4. Undertake consultation that may need to be different for different groups, so separate activities may therefore need to be generated
5. Start with the most important issues identified as part of the EAF FMP, then move progressively to the least important prioritized
6. Also identify activities outside the scope of the fisheries agency
7. Advise other government departments of their issues to deal with (via NIC, FAC)
8. Review monitoring, evaluation and learning to adapt and reduce complexity

79

## Formalization of the management plan

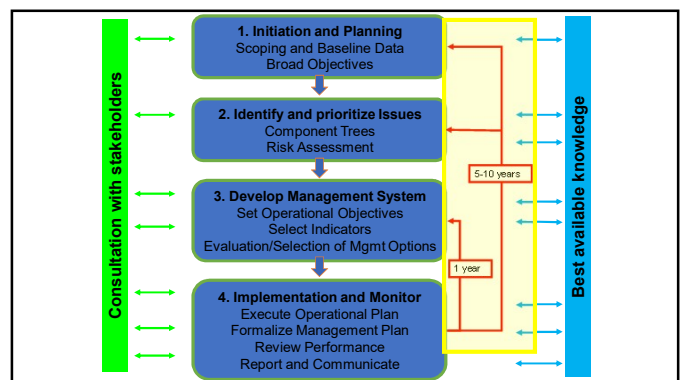
- **To implement it effectively a FMP may need to be formalized**
- The key is to have the FMP both legally and socially enforceable
- The level of formalization will depend upon jurisdiction and fishery:
  - May need to be a formal, legal document requiring parliamentary approval
  - Could be a simple list of rules agreed to and maintained by fisher leaders
- **Expect low success if the FMP is not endorsed by those who 'police' it**
- Stakeholder and politician support will be helpful in getting approval
- Enabling policy and a supportive legal-institutional framework needed
- Intersectoral linkages may include agriculture, tourism, energy, mining, forestry, wildlife, environment, transportation, etc.

80

## Review performance

- EAF is adaptive: monitor if the plan is delivering acceptable outcomes
- Monitor outcomes (using indicators) against each operational objective
- Review is internal, but participatory external review should also be used
- If the FMP is not meeting objectives, identify reasons, learn and adapt
- Adaptation may be done within the scope of the plan, or it may require an amendment to the management plan (repeat all or most of the steps)
- Learning by doing assists all participants to advance via collaboration

81



## Timeframe for reviews

- Monitor performance of indicators regularly:
  - Large-scale fisheries : annually during stock assessment
  - Small-scale fisheries: can be less frequent (2-5 years)
- Strategic review of the entire management system should be undertaken after 5-10 years
- Complete review should also be undertaken after any major changes in the social-ecological system

83

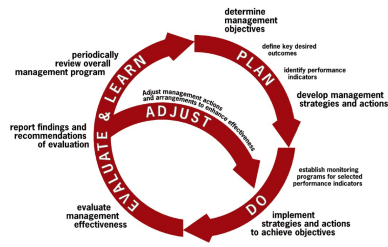
## Communication of performance

- Keep stakeholders informed about the fishery performance, and ensure external oversight to maintain confidence in FMP system
- Report outcomes of the management system to local and regional stakeholders, world organizations (UN), etc...
- Level and type of reporting will depend on type of fishery, markets, stakeholder attitudes, issues involved and legislative requirements
- Transparency will enhance stakeholder confidence in the fishery management
- Keeping stakeholders informed will maintain momentum and legitimacy of the FMP and stakeholders' capacity to adapt to change
- Sometimes, more than reporting is needed ... additional policy influence

84

## Products

- A management plan that can be referenced and enforced
- But the process is not done... EAF is an adaptive cycle that will need to be continually monitored and modified



85

## Break-out Group Instructions

### Step 4 Implementation, monitoring and performance review

**Activities 4.1-4.3 to be done by each group**  
*Relevant questions*

- Activity 4.1 Develop an Operational Plan and monitor its progress (pages 38-41)
- Activity 4.2 Formalization of the Management Plan (pages 42-43)
- Activity 4.3 Review performance of the management system (pages 44-45)
- Activity 4.4 Reporting, communication and auditing of performance (pages 46-48):

Time allotted: 13:30 – 15:00 hrs **90 mins** (15 min warning)


## Communication plan template

Overarching goal of the plan:

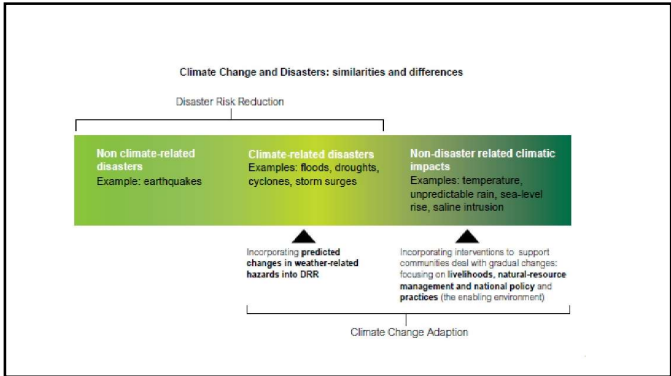
To manage, regulate and promote the sustainable development of Montserrat's fishery resources for the benefit of the stakeholders in the sector and the nation as a whole.

Objectives:	Target audiences:	Key messages:	Products:	Pathways:	Evaluation method and indicators:
what do we want to achieve by sending the message e.g. changes in behaviour – knowledge, attitudes, practice	who do we want to receive our messages?	what do we want to say?	What is the best format to present the information?	What is the best channel to get the information out to the audience?	How will you evaluate whether your objectives have been achieved and what would be indicators of success

# Mainstreaming CCA and DRR into Anguilla's Fisheries Development Plan using EAF as an approach



CLIMATE CHANGE ADAPTATION IN THE FISHERIES OF ANGUILLA AND MONTSERRAT




## Disaster Risk Reduction (DRR) versus Climate Change Adaptation(CCA)

- **DRR** The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events (*Comprehensive Disaster Management Policy, Anguilla*)
- **CCA** is a process by which strategies to moderate, cope with and take advantage of the consequences of climatic events are enhanced, developed, and implemented.

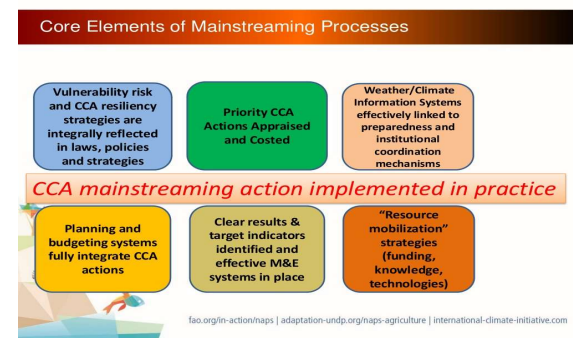
Anguilla's fisheries sector is vulnerable to the impacts of climate change including climate related disasters (e.g. hurricanes and tropical storms)

Are climate change adaptation and disaster risk management adequately mainstreamed into Anguilla's Fisheries Development Plan?

Let's take a quick look at Anguilla's Fisheries Development Plan and see what it says about climate change and disasters!



### Core Elements of Mainstreaming Processes



fao.org/in-action/naps | adaptation-undp.org/naps-agriculture | international-climate-initiative.com

Let's do a quick assessment to see where Anguilla is in terms of mainstreaming CCA and DRR into its Fisheries Development Plan.



- Do policy-makers and natural resource managers know the climate and disaster impacts that Anguilla's fisheries are vulnerable to?
- Was a vulnerability assessment done to determine this?
- Were stakeholders views included in the assessment?
- Did the assessment look at the ecological, social, economic and governance aspects of vulnerability (including poverty and gender)?

- Were climate change adaptation and disaster risk reduction actions identified for Anguilla's fisheries sector?
- Were these actions identified based on the findings of a vulnerability assessment?
- Were these actions prioritised? Were stakeholders involved in the prioritisation process?
- Were stakeholders made aware of the findings of vulnerability assessments and identified priority actions?

- Were the needed resources (financial, skills, knowledge, technology etc.) to successfully address or implement priority adaptation and disaster risk reduction actions identified? This may also include capacity building of fisherfolk and institutional strengthening of key agencies.
- Were strategies put in place to acquire the needed resources to successfully address priority actions?

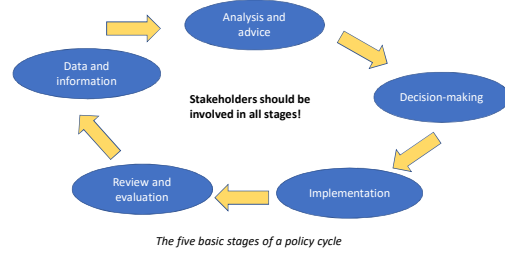
- Were clear results and target indicators identified for priority climate adaptation and disaster risk reduction actions?
- Was a system for monitoring and evaluating the success of actions taken developed?

- Are these climate change adaptation and disaster risk reduction actions, resource mobilisation strategies and monitoring and evaluation system included in Anguilla's Fisheries Development Plan?

Let's mainstream CCA and DRR into Anguilla's Fisheries Development Plan!



Entry points! – Where is the Anguilla FDP in the policy cycle?



## Appendix 4: Extract from the AFDP Section on Small Coastal Pelagics

### 4.10 Small coastal pelagics

This group of fish fall under the category of schooling silvery fish, and are an important fishery in Anguilla, both economically and socially, from a local subsistence level and commercially. The main targeting method is purse seine. The fishing is conducted seasonally (by choice and fish behaviour), on a community level. Locals refer to it as the 'Rounding of the Jacks'. Larger more solitary individuals are targeted by speargun and on hook and line (often trolling). Most species listed in this section are associated with reef areas, whilst also being found in deeper water and along coastal drop-offs. Larger species often school around the dive wrecks. Of these particular species, high frequencies of ciguatera poisoning have been reported thus reducing their economic value as a food source.

#### 4.10.1 Jacks, Scads, Herrings, Ballyhoos, Needlefish/Gars

Jacks are a large family (Carangidae) of fish with significant commercial importance. Approximately eighteen species have been reported throughout the Caribbean region, with five species considered of special importance in Anguilla: Rainbow Runner (*Elagatis bipinnulata*), Blue Runner (*Caranx crysos*), Bar (*Caranx ruber*), Horse-Eye (*Caranx latus*) and Black (*Caranx lugubris*) Jack, with three potential species of Scad; differentiating between members of this latter group is problematic. Seasonal 'Rounding of the Jacks' occur for some of these species in specific areas, for example close to Dog Island and close to shore in Crocus Bay. Other species may be targeted by speargun or hook and line, although high incidences of Ciguatera poisoning have made some species less favourable as a food source, especially the Horse-Eye and Black Jack. Another species, known locally as the Sailors Choice is highly prized by fishers but is usually caught via hook & line. It is believed this species is actually the Almaco Jack (*Seriola rivoliana*) which lives predominantly in open water and only occasionally forms schools.

Ballyhoo (*Hemiramphus spp.*), belongs to the flyingfish family (detailed in section 4.11.2), but have been included here as they are schooling species and so sometimes targeted using the same methods as Jacks and Scad. Herring of the family Clupeidae and Needlefish of the Belonidae family, have also been included in this group but are of lesser economic and social importance. The species of Herring confirmed in Anguilla is the Redear Herring (*Harengula humerali*), which would primarily be targeted as a baitfish while schooling and three species of Needlefish, the larger individuals of which are only targeted intermittently in an opportunistic manner.

#### Current regulations & non-binding agreements governing the fishery

The regulations governing fisheries in Anguilla do not specifically address Jacks, Herring or Needlefish. There are restrictions on gear that protects this family of fish. The Revised Fisheries Protection Act R.S.A.c F40 prohibits the use of fish trap wire less than 1.5 inches in diameter and the use of gillnets. There are no regional regulations, although some restrictions exist in certain Caribbean territories. For example, in the U.S. Caribbean annual catch limits have been set or generic daily vessel limits imposed where Jack species are categorised together with pot fish species, depending on the number of persons on board (NOAA, 2015). Such regulation would pose a problem in Anguilla or in other regions where Jacks (etc.) are seasonally rounded. No minimum size restrictions have been identified within the Caribbean region.



### Objectives of the regulations

The objective of the restrictions on gear is to protect juveniles of species and to avoid the harvesting of non-targeted species and drowning of fish by the use of a gillnet.

### Present state of exploitation

Even though exploitation of many Jack species is considered high, their semi-pelagic nature is probably the reason for their current numbers appearing relatively stable. A lack of historical information however means that this observation is tentative at best.

### Objectives to be achieved in the management of the fishery

- ❖ Identification of all Jack rounding grounds
- ❖ Data collection on population dynamics and on fish catch landings
- ❖ Ensure overall population of Jacks remains stable or increases
- ❖ More informed and educated public on Jacks (minimum size, ciguatera poisoning etc.)

### Management and development measures to be taken

- ❖ Research on rounding areas and population dynamics of certain Jack species
- ❖ Research on if rounding occurs during reproductive times, and if so certain areas should be closed to this activity during reproductive months
- ❖ Collect fish catch data by species so that DFMR would be able to determine the profitability of the species, catch per effort data and other relevant information
- ❖ Protection of Jack habitats and rounding grounds
- ❖ Conduct several educational activities about the various species and the fishery
- ❖ Introduce minimum size limits for certain species
- ❖ Establish catch quotas
- ❖ Restrict fishing within Anguilla's Marine Parks
- ❖ Ban fishing on all dive wrecks around the island

### Monitoring, management indicators and reference points

- ❖ By 2020 a five-year reliable database of local Jack statistics
- ❖ Stable or increasing Jack populations around the island
- ❖ Seasonal patrols of rounding grounds and landing sites
- ❖ 50% increase of Jacks on all dive wrecks

### Management limitations

- ❖ DFMR small staff compliment and limited resources makes patrols, data collection and enforcement difficult
- ❖ Government might be unwilling to restrict fishing in certain areas or introduce minimum size limits, closed seasons etc.
- ❖ Unwillingness of the general public and fishers to participate in educational sessions

**Table 31. Key dimensions for consideration with the management of the Jacks, Scads, Herring, Ballyhoo and Needlefish/Gars fisheries.**

---

Biological	Silvery, strong swimming predators that often school, with a deeply forked tail that facilitates speed.
Ecological	Sometimes school over reefs in search of small fish and crustacean although most species are more associated with the open ocean or deep drop offs
Social	Important locally as both a food source and livelihood, although the frequency of ciguatera associated with certain species has affected this over recent decades. Rounding activities are often a community event.
Economic	Economically significant, although primarily during the rounding season. Also important from a subsistence aspect.

---

## Appendix 5: Workshop Evaluation



### Climate Change Adaptation in the Fisheries of Anguilla and Montserrat Ecosystem Approach to Fisheries and Stewardship Workshop January 22-25, 2019, Anguilla

#### Workshop evaluation form

#### 1. Did the workshop meet its objectives?

[14] Yes      [0] No.

*If no, please let us know why below:*

N/A

#### 2. Did the workshop live up to your expectations?

[ 14] Yes      [0] No.

*If no, please let us know why below:*

N/A

#### 3. What did you like about this workshop?

- It was very interactive and caused us to think quickly but thoroughly about the issues as we are all affected.
- Facilitators well verse on subject matter, allowed participants to air their views, and presented the learning material clearly and effectively.
- Interactive activities, group assignments.
- It was very dynamic. Participation of the attendees.
- The interactiveness: having everyone involved provides a well-balanced result.
- It was very engaging- I liked that each section had some kind of activity which would get everyone involved somehow.
- The fact that I learned things.
- The high level of interactive participation utilised to bring across the message; Also, highly pleased with the young and youthful facilitators as they executed the messages very effectively.
- It was very informative as well as engaging. The principles taught were not only in theory but allowed the participants to put into practice what was required.
- It was very interactive. It taught me things that I was not even aware of.

- Very informative and has lots of activities.
- The collaborative efforts of each member within the various groups during each brainstorming activity, as well as the enjoyment of the presentation.
- The EAF toolbox and exercise on the history of the fishing industry from the 80's-present time.
- It was very educational.

**4. What did you dislike about this workshop?**

- Nothing.
- That my team did not win jeopardy- I'm pretty sure the other teams were cheating.
- There is nothing that I disliked.
- Needed more snacks!

**5. Please indicate which sessions you found particularly useful:**

- The background information on day one; it put things in perspective although a handout would have helped to further capture the information.
- Practice sessions, development of management systems.
- The practical assignments.
- The historical review/timeline activity (from 80 to date). The session on communication.
- Group work.
- Session 1- Where we had the timeline activity; developing a management plan; the initiation and scoping (I think is necessary as it is basically brainstorming).
- The historic process/timeline activity. I like how we explored development from the 80's to the present.
- The session with the development of strategies to analyse the situation and develop measures to solve them; especially the end part with the communications strategy.
- The development of the management plan using the EAF steps was most useful. This required teamwork and brainstorming thus setting out what we will need to do to effectively develop and implement the Fisheries Management Plan.
- Yesterday's session which was aimed at the progression of activities on the island related to climate change from the 80's onwards.
- Wednesday's session.
- Development of the management plan using the EAF approach.
- All.
- All.

**6. How could the workshop have been improved?**

- A little more time to digest and understand the information.

- Having the attendance of fisherfolk, could have had 1 or 2 including the President of the Fishing Association.
- I think it was well done. Some of the questions were a little confusing, but once explained were easy to figure out.
- The tables could have been arranged differently so as to allow each person to view the screen better.
- It was a lot of material within the time allocated. Perhaps it could have been spread over three days. Nonetheless, it was impactful.
- I think that some of the fisherfolk should have been included.
- Lessen the talking presentations and more activities.
- Snacks, snacks, snacks!
- Provision of handouts of presentations and workshop exercises or sending presentations before for [word not legible].
- More participants from other departments.

**7. Please describe one method, approach or tool that you will apply from the workshop when you return to your workplace or in your community.**

- The logical framework for the management plan and the risk analysis.
- Awareness to the community about climate change and disaster risk reduction, Need to get involved on activities.
- Co-management approach.
- Risk assessment.
- Risk assessment for trying to develop new fisheries legislation for Anguilla.
- More communication.
- I will apply the communication and implementation strategy of involving key stakeholders and defining innovative measures to influence the target audience.
- The development of a communication plan, risk categories.
- Assessments.
- Make or create operational objectives and target points.
- The EAF principle.
- EAF toolbox risk assessment.
- EAF toolbox risk assessment.

**8. What might prevent you from applying the approaches or tools promoted in this workshop?**

- Insufficient time and other work priorities.
- Direct working activities in the fisheries plan.
- Lack of management and stalling from senior management.
- No response given.
- The lack of management and political buy-in.
- Forgetting them-hopefully that Dropbox link is up soon.
- Persons not wanting to listen.
- Resources.
- Lack of resources.
- Not applicable.

- Stakeholder involvement.

**9. Please rate the following areas of the course structure and delivery:**

	Very Good	Good	Fair	Poor
Clarity of objectives	7	7		
Workshop content	8	6		
Materials	7	5	2	
Facilitation	10	4		
Relevance to your needs	7	5	2	

Any additional comments on the above:

**No responses given**

**10. Please give feedback on the logistical arrangements made for the workshop:**

	Very Good	Good	Fair	Poor
Workshop venue (s)	8	6		
Lunches and breaks	8	5	1	
General logistical arrangements	7	6	1	

**11. Any other comments**

- Kudos to CANARI for promoting young professionals and giving them the opportunity to facilitate such an excellent workshop. They did a splendid job!

Thank you.