

Outreach and Education Advisory Panel
Hybrid Meeting
July 27 2022

Fishery Ecosystem Plan Update

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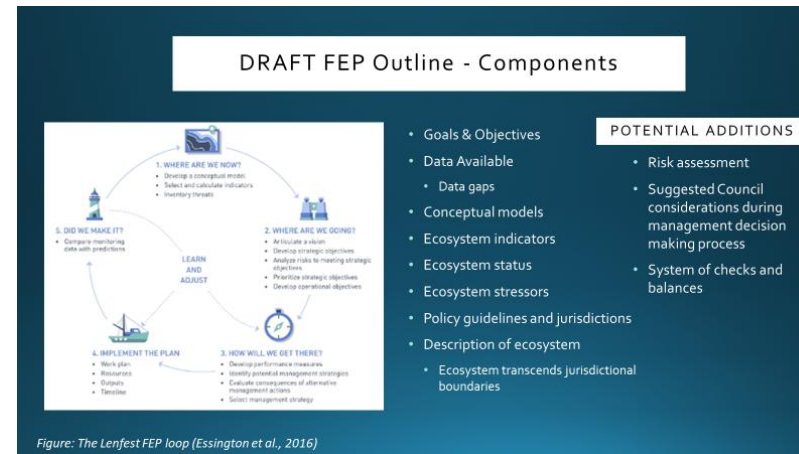
CARIBBEAN FISHERY MANAGEMENT COUNCIL



Previous report

- Briefing of FEP outline and G&O
- Timeline
- Conceptual Model status

Source: FEP report to OEAP Nov 2021



Activity	Expected Date of Completion
Revise and draft EBFM TAP goals and objectives	December 2020 ✓
Draft FEP goals and objectives	April 2021 ✓
Continue to collect and analyze existing data sets from Lenfest, SeaMap, ESR, etc.	April - December 2021
Expected products = a centralized repository of data (e.g., MBON, Cariccos, etc.); summary analyses of pertinent datasets, potentially peer-reviewed publications	
Complete all conceptual models	August 2021 ✓
Meld conceptual models to create island-specific conceptual models	December 2021 – January 2022
Use the conceptual models & additional products to create island-specific risk assessments for consideration by the SSC, that will be used to inform approaches that will be presented in the FEP.	April 2022
Use the conceptual models and other products produced by the ESR, EBFM TAP, and by the Lenfest FEP project to identify ecosystem indicators that should be monitored. In addition to inclusion in the FEP, these indicators will be presented to the SSC and the CFMC for consideration to include in EBFM management practices.	August 2022

DRAFT FEP Goals & Objectives

FEP goals and Objectives:
The overarching goal of the Fishery Ecosystem Plan (FEP) is to promote ecosystem based approaches to ensure healthy, resilient and productive marine ecosystems and the fisheries resources dependent upon those ecosystems, within the context of the unique biological, ecological, economic, social and cultural characteristics of those fishery resources and the communities dependent on them.

- A corollary goal is to provide the framework that promotes the following sub-goals:
 - Increase human community resilience within the context of changing ecosystems;
 - Promote ecosystem resilience within the context of changing ecosystems;
 - Define present ecosystem status/functionality;
 - Understand dynamics of fisheries and ecosystem services;
 - Describe key ecosystem linkages;
 - Identify research priorities;
 - Identify additional ecosystem-essential species in need of conservation and management;
 - Understand the risks to the fishery ecosystem and tradeoffs from different management strategies;
 - Improve the data and information needed to support marine ecosystem management;
 - Prevent overfishing and/or ecosystem overfishing;
 - Achieve optimum yield;
 - Incorporate ecosystem considerations into stock assessments;
 - Bring ecosystem considerations into the decision making process;
 - Promote adaptive management policies (Revising MSA, National SSC, CCC).

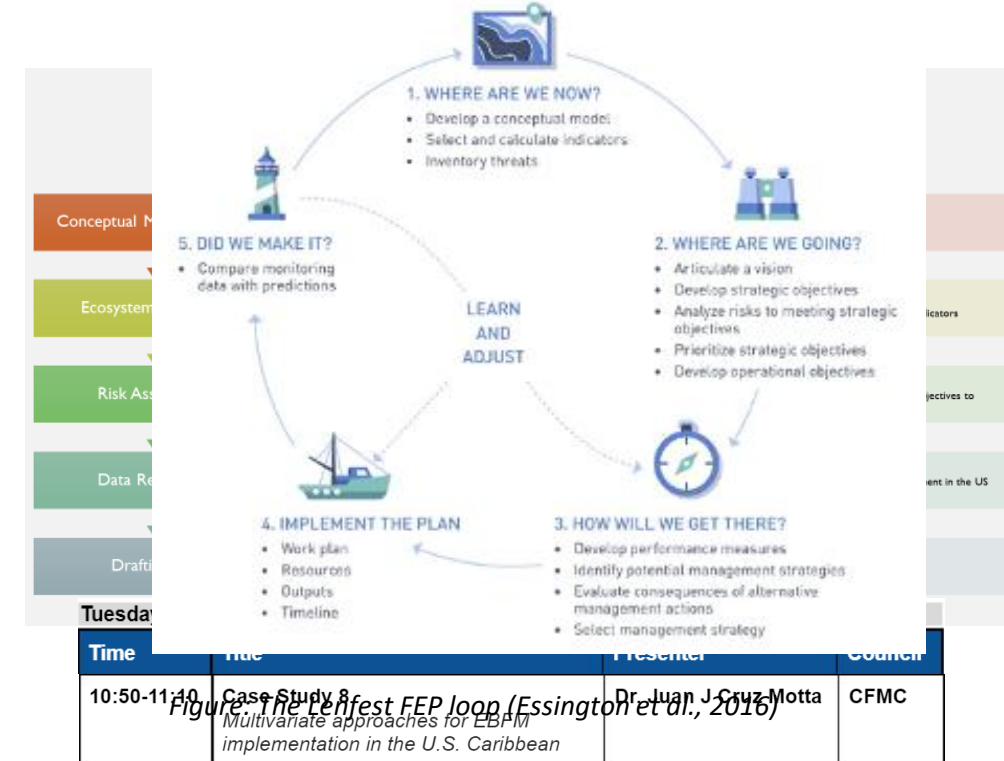
Drivers components with highest scorings across ECMs from DAPs and SSC

Top 10 drivers PR DAP Ecosystem Conceptual Model:	Top 13 drivers STX DAP Ecosystem Conceptual Model:	Top 11 drivers STT/STJ DAP Conceptual Model:	Top 8 drivers SSC Conceptual Model:
- Effective Management - Pollution - Hurricanes - Marine Habitats - Fish Stocks - Imports - Regulatory Agencies - Coastal Development - Sargassum - Extreme Weather	- Development - Need for Education and Outreach - Commercial Fishers - Hurricanes - Mooring - Market - Increased Water Temperature - Wetland Restoration - Marine Pathogens - Discharges (point) - Fish - Recreational Fishers - Management Bias	- Enforcement - Land-based Sources of Pollution - Essential Fish Habitat - Coral Disease - Education and Outreach - Fisheries Management - Coastal Management - Heritage and Culture - Natural Disaster Response - Large Vessel Impacts - Socioeconomic Impacts	- Marine Ecosystem Components - Reef fishes - Coastal Pelagics - Habitat - Coral Reefs - Seagrass Beds - Fishing - Commercial Fishing Catch - Fishing Mortality - Competing Uses of Resources - Coastal Development - Socio-Economic Cultural Drivers - Market Demand

Updates

EBFM product FEP

- Purpose of FEP
- Latest reports
 - EBFM TAP report | 178
 - ICRS | July 2022
 - Topic: *From Thinking to Doing: What Does It Actually Take to Practice Ecosystem Based Management in Coral Reef Fisheries?*
 - *Putting EBFM into Action for the U.S. Caribbean EEZ*
 - *Quantitative models to describe coral reef fisheries systems in the U.S. Caribbean as a necessary step to inform Fishery Ecosystem Plans*
- Ecosystem Status Report
- SSC report | 178
- NSSC | Aug 15-17 **Case Study 8: Multivariate approaches for EBFM implementation in the U.S. Caribbean**



Full agenda: <https://www.npfmc.org/wp-content/PDFdocuments/meetings/SCS/SCS7Agenda.pdf>

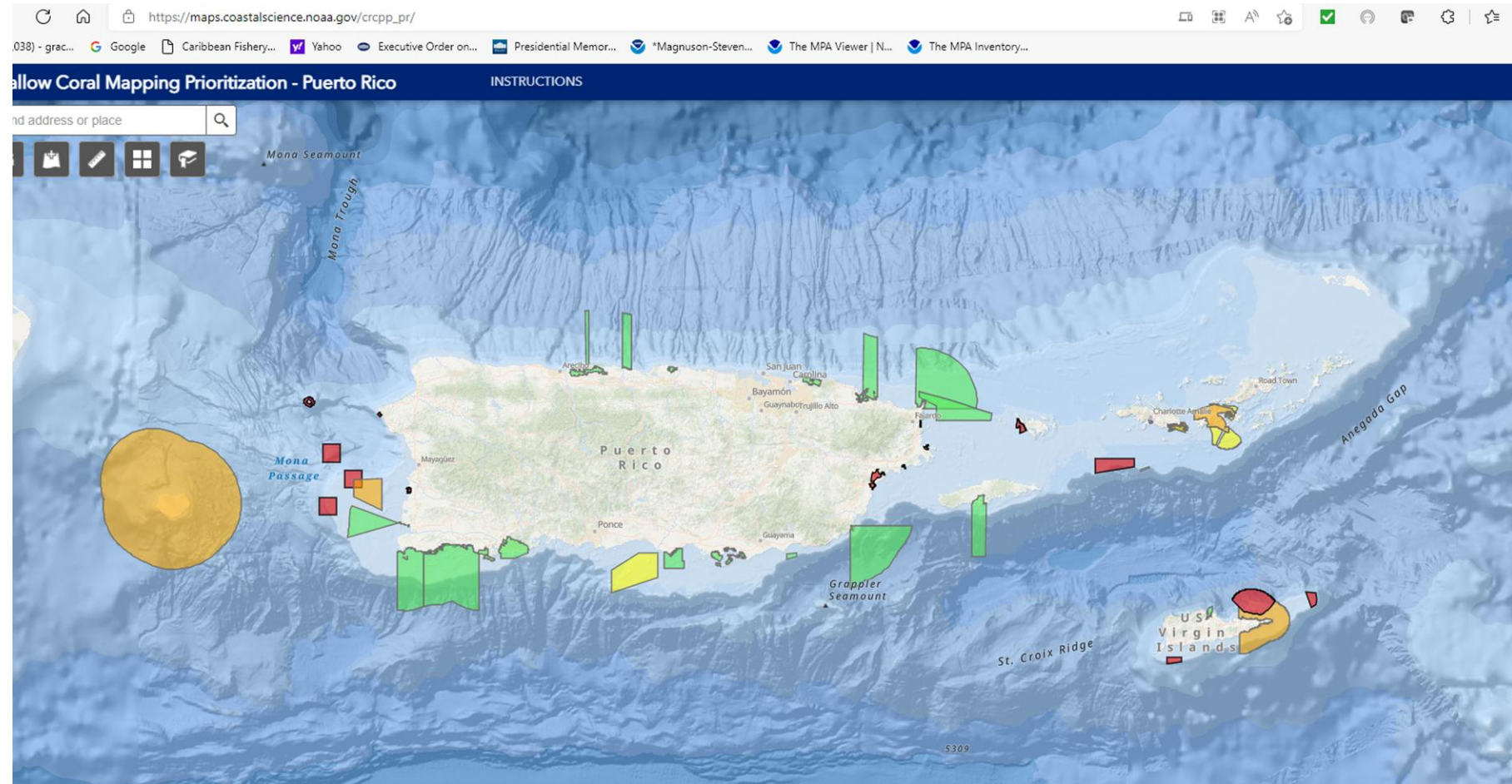
Outline-Development by integration

Fishery Ecosystem Plan
(VERY) DRAFT Table of Contents



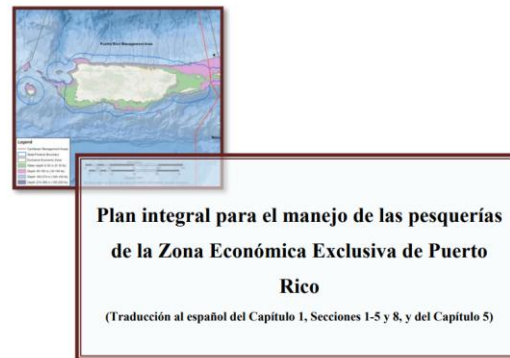
Figure 1: The Leaf FEP loop (Essington et al., 2016)

1. Introduction/Background
 - a. Purpose and need
 - b. Goals and Objectives
 - c. Explain the approach of EBFM
 - d. Describing the organization (council panel group management boundaries)
2. Defining the Interface between Fishery and Ecosystem Management
 - a. Jurisdictions
 - b. Magnuson-Stevens Act
 - c. Other federal law and guidance
 - i. NOAA obligations
 - ii. Other federal agencies (e.g. Dept of Agr., USFWS, EPA, Coast Guard, USCE)
 - d. Local regulations
 - e. FEP development process and reassessment
 - f. Local interface between fisheries, fishery communities and ecosystem management



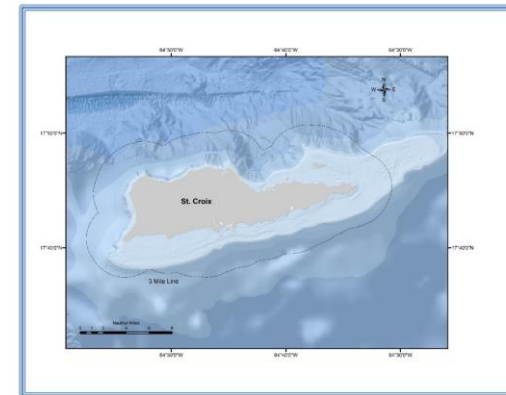
Outline: Development by integration

3. Environmental setting
 - a. Society and culture
 - i. St. Croix
 - ii. St. Thomas/St. John
 - iii. Puerto Rico
 - iv. Connectivity *NOTE-this establishes the framework for a hierarchical spatial approach*
 - b. Economics
 - i. St. Croix
 - ii. St. Thomas/St. John
 - iii. Puerto Rico
 - iv. Connectivity
 - c. Ecology
 - i. St. Croix
 - ii. St. Thomas/St. John
 - iii. Puerto Rico
 - iv. Connectivity
 - v. Habitat
 - d. Fisheries
 - i. St. Croix
 1. Fisheries regulations
 - ii. St. Thomas/St. John
 1. Fisheries regulations
 - iii. Puerto Rico
 1. Fisheries regulations
 - iv. Connectivity
4. Conceptual Models
 - a. SSC, DAPs and other Council body conceptual models
 - b. Any other conceptual models developed by independent researchers
 - c. Stack Conceptual Models under council's guidance or by independent researchers
 - d. Applications
5. Present Status
 - a. Review of Ecosystem work in the U.S. Caribbean
 - b. Ecosystem Status Report prepared by SEFSC
 - c. Risk Analysis
 - d. Other reports and documents (e.g. EPA bio criteria analysis, NCRMP status reports)
 - e. Applications
6. Future prospects
 - a. Quantitative Models



Versión final
Diciembre 2019

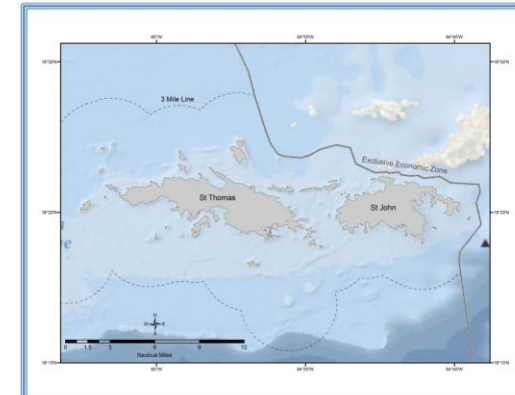
(Traducción al español no oficial. Versión corregida del 31 de agosto de 2020.)



Comprehensive Fishery Management Plan for the St. Croix Exclusive Economic Zone

Including Environmental Assessment, Regulatory Impact Review,
and Fishery Impact Statement

Final Version
December 2019



Comprehensive Fishery Management Plan for the St. Thomas/St. John Exclusive Economic Zone

Including Environmental Assessment, Regulatory Impact Review,
and Fishery Impact Statement

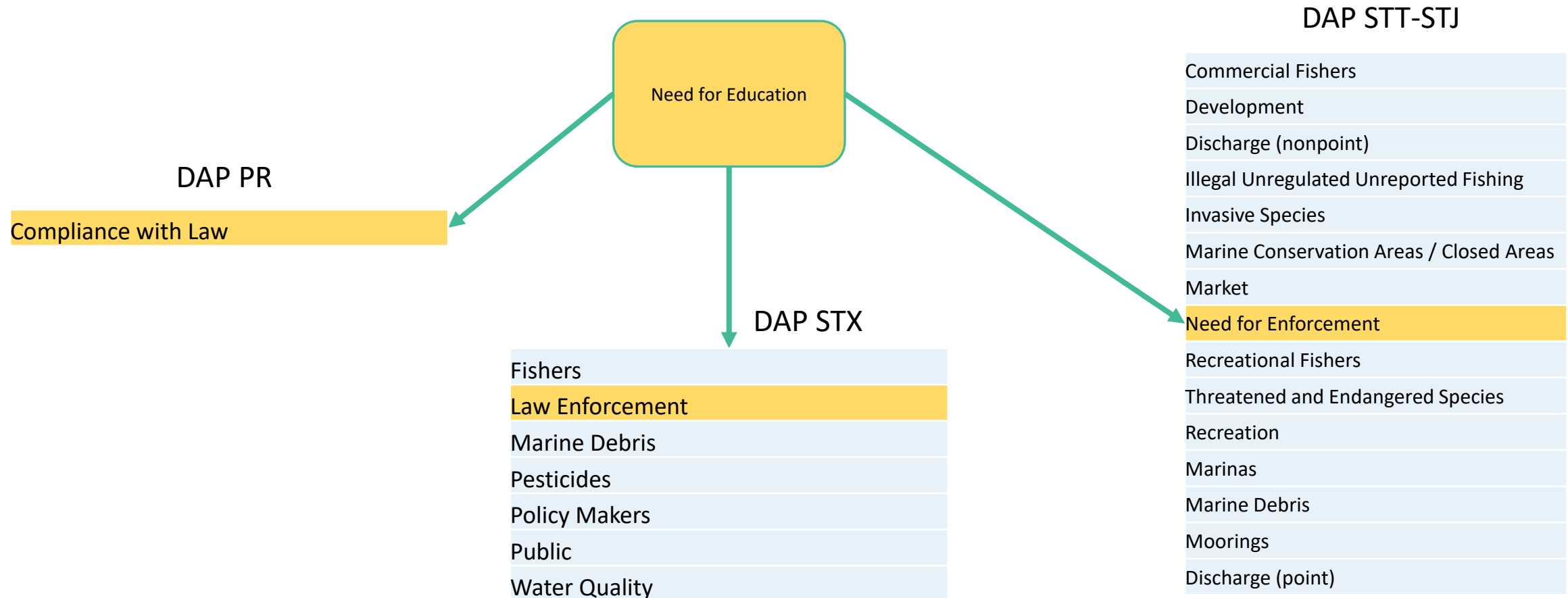
Final Version
December 2019

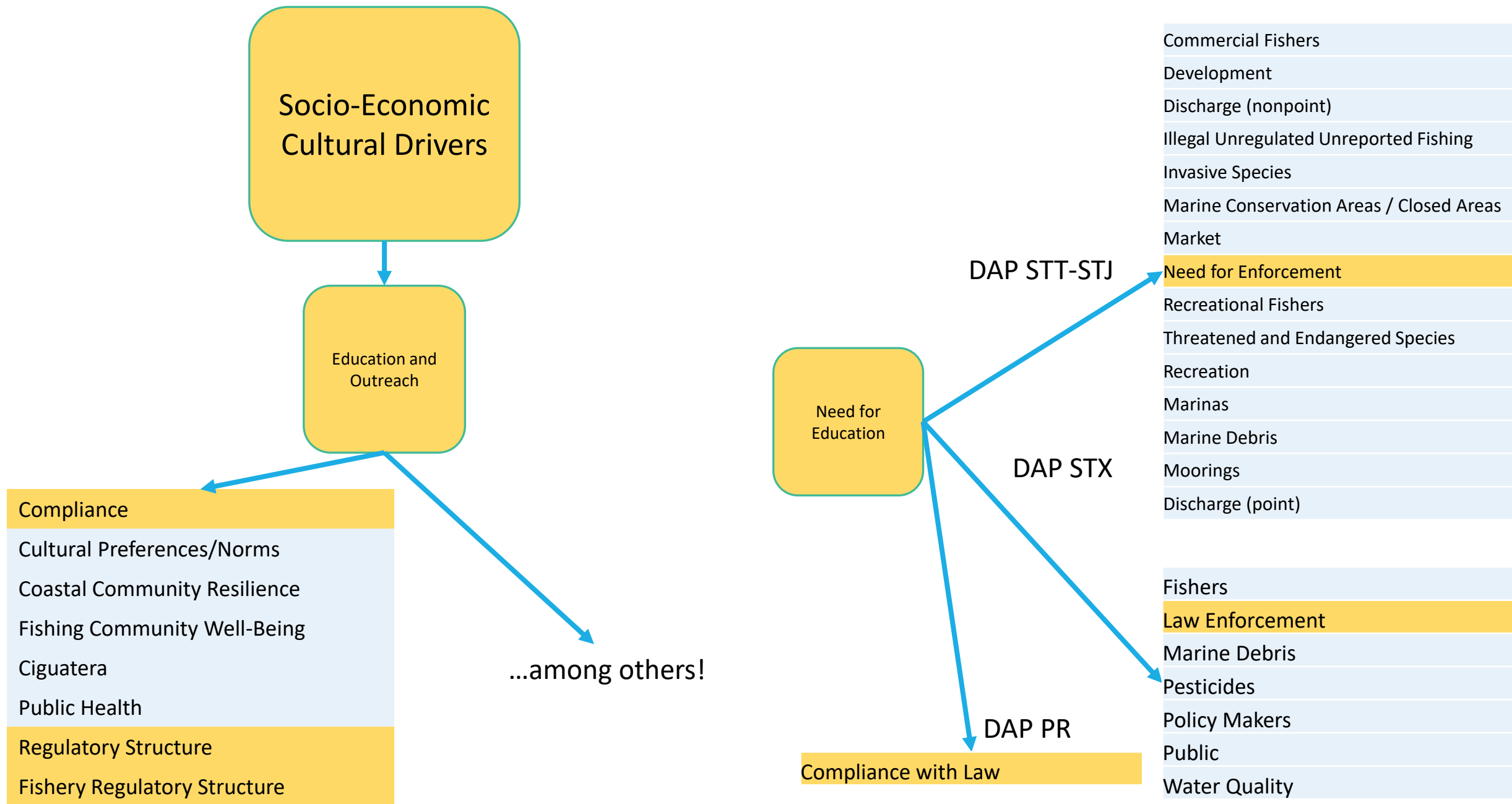


Commonalities

TOP driver components -Based on connections with highest scores (higher score=higher priority component for the group)			
SSC	DAPs		
	PR	STT-STJ	STX
Marine Ecosystem Components	Marine Habitats	Sargassum	Need for education
Competing Use of Resources	Effective management,	Lithium Ion Batteries	Hurricanes
Socio-economic and Cultural Drivers	Pollution	Education and Outreach	Sargassum Blooms
Land-Based Uses	Sargassum	Large Vessel Impacts	Climate Effect
Fishing	Current	Ballast Water	Discharges non point
Water Quality	intensity		
Habitat	Hurricanes		
Abiotic Factors	Aggregations		
	Compliance with Law		
	Coral Reefs		
	Illegal Fishing		

DAPs agrees E&O will impact...





(Very) Preliminary Analysis and Examples

PR & USVI EXPERTS & MANAGERS

Examples of top Drivers:

Management (MSP, Regulations, Plans)

Gentrification

Education

Compliance

Water Quality/Pollution

Climate Change

Hurricanes

Ciguatera

Mangroves

Marine Diseases (coral)

Restoration

Marine Protected Areas

Habitat Quality

Tourism

Sargassum

PR FISHERS

Examples of top Drivers:

Pollution/Water Quality

Coastal/Marine Development

Sargassum

Invasive Species

Weather/Climate/Water Temperature/Climate Change

Recreational Fishers

Hurricanes

Management/Government

Fishery Closures

Education

Source: Lenfest report to SSC April 2022

Other connections/collaborations

- Data sharing | Net Gains
 - Katie Latanich
- Mangroves | Smithsonian Mangrove Project
 - Susan M Kokikot, Steven Canty
- Aquaculture | PNNL
 - Lysel J Gavarelli



¡Gracias!

Thank you!
