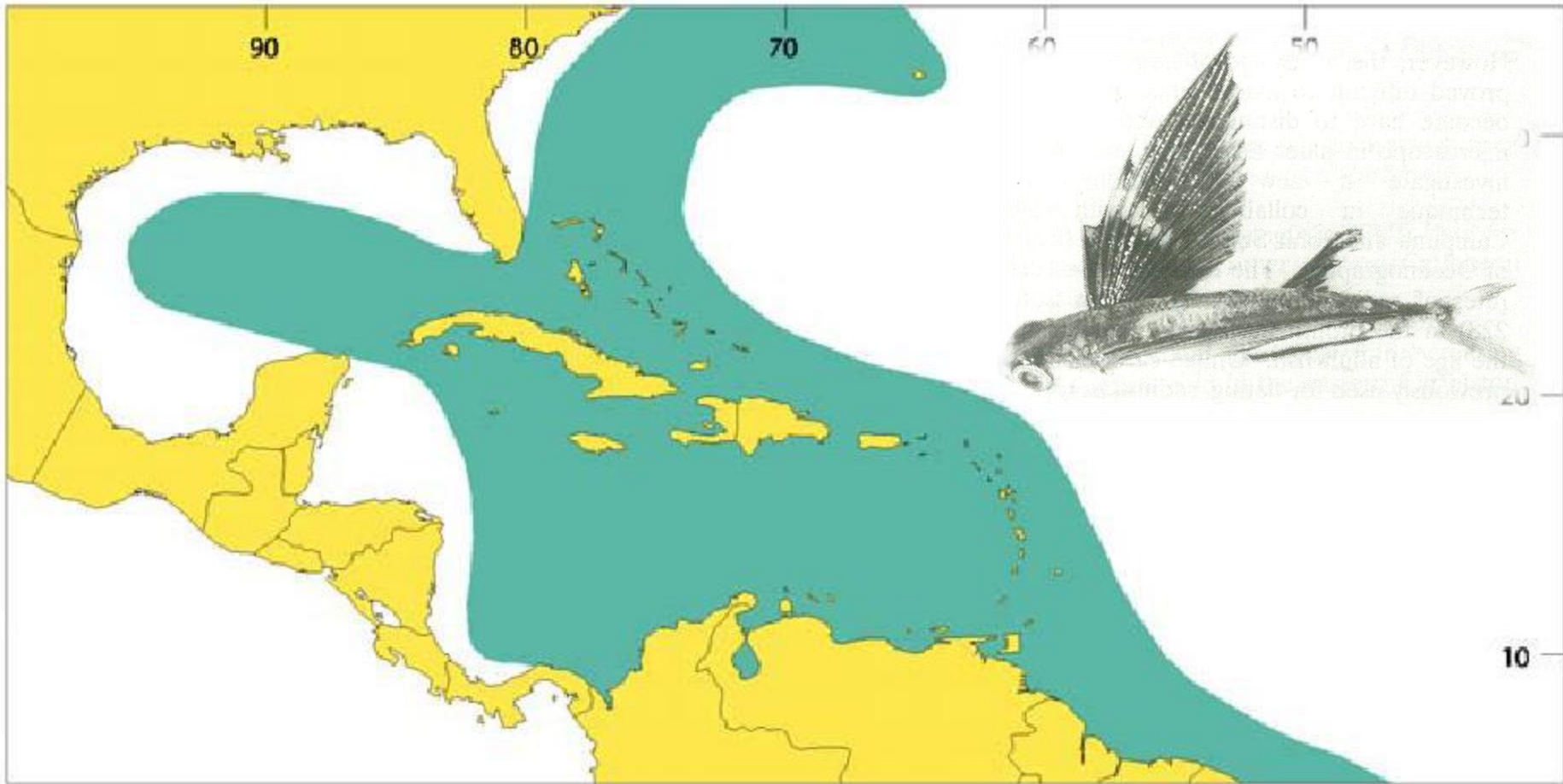




Caribbean Regional Fisheries Mechanism

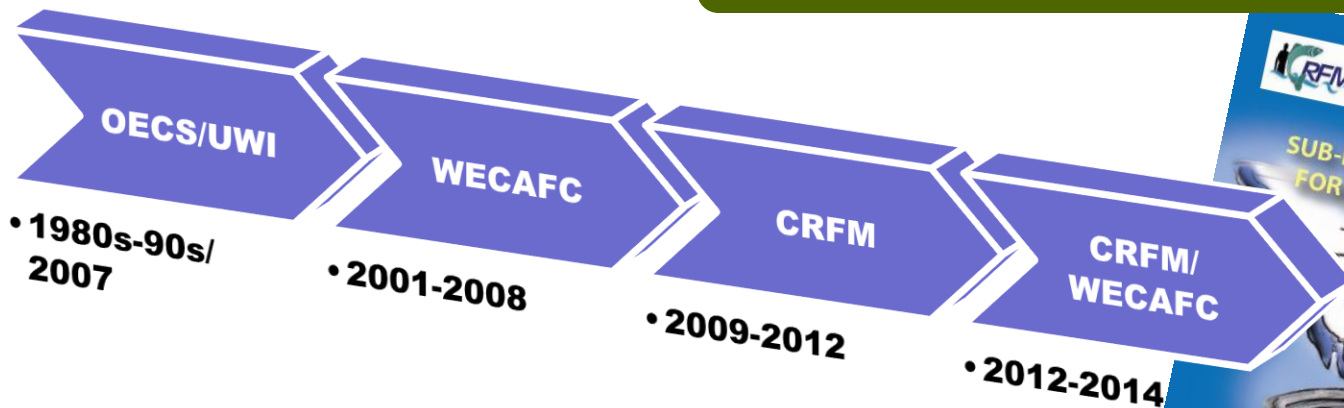
Sustainable Use, Conservation & Management of Fisheries Resources: Eastern Caribbean Flyingfish & Nassau Grouper

Prepared by CRFM Secretariat for
Workshop on Investing in Blue Growth
St. George's, Grenada
23rd May 2014

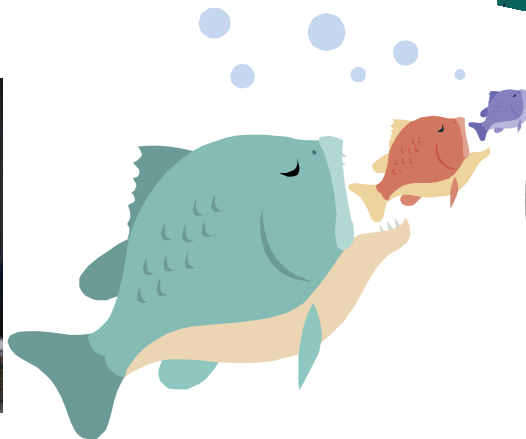
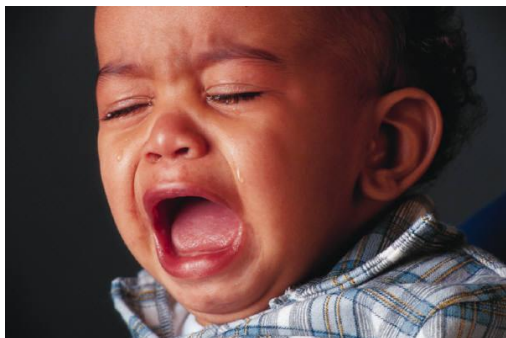


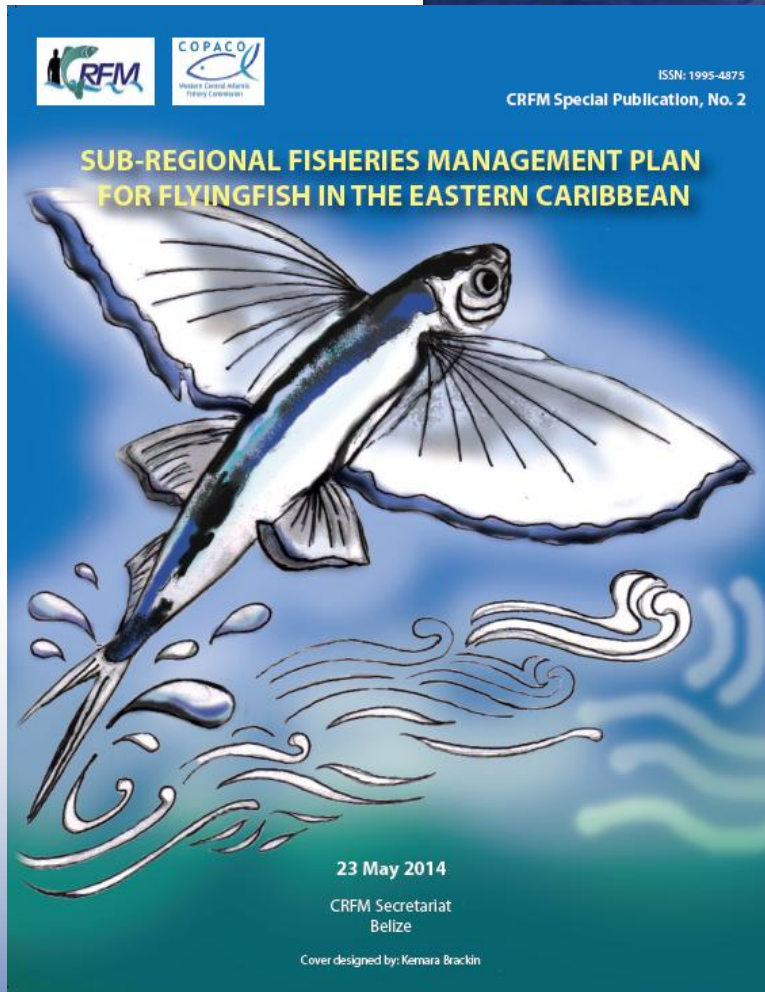
Distribution of the four-wing flyingfish, *Hirundichthys affinis*, Western Central Atlantic, after Parin (2002)

Eastern Caribbean Flyingfish



Born of more than 2 decades of regional effort & eventual consensus from a range of stakeholders





Contents

- Mission
- Guiding Principles and Vision
- Geography
- Biology and Ecology
- Legal Context
- Management Unit
- Status of the Fishery
- Data, Monitoring & Research Requirements
- Management Advice & Implementation Plan

Image U.S. Geological Survey

Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google

The Plan for Managing Flyingfish

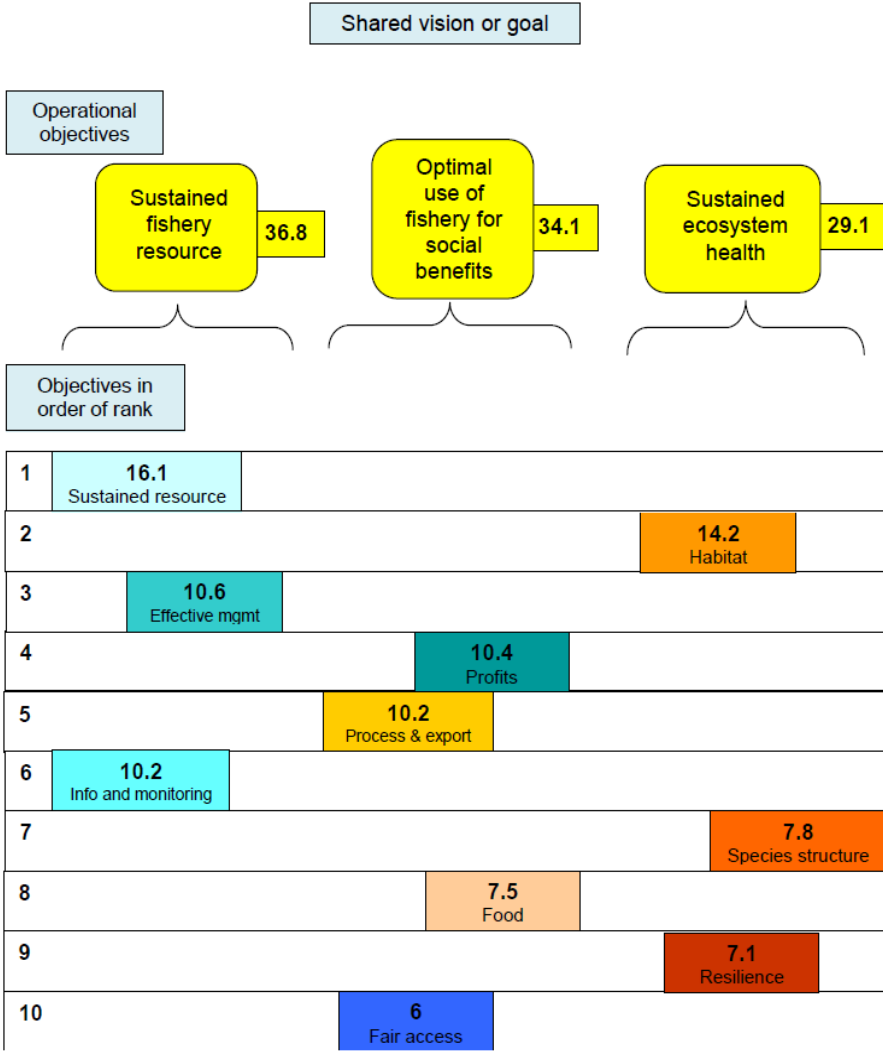
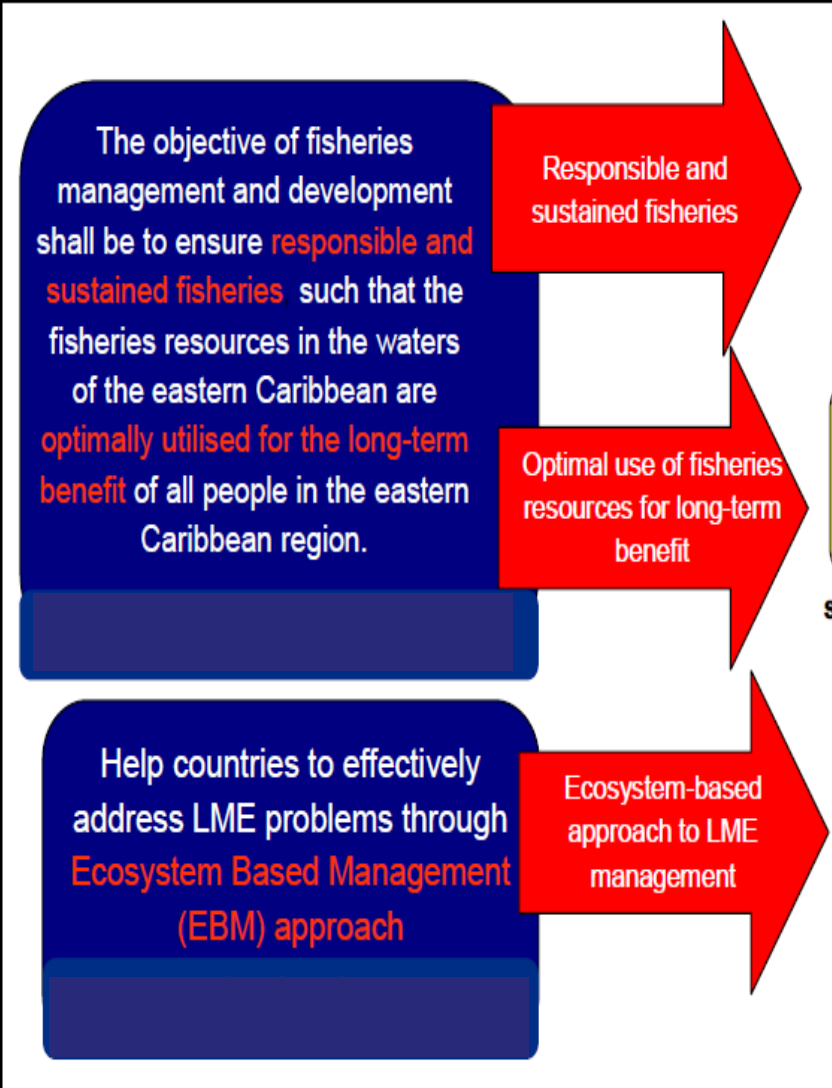


Figure 10 - Weight of operational objective categories and objectives in order of rank

MANAGEMENT STRATEGY:

1. National fisheries management plans (2015/16 season with flexibility*)
2. Authorized national entry system (2015/16 season*)
3. Precautionary freeze in fishing effort/capacity if trigger point reached

ANNUAL REPORTING: Progress reports / Catch and effort data

DATA COLLECTION – STRENGTHENED SYSTEMS:

Assessment of resource status / Management reference points/ Fishing effort & capacity / Monitoring and evaluation of FMP performance

SCIENTIFIC ANALYSIS : Update management plan, advice and actions, as needed



Other supporting measures & considerations included

CRFM Ministerial Council

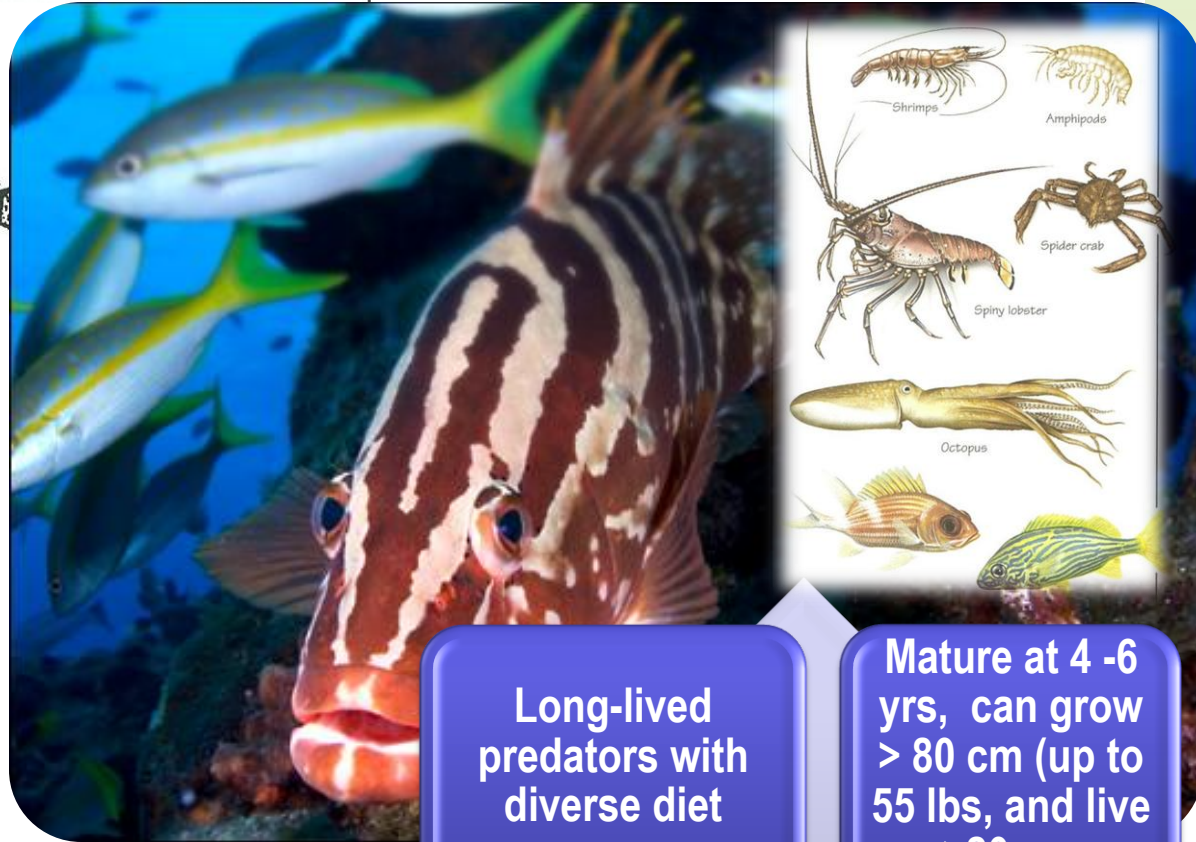
Resolution on the Sub-regional Fisheries Management Plan for Flyingfish in the Eastern Caribbean

Roseau,
Commonwealth of Dominica
23 May 2014



Management Resolution agreed

- To implement an **ECOSYSTEM APPROACH TO FISHERIES**
- To implement the Sub-regional FMP, including the management measures proposed;
- To be **proactive in promoting the implementation** of the FMP;
- Overall management needs to be improved** to support implementation
- To communicate** this resolution and discuss the implications **with all relevant stakeholders (The PARTICIPATORY APPROACH)**
- To report annually on progress** of FMP implementation and management performance
- To initiate work to prepare **a legally binding regional agreement for the conservation, management and sustainable use of the flyingfish resources in the Eastern Caribbean.**



Source: Sadovy and Eklund, 1999

**Distribution of Nassau Grouper,
Epinephelus striatus,
Western Central Atlantic**

Long-lived predators with diverse diet

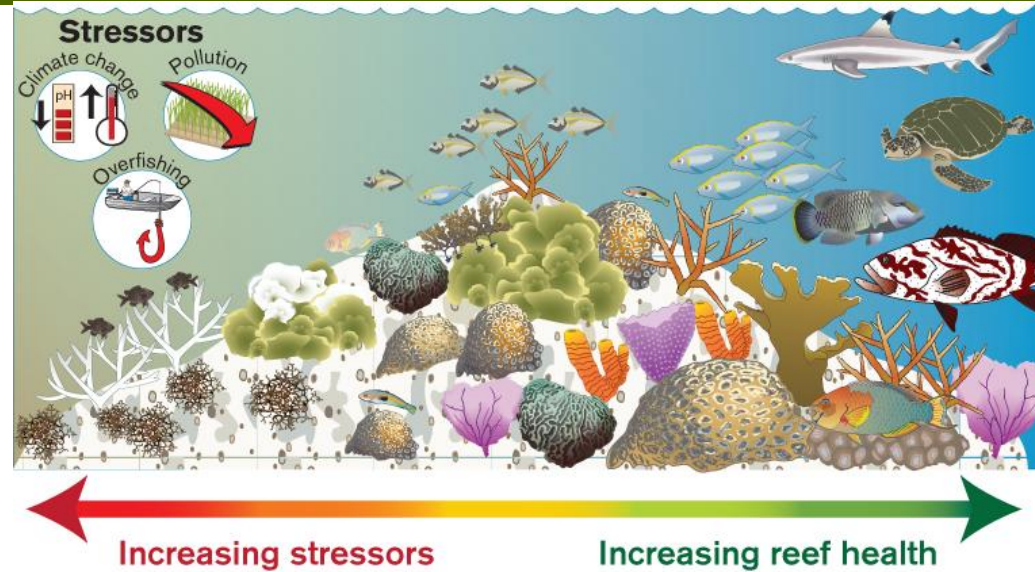
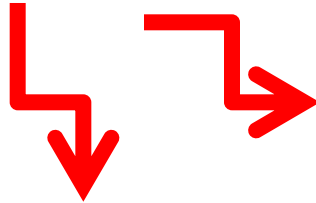
Mature at 4 -6 yrs, can grow > 80 cm (up to 55 lbs, and live >20 yrs

Spawning aggregations – few days per yr

Post larval settlement period – few days per yr

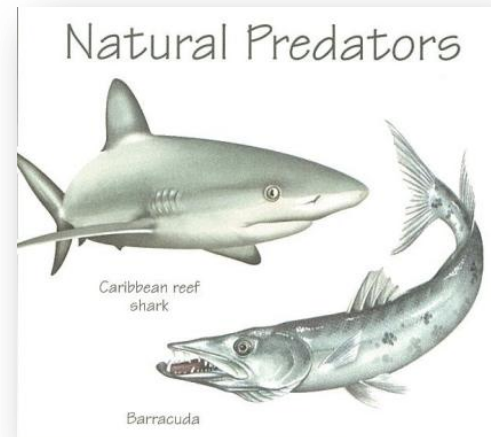
STRESSORS

OVER FISHING
OTHER HUMAN IMPACTS
NATURAL PREDATORS

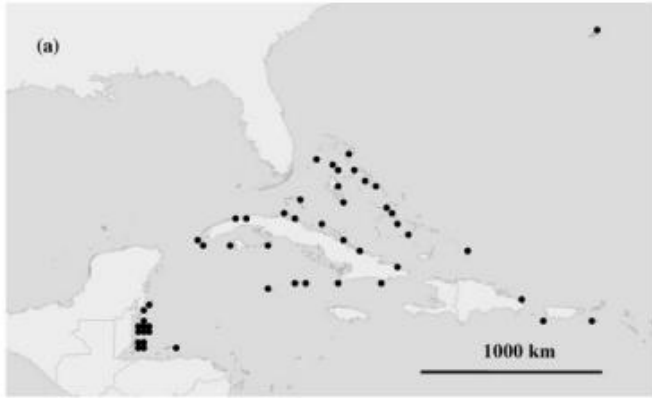


Conceptual diagram illustrating the gradient of coral and fish from a degraded reef (left) to a healthy reef (right).

Source: Tschirky J and Kaufman L. (2010) Ecological Effects of Marine Managed Areas. Science and Knowledge Division, Conservation International, Arlington, VA, USA.

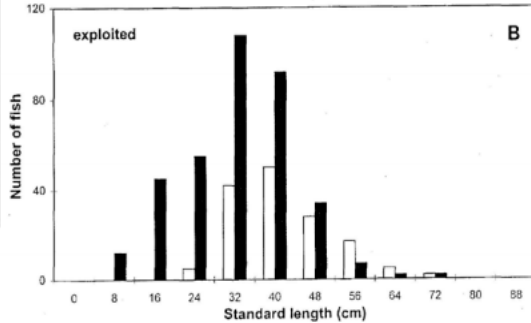
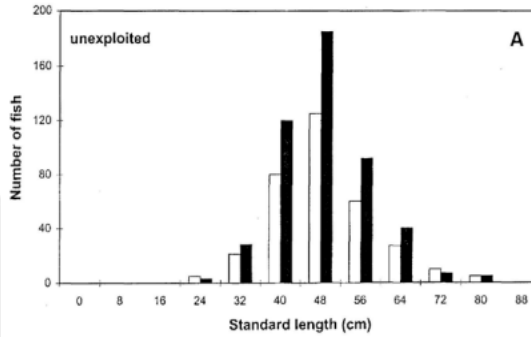
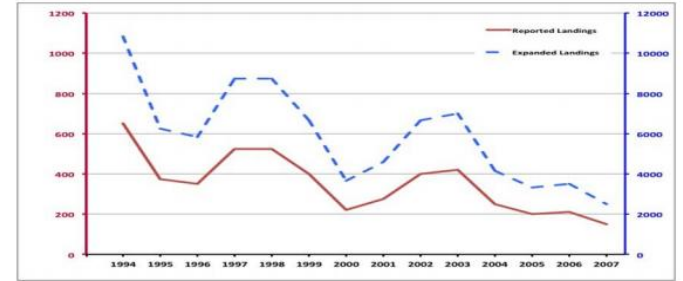


THE EVIDENCE



**SPAWNING AGGREGATIONS
Historically & ~ 2007**

FISH LANDINGS – The Bahamas 1994-2007 →



→ **MEAN BODY SIZE
(exploited vs
unexploited) -
Belize**

BELIZE MEASURES

- 1. Heavy commercial exploitation → 11 aggregation sites declared protected in 2002.**
- 2. Belize Spawning Aggregation Working Group (SPAG) → monitoring the 11 sites.**
- 3. Closed season from 1 December to 31 March.**

THE BAHAMAS MEASURES

- 1. A Closed season from December 1 through February 29**
- 2. A minimum size limit**
- 3. Established Marine Protected Areas**

MONITORING BY STATES

- 1. ANECDOTAL REPORTS, LANDINGS**
- 2. CRFM SCIENTIFIC MEETING 2007 – analysis of SPAG data → impact of management measure not so obvious, possibly because of data quality and type of analysis, but likely some positive impact of measures**
- 3. VISUAL SURVEYS over time – continuing declines in numbers & sizes of aggregations.**
- 4. Scientific methods still developing.**

Recommendation WECAFC/15/2014/1

ON THE ESTABLISHMENT OF A REGIONAL CLOSED SEASON FOR FISHERIES IN THE WECAFC AREA TO PROTECT SPAWNING AGGREGATIONS OF GROUPERS AND SNAPPERS

- 1. Protection of spawning aggregations**
- 2. Regional closed season (Dec-March)/ prohibit exports**
- 3. Establish/ enforce MPAs having known aggregations**
- 4. Research (aggregations, impacts, measures)**
- 5. National and regional management + conservation plans**
- 6. Reporting to WECAFC WG.**
- 7. Mobilise resources for implementation support**
- 8. Communication and outreach activities**

NGO PETITION & NOAA RESPONSE →

1. Biological Report
2. Threat evaluation & Extinction Risk Analysis

NOAA DETERMINATION – SEPTEMBER 2014

CRITERION	FACTORS
HABITAT	spatial structure/ connectivity & habitat alteration
OVERUTILIZATION	historical harvest, fishing spawning aggregations, current abundance, current commercial harvest, artificial selection
DISEASE AND PREDATION	diseases, parasites, predation
REGULATORY MECHANISMS	inadequate law enforcement, foreign regulations, US federal, Florida and US territory regulations
OTHER NATURAL OR MAN MADE FACTORS	climate change, aquaculture, growth rate/ productivity, diversity

NOAA FINAL LISTING JANUARY 2015

RECOVERY PROGRAMME :-

1. CRITICAL HABITAT DESIGNATED

2. PROTECTIVE REGULATIONS → CONSERVING AQUATIC ECOSYSTEM HEALTH

3. POSSIBLE APPLICATION OF SOME OR ALL TAKE PROHIBITIONS



PUBLIC COMMENT OPPORTUNITY PRIOR TO FINAL LISTING

INFORMATION ON

LOCATION AND STATUS OF NASSAU SPAWNING AGGREGATIONS

1. THREATS

2. PROTECTION EFFORTS

- 1. Identify any information that was possibly not considered in NOAA determination**
- 2. Examine WECAFC submissions to NOAA**
- 3. Make recommendations on elements to comprise CRFM position/ comment, including comments on regulations suitable to accompany listing**
- 4. Make recommendations on elements to comprise a regional management proposal to be adopted by CRFM**