2025 Ecosystem Status Report for the U.S. Caribbean

Southeast Fisheries Science Center

Integrated Ecosystem Assessment Team

Caribbean Fishery Management Council Meeting

August 12-13, 2025

NOAA FISHERIES

INTEGRATED ECOSYSTEM ASSESSMENT

Published report

https://github.com/Gulf-IEA/Caribbean-ESR-2

NOAA technical memo and online web version

https://repository.library.noaa.gov/view/noaa/71118

How the report is organized

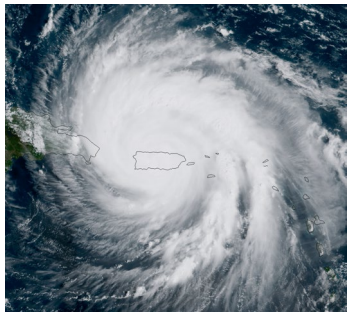
Tracking progress on fishery management objectives

Food production and stock sustainability

Protection of ecosystems and trophic integrity

Engagement and participation

Risks to meeting fishery management objectives



How the report is organized

Uses automated work flow

Data sources:

Remotely sensed data and derived products (e.g., coral bleaching stress, IBTrACS storm tracks, Coastal Change Analysis Program, Sargassum)

Ocean model outputs

Databases from other government agencies (USGS, EPA, U.S. Department of Labor, U.S. Census Bureau)

Territorial tourism bureaus

Other NOAA databases (SeaGrant, Office of Law Enforcement)

Fishery-dependent data (Caribbean Commercial Landings, Sea Around Us)

Fishery-independent data (NCRMP, PRCRMP, TCRMP)

How the report is organized

NMFS OPEN SCIENCE

Caribbean Ecosystem Status Report

1 Introduction

2 Tracking performance toward fishery management objectives

3 Risks to meeting fishery management objectives

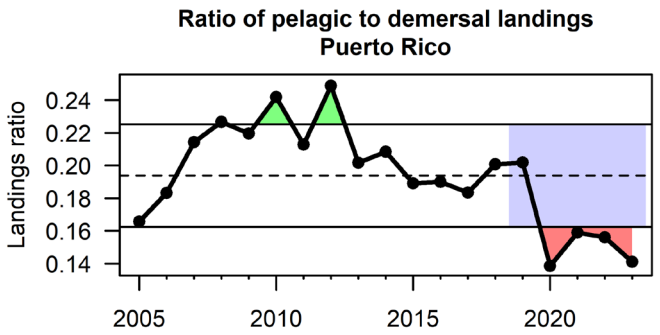
4 Integrated ecosystem perspectives

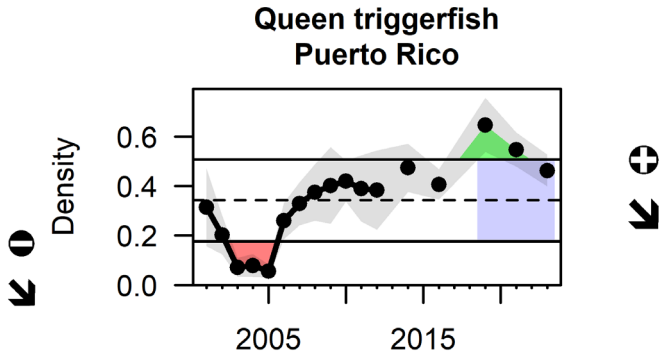
5 Research recommendations

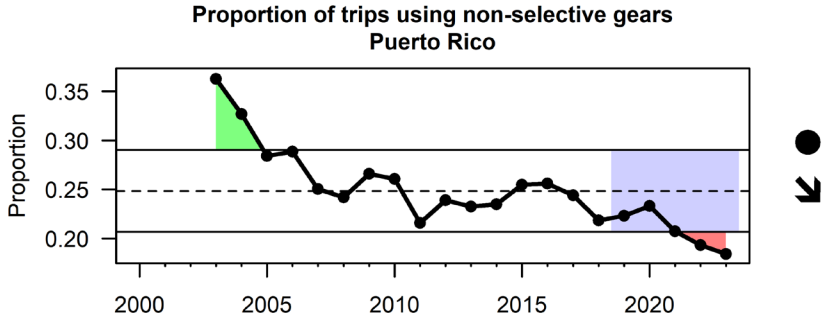
6 Acknowledgments

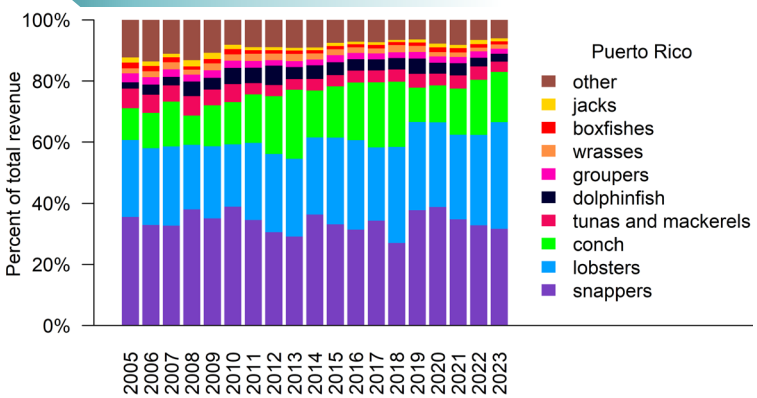
7 Contributors

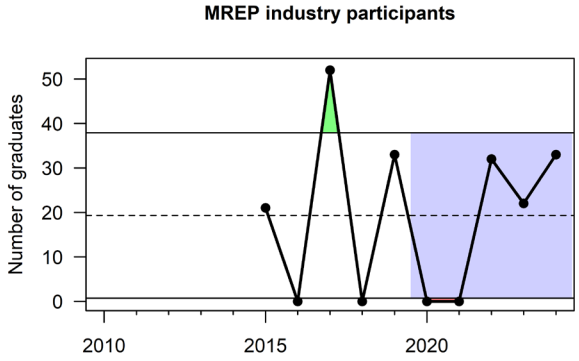
References











Main findings: U.S. Caribbean

- Risk indicators show some increasing stressors and major disturbances in last decade with high volatility in indicators
- Notable impacts from 2017 hurricane season and pandemic disturbances on social and economic indicators
- Impacts from major disturbances also influence fishing activity and manifest in fishery-dependent indicators

  -- possible artifacts of changes in reporting

Summary: Puerto Rico

Stressors: Ocean temperatures, coral bleaching increasing and well above average. Coral cover decreasing. Impacted by 2017 hurricanes (major disturbance) and pandemic (2021) to a lesser extent.

Economy: Human population below average since 2017 but now stable. Tourism increased back to pre-pandemic levels. GDP is above average and unemployment decreasing.

Fishing practices: Commercial effort stable overall; increasing percentage of diving trips and decreasing use of nets/traps.

Landings: Increasing dependence on demersal species; maximum length in the demersal catch is stable. Landings of lobster increasing; conch landings well below average. More deepwater snappers, yellowtail snapper and red hind in the landings; fewer large parrotfish and large groupers. Revenue dependence on lobster slightly increasing. Increase in inequality in revenues.

Community response: Commercial fish density increasing. Abundance of indicator species is stable; queen triggerfish and red hind abundance above average.

Summary: St. Thomas and St. John

Stressors: Ocean temperatures, coral bleaching increasing and well above average. Coral cover decreasing and well below average. 2017 hurricanes were major disturbance.

Economy: Human population gradually declining; some aspects of tourism have not recovered back to pre-pandemic levels. GDP is increasing and unemployment decreasing.

Fishing practices: Effort stable in recent years; slight drop in 2017-18 fishing year. No trend in gear type use.

Landings: Maximum length in the demersal catch increasing. Lesser targeting of small species, queen trigger, angelfish and grunt. Greater targeting of red hind, yellowtail snapper and blue runner. Landings of lobster increasing; finfish landings well below average. Revenue dependence on lobster doubled in past decade.

Community response: Commercial fish density and slope of the size spectrum increasing. Abundance of indicator species is stable; yellowtail snapper abundance increasing and well above average.

Summary: St. Croix

Stressors: Ocean temperatures, coral bleaching increasing and well above average. Coral cover decreasing and well below average. 2017 hurricanes and pandemic were major disturbances.

Economy: Human population gradually declining; some aspects of tourism have not recovered back to pre-pandemic levels. GDP is increasing and unemployment decreasing.

Fishing practices: Effort stable in recent years; drop in 2018-19 fishing year. Increasing percentage of diving trips and use of nets and traps is well below average and decreasing.

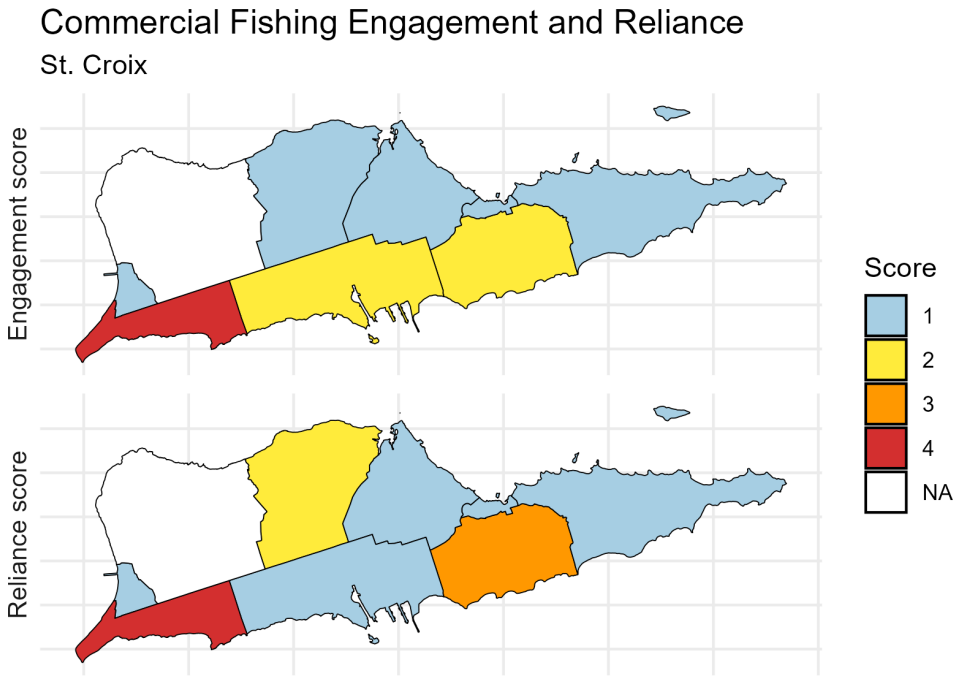
Landings: Increasing dependence on pelagics and increasing revenue from tunas and mackerels. Maximum length of demersals in the catch increasing. Finfish landings well below average. Shift from targeting small parrotfishes to larger parrotfishes. Decrease in inequality in revenues.

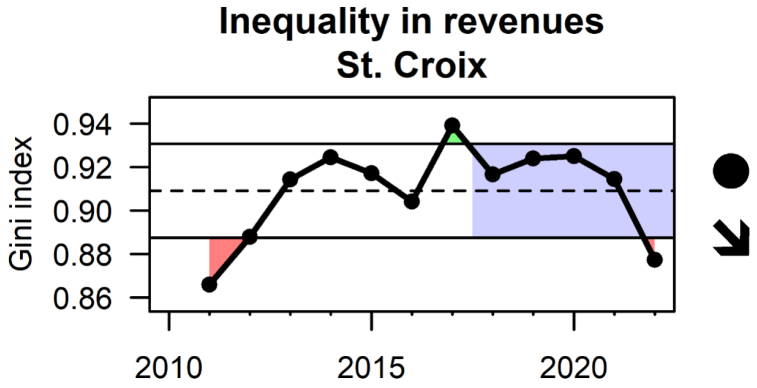
Community response: Commercial fish density and slope of the size spectrum increasing. Abundance of stoplight parrotfish is below average; queen triggerfish and redband parrotfish increasing; other species stable.

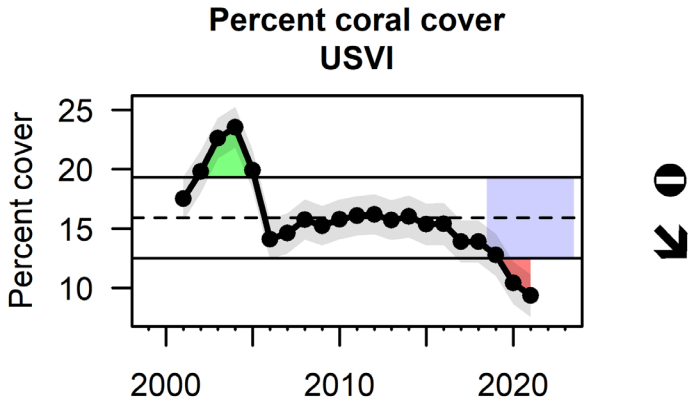
How can the report be used?

Assess progress toward management goals

The indicators track socioeconomic health, equality, ecosystem services, and other stated IBFMP management objectives.



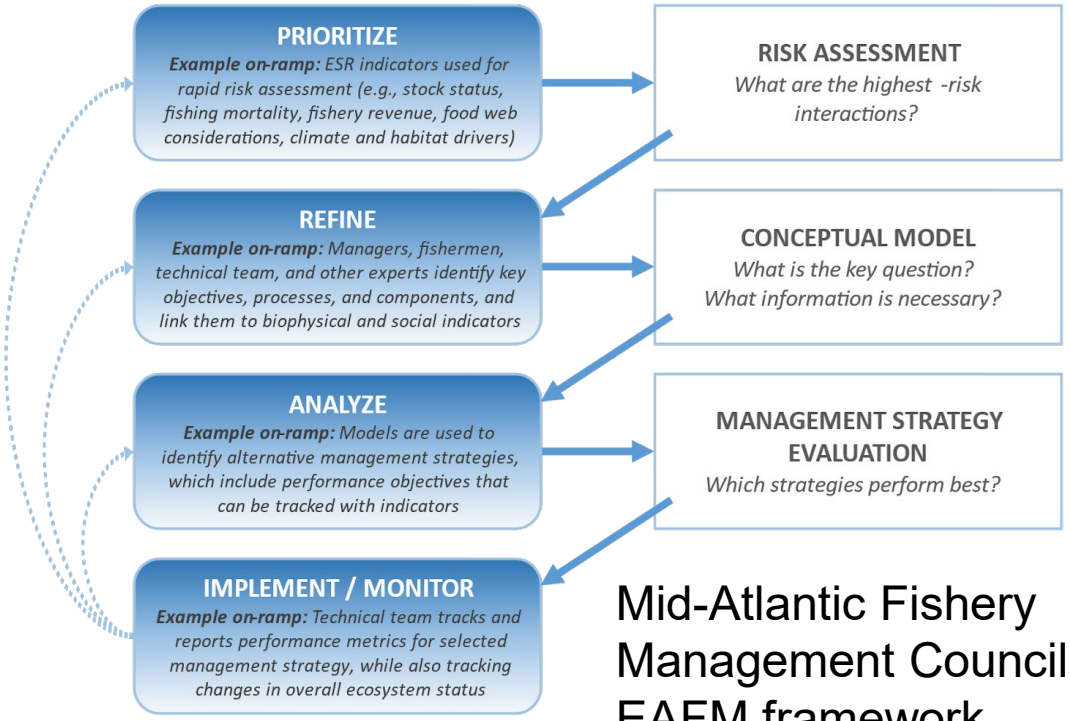




Assess risk in the fishery system

Indicators can be used to evaluate risk at the single-species level (NPFMC) or ecosystem level (MAFMC)

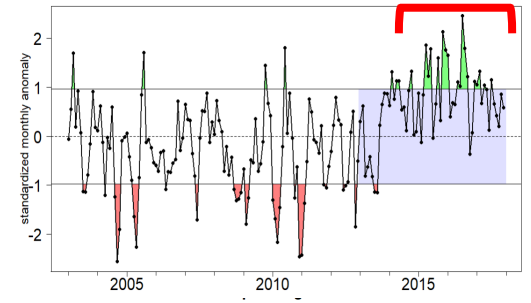
2024 Eastern Bering Sea ESR



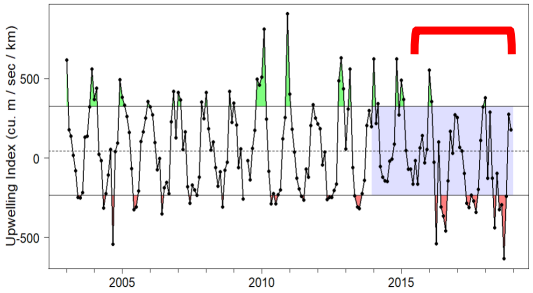
Mid-Atlantic Fishery Management Council EAFM framework

Reveal important drivers of fishery system

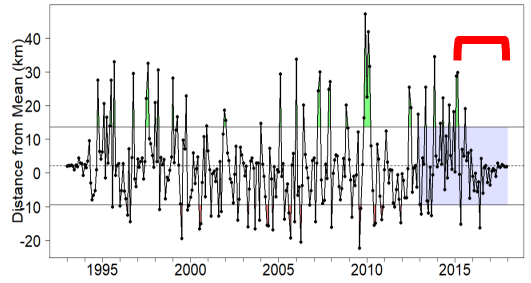
Low recruitment observed across suite of species in South Atlantic



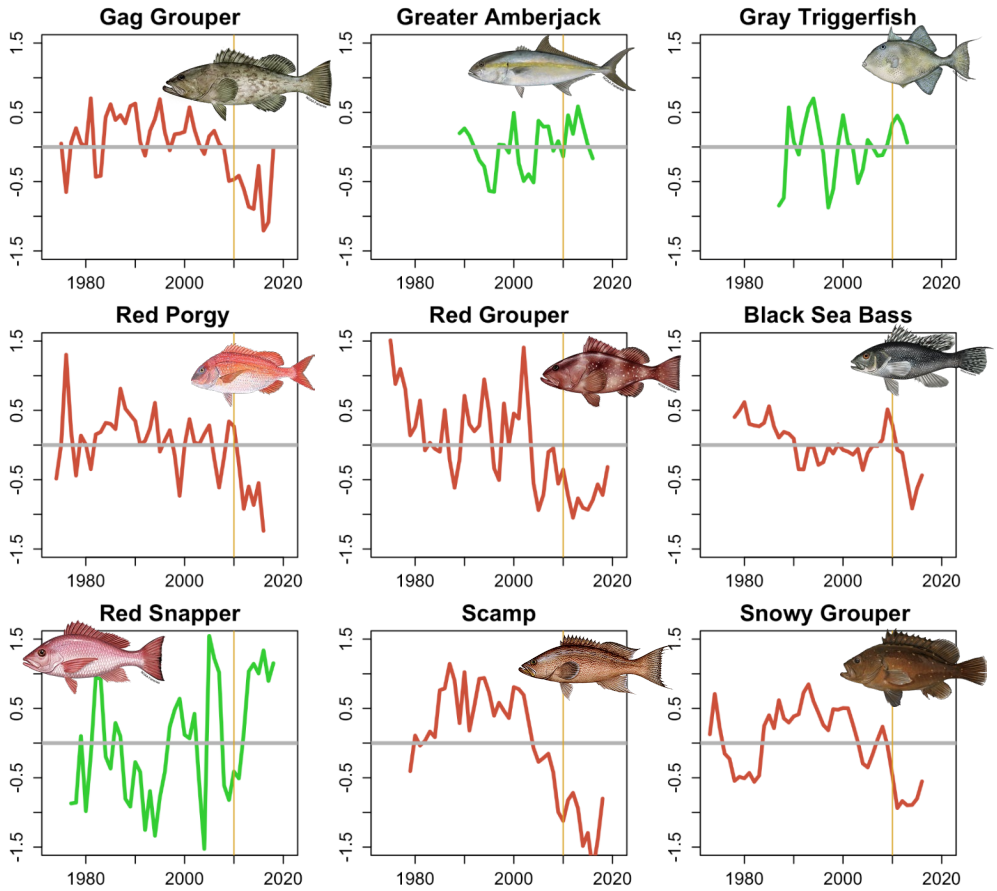
Increasing SST



Decreasing upwelling intensity

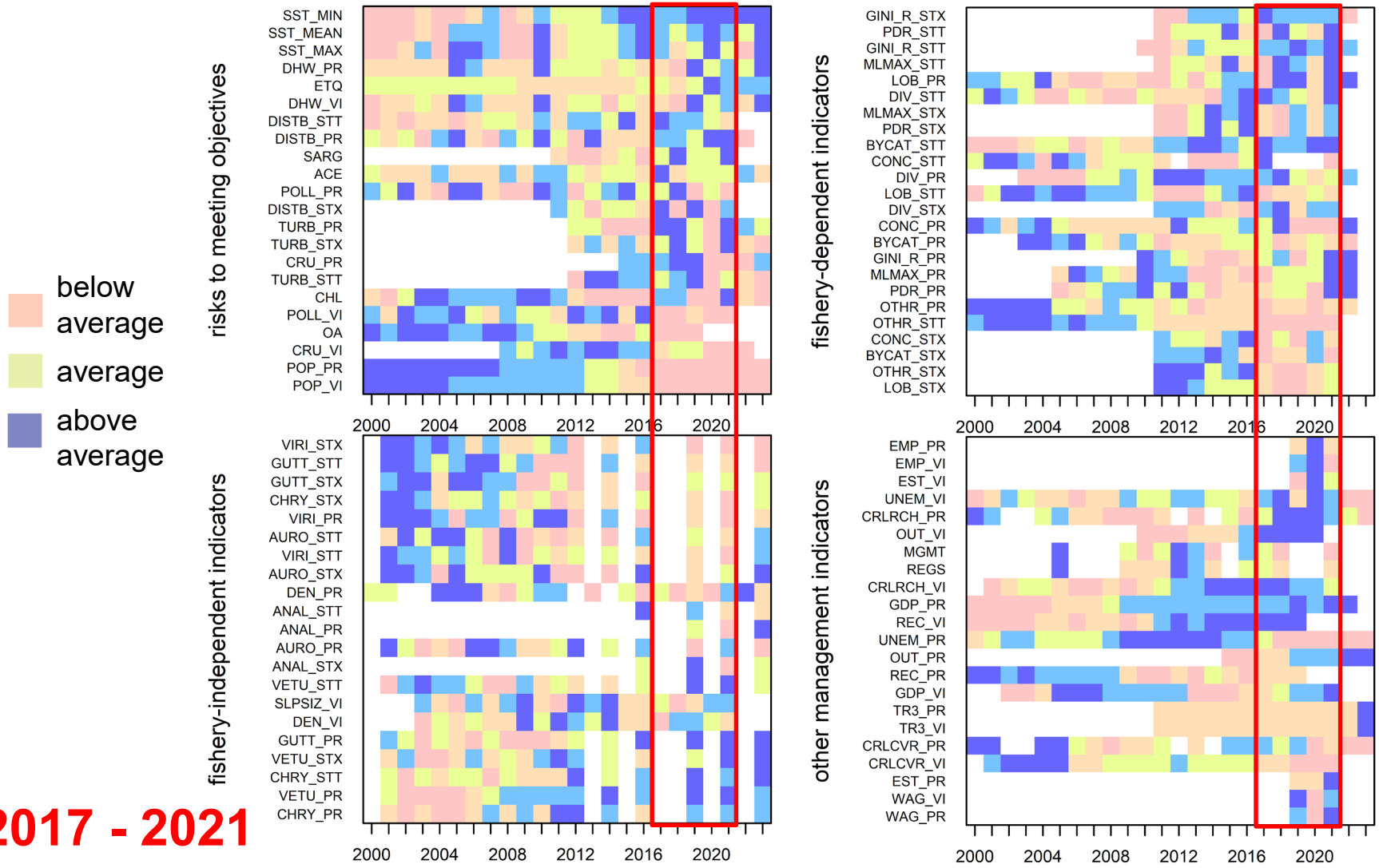


Gulf stream position: onshore



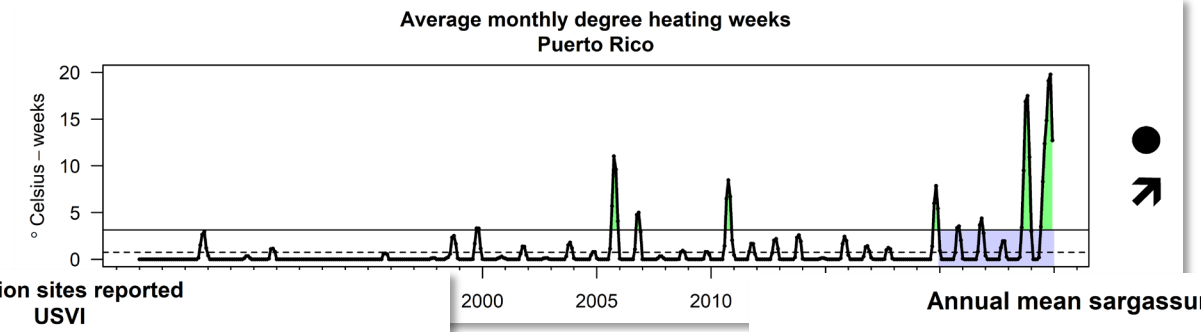
South Atlantic Ecosystem Status Report (Craig et al., 2022)

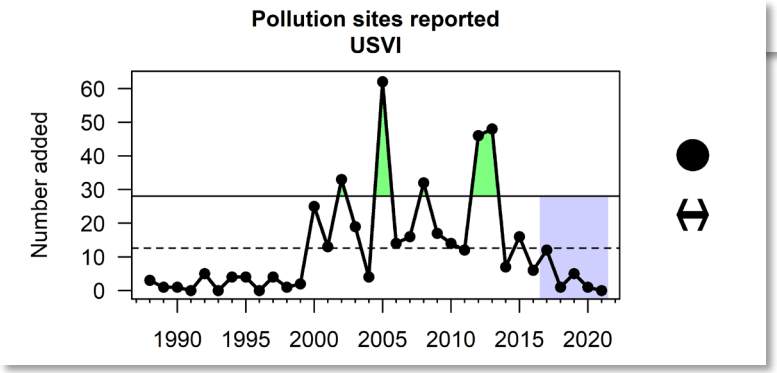
Understand overall ecosystem conditions

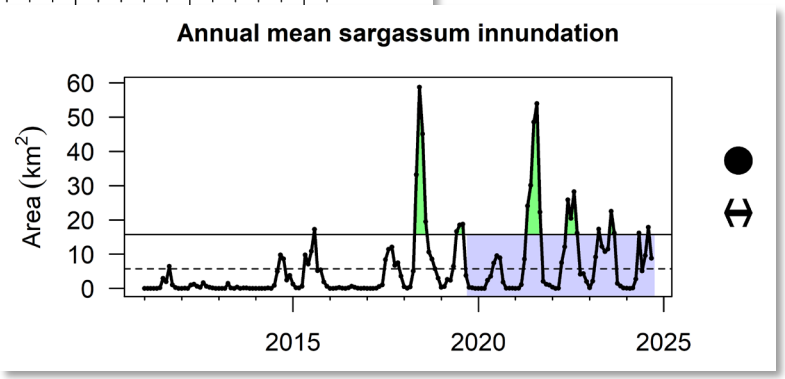


2017 - 2021

Elevate local knowledge in management







Next steps

- Working on executive summary and easily digestible executive summary of indicator trends (what would be most useful?)
- Aiming toward providing annual updates of most indicators (pending no additional loss of staff)
  - Report is automated and modular – we welcome ideas for new indicators to be included
- Need further analysis of fishery-independent data to disentangle artifacts of misreporting
- Actively working to expand suite of social indicators

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