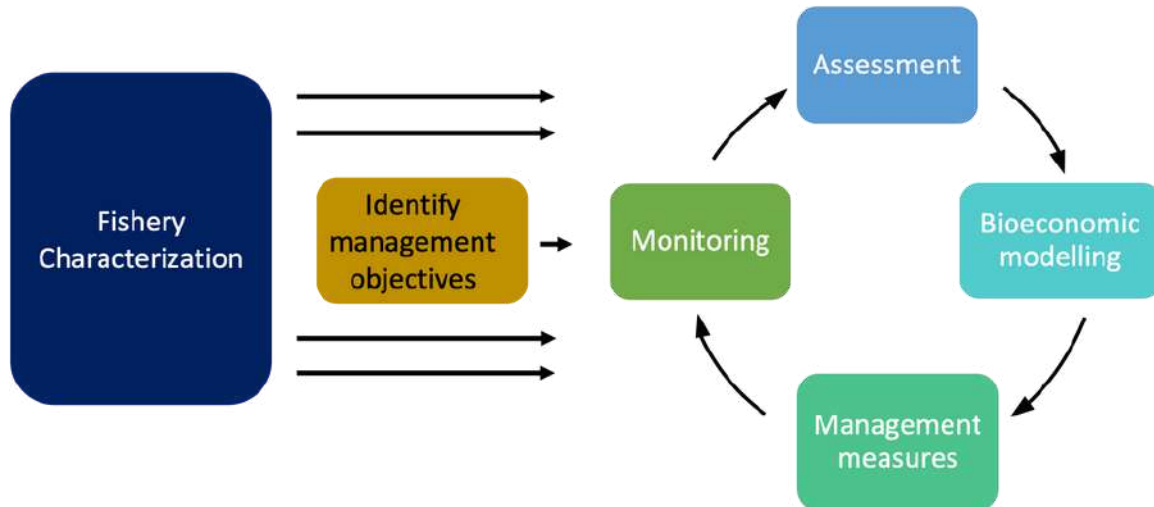




OVERVIEW



FISHERIES CHARACTERIZATION



Montserrat, Curaçao, Federated States of Micronesia, Maldives, Samoa and Fiji (*in progress*)

Goals

- Improve understanding of fisheries at a site including: spatial extent, economic importance, current management, data availability, drivers of successes and failures of past projects, and current issues
- Identify key objectives for the Blue Prosperity Sustainable Fisheries Program
- Identify opportunities for engagement to improve sustainability of fisheries at a site

Approach

- Conduct desktop research, interviews with stakeholders and experts in the region, and a site visit

Capacity

- ~2 full time researchers for 3 months

FISHERIES MONITORING

 Barbuda, Montserrat, Curaçao, Vava'u, and Bermuda

Goal

- Collect data on the fishery that can be assessed to monitor the status and health of the fishery over time in a way that is logistically practical and economically efficient for the site

Approach

- Develop through understanding a fishery's characteristics, reviewing scientific literature, and developing training programs for government partners and fishers

Capacity

- 1 full-time researcher for 6 months pending on-the-ground support

Highlights



Length-based

- Created a fishery dependent length-based monitoring manual for reef fish and lobsters and have tailored it for Barbuda, Montserrat, Curacao, and Tonga
- Lengths of target reef fish and lobsters are collected at random for one year and used in an assessment to determine the sustainability of current fishing pressure



FADs

- Developed a FAD monitoring program for Bermuda to collect data on the new FAD fishery to assess and manage the fishery's ecological and economic sustainability
- The FAD monitoring program is currently being piloted, and could be adapted and applied to other sites with FAD fisheries



Electronic Monitoring

- Completed a report that reviews different technologies available for monitoring fisheries and assesses the types of fisheries they are best suited for, and the costs and benefits of each technology
- Report findings were used to develop monitoring technology recommendations for Bermuda and can be used to assess the feasibility and appropriate technology for monitoring at other sites



Barbuda (*lobster*), Montserrat (*reef fish*), and Bermuda (*lobster, red hind*)

Goals

- Determine if the fishery is overfished and/or is currently experiencing overfishing
- Determine whether current management measures need to be adjusted, or if new management measures need to be put in place

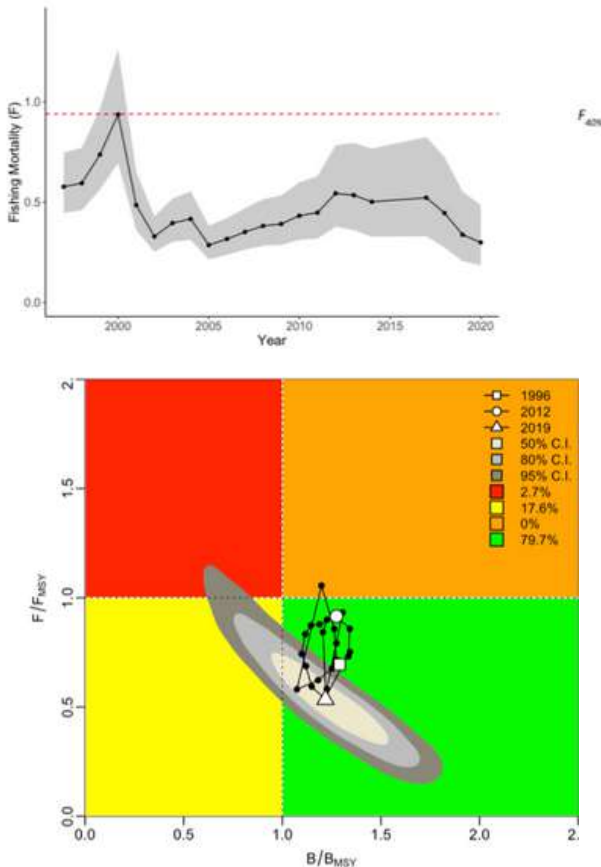
Approach

- Use data from the fishery and life history information for the species in a fishery stock assessment model. The appropriate model will be determined by the type and amount of data that are available and by the characteristics of the fishery
- Assessments should be conducted every 1-2 years so management can be adapted

Capacity

- ~1 full time researcher and one 50% for 6 months for full assessment; 1 full time researcher for 1 month for updating assessments

Highlight



Bermuda spiny lobster

- Completed an assessment on Bermuda's spiny lobster fishery in 2021 using two different assessment models with different sources of data
 - Both models indicated that the lobster fishery was not overfished and not currently experiencing overfishing
 - Found recent declines in lobster CPUE are most likely attributed to fluctuations in recruitment
 - Recommended a recruitment monitoring plan that will allow fishing effort to be adjusted annually based on recruitment patterns

Figures show the results from the Bermuda spiny lobster assessment using a length-based assessment (top) and catch-based assessment (bottom). Both models indicated the fishery was not overfished and is not currently experiencing overfishing.

Examples of Fisheries Assessment Literature from emLab

- [A history and assessment of catch-only stock assessment models.](#)
- [Blood from a stone: performance of catch-only methods in estimating stock biomass status.](#)
- [Development and testing of superensemble and two-stage catch-only models for estimation of stock status.](#)
- [The refined ORCS approach: a catch-based method for estimating stock status and catch limits for data-poor fish stocks.](#)
- [Testing and comparison of data-limited assessment models for estimating global and regional stock status.](#)
- [Factors influencing the distribution of Kona Crabs *Ranina ranina* \(Brachyura: Raninidae\) catch rates in the main Hawaiian Islands.](#)

📍 Montserrat, the Azores, and Federated States of Micronesia

Goal

- Model the expected biological and economic impacts of new management measures on a fishery

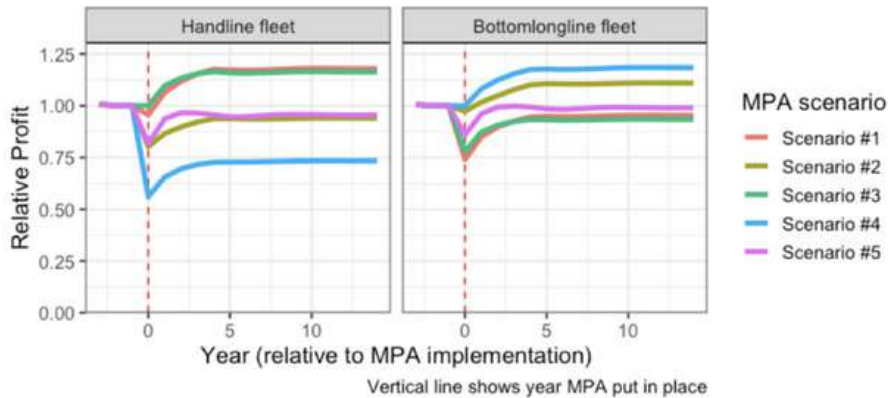
Approach

- Develop a model to forecast how the fish population and fishing fleet will respond to new management measures using fishery assessment results, species biological data, and economic data from the fishing fleet. Modeling can be used to compare likely outcomes for different potential management measures to inform decision-making

Capacity

- ~1 full time researcher and 1 50% researcher for 1 year (depending on model and scenario complexity)

Highlights



Azores:

- Developed a bioeconomic model to estimate expected impacts of different MPA designs on the relative profit and relative fish biomass for two domestic demersal fisheries.

MANAGEMENT RECOMMENDATIONS



Barbuda, Montserrat, Bermuda, and the Maldives

Goal

- Determine what management measures can be feasibly implemented at a site to ensure a fishery is biologically and economically sustainable

Approach

- Assess a fishery's characteristics, monitoring program, status, and bioeconomic modelling results (if conducted). Review scientific literature to determine what management measures have been successful in similar fisheries

Capacity

- 1 full time researcher for 2 months

Highlight



Montserrat

- We conducted a field study on trap design with local fisheries in Montserrat. The study looked at how adding an escape gap to fishing traps would impact fishers catch and revenue. We found adding escape gaps may have positive benefits by allowing juvenile and narrow-bodied fish to escape and should not impact fishers catch or revenue