



NOAA Habitat Conservation

Conserving Habitat for Future Generations

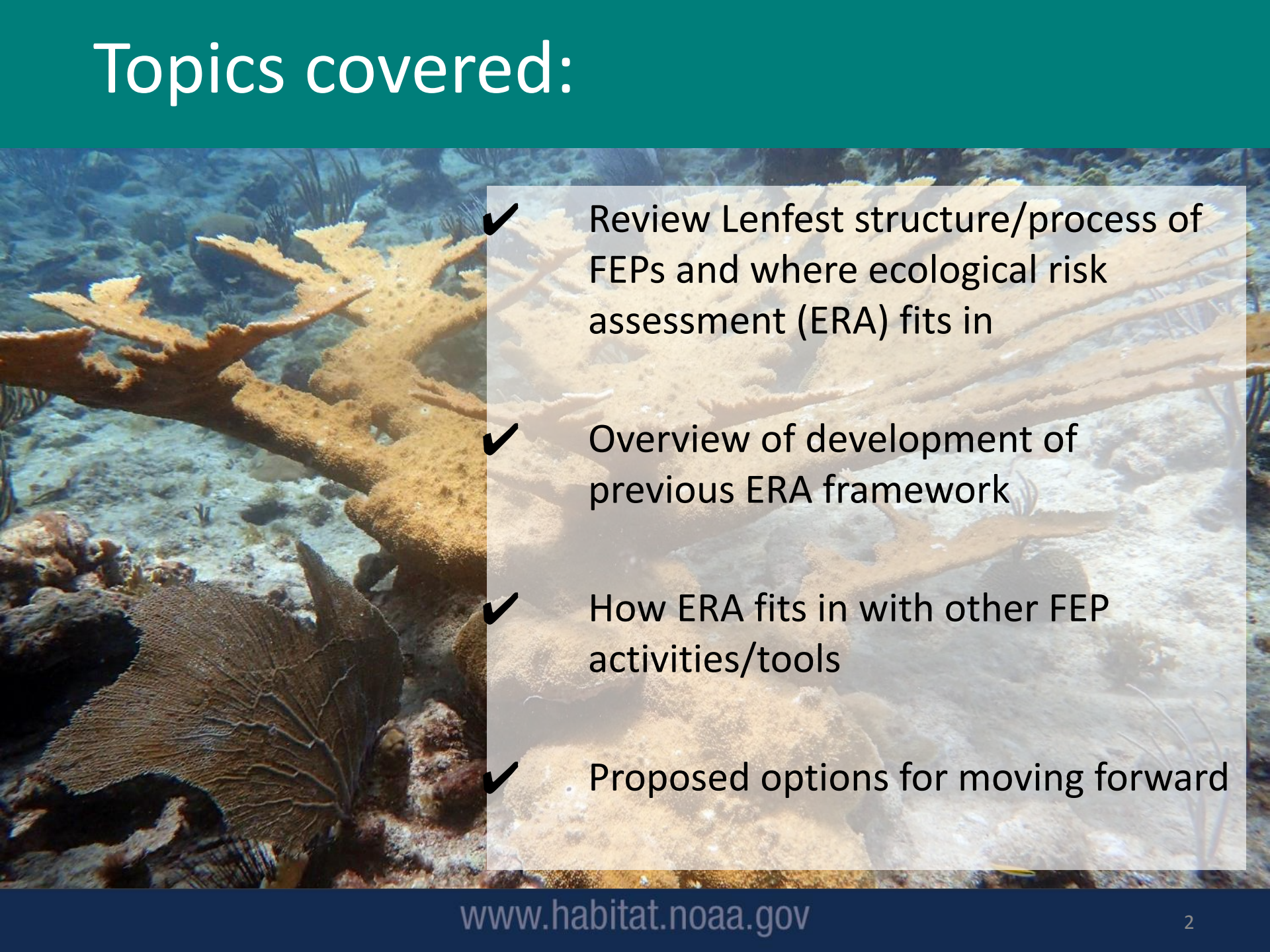
Ecosystem risk assessment approach to inform the CFMC Fishery Ecosystem Plan

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Topics covered:

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- An underwater photograph of a coral reef. In the foreground, there is a large, branching, yellowish-orange coral structure. Below it, a brown, fan-shaped coral is visible. The background shows more diverse coral and some small fish swimming in the clear blue water.
- ✓ Review Lenfest structure/process of FEPs and where ecological risk assessment (ERA) fits in
 - ✓ Overview of development of previous ERA framework
 - ✓ How ERA fits in with other FEP activities/tools
 - ✓ Proposed options for moving forward

Structure/Process of FEPs



Levin, P. S., Essington, T. E., Marshall, K. N., Koehn, L. E., Anderson, L. G., Bundy, A., ... Smith, A. D. M. 2018. Building effective fishery ecosystem plans. Marine Policy. <https://doi.org/10.1016/j.marpol.2018.01.019>

Lenfest Blueprint Steps

- 1) ***Conceptual Model*** – guide planning by identifying ecological, economic, & social endpoints **of concern**
- 2) ***Indicators*** – to capture status and trends of **important** ecol/econ/social components (“vital signs”)
- 3) ***List threats*** – include pressure in human systems, on land, in air, in ocean
- 4) ***Vision statement*** – encompasses **stakeholders’ and management core values**/purpose/foundation of goals
- 5) ***Strategic Objectives*** – translate vision statement to action; focused on particular ecol/econ/social domains
- 6) ***Risk assessment*** – analyze the risks to meeting strategic objectives

Benefits of ERAs

A vibrant underwater scene featuring a coral reef with various colorful corals and several small orange fish swimming in the clear blue water.

- Provides a standardized, yet flexible and transparent framework
- Scoping: inform conceptual models (step 1) think through the threats (step 3)
- Prioritization: help with developing/refining/prioritizing strategic objectives (step 5) or prioritizing species, fisheries, habitats to focus on
- Captures uncertainty and can inform where data collection efforts should be focused
- Incorporate ecosystem information into decision-making
- Evaluate management strategies

Example ERAs

- Originally adopted by the business world and encoded by the International Standards Organization (ISO)
- Ecological Risk Assessment for the Effects of Fishing (ERAEF) - applied to over 30 fisheries in Australia ([Hobday et al. 2007](#))
- MAFMC applied an ERA to focus on the highest risk issues for further evaluation and mitigation, including to prioritize further EAFM analyses ([Gaichas et al. 2018](#), [Muffley et al. 2020](#))
- For more examples see [Holsman et al. 2017](#) and specific to regional fishery management councils ([Rankin et al. 2023](#))

Previous ERA Framework

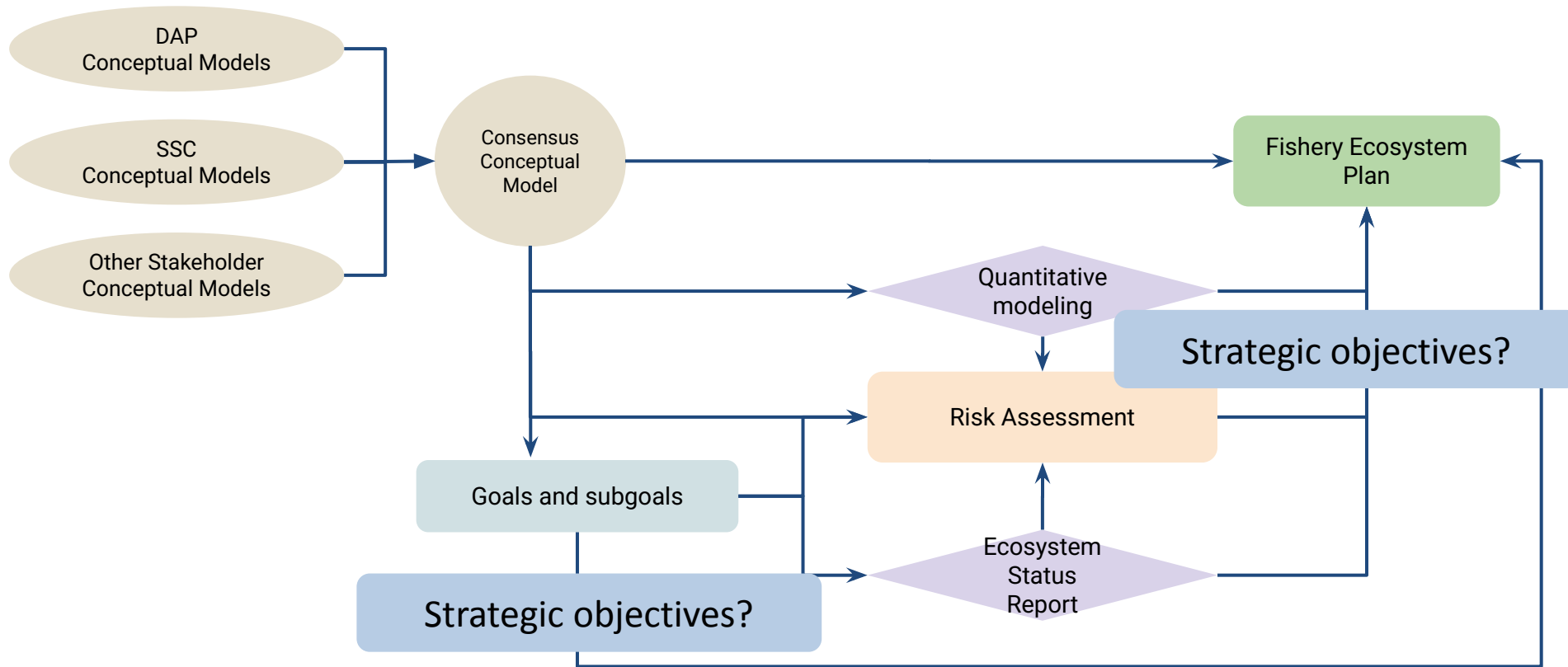
- Scale, Intensity & Consequence Analysis - qualitative assessment using expert opinion
- “What is the risk (intensity and consequence) of not achieving a management objective for unit of analysis (e.g. stock, fishery, habitat, ecosystem) due to a risk factor”
- Proposed 66 risk factors across 7 categories:
 - *Climate/oceanographic forces*
 - *Ecological interactions*
 - *Fishing activities*
 - *Other in-water activities*
 - *Land-based activities*
 - *Conservation and management actions*
 - *Socio-economic drivers*

Proposed Framework



1-yr funding from NMFS Office of Sustainable Fisheries to, “use the main drivers from the conceptual models as risk factors to evaluate relative risk, drawing from the quantitative indicators developed through the Ecosystem Status Report and Lenfest project.”

Proposed Framework



Proposal for moving forward

- 1) CFMC to hire contractor to work on ERA (1-2 mos.)
- 2) Contractor work with each of the side teams to compile relevant information for the ERA (2-3 mos.)
 - a. Use quantitative indicators where possible
 - b. Gather literature where quantitative indicators are lacking
- 3) Develop/refine ERA framework (2-3 mos.)
- 4) Present to the SSC for review, expert opinion (where needed), and approval (1-2 mos.)

Complete between Dec. 2023-March 2024

Discussion Questions



- What are your reactions to the proposal?
- Do you agree that the ERA should inform the development of strategic objectives? Or should the ERA evaluate risk against the strategic objectives?
- How well does the proposed process fit into the timeline of related products and FEP development?
- What other considerations am I missing?