



# Bering Sea Fishery Ecosystem Plan

## Ecosystem Health Report Card Discussion

BS FEP Team, May 24, 2021



# Agenda

- Refine and clarify overall goals of EHRC, and differences from other indicator-based products (ESRs ESPs, etc.)
- Review May 3 workshop breakouts - discuss sections of report
- Develop 1-year workplan for completion of pilot report

# Why are we developing this report?

- FEP Process Objective #9:
  - Maintain and enhance systematic status and trend monitoring of Bering Sea ecosystem processes and status relative to ecosystem objectives, to detect change
- Also Process Objective #10:
  - Create and track performance metrics to evaluate the ecosystem effects of specific management actions
- FEP Team tasked with providing strategic guidance for monitoring BS ecosystem status
  - *develop and keep current an appropriate suite of ecosystem indicators specific to the FEP's Ecosystem Objectives* (FEP Team Terms of Reference)
  - Originally intended to be tracked in the ESR, but thinking has evolved

# Fisheries effects on the ecosystem??

- Cumulative, multi -species effects (synthesis needed)
- Informs management strategy, not tactical management decisions
- Diversity of audiences
- Monitors success of EBFM management actions (progress towards goals and objectives)
- *Without* overwhelming

# GULF of MEXICO Coral Reef

PRELIMINARY REPORT CARD

## Scale Description

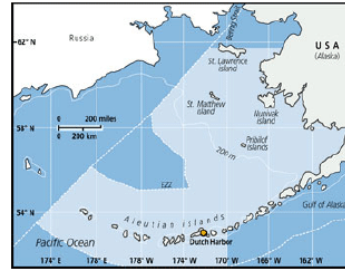


To describe the perceived condition of the reefs in the Gulf of Mexico, we used a spectrum of colors that ranges from green to red.



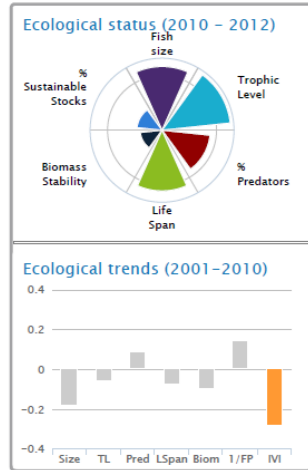
[coris.noaa.gov/activities/gulf-of-mexico-coral-reef/welcome.html](http://coris.noaa.gov/activities/gulf-of-mexico-coral-reef/welcome.html)

Bering Sea, Aleutian Islands

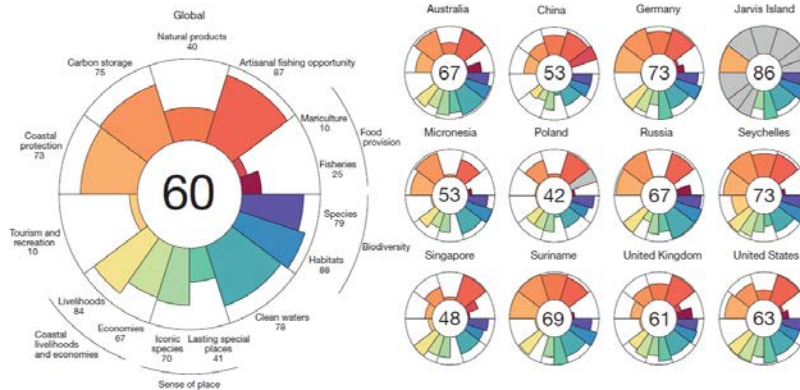


The 1980s-70s was a period of high exploitation, particularly for yellowfin sole, Pacific ocean perch, walleye pollock. Since the 80s, the total allowable catch has been capped at 2 MT, which has been consistently lower than the sum of species quotas; so catch has been very stable and, while some species are considered fully exploited, the ecosystem has not shown patterns of overfishing. Over half of the total catch has been pollock, a mid-trophic level species. It also dominates the surveyed biomass, so the indicators tend to follow the variable recruitment of pollock, possibly explaining non-significant trends for 1998-2005. Longer-term positive trends in fish size and lifespan were due in part to longer-lived flatfish, which experienced strong recruitment in the 80s possibly due to beneficial climate conditions.

by Kerim Aydin, Sheila JJ Heymans



indiseas.org



Ocean Health Index  
Halpern et al. 2012. Nature

**Table ES.1** Indicative assessment of key status and outlook for healthy, clean, and productive seas, plus supporting information

Healthy seas?	Status: ecosystem characteristics	5-10 year outlook	Information availability and quality	Read more in Section
Seabed habitats				3.2
Water column habitats				3.3
Marine invertebrates				3.4
Marine fish				3.5
Turtles				3.6
Seabirds and waterbirds				3.7
Marine mammals				3.8
Ecosystem processes and functions				3.9, 3.10
Clean and undisturbed seas?	Status: pressure	5-10 year outlook	Information availability and quality	Read more in Section
Physical disturbance of seafloor				4.2
Extraction of fish and shellfish				4.3
Non-indigenous species				4.4
Eutrophication				4.5
Contamination				4.6
Marine litter				4.7
Underwater noise and other forms of energy input				4.8
Climate change				4.9
Productive seas?	Direct dependency on healthy seas	Activity 5-10 year outlook	Information availability and quality	Read more in Section
Land-based activities	X	-		5.2
Extraction of living resources	✓	⚡		5.3
Production of living resources	✓	⚡		5.4
Extraction of non-living resources and disposal of waste	X	⚡		5.5
Transport and shipbuilding	X	⚡		5.6
Tourism and recreation	✓	⚡		5.7
Man-made structures	X	⚡		5.8
Energy production	X	⚡		5.9, 5.10
Research and survey	X	⚡		5.11
Military	X	⚡		5.12

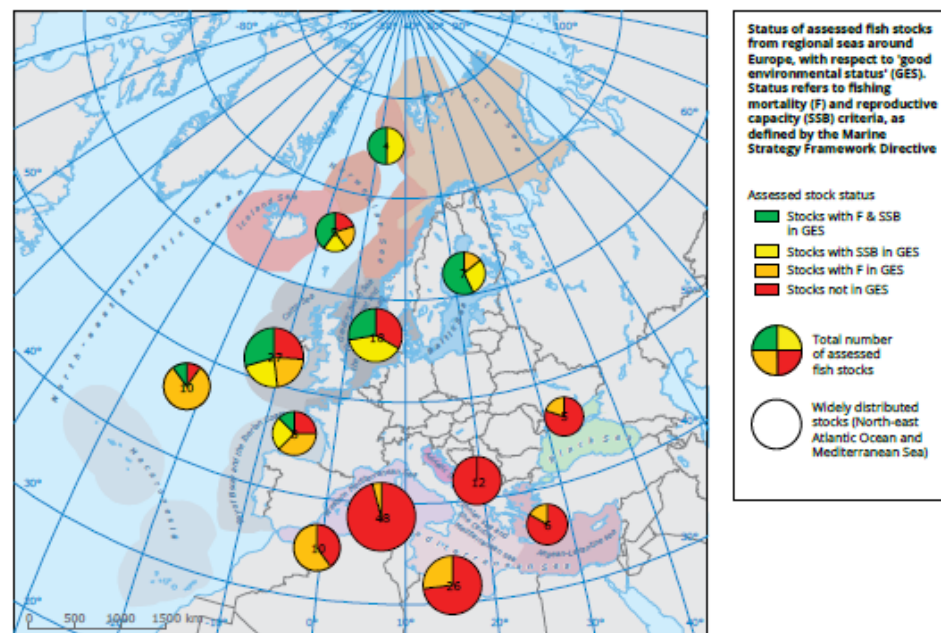
**Legend: Indicative assessment of:**

Status and trends of ecosystem and pressures	Information availability and quality
Status not good/deteriorating trends dominate	Limited information
Status or trends show mixed picture	Sufficient information
Status good/improving trends dominate	Good information

Note The indicative assessment builds on the information analysed in the relevant sections and expert judgement. The sources of information include EU reporting obligations, EEA indicators, EU and regional reports, and peer-reviewed papers.

Note The indicative assessment builds on the availability and quality of the information to make comparable and coherent evaluations at EU level and between regional seas.

**Figure 3.6** Proportion of assessed fish stocks in 'good environmental status'



Source: EEA, 2015b.

Status of Europe's Seas (2015)

<https://www.eea.europa.eu/publications/state-of-europes-seas>

# Suggested Path

Develop over **next year** a pilot report containing:

- Recommendations for what to monitor for EBFM "success" in the Bering Sea (what data or information, quantitative or qualitative) to use.
- Recommendations for how to monitor.
  - Annually? 3-year cycle? Annual? 3 year refresh with annual data updates?
    - Iterative: will depend on metrics chosen - both expected rate of change of indicators and difficulty/resources in obtaining data.
  - Report format (also iterative).
  - Key point: synthesis/"grading" should be an FEP team product.
  - Recommendations to consider new products (for AK indicators community of practice: including AFSC, but also funding bodies, other agencies, groups, etc).
- Extra credit: indicator levels for raising red, yellow flags
  - "Informing" flags, not "action forcing" flags!
- Pilot report on current state of the Bering Sea

# Suggested Path

- Pilot report on current state of the Bering Sea
  - Data, and synthesized "state and past trends" of the ecosystem.
  - Initial synthesis is an FEP team product (not ESR or other).
  - Initial "flag" assessment.
  - In a sense, similar to the "Ecosystem overview" that was part of base AI FEP, but dropped from Bering FEP to do as a "living" (updated) report rather than part of the base FEP.



# So where is our report starting point?

- Focus of FEP is strategic
  - Strategic versus Tactical advice led to development of this new product to deliver longer-term strategic advice rather than the near-term tactical advice contained in the ESRs.
  - Purpose in FEP: to allow fishery management to more explicitly take into account and be responsive to changes in the ecosystem
- Six ecosystem goals are overarching; FEP associates them with one or more strategic Ecosystem Objectives
- May 3 workshop recommendation: Organize report by six goals, and objectives under those goals. Subteams at workshop brainstormed initial data sources/resources.
- **Today:**
  - Step through goal subteam breakouts, identify draft indicators, resources and obstacles (or any final reorganization of objectives)
  - Ensure each goal subteam has FEP membership to complete report over next year.
  - Schedule milestones for next year.

# Council's Ecosystem Goals

1. Maintain, rebuild, and restore fish stocks at levels sufficient to protect, maintain, and restore food web structure and function
2. Protect, restore, and maintain the ecological processes, trophic levels, diversity, and overall productive capacity of the system
3. Conserve habitats for fish and other wildlife
4. Provide for subsistence, commercial, recreational, and non-consumptive uses of the marine environment
5. Avoid irreversible or long-term adverse effects on fishery resources and the marine environment
6. Provide a legacy of healthy ecosystems for future generations

# FEP Ecosystem Objectives

## **Ecosystem Goal 1: Maintain, rebuild, and restore fish stocks at levels sufficient to protect, maintain, and restore food web structure and function**

1. Maintain target biomass levels for target species, consistent with optimum yield, using available tools.
2. Maintain healthy populations and function of non-target and forage species.
3. Adjust fishing-related mortality from the system to be commensurate with total productivity and continue to limit optimum yield to 2 million metric tons for the BSAI groundfish fisheries.

# FEP Ecosystem Objectives

**Ecosystem Goal 2: Protect, restore, and maintain the ecological processes, trophic levels, diversity, and overall productive capacity of the system**

4. Maintain key predator/prey relationships.
5. Conserve structure and function of ecosystem components.

**Ecosystem Goal 3: Conserve habitats for fish and other wildlife**

6. Minimize adverse impacts to essential fish habitat, to the extent practicable.
7. Minimize and/or avoid impacts to ecologically-sensitive habitat, including habitat areas of particular concern.
8. Minimize and/or avoid impacts to seabirds, marine mammals, and protected species.

# FEP Ecosystem Objectives

## **Ecosystem Goal 4: Provide for subsistence, commercial, recreational, and non-consumptive uses of the marine environment**

9. Support benefits in the Bering Sea fishery and fishery-related industries.
10. Provide opportunities for new entrants in federal fisheries.
11. Promote economic and community stability to all commercial harvesting and processing sectors.
12. Promote sustainable opportunities and community resilience for subsistence users and Alaska Native communities.
13. Provide for directed fisheries including subsistence fisheries by minimizing bycatch mortality, to the extent practicable.
14. Preserve the ability for stakeholders to derive non-consumptive and cultural value from the Bering Sea ecosystem.

# FEP Ecosystem Objectives

**Ecosystem Goal 5: Avoid irreversible or long-term adverse effects on fishery resources and the marine environment**

**Ecosystem Goal 6: Provide a legacy of healthy ecosystems for future generations**

15. Establish appropriate thresholds to minimize risk of crossing ecosystem tipping points caused by fishery or other human activity.
16. Encourage responsible parties to minimize adverse impacts to fish and other wildlife associated with changes in shipping activity, tourism, energy, and other types of development.
17. Ensure that fishery management is sufficiently adaptive to account for the effects of climate change or other ecosystem changes, including loss of sea ice and ocean acidification.

# Timeline

- June 2021 - report to Council, Ecosystem Committee, SSC
- June 2021 - Feb 2022
  - Subteams coordinate to (~bimonthly check-ins?) Potential data support from NOAA IEA/other programs - Kerim POC.
  - Sept 2021 Initial data pass - what's available, what will we have, what do we need
  - Synthesis focus Jan-Feb 2022
  - *Also schedule opportunities for check-ins with Groundfish PT Crab PT? SSPT? Taskforces?*
- March-May 2022 - FEP Team meeting, finalize first iteration of report
  - Might do March workshop/May annual meeting model?
- April or June 2022 - share report with Council, Ecosystem Committee, SSC