INFORM but don't OVERWHELM

The AK Ecosystem Status Reports history

- Began in 1996 - “Ecosystem Considerations Chapter” in groundfish SAFE.
- ESRs through ~2006 focused on collective indicators which were informative on state and success without clear tactical management hooks (e.g. “Trophic Level of the catch”).
- Heavily informed by the Groundfish PSEIS.
- Some formalization through DPSR approach.

The AK Ecosystem Status Report history

- 2006 -2007 presentations on pollock informed ABC reductions (bottom -up productivity concerns).
- With main receptive audiences being groundfish PTs and SSC in December and an *overwhelming* number if indicators, honed main ESRs to give information in direct stock context.
- More single-species indicators (e.g. direct correlates of recruitment).
- Limited attention on collective "success" metrics.
- Time to revisit success metrics and tie to *ecosystem objectives.*

Increase in products without “overwhelming

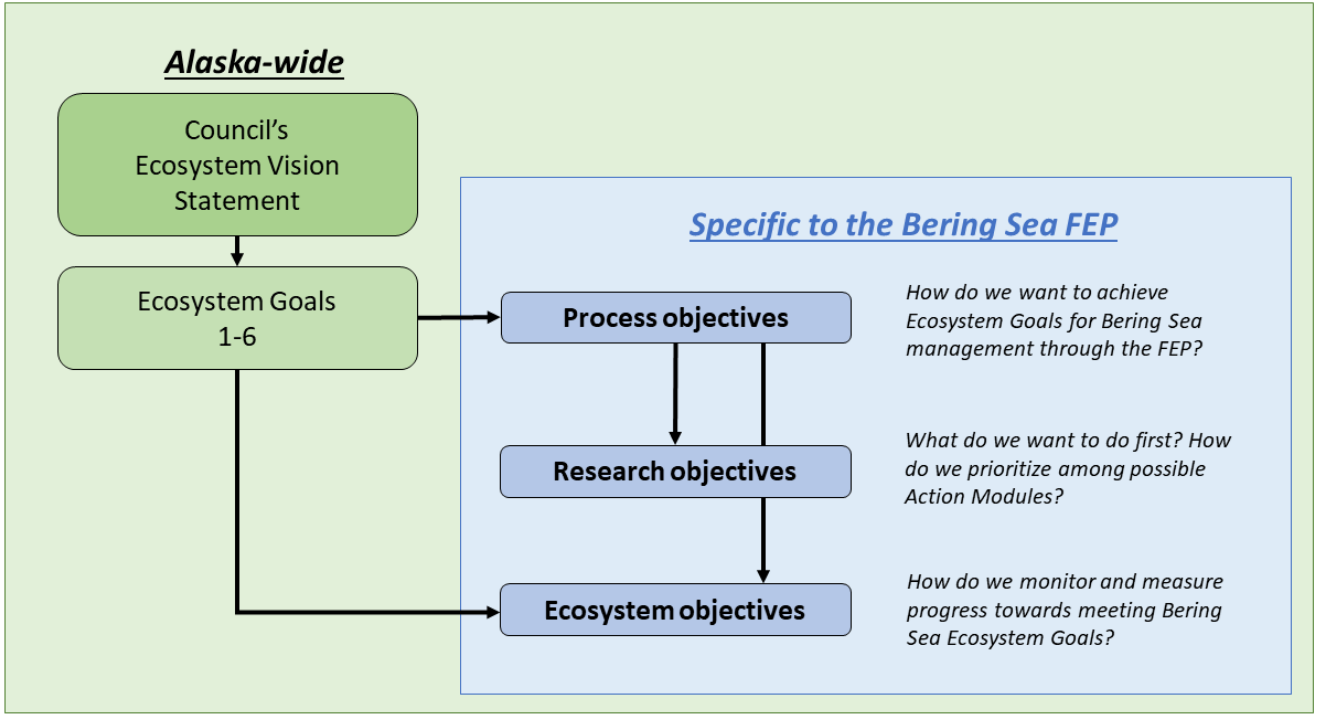
- Data - indicator contributions - (ESR bulk text, moving towards online).
- ESR Ecosystem Assessment and Report Cards - contextual synthesis.
  - ESR Report cards - top line trackers of “through the ecosystem” but not necessarily “holistic”. Intent to revisit “every 5 years” (ripe for Bering Sea).
  - No “grading” in current report cards.
  - 4-pagers (synopsys + management uptake)
- ESPs- (Ecosystem and Socio-economic Profiles)
  - Per-species, grades indicators “per species” based on conceptual model for those species
  - Initial versions developed (sablefish), AFSC workshop May 30 -31 for other species.
- Targeted at decision points (e.g. groundfish specs)
- **New** Spring PEEC - (Preview of eco and econ conditions - June)
- **New** Risk Tables
- **Proposed new** - Success Report Card (“graded”) tied to **objectives**

Draft ecosystem objective for the FEP

A starting point for the FEP team

INFORM but don't OVERWHELM

Objectives


Alaska-wide
Council's Ecosystem Vision Statement
Ecosystem Goals 1-6
Specific to the Bering Sea FEP
Process objectives
Research objectives
Ecosystem objectives
How do we want to achieve Ecosystem Goals for Bering Sea management through the FEP?
What do we want to do first? How do we prioritize among possible Action Modules?
How do we monitor and measure progress towards meeting Bering Sea Ecosystem Goals?

Indicator and objective mapping

Objective	**Status indicator**	**Trigger/threshold indicator**	**Success indicator**
1. Maintain target biomass levels for target species	Survey biomass, spawning stock biomass	B40, F40	FSSI (across stocks)
5. Conserve structure and function of ecosystem components	Biomass of species guilds?	*None: action informing only*	Trophic level? Guild balance? Etc...

Objectives

Exercise performed similarly for PSEIS, update for new ecosystem objectives and new scientific understanding.

Table 4.1-7. Significance criteria for ecosystem effects.

Issue	Effect	Significance threshold	Indicators
Predator-prey relationships	Pelagic forage availability	Fishery induced changes outside the natural level of abundance or variability for a prey species relative to predator demands.	• Population trends in pelagic forage biomass (quantitative - pollock, Atka mackerel, catch/bycatch trends of forage species, squid and herring).
	Spatial and temporal concentration of fishery impact on forage	Fishery concentration levels high enough to impair the long term viability of ecologically important, nonresource species such as marine mammals and birds.	• Degree of spatial/temporal concentration of fishery on pollock, Atka mackerel, herring, squid and forage species (qualitative).
	Removal of top predators	Catch levels high enough to cause the biomass of one or more top level predator species to fall below minimum biologically acceptable limits.	• Trophic level of the catch. • Sensitive top predator bycatch levels (quantitative: sharks, birds; qualitative: pinnipeds). • Population status of top predator species (whales, pinnipeds, seabirds) relative to minimum biologically acceptable limits.
	Introduction of nonnative species	Fishery vessel ballast water and hull fouling organism exchange levels high enough to cause viable introduction of one or more nonnative species, invasive species.	• Total catch levels.
Energy flow and balance	Energy re-direction	Long-term changes in system biomass, respiration, production or energy cycling that are outside the range of natural variability due to fishery discarding and offal production practices.	• Trends in discard and offal production levels (quantitative for discards). • Scavenger population trends relative to discard and offal production levels (qualitative). • Bottom gear effort (qualitative measure of unobserved gear mortality particularly on bottom organisms).
	Energy removal	Long-term changes in system-level biomass, respiration, production or energy cycling that are outside the range of natural variability due to fishery removals of energy.	• Trends in total retained catch levels (quantitative).

Indicator and objective mapping

Council Ecosystem Goals	Ecosystem Objective	Ecosystem Health Indicator(s)	IDEAL Ecosystem Health indicator(s)	Ecosystem Status Report Indicator(s)	IDEAL Ecosystem Status Report indicator(s)
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.	Fish Stock Sustainability Index (FSSI); Stability of Groundfish Biomass		Groundfish distribution and abundance; Commercial crab biomass indices	
	2. Maintain healthy populations and function of non-target and forage species.			Jellyfish, Forage fish, juvenile salmon distribution and abundance; Miscellaneous species; Non-Target Species Catch; Groundfish condition	
	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.	Aggregated CPUE			

Indicator and objective mapping

Tasking

- Core FEP tasking (not action module)
- Working group interim meeting? (1 -2 year cycle?)
- Interface with ESR team - resources through IEA -funded project
- Interface with other Plan Teams
- Interface with Lenfest team
- Outcome: tracking products proposed to Council cttes (new Report Cards)?
- Feedback to objectives

INFORM but don't OVERWHELM*

*Stephanie Madsen