Breakout groups - FEP Team / EHRC workshop, 5/3/21

How divide into groups?

- Idea: 5 groups based on the Council's Ecosystem Goal objective groupings
- Designate an FEP team lead(s) for each group

Tasks:

- What indicators do we have already? ([Table 2-1 from the FEP, 2019/20 ESRs](#))
- Do those get at what we want/need? What would be the ideal indicators?
- What will it take to put together a first cut at this?
  - Timeline
  - Additional partners needed?

Goal:

report back to FEP Team at May 24-25 meeting with ongoing progress and a firm plan to complete; any clarifications, adjustments, obstacles

5 groups if organized by FEP ecosystem goal:

1. Fish stocks, food web structure and function
2. Ecological processes, trophic levels, diversity
3. Habitat, seabirds/mammals
4. Fisheries (subsistence, commercial, recreational) and non-consumptive uses
5/6. Avoid long-term adverse effects/legacy of healthy ecosystems (ecosystem tipping points, non-fishery activity impacts, climate change)

Beginning today:

- For each of the 17 [ecosystem objectives](#), identify what would be the metric that we should use to convey the strategic/long-term status of that objective
- Ideally should be no more than 1-3 metrics per objective
- But a "metric" could be either a single indicator or an amalgam of indicators, depending on the need
  - Need to think about conveying how quality of information differs among objectives
  - Each metric would be measurable/thresholded in some way (at least red-orange-green, to indicate status)

Things to keep in mind from this morning

- - what is the right timeframe needed for these metrics/indicators given the report is intended to be long-term, strategic?

- ● - this report should not duplicate the ESR. How can we ensure the focus here is different, strategic?
- ● - End goal: are we trying to document status for the Council/others, or are we also trying to work towards collaborating with other resource managers where we have joint goals?

Audiences / users of report

- ● - need to think about both

From FEP meeting poll

Council members - strategic planning, mgmt planning; strategic changes to structure of decisionmaking
Ecosystem Committee - help meet their responsibilities
Plan Team/SSC members/assessment authors - harvest specs, interactions with the assessment risk tables
Fishery managers - harvest limit decisions
Fishery user groups - status of their fishery in larger ecosystem context; communication tool
Managers of other resource entities, co-management partners, NBS climate resilience area entities (tribal and federal)
Interactions with other stakeholders/user groups - common basis for starting conversations
NP science community at large - one stop shop for understanding BS, esp research arms of various tribal/regional organizations
Funding agencies/research applicants - justification for Council-relevant research
NMFS HQ, intl groups doing EBFM/ecosystem status research
Congress/political community - allocates funding, including ocean planning
Coast Guard, health and safety organizations – moving towards EBM rather than EBFM

NOTES FROM BREAKOUT SESSIONS

Breakout 1: Fish stocks: Jim Ianelli, Ian Stewart, Ebett Siddon

Indicators should be flagged by relative reliability.

1. Maintain target biomass levels for target species, consistent with optimum yield, using available tools.
   - ● Time series of the sum of yield, OFL, ABC, TACs (HCLs) for both groundfish and crab (Jim)
   - ● Given fixed boundaries, species distribution shifts relative to environmental conditions could affect reference points for fisheries management (Jim)

2. Maintain healthy populations and function of non-target and forage species.
   - ● Fishery footprint (trawling areas) as potential impact on epifauna/infauna etc, but may belong elsewhere (e.g., objective 6 or 7)
   - ● Forage species composite trends (to be developed); include relative observation errors and availability.
   - ● Non-target species composite trends (to be developed); include relative observation errors and availability.
   - ● BTS "Miscellaneous species" available;
   - ● Time series trends of non-target species (Jellies etc)

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.

   To clarify relative to the 2 million t OY CAP, we interpret this to mean that it's treated as a maximum, not a goal. Potential indictors include (from the ESR):

- Should the OY cap change w/ environmental conditions? Context of the 2 million t OY is needed
- FSSI as a general single-species management scorecard (35 stocks) this provides a level of information about managed stocks
- From groundfish survey data: bulk survey CPUE/biomass by guild
- Species richness, and spatial distribution.
- Mean life span of community

Other indicators discussed

- Stability of groundfish biomass 1/CV(biomass) where CV is from (a minimum of 10 year) time series (from ESR)

Breakout 2: Ecological processes: Kerim Aydin, Andy Whitehouse

Format notes: Stoplight (or stoplight table like salmon) has advantages - doesn't overpromise certainty like a continuous ticker. Quickest look over multiple indicators.
People for scientific (pre-Council) review?

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.

- Key prey: Forage fish, crab, infauna/epifauna, pollock, krill, sm zooplankton, phytoplankton
- Ecosystem network statistics
- EBS Adult Pacific cod food habits (currently in ESR) nondirectional?
- Will seabirds/mammals be picked up by other team?

5. Conserve structure and function of ecosystem components.

- Mean lifespan of groundfish (currently in ESR)
- Mean length of groundfish (currently in ESR)
- Groundfish stability (currently in ESR)
- Guild biomass index (currently in ESR)
- Average local species richness and diversity of the Eastern Bering Sea Groundfish community (currently in ESR)
- Trophic level of the catch

Breakout 3: Habitat, seabirds/mammals: Heather Renner, Anne Marie Eich, Jo-Ann Mellish, J. Wheeler

https://meetings.npfmc.org/CommentReview/DownloadFile?p=1d1cd64e-5b6c-4e0a-b301-a18c094aee0d.pdf&fileName=Table%202-1%20from%20BS%20FEP%20Jan%202019.pdf

Beginning today:
- For each of the 17 ecosystem objectives, identify what would be the metric that we should use to convey the strategic/long-term status of that objective
- Ideally should be no more than 1-3 metrics per objective
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Council's Ecosystem Goals #3. Conserve habitats for fish and other wildlife (ie, habitat, seabirds/mammals)
Objectives:
6. Minimize adverse impacts to essential fish habitat, to the extent practicable. [The Magnuson-Stevens Act defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity"]
- Q: what is already being provided to council about EFH and how would this be different?
- Alaska EFH Mapper (talk to NMFS Habitat Conservation Division to see what can be measured)
- EFH 5-Year Review (longer timeframe than desired but potentially good source?)
- Q - how does sea ice overlap with EFH, habitat (eg for seals) and foraging habitat
7. Minimize and/or avoid impacts to ecologically-sensitive habitat, including habitat areas of particular concern. [Habitat Areas of Particular Concern (HAPCs) are smaller habitat areas within EFH that meet at least two of the four considerations: 1)The importance of the ecological function provided by the habitat; 2) The extent to which the habitat is sensitive to human-induced environmental degradation; 3) Whether, and to what extent, development activities are, or will be, stressing the habitat type; 4) The rarity of the habitat type.]
- eider habitat - perhaps measured by eider "health" - diet or reproductive status?
- Habitat Conservation Area Maps; mapper (talk to NMFS Habitat Conservation Division to see what can be measured)
- Q - Amount of area where bottom trawling is allowed (?)
8. Minimize and/or avoid impacts to seabirds, marine mammals, and protected species.
- metric: # seabird species that meet a particular status (TBD) listed on IUCN
- metric: # marine mammal species that meet a particular status (TBD) listed on IUCN; Marine Mammal Stock Assessments; ESA-listings
- metric: beached birds (eg COASST), mammal strandings (MM stranding network)

What habitat surveys exist?
- ice cover
- coral surveys
- NMFS surveys, or other surveys? - ocean temperature, salinity, acidity, etc?

Breakout 4: Fisheries: Ben Daly, Davin Holen, Kate Haapala, Sara Cleaver, Mike Dalton, Sarah Wise

Key themes from indicators convo:
*Approach was to identify indicators by objective, switching gears to identify major themes across objectives and priority (?) indicators

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.
    - Indicators to track: trends in unemployment, human population, school enrollment (pg 25)
     - Trends in total # of fisheries as a way of defining opportunities in the Bering Sea
     - Trends in gear use
    - trends in species harvested/processed
    - overarching trend - shipping, vesel traffic also safety

10. Provide opportunities for new entrants in Federal fisheries.
   - determine trends in proportion Federal fisheries that are open access as index for potential new entrants- we can look at #vessels that participated,

11 . Promote economic and community stability to all commercial harvesting and processing sectors.
    landings, value and unit value (pg 25)
  -crew members, vessels, linked to communities, shoreside processors and processing jobs
  - Port and other infrastructure in fishing communities to support 'fishing way of life.'

12. Support sustainable opportunities and community resilience for subsistence users and Alaska Native communities.
    - Halibut and salmon subsistence trends (pg 25) *should be harvest & participation. General harvest patterns but also number of   participants.
    - SHARC; satisfaction with harvest
    - food security (potentially ADFG Div of Sub case study); seeing conversations in literature a shift away from Chinook and trends towards other species. Also a move towards commercial markets.   Also shifts in preferred gear for harvesting.
    - community migration, gendered migration, age dynamics - are ESR authors looking at this?

13. Provide for directed fisheries including subsistence fisheries by minimizing bycatch mortality.
    Juvenille Chinook index, grounfish + crab discards, trends in discard rates (pg 25)

14. Preserve the ability for stakeholders to derive non-consumptive and cultural value from the Bering Sea ecosystem.
    - recreational fishing participation (pg 25)
    - also include subsistence fishing participation
    - can also be inclusive of marine mammal harvest; connections to social networks and facilitating cultural transmission (links to other FEP goal/objective of future generations)
    - Social networks, kin networks, connecting to and building a sense of place via fishery and other resource access , longevity of permit so how long have permits stayed with a person and potentially if they are transfered to a family member.
- commercial verses share subsistence
- Issue of access.

note that tourism and shipping included in objective 16

Amalgamated index?

Timing:
- LKTKS Taskforce and SSPT potentially look at this goal and objectives at fall meeting.
- who is doing the work? That would drive some conversation on the timing.
- There seems to be connection between these indicators and research priorities.
- FEP report broader than the ESR (most recent year). Community wellbeing, sense of place, etc might have more of a place in a document like this.

Breakout 5: Avoid long-term adverse/legacy of healthy ecosystems: Stephani Zador, Diana Evans, Kirstin Holsman, Diana Stram, Megan Williams

15. Establish appropriate thresholds to minimize risk of crossing ecosystem tipping points caused by fishery or other human activity.
a. Balanced Ecosystem Trait and Health index (new indicator being developed by Lenfest group) for this purpose: Lenfest indicators
b. Cumulative number of climate tipping points, indicator of food security resources, e.g, 2.1 deg BT (pollock and pcod), 14 deg C fw river temperatures for chinook, 5 deg nbs HABs (current status = CPK, collaborations and coupling to MSEs and Risk assessments to ID which metrics)

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.
a. Number (or % of those reviewed) of collaborative/cooperative agreements (MOUs) that include EBM and/or climate change objectives, tracking the initiation or expiration over time.
b.

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
a. Frequency of MSE evaluations for trophic guilds/ fishery types
b. Number of amendments to FMP to address novel challenges, program changes
c Number of closures of fisheries due to environmental / climate driven changes
d. . Number of stock assessment models that include ecological and/or climate covariates for ABC estimation.
e. Number of risk tables that used climate/ecosystem changes to adjust ABCs
g. Number of fishery stock rebuilding not meeting targets because of climate change (e..g, BKC pribs) (e.g., management rebuilding plans use climate/info)
h. Change in areal overlap/mismatch between fishery stock and fishing areas and or bycatch (e.g., management system uses CE-SDMs)