2024 Recommendations from FEP team members for new ideas and top priorities

Research ID	Title	Description	Notes
FEP TEAM MEMBERS INITIAL PRIORITY TO EXISTING:			
147	Life history research on data poor or non-recovering crab stocks	Why certain stocks have declined and failed to recover as anticipated is a pressing issue (e.g., Pribilof Island blue king crab, Adak red king crab). Research into all life history components, including predation by groundfish on juvenile crab in nearshore areas, is needed to identify population bottlenecks, an aspect that is critically needed to develop and implement rebuilding plans.	but perhaps refocus on life history and fishing effects on just commercially important crab stocks
150	Maintain the core biological and oceanographic data (e.g., biophysical moorings, diet data, zooplankton, age 0 surveys, benthic production) necessary to support integrated ecosystem assessment.	Maintain the core data and process studies needed to support integrated ecosystem assessments. Core data include inputs for single- or multi-species management strategy evaluations, food web, and coupled biophysical end-to-end ecosystem models (e.g. biophysical moorings, stomach data, zooplankton, age 0 surveys (i.e. BASIS surveys), benthic production). Develop and maintain indices of sea ice formation, sea ice retreat, and timing/extent of the spring bloom for the EBS. For this, maintenance of moorings, especially M-2, is essential. If recent changes in ice cover and temperatures in the Bering Sea persist, these may have profound effects on marine communities.	
158	Research ecosystem indicators and their thresholds for inclusion in ecosystem-level management strategy evaluation.	Initiate/continue research on the synthesis of ecosystem indicators, developing and evaluating thresholds for ecosystem indicators, and ecosystem-level management strategy evaluation.	
187	Continue to develop and improve the use of indicator-based ecosystem assessments throughout the range of the Council's managed resources	Maintain indicator-based ecosystem assessment for EBS.	
188	Develop indicator-based ecosystem assessments for AI (in progress), GOA, Arctic.	Develop indicator-based ecosystem assessments for AI (in progress), GOA, and the Arctic.	
192	Collect, analyze, and monitor diet information	Collect, analyze, and monitor diet information (species, biomass, energetics), from seasons in addition to summer, to assess spatial and temporal changes in predator-prey interactions, including marine mammals and seabirds. The diet information should be collected on the appropriate spatial scales for key predators and prey to determine how food webs may be changing in response to shifts in the range of crab and groundfish.	

2024 Recommendations from FEP team members for new ideas and top priorities

Research ID	Title	Description	Notes
217	Impact of fisheries on benthic habitat and trophic interactions	Conduct studies to assess the impact of bottom trawl fisheries on invertebrate abundance and species composition in benthic habitats. This is especially relevant to direct impacts on Bristol Bay red king crab. Indirect impacts are important to the foraging ecology of walrus (candidate species for listing under ESA), bearded seals, and gray whales.	
223	Develop and evaluate global climate change models (GCM) or down-scaled climate variability scenarios to assess impacts to recruitment, growth, spatial distributions, and benthic productivity.	Quantify the effects of historical climate variability and climate change on recruitment, growth, spatial distribution, and benthic productivity. Develop standard environmental scenarios (e.g., from GCMs) for present and future variability based on observed patterns. This is important for fisheries that target benthic species such as crab for which management may be structured on an assumption of stable stock distribution.	
225	Develop projection models to evaluate management strategies under varying climate, ecological, and economic conditions and evaluate impacts to managed resources and coastal communities.	There is a need to develop projection models that evaluate the robustness and resilience of different management strategies under varying climate, ecological, and economic conditions. Projection models should forecast seasonal and climate related shifts in the spatial distribution and abundance of commercial fish and shellfish, and impacts to communities.	
244	Collect and maintain time-series data on the community composition, production and biomass of benthic invertebrate and vertebrate fauna	Collect and maintain time-series data on the community composition, production and biomass of benthic invertebrate and vertebrate fauna.	
246	Cooperative research efforts to supplement existing at-sea surveys that provide seasonal, species-specific information on upper trophic levels	Continue and expand cooperative research efforts to supplement existing at-sea surveys that provide seasonal, species-specific information on upper trophic levels (seabirds and marine mammals). Updated surveys to monitor distribution and abundance of seabirds and marine mammals are needed to assess impacts of fisheries on apex predators, improve the usefulness of apex predators as ecosystem indicators, and to improve ecosystem management.	

2024 Recommendations from FEP team members for new ideas and top priorities

Research ID	Title	Description	Notes
536	Evaluate incorporation of climate change impacts into stock assessments	Climate change impacts are becoming an increasingly important consideration for long term planning and should be included in projections of exploitable fish stocks and associated ecosystem components. Incorporation of climate-based parameters into fish stock assessments will allow for exploration of harvest scenarios in the context of evolving climate conditions. Research is needed to explore how these parameters can be integrated into fishery stock assessments.	
556	Re-evaluate the location and temporal structure of Herring Savings Areas	Re-evaluate whether the current locations of the Herring Savings Areas are likely to be effective at protecting herring populations (i.e. overlap with current distribution of herring during the specified dates) and whether seasonally-fixed or moving closures would be the most effective. Re-evaluation is particularly necessary due to recent changes in herring distributions. The research would ensure that groundfish fisheries are not pushed into areas with higher salmon PSC and squid bycatch without meeting the goal of protecting herring.	
671	Characterize expected changes in benthic production due to climate change	Investigations are needed to address the impacts of global climate change on spatial patterns of benthic productivity. This is important for fisheries that target benthic species such as crab for which management may be structured on an assumption of stable stock distribution.	
715	Physiological responses of crab to climate stressors	Investigate how observed environmental changes (temperature, OA, etc.) affect crab physiological condition & survival of multiple life stages and reproductive output. Consider interactions among multiple stressors	
732	LK and TK data collection	This research priority would support more structured and consistent sources of ecosystem information for use in annual reports (such as ESRs), specific fishery management actions, or future development of conceptual models, especially as there are some areas that are data poor. Ultimately want to build systematic onramps into the Council process, but need data to be able to populate those onramps also.	
733	Climate change: Develop predictive tools to inform management options related to resilience and adaptation.	This research priority supports the work of the Climate Change Taskforce to identify and map out climate and environment change drivers and their likely response within fishery management, and specifically work on management options that provide a management response. Might support with groundfish specifications risk tables, and can also use these predictive tools to be able to evaluate the potential risk of different management responses related to potential scenarios.	

2024 Recommendations from FEP team members for new ideas and top priorities

Research ID	Title	Description	Notes
FEP TEAM MEMBERS NEW IDEAS TO ADD			
BSFEP001	Analyses to quantify relationships *among* ecosystem indicators / simplify them. We have such a high volume of ecosystem information available, it becomes overwhelming to interpret them and decide what is important. Efforts to understand relationships among ecosystem components and which can be combined/simplified into more useful indicators would be helpful.		
BSFEP002	Coordination/synthesis of Aleutians Islands research/fishery issues (description being submitted by Dr. Ivonne Ortiz).		
BSFEP003	New submission: Evaluate the role of fisheries in the Bering Sea in providing economic opportunities and food security in coastal communities.	This priority would include an assessment based on locally derived indicators of success and the region's shared cultural and social values. The assessment would be driven by a community well-being framework that includes traditional methods of assessment, including vulnerability indices and economic data, but would also focus on input on measures of successful livelihoods through gathering data from local residents, elders, and other cultural bearers.	
BSFEP004	Quantify biomass (spatially) of forage species needed to support major marine predators, fish, birds, and marine mammals.		
BSFEP005	Research on quantitative relationships between ecosystem indicators and fish stocks. Much has been done to compile ecosystem indicators and other relevant data in order to inform fisheries management. However, it is less clear how to use these information quantitatively. Retrospective analyses of comparing ecosystem information to known or presumed fish stocks would help inform this decision making.		