

Research ID	Title	Description	SSC Priority	Research Status
175	Develop age-structured models for scallop assessment	Age structured models for scallops are needed to increase understanding of population dynamics and harvestable surpluses.	Strategic	Partially underway
177	Conduct prospective and retrospective analyses of changes in the spatial and temporal distribution of fishing effort in response to management and environmental changes	Conduct prospective and retrospective analyses of changes in the spatial and temporal distribution of fishing effort, in response to management actions (e.g., time/area closures, marine reserves, PSC and other bycatch restrictions, co-ops, IFQs, multi-target crab fisheries) and environmental changes.	Strategic	Partially underway
191	Assess whether changes in pH and temperature would affect managed species, upper level predators, and lower trophic levels.	Assess whether changes in pH and temperature would affect managed species, upper level predators, and lower trophic levels. Laboratory studies are needed to assess the synergistic effects of ocean acidification and changes in temperature on productivity of marine species.	Strategic	Partially underway
193 ^a	Improve species identification	Improve species identification, by both processors and observers, for priority species within species complexes in catches, to meet requirements of total removals under ACLs. Methods that quantify and correct for misidentifications are desired.	Strategic	Completed
a	As this is completed, this should be removed from the database. If concerns about species like blackspotted and rougheye rockfish still exist and are underway, we should ask those assessment authors to submit a new research priority (Spencer and Sullivan)			
194	Identification and integration of archived data	Identification and recovery of archived data (e.g., historical agency groundfish and shellfish surveys, and fishery data) should be pursued. Investigate integrating these data into stock and ecosystem assessments. Some archival acoustic data have been cataloged, and most trawl surveys have been included in databases. Some one-time research surveys remain neglected.	Strategic	Partially underway
196	Genetics, population dynamics, and management implications of hybridization between Tanner and snow crab in the Bering Sea.	The presence of hybrids complicates the assessment and management of EBS snow and Tanner crab stocks. Genetics research is needed to better understand the abundance of hybrids relative to pure snow and Tanner crabs. Other needed research includes assessing temporal shifts in hybrid crab spatial distribution, the geospatial overlap with snow and Tanner crabs, the directionality of hybrid mating dynamics, and the extent of first generation crosses and backcrosses. To evaluate management implications, a two-species spatial population model should be developed that captures the essential features of the population dynamics, including hybridization. Alternative management approaches should be evaluated.	Strategic	Partially underway
198	Initiate and expand non-market valuation research of habitat, ecosystem services, and passive use considerations	Initiate and expand non-market valuation research of habitat, ecosystem services, and passive use considerations.	Strategic	No action
200	Monitor contaminant flux and loads in lower and higher trophic levels, and assess potential for impact on vital rates.	Monitor contaminant flux and loads in lower and higher trophic levels, and assess potential for impact on vital rates. Laboratory studies are needed to assess the effects of oil dispersants on the productivity of marine species.	Strategic	No action
215	Determine potential impacts of fishing activities on marine mammals	Determine potential impacts of fishing activities on marine mammals (e.g., state managed gillnet fisheries), and in particular on North Pacific right whales and the Eastern North Pacific blue whales, particularly in identified critical (NPRW) or essential (NPBW) habitat.	Strategic	No action

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221	Collect maturity scans during fisheries that target spawning fish	Expand existing efforts to collect maturity scans during fisheries that target spawning fish (e.g., pollock). Time series of maturity at age should be collected to facilitate the assessment of the effects of density-dependence and environmental conditions on maturity. Maturity information for pollock and Pacific cod is collected by observers and should be analyzed. Maturity information for rockfish species near Kodiak has been collected recently, both during the fishery and dedicated scientific cruises, and should be analyzed. A dedicated survey to examine spawning sablefish has also been conducted. Efforts to collect maturity data, and then analyze for rockfish and other species should continue. In particular, retrospective studies to identify factors (e.g., fishing, climate, prey quality and quantity) influencing the maturity schedule should be conducted.	Strategic	Partially underway
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.	Strategic	Partially underway
224	Climate and oceanographic information covering a wider range of seasons	There is a need for climate and oceanographic information that covers a wider range of seasons than is presently available.	Strategic	Partially underway
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.	Strategic	Partially underway
233 ^b	Develop an ongoing database of product inventories	Development of an ongoing database of product inventories (and trade volume and prices) for principal shellfish, groundfish, Pacific halibut, and salmon harvested by U.S. fisheries in the North Pacific and eastern Bering Sea.	Strategic	No action
	b Suggest changing "US" in the description to federal, since this likely wasn't intended to include all state-managed salmon fisheries.			
234	Analyze current determinants of demand for principal seafood products	Analyze current determinants of ex vessel, wholesale, international, and retail demand for principal seafood products from the GOA and BSAI.	Strategic	Partially underway
238	Develop a GIS relational database for habitat, to include a historical time series of the spatial intensity of interactions between commercial fisheries and habitat.	Develop a GIS relational database for habitat, including development of a historical time series of the spatial intensity of interactions between commercial fisheries and habitat. Such time series are needed to evaluate the impacts of changes in fishing effort and type on EFH.	Strategic	Underway
242	Collect and maintain primary production time series	Collect and maintain primary production time series in the EBS, AI, GOA, and Arctic; particularly in relationship to key climate and oceanographic variables.	Strategic	Partially underway
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.	Strategic	Partially underway
247	Assess the relative importance of non-commercially exploited species to human communities	Assess the relative importance of non-commercially exploited species (invertebrates, fish, marine mammals, and seabirds) to human communities, particularly in Arctic.	Strategic	Partially underway
248	Measure and monitor large scale fish composition	Measure and monitor large scale fish composition: evaluate existing data sets (bottom trawl surveys, acoustic trawl surveys, and BASIS surveys) to quantify changes in relative species composition of commercial and non-commercial species, identify and map assemblages, monitor changes in the distribution of assemblages, and understand the spatial importance of predator-prey interactions in response to environmental variability. Additional monitoring may be necessary in the Aleutian Islands, northern Bering Sea, and areas of the Gulf of Alaska.	Strategic	Underway

Research ID	Title	Description	SSC Priority	Research Status
361	Effects of Ocean Acidification on Scallops	Laboratory studies are needed to understand the mineralization of scallop shells through their life cycle and under current spatial variability and future scenarios of ocean acidification.	Strategic	Partially underway
368	Develop a simulation model of Steller sea lion fishery interactions	Management strategy evaluation tools based on coupled bio-physical models with fishing and top trophic level foragers (e.g., Steller sea lions) should be developed to evaluate the performance of different harvest strategies, to inform future management decisions, and to prioritize field studies.	Strategic	No action
386	Investigate long term effects of fishing on Pacific halibut	Collect genetic samples for future comparison.	Strategic	Underway
390	Population status of AI harbor seals	Assess the population status of harbor seals in the Aleutian Islands and determine factors affecting their population trajectories	Strategic	No action
452	Dusky Rockfish and Shortspine Thornyhead genetics research for improved population structure	Genetic research to better study dusky rockfish and shortspine thornyhead population structure.	Strategic	No action
494	Investigate skate egg concentration areas as EFH and HAPC	Skate conservation and skate egg concentration areas remain a priority for EFH and HAPC management and within Council and NMFS research plans.	Strategic	Partially underway
535	Development and evaluation of data poor and data moderate methods	Several methods are currently in use around the country for setting harvest specifications for data-poor and data-moderate stocks (corresponding, respectively, to Tiers 6 and 4-5 of the BSAI and GOA groundfish harvest control rules), several others are currently under development, and still others could be developed in the future. There is a need to continue development of such methods and to conduct comparative performance tests of the methods.	Strategic	Underway
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.	Strategic	Underway
537 ^c	Identification of best practices for long term storage of ageing structures.	Archived ageing structures such as otoliths can deteriorate over time unless they are stored in appropriate media. Loss of archived structures reduces the potential for obtaining information through techniques such as micro-chemical analysis. Best practices for long term storage are currently not well established.	Strategic	Partially underway
c	Change this one to "Other" rather than "Pending" as its an older priority and to be consistent with other priorities.			
613	Maintain and update coupled biophysical projections for the North Pacific	Coupled model projection systems are needed to support the NPFMC's strategic initiatives related to the Bering Sea Regional Action Plan, the Bering Sea Fisheries Ecosystem Plan and the Alaska Climate Integrated Modeling activity. Research is needed on methods to dynamically downscale physics and bio-geo-chemical information derived from global models and earth systems models to regional ocean models (ROMs) as well as methods for coupling nutrient-phytoplankton-zooplankton (NPZ) into ROMs. Likewise continued research on methods for coupling biological models (including the response of fishers) to projected environmental change will be an ongoing strategic activity. Projected environmental conditions from the ROMS/NPZ model is the foundation for management strategy evaluations needed to provide climate informed harvest strategies for the future. Support for continued update and refinement of the ROM/NPZ coupled models will be an ongoing strategic research need for the NPFMC.	Strategic	Partially underway
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.	Strategic	Partially underway

Research ID	Title	Description	SSC Priority	Research Status
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.	Strategic	Partially underway
734	Conduct an assessment of the Council's Bering Sea management with respect to EBFM best practices.	This research priority could be useful to help identify future needs and research.	Strategic	No action

Critical Ongoing Monitoring Research Priorities

Research ID	Title	Description	SSC Priority	Research Status
150	Maintain the core biological and oceanographic data (e.g., biophysical moorings, diet data, zooplankton, age 0 surveys, benthic production) necessary to	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 boom 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.	Critical Ongoing Monitoring	Underway
735	Fishery Monitoring and Catch Accounting	Fishery dependent data collected by observers, electronic monitoring, and the state of Alaska provide information critical for sustainable fisheries management. These data include: a) the amount, distribution, species composition, size, age, maturity and genetics of both the targeted catch and PSC catch (including genetics for chum and Chinook salmon); b) seabird catch; and c) marine mammal encounters and mortalities.	Critical Ongoing Monitoring	Underway