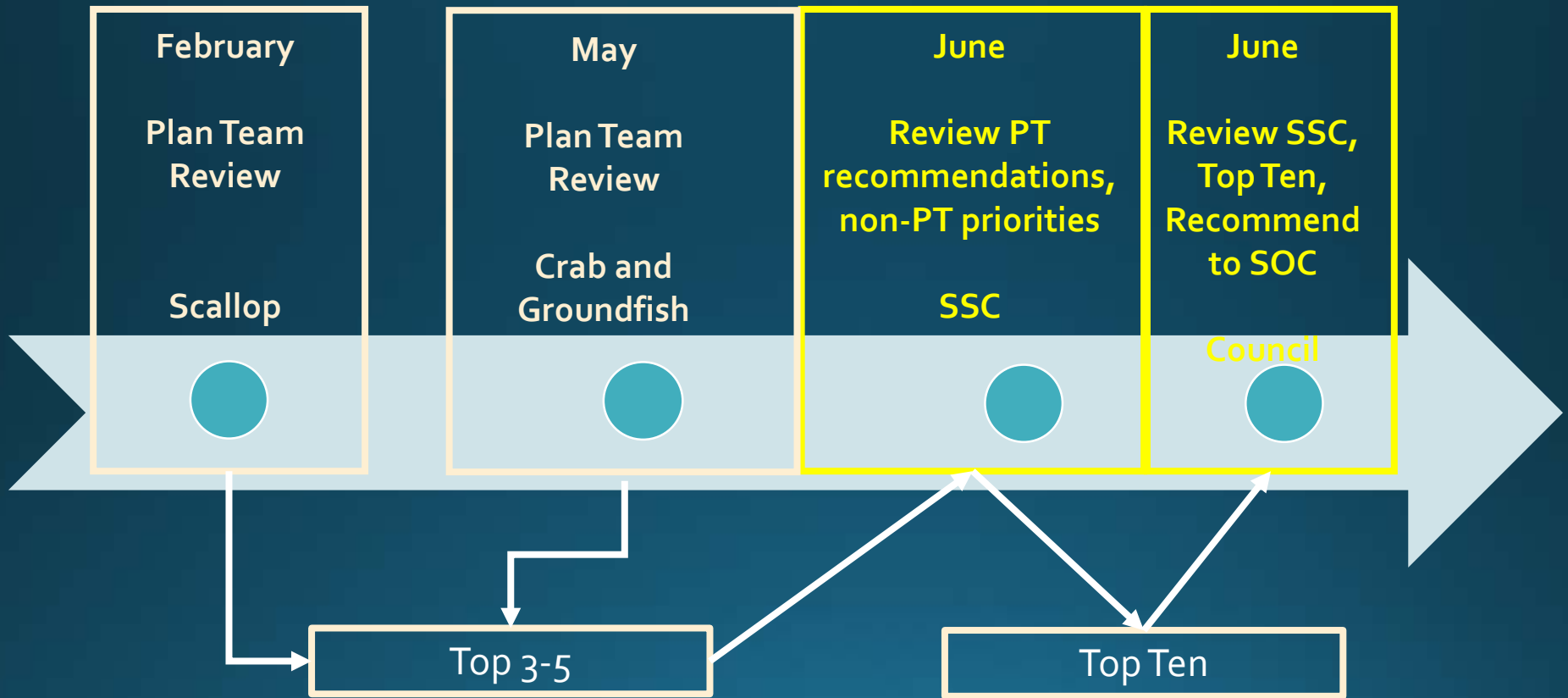


2018 Annual Review / Recommendations

Research Priorities

Annual research priority process



Categories / Definitions

CRITICAL ONGOING MONITORING: Information provided by monitoring activities in this category (1) provide an essential management function; (2) cannot likely be acquired through other means; or (3) are required by regulation. This is monitoring essential to maintaining our compliance with federal requirements, including National Standards, or necessary for the ongoing management of the fishery. Postponement would have a significant and immediate impact on management.

URGENT: Research that is essential for compliance with federal requirements, including National Standards, or that has been identified by management as necessary to aid decision-making. It is expected that a one or two year project would meet the information need. Postponement would have a significant impact on management.

Categories / Definitions

IMPORTANT (Near Term): Obtaining a new set of data or research result that is **likely to aid** in the evaluation of a near term or ongoing management goal. The research might involve a **several year program or work that could continue indefinitely**. Postponement will not have an immediate impact on fishery management; however, the information generated *will likely* inform near term (e.g., <5 year) Council actions.

STRATEGIC (Future Needs): Research that is valuable but is **not associated with an immediate need or near-term** (e.g., <5years) Council action.

Action

- Review existing/new research priorities
- Review “top” priorities
- Recommend priorities to Council

- Other Issues:
 - Database changes
 - NPRB coordination

Materials

- Action Memo
- Terms Definitions
- Lists of Research Priorities for Review
 - SPT, CPT, JGFPT, Halibut, Other/PR
- SSC report on RP April 2018
- Plan Teams' Top 10 RP
- Catch Sharing Plan RP (Sarah)

Plan Team Research Priorities

- **Scallop**

- 23 projects
- 4 changes
- 3 first review
- 0 new

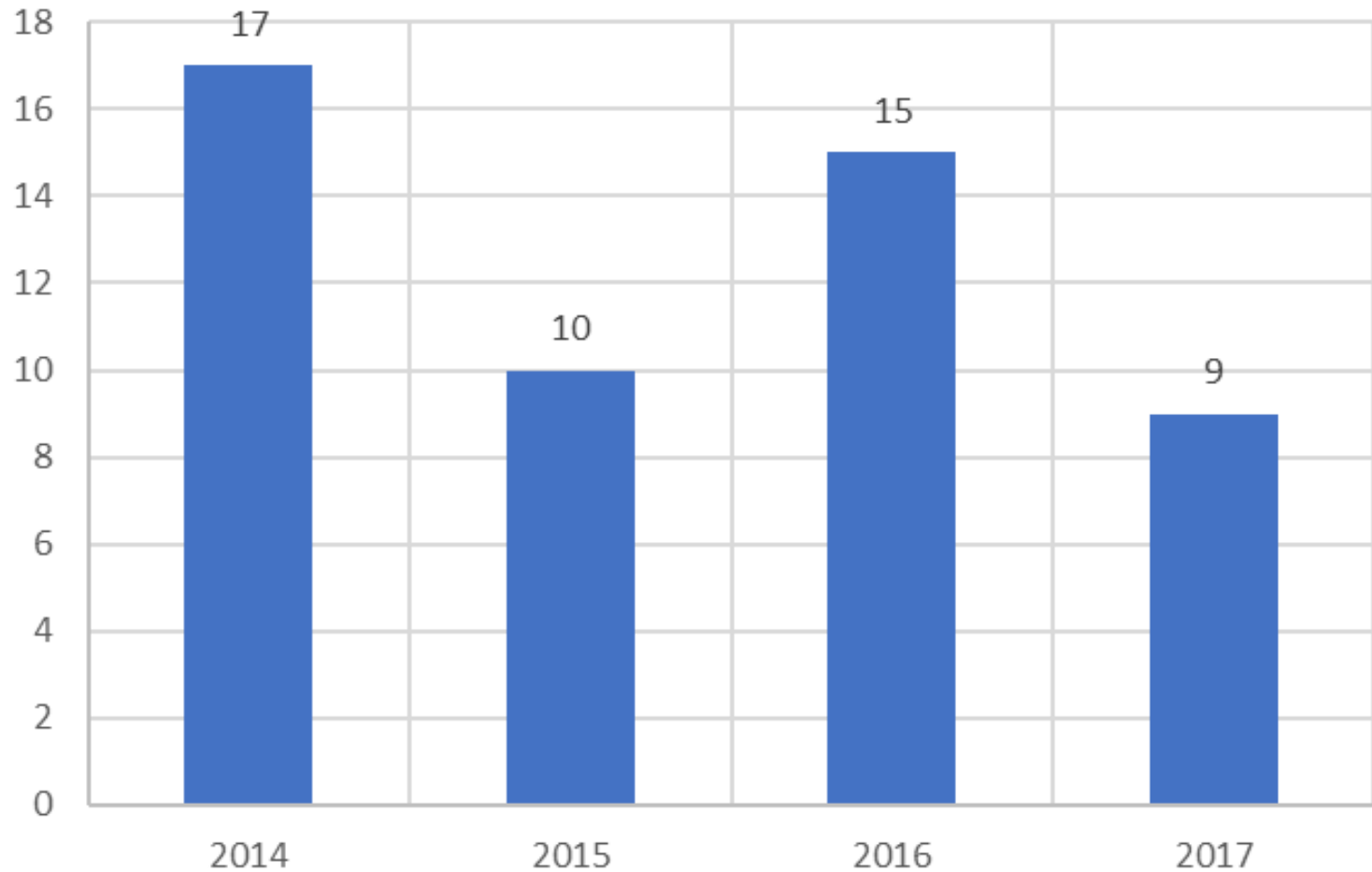
Crab

55 projects
16 changes
4 first review
1 new

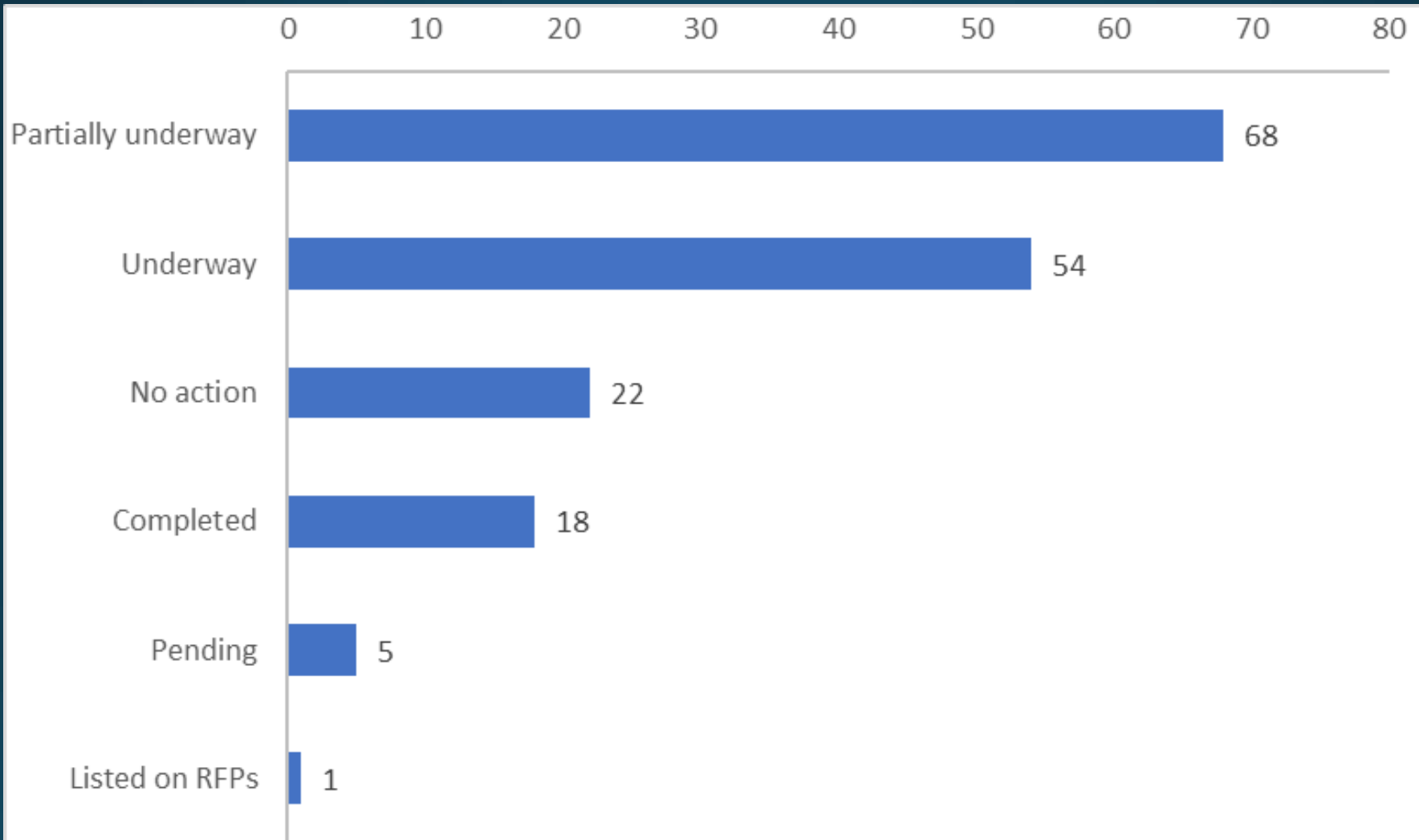
- **Groundfish**

- 95 projects
- 25 changes
- 6 first review
- 0 new

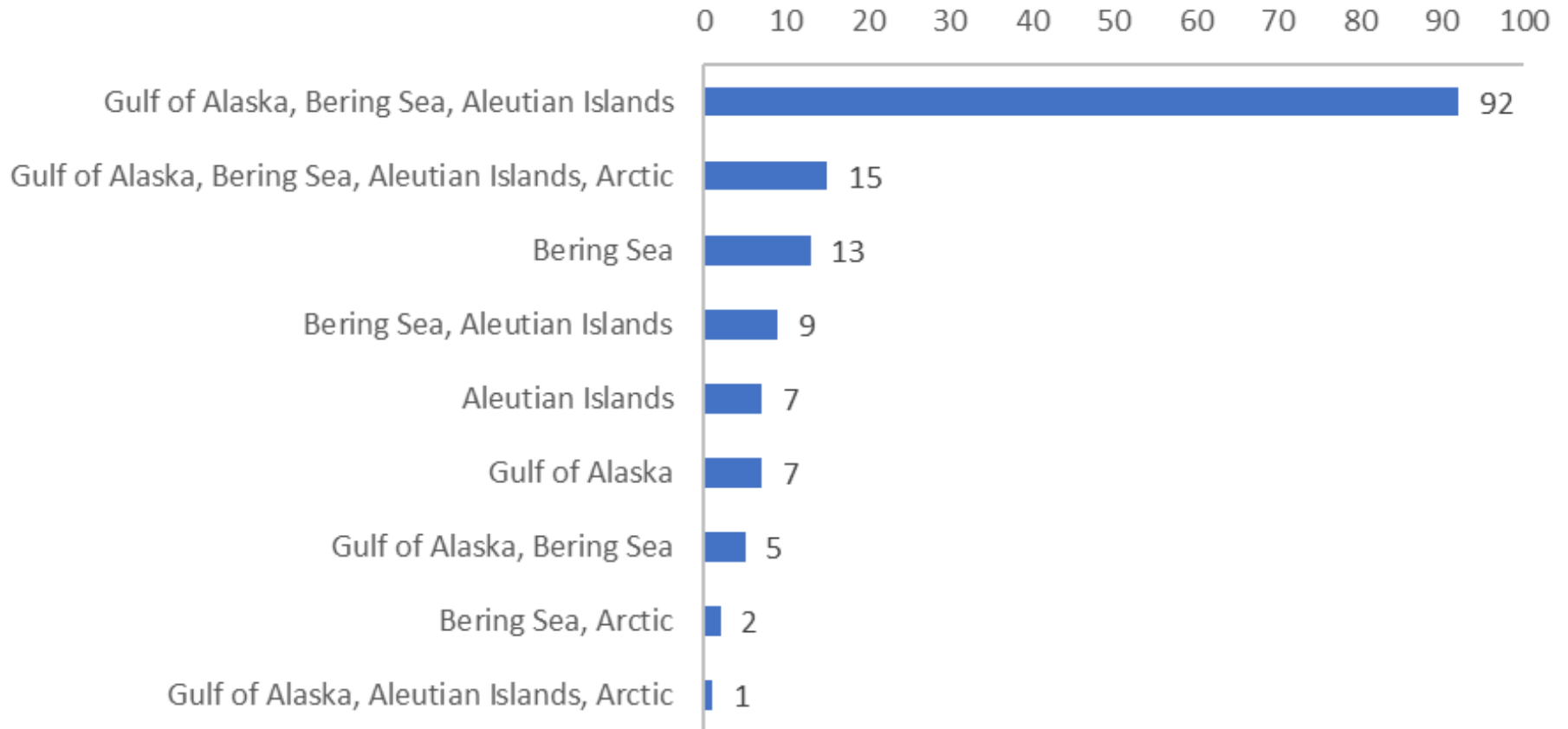
Number of Projects Added by Year



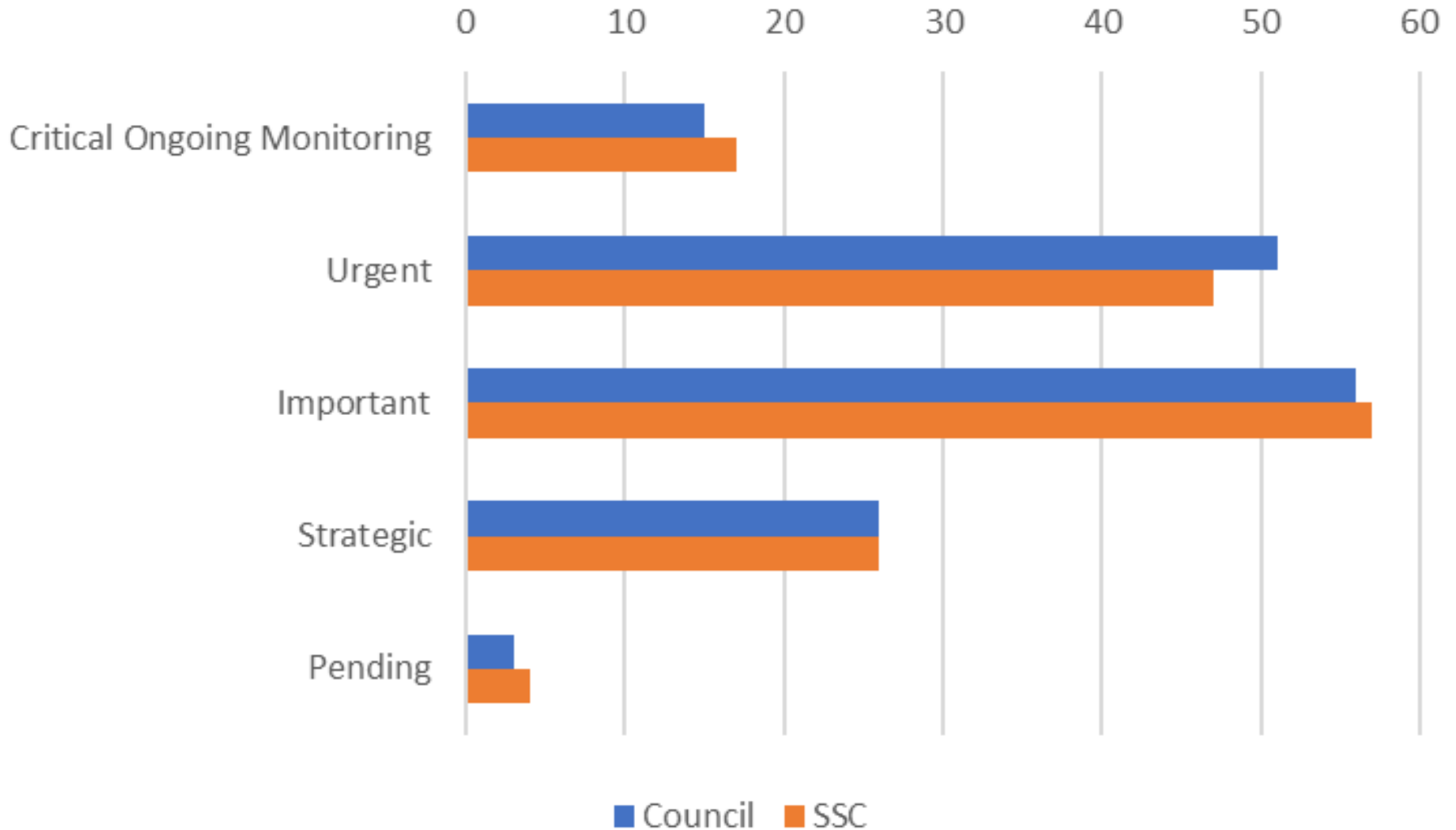
Research Status



FMP Area



Council and SSC Rankings



Scallop Research Priorities

Research ID	Title	Council Priority	2017 SSC Priority	2018 SSC Priority	2017 SPT Priority	2018 SPT Priority	2017 Research Status	2018 Research Status
207	Collect and analyze fishery effort and observer data for scallops	Critical Ongoing Monitoring	Critical Ongoing Monitoring		Urgent	Critical Ongoing Monitoring	Underway	Underway
611	Collection of socio-economic information	Critical Ongoing Monitoring	Critical Ongoing Monitoring		Pending	Critical Ongoing Monitoring	Pending	Partially underway
612	Maintain observer program	Critical Ongoing Monitoring	Critical Ongoing Monitoring		Pending	Critical Ongoing Monitoring	Pending	Underway
614	Expansion of catch in areas database to include BSAI and GOA crab and scallop fishing.	Important	Important		Pending	Important	Pending	No action

Crab Research Priorities

Research ID	Title	Council Priority	2017 SSC Priority	2018 SSC Priority	2017 CPT Priority	2018 CPT Priority	2017 Research Status	2018 Research Status
150	Maintain the core biological and oceanographic data (e.g., biophysical moorings, stomach data, zooplankton, age 0 surveys, benthic production) necessary to support integrated ecosystem assessment	Critical Ongoing Monitoring	Critical Ongoing Monitoring		Important	Urgent	Underway	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	Strategic	Strategic		Strategic	Important	Partially underway	Partially underway
179	Conduct pre- and post-implementation studies of the benefits and costs, and their distribution, associated with dedicated access privileges	Urgent	Urgent		Important	Urgent	Partially underway	Partially underway
183	Research the role of habitat in population dynamics and ecosystem processes	Important	Important		Strategic	Important	Partially underway	Partially underway
197	Develop methodologies to monitor for new/emerging diseases and/or parasites among exploited species and higher trophic levels	Urgent	Urgent		Strategic	Important	Partially underway	Partially underway

Crab Research Priorities

Research ID	Title	Council Priority	2017 SSC Priority	2018 SSC Priority	2017 CPT Priority	2018 CPT Priority	2017 Research Status	2018 Research Status
223	Develop and evaluate global climate change models (GCM) or downscaled climate variability scenarios to assess impacts to recruitment, growth, and spatial distributions.	Strategic	Strategic		Strategic	Important	Partially underway	Partially underway
226	Monitor the economic effects from fishery policy changes on coastal communities.	Critical Ongoing Monitoring	Critical Ongoing Monitoring		Important	C.O.M.	Partially underway	Partially underway
232	Develop management strategy evaluations that incorporate changing climate and economic conditions and impacts to coastal communities.	Urgent	Urgent		Important	Urgent	Underway	Underway
235	Investigate gear modifications and changes in fishing practices to reduce bycatch and PSC	Urgent	Urgent		Urgent	Important	Partially underway	Partially underway
535	Development and evaluation of data poor and data moderate methods	Strategic	Strategic		Pending	Strategic	Underway	Underway

Crab Research Priorities

Research ID	Title	Council Priority	2017 SSC Priority	2018 SSC Priority	2017 CPT Priority	2018 CPT Priority	2017 Research Status	2018 Research Status
592	Maturity estimates for Bering Sea and Aleutian Island crab stocks	Urgent	Urgent		Important	Urgent	No action	No action
611	Collection of socio-economic information	Critical Ongoing Monitoring	Critical Ongoing Monitoring		Pending	Critical Ongoing Monitoring	Partially underway	Partially underway
612	Maintain observer program	Critical Ongoing Monitoring	Critical Ongoing Monitoring		Pending	Critical Ongoing Monitoring	Underway	Underway
613	Maintain and update coupled biophysical projections for the North Pacific	Strategic	Strategic		Pending	Important	Partially underway	Partially underway
614	Expansion of catch in areas database to include BSAI and GOA crab and scallop fishing.	Important	Important		Pending	Important	No action	No action
New	Understanding benthic production expectations with climate change	Pending	Pending			Important		No action / Partially underway

Groundfish Research Priorities

Research ID	Title	Council Priority	2017 SSC Priority	2018 SSC Priority	2017 JGFPT Priority	2018 JGFPT Priority	2017 Research Status	2018 Research Status
150	Maintain the core biological and oceanographic data (e.g., biophysical moorings, stomach data, zooplankton, age 0 surveys, benthic production) necessary to support integrated ecosystem assessment	Critical Ongoing Monitoring	Critical Ongoing Monitoring		Urgent	Critical Ongoing Monitoring	Underway	Underway
158	Research ecosystem indicators and their thresholds for inclusion in ecosystem-level management strategy evaluation.	Important	Important		Important	Urgent	Partially underway	Partially underway
163	Conduct routine fish, crab, and oceanographic surveys in the northern Bering Sea and Arctic Ocean	Urgent	Critical Ongoing Monitoring		Important	Urgent	Partially underway	Partially underway
187	Maintain indicator-based ecosystem assessment for EBS.	Important	Important		Urgent	Critical Ongoing Monitoring	Underway	Underway
189	Develop stock-specific ecosystem indicators and incorporate into stock assessments	Important	Important		Important	Urgent	Partially underway	Partially underway
190	Collect and maintain time series of ocean pH	Critical Ongoing Monitoring	Critical Ongoing Monitoring		Important	Urgent	Partially underway	Partially underway
191	Assess whether changes in pH and temperature would affect managed species, upper level predators, and lower trophic levels.	Strategic	Strategic		Strategic	Important	Partially underway	Partially underway

Groundfish Research Priorities

Research ID	Title	Council Priority	2017 SSC Priority	2018 SSC Priority	2017 JGFPT Priority	2018 JGFPT Priority	2017 Research Status	2018 Research Status
225	Development of projection models to evaluate management strategies under varying environmental and ecological conditions.	Strategic	Strategic		Strategic	Urgent	Partially underway	Partially underway
247	Assess the relative importance of non-commercially exploited species to human communities	Important	Important		Important	Strategic	Partially underway	Partially underway
251	Modeling studies of ecosystem productivity	Strategic	Strategic		Important	Strategic	Underway	Underway
383	Determine quantitative indicators of spatial structure, particular for walleye pollock and Pacific cod	Important	Important		Strategic	Important	Underway	Underway
452	Dusky Rockfish and Shortspine Thornyhead genetics research for improved population structure	Important	Important		Important	Strategic	No action	No action
455	Shark aging, size at maturity, natural mortality	Important	Important		Strategic	Important	Partially underway	Partially underway
494	Investigate skate egg concentration areas as EFH and HAPC	Urgent	Urgent		Important	Strategic	Partially underway	Partially underway

Groundfish Research Priorities

Research ID	Title	Council Priority	2017 SSC Priority	2018 SSC Priority	2017 JGFPT Priority	2018 JGFPT Priority	2017 Research Status	2018 Research Status
533	Explore optimal sampling strategies and geospatial approaches for time series of survey data	Strategic	Strategic		Critical Ongoing Monitoring	Important	Underway	Underway
534	Develop technical interaction model for BSAI MSE	Strategic	Strategic		Urgent	Important	Underway	Underway
535	Development and evaluation of data poor and data moderate methods	Strategic	Strategic		Strategic	Important	Underway	Partially Underway
536	Evaluate incorporation of climate change impacts into stock assessments	Important	Important		Strategic	Important	Underway	Underway
611	Collection of socio-economic information	Strategic	Strategic		Pending	Critical Ongoing Monitoring	Partially underway	Partially underway
612	Maintain observer program	Urgent	Pending		Pending	Critical Ongoing Monitoring	Underway	Underway
613	Maintain and update coupled biophysical projections for the North Pacific	Pending	Pending		Pending	Strategic	Partially underway	Partially underway

Groundfish Research Priorities

Research ID	Title	Council Priority	2017 SSC Priority	2018 SSC Priority	2017 JGFPT Priority	2018 JGFPT Priority	2017 Research Status	2018 Research Status
615	Evaluate the interactions between fisheries and killer whales and sperm whales				Pending	Important	Underway	Underway
631	Genetics of Northern Bering Sea Pacific cod				Pending	Urgent	Underway	Partially Underway
632	Northern Bering Sea survey(s)				Pending	Important	Pending	Partially underway

Halibut Research Priorities

Research ID	Title	Council Priority	2017 SSC Priority	2018 SSC Priority	2017 Research Status	2018 Research Status
157	Improve methods of monitoring fishery interactions	Urgent	Urgent		Underway	
179	Conduct pre- and post-implementation studies of the benefits and costs, and their distribution, associated with dedicated access privileges	Urgent	Urgent		Partially underway	
182	Evaluate current and alternative Council PSC/bycatch reduction initiatives	Important	Important		Partially underway	
615	Evaluate the interactions between fisheries and killer whales and sperm whales	Urgent	Pending		Underway	

Non-Plan Team, Non-halibut Research Priorities

Research ID	Title	Council Priority	2017 SSC Priority	2018 SSC Priority	2017 Research Status	2018 Research Status
159	Evaluate interactions between fisheries and pinnipeds	Urgent	Urgent		Underway	
160	Assess vital rates of Steller sea lions	Urgent	Urgent		Underway	
161	Assess the health of Stellar sea lions	Urgent	Urgent		Underway	
162	Quantify killer whale predation of Steller sea lions (M)	Urgent	Urgent		Underway	
180	Economic, social, and cultural valuation research on protected species	Important	Important		Underway	
212	Develop methods to estimate sea lion abundance	Important	Important		Underway	
213	Assess the impact of the displacement of the groundfish fleet on Northern fur seals	Urgent	Urgent		Partially underway	
214	Evaluate the impact of seabird bycatch in fisheries on bird populations, and methods to reduce	Important	Important		Underway	

Non-Plan Team, Non-halibut Research Priorities

Research ID	Title	Council Priority	2017 SSC Priority	2018 SSC Priority	2017 Research Status	2018 Research Status
215	Determine potential impacts of fishing activities on marine mammals	Strategic	Strategic		No action	
249	Monitor the movement of Steller sea lions and northern fur seals	Critical Ongoing Monitoring	Critical Ongoing Monitoring		Partially underway	
364	Updated sperm whale stock assessment	Urgent	Urgent		No action	
365	Retrospective analysis of the impact of Chinook PSC avoidance measures on communities of western Alaska	Urgent	Urgent		No action	
368	Develop a simulation model of Steller sea lion fishery interactions	Urgent	Urgent		No action	
390	Population status of AI harbor seals	Strategic	Strategic		No action	
615	Evaluate the interactions between fisheries and killer whales and sperm whales	Urgent	Pending		Underway	
651	Thermally marked otolith project to support PSC salmon stock composition in the Gulf of Alaska	Pending	Pending			Pending

Scallop Top 3-5 Research Priorities

Research ID	Title	SPT Priority	Rank	Rationale
571	Age validation for scallop shells	Important	1	Easy, do-able, needed for age-structured assessment, If Quinn thinks there's a possibility that he has time to collaborate on a proposal, then this might be achievable.
175	Develop age-structured models for scallop assessment	Important	2	Needed for status determination criteria, The SSC recommended applying it to Kayak Island dataset which I believe is the PT's thought also. The Kamishak model performed well with fishery data only and Jie thought it should be applied to other beds like Shelikof to see how it performed
173	Expand studies to identify stock and management boundaries	Urgent	3	Addresses conservation concern of presence of "unfished" beds, Mgmt concern of resource availability to support fleet capacity
363	Area-specific variability in scallop population processes	Important	4	Needed to characterize potential spatial impacts of fishery, differential productivity, potential for recovery
551	Estimate scallop survey catchability	Urgent	5	Explore within assessment, Though this might not be completely achievable without additional field experiments, the analysis of existing data could be done to examine survey dredge consistency.
171	Acquire basic life history information (e.g., natural mortality, growth, size at maturity) for data-poor stocks	Important	5	Being explored within age-structured assessment, This seems like it could provide information, in part, to RP 173, 363, and 553, Growth has been examined and regional differences observed (Spafard and Rosenkranz, 2014). Maybe additional analysis could be done? Size and age at maturity can be examined with existing data.

Crab Top 3-5 Research Priorities

Research ID	Title	CPT Priority	Priority Rank	Rationale
148	Spatial distribution and movement of crabs relative to environmental variability, life history events, and fishing	Urgent	1	Environmental conditions are changing rapidly in the eastern Bering Sea, driving related changes in the distribution of commercial crab stocks. Fishing behavior and life history timing (e.g., reproduction, growth) may subsequently be influenced by changes in crab distribution. The CPT discussed collection of data on distribution and movement relative to oceanographic conditions as critical for the development of the complex models needed to predict future stock abundance, stock boundaries, stock production, and management strategies.
232	Develop management strategy evaluations that incorporate changing climate and economic conditions and impacts to coastal communities	Urgent	2	Developing Management Strategy Evaluations that incorporate climate projections is critical as crab management becomes more uncertain with environmental change. The subsequent effects of fishery management changes on the economics and social functioning of resource-dependent communities also need to be considered. Predicting the sustainability of crab resources under changing environmental and management scenarios will lead to better-informed harvest strategies.
196	Genetics, population dynamics, and management implications of hybridization between Tanner and snow crab in the Bering Sea	Important	3	<i>Chionoecetes bairdi</i> and <i>C. opilio</i> hybrids represent an unknown portion of <i>Chionoecetes spp.</i> biomass in the eastern Bering Sea. Current identification procedures are not consistent among fisheries and surveys, and available genetic data suggest a high probability of back crosses being identified as <i>C. opilio</i> or <i>C. bairdi</i> (as opposed to hybrids). Fishery landings are further complicated by hybrid designations and may incorrectly inform the OFL and TAC setting processes.
592	Maturity estimates for Bering Sea and Aleutian Island crab stocks	Urgent	3	The availability of maturity data from male and female crab are incomplete for use in stock assessment models. Key parameters defining size at maturity, proportion mature at size, and the potential for biennial reproductive cycles are currently uncertain for many stocks. Methods for determining spatial and temporal variability of these quantities are needed to adequately characterize mature biomass.
174	Develop spatially-explicit stock assessment models	Important	4	Spatially-explicit stock assessment models are currently not used for management of commercial crab fisheries in the eastern Bering Sea. However, there is likely spatial variability in life history parameters, often correlated with environmental (i.e. temperature) conditions, for <i>Chionoecetes spp.</i> Spatially explicit models would also account for spatial trends in catch data and in stock boundaries.

Groundfish Top 6-10 Research Priorities

Research ID	Title	JGFPT Priority	Priority Rank	Rationale
146	Improve surveys in untrawlable habitat, particularly for rockfish, Atka mackerel, and sculpins	Important	1	Untrawlable habitat will remain un-survey-able until we get some estimates for use in assessment
163	Conduct routine fish, crab, and oceanographic surveys in the northern Bering Sea and Arctic Ocean	Urgent	1	This is an urgent priority due to the large reductions in abundance in EBS Pacific cod and the sharp increase in abundance in Northern Bering Sea cod. Dynamic ecosystem and environmental changes in the Northern Bering Sea and Arctic are occurring. Assessment and monitoring of the current baseline conditions and trophic interactions is very important.
189	Develop stock-specific ecosystem indicators and incorporate into stock assessments	Urgent	1	Timely given Pcod experience
367	Continue to improve stock assessment methodology with respect to uncertainty	Important	1	Ongoing concern
246	Cooperative research efforts to supplement existing at-sea surveys that provide seasonal, species-specific information on upper trophic levels	Important	2	Timely given Pcod experience

Groundfish Top 6-10 Research Priorities

Research ID	Title	JGFPT Priority	Priority Rank	Rationale
366	Continue to investigate time variation and the shape of fishery and survey selectivity models	Important	2	Time-varying selectivity and the shape of fishery and survey selectivity models can have a very large impact on the assessment of the status of the stock and estimation of biological reference points and rates. Incorrect model configurations increase the uncertainty of ABC and OFL.
381	Effects of changes to the observer program	Urgent	2	Main source for removals and there is a lot of concern regarding new estimates
533	Explore optimal sampling strategies and geospatial approaches for time series of survey data	Important	2	Timely concern for transitioning to incorporating geospatial methods into interpretation of survey data
220	Research on survey analysis techniques for species that exhibit patchy distributions	Important	3	Mainly thinking the VAST model estimates and alternative survey index which may be an important advancement for several species
631	Genetics of Northern Bering Sea Pacific cod)	Urgent	3	Only "urgent" ranking for this group

Propose New Research Priorities

Research ID	Title	Description	SSC Priority	Research Status

Database Changes



North Pacific Fishery Management Council: Research Priorities

Query List Reports

Research Priorities Query and Records List

Export

Plan Teams -

- Joint Groundfish PT
- Crab PT
- Scallop PT

Council Actions -

Ecosystem Area -

Council Priority -

SSC Priority -

Research Status -

10 records per page

Search:

ID	Title	Council Priority	SSC Priority	Research Status	Ecosystem Area	Related Council Action
144	District-wide survey for demersal shelf rockfish in Southeast Alaska	Critical Ongoing Monitoring	Critical Ongoing Monitoring	Partially underway	Gulf of Alaska	Harvest specifications
145	Continuation of State and Federal annual and biennial surveys	Critical Ongoing Monitoring	Critical Ongoing Monitoring	Underway	Gulf of Alaska, Bering Sea, Aleutian Islands	Harvest specifications
146	Improve surveys in untrawable habitat, particularly for rockfish, Alka mackerel, and sculpins	Urgent	Urgent	Underway	Gulf of Alaska, Bering Sea, Aleutian Islands	Harvest specifications
147	Life history research on data poor or non-recovering crab stocks	Important	Important	Partially underway	Bering Sea	Harvest specifications
148	Spatial distribution and movement of crabs relative to life history events and fishing	Urgent	Important	Partially underway	Bering Sea	Harvest specifications
149	Improve handling mortality rate estimates for crab	Important	Important	Partially underway	Gulf of Alaska, Bering Sea, Aleutian Islands	Harvest specifications
150	Maintain the core biological and oceanographic data (e.g., biophysical moorings, stomach data, zooplankton, age 0	Critical Ongoing Monitoring	Critical Ongoing Monitoring	Underway	Gulf of Alaska, Bering Sea, Aleutian Islands, Arctic	Ecosystem impacts

Separate SSC and Council Priorities

Action

- Review existing/new research priorities
- Review “top” priorities
- Recommend priorities to Council

- Other Issues:
 - Database changes
 - NPRB coordination

Questions / Discussion