Annual Review / Recommendations

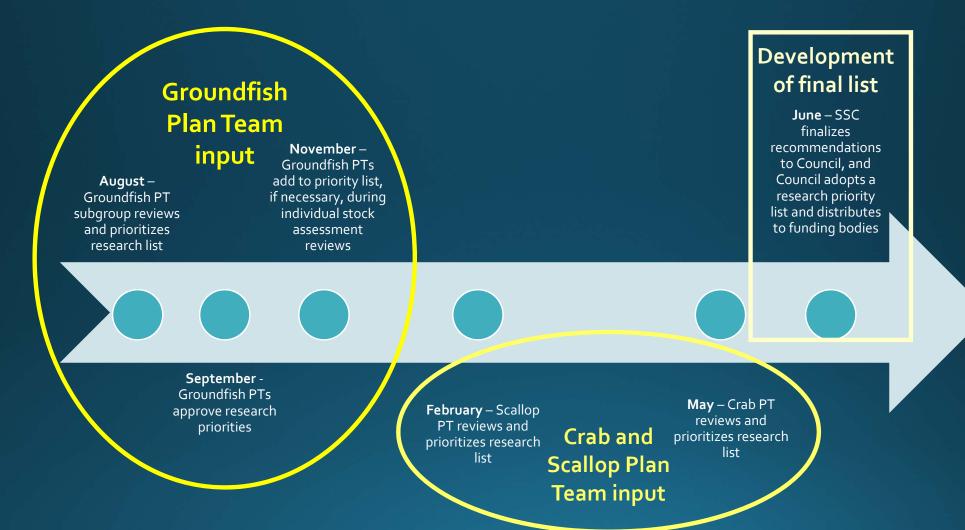
Research Priorities

MSA Mandate

"Each Council shall, in accordance with the provisions of this Act —

- (7) develop, in conjunction with the scientific and statistical committee, multi-year research priorities for fisheries, fisheries interactions, habitats, and other areas of research that are necessary for management purposes, that shall—
 - (A) establish priorities for 5-year periods;
 - (B) be updated as necessary; and
 - (C) be submitted to the Secretary and the regional science centers of the National Marine Fisheries Service for their consideration in developing research priorities and budgets for the region of the Council; "

Annual research priority process



Management Priorities

- Annual April Review
- Programmatic EIS for Groundfish (2002)
- 9 General Priorities
 - Prevent Overfishing
 - Promote Sustainable Fisheries and Communities*
 - Preserve Food Web
 - Manage Incidental Catch and Reduce Bycatch and Waste
 - Reduce and Avoid Impacts to Seabirds and Marine Mammals
 - Reduce and Avoid Impacts to Habitat
 - Promote Equitable and Efficient Use of Fishery Resources
 - Increase Alaska Native & Community Consultation
 - Improve Data Quality, Monitoring and Enforcement
- 45 Management Objectives

Revised 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.

Revised 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 management goal. The research might be a several year program. 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 research priorities
- Identify priorities to communicate to Secretary
- Other Issues:
 - Database
 - NPRB

Materials

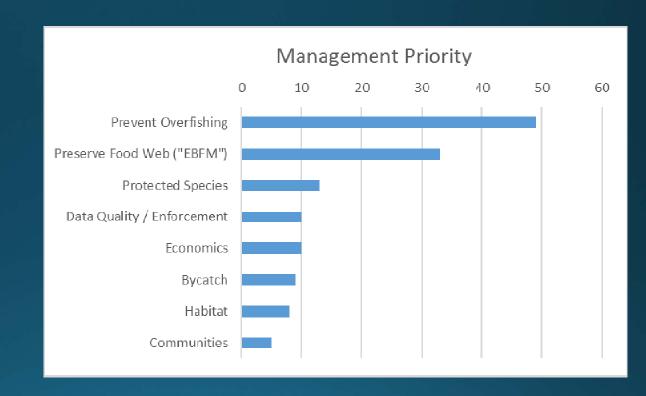
Terms and Definitions

- List of Existing Research Priorities
 - Sent to Secretary in 2015
 - Edited to reflect Plan Team recommendations

New projects

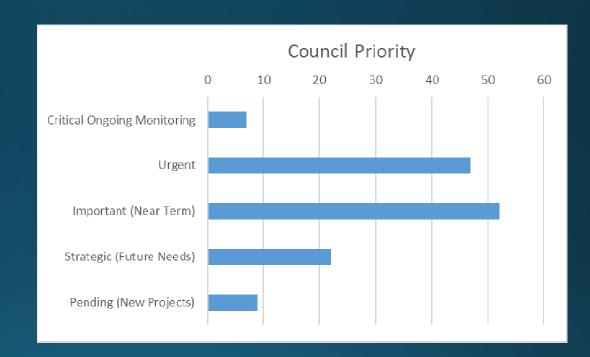
Management Priorities

Management Priority	N Projects
Prevent Overfishing	49
Preserve Food Web ("EBFM")	33
Protected Species	13
Data Quality / Enforcement	10
Economics	10
Bycatch	9
Habitat	8
Communities	5
Total	137



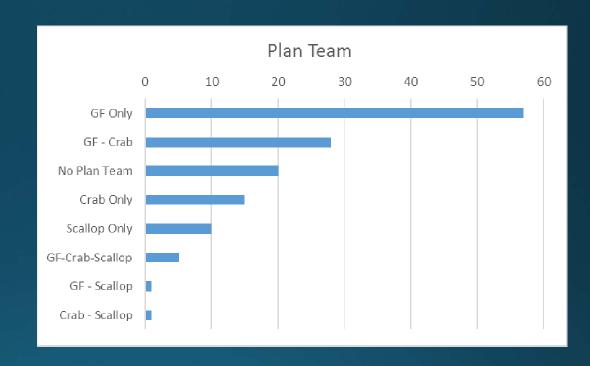
Priority Categories

Council Priority	N Projects
Critical Ongoing Monitoring	7
Urgent	47
Important (Near Term)	52
Strategic (Future Needs)	22
Pending (New Projects)	9
Total	137



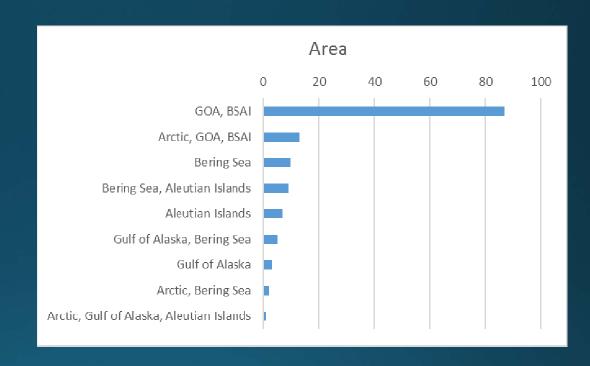
Plan Teams

Plan Team	N Projects
GF Only	57
GF - Crab	28
No Plan Team	20
Crab Only	15
Scallop Only	10
GF-Crab-Scallop	5
GF - Scallop	1
Crab - Scallop	1
Total	137



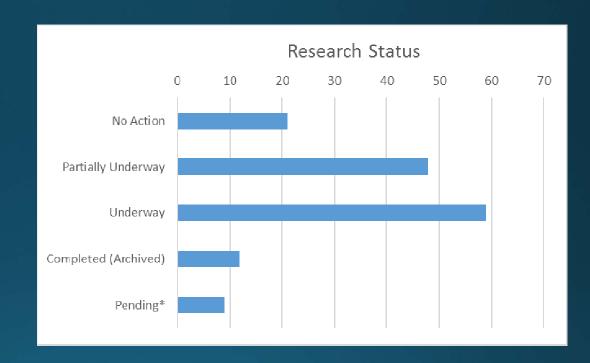
Management Areas

Area	N Projects
GOA, BSAI	87
Arctic, GOA, BSAI	13
Bering Sea	10
Bering Sea, Aleutian Islands	9
Aleutian Islands	7
Gulf of Alaska, Bering Sea	5
Gulf of Alaska	3
Arctic, Bering Sea	2
Arctic, Gulf of Alaska, Aleutian Islands	1
Total	137



Research Status

Research Status	N Projects
No Action	21
Partially Underway	48
Underway	59
Completed (Archived)	12
Pending*	9
Total	149



Status vs. Priority

	C.O.M	Urgent	Important	Strategic
No action		6	8	6
Partially underway	3	13	16	12
Underway	4	25	22	4

(18 projects with pending "status" or "priority"

	Priority				
Major Issue	Critical	Urgent	Important	Strategic	Total
Assessment Inputs		13	21	5	39
Ecosystem Assessments		1	9	4	14
At Sea Survey	6	4	3		13
Habitat		2	5	1	8
Protected Species		4	2	2	8
Halibut		4	3	1	8
Economic Analysis	1	2	1	3	7
PSC Management		6	1		7
Management		4		1	5
Communities		1	4		5
Climate Change			1	4	5
Steller Sea Lion		3	1		4
Fishery Interactions		2	1		3
Data Quality		1		1	2
Total	7	47	52	22	128

Assessment Inputs	Priority				
Sub-Issue	Critical	Urgent	Important	Strategic	Total
Stock Structure		1	3		4
Catchability / Selectivity		1	2		3
Distribution / Movement		1	2		3
Spatial Assessment		1	2		3
Ageing methods		1	2		3
Discard Mortality		1	1		2
Natural Mortality			2		2
Initiate Assessment		1		1	2
Life History		1	1		2
Temperature Database			1		1
Depredation			1		1
Uncertainty		1			1
Projection Models				1	1
Total Removals		1			1
Reproductive Index		1			1
Data Poor Methods			1		1
Bioeconomic Modeling			1		1
Archived Data				1	1
Maturity				1	1
Stock-Specific Ecosystem Ind	icators		1		1
CPUE Factors		1			1
Hybridization				1	1
Survey Data Analysis			1		1
Stock Recruit Relationship		1			1
Total		13	21	5	39

At Sea Surveys	Priority				
Sub-Issue	Critical	Urgent	Important	Strategic	Total
Survey techniques	1	3	2		6
Maintain Survey	4				4
Expand Survey Collection	1		1		2
Expand Survey Range		1			1
Total	6	4	3		13
Climate Change		Pric	ority		
Sub-Issue	Critical	Urgent	Important	Strategic	Total
Ocean Acidification				2	2
Improved Data Availability				1	1
Climate Forcing			1		1
Modeling				1	1
Total			1	4	5
Communities		Pric	ority		
Sub-Issue	Critical	Urgent	Important	Strategic	Total
Subsistence Use		1	1		2
Social and Economic Linkages	5		1		1
Effects of Management			1		1
Importance of Non-Commerc	cial Species		1		1
Total		1	4		5

Economic Analysis	Priority				
Sub-Issue	Critical	Urgent	Important	Strategic	Total
Chinook Mgmt Effects			1		1
Allocation		1			1
Non-market Value				1	1
Comprehensive		1			1
Product Inventory				1	1
Demand Analysis				1	1
Effects of Management	1				1
Total	1	2	1	3	7
Ecosystem Assessments		Pric	ority		
Sub-Issue	Critical	Urgent	Important	Strategic	Total
Ecosystem Indicators			3		3
Diseases and Parasites		1	1		2
Water Quality			1	1	2
Ecosystem Productivity			1		1
Ecosystem Structure			1		1
Primary Production				1	1
Species Composition				1	1
Predator-Prey Interactions			1		1
Benthic Community Composi	ition 1		1		
Energy Pathways			1		1
Total		1	9	4	14

Fishery Interactions	Priority				
Sub-Issue	Critical	Urgent	Important	Strategic	Total
Monitoring		1			1
Target and Non-Target (Gene	ral)	1			1
Trawl Impacts on RKC			1		1
Total		2	1		3
Economic Analysis		Pric	ority		
Sub-Issue	Critical	Urgent	Important	Strategic	Total
EFH and HAPC determination			2		2
Mapping			1	1	2
Habitat Function in Population	n and Ecos	ystem Proc	1		1
Benthic Community Composi	tion	1			1
Assess and Monitor		1			1
Effects of Management			1		1
Total		2	5	1	8
Halibut			ority		
Sub-Issue	Critical	Urgent	Important	Strategic	Total
Industry Responses		1			1
Spatial Patterns		1			1
Population Dynamics			1		1
Ecosystem Effects			1		1
Dependence		1			1
Effects of Management		1			1
Economic Analysis			1		1
Long term Impacts				1	1
Total		4	3	1	8

Management	Priority				
Sub-Issue	Critical	Urgent	Important	Strategic	Total
MSE		2			2
Uncertainty		1			1
Spatial Changes in Effort				1	1
Risk Analysis		1			1
Total		4		1	5
PSC Management		Pric	ority		
Sub-Issue	Critical	Urgent	Important	Strategic	Total
Economic Analysis		2			2
Socio-Economic Analyses			1		1
Gear Modification		1			1
Chinook Mgmt Effects		1			1
Bycatch Reduction		1			1
Comprehensive		1			1
Total		6	1		7

Protected Resources					
Sub-Issue	Critical	Urgent	Important	Strategic	Total
Fishery Impacts		1	1	1	3
Population Dynamics		1		1	2
Effects of SSL Measures		1			1
Movement Analysis		1			1
Socio-Economic Analyses			1		1
Total		4	2	2	8
Steller Sea Lion		Pric	ority		
Sub-Issue	Critical	Urgent	Important	Strategic	Total
Killer Whale Predation		1			1
Health		1			1
Population Dynamics		1			1
Survey techniques			1		1
Total		3	1		4

Protected Resource and Halibut Priorities

Plan Team	N Projects
GF Only	57
GF - Crab	28
No Plan Team	20
Crab Only	15
Scallop Only	10
GF-Crab-Scallop	5
GF - Scallop	1
Crab - Scallop	1
Total	137

Protected Resources: 12

Halibut: 8

SSC / Council Differences

Research ID	Title	Description	Council Priority	SSC Priority	Updated Plan Team Priority	Research Status
148	Spatial distribution and movement of crabs relative to life history events and fishing	There is a need to characterize the spatial distribution of male snow crab at time of mating relative to reproductive output of females in the middle domain of the EBS shelf. Additionally there is a need to investigate spatial stock dynamics and population connectivity for Tanner Crab (2 stocks).	Urgent	Important	(ran-i irdent	Partially underway
163	and oceanographic surveys	Dynamic ecosystem and environmental changes in the northern Bering Sea and Arctic are occurring. Assessment of the current baseline conditions and trophic interactions is important. This effort should not supplant the regular surveys in the BSAI and GOA, which are of critical importance to science and management.	Urgent	Critical	Crab: Important,	Partially Underway Underway
165	Conduct routine surveys of subsistence in the northern Bering Sea and Arctic Ocean		Urgent	Critical	GF: Urgent, Crab: Strategic, Scallop:	Partially underway
178	Develop a framework for collection of economic information	Develop a framework for collection of economic information on commercial, recreational, and charter fishing, as well as fish processing, to meet the requirements of the MSFCMA sections 303(a)(5, 9, 13), 303(b)(6), and 303A.	Urgent	Critical	GF: Urgent, Crab: Urgent, Scallop:	Partially underway
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.	Important	Critical	GF: Important, Crab:, Scallop:	Underway
203	Improve discard mortality rate estimates for scallops	Field and laboratory studies are needed to estimate Alaskan scallop discard mortality by evaluating relationship between capture, release condition and deck time, and subsequent survival.	Urgent	Critical	GF:, Crab:, Scallop: Urgent	Partially underway
207	Analyses of fishery effort and observer data for scallops	As fishery independent surveys are conducted on only a few beds in Central Region, it is important to confirm the validity of fishery-dependent CPUE as an index of local abundance. Concerns about the utility of CPUE as an abundance index for fishery management are compounded by the limited number of vessels in the current fishery. Emerging methods from other data-limited stock assessments should be explored as alternatives to CPUE as indices of stock status.	Urgent	Critical	GF:, Crab:, Scallop: Urgent	No action

SSC / Council Differences

Research ID	Title	Description	Council Priority	SSC Priority	Updated Plan Team Priority	Research Status
209	Investigate factors affecting the guided angler sector of the halibut fishery	Continue to investigate factors that affect angler demand and trip supply in the guided angler sector of the halibut fishery.	Important	Critical	GF: Strategic, Crab:, Scallop:	Underway
211	Benefits and costs of directed halibut catch and halibut PSC utilization	Research the benefits and costs of directed halibut catch and halibut PSC utilization in different fishing sectors. For halibut and other PSC and bycatch species, conduct research to better identify where regulations restrict the utilization of fish from its most beneficial use and evaluate how changes in existing regulations would affect different sectors and fisheries	Urgent	Important	GF: Urgent, Crab:, Scallop:	Underway
226	Continue to evaluate the economic effects from fishery policy changes on coastal communities.	Continue to evaluate the economic effects from fishery policy changes on coastal communities. This includes understanding economic impacts (both direct and indirect) and how the impacts are distributed among communities and economic sectors.	Critical	Urgent	GF: Critical, Crab: Important, Scallop:	Partially underway
228	Conduct studies documenting the subsistence harvest (patterns, norms, quantities) in communities affected by Council actions.	Conduct studies documenting the subsistence harvest patterns, norms and quantities in communities that depend upon resources that may be affected by Council action.	Important	Critical	GF: Important, Crab:, Scallop:	Partially underway
249	Assess the movement of Steller sea lions and northern fur seals	Assess the movement of Steller sea lions and northern fur seals in response to environmental variability to understand the spatial changes of predator-prey interactions.	Urgent	Critical	GF:, Crab:, Scallop:	Partially underway
364	Updated sperm whale stock assessment	Updated sperm whale abundance estimates are needed. Sperm whale depredation interactions with longline fisheries have increased, but little is known about sperm whale populations. Updated population estimates and defined PBR's are needed to effectively respond if a take occurs in the longline fishery.	Urgent	Critical	GF:, Crab:, Scallop:	No action
381	Effects of changes to the observer program	Evaluate the effects of changes to data collection protocols that occur because of observer restructuring. Ensure that data can be compared easily to the previous data collection methods and time series remain intact.	Urgent	Important	GF: Urgent, Crab:, Scallop:	No action
390	Assess the population status of harbor seals in the Aleutian Islands and determine factors affecting their population trajectories	Assess the population status of harbor seals in the Aleutian Islands and determine factors affecting their population trajectories	Strategic	Critical	GF:, Crab:, Scallop:	No action

New Plan Team Projects

Research ID	Title	Description	Council Priority	SSC Priority	Updated Plan Team Priority	Research Status
	Computerized image analysis of current camera sled data	Assessment of existing database of camsled images is needed to provide scallop counts and sizes, contributing to abundance estimates. Additionally, sediment and habitat type and presence of other organisms can be assessed.		Important	Scallop PT - Priority: Urgent	Underway
	Evaluate extent and importance of parasites in scallop populations	Samples from Bering Sea scallops with weak meats were collected and sent to the ADF&G Anchorage Pathology Lab for analysis of any evidence of diseases and/or parasites. The results showed that the scallops were infected with an apicomplexan-like parasite. To further evaluate the geographic extent and infection rates of this parasite, a sampling effort was initiated in July 2015 to collect samples from select locations across the state, from Yakutat to the Bering Sea.		Important	Scallop PT - Priority: Important	Partially underway
	Collect growth data for Bering Sea crab stocks	Pending feedback from PT		Urgent	Crab PT - Priority: Urgent	Partially underway
	Natural mortality estimation for crab stocks	Pending feedback from PT		Important	Crab PT - Priority: Important	No action
	Explore geospatial approaches for time series of survey data	Develop criteria necessary for using Thorson's geostatistical model as an alternative to the designed-based estimates for abundance indices used in stock assessments. Assess whether there are certain life history characteristics or levels of aggregation where this model should be used.			Joint Groundfish PT - Priority: Critical	Partially underway

New Plan Team Projects

Research ID	Title	Description	Council Priority	SSC Priority	Updated Plan Team Priority	
	interaction model for BSAI MSE	A multi-species management strategy evaluation (MSE) with technical interactions among species is being developed to explore the potential implications of alternative harvest policies as was done for the Programmatic Supplemental Environmental Impact Statement (PSEIS). The approach of using an MSE with technical interactions is useful and unique in that the whole cycle of a fishery system is modeled: "true" status of several fish stocks in the fishery (Pacific cod, pollock, yellowfin sole, and Pacific halibut) are simulated; data are generated based on the "true" status of each stock, stock assessments are performed using the generated data; catch limits and bycatch limits are calculated, and the management system and fleet dynamics are mimicked to simulate the decision-making process that occurs when allocating catch limits among stocks within the constraint of the 2 million ton cap.			Joint Groundfish PT - Priority: Urgent	Underway
	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.			Joint Groundfish PT - Priority: Strategic	Underway
	Evaluate	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	Joint Groundfish PT - Priority:	Underway
	practices for long term storage of	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 microchemical analysis. Best practices for long term storage are currently not well		Strategie	Joint Groundfish PT - Priority:	Partially -

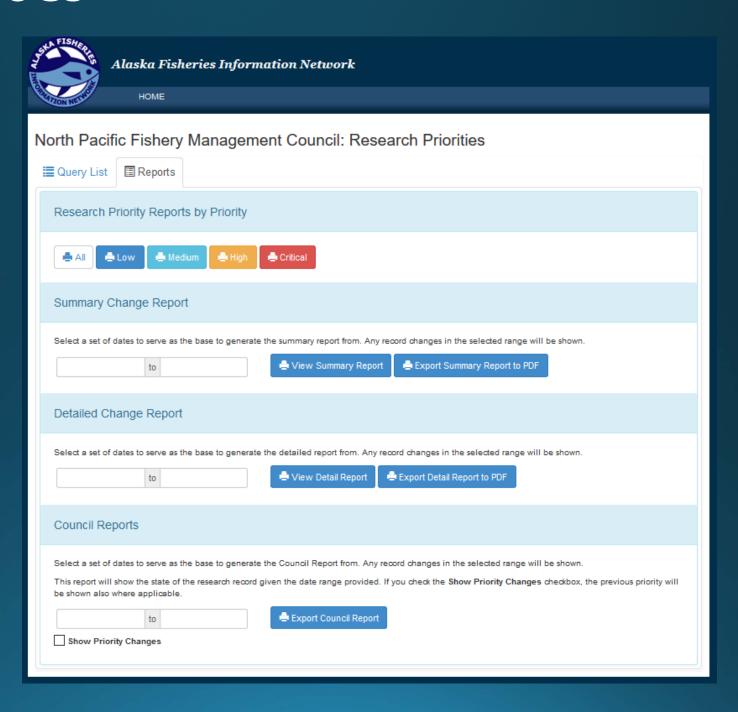
New SSC Projects

Research ID	Title	Description	Council Priority	SSC Priority	Updated Plan Team Priority	Research Status
	Estimate scallop survey catchability	Catchability of scallops in the fishery independent survey is needed to generate abundance estimates of scallops. Currently the survey provides only CPUE data.		Urgent		No action
	Expand statewide scallop survey	The State of Alaska fishery independent dredge survey has been conducted in a limited number of known beds. Expansion of the survey beyond the edges of known beds into previously un-surveyed areas will improve knowledge of bed size and true scallop distribution		Critical		Underway
	Population structure of scallops	Currently scallop beds are monitored independently. Knowledge of source/sink dynamics and meta-populations processes will improve the ability to manage weathervane scallops at the stock level.		Important		No action
		Within the assessment, there are conflicting observations about molt timing in April/May versus August/September. Moreover these observations suggest the potential for biennial mating. These issues could have important consequences on the assessment model.		Important		No action
	Herring genetics on overwintering and spawning grounds	A comparison of genetic composition of herring on the overwintering grounds and on the spawning grounds is needed to evaluate population structure.		Important		No action
	Herring PSC estimation in groundfish fisheries	Recent observer estimates of herring PSC in the groundfish trawl fishery should be used to explore the seasonal migration of herring in relation to variability in climate and oceanographic conditions. This may provide information to re-evaluate the appropriateness of the current Herring Savings Areas and may also provide insights regarding implications of climate change.		Urgent		No action

Separation of SSC and Council Recommendations



Old Categories in Report Generator



Old Terms in Query Tool



"Underway" glitch



			Group 1 Priority Edits				Group 1 Status Edits				
ResearchID	Title	Current Plan Team Priority	Hanselman	Lunsford	Stichert	FINAL	Research Status	Hanselman	Lunsford	Stichert	FINAL
			Critical	Critical	Critical	Critical					
	Continuation of State and Federal annual		Ongoing	Ongoing	Ongoing	Ongoing					
145	and biennial surveys	Critical	Monitoring	Monitoring	Monitoring	Monitoring	Underway	Underway	Underway	Underway	Underway
	Methods for reliable estimation of total							Partially	Partially	Partially	Partially
202	removals	High	Important	Important	Important	Important	Underway	Underway	Underway	Underway	Underway
	Monitor skate egg case concentrations every										
	2 to 3 years using non-invasive research				L						
219	design, such as in situ observation	Low	Strategic	Strategic	▼ ategic	Strategic	No action	No Action	No Action	No Action	No Action
	Investigate in situ methods of tagging				Ī			Partially	Partially		Partially
382	species that experience barotrauma	Low	Strategic	Strategic	Strategic	Strategic	No action	Underway	Underway	Don't Know	underway
	Identification and integration of archived							Partially	Partially	Partially	Partially
194	data	Medium	Don't Know	Important	Important	Important	Partially underway	Underway	Underway	Underway	Underway
	Improve surveys in untrawlable habitat,										
	particularly for rockfish, Atka mackerel, and							Partially	Partially	Partially	Partially
146	sculpins	Medium	Important	Important	Important	Important	Partially underway	Underway	Underway	Underway	Underway
								Partially	Partially	Partially	Partially
193	Improve species identification	Medium	Important	Important	Important	Important	Partially underway	Underway	Underway	Underway	Underway
218	Survey capability for forage fish	Medium	Don't Know	Important	Important	Important	Partially underway	Don't Know	No Action	Don't Know	Don't Know
	Studies on factors that affect catchability										
169	particularly for King and Tanner crab	Medium	Don't Know	Don't Know	Important	Important	Underway	Don't Know	Don't Know	Underway	Underway
	Assess seasonal diets and species										
168	interactions of fish and shellfish	Medium	Don't Know	Don't Know	Don't Know	Don't Know	Partially underway	Don't Know	Don't Know	Don't Know	Don't Know
	Research on survey analysis techniques for							Partially	Partially	Partially	Partially
220	species that exhibit patchy distributions	Medium	Important	Important	Important	Important	Partially underway	Underway	Underway	Underway	Underway
	Collect maturity scans during fisheries that							Partially	Partially	Partially	Partially
221	target spawning fish	Pending	Strategic	Strategic	Strategic	Strategic	Underway	Underway	Underway	Underway	Underway
	Conduct routine surveys of subsistence in the										
165	northern Bering Sea and Arctic Ocean	Low	Don't Know	Don't Know	Don't Know	Don't Know	Partially underway	Don't Know	Don't Know	Don't Know	Don't Know
	Investigate long term effects of fishing on										
386	Pacific halibut	Pending	Important	Important	Important	Important	Underway	Don't Know	Don't Know	Don't Know	Don't Know
381	Effects of changes to the observer program	Critical	Urgent	Urgent	Urgent	Urgent	No action	Underway	Underway	Underway	Underway

Multiple Simultaneous Editor Functionality

Open Query Functionality



Scroll Functionality



RESEARCH PRIORITIES

Research Priorities are determined through:

- Review of identified NPFMC priorities
- Direct solicitation of priorities from specific management agencies
- Solicitation from the research community and industry through an online portal for suggestions (June-August)

Priorities informed through the NPFMC and other entities and individuals include:

- North Pacific anomalous warming
- Development and application of new quantitative assessment approaches
- Estimation of life history parameters to improve stock assessment
- Analyses of selectivity survey design to inform estimates of catchability
- Assessment of data poor stocks
- Depleted and declining marine mammal populations
- Development of new tools, models, and frameworks to understand and predict implications of policy and management decisions
- Monitoring from industrial platforms, infrastructure or vessels
 - Data management

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CURRENT RESEARCH THEMES

- -Fish Habitat
- —Fish and Invertebrates
- —Marine Mammals
- —Seabirds
- -Human Dimensions
- Other Prominent Issues
- —Technology Development
- -Cooperative Research with Industry
- Community Involvement

Oceanography/Lower Trophic Levels POTENTIAL REVISED

RESEARCH THEMES

- —Monitoring
- -Habitat
- —Ecosystems
- —Population assessment
- —Fishery management
- -Protected Species
- Human Dimensions
- —Other Prominent Issues
- —Technology Development
- -Cooperative Research with Industry
- Community Involvement



Action

- Review research priorities
- Identify priorities to communicate to Secretary
- Other Issues:
 - Database
 - NPRB

