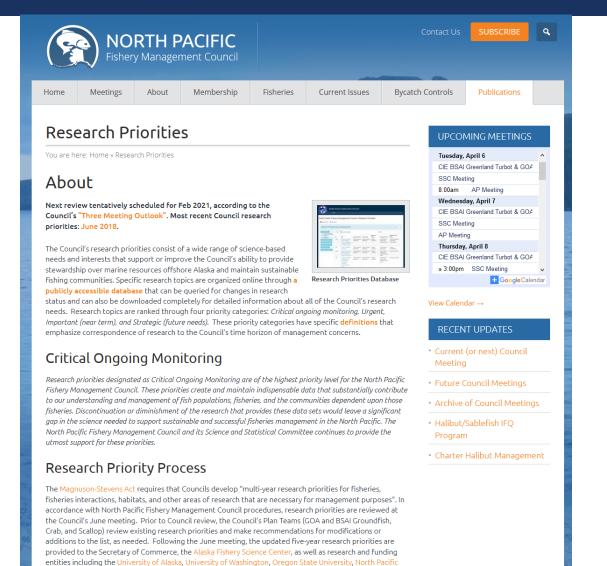
D7 RESEARCH PRIORITIES

JIM ARMSTRONG





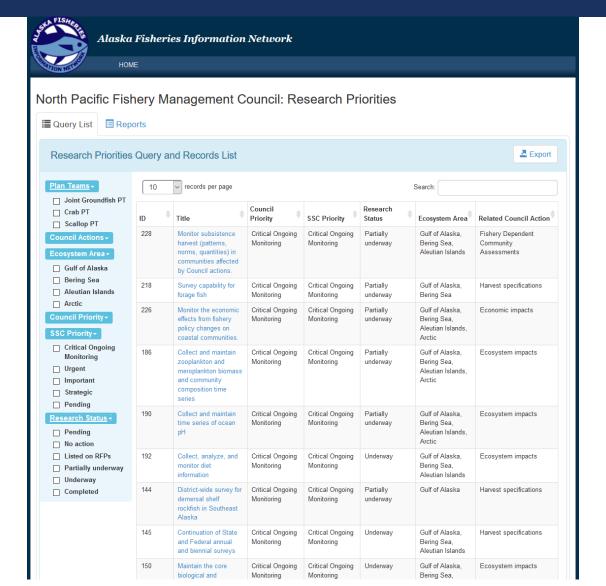
WHERE TO FIND THEM



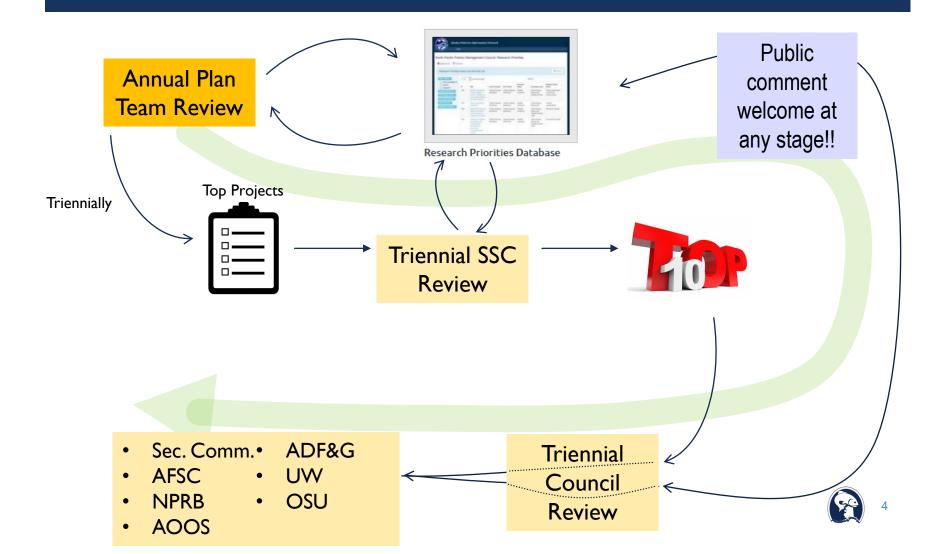
Research Board, Alaska Department of Fish and Game, and the Alaska Ocean Observing System.

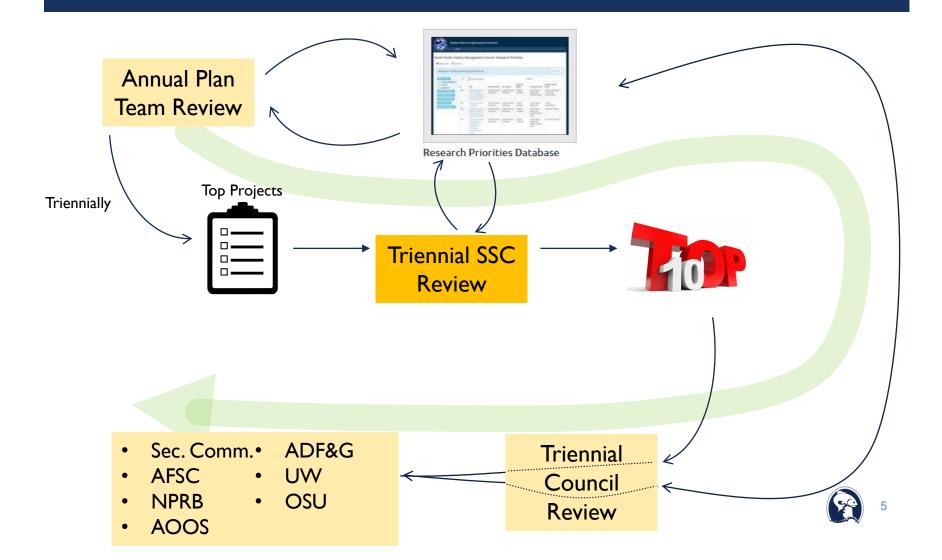


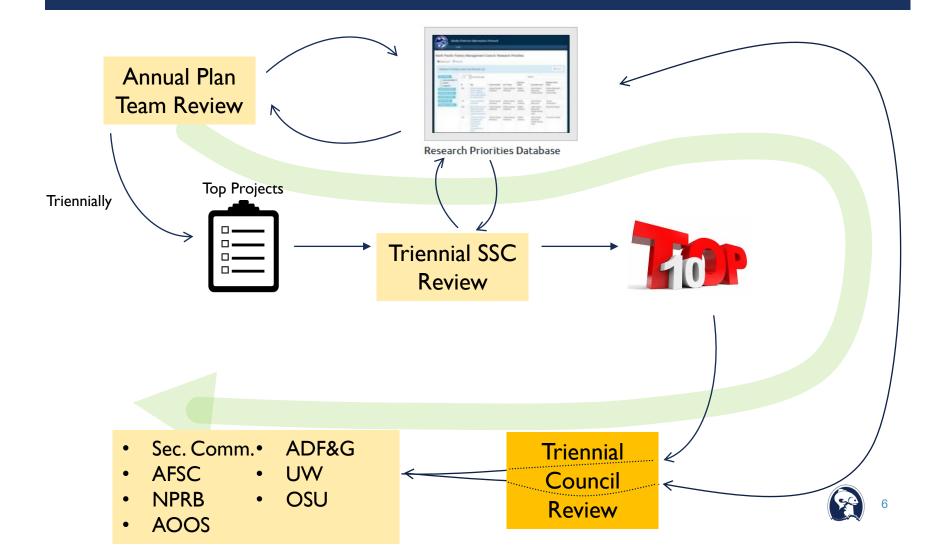
WHERE TO FIND THEM

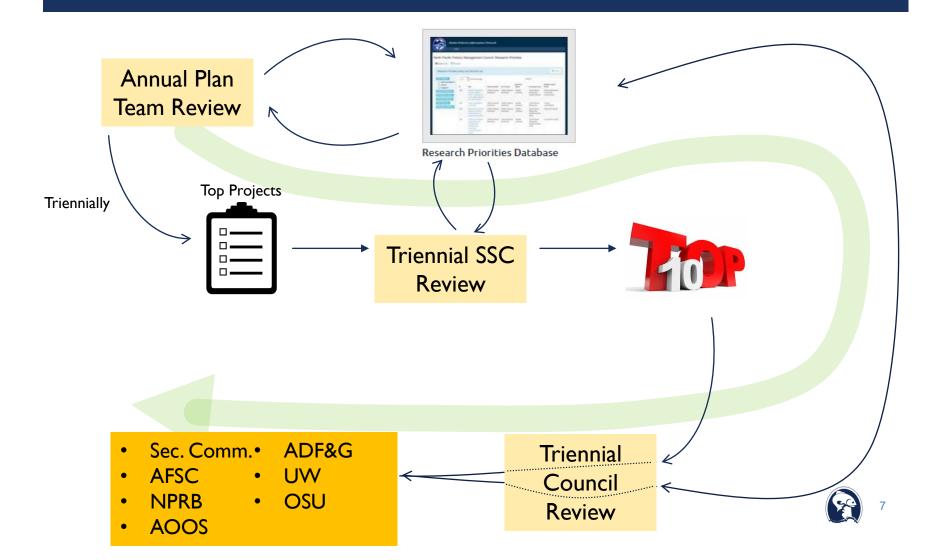


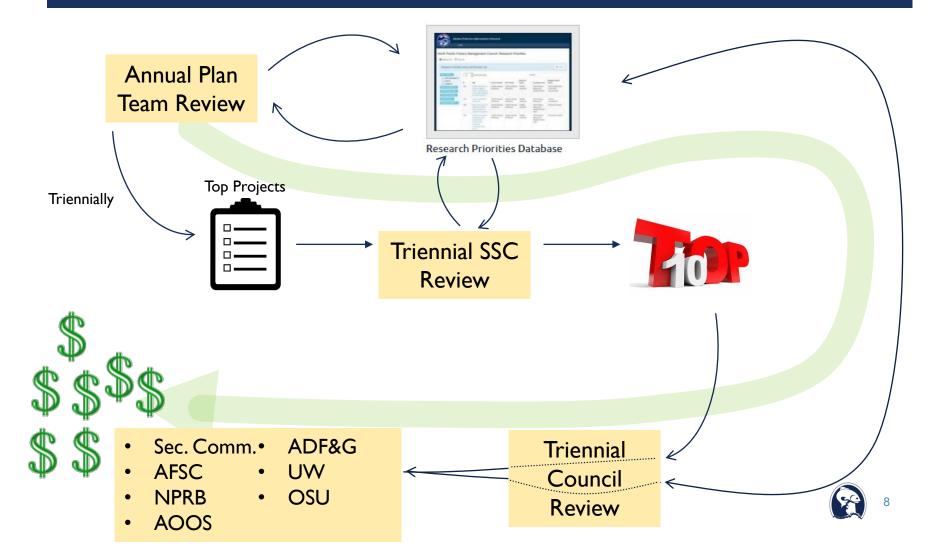


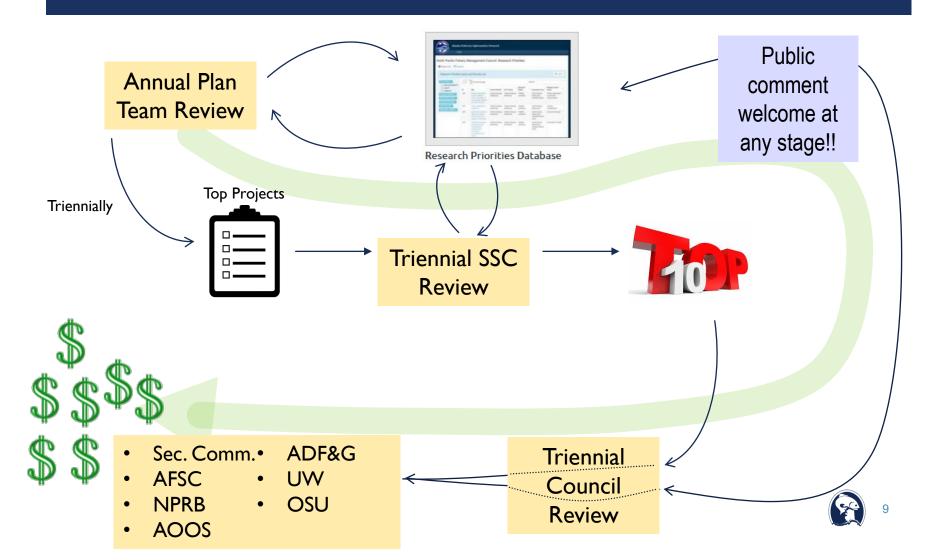








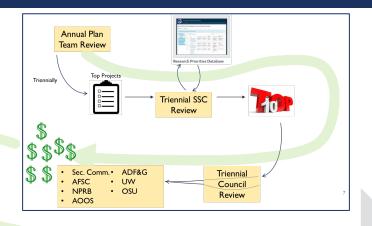




Management Challenge

Information





Management Challenge

Information

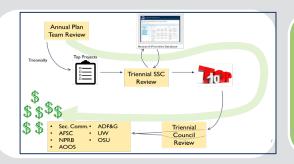




Examples

- Tier advancement
- Assess social impacts
- Potential for SSL interactions

Management Challenge

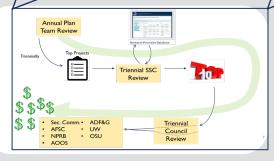




Examples

- Tier advancement
- Assess social impacts
- Potential for SSL interactions,
- 147, 148, 592, 171, 571
- 180, 198, 230, 247, 431, 491,
- 212, 249

Management Challenge

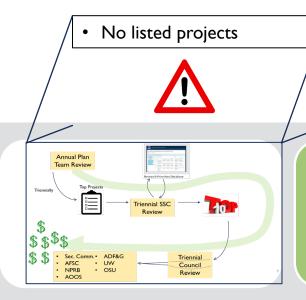




Examples

 Fixed gear discard mortality rates for sablefish

Management Challenge

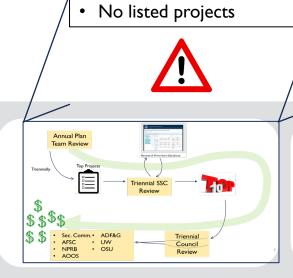




Examples

 Fixed gear discard mortality rates for sablefish Public comment welcome at any stage!!

Management Challenge



THE LISTS

D7 Research Priorities



Research Priorities - Set 3-year priorities

D7 Action Memo -Uploaded: 03/29/2021 03:56 PM AKDT

D7 Research Priorities 2021 Complete List - Uploaded: 04/02/2021 01:03 PM AKDT

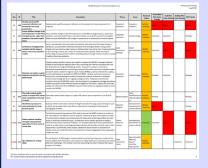
D7 research priorities 2021 Urgent No Action -Uploaded: 03/29/2021 03:57 PM AKDT

D7 New research priorities for 2021 -Uploaded: 03/29/2021 03:57 PM AKDT

D7 Human Dimensions Research Priorities -Uploaded: 04/02/2021 01:04 PM AKDT

D7 BSFEP Team research priorities -Uploaded: 04/02/2021 01:08 PM AKDT

Complete list with Plan Team Recommendations



New Plan Team Recommendations



Urgent/No Action



THE LISTS

D7 Research Priorities



Research Priorities - Set 3-year priorities

D7 Action Memo -Uploaded: 03/29/2021 03:56 PM AKDT

D7 Research Priorities 2021 Complete List - Uploaded: 04/02/2021 01:03 PM AKDT

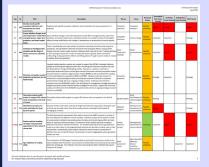
D7 research priorities 2021 Urgent No Action -Uploaded: 03/29/2021 03:57 PM AKDT

D7 New research priorities for 2021 -Uploaded: 03/29/2021 03:57 PM AKDT

D7 Human Dimensions Research Priorities -Uploaded: 04/02/2021 01:04 PM AKDT

D7 BSFEP Team research priorities -Uploaded: 04/02/2021 01:08 PM AKDT

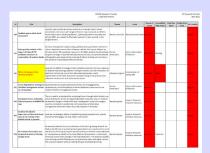
Complete list with Plan Team Recommendations



New Plan Team Recommendations



Urgent/No Action



BSFEP



Bering Sea Fishery Ecosystem Plan Te

Measured provides it instituted for it was the framework amount of the model of the control of t

While the Team may want to consider an expanded process in the future, a good starting point is to ensure that the FEP priorities in the action modules are recognized. As such, the Team offers the following

- that the FIFP priorities in the action modules are recognized. As such, the Texas offices the following research priorities for Apel 2000:

 LK and TK data collection. This research priority would support more structured and
- process, but need dats to be able to populate those ownerspe also.

 Climate change: Develop predictive tools to inform management options related to realisence and adaptation. The research printing supports the work of the Climate Change Taskbone to identify and from our climate and enter must be common thomate drawn and change in the common change drawn and their blight.
- Taskforce to identify and map our climate and entironment change drivers and their likely response within falsely management, and specifically work on management options that provide a management response. Might support with groundfish specifications risk solder, and can also see these predictive social to be able to evaluate the potential risk of different management.
- Conduct an assessment of the Council's Bering Sea management with respect to EBFM be practices. This research priority could be sarple to help identify future meant and research.
 The Team considered identifying priorities related to other action modules or the Ecosystem Health.

Human Dimensions





THE REPORT

SSC Research Priorities 2021 Review

Introduction and background

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) includes directives to 1) prevent overfishing, 2) rebuild depressed fish stocks to levels of abundance that produce maximum sustainable yield (MSV), 3) develop standardized reporting methodologies to assess the amount and type of bycatch, 4) adopt measures that minimize bycatch and bycatch mortality, to the extent practicable, 5) describe and identify essential fish habitat (EFH), and 6) assess the impact of human activities, including fishing impacts, on habitat. National Standard 8 mandates consideration of the effects of fishery management measures on communities. These directives require substantial data collection and research efforts to support management of North Pacific fisheries

Section 302(h)(7) of the MSA requires Regional Fishery Management Councils to:

"(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 Marin Fisheries Service for their consideration in developing research priorities and budgets for the region of the Council."

This document gives some background of previous research prioritization and some direction toward new streamlining procedures.

Schedule of Document Development and Review

stimates are needed. Sperm whale esonitates are inserted to superint what 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 fishers. longline fishery.

could be a comparable to a comparable to a comparable to a comparable to the compara

valuate the effects of changes to secause of observer restructuring. Observer potential funding limitations and potential tribang imitations and the introduction of electronic monitoring. Ensure that data collected provides a valid representation of the catch and ca be compared easily to the previous data collection methods and time data collection methods and time series remain intact. Quantitatively and qualitatively nd examine the suite of engagements, if dependencies, and vulnerabilities of halibut dependent communities and

In 2011, the SSC and Council established procedures for conducting "multi-year research priorities for fisheries, fisheries interactions, habitats, and other areas of research that are necessary for management purposes" in accordance with the Magnuson-Stevens Act. At that time, the North Pac Fishery Management Council established that research priorities were to be annually reviewed at the Council's June meeting. Prior to Council review, the Council's Plan Teams (GOA and BSAI Groundfish, Crab, and Scallop) would review existing research priorities and make recommendations for modifications or additions to the list, as needed. From 20xx to 2018, the Council updated research priorities annually following the June meeting. In February 2019, the Council moved review of researc priorities from an annual to triennial schedule. This change recognizes that the MSA does not require annual review and reflects the Council's desire to streamline the overall review process. Updated research priorities are provided to the Secretary of Commerce, the <u>Alaska Fishery Sci</u> well as research and funding entities including the <u>University of Alaska</u>, <u>University of</u>

Washington, Oregon State University, North Pacific Research Board, Alaska Department of Fish and Game, and the Alaska Ocean Observing System

The Council's research priorities consist of a wide range of science-based needs and interests that support or improve the Council's ability to provide stewardship over marine resources offshore Alaska and maintain sustainable fishing communities. Specific research topics are organized online through 3 publicly accessible database that can be queried for changes in research status. It can also be downloaded completely for detailed information about all of the Council's research needs. Research topics are ranked through four priority categories: Critical ongoing monitoring, Urgent, Important (near term), and Strategic (future needs). These priority categories have specific definitions that emphasize correspondence of research to the Council's time horizon of management concerned.

Under the revised triennial schedule, the SSC and Council will conduct a comprehensive review and will continue to include development of a "top ten" list of research priorities that highlights relevance to Council needs, as well as thorough vetting of critical ongoing monitoring needs and longer-term

In February 2020, the SSC held a workshop to discuss research priorities. This workshop specifically focused on critical ongoing monitoring and strategic research. After this review, it became clear that the existing collection of research topics contained in the database ranged widely in the level of detail and specificity. The lack of consistency across topics hindered the utility of the database for use in rapidly selecting and ranking research topics. The CPT recommended that it might be beneficial to assign Council staff or a small working group to develop a hierarchical approach to listing research priorities, and to condense the list by removing redundancies and overlaps. In recognition of these issues, the SSC created a sub-committee responsible for developing a draft alternative for review and consideration at its April 2020 meeting. The SSC subcommittee that included Council staff and tasked them with reviewing the approaches other Fisheries Management Councils have taken to develop research priorities and to hold periodic teleconferences to select a method that would achieve four

- 1. To ensure the NPFMC complies with MSA 302(h)(7).
- To preserve the intellectual content developed in the existing research priorities database.

 Recommend alternative approaches to the NPFMC and the SSC in the prioritization process
- 4. Preserve and improve how the NPFMC and SSC communicates their research priorities to NOAA

	management	Impacts of halibut management				
		actions.				
	communities					
	Investigate					
	factors				No action	Urgent
			one. In send or understand the entire of the send or understand the sending factors through which entire or adjust the behavior and spatial the behavior and spatial the behavior and spatial the send of the sen			
						Urgent
				Joseph Warden Production National Production N		
	caps					
	Examine the					
	relative		1			
	importance of	scions. There is need to understand the sunderlying factors through with a sunderlying factor through with a sunderlying factor and sunderlying factors and sunderlyi	No action	Urgent		
		BSAI halibut stock health.	species			
	areas in the			measures		
	vicinity of the					
	Pribilof Islands as					
	luvenile			_		_
	Re-evaluate the					
	location and					
	temporal				No action	urgent
	structure of		species			
				measures		
	Areas					
-		one goar or proceeding nerring.		_	_	-
		Application of Ties 2 control pulse		has said		
	Maturity					
	estimates for		Stock		No artion	Leanne
	Bering Sea and				WO INCIDENT	O'BEIN
	Aleutian Island					
	crab stocks					
	aran seveks					
				r		
_		President and supplied tot 26/46/48				

Proposal for future research priority review

Given the cumbersome nature of conducting a comprehensive review of all research priorities in the where the commendation of under this heading, they fit broadly in four categories. The SSC would like an opportunity to comment if any of these activities were to be discontinued.

Regularly conducted surveys by federal and state agencies provide baseline distribution, abundance, and life history data that form the foundation for stock assessments and the development of ecosystem approaches to management. Critical elements of this theme include estimates of abundance, age, length, and maturity data. Although an ongoing need, these surveys are considered the highest priority research activity, contributing to assessment of commercial groundfish, crab, and scallop fisheries of

Federal and state agencies have maintained time series of surveys and moorings that collect core biological and oceanographic data. Collections under this theme are biophysical moorings, stomach ological and oceanographic data. Collections under this theme are olophysical moornigs, stomach data, zooplankton, and age-0 fish surveys. Marrine mammal surveys need to be routiley conducted to assess spatisk changes, wital rates, and interactions with fisheries. These are a necessary part of the survey portfolio to support integrated ecosystem assessment under rapidly changing environmental conditions. Recognizing the potential scope of this category, the SSC wants to emphasize the importance of ecosystem surveys that have the most potential to influence management decisions.

Ecosystem assessment.

Analysis and interpretation of ecosystem and environmental data collected on surveys, moorings and other platforms are important indicators of conditions in the North Pacific. Indicators such as temperature, currents, predator/prey dynamics, and pH will be needed both to advise current tactical science decisions and conduct long term strategic planning. Continued monitoring of these indicators through the Ecosystem Status Reports and Ecosystem and Socioeconomic Profiles and research toward incorporating these data into assessments is highly encouraged.

The SSC needs research on data collected from the fisheries, the communities they affect, and how to incorporate LTK+ into the management process. The SSC particularly is interested in monitoring subsistence fisherics, policy effects on communities, and understanding fishery performance as it relates subsistent states, positive retects on communities, and understanding the preference as it reastes to population symmits. A critical on-going monitoring near destanding the first state of the properties of included from a communities of the state of

Strategic research
Gleen strotegic research has a long time-horizon, it may not need to be reviewed during each triennial
review and could be done every other triennial review in every other review these could be focused on,
and evaluated if they still fit within the NPFMC vision. There are around 25 strategic research projects, with most of them either underway or partially underway. The SSC may wish to review the No Action projects and determine if they are still strategically valid.

"Urgent" Research Top 10

A primary purpose of the NPFMC research priorities is identifying to agencies and funding partner A primary pursone of the NPTAC research priorities is identifying to agencies and funding partners within projects are confident to be most likely to be taken up in the management process. The SSC believe, the most effective way to highlight future research priorities in the problem of "the SSC price of the second priorities" and the second priorities of the second priorities and the second priorities and the second priorities and the second priorities of the second priorities and second priorities an

Research priorities that the SSC has already reviewed and classified as Important are unlikely to be included in a top 10 list. As new priorities emerge from the Plan Teams, the SSC may elevate items that the Plan Teams designated as /mportant to Urgent, in which case they might be considered for the top

SSPT research priorities
The SSPT thus far has not been separately recommending new research priorities. The SSC would welcome and consider any research priorities submitted by the SSPT during the triennial review.

The Bering Sea Fishery Ecosystem Plan (FEP) has its own list of research priorities and the SSC recommends those priorities also be vetted through the Plan Teams and prioritized in the same way as other research priority proposals.

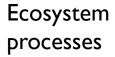
New research priorities

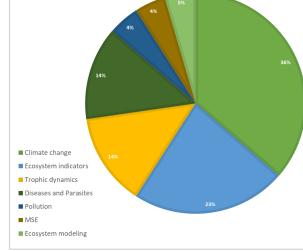
	stocks, with Aleutian Islands golden king crab considered a priority.				
measures of net value, total value, and economic impacts for the	Completion of this project is needed to develop a framework of the typeply of social/connenic data that could be helpful when conducting the 2021 allocation review for the Helibut Catch Sharing Plan.	limensions	Community Impacts of fisheries	No action	Urgent

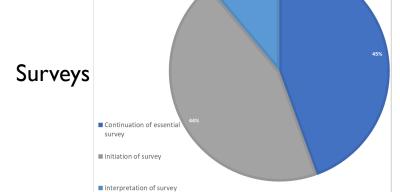
Þ	Yrie	Description	Thome	Feres	Research Status	tiround oh Plen Team	Priority	Scaling Plan Team Priority	SSC Priority
65 L	salmon stack composition in	Thermally marked stoffth project to support PSC salmon stock composition in the Oulf of Alaska	Bycatch species	Stack Identification/d stribution/gener	Fortielly underway	Pending			Pending
671	Characterize expected shanges in benthic production due to climate change	Investigations are needed to address the impacts of global climate change on special partiers of bentile productivity. This is important for fishering that target benthic species such as crab for which management may be structured on an assumption of small such distribution.	Ecosystem processes	Climate change	No ection		kreportani		Pending
711	identify best practices for catch witinution for large bysatah species		Observer program	Devidopment/I reprovement of survey methods	undervisy	Urganz			Pending
	Sup Analyses on loss of biological samples due to implementation of EM	Research to determine the effects of loss of biological data collections dut to Biocham data collections dut to Biocham data (Marketing (RM). At the use of tast increases in different theiris, flever it is less about yet observables and reductions are being raised within reduces had injunctife data collections. Healthcare of their control accounting estimates and more increases are reacted.	Observer program	Development/\(\) reprocurent of survey reethods	Fortistly underway	Urgant			Pending

-									
	BSAI Pacific and followy from GDA heat-ways related cod	Examine the impact on the ESAI Pacific cod fishery of the large reduction in the GDA Pacific cod TAC in 2018 and 2019	Human dimensions	Community Impacts of fisherios	No action	kraporta nt		Pending	

TRENDS - ECOSYSTEM ISSUES

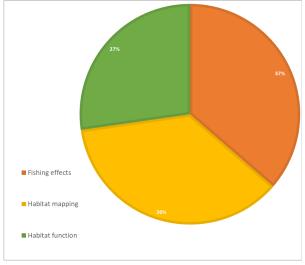






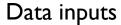
data

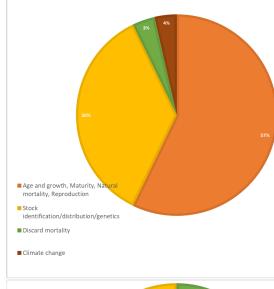
Habitat



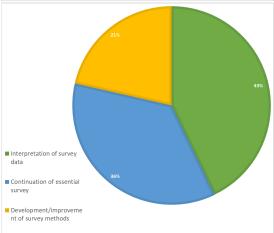


TRENDS - STOCK ASSESSMENT ISSUES

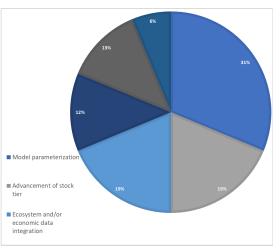




Surveys



Model development





TRENDS - PROTECTED RESOURCES AND HUMAN DIMENSIONS

Protected Species

Human Dimensions

