



**NOAA
FISHERIES**

Alaska Region

Alaska Fisheries Science Center

2019 State of the Center

Robert Foy; Science and Research Director

North Pacific Fisheries Management Council Meeting
– April 2, 2019

AFSC Research Mandate

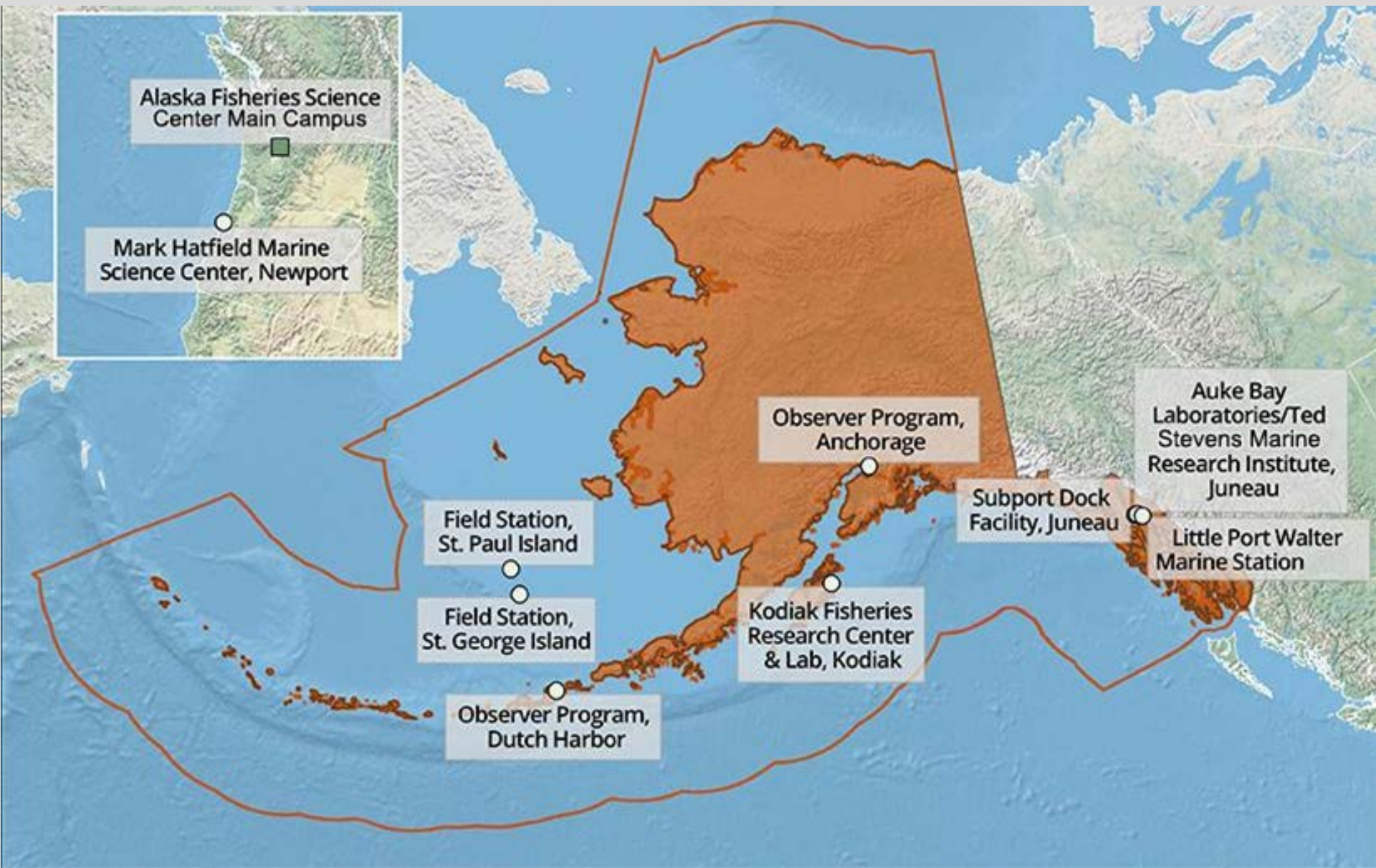
NOAA Fisheries Mission

- 24+ Research Surveys
- 99 stock assessments
 - >250 fish and crab
 - 42 marine mammals
- Ecosystem Based Fishery Management

- Alaska EEZ = 1.5 million nm²
- 60% U.S. seafood
- Top 2 volume fishing ports in U.S.
- 5 of 11 Large Marine Ecosystems in U.S.



AFSC Locations



AFSC Organization

- Programs
- Service/Function

Directorate

- Strategic Planning

Operations, Management, & Information

- *Administrative Services*
- *Budget and Finance*
- *Procurement*
- *Workforce Management*
- *Communications*
- *Compliance*
- *Facilities*

Information Technology Services

- *Technical Support*
- *IT Development*

Auke Bay Laboratories

- Marine Ecology & Stock Assessment
- Recruitment, Energetics, and Coastal Assessment
- Ecosystem Monitoring & Assessment
- Genetics

Habitat and Ecological Processes Research Program

- Essential Fish Habitat
- Loss of Sea Ice
- Ocean Acidification

Fisheries Monitoring & Analysis

- North Pacific Observers

Resource Assessment & Conservation

- Fisheries Behavioral Ecology
- Groundfish Assessment
- Midwater Assessment & Conservation Engineering
- Recruitment Processes
- Research Fishing Gear
- Shellfish Assessment

Marine Mammal Laboratory

- Alaska Ecosystems
- Polar Ecosystems
- Cetacean Assessment & Ecology
- California Current Ecosystems

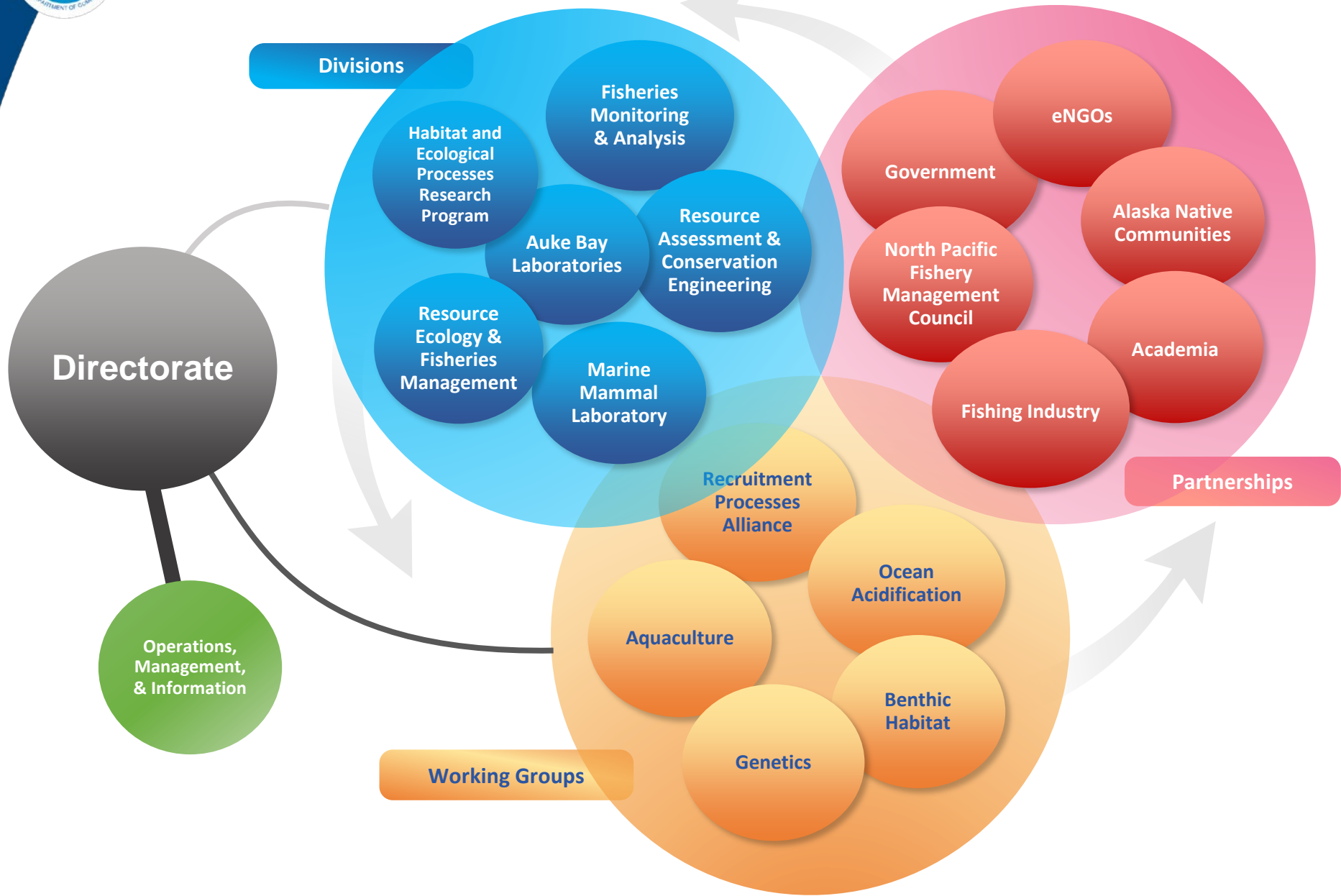
Resource Ecology & Fisheries Management

- Status of Stocks & Multispecies Assessment
- Resource Ecology & Ecosystem Modeling
- Age & Growth
- Economic & Social Sciences

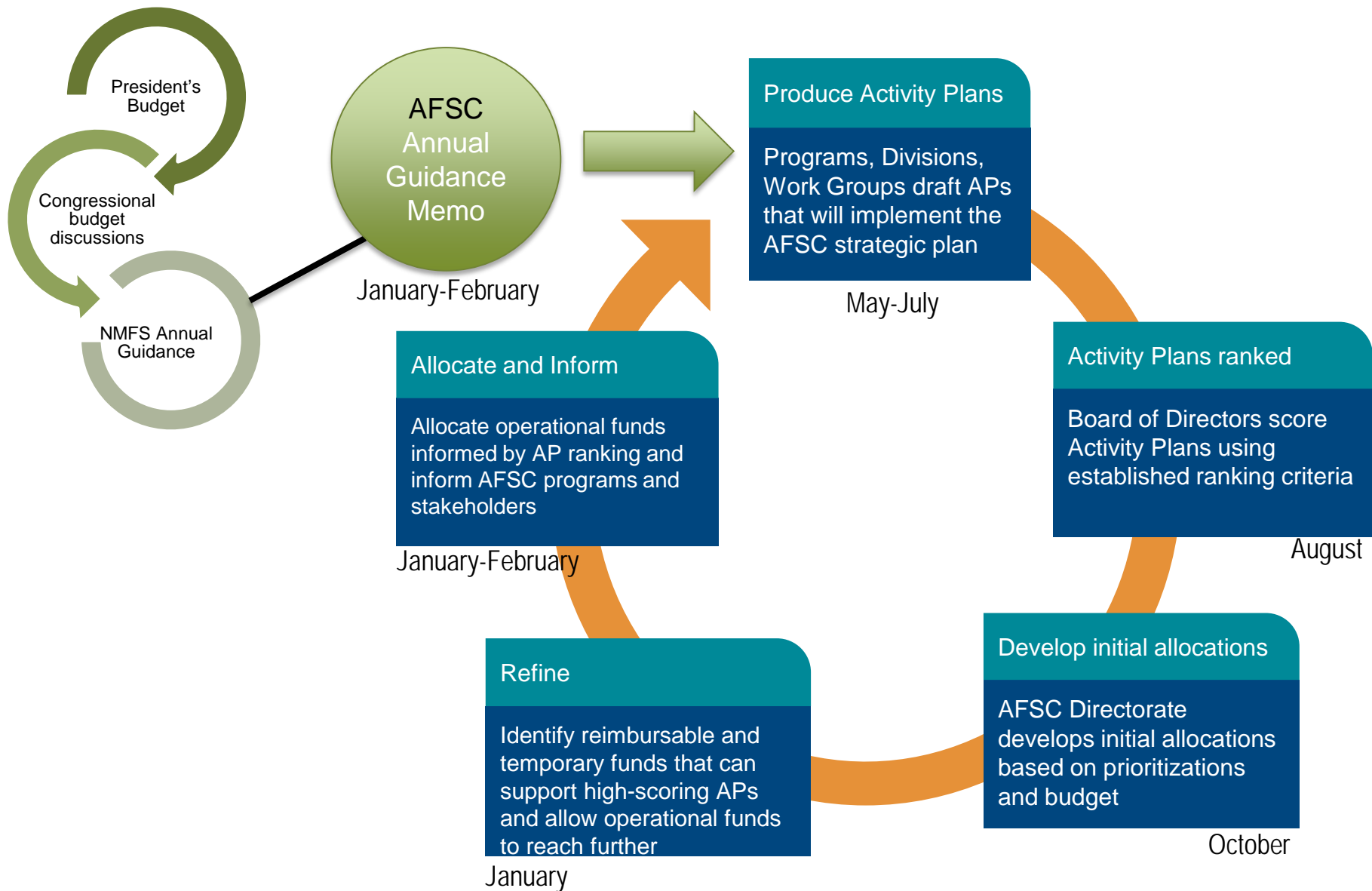


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AFSC Organization

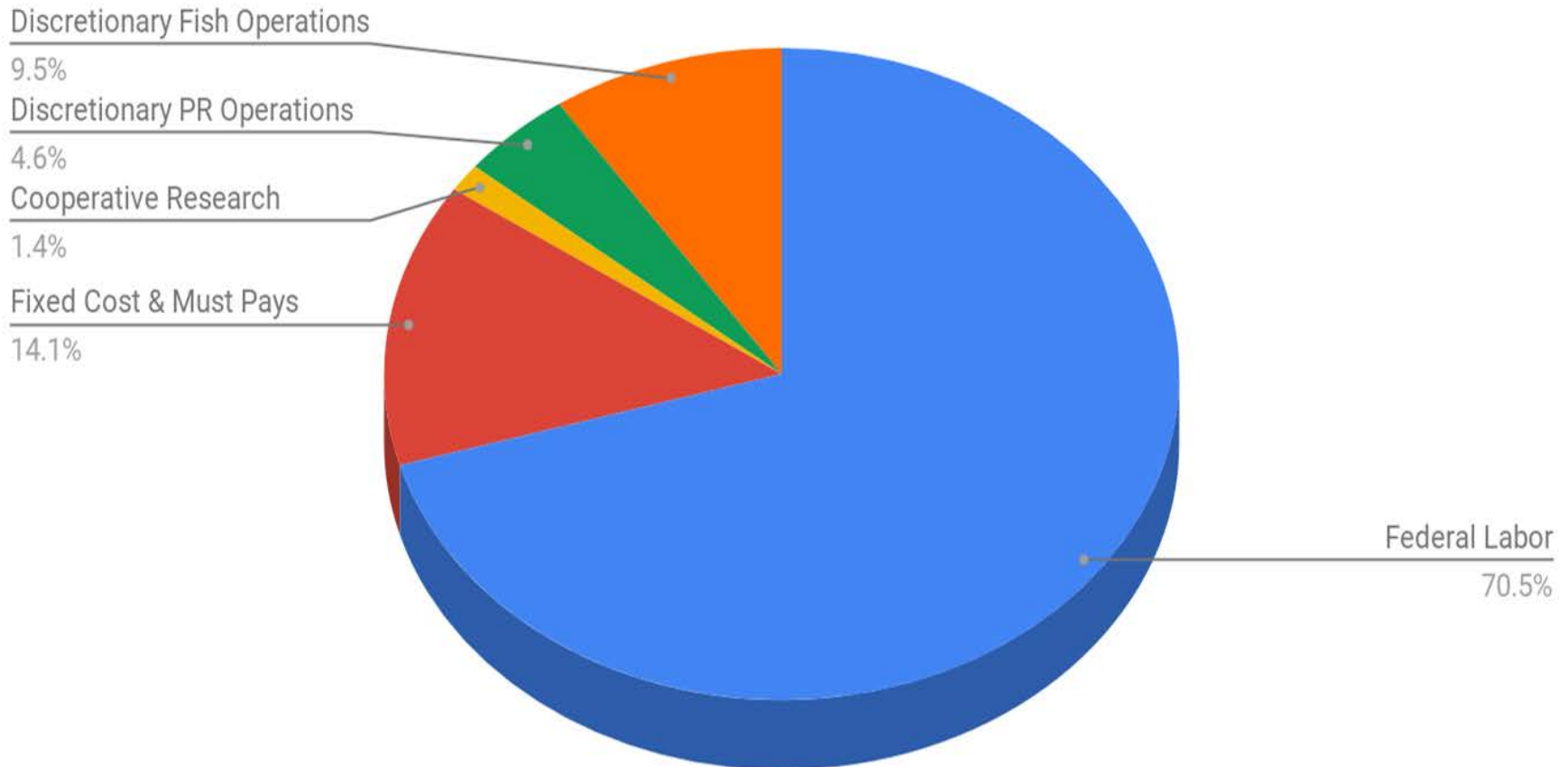


AFSC Resource Allocation Process



AFSC FY19 Budget

AFSC labor 70.5% of the permanent allocation is fixed (~\$44M) to maintain operational funding and flexibility.



**All observer program operational funds in FY19 will come from temporary sources (e.g., HQ)

AFSC FY 2019 Budget

ORF Permanent Allocation

~\$62 Million for AFSC

Escalating (inflationary) costs:

- Survey and Charter costs increasing
- Labor cost increases
- Facilities costs rising
- Corporate costs increasing

Managing costs strategically:

- \$44 M target for labor
- Increase reliance on external funds and partnerships
- Technological advances and innovations

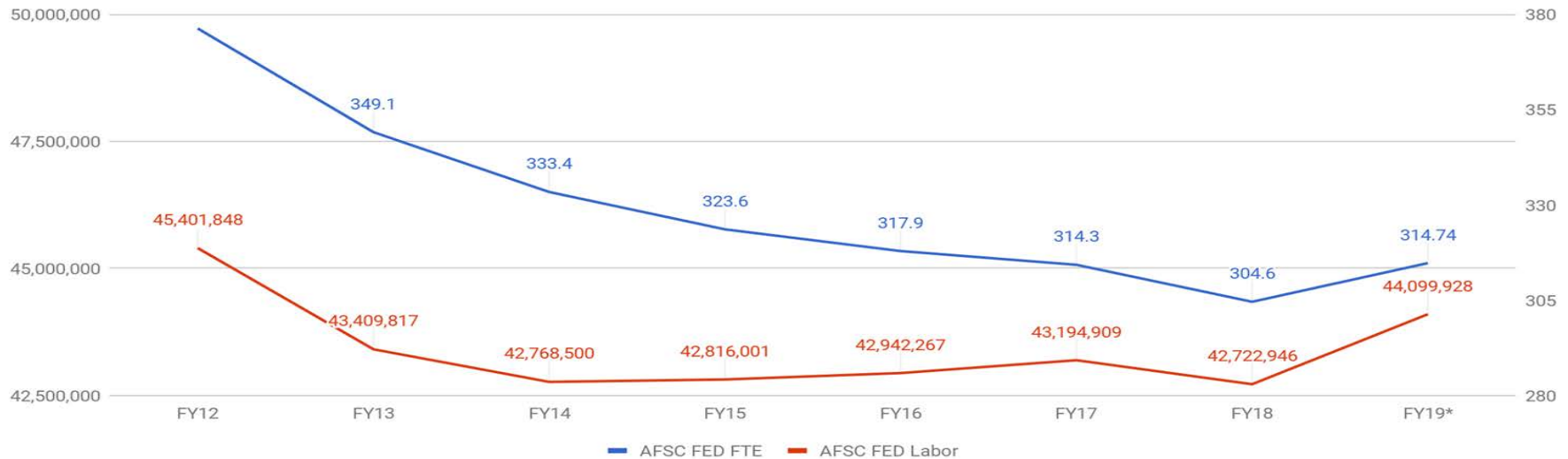
End result:

- ~\$10 M in FY19 for 'operational' research activities (surveys, assessments, process studies)



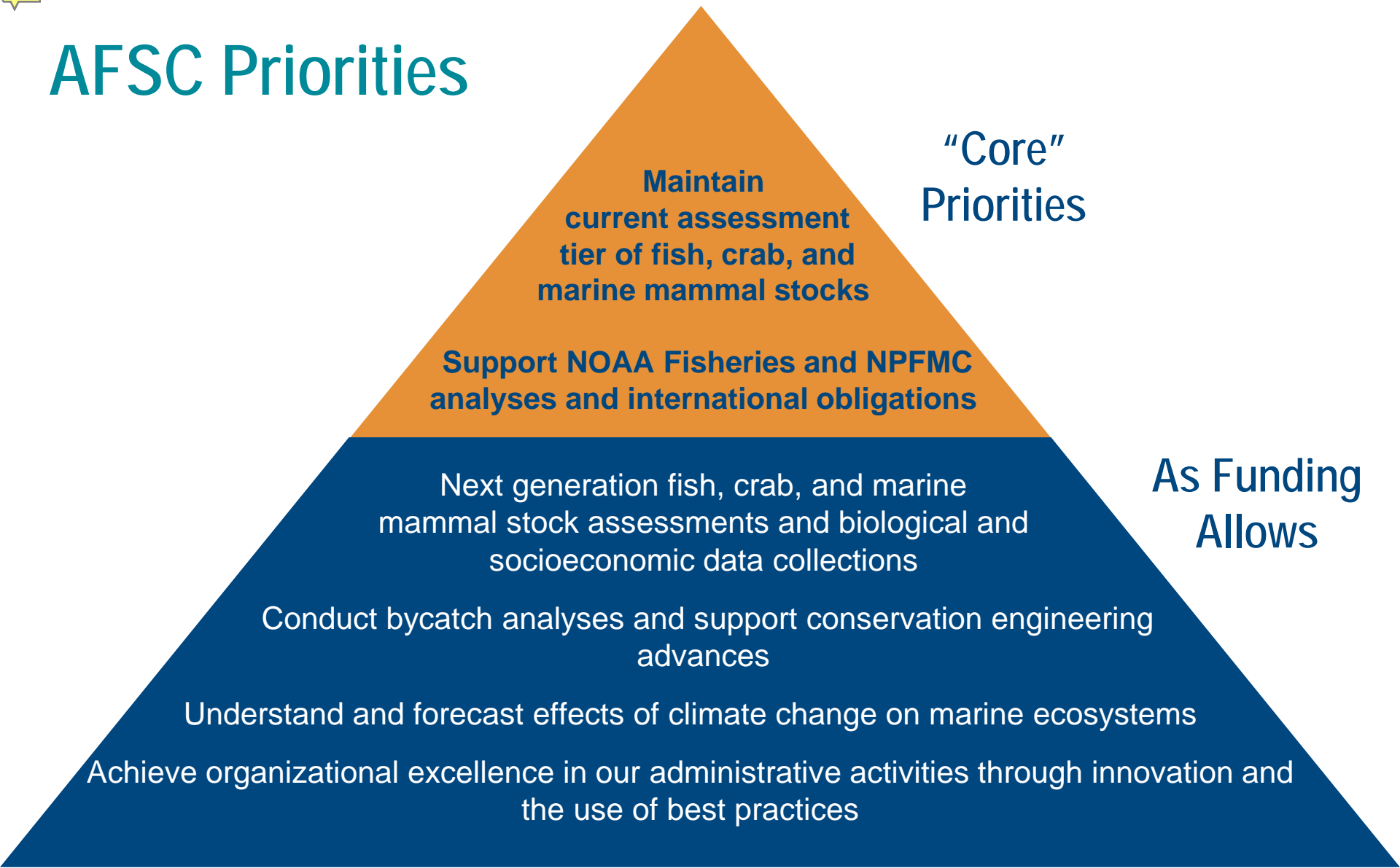
AFSC Fed Labor & FTE Trend

AFSC FED FTE



- In 7 years, AFSC reduced labor by 65 FTEs (380 to 315 FTEs)
- Now below the minimal staffing level needed to support annual surveys, complete stock assessments, support observer services, and conduct EBFM related research
- \$44M labor target

AFSC Priorities



Research Funding Status for Fish Science

	<u>Activity Plan Category</u>
Funded	Science Administration
	Stock Assessments
	Core Fish Surveys for Stock Assessments
	Improvement to Stock Assessment
Partially Funded	Process Studies that Inform Stock Assessments
	Ecosystem Modeling
	Socioeconomics
	Survey Improvements
Unfunded	Arctic Fish and Ecosystem Research
	Process Studies Informing Ecosystem Understandings
	Habitat

Key Fish Activity Plans Funded

Surveys

Annual Longline Survey

Bogoslof Winter Acoustic-Trawl Survey

Bering Sea & GOA Summer Acoustic-Trawl Surveys

GOA Winter Acoustic-Trawl Pre-spawning Pollock Surveys

Arctic Bottom Trawl Surveys

EBS Midwater Pollock Abundance Index

Survey Data Management, Survey Data Collection

Other

BSAI and GOA fishery stock assessments

Some survey efficiency research

Age Evaluation and Integrative Growth Studies

Collect, Analyze and Disseminate Socioeconomic Data

RPA: Eastern Bering Sea Trawl Surveys and Ecosystem Assessments

RPA: Infrastructure for biochemical analysis

Key Fish Research Unfunded

- Crab Growth, Condition, Reproductive , Recruitment & Habitat Research
- Survey Catchability & Untrawlable Habitat Research
- Ecosystem-based Assessment Research & MSE
- Arctic Midwater Fish Survey - Chukchi Sea
- Pacific cod early life-history dynamics
- Improving stock assessment and IEA
- South East Alaska Coastal Monitoring
- Marine Benthic Ecosystems & Essential Fish Habitat Research
- Arctic Ecosystem Assessment
- RPA: Arctic Offshore Assessment
- Ocean Acidification effects on Alaskan Groundfish
- Process Modeling and Ecosystem Synthesis - RPA

- Arctic Research
- Gulf Watch Alaska Program
- Shellfish Aquaculture
- AFSC Genomics
- Food Habits
- Innovative Tech for Ageing
- RPA: Gulf of Alaska Assessment
- Steller Sea Lions Food Availability
- Applied Economic Analyses

Research Funding Status for Protect Resources

	<u>Activity Plan General Category</u>
Funded	Science Administration
	Abundance and Trend Surveys
	Cook Inlet Beluga Research
	SSL and NFS Vital Rate Research
Partially Funded	Food Habit Research
	SSL Research in Russia
	Foraging Ecology Studies
Unfunded	North Pacific Right Whale
	Killer Whale Research
	Genetics

Key Protected Resources Activity Plans Funded

- Abundance trend monitoring western stock SSL
- Bowhead whale abundance aerial survey
- Northern fur seal population assessments - Pribilof Islands
- U.S.-Canada surveys of ice seals and polar bears in the Beaufort Sea
- Abundance estimates for ice seals in the Bering and Chukchi seas
- Cook Inlet beluga population abundance and dynamics
- Abundance and trends of at-risk harbor seal stocks
- Cook Inlet Beluga UAS study for abundance estimation and photogrammetry
- Gray Whale West Coast Feeding Aggregation Abundance and Individual Identification
- Abundance and trends of harbor seals in coastal and glacial fjord habitats
- Annual SARs for Alaska marine mammals
- Steller sea lion vital rates - western Aleutian
- Western Stock Steller Sea Lion Vital Rates
- Food habits of Steller sea lions and northern fur seals
- Vital rates of Steller sea lions in Russia
- Northern fur seal vital rates
- Stock structure for assessment of phocid seals



Key Protected Resources Research Unfunded

- Cook Inlet Beluga genetic & genomic analysis, prey & habitat studies, acoustic studies, biopsy surveys
- Western Stock Steller sea lion foraging ecology
- Integration of Northern Fur Seal Foraging Ecology and Sairdronne Surveys
- Abundance vital rates and health of harbor seals
- North Pacific Right Whale Assessment
- Multi-spectral, automated survey detection system for Arctic seals
- Density distributions of protected species
- Aerial Surveys of Arctic Marine Mammals
- Vessel impacts on harbor seals in glacial fjords
- Development of close-kin mark-recapture methods for marine mammal and fish stocks
- Arctic marine mammal monitoring
- Cook Inlet beluga winter surveys
- California Sea Lion Abundance, Vital Rates and Ecological Assessments
- Studies of killer whale predation in the central and western Aleutians
- Pathology contaminants diet and physiology of seals
- Genetic metrics of SSL in the western Aleutian Islands and Russia

Key Takeaways FY19

- In FY19 we have some significant activities that have historically been funded that are now unfunded. This erosion of capabilities is expected to continue in future years.
 - Habitat, survey and stock assessment improvements, ecosystem studies are essentially unfunded for FY19.
- As a result, expectations include 1) increased uncertainty in estimates of ACLs due to losses in survey effort and 2) a slowdown in our production of reports related to future climate and ecosystem impacts
- Increased reliance on external or temporary funds

AFSC Annual Guidance Memo for FY20

- **Sustained stock assessments** of groundfish (including maintaining or adapting the longline, acoustic and trawl surveys), shellfish, and protected species with specific consideration for prioritized, long-term time series.
- Support for the **Observer Programs**, including related prohibited and protected species monitoring, support for progress with electronic monitoring capabilities, and support for catch-share implementation.
- Research identified through **gap analyses** that would significantly promote development of, improve, or decrease uncertainty in, stock assessment or management.
- Research identified through gap analyses that develops and implements **innovative technologies or analyses** that decrease uncertainty while increasing cost efficiency in surveys and key assessments.
- Research that supports efforts to assess, manage, and mitigate **bycatch** of salmon, and halibut and protected species in groundfish fisheries in Alaska.
- Research that improves our understanding of **environmental and climate forcing of ecosystem processes (e.g., recruitment, species distribution shifts, changing maturity, stock boundary changes, food availability, phenology)** with focus on variables that can provide direct input into or improve stock assessment and management.
- Research that significantly informs the recovery of **ESA-listed species, MMPA depleted, or overfished stocks**.
- Activities that support the development of strategic plans for **Arctic research** and **aquaculture research** in Alaska.

Key Takeaways FY20 (& beyond) & concerns

- If budget trends continue we will have significant difficulty meeting obligations for Core activities (surveys and assessments) for FY20.
- FY20 – further loss to ecosystem and survey capacity
- Less monitoring = higher uncertainty
- Climate change happening quickly
- Need to identify balance among monitoring, process-studies, ecosystem based fisheries management

Questions?

