

North Pacific Fishery Management Council

Ecosystem approach to management for the Arctic



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NMFS Ecosystem-based Fishery Management Policy and Definition

- NOAA Fisheries strongly supports the implementation of Ecosystem-Based Fisheries Management (EBFM), to better inform decisions and help achieve and optimize the benefits from marine fisheries by evaluating trade-offs among and between fisheries (commercial, recreational, and subsistence), aquaculture, protected species, biodiversity, and habitats, while maintaining resilient and productive ecosystems.
- A systematic approach to fisheries management in a geographically specified area that ensures the resilience and sustainability of the ecosystem ; recognizes the physical, biological, economic, and social interactions among the affected components of the ecosystem, including humans; and seeks to optimize benefits among a diverse set of societal goals.



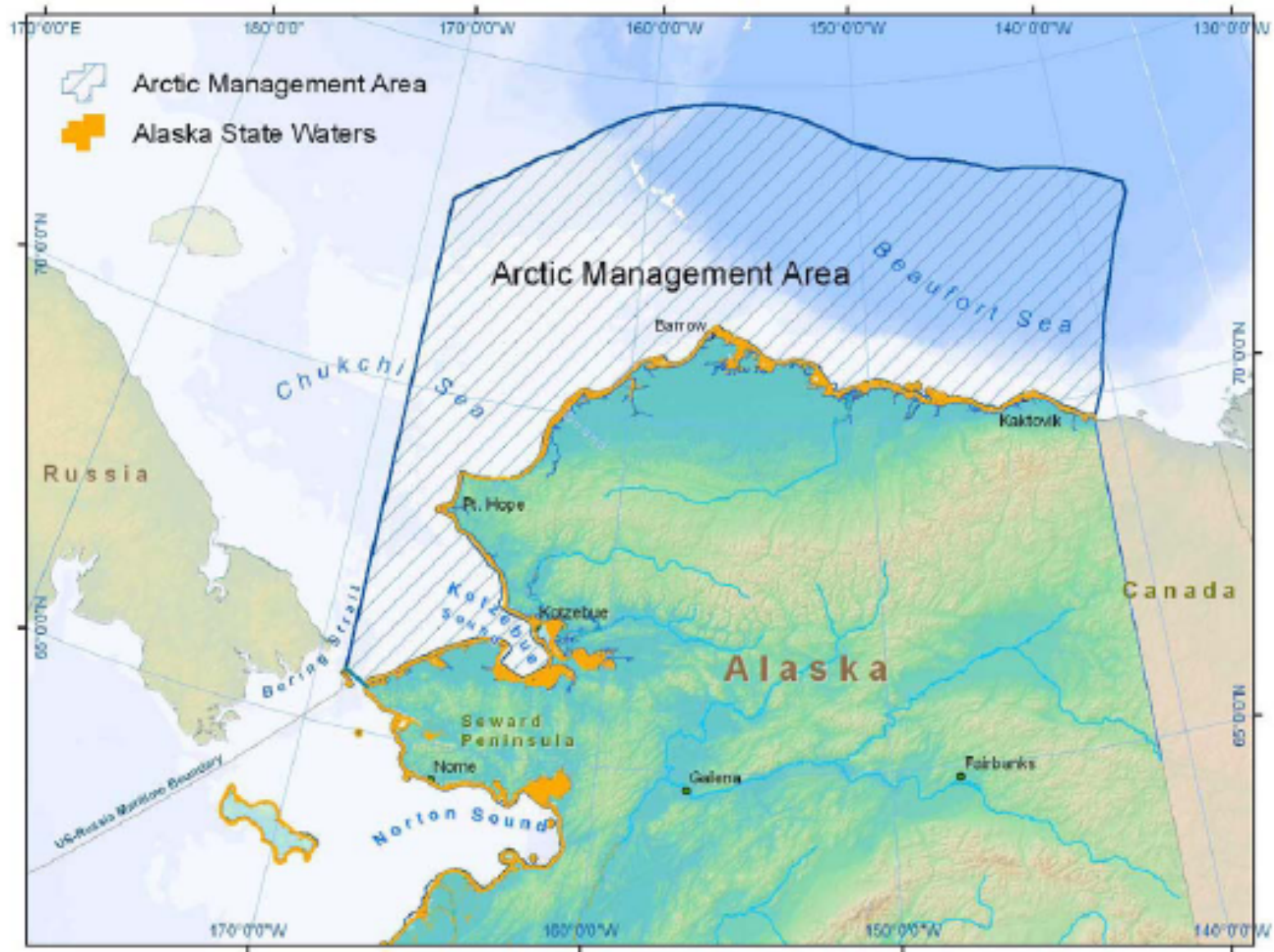
Arctic Fishery Management Plan

7 Chapters

- Introduction
- Management Policy & Objectives
- Conservation & Management Measures
- Habitat, Fisheries, Ecosystem
- Applicable Law and Other Fisheries
- Fishery Impact Statement
- References



Arctic Management Area



Genesis: Heightened Interest in Arctic

- Anticipated changes to species distribution
- Alaska ecosystem management initiatives
- Ecosystem-based fishery management
- Public comment
- Proactively address future issues in the Arctic
- Orderly Arctic fishery development



Arctic FMP Management Policy

Ecosystem-based management policy that:

- proactively applies judicious and responsible fisheries management practices based on sound scientific research and analysis,
- to ensure the sustainability of fishery resources,
- to prevent unregulated or poorly regulated commercial fishing, and
- to protect associated ecosystems for the benefit of current users and future generations.



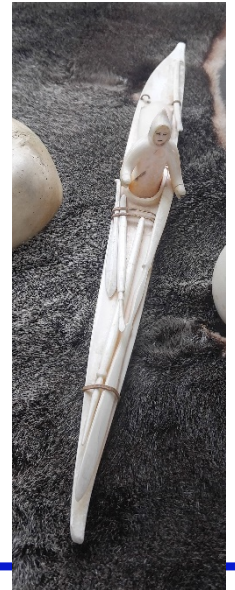
Arctic FMP objectives

1. Biological Conservation
2. Economic and Social
3. Gear Conflict
4. Habitat
5. Vessel Safety
6. Due Process
7. Research and Management
8. Alaska Native Consultation
9. Enforceability
10. Marine Mammal and Seabird



Conservation and Management Measures

- Assessment of biological resources of Management Area
- Best available scientific information
- Establishes Fisheries Management criteria
 - Maximum Sustainable Yield
 - Optimum Yield
 - Methods
 - Overfishing Limits
 - Finfish Tiers
 - Acceptable Biological Catch
 - Total Allowable Catch
- Restrictions
 - Gear, Time & Area, Catch, Bycatch
- Monitoring
- Management & Enforcement



Arctic FMP Fishery Criteria

- Maximum Sustainable Yield
 - Arctic Cod – 5,758 mt
 - Saffron Cod – 589 mt
 - Snow Crab – 453 mt
- Optimum Yield

Reductions from MSY for socio-economic, ecological factors:

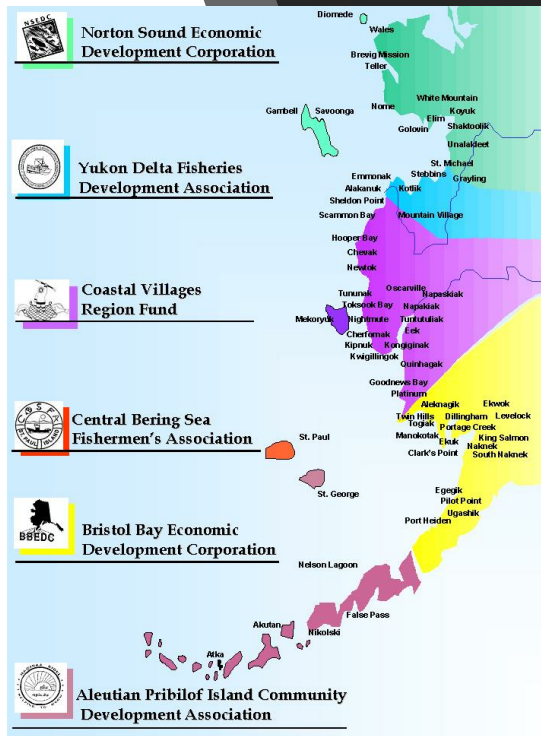
 - Arctic Cod – 100%
 - Saffron Cod – 100%
 - Snow Crab – 100%

No commercial fishing for any FMP managed fishery is currently authorized in the Arctic management area



Community protections available if Arctic fisheries are eventually viable

- Currently, coastal community needs are accommodated in various ways
 - Assessment of social and community impacts
 - Safeguards to maintain coastal community fleets (eg IFQ program)
 - Recognition of subsistence fisheries (eg halibut)
 - Community Development Quota program
 - Sets aside % of TACs for remote coastal communities
 - Provides wages, education, and training benefits for western Alaska residents

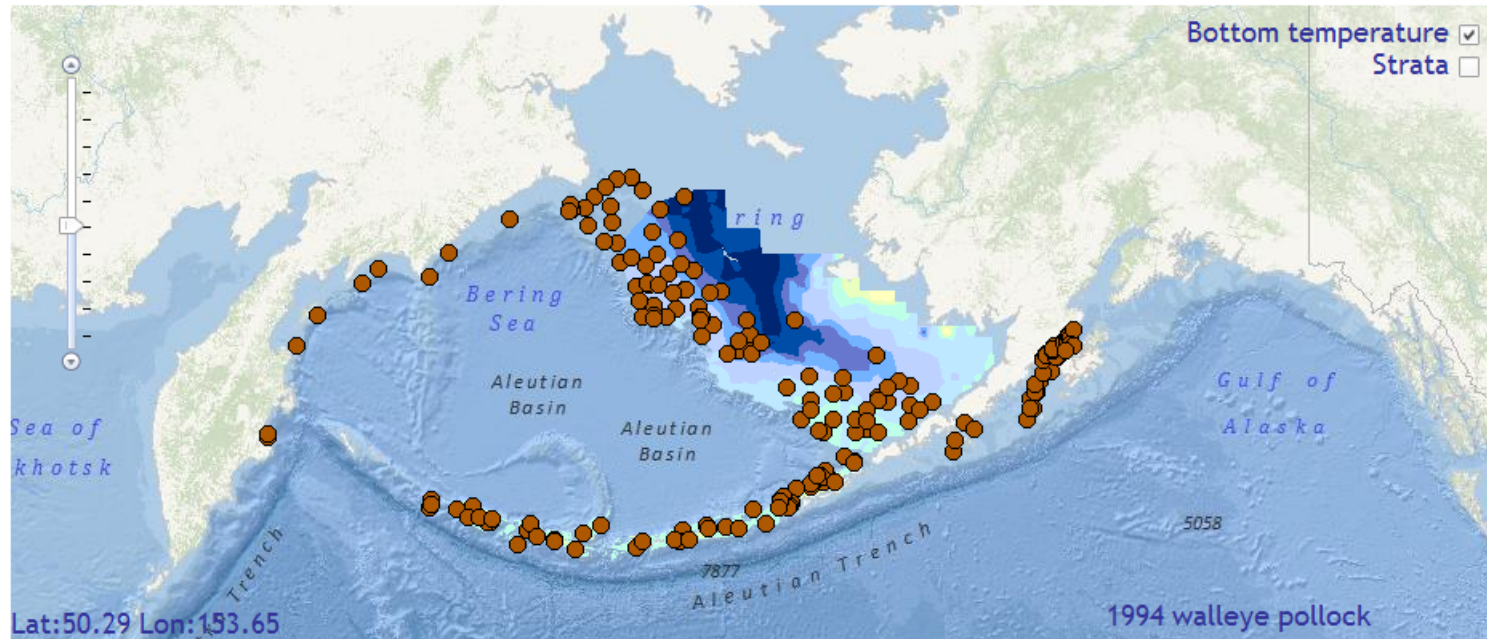


Arctic Exploratory Fishing Discussion Paper

- Council motion in June 2017
 - Develop guidance on exploratory fishing for Arctic FMP so that it is consistent with Council’s precautionary approach to opening commercial fisheries in the Arctic
 - Review examples of international provisions regarding exploratory fishing for “best practices” or “lessons learned”
 - Define exploratory fishing
 - Identify how management measures are applied
 - Discuss successes and challenges for management



Eastern Bering Sea

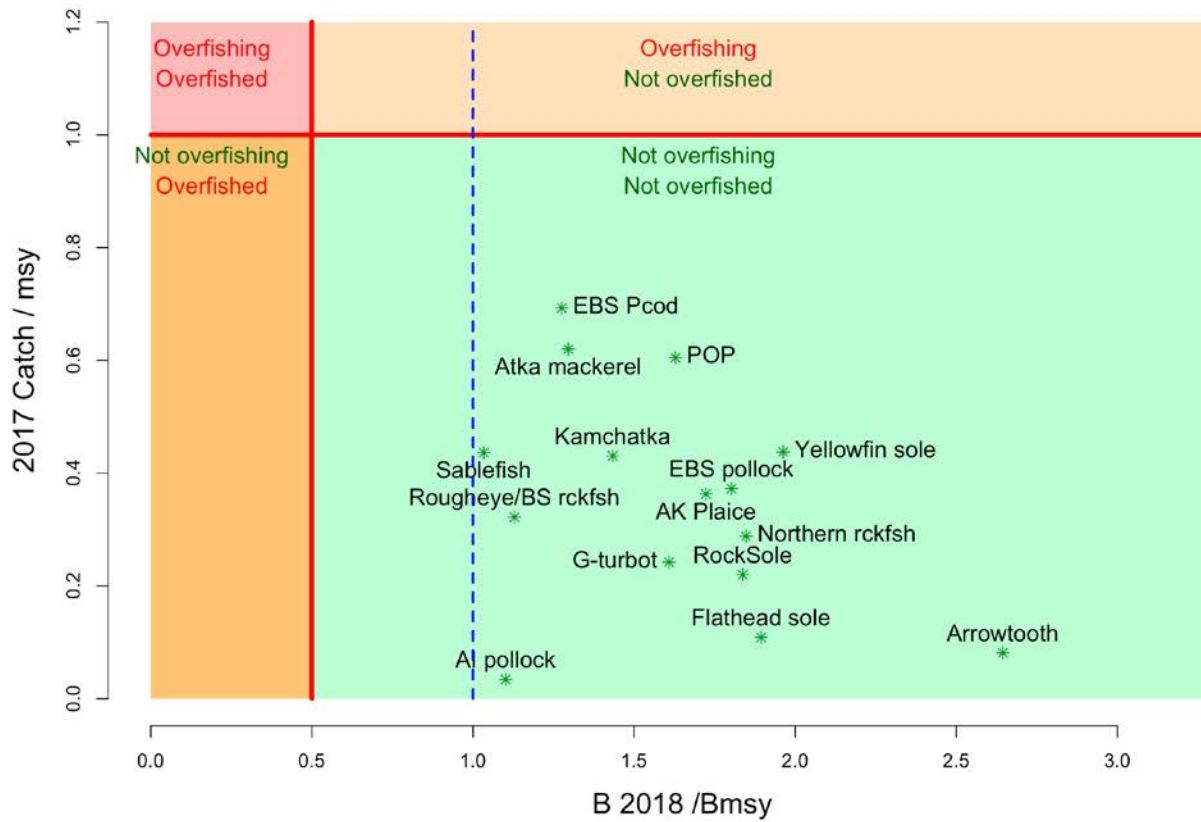


Foundation of eastern Bering Sea fishery management

- Each fishery is governed by a Fishery Management Plan that is shaped by the 10 National Standards of the MSA and the Council's Groundfish approach: conservative biological reference points that account for uncertainty and ecosystem considerations.
- Maximum allowable harvest levels are established by the Science and Statistics Committee.
- Annual stock assessment process conducted by Alaska Fishery Science Center scientists, with peer review.
- Regular (mostly annual) assessment cruises to estimate biomass.
- Bering Sea Integrated Ecosystem Research Plan – a five year effort to construct a conceptual model of the Bering Sea ecosystem.



Eastern Bering Sea – A history of sustainable management



The Fishery Ecosystem Plan

- Will guide transition of Bering Sea management from single-species approach to an Ecosystem-based approach.
- Will facilitate adaptation of the fisheries as climate change and other stressors impact the ecosystem.

Support transparent examinations of trade-offs that are inherent in fishery management: impacts on top-level predators, on subsistence resources and cultures, ecosystem integrity.



Bering Sea FEP Objectives

- Framework for strategic planning
 - Common understanding of how the ecosystem functions
 - Evaluate cumulative effects, tradeoffs
 - Consider resiliency under changing circumstances
- Incorporate ecosystem goals
- Communication tool
 - Transparent public process for stakeholders
 - Coordinate with agencies, organizations and communities



FEP components

- Annual assessment of the status of the ecosystem
- Continuous scientific engagement and input.
- Coupled ecosystem level models, covering physical oceanography, primary productivity, groundfish populations, predators, fishing effects.
- Decision-making tools, MSE
- Blueprint for future actions



Eastern Bering Sea 2017 Ecosystem Considerations Report Card

- The eastern Bering Sea was characterized by **moderately warm conditions** in 2017. The **PDO remained positive**, although the magnitude decreased. **Weak La Niña conditions** are predicted for the winter of 2017-2018.
- **Sea ice extended** over the southern shelf during the winter and spring and resulted in an **extensive, although narrow, cold pool** during summer 2017.
- Acoustic estimates of euphausiids from the 2016 summer trawl survey were **the lowest in the time series**. RZA assessments showed **comparable euphausiid abundances over the middle shelf between 2016 and 2017**.
- The biomass of motile epifauna remains **above the long-term mean**, with an increasing trend in the past 5 years. **Brittle star biomass remains above average**, with a slight (9%) decline from 2016–2017. **Urchins, sand dollars, and cucumbers are also above their long-term mean**, with a 12% increase from 2016–2017. **King and tanner crabs decreased (28% and 21%, respectively)**.
- The biomass of benthic foragers dipped in 2015, but has **remained at a near-average level in 2016 and 2017**. The decline in 2015 was due to a 25% decline in Northern rock sole, which continued to decline in 2017 (by 7.5%). The overall return to an average level was due to a **112% increase in “miscellaneous flatfish”** (e.g., Bering flounder, Longhead dab, Slender sole, Starry flounder) and 24% increase in Flathead sole between 2016 and 2017.
- The biomass of pelagic foragers **remains at its 34-year mean** in 2017. A large **increase in Pacific herring was off-set by a decrease in Capelin**.
- The biomass of fish apex predators **declined, largely driven by a 35% reduction in Pacific cod**
- biomass and 11% reduction in Arrowtooth flounder biomass.
- **The multivariate seabird breeding index remains below the long term mean**, indicating that seabirds bred later and less successfully in 2017. Seabirds showed overall poor reproductive success at St. Paul and St. George Islands in 2017, with the exception of red-faced cormorants.
- Northern fur seal pup production for St. Paul Island in 2016 **remained low with a decrease of 12.1% from 2014**. Pup production on St. George Island increased 8.2% between 2014 and 2016.
- **Seafloor habitat disturbance** due to fishing gear (pelagic and non-pelagic trawl, longline, and pot) shows **interactions have remained below the long-term average** since 2011.





Questions?