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# Monitoring and Research on Phocid Seals

Scientific and Statistical Committee  
North Pacific Fisheries Management Council  
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Polar  
Ecosystems  
Program



Ribbon  
Seal



Spotted  
Seal



Ringed  
Seal



Bearded  
Seal



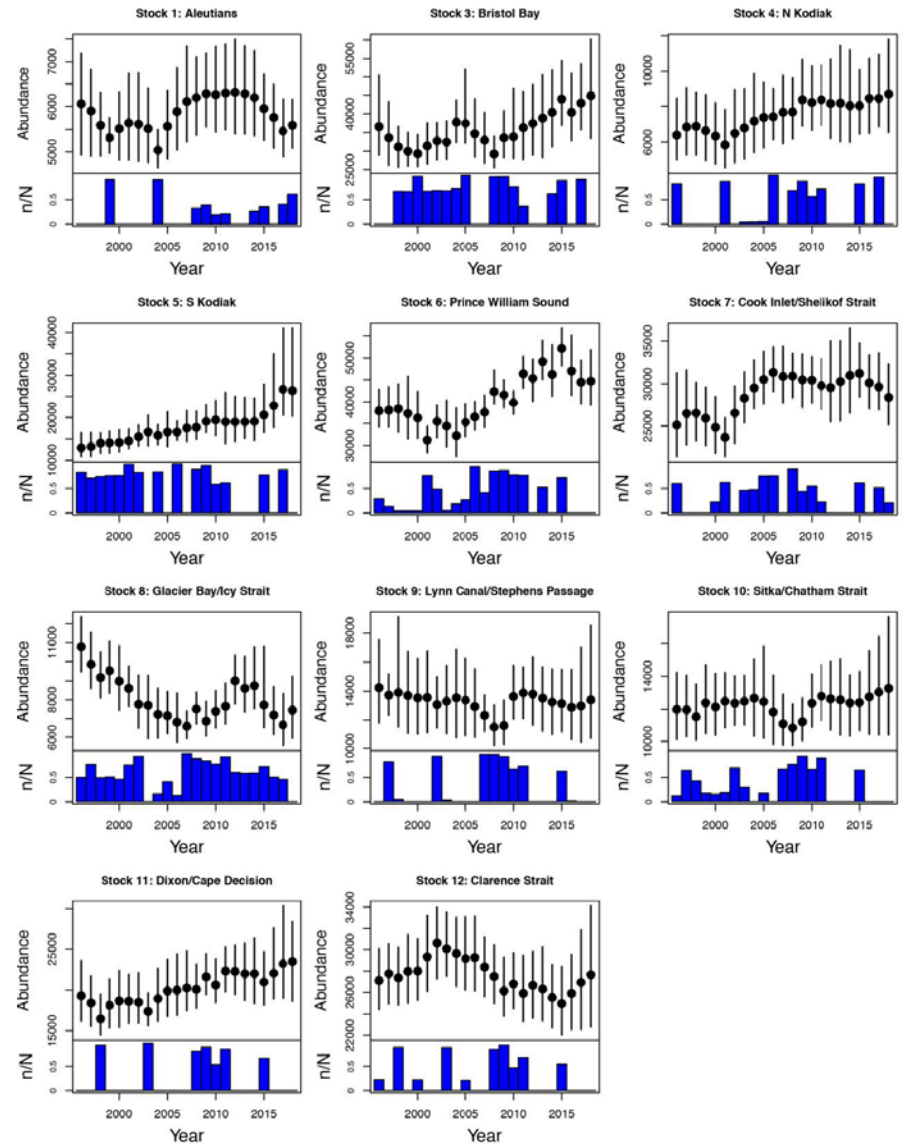
Harbor  
Seal

# Highlights of Monitoring and Research on Phocid Seals in Alaska

- Updates to stock assessments of harbor seals in Alaska
- Declining body condition of Bering Sea spotted seal pups and ribbon seals of all ages, 2007-2018; Aleutian harbor seals of all ages, 2014 – 2016
- Unusual Mortality Event (UME) in bearded, spotted and ringed seals of Alaska, 2018-2019

# Harbor Seal Abundance and Trends – All Stocks

- Abundance estimates for every year (note different scales)
- Precision or confidence varies by stock
- Consider aggregating data into time series for Ecosystem Status Report Card Indicators?

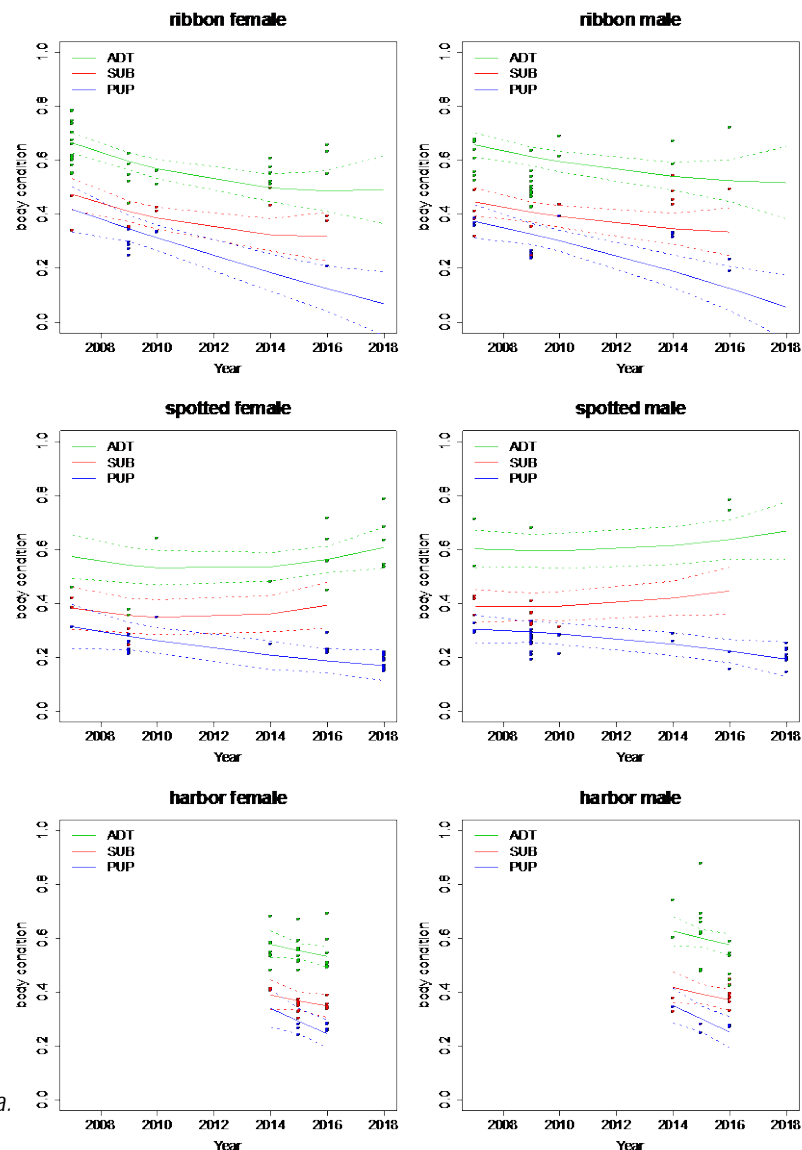


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# Declines in seal body condition

- Ribbon and Spotted seals:
  - Coincided with annual decline of 47,000 km<sup>2</sup> in April sea-ice extent
- Aleutian harbor seals:
  - Declined rapidly in a brief study during the marine heatwave of 2014-2016.



Boveng, P. L., H. L. Ziel, B. T. McClintock, and M. F. Cameron. 2020. Body condition of phocid seals during a period of rapid environmental change in the Bering Sea and Aleutian Islands, Alaska. *Deep Sea Research Part II: Topical Studies in Oceanography* 181-182:104904.

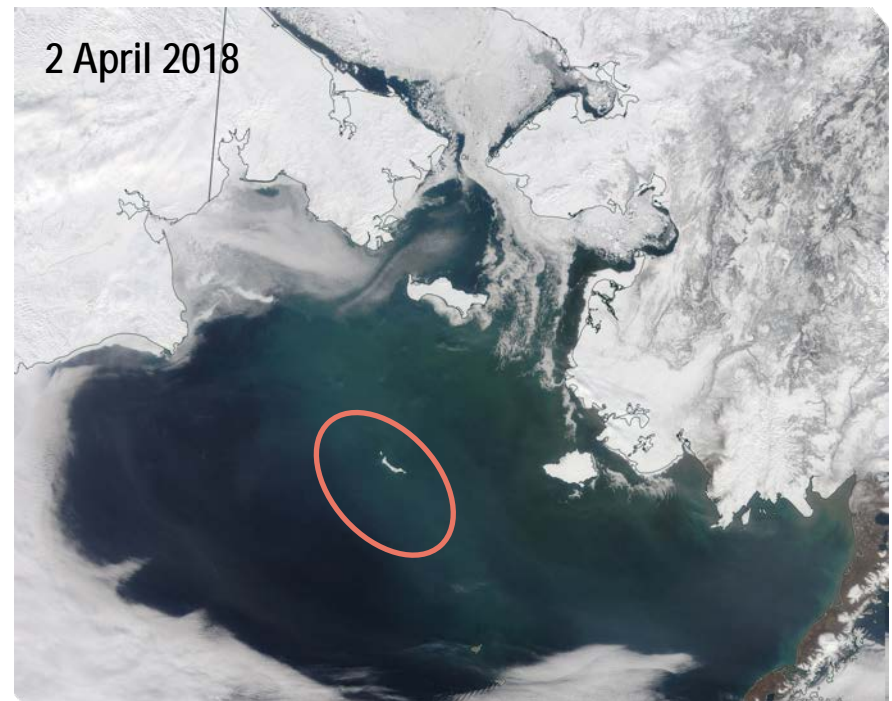
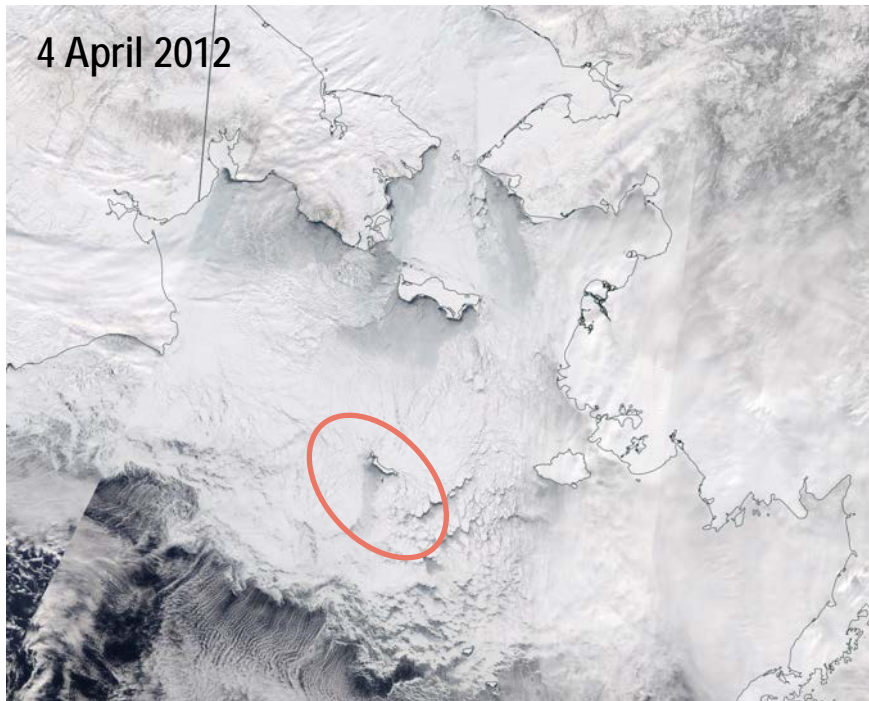
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# Recent loss of sea ice

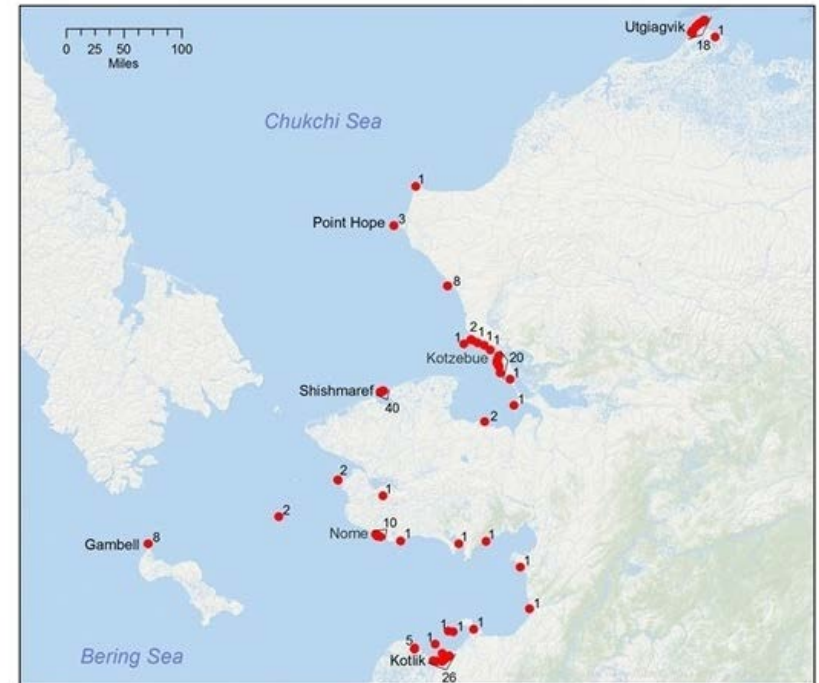
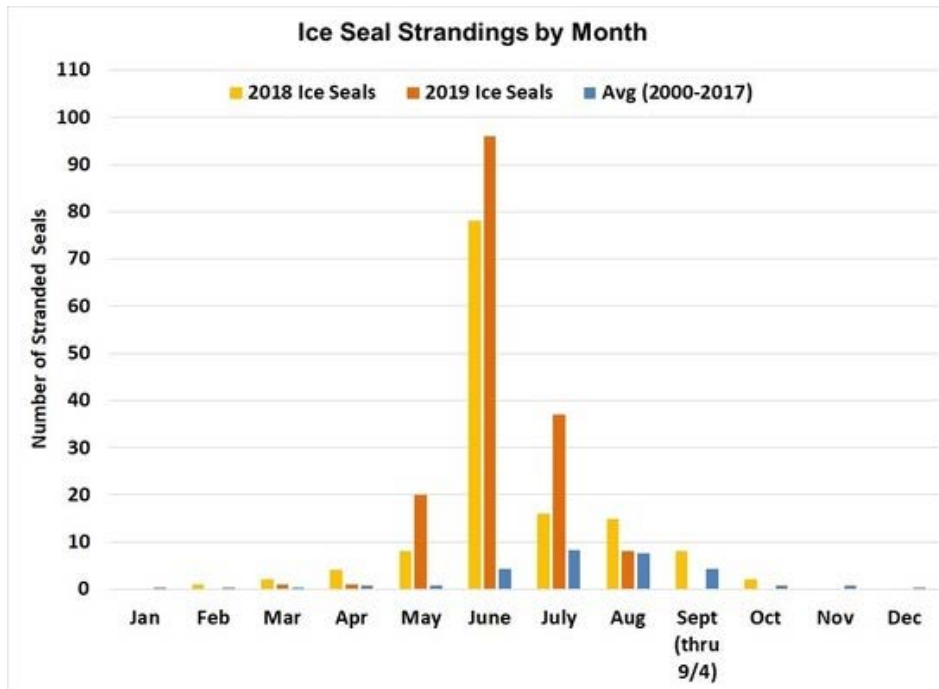
- In 2018 and 2019, the April sea ice in the Bering Sea was a small fraction of its historical extent. A NOAA expedition in 2018 found no ribbon or spotted seals in their historical breeding areas.





# Another unusual mortality event

- In spring and summer of 2018 and 2019, 282 bearded, ringed, spotted, and unidentified seal carcasses were reported from beaches of the Bering and Chukchi seas; most were young and/or emaciated.
- 5 to 7 times the yearly average from 2000-2017, prompting NOAA to declare a UME.
- Stranding numbers returned to normal in 2020, when sea ice partially rebounded



# Summary

- Harbor seal stocks in Alaska are monitored and assessed, though less frequently than in the past; most stocks are stable or increasing.
- Annual estimates of abundance could be considered for ecosystem status indicators.
- Body condition of spotted and ribbon seal pups declined from 2007-2018, also likely driven by ecosystem changes during the recent warm period. 2018-19 UME
- Aleutian harbor seal body condition declined rapidly in a brief study during the marine heatwave of 2014-2016.

# Bearded & Ringed Seals Critical Habitat

Proposed Rules  
(Published January 8, 2021)



Public Comment Period  
(Comments due by March 9, 2021)

Teleconference Public Hearings  
(February 23, 24, and 25, 2021)



Final Critical Habitat Rules  
(Submitted to Federal Register by March 15, 2022)

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# Thank you

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# Marine Mammal Laboratory plans for 2021-2022

- Aerial Survey for Bearded Seals, Ringed Seals, and Polar Bears In Beaufort Sea (April – June 2021).
- Aerial surveys for harbor seals in GOA and SE AK planned for August 2021.
- Long-range ('beyond line of sight') unmanned aerial surveys for harbor seals and Steller sea lions in the western Aleutian Islands (seeking funding; Sept 2021).
- Monitoring cruise for ribbon, spotted, bearded and ringed seals (April 2022).