

## **Background material for presentation on Bering Sea Project**

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The [Bering Sea Project](#), a partnership between the [North Pacific Research Board](#) and the [National Science Foundation](#), sought to understand the impacts of climate change and dynamic sea ice cover on the eastern Bering Sea ecosystem.

More than one hundred scientists engaged in field research and ecosystem modeling to link climate, physical oceanography, plankton, fishes, seabirds, marine mammals, humans, traditional knowledge and economic outcomes to better understand the mechanisms that sustain this highly productive region. NOAA made a significant in-kind contribution and accounted for about one-third of project scientists.

The Bering Sea Project was a collaborative team effort, led by an elected group of six scientists working together with NPRB and NSF program managers. Fieldwork began in 2007 and concluded in 2010. Reporting and synthesis concluded in 2015. The [Bering Sea Project "at-a-glance" brochure](#) introduces and explains the program. Visit the [publications page](#) for an up-to-date library of the peer-reviewed results.

### **Status of ecosystem data (TOR 4)**

A study [plan](#) described the strategies to obtain ecosystem data, which are stored in the [Bering Sea Project Archive](#).

### **Status of ecosystem modeling (TOR 5)**

Integrated ecosystem-level analyses were reported in a series papers including:

- Climate and oceanography (Stabeno et al., 2012[a](#), [b](#))
- Bloom timing, zooplankton, and juvenile walleye pollock ([Hunt et al., 2011](#))
- Zooplankton and juvenile walleye pollock ([Coyle et al., 2011](#))
- Walleye pollock bioenergetics ([Heintz et al., 2013](#))
- Climate, sea ice, phytoplankton, zooplankton, and juvenile walleye pollock ([Sigler et al., 2016](#))
- Prey patch and top-level predator foraging ([Benoit-Bird et al., 2013](#))
- Climate and communities ([Huntington et al., 2013](#))

Cumulative, quantitative analyses of climate and fisheries effects were reported in:

- Walleye pollock ([Mueter et al., 2011](#))
- Northern rock sole ([Wilderbuer et al., 2013](#))
- Red king crab ([Punt et al., 2014](#))
- Tanner crab ([Punt et al., 2015](#))

### **Inclusion of ecosystem data into living marine resource management advice (TOR 6)**

The effect of annual climate variation has been observed to impact fisheries in Alaska; however the impact of climate change on fisheries is unclear. For example, the ecological effects of reduced sea ice have impacted a major fishery in the southeastern Bering Sea for walleye pollock, but this fishery recovered in subsequent years when sea ice again was more widespread. These climate impacts, while temporary, allowed us to understand some of the future impacts of climate change through research conducted previous to and during the Bering Sea Project. This information was presented during the annual stock assessment cycle, reviewed by North Pacific Fisheries Management Council (NPFMC) scientific groups, and presented to the NPFMC.

### **Peer-review of ecosystem-related science program and products (TOR 7)**

Nearly [170 peer-reviewed publications](#) to date.

### **Communication to managers, partners, stakeholders and the public (TOR 8)**

- [Annual presentation](#) at Alaska Marine Science Symposium (audience ~800-1,000 people)
- [Two-page briefing papers](#)
- [Magazine](#)
- Presentations at North Pacific Fisheries Management Council related meetings, Ocean Sciences, National Science Foundation, Arctic Research Council, etc.