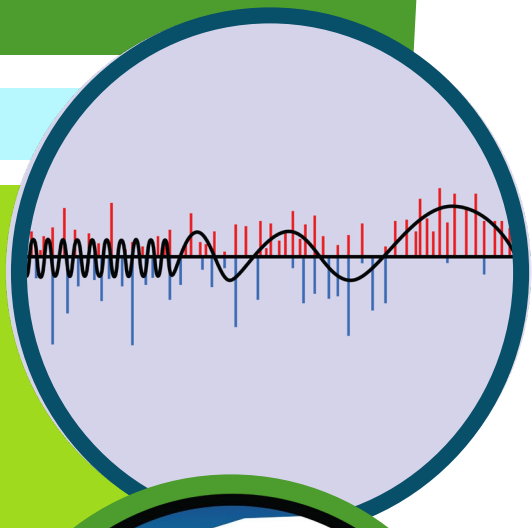
C4 EBS ESR Brief
DECEMBER 2026

2026 Eastern Bering Sea Ecosystem Status Report:

IN BRIEF

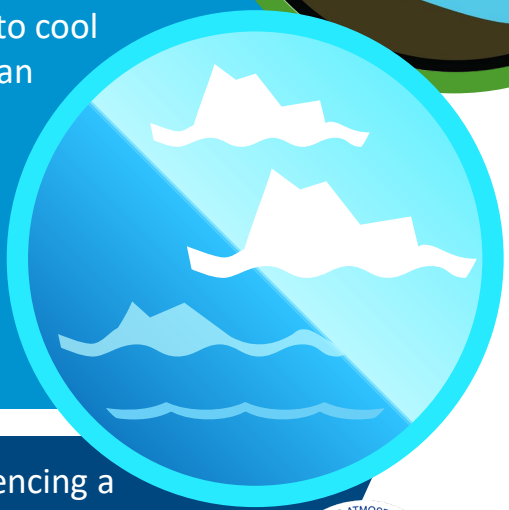
Current Conditions

In 2014, the eastern Bering Sea (EBS) entered a warm period that was unprecedented in terms of magnitude and duration and that persisted until 2021. This recent warm period included the near-absence of sea ice in the winters of 2017/2018 and 2018/2019 and subsequent lack of cold pool in summers 2018 and 2019 that had distinct impacts to the eastern Bering Sea ecosystem.



Between ~2021-2025, the EBS cooled to average thermal conditions, modulated by the near-neutral state of the Aleutian Low Index, that persisted into 2025. Over the past year (August 2025 - August 2026) many metrics, including sea surface temperature, depth-averaged temperature, wintertime sea ice extent and thickness, and cool pool extent show a rapid transition to cool thermal conditions. Beginning in early 2026, an exceptionally weak winter Aleutian Low followed by strong north-to-south winds in March and April drove rapid cooling and late-season sea ice expansion over the southeastern Bering Sea shelf, resulting in the largest sea ice extent since 2013.





Currently, the broader North Pacific is experiencing a ‘Very Strong’ El Niño with warm anomalies predicted to reach the eastern Gulf of Alaska in winter 2026/2027. However, conditions in the Bering Sea are governed more so by the Aleutian Low Pressure System and regional wind dynamics.

NOAA FISHERIES
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Ecosystem Impacts

Oceanography

In 2026, the EBS experienced its coldest spring surface and bottom temperatures since 2012, with water temperatures staying **more than 2°C below average** through late summer. Cumulative surface temperatures dropped to levels not seen since before the prolonged warm period began in 2014. The **"cold pool" expanded** by roughly 150% compared to 2025, marking the fifth-largest cold pool in the timeseries. Seasonal sea ice and the resulting cold pool extent are defining features over the Bering Sea shelf. The cold pool creates a thermal barrier affecting the spatial distributions of crab and groundfish that have subsequent direct and indirect impacts to managed stocks.

Primary and Secondary Productivity

Indicators of **phytoplankton productivity** have generally remained above average since 2022, fueled by robust spring blooms. These productive, ice-associated blooms provide high-quality food that efficiently transfers energy through the food web to zooplankton.

As conditions cooled to average between ~2021-2025, zooplankton (i.e., copepods, euphausiids) took several years to rebound. In 2026, both the **quantity and quality of zooplankton have improved** following an abrupt shift to cold conditions over the shelf. In 2026, large copepod abundances in fall rose above average for the first time since 2012. Euphausiid abundance also increased under the colder thermal conditions. Additionally, the **lipid content** of both large copepods and euphausiids increased in 2026. Combined, this suggests good quantity and quality of prey resources for pelagic consumers.

Forage Fish

Forage fish dynamics vary with thermal regime, with generally greater abundance of capelin during cooler conditions and herring during warmer conditions. In 2026, over the southeastern Bering Sea (SEBS) shelf, there was low biomass of capelin, herring, and age-0 pollock with the exception of **high energy density for age-0 pollock**. Conversely, in the NBS, biomass of capelin and age-0 pollock were average while herring remained low. While these direct survey measurements reflect low pelagic forage abundance in 2026, it is important to note that the surveys capture a brief temporal window and are limited in their spatial extent. Indirect measures of forage fish by upper trophic level consumers provide broader temporal and spatial integration of **forage conditions and all show positive trends** over the EBS shelf.



Salmon

Pacific salmon life cycles span rivers and ocean habitats, making environmental drivers difficult to isolate. Recently, juvenile salmon energy density was average to positive in the NBS but remained low in the SEBS. Near-average ocean conditions since 2022 helped **stabilize Western Alaska chum salmon**, which maintained near-average juvenile condition and abundance through 2026. **Chinook salmon in the NBS showed signs of recovery** with improved juvenile fish condition and abundance, pointing to potential adult run improvements over the next three to four years. Meanwhile, **Bristol Bay sockeye salmon runs continued tapering** from record warm-water peaks to more modest historical levels.

Groundfish

Cooler conditions generally result in reduced metabolic demands, increased pelagic productivity, and reduced top-down predation pressure due to decreased spatial overlap. In 2026, the NOAA bottom trawl survey showed **increased biomass and improved condition** across major groundfish species, including pollock, Pacific cod, and yellowfin sole - representing pelagic foragers, apex predators, and benthic foragers, respectively.

Seabirds

Seabirds serve as key indicators of ocean health and shifts in prey availability that similarly affect commercial fish populations. Across the Pribilof Islands, 2026 was a strong reproductive year overall among monitored species. St. Paul Island saw **above-average breeding success** for murres, kittiwakes, and red-faced cormorants, reflecting abundant local food availability and high chick survival. On St. George Island, nesting success remained near long-term averages for both plankton-eaters, like least auklets, and fish-eating seabirds. This widespread breeding success came as welcome news following an unusual die-off on St. George Island in August 2025, which primarily affected thick-billed murres and was linked to a harmful algal bloom.

Northern Fur Seals

In 2025 and 2026, northern fur seals on St. Paul Island recorded below-average maternal foraging trip durations. Maternal trip duration reached a time-series low in 2026, indicating favorable feeding conditions near rookeries over the middle and outer shelf. These shorter foraging trips facilitated more frequent nursing and resulted in **above-average female pup masses, especially on St. Paul Island**. Northern fur seal diets were dominated by pelagic forage species, with diet samples from 2025 and preliminary data from 2026 dominated by Pacific herring and pollock (predominantly age-0). However, fur seal mortalities due to saxitoxin were confirmed in 2025, indicating that observed blooms of *Alexandrium catenella* were transferred into the upper trophic levels of the eastern Bering Sea food web.

What do the indicators tell us this year?



Emerging Stressors

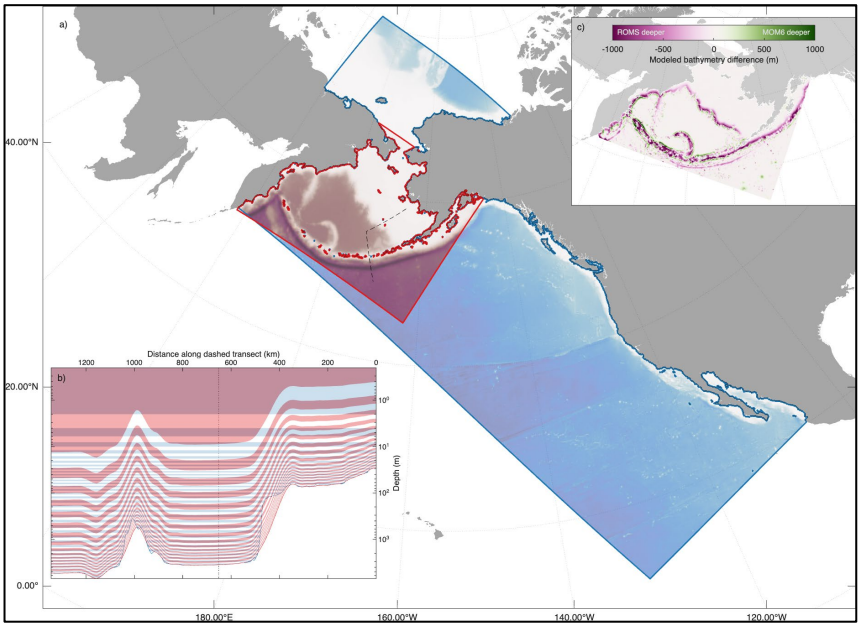
We track ocean acidification (OA) and harmful algal blooms (HABs) to assess potential risks to the ecosystem. In 2026, modeled bottom-water **pH and aragonite saturation dropped to shelf-wide lows**. These more acidic bottom waters expanded across the middle and outer shelf, while Bristol Bay remained well-buffered. Benthic crab stocks face risks to shell hardening, growth, and survival. Red king crab appear more vulnerable than snow crab; a low-pH hotspot was noted for the 2026 Norton Sound red king crab Risk Table.

Dense blooms of *Alexandrium* dinoflagellates formed in the southeastern Bering Sea for the third consecutive year. The resulting neurotoxic saxitoxin caused a seabird die-off on Round Island in August 2026 following fur seal mortalities at the Pribilof Islands in 2024 and 2025. Cooler conditions in 2026 likely contributed to a decrease in overall bloom events compared to recent warm years.

Noteworthy Topics

Introducing MOM6

As part of the Changing Ecosystem and Fisheries Initiative, NOAA transitioned its regional modeling framework to the broader Modular Ocean Model version 6 Northeast Pacific (MOM6-NEP10k) platform. Covering the northeast Pacific with refined vertical coordinates and realistic bathymetry, the MOM6-NEP hindcast outperforms ROMS across nearly all quantitative temperature skill metrics on the Bering Sea shelf.



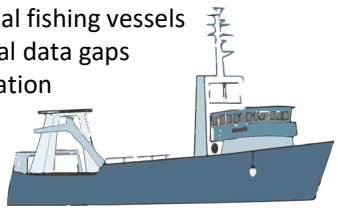
Pollock Early Survival Pathways

Scientists developed a Dynamic Structural Equation Model (DSEM) to map environmental, lower-trophic, and predation mechanisms affecting pollock survival from age-0 to age-1 to better understand ecosystem-level dynamics of prey availability.



Oceanography On Deck

An industry-driven partnership is collecting year-round subsurface oceanographic data on commercial fishing vessels across the Bering Sea shelf. This will fill critical data gaps outside of research cruises and inform validation efforts for the MOM6 regional model.



More information on these and other topics can be found on the Ecosystem Status Report website.

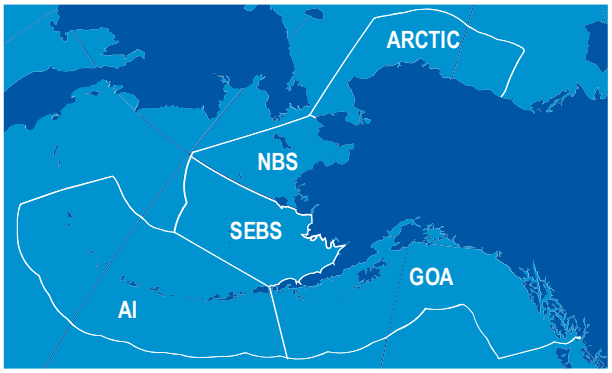
Looking Ahead

Forecast projections of bottom temperatures from the October-initiated dynamic seasonal forecast show a spread across the 10-member ensemble. For the NBS, the spread in forecast bottom temperatures includes cool to warm temperatures through spring 2027. The SEBS spread includes from near-neutral to warm temperatures. Any developing warmth over the shelf will overlay the cool thermal conditions observed in 2026.

Management Uses

This section will be completed following the December 2026 North Pacific Fishery Management Council meeting.





Reference: Siddon, E. 2026. Ecosystem Status Report 2026: Eastern Bering Sea, Stock Assessment and Fishery Evaluation Report, North Pacific Fishery Management Council, 1007 West 3rd Ave., Suite 400, Anchorage, Alaska 99501.

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