A Changing Arctic:
An Urgent Call For Collaborative And Cooperative Action

3rd Symposium on the Impacts of an Ice-diminishing Arctic on Naval & Maritime Operations

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Under Secretary of Commerce for Oceans and Atmosphere & NOAA Administrator
National Oceanic and Atmospheric Administration | NOAA
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### Domestic & International Context

**UNCLOS**  
**Sea Ice Extent**  
**Polar Bear and ESA**  
**NSPD 66/HSPD 25**  
**North Pacific Fisheries Management Council**  
**House Arctic Protections Letter**  
**Russian Security Council Announcement**

![Image](image.png)

**A Changing Arctic: An Urgent Call For Collaborative And Cooperative Action**
A National Challenge

Challenge:
Critical environmental, economic, and national security issues are emerging.

The Nation needs:
Science-based information and baselines necessary for understanding and evaluating climate change and its impacts.
Expansion of critical NOAA services in the Arctic region.
Climate Science & Services

Understanding relative contributions of natural climate variability and anthropogenic forcing

Impacts of lower latitude activities on the Arctic climate

Region’s role overall in global climate change and ecosystem impacts

Potential actions to prevent or mitigate climate changes in the Arctic and globally
Coastal Community Hazard Resilience

Manage Coastal Resources
Protect Community & Ecosystem Health
Sustain Indigenous Cultures

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Weather & Water Services

More Frequent & More Accurate Information
Better Forecast & Warning Capability
Sea Ice Forecasts
Marine Navigation & Homeland Security

Provide essential tools for safe navigation

Improved support of fleet and aircraft assets

Prepare for expanded oil spill response and restoration needs
Arctic-Capable Research Platforms

NOAA’s aircraft operate in the Arctic

Testing of Unmanned Aircraft Systems is ongoing

NOAA’s ship fleet has limited capability to operate in ice

Alaska Regional Research Vessel
Ecosystems & Associated Resources Remain Poorly Understood

Climate Change Impacts Put Living Marine Resources in Flux

Preparation for Changed Arctic Required
The Way Forward

Greater investment in regional observations and supporting infrastructure

Scientific exploration, research, modeling, and predictions

Technology and data management
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