



**NOAA
FISHERIES**

**Alaska
Fisheries
Science Center
Auke Bay
Laboratories
Juneau, Alaska**

Joint Program of Scientific Research and Monitoring Central Arctic Ocean and Adjacent Seas JPSRM

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Sustained Arctic Observing Network (SAON)

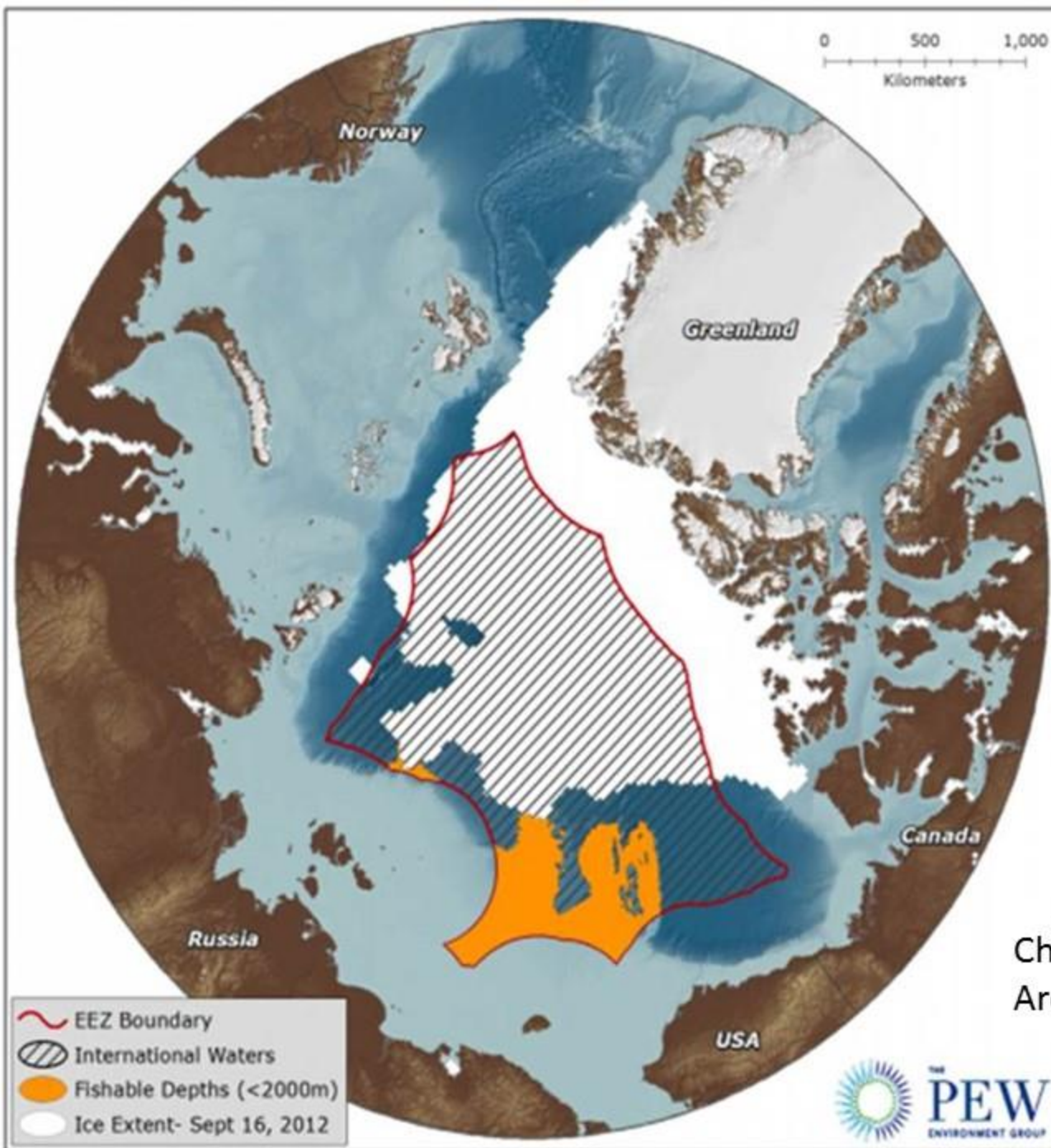
March 14, 2016

Arctic Science Summit Week
University of Alaska Fairbanks

Fairbanks Alaska USA

Developing international cooperation to collect the information necessary to support international fisheries negotiations in the central Arctic Ocean

- No one nation has the capabilities to conduct quantitative Arctic fish stock biomass estimation
- Arctic fish stock biomass estimation requires information not only on fish biomass, but also on predator biomass, prey biomass, and physical and chemical drivers of biomass
- An international program of scientific research and monitoring is therefore necessary to support diplomatic efforts to control fisheries in the central Arctic Ocean



Chukchi Borderlands
Area is shown in orange

DIPLOMATIC MILESTONES

- **OSLO ACCORD JULY 2015**

Five nations, Denmark/Greenland, Norway, Russia, United States, Canada agree to no commercial fishing until sustainability is demonstrated (precautionary approach)

- **5+5 AGREEMENT DECEMBER 2015**

The original five Oslo Accord nations are joined by China, Japan, Korea, Iceland and the EU to agree in principle to an international program of scientific research and monitoring to support diplomatic efforts to reach accord on control of fisheries

SCIENTIFIC MILESTONES

- **MEETINGS OF SCIENTIFIC EXPERTS ON FISH STOCKS IN THE CENTRAL ARCTIC OCEAN**
 - First 2011 Anchorage USA (CN,DE,NO,RU,US)
 - Second 2013 Tromso Norway (CN,DE,NO,RU,US)
 - Third 2015 Seattle USA (CN,DE,NO,RU,US,CN,JP,KO,IS)
- **5+5 AGREEMENT SCIENTIFIC MANDATES DEC 2015**
 - Continuing scientific process (scientific expert meetings)
 - Specific questions to be answered
 - Joint Program of Scientific Research and Monitoring

RUSSIA

NORWAY

DENMARK

Central Arctic Ocean showing Chukchi Plateau inside box with location of extraterritorial trawl net stations of Lin et al. 2012. Trawl stations were at depths of less than 1000m

M07 Lin et al 2012 M06 Lin et al 2012

SR 11 Lin et al 2012 SR12 Lin et al 2012

SR 10 Lin et al 2012

USA

CANADA

Wrangel Isl.

M07 Lin et al 2012 M06 Lin et al 2012

SR 11 Lin et al 2012 SR12 Lin et al 2012

SR 10 Lin et al 2012

Open water net sampling CHINA

Imagery Date: 4/9/2013

Google Earth

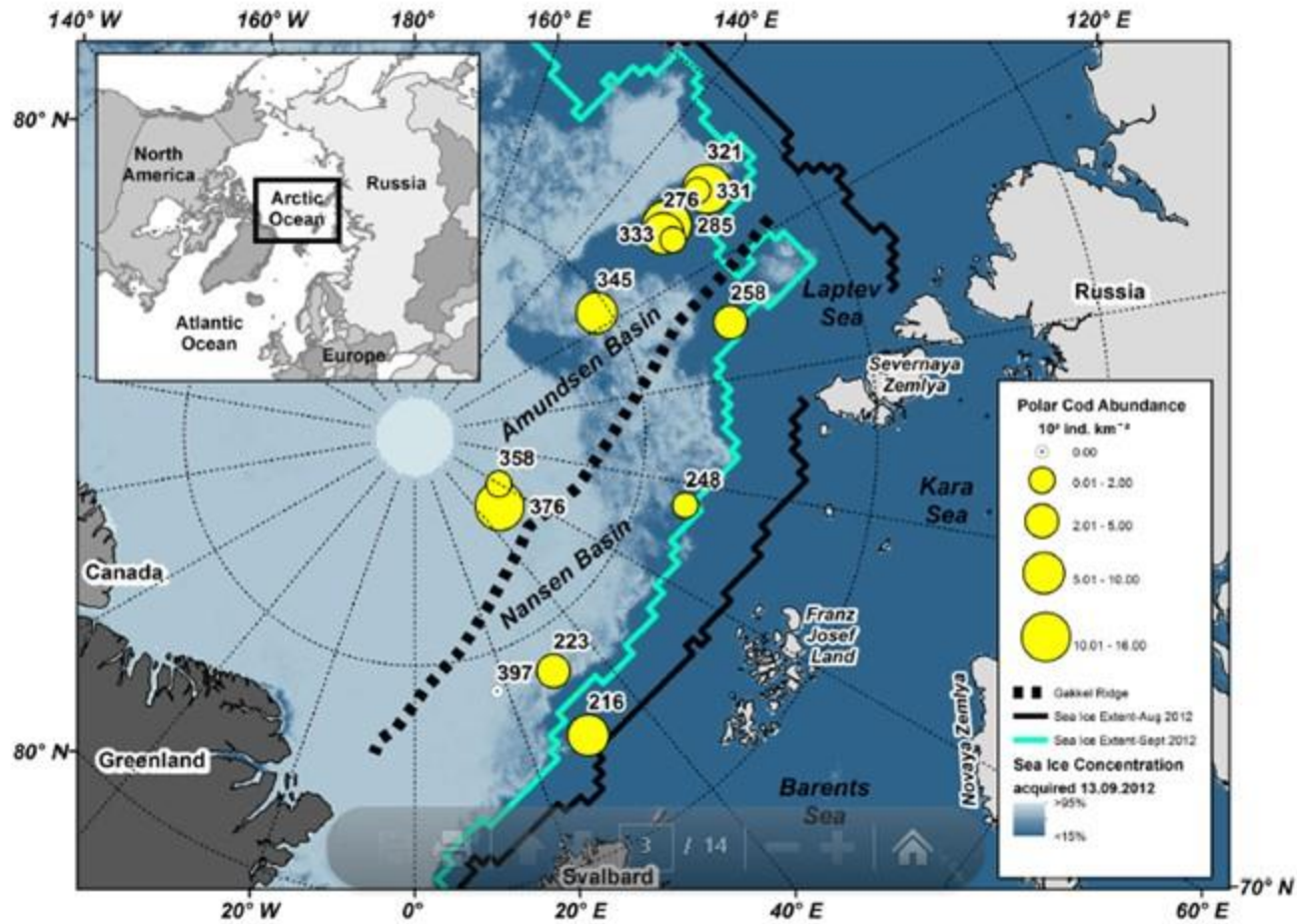
CENTRAL ARCTIC OCEAN UNDER ICE SAMPLING *Polarstern* GERMANY

Polar Biol

Carmen David et al. 2015 DOI 10.1007/s00300-015-1774-0

Under-ice distribution of polar cod *Boreogadus saida* in the central Arctic Ocean and their association with sea-ice habitat properties

Carmen David^{1,2} · Benjamin Lange^{1,2} · Thomas Krumpen¹ · Fokje Schnaafsma³ · Jan Andries van Francker³ · Hauke Flores^{1,2}



***Boreogadus saida* median 5,000 km², max 16,000 km²**

Central Arctic Ocean Fish Observations Not in Hand

Igor A. Melnikov – Sea Ice Ecosystem – Proxy for Russian
North Pole Drift Observations

Points to publications not available in English

Lin et al. 2012 Chinese Arctic Fish Surveys
Points to publications not available in English

UPCOMING EVENTS 2016

- **MAY**
 - **ICES WORKING GROUP INTEGRATED ECOSYSTEM ASSESSMENT CENTRAL ARCTIC OCEAN (WGICA), COPENHAGEN (CLOSED)**
- **SEPT**
 - **ICES ANNUAL SCIENCE MEETING, ARCTIC SESSION, RIGA (OPEN)**
- **SEPT**
 - **FOURTH MEETING OF SCIENTIFIC EXPERTS ON FISH STOCKS IN THE CENTRAL ARCTIC OCEAN, TROMSO (CLOSED)**

HOW MAY SAON CON HELP JPSRM?

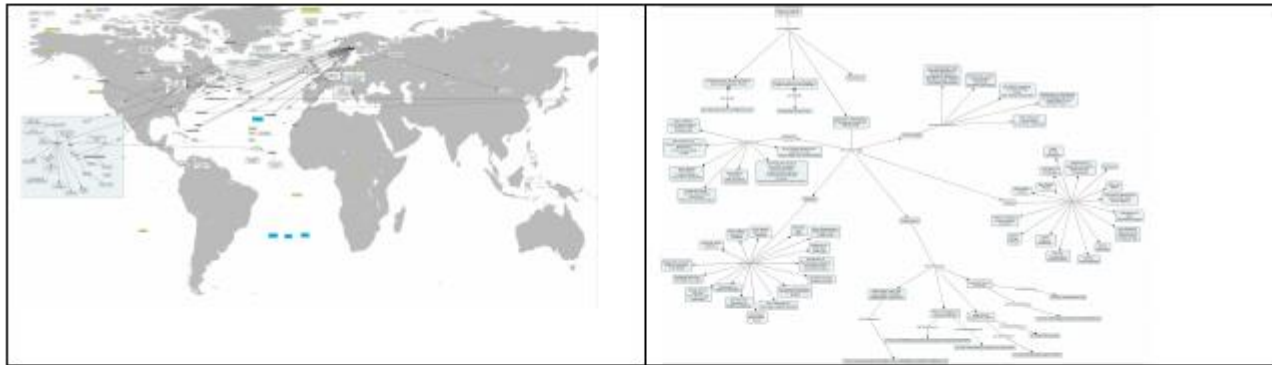
Final Report

Inventory of Research and Monitoring for Fish Stocks in the Central Arctic Ocean

Third Meeting of Scientific Experts on Fish Stocks in the Central Arctic Ocean
Montlake Laboratory
Seattle, Washington, USA
April 14 – 16, 2015

HOW MAY SAON CON HELP JPSRM?

Mapping the Arctic Ocean Fisheries Data
Ecosystem: using network science and
linked data to enhance data access



Draft Concept Paper Submitted to the *Third Meeting of Scientific
Experts on Fish Stocks in the Central Arctic Ocean*

Peter Pulsifer IASC Data Committee



The End

For more information

Google

Fourth Meeting of Scientific Experts

[http://www.afsc.noaa.gov/Arctic fish stocks fourth meeting/](http://www.afsc.noaa.gov/Arctic_fish_stocks_fourth_meeting/)

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