



Canadian activities in the Pacific Arctic Region: 2015.

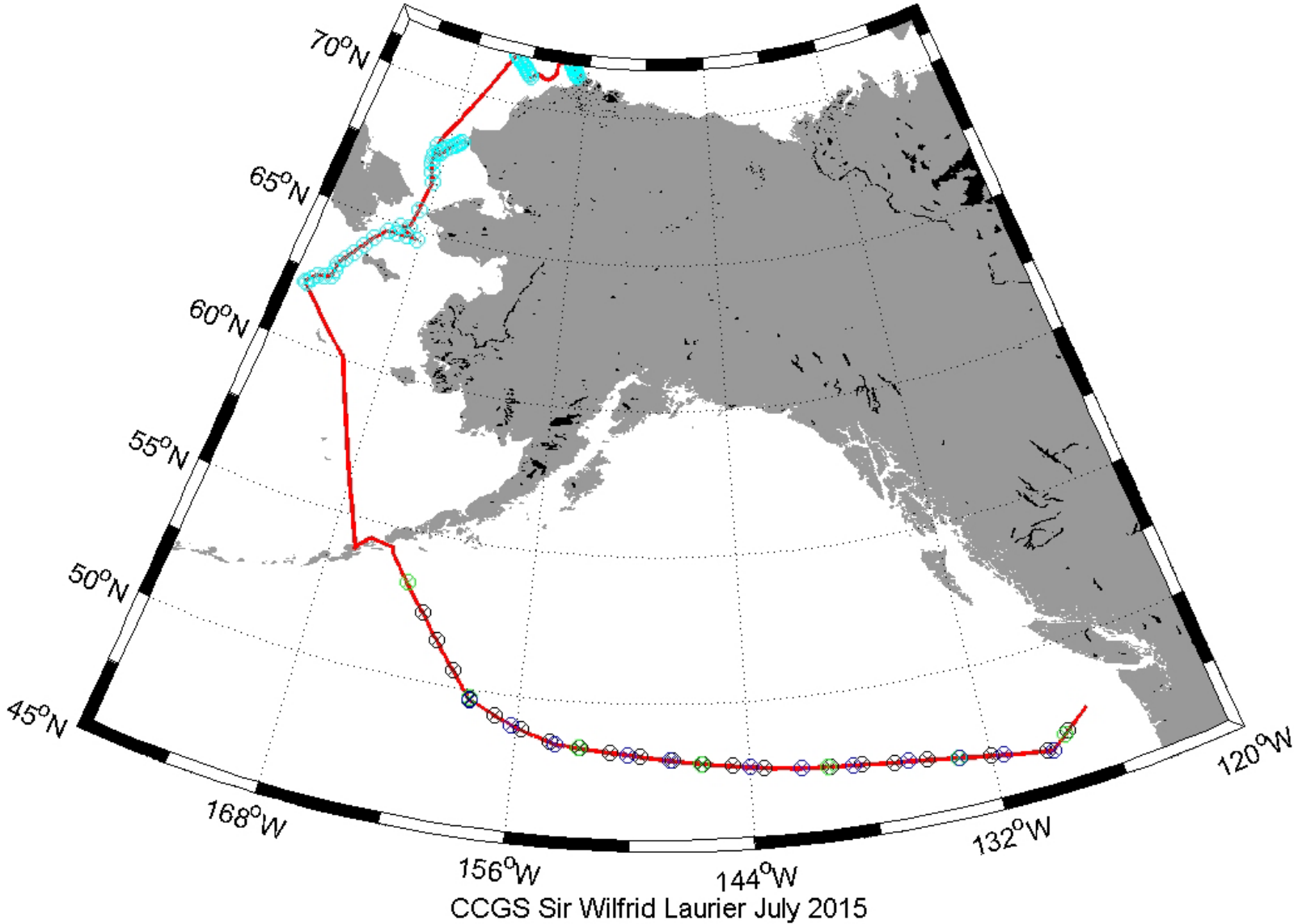
**Pacific Arctic Group meeting
Incheon, Korea
October 2015**



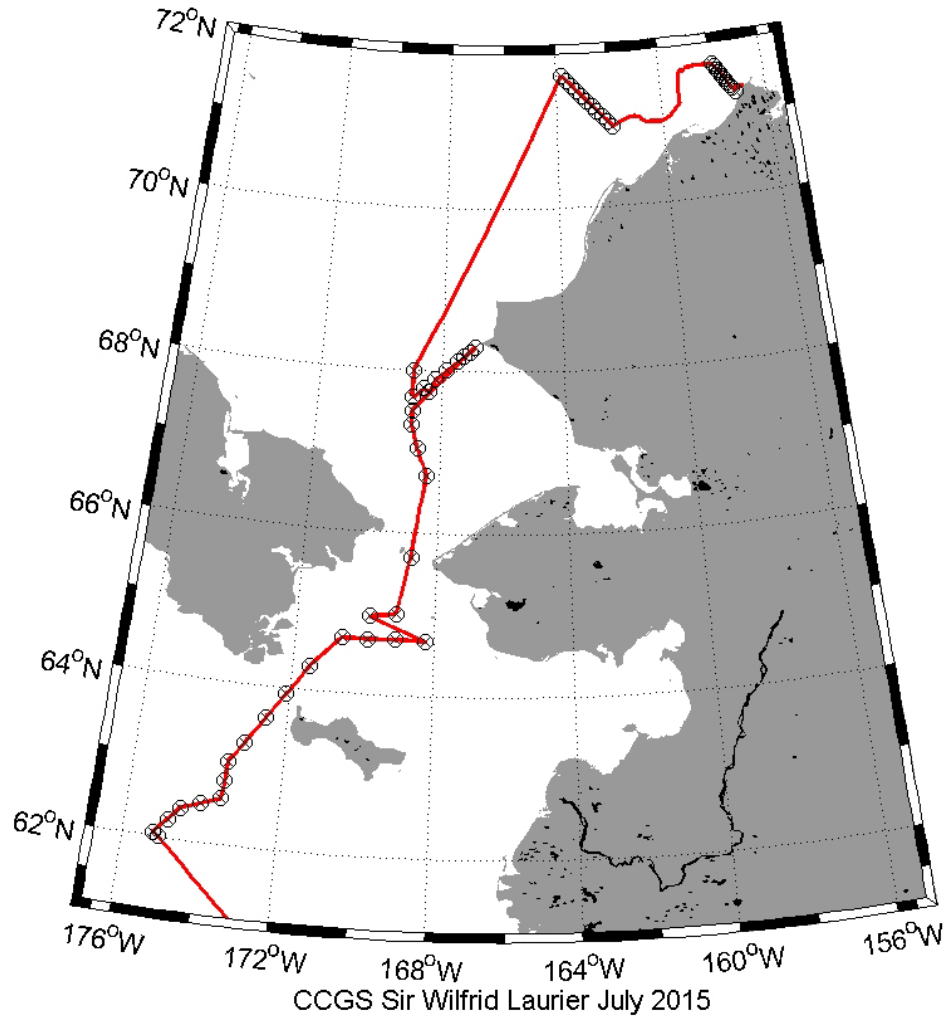
CCGS Sir Wilfrid Laurier



DBO Cruise with Jackie Grebmeier: 3-23 July 2015



Stations and DBO lines occupied in the Bering and Chukchi Seas:



DFO's Sustained Observation of the Beaufort Marine Environment

Scientists at DFO's Institute of Ocean Sciences, Pacific Region, Sidney BC

Humfrey Melling, Bill Williams

Continuous observations at some locations for more than a quarter century

Field work supported by CCGS Sir Wilfrid Laurier on its annual Arctic Patrol

Resources provided by:

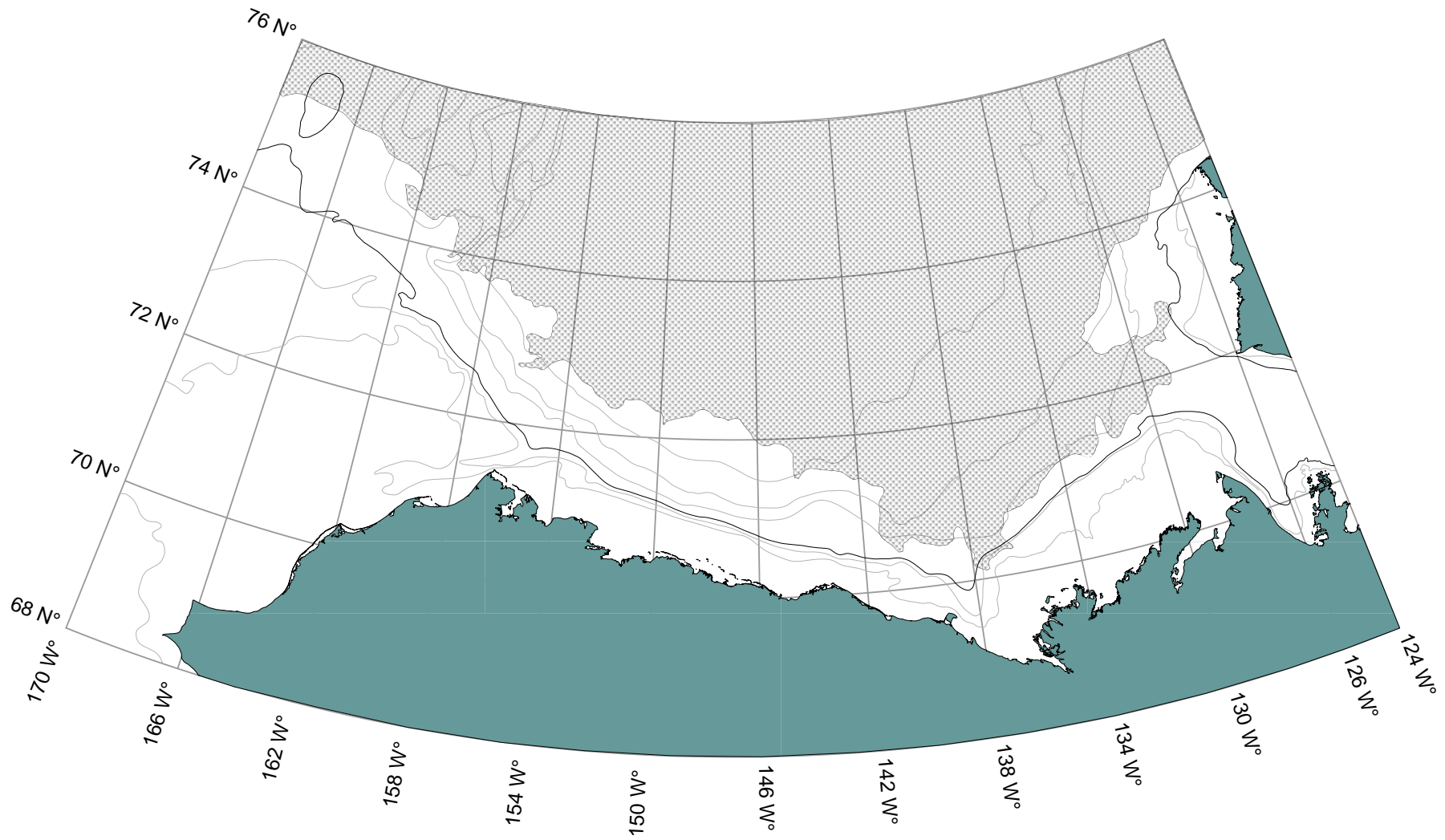
DFO, PERD, ESRF, Imperial Oil, Shell Oil, CHARS, NSF(USA), NOAA(USA)

Collaborators include:

ArcticNet Inc, Woods Hole Oceanographic Institute, Golder Assoc,
ASL Environmental Sciences Inc, US National Marine Mammals Lab

Projects supported:

Beaufort Marine Hazards (BMH), Integrated Beaufort Observatory (iBO),
Arctic Ice Monitoring (AIM), Joint Ocean Ice Studies (JOIS),
Distributed Biological Observatory (DBO)



DFO monitors the Beaufort year-round to determine the natural range of conditions, normal & extreme, and changes over time

Sea ice

Thickness, drift speed & direction , hazardous features

Sea surface

Storm waves, storm surge

Ocean current – surface to seabed

Speed & direction, ocean eddies, intensified flow at the seabed, pathways for water movement (e.g. marine pollutant dispersal) at all depths

Ocean water masses – key levels

Temperature & salinity at key levels, identification of water-mass origin

Biological hotspots

Upwelling of nutrient rich water, variation in zooplankton abundance

Settling of sediment

Rate and variability of supply, plankton blooms, dispersal of eroded sediments

Ambient sound

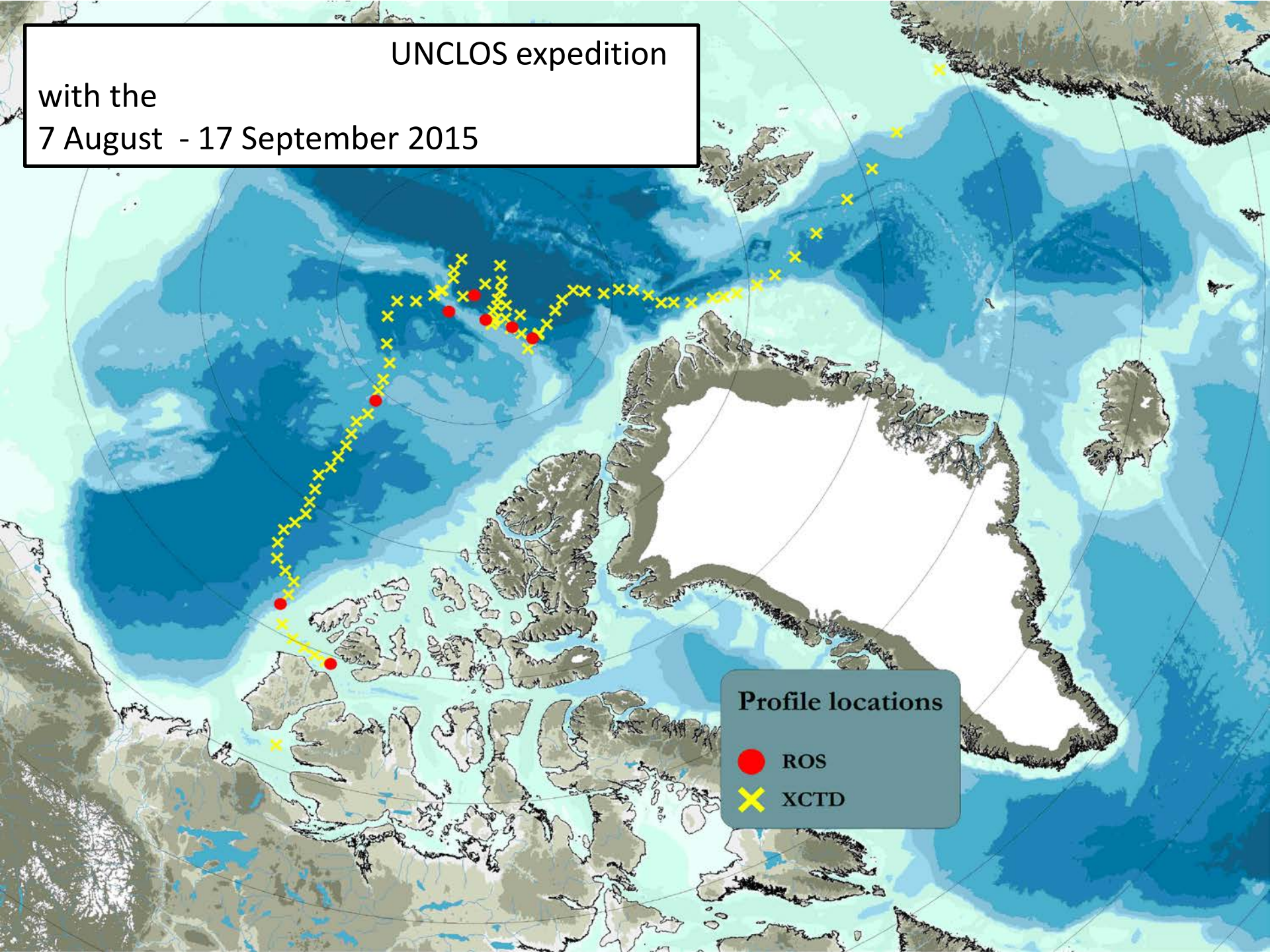
Mammal's vocalization, species presence, natural sound, seismic sound, ship noise

CCGS Louis S. St-Laurent



UNCLOS expedition

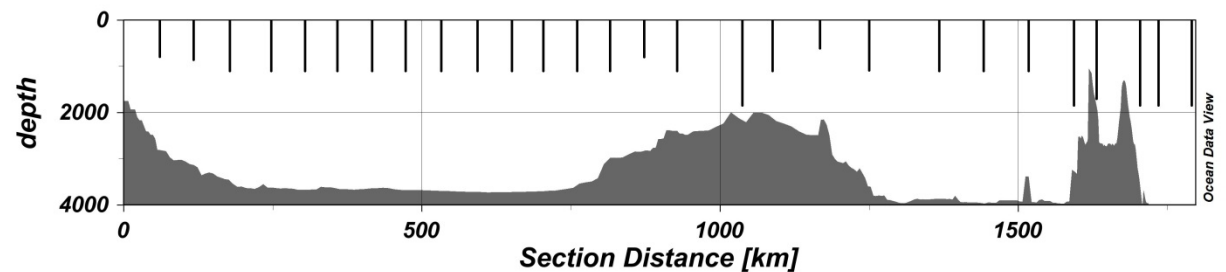
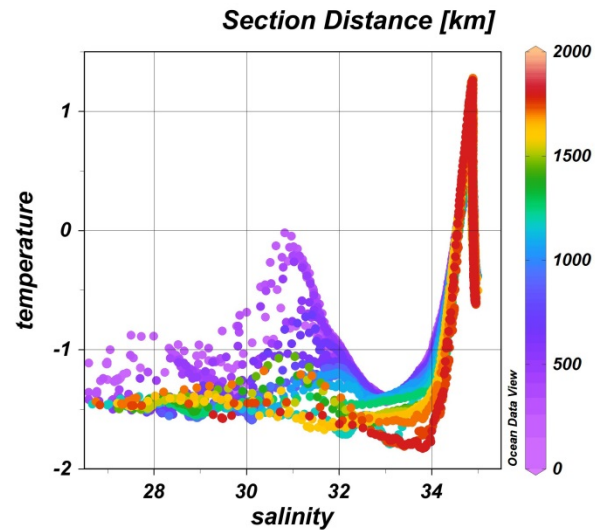
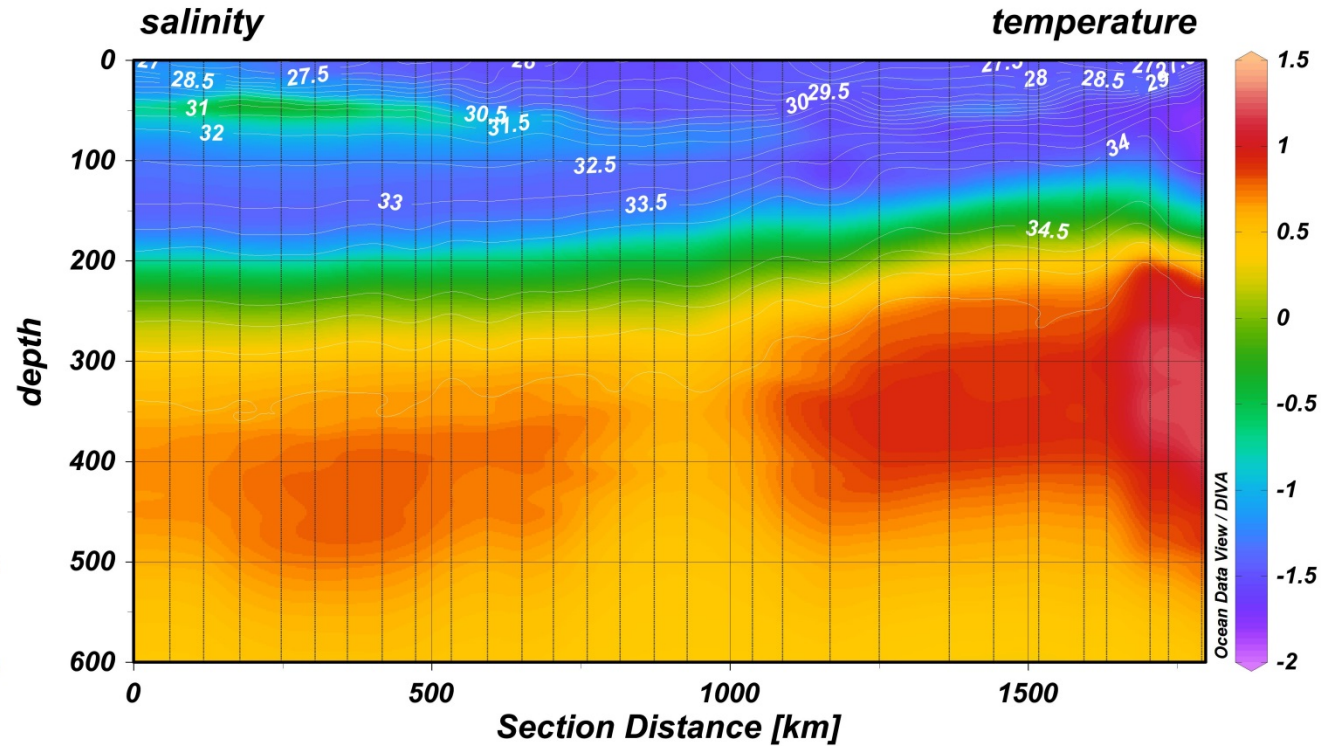
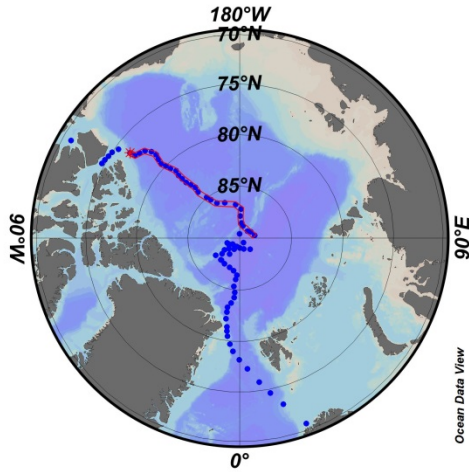
with the
7 August - 17 September 2015



Transarctic XCTD section from Tromso to M'Clure Strait via the North Pole

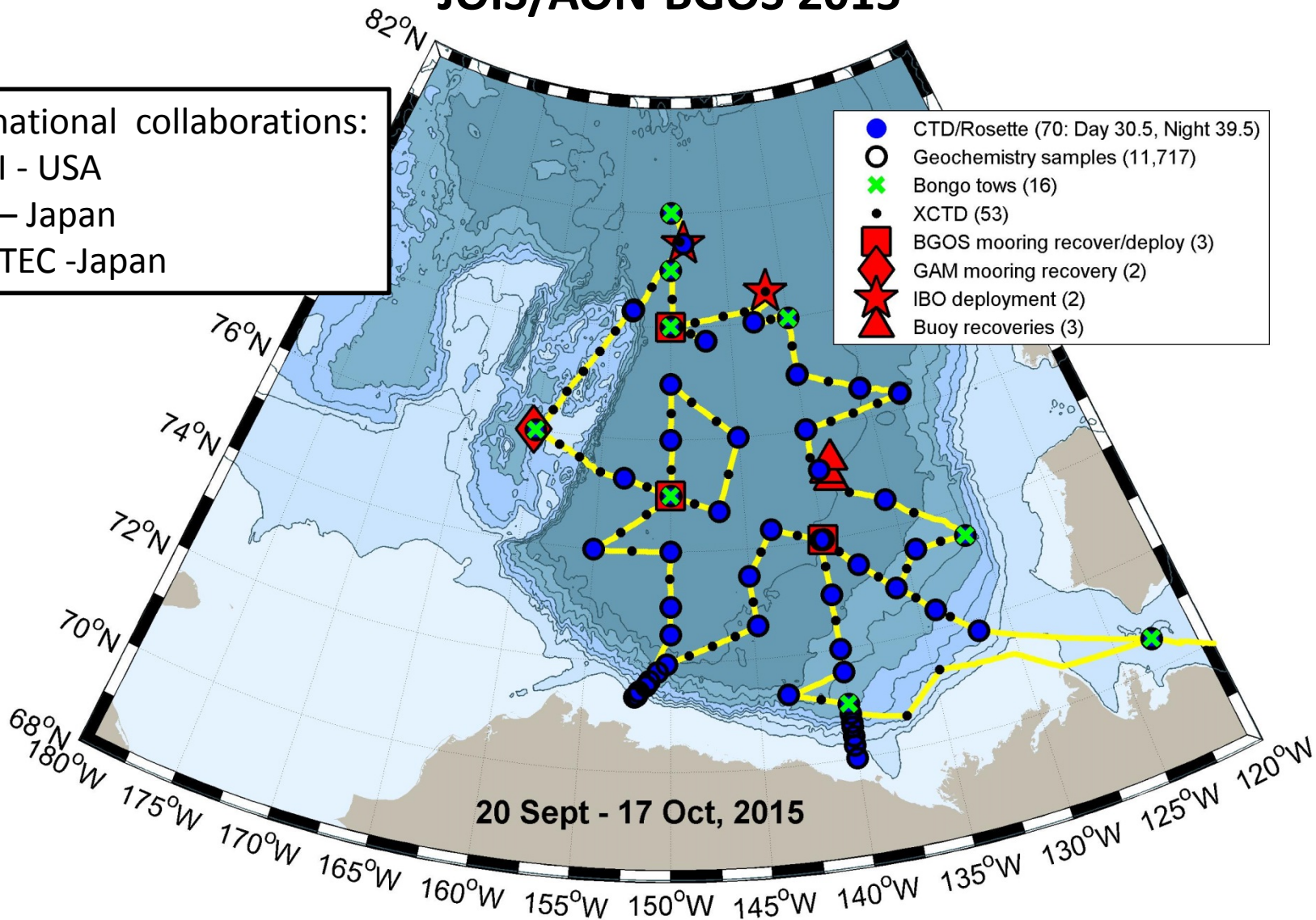
- a collaboration with JAMSTEC.

Canada Basin to the North Pole:

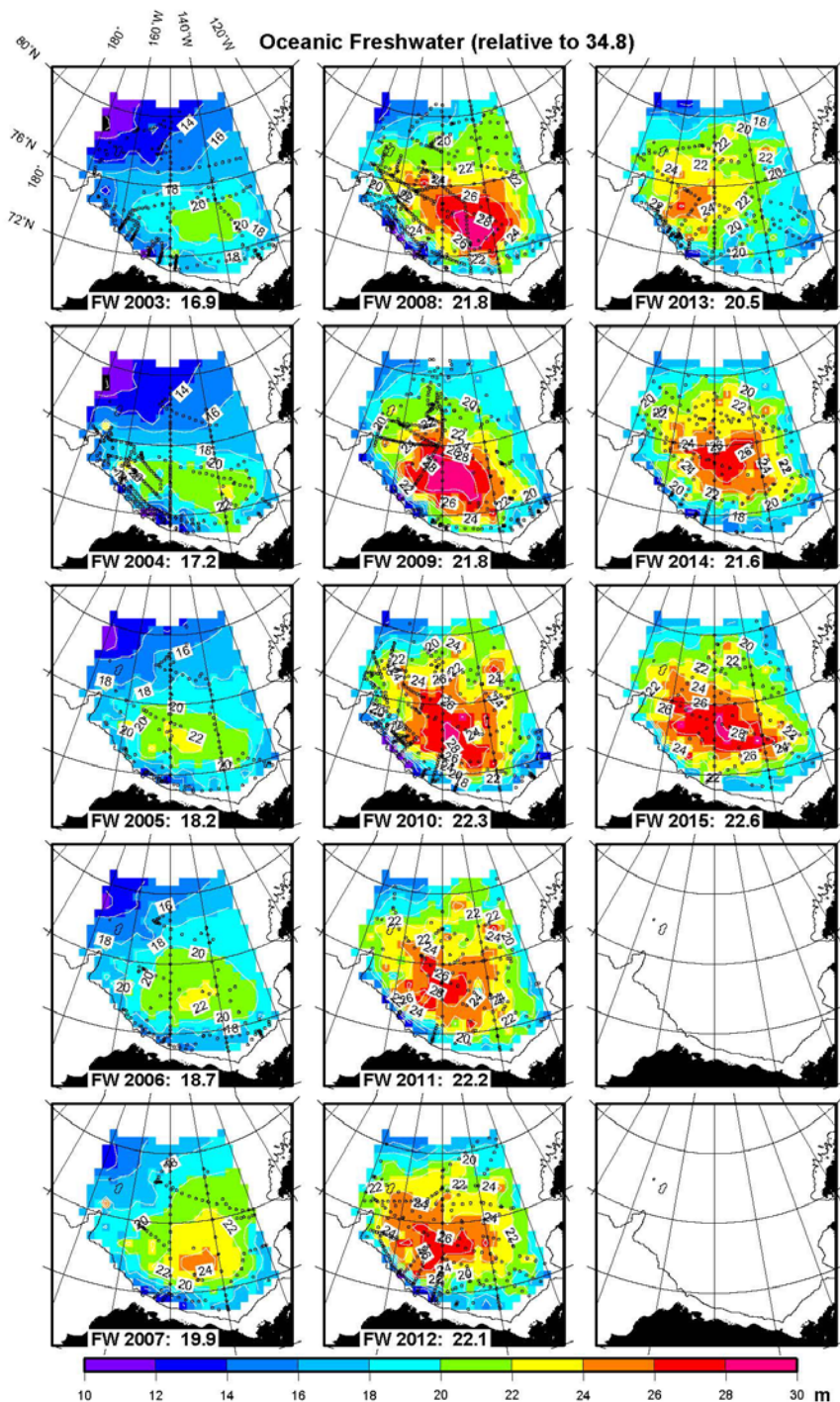


JOIS/AON-BGOS 2015

International collaborations:
WHOI - USA
NIPR - Japan
JAMSTEC - Japan



Thanks to all for a very successful 13th expedition!



13 years of oceanographic expeditions to monitor the Beaufort Gyre.

This figure shows accumulation of freshwater in the gyre, due to Arctic river inflow and ice melt.

From Rick Krishfield, WHOI

CCGS AMUNDSEN

Canadian Research Icebreaker

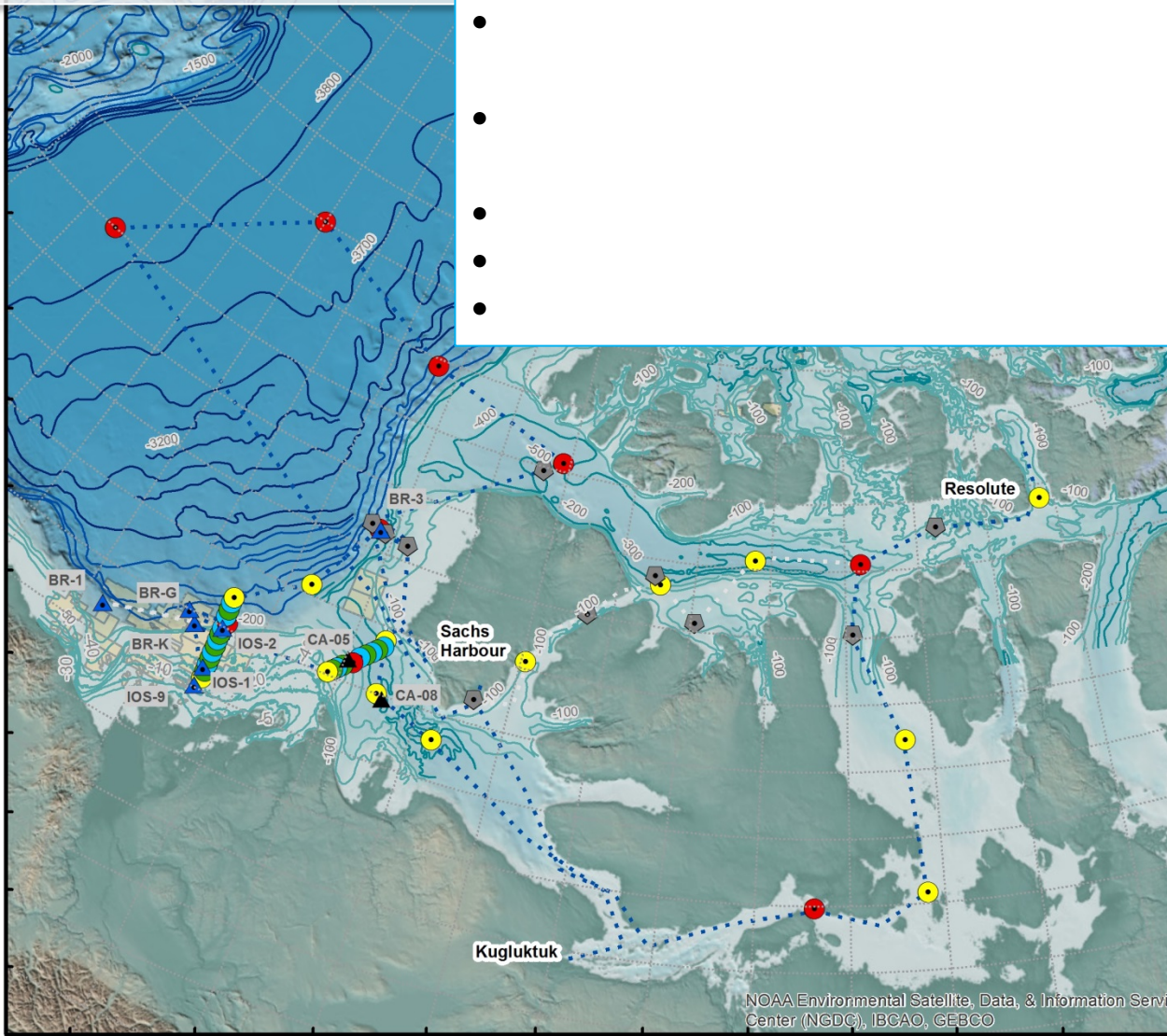


Overview of 2015 Expedition Plan for the Beaufort Sea and Canada Basin



AMUNDSEN

76°0'N
75°0'N
74°0'N
73°0'N
72°0'N
71°0'N
70°0'N
69°0'N
68°0'N
67°0'N
66°0'N
65°0'N



Mooring Stations

- ▲ iBO Moorings
- ▲ ArcticNet Moorings

Other Stations

- Basic
- CTD
- Full
- Nutrient
- ◆ Piston Cores

Amundsen planned route

- ⋯ Planned route
- ⋯ Alternate route

1:10,000,000

0 40 80 160 240 Kilometers

132°0'W 128°0'W 124°0'W 120°0'W 116°0'W 112°0'W 108°0'W 104°0'W 100°0'W 96°0'W 92°0'W 88°0'W 84°0'W

NOAA Environmental Satellite, Data, & Information Service
Center (NGDC), IBCAO, GEBCO