



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canadian Arctic Ocean Science Program 2010

Pacific Arctic Group Tokyo, December 10-11, 2010

Robert Fudge

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Excellence (NCAARE)

Canada



Canadian Arctic Ocean Science Program – 2010

- MAIN PRIORITIES FOR CANADA IN PAG REGION
- Ecosystem Science / Climate Change
- Marine Protected Areas – Beaufort Sea
- Oil & Gas Industry exploration / development
- UNCLOS
- CONTINUED & GROWING PARTNERSHIPS
- Universities (ArcticNet) highly networked internationally
- Canadian/US Industry



Canadian Priorities in Arctic Ocean Science

Canadian High Arctic Research Station

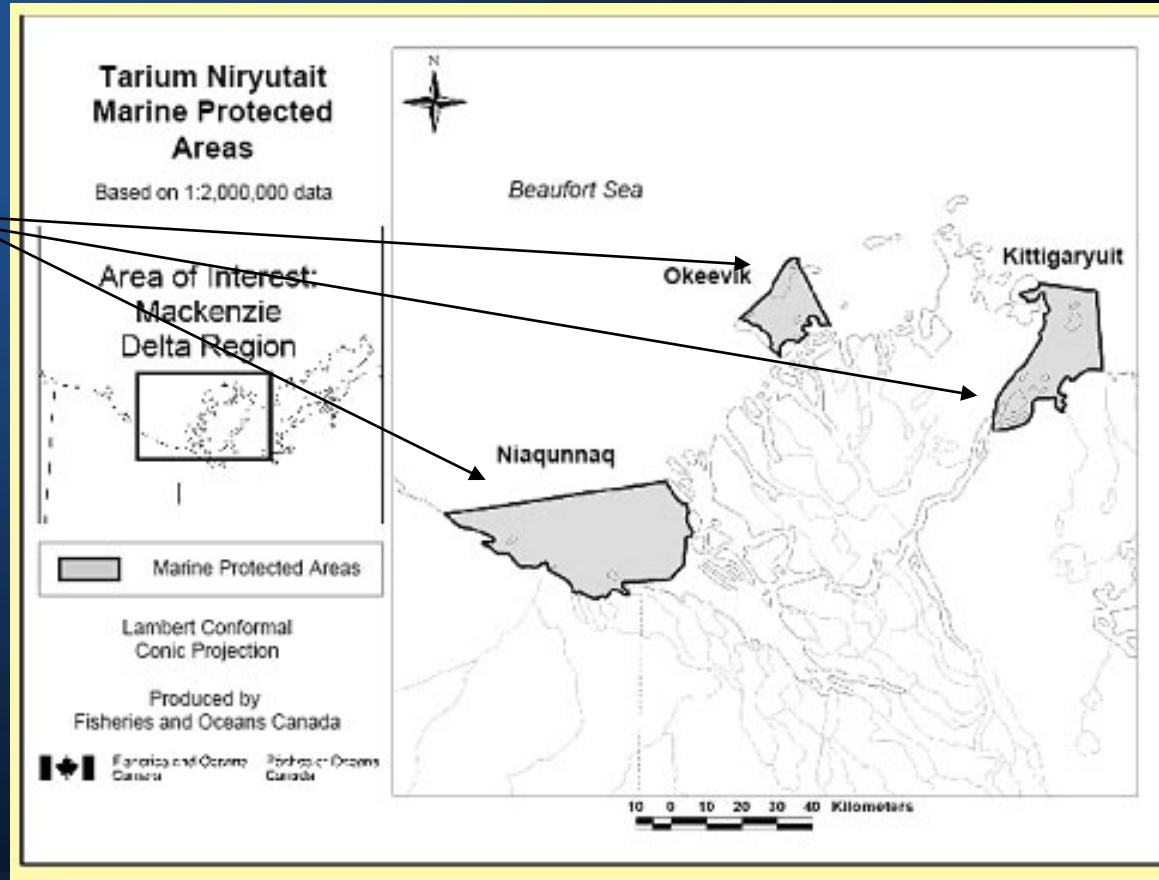
- Cambridge Bay announced August 10, 2010
- Construction begins 2-3 years
- Science priorities investigated
- Lab space needs assessed
- Role for CCG / Ships?





Canadian Arctic Marine Protected Area

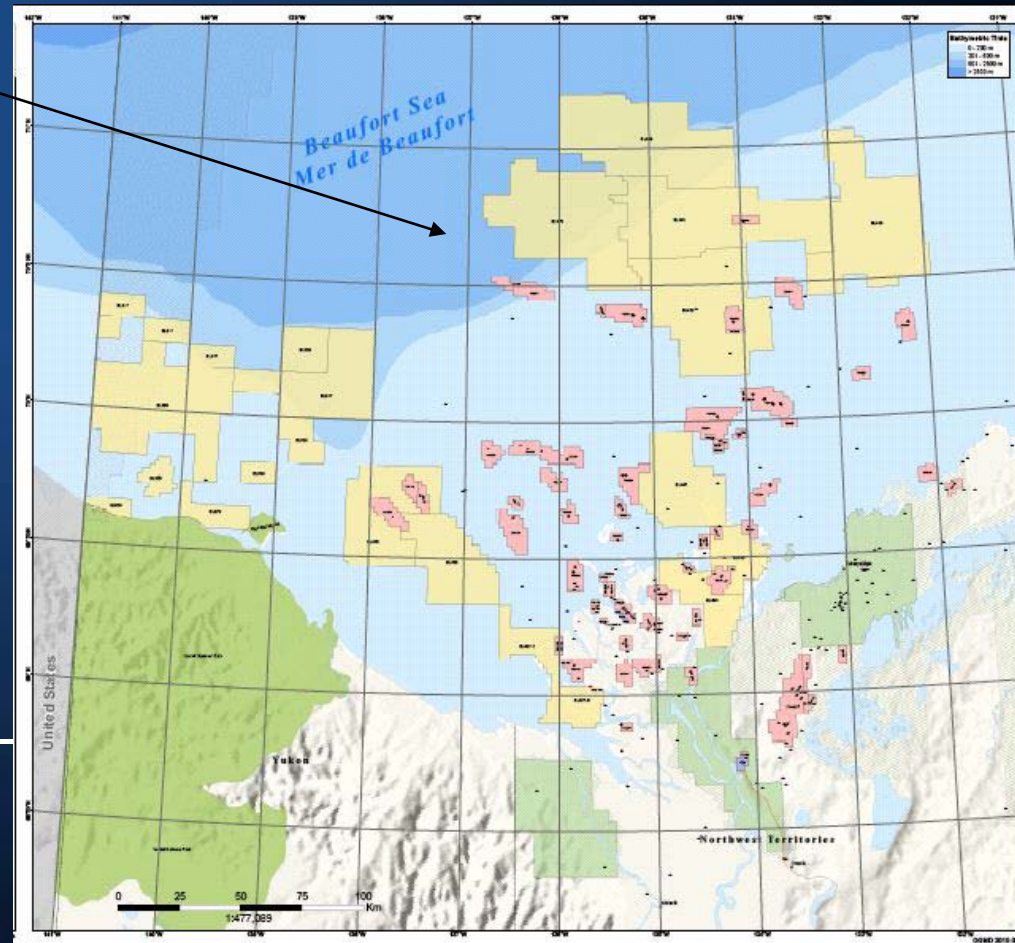
- Announced Aug 26, 2010
- Three areas in Mackenzie Delta Region
- Total of 1800km²
- The purpose of **Tarium Niryutait MPA** is to conserve and protect the biological resources within the MPA and to support the viability of a healthy population of beluga whales.





Beaufort Sea Exploration/Development

- Lease holdings in Beaufort Sea
- Government and Industry working together to gather environmental data and assess risk
- Beaufort Regional Environmental Assessment - 5 year INAC program to address EA





Canadian Priorities in Arctic Ocean Science

International: Arctic Council

- Arctic Monitoring and Assessment Programme – ocean acidification assessment; contaminants; climate change
- Circumpolar Biodiversity Monitoring Program – Arctic Marine Biodiversity Monitoring Plan (approved September 2010 by the Conservation of Arctic Flora and Fauna Board)

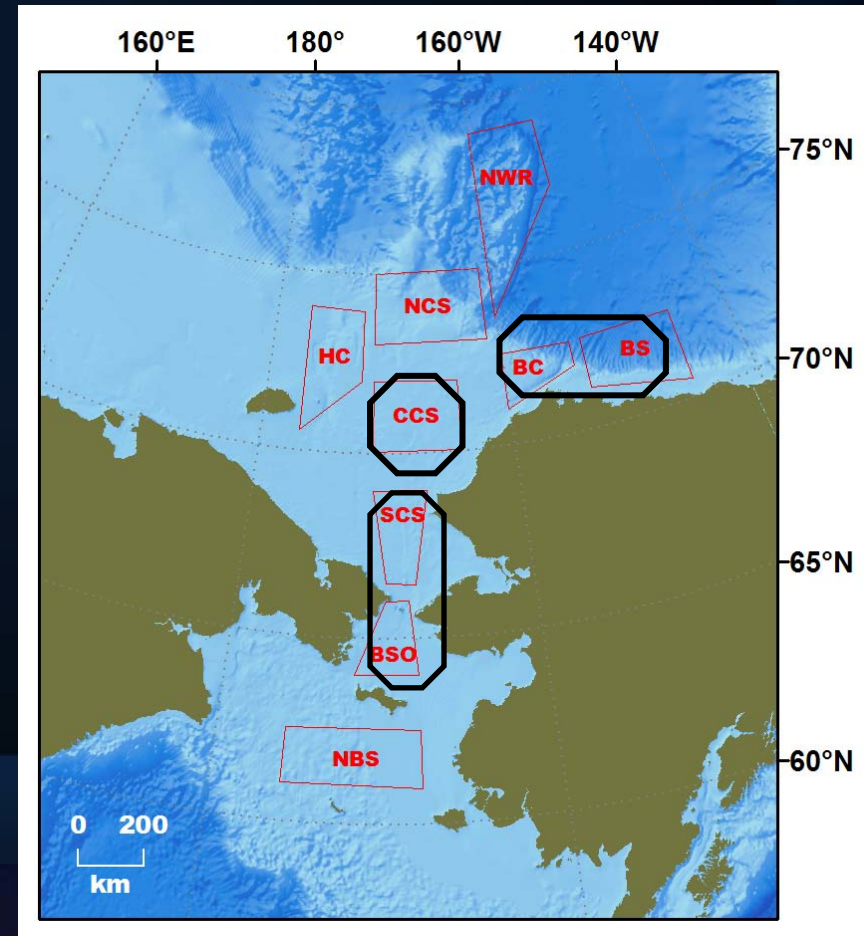




Canadian Priorities in Arctic Ocean Science

Pacific Arctic Group – Distributed Biological Observatory

- 9 zones established for standardized and seasonal observations (US, Russia, China, Korea, Japan, Canada)
- Canadian program contributes to in the 3 zones indicated in black





Canadian Field Program PAG region - 2010

2010 Programs Included:

- Canada's Three Oceans – “Turbo”
 - Sir Wilfrid Laurier (16 days – 3.5 days for Science)
 - Victoria to Barrow, July 6 to July 22
- Joint Ocean-Ice Study (JOIS)/BG/AON
 - Louis S. St-Laurent (30 days for Science)
 - Kugluktuk to Kugluktuk, Sept 15 to Oct 15
- AIM (Arctic Ice Monitoring) / MGH (Mackenzie Gas Hydrate)
 - Sir Wilfrid Laurier (15 days – 5 days for Science)
 - Cambridge Bay to Nome, Sept 21 to Oct 8
- ArcticNet Industry Program – Western Arctic,
 - Amundsen 12 Aug to 7 Oct
- Continental Shelf Mapping (UNCLOS)
 - Louis S. St-Laurent (Aug. 04 to Sept. 15) & US Healy



Canadian Field Program PAG region - 2010



Louis S. St-Laurent –
JOIS Program



Sir Wilfrid Laurier –
C30 and AIM return leg



Canada's Three Oceans – Atlantic/Arctic

CCGS Louis S. St-Laurent

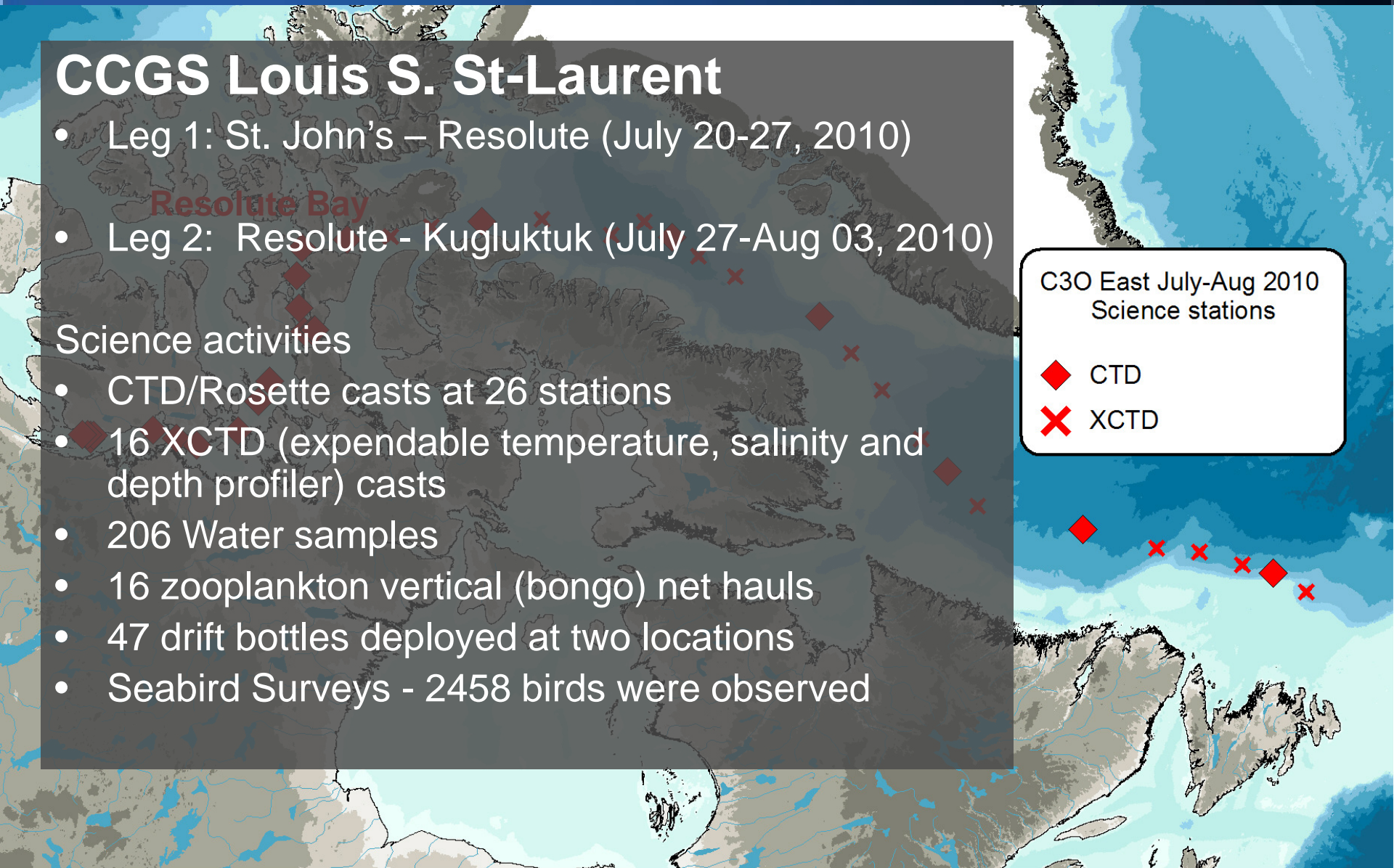
- Leg 1: St. John's – Resolute (July 20-27, 2010)
- Leg 2: Resolute - Kugluktuk (July 27-Aug 03, 2010)

Science activities

- CTD/Rosette casts at 26 stations
- 16 XCTD (expendable temperature, salinity and depth profiler) casts
- 206 Water samples
- 16 zooplankton vertical (bongo) net hauls
- 47 drift bottles deployed at two locations
- Seabird Surveys - 2458 birds were observed

C3O East July-Aug 2010
Science stations

- ◆ CTD
- ✕ XCTD





Canada's Three Oceans – Pacific/Arctic

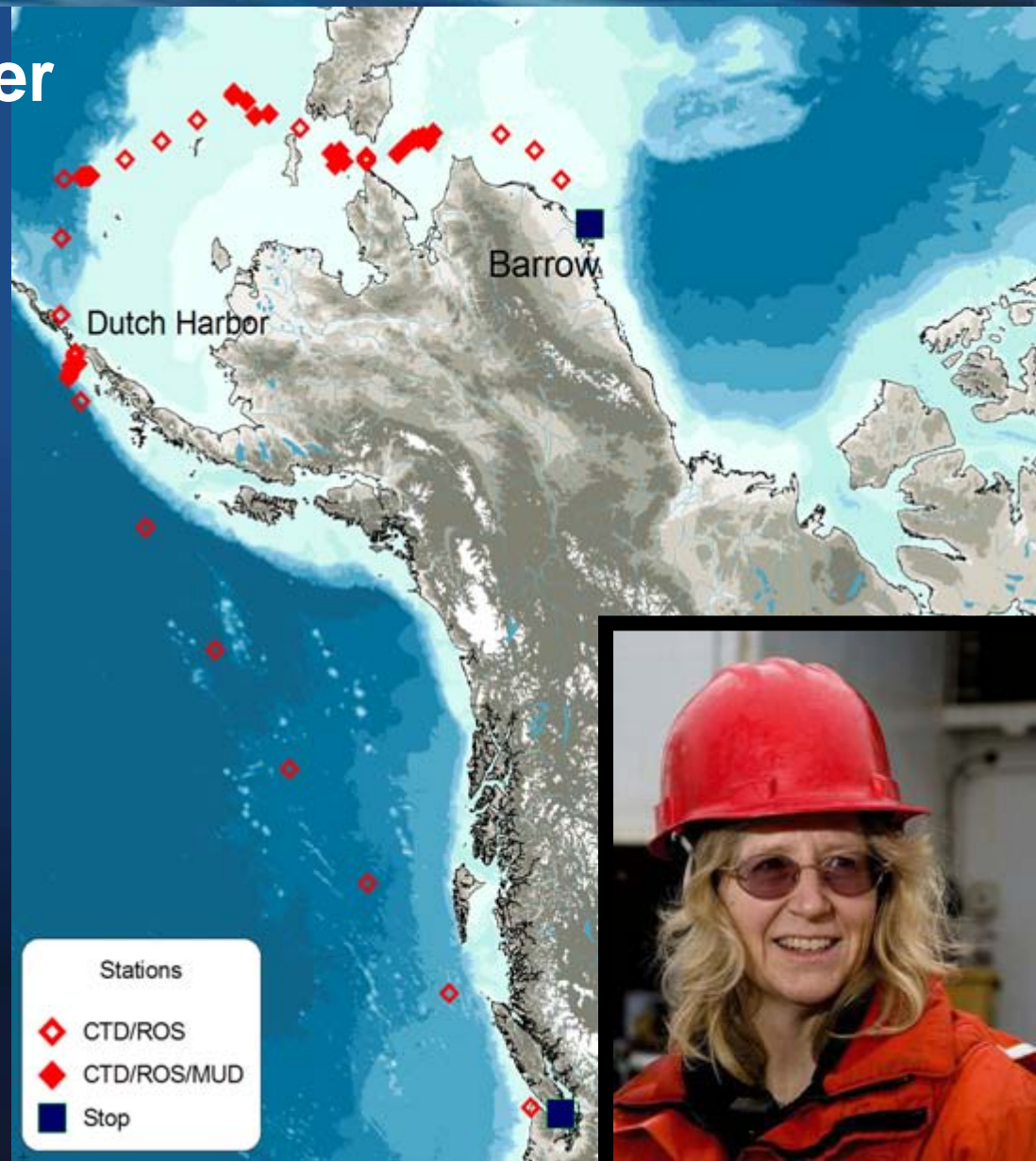
CCGS Sir Wilfrid Laurier

Victoria to Barrow

July 6 to July 22, 2010

Science activities

- 43 science stations
- 43 CTD/Rosette casts,
- 32 150 kHz ADCP/dual-frequency backscatter deployments
- 29 Bongo plankton net hauls
- 15 Benthic sampling stations
- 3 Argo floats deployed
- Continuous sea surface water monitoring
- Bird and mammal observations during the day





CCGS Amundsen ArcticNet 2010 Cruise Track

- Leg 1: Hudson Strait, Foxe Basin, Hudson Bay & the Northwest Passage (Jul. 02 – Aug.12)
- Leg 2 and 3a: Beaufort Sea/Mackenzie Shelf/Amundsen Gulf (Aug. 12 – Oct. 07)
- Leg 3b and 3c: Viscount-Melville Sound, Barrow Strait, Lancaster Sound, Baffin Bay & 4 Labrador Fjords.

- Leg 1
- Leg 2
- Leg 3

- M** Mooring
- F** Full
- B** Basic
- N** Nutrient
- C** CTD

Sachs Harbour
12-23 Sept

Iqaluit
02 August
and 22 October

Kulusuk
12 August

Churchill
20 July

Start Québec
02 July

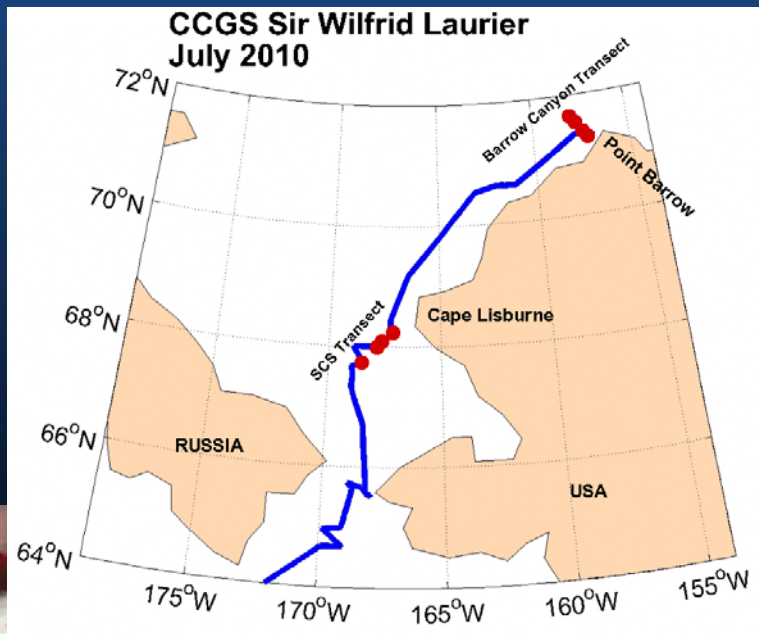
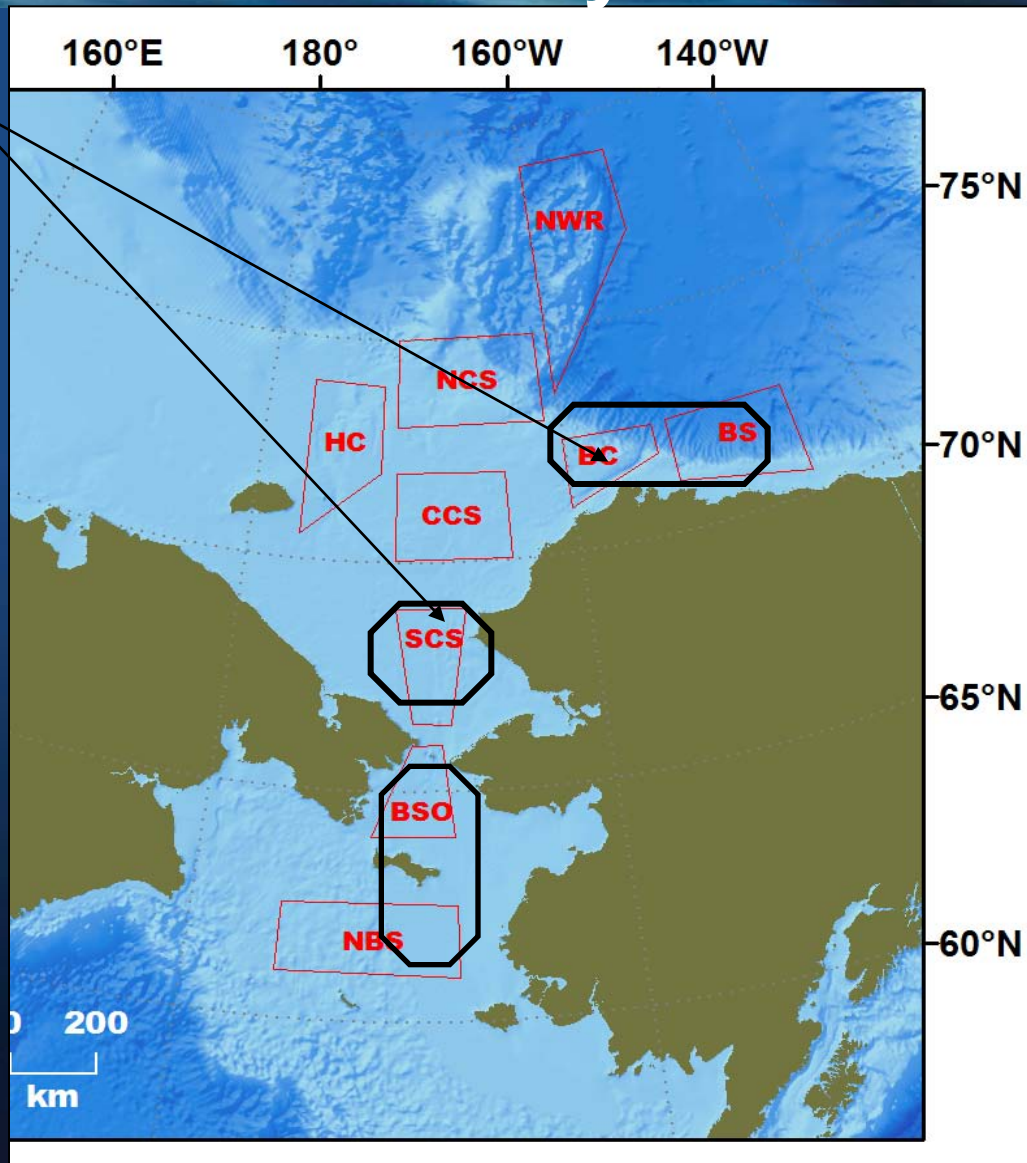
End Québec
31 October





Distributed Biological Observatory - DBO

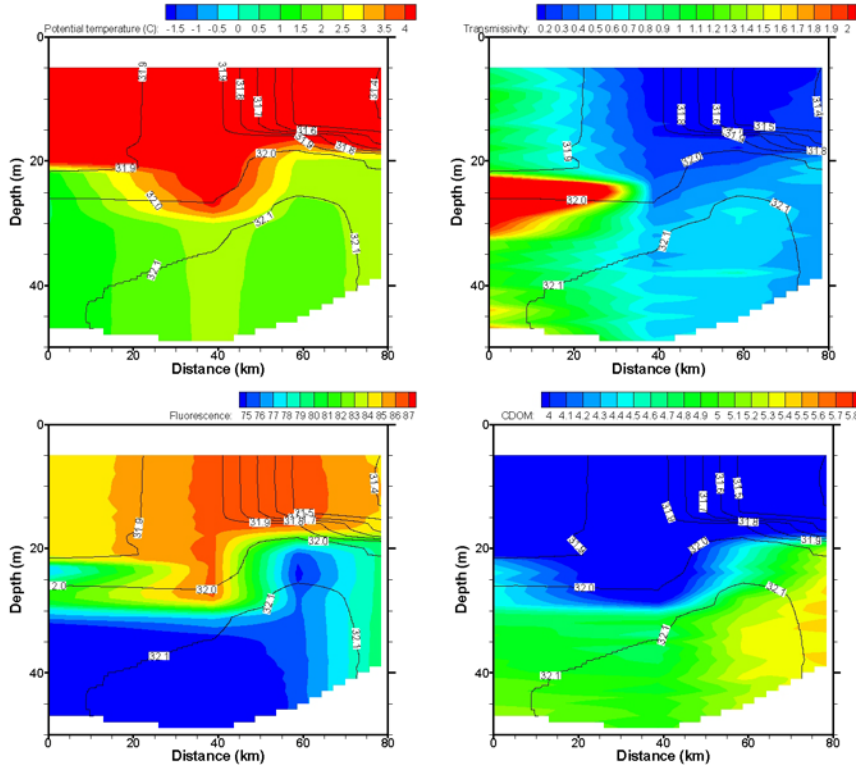
- SCS and Barrow Canyon “Hotspots”
- Sir Wilfrid Laurier – stations



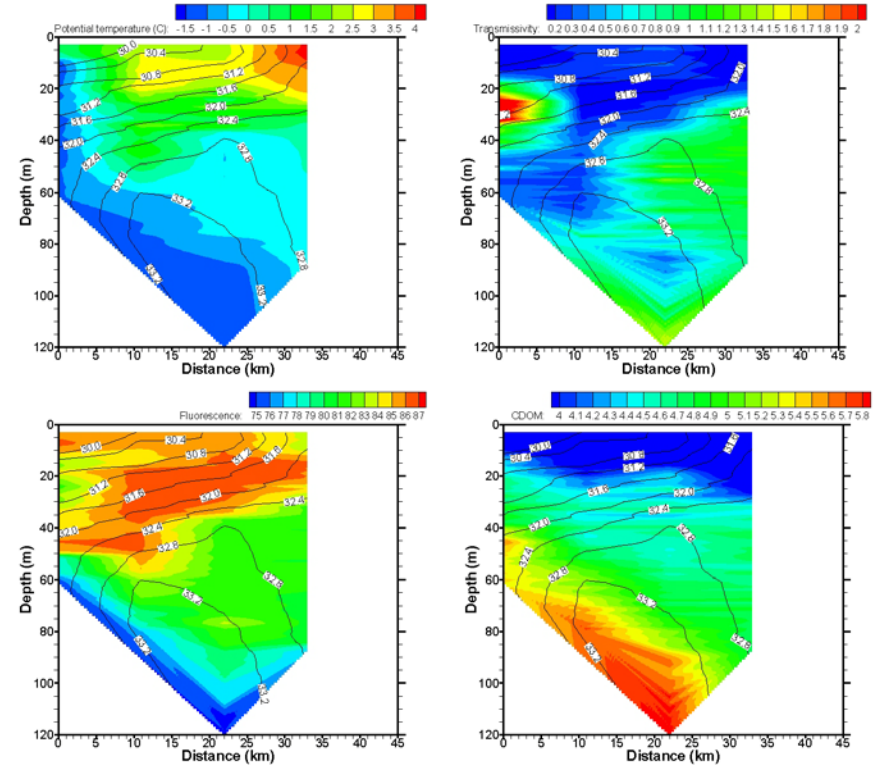


Distributed Biological Observatory - DBO

Southern Chukchi Sea (SCS) Transect SWL 2010-05



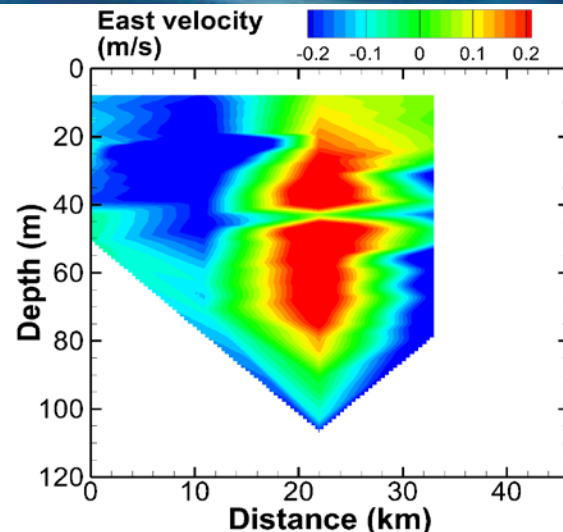
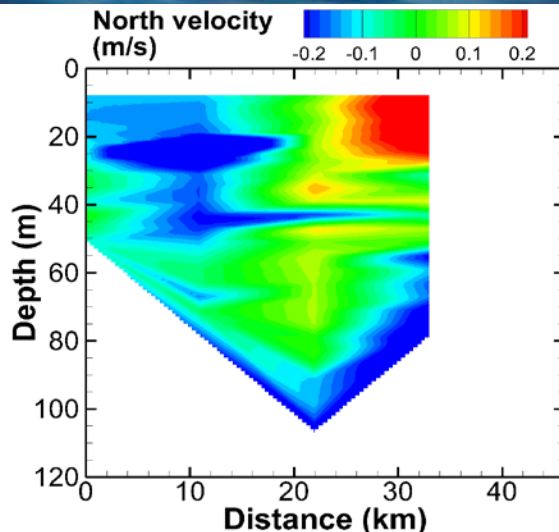
Barrow Canyon Transect SWL 2010-05





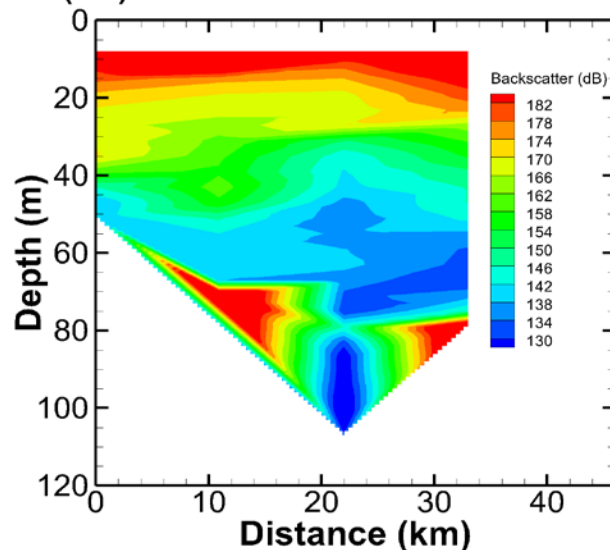
Distributed Biological Observatory - DBO

- ADCP Data
Barrow Canyon
Transect



Barrow Canyon 150 kHz
ADCP data.

SWL 2010-05





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Canadian Arctic Ocean Science Plans 2011



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Canadian Draft Program PAG region - 2011

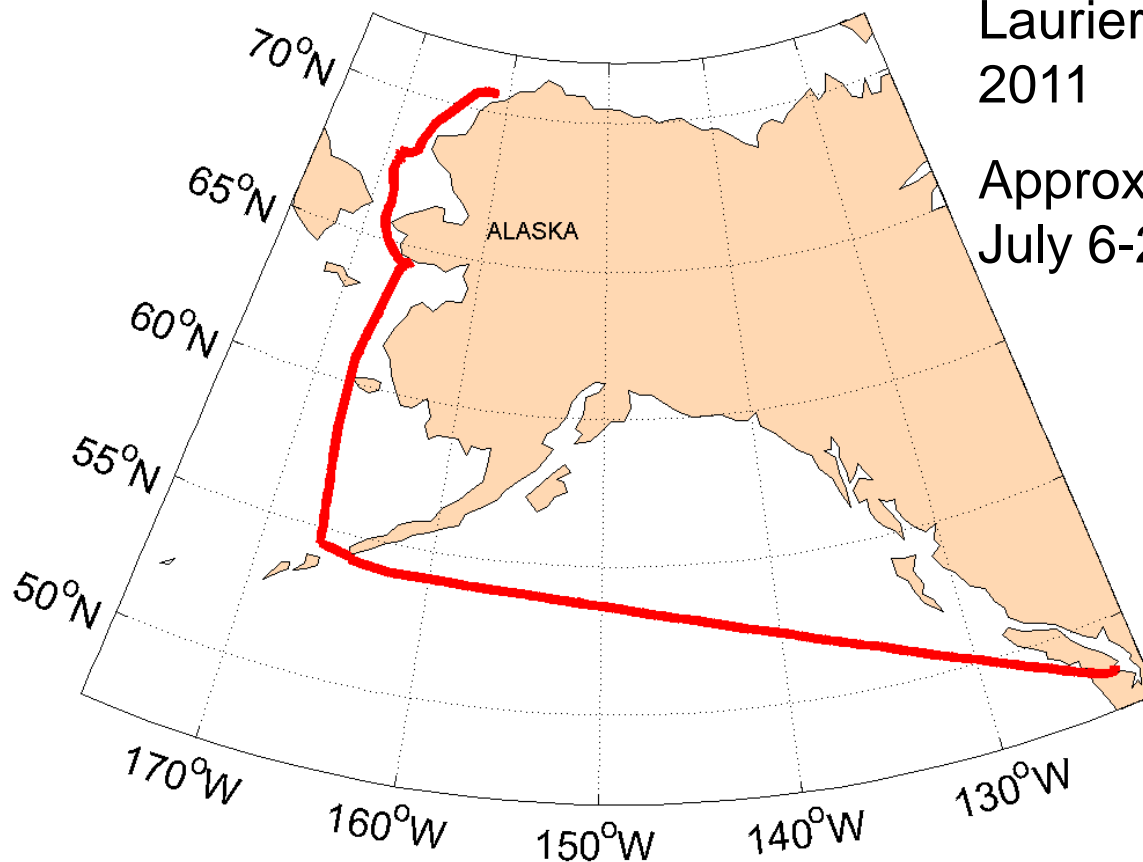
2011 PROGRAM SIMILAR TO 2010 PROGRAM

:

- Canada's Three Oceans – “Turbo”
 - Limited station stops planned for the 2011 missions aboard Louis S St-Laurent and Sir Wilfrid Laurier. Mostly underway sampling.
- Joint Ocean-Ice Study (JOIS)/BG/AON
 - Louis S. St-Laurent (30 days for Science)
 - Kugluktuk to Kugluktuk, Sept 15 to Oct 15
- AIM (Arctic Ice Monitoring)
 - Sir Wilfrid Laurier (18 days – 8 days for Science)
 - Cambridge Bay to Nome, Sept 24 to Oct 12
- UNCLOS – Joint mission with Healy again, 6 weeks before JOIS
- ArcticNet – Planning an industry collaboration.
 - 6 Aug – 24 Sept requested



Canada's Three Oceans – “Turbo” Pacific/Arctic



Sir Wilfrid
Laurier
2011

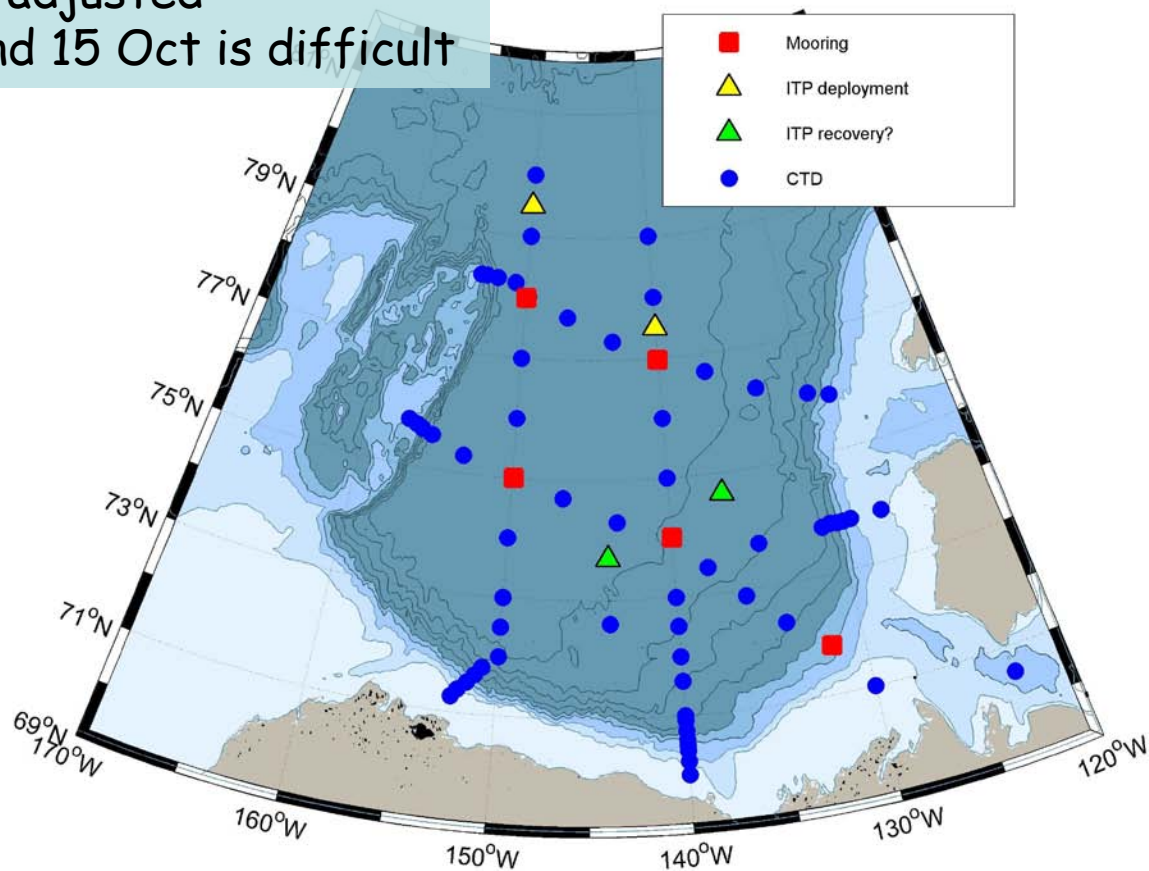
Approx
July 6-22



JOIS/BG/AON Program Canada Basin 2011

Planned 15 Sept to 15 Oct

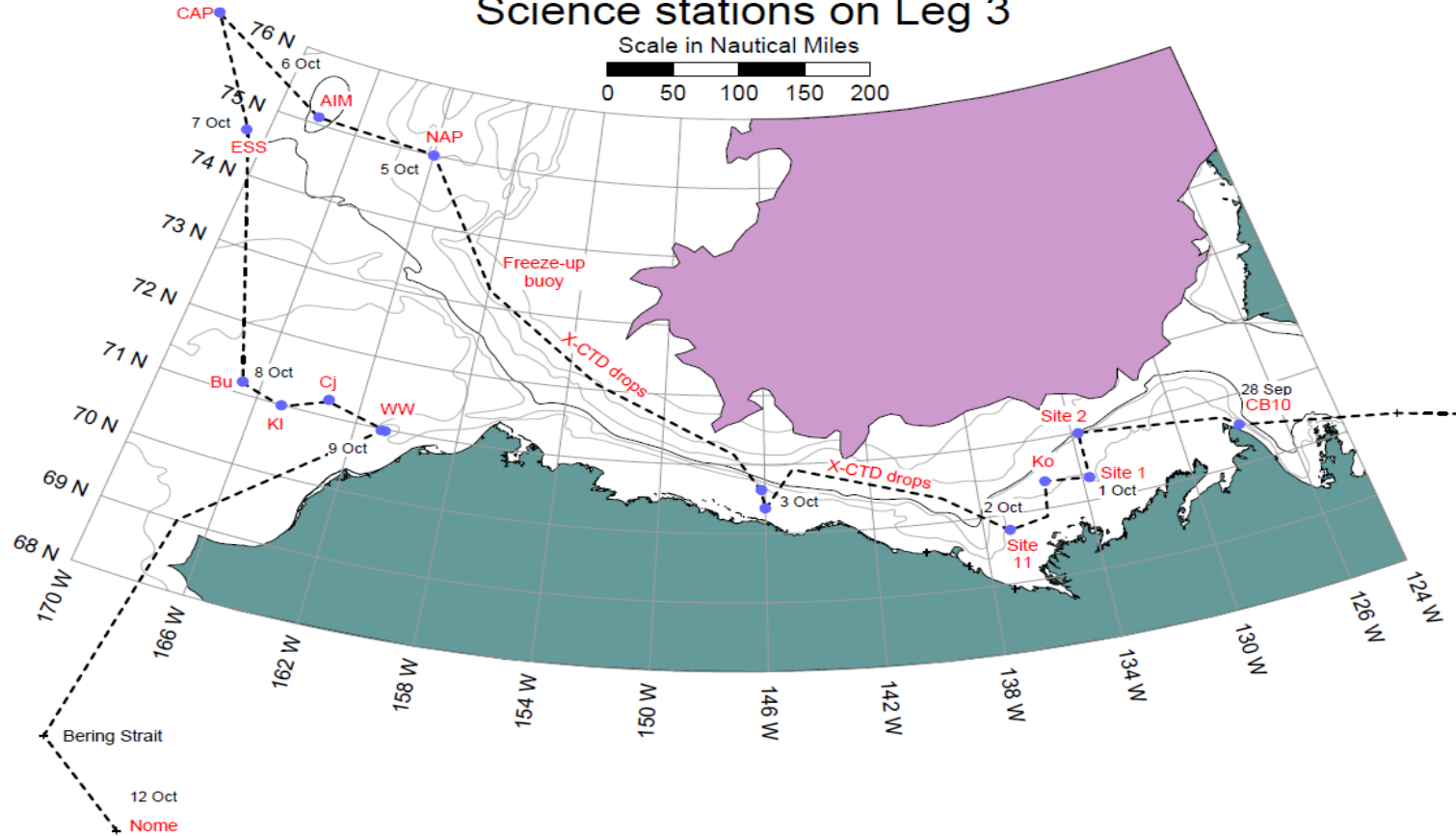
- Timing may be adjusted
- Working beyond 15 Oct is difficult





Arctic Ice Monitoring (AIM) Program

CCGS Sir Wilfrid Laurier, 2011 Arctic Patrol Science stations on Leg 3





Canadian Draft Program PAG region - 2011

POTENTIAL NEW PROGRAMS FOR 2011 (UNDER DEVELOPMENT)

:

- Beaufort Sea Monitoring
 - Private 60ft ice strengthened Vessel
 - The “Aurora Magnetica”
 - 2 weeks in July/August in Beaufort Sea under neg.
 - Programming beyond 2 weeks (for hire?)
 - Must transit from Victoria to Arctic (for hire?)
 - Will overwinter in the Arctic winter 2011





Thanks

