

# Law of the Sea Extended Continental Shelf Seismic Surveys Arctic Ocean, 2010

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# Outline

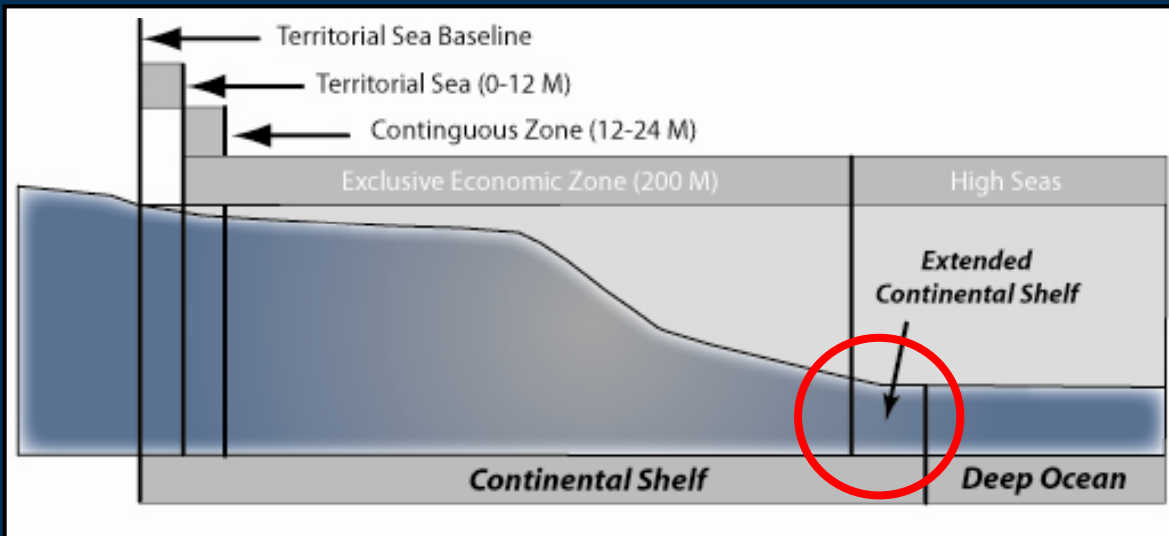
- Purpose of Studies
- Technology and Challenges
- MCS 2007-2009
- MCS 2010
- MCS 2011



*Louis S. St-Laurent 2009*

# Purpose of Studies

Purpose: to define the outer limits of the U.S. continental shelf consistent with customary international law – **The Extended Continental Shelf**



Seafloor beyond 200 nm where a coastal State has sovereign rights over the seafloor and sub-seafloor region.

**NOT WATER COLUMN**

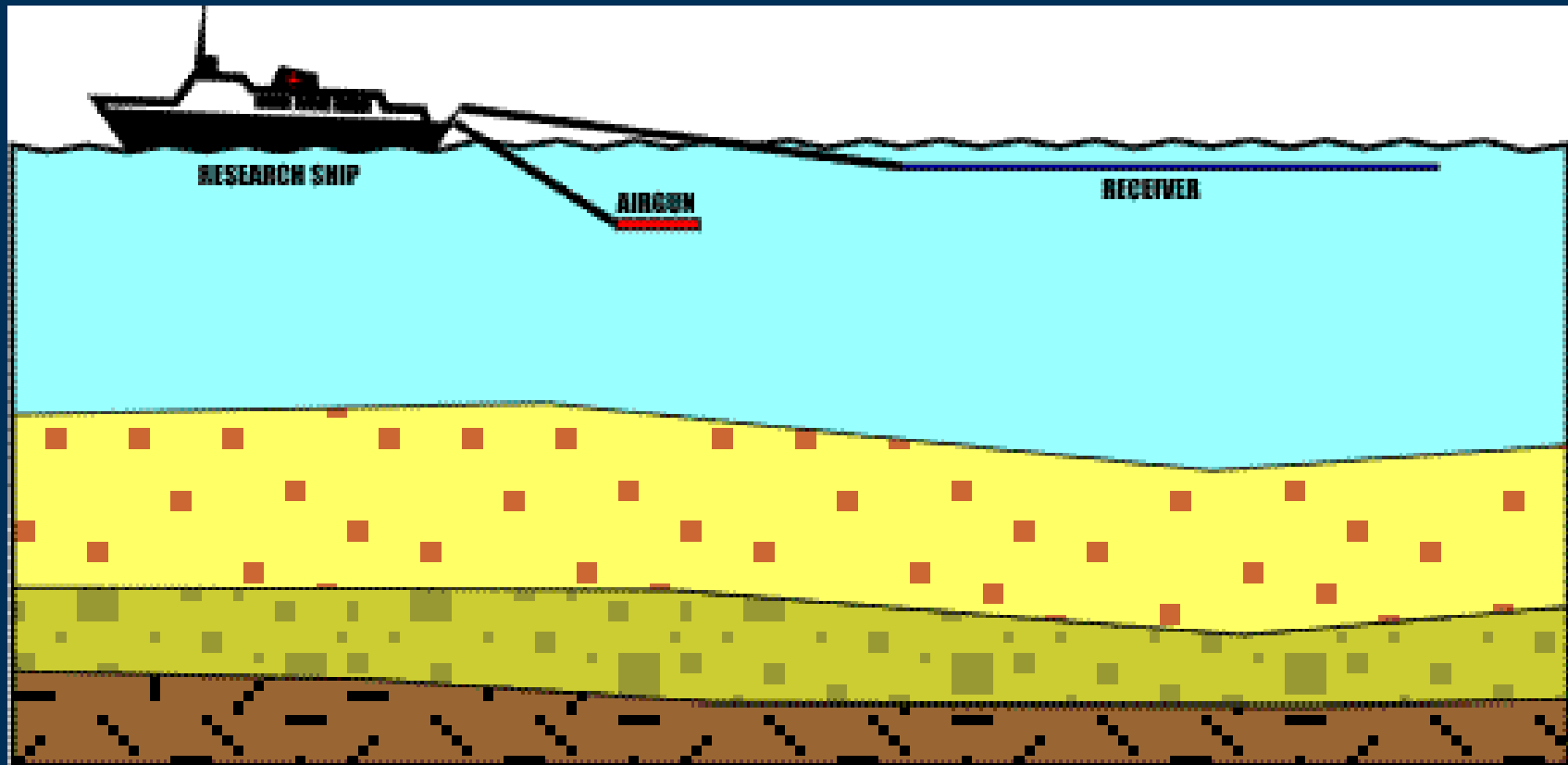
*Both Canada and the United States have a national interest in knowing and declaring to others the locations of the outer limits of the extended continental shelf.*



**Science in a Legal Framework**



# Technology and Challenges



Therefore two ships  
Louis + Healy

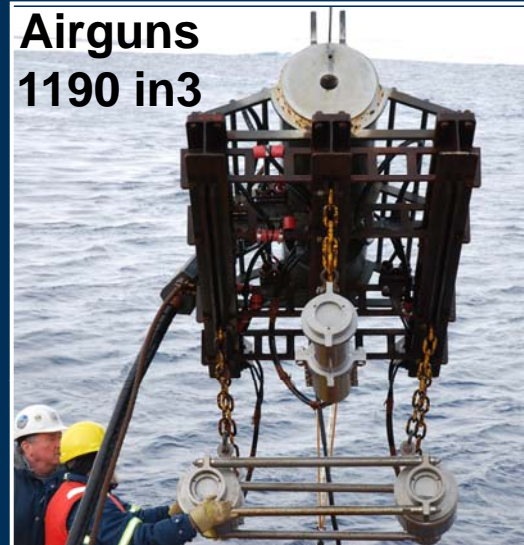


# Louis Seismics



Compressor

Airguns  
1190 in3



Compressor Streamer

Airguns

Sonobuoy

Navigation



Streamer  
100 m

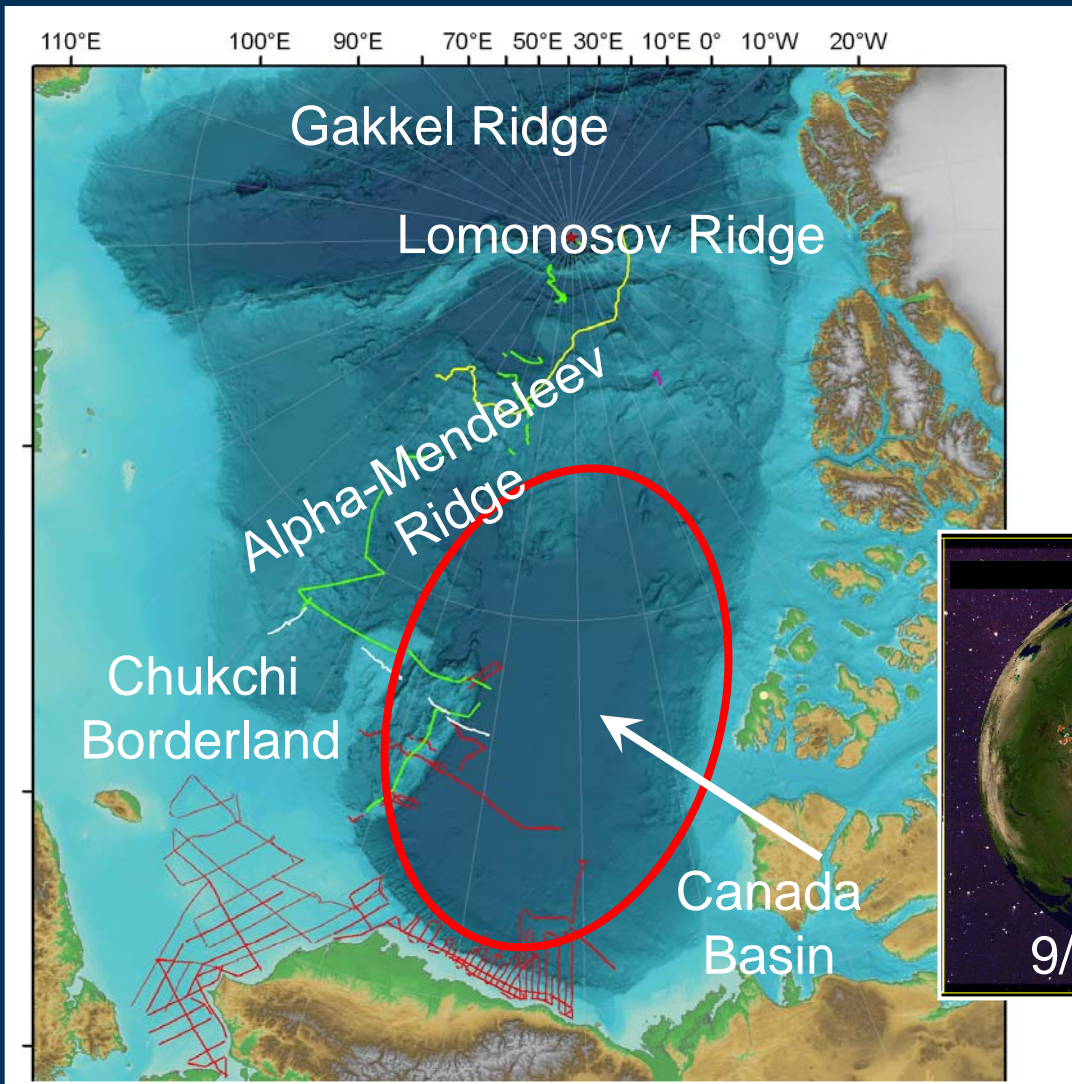


Sonobuoy  
Every 8 hrs



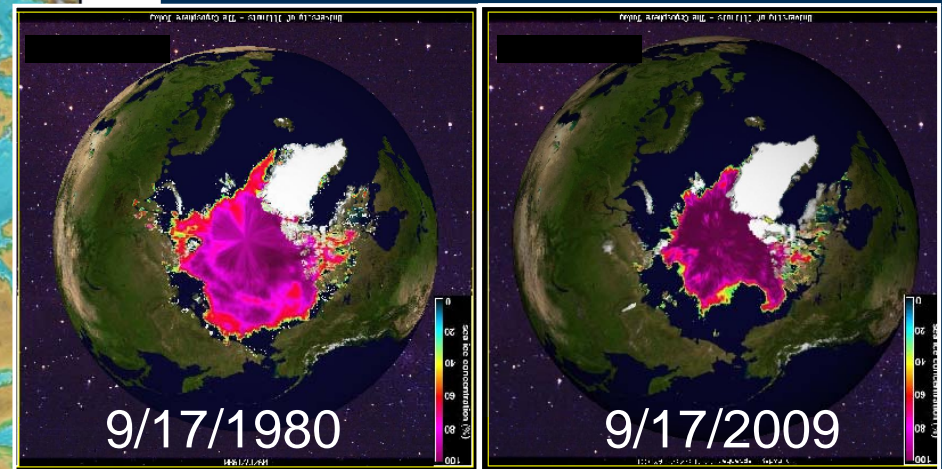
# Risk to the gear





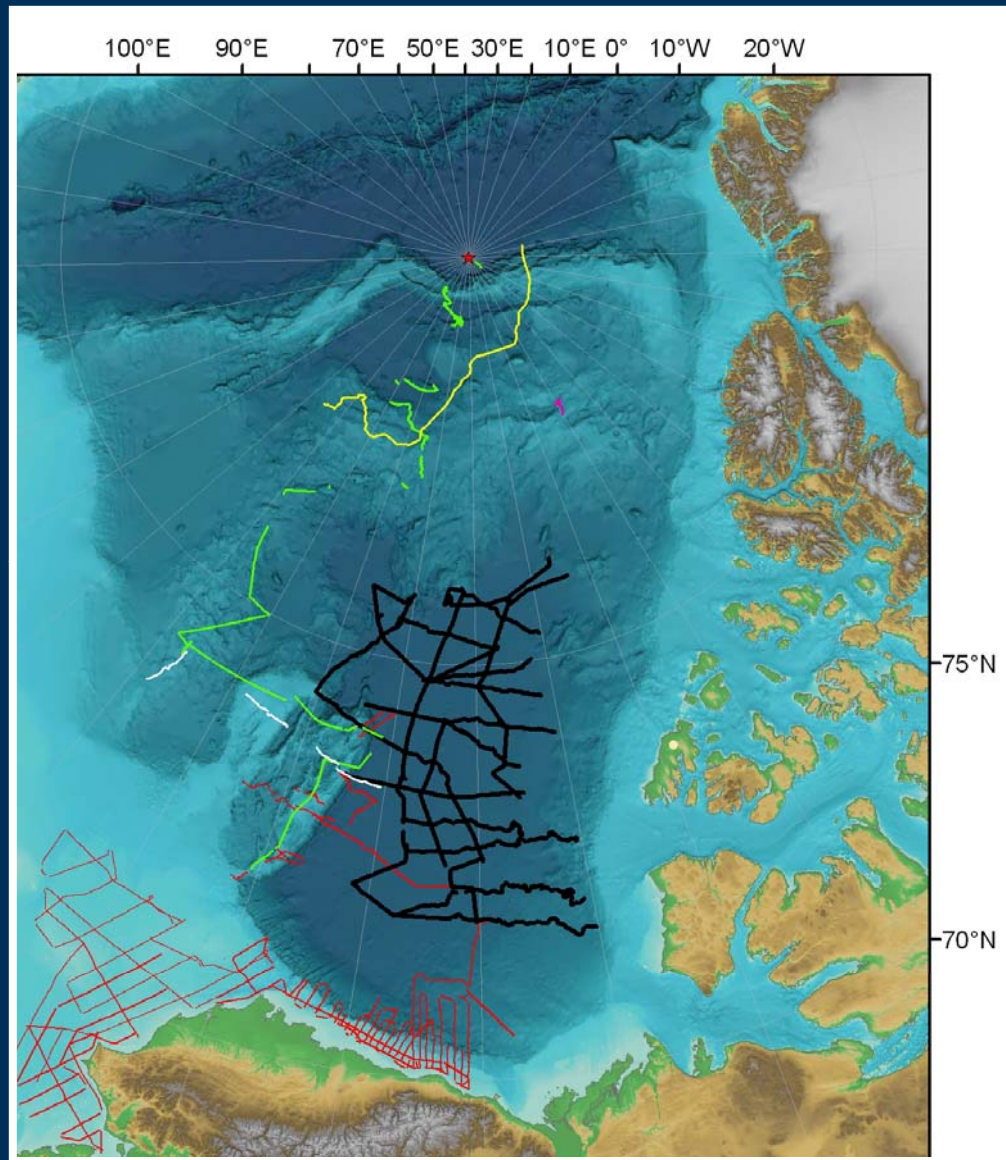
# Seismic coverage before UNCLOS

Canada Basin  
ice covered and unknown



# MCS 2007-2009

Total Seismic Data  
Coverage  
~10,000 line km  
~129 sonobuoys





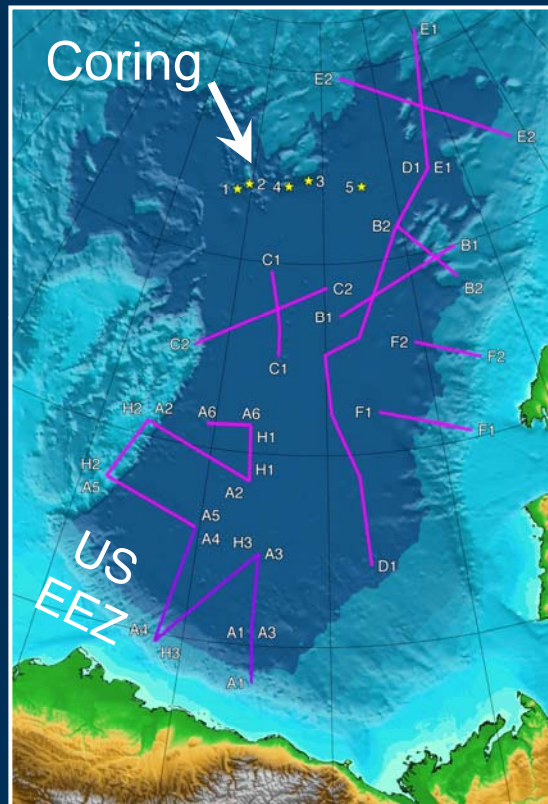
# 2010 ECS Plans

- Last year of two-ship work in the Canada Basin
- CCGS Louis S. St-Laurent –  
42 days, starting 4 Aug, Kugluktuk  
Jon Childs, U.S. liaison
- USCGC Healy  
35 days, starting 2 Aug., Dutch Harbor  
Chief Sci – Brian Edwards
- Same seismic equipment, same experimental design, possible coring
- Operate in US EEZ

Photo: J. Biggar



# U.S. EEZ Seismic Lines



- 3 Lines – connect to existing seismic data
- First lines surveyed (6-12 August)
- Ice conditions will determine if two ships required
- Eastern line
  - 300 km long (~40 hours)
  - shallowest water ~2500 m
  - closest approach to land ~120 km
- Western Line
  - 281 km long (~39 hours)
  - shallowest water ~1800 m
  - closest approach to land ~110 km
- Connector
  - 317 km long (~43 hours)
- NEPA, MMPA, ESA
- Icebreaking



# 2007-2009 Louis operated with full Canadian DFO permits

## *Similar to NOAA permitting*

- standard (ice) 1 km mitigation zone
- 3 MMOs – Native community, 24/7 coverage
- standard ramp up and shut-down
- full shut down if MM sighted during operations
- 30 min pre-start up clearance requirement
- Ship track available real time
- MMO report subject to peer review
- Assumes project does not occur in bowhead feeding areas



Jonah Nakimayak, Paulatuk, NWT

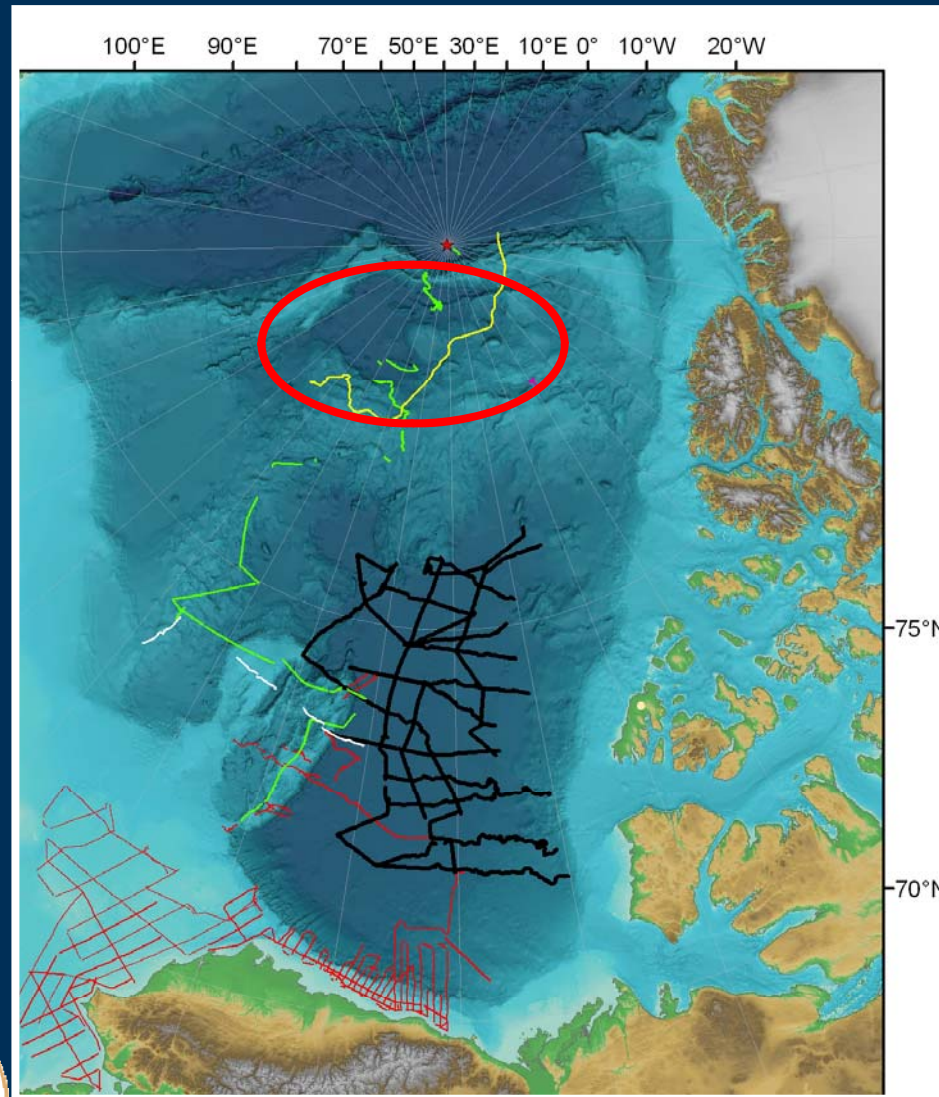


# 2010 Going Forward

- Address whaler's concerns
  - US EEZ tracks at beginning
- NOAA – OPR permits/authorizations
- FWS – Polar Bear Interaction Plan
- Protected Resource Observers
  - 3 PROs – Healy
  - 3 PROs – Louis
  - 1 Community Observer (Healy)
- Rendezvous for US EEZ lines
  - 2 PROs from Healy to Louis
- Supplemental Science
- Finalize ship tracks
  - July – preview ice conditions
- Finalize 1 vs 2 ship operations
  - Cruise departure



# 2011 – Potential Tri Lateral Work



Denmark  
Canada  
US



# Questions

