



**Affaires autochtones et
Développement du Nord Canada**

**Aboriginal Affairs and
Northern Development Canada**



1. Beaufort Regional Environmental Assessment (BREA)

**BREA Results Forum
Inuvik, NWT**

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Northern Petroleum and Mineral Resources Branch

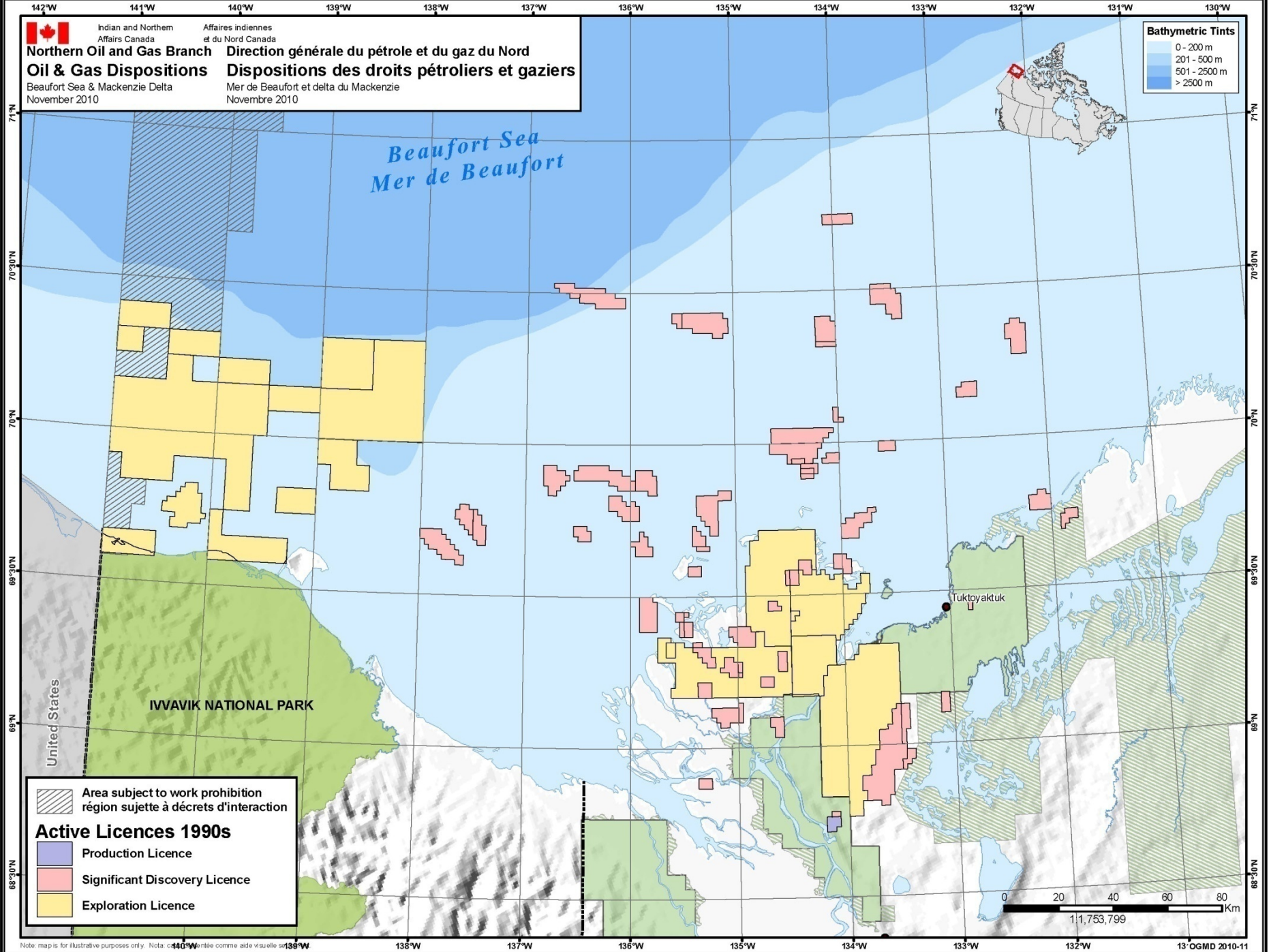
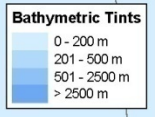
Canada



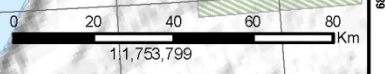
Beaufort Region: a long history of oil and gas activity

- Exploratory activity in Beaufort Sea and Mackenzie Delta area dates back to early 1960s
- 84 exploration wells drilled in the Beaufort region without a major oil spill
- Levels of activity in the region have fluctuated over time, with a recent focus on the deeper offshore
- A significant amount of research was undertaken in the near shore when oil and gas activity was at its peak





 Area subject to work prohibition / région sujette à décrets d'interaction
Active Licences 1990s
 Production Licence
 Significant Discovery Licence
 Exploration Licence



- Exploration Licence / Permis de prospection
- Significant Discovery Licence / Attestation de découverte importante
- Production Licence / Licence de production
- Area subject to work prohibition / Région sujette à décrets d'interaction
- Subsurface and surface owners are Aboriginal / Les autochtones sont propriétaires de la surface et du sous-sol
- Surface owners are Aboriginal / Les autochtones sont propriétaires de la surface
- Pipelines
- Kendall Island Bird Sanctuary / Refuge d'oiseaux de l'île Kendall

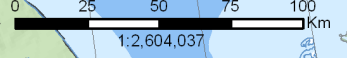
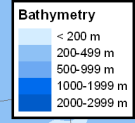
Wells / puits

- Proposed or Drilling / projeté ou en cours
- Oil Discovery / découverte de pétrole
- Gas Discovery / découverte de gaz
- Oil & Gas Discovery / découverte de gaz et pétrole
- Oil Show / trace de pétrole
- Gas Show / trace de gaz
- Oil & Gas Show / trace de pétrole et de gaz
- Oil, Gas, or Water Injection / injection de pétrole, de gaz, ou d'eau
- Suspended / suspendu
- Abandoned / abandonné
- Oil Suspended / Abandoned / pétrole suspendu / abandonné
- Gas Suspended / Abandoned / gaz suspendu / abandonné
- Oil & Gas Suspended / Abandoned / pétrole et gaz suspendu / abandonné

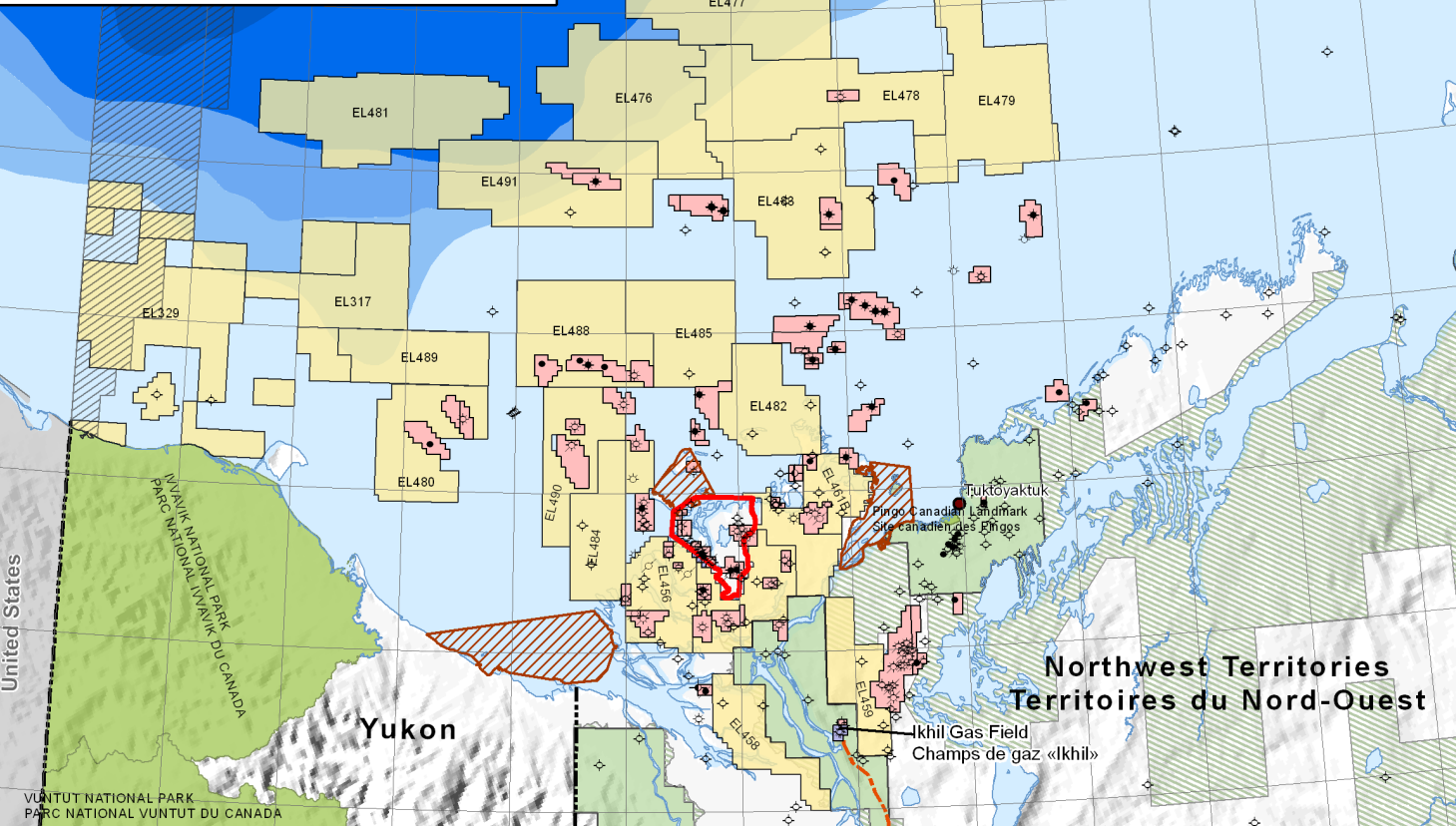
well symbols in red indicate recent drilling
les symboles de puits en rouge indiquent un forage récent



Beaufort Sea
Mer de Beaufort



| # | Rep | Ha |
|------------------|--|---------|
| EL317 | Talisman Energy Inc. | 175,810 |
| EL329 | BP Canada Energy Resources Company | 349,981 |
| EL456 to EL459 | MGM Energy Corp. | 290,637 |
| EL461A | MGM Energy Corp. | 50,552 |
| EL461B | MGM Energy Corp. | 41,323 |
| EL476 & EL477 | Imperial Oil Resources Ventures Limited | 407,701 |
| EL478 & EL479 | BP Exploration Operating Company Limited | 408,994 |
| EL480 & EL481 | Chevron Canada Limited | 314,131 |
| EL482 & EL483 | ConocoPhillips Canada Resources Corp. | 300,208 |
| EL484 & EL485 | Franklin Petroleum Limited | 211,195 |
| EL488 & EL493 | Franklin Petroleum Limited | 905,900 |
| PL06 | AltaGas Ltd. | 2,506 |
| PL25 | MGM Energy Corp. | 917 |
| SDL014 to SDL016 | Chevron Canada Limited | 2,738 |
| SDL017 to SDL019 | Shell Canada Limited | 8,897 |
| SDL020 to SDL028 | Nyttis Exploration Company Inc. | 4,843 |
| SDL029 | AltaGas Ltd. | 626 |
| SDL030 | ConocoPhillips Canada (North) Limited | 2,173 |
| SDL031 | Shell Canada Limited | 306 |
| SDL032 | ConocoPhillips Canada (North) Limited | 30,117 |
| SDL033 to SDL036 | Shell Canada Limited | 8,607 |
| SDL037 | BP Canada Energy Resources Company | 8,034 |
| SDL038 to SDL041 | BP Canada Energy Development Company | 34,051 |
| SDL047 to SDL049 | BP Canada Energy Development Company | 13,471 |
| SDL050 to SDL065 | Imperial Oil Resources Limited | 65,347 |
| SDL083 to SDL088 | ConocoPhillips Canada Resources Corp. | 42,518 |
| SDL089 | BP Canada Energy Company | 10,512 |
| SDL091 to SDL095 | Imperial Oil Resources Limited | 25,523 |
| SDL096 & SDL097 | ConocoPhillips Canada Resources Corp. | 2,412 |
| SDL100 | Shell Canada Limited | 1,763 |
| SDL110 to SDL112 | Imperial Oil Resources Limited | 3,267 |
| SDL113 & SDL114 | BP Canada Energy Resources Company | 9,582 |
| SDL115 to SDL117 | Imperial Oil Resources Limited | 6,600 |
| SDL126 | ConocoPhillips Canada Resources Corp. | 16,618 |
| SDL130 | Devon NEC Corporation | 14,458 |
| SDL131 to SDL137 | MGM Energy Corp. | 14,330 |
| SDL144 | Suncor Energy Inc. | 5,862 |
| SDL146 | MGM Energy Corp. | 7,090 |



United States

INUVIAT NATIONAL PARK DU CANADA
PARC NATIONAL INUVIAT

Yukon

VUNTUT NATIONAL PARK
PARC NATIONAL VUNTUT DU CANADA

Pingo Canadian Landmark
Site canadien des Pingos

Northwest Territories
Territoires du Nord-Ouest

Ikhil Gas Field
Champs de gaz «Ikhil»

72°N
71°30'N
70°N
70°30'N
69°N
69°30'N
68°N



Why a Beaufort Regional Environmental Assessment?

- Prepare for oil and gas activity in deeper waters offshore
- Opportunity to bring together diverse mandates and responsibilities
- Provide venue to advance stakeholder interests and concerns
- Support regulatory efficiency
- Build on awareness of Gulf of Mexico spill and lessons learned for the Beaufort Sea
- Advance innovative ways to collaborate and undertake research in support of responsible exploration and development



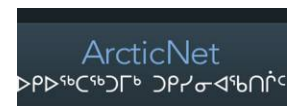
History of Beaufort Regional Environmental Assessment

- June 2004 - IGC raised concerns about Government preparedness for offshore oil and gas development
 - Beaufort Sea Strategic Regional Plan of Action (BSStRPA) 2005-2008, included significant community consultation
- BREA is based on recommendations from BSStRPA to ensure a coordinated and integrated approach to addressing challenges of renewed oil and gas activity in the Beaufort Sea
 - Announced August 20, 2010 - \$21.8 million over four years to support the delivery of targeted research efforts in support of an efficient regulatory process (2011-2015)



What is the Beaufort Regional Environmental Assessment

- A partnership among Inuvialuit, industry, governments, regulators and academia to prepare for oil and gas activity in the Beaufort Sea:
 - Building a strong knowledge base to support efficient and effective regulatory decisions
- Goals:
 - Engage communities and advance their priorities for oil and gas preparedness
 - Produce regional scientific and socio-economic information, including traditional knowledge to simplify project-level environmental assessments
 - Strengthen integrated management





Who is Involved in BREA?

- **National Executive Committee** (Inuvialuit Regional Corporation, Inuvialuit Game Council, Canadian Association of Petroleum Producers & Aboriginal Affairs and Northern Development Canada)
 - Provides overall direction for BREA
- **Steering Committee** (Inuvialuit, federal and territorial governments, regulators, industry and academia)
 - Oversees BREA implementation
- **Research Advisory Committee** (Inuvialuit, federal and territorial governments, regulators, industry and academia)
 - Identifies research priorities for BREA
 - Evaluates and ranks research projects
 - Oversees delivery of research projects
- **Working Groups** (Inuvialuit, federal and territorial governments, regulators, industry and academia)
 - Develops and delivers work plans



BREA Deliverables

- **Research program**

- Implementation led by Aboriginal Affairs and Northern Development Canada (AANDC)
- Projects led by federal departments, universities, co-management boards and the private sector

- **Working Group activities**

- Led by federal departments and regulators
- Established to respond to priority issues



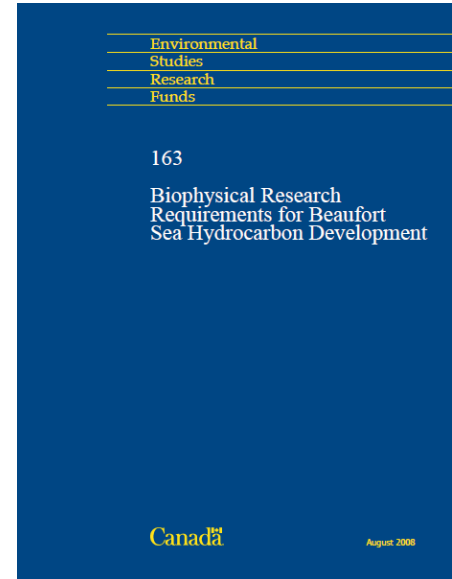


Building on a Strong Knowledge Base

- Past Research Programs associated with oil and gas activity
- Northern Oil & Gas Research Workshop (2005)
- Beaufort Sea Strategic Regional Plan of Action (2008)
- Beaufort Sea Integrated Oceans Management Plan (2009-10)

Research priorities identified and validated

- **ESRF Biophysical Research Requirements Report for Hydrocarbon Development (2008)**
- **ArcticNet Data Mining Report (2011)**





BREA Research Program- Priorities

2011-2012 **Seventeen** research projects funded

2012-2013 **Six** new research projects funded, 22 projects underway

- **Baseline fish information** (3 projects)
- **Coastal and marine birds** (2 projects)
- **Bird, fish and marine mammal information for oil spill response** (1 project)
- **Coupled ocean-ice-atmosphere modeling and forecasting** (4 projects)
- **Sea Ice types and extreme ice features** (7 projects)
- **Offshore geohazards and coastal processes** (2 projects)
- **Worst-case environmental design limits for ice** (1 project)
- **Community Priorities - Polar bears in offshore and coastal monitoring**
(2 projects)
- **Geospatial tool** (1 project)



Working Groups

- **Social, Cultural and Economic Indicators** (Inuvialuit Regional Corporation lead)
- **Oil Spill Preparedness and Response** (National Energy Board & Aboriginal Affairs and Northern Development Canada (AANDC) co-leads)
- **Climate Change** (Environment Canada (EC) lead)
- **Cumulative Effects** (AANDC lead)
- **Waste Management** (EC lead)
- **Information Management** (AANDC lead)





Communicating BREA Results

- BREA progress report 2011-2012
 - Highlighting first year results is finalized and is available on the website: BeaufortREA.ca
- BREA poster
 - Available for conferences and other events
- BREA final reports
 - Available on the website: BeaufortREA.ca
- BREA Results Forum
 - Forum Report





BREA Final Report

Highlight

- Knowledge generated through BREA
- Engagement of the partners – involvement of Inuvialuit communities and contribution to results, integration of traditional knowledge

Synthesize

- Current state of knowledge of the Beaufort Sea
- Results of research and working group projects and describe how the findings will contribute to the overall state of knowledge of Beaufort and preparedness for offshore activities



BREA Final Report Continued

- **Analyse** and assess the regional knowledge generated in conjunction with the forecast of oil and gas activity
- **Identify** potential environmental sensitivities
- **Provide** a central location for up-to-date regional information - reduce collection of data, streamlining the regulatory process



Next Steps

- Report from the Forum – two years of progress
- Steering Committee to meet and discuss contents of final report
- Prepare for the last two years of BREAA activities
- Now...relax and enjoy the BREAA Results Forum!



ANNEX



BASELINE FISH INFORMATION

- **Hydro-acoustic mapping** of offshore summer distribution of **Arctic cod & other fish** in the Beaufort ([ArcticNet](#))
- **Fishes, habitats and ecosystem** linkages to oil and gas development in the Beaufort Sea ([Fisheries and Oceans, Universities of Waterloo & Manitoba](#))
- Baseline information, accumulation, and potential effects of **hydrocarbons in Beaufort sediments and biota** ([Fisheries and Oceans and University of Manitoba](#))



Amundsen research vessel



Frosti / Fish sampled in trawl

BIRD, FISH AND MARINE MAMMAL INFORMATION

- Information for **Net Environmental Benefit Analysis** for using dispersants & in-situ burning in spill response ([SL Ross](#))

COASTAL AND MARINE BIRDS

- **Coastal and marine bird usage** ([Environment Canada](#))
- Database of **seabirds** in the offshore ([Upun-LGL](#))



Eider ducks



WORST-CASE ENVIRONMENTAL DESIGN LIMITS FOR ICE

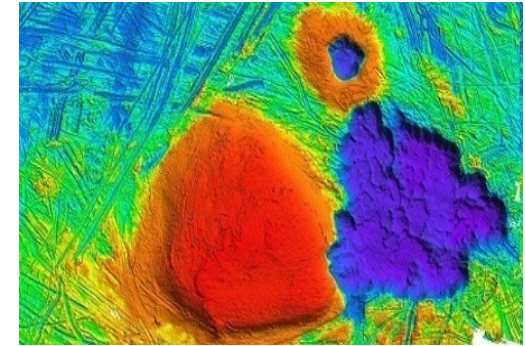
- **Overwintering of vessels** in the Beaufort - Assessing Damage Potential ([National Research Council with linkages to Transport Canada](#))

OFFSHORE GEOHAZARDS AND COASTAL PROCESSES

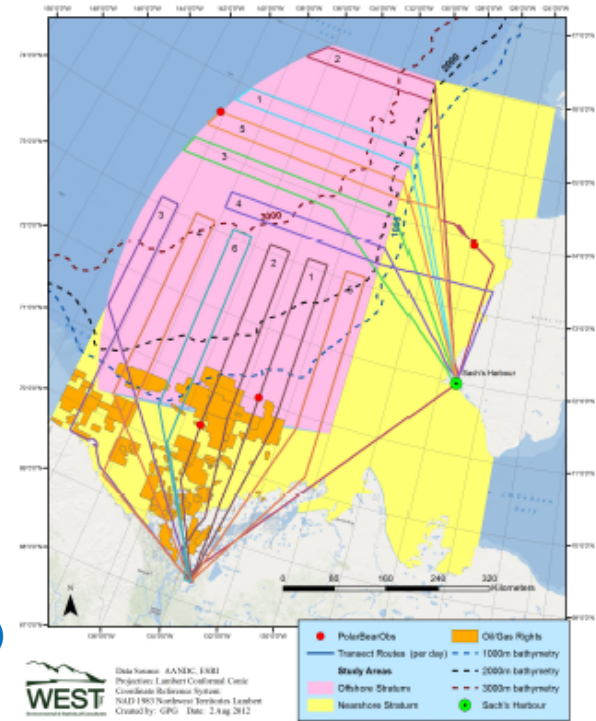
- Regional assessment of deepwater **seabed geohazards** for oil spill prevention in Beaufort Sea ([Natural Resources Canada](#))
- Regional synthesis of **coastal processes** ([Natural Resources Canada](#))

COMMUNITY PRIORITIES

- **Polar bears in the deep offshore regions** of the Beaufort Sea: a preliminary study to estimate distribution and density in previously under-surveyed areas ([Joint Secretariat, Environment Canada, University of Alberta](#))
- **Regional coastal monitoring** in the ISR: Ecosystem indicators (coastal fish, beluga and habitat) ([Inuvialuit Game Council and Fisheries Joint Management Committee](#))



Multibeam image of the seabed



Flight tracks, polar bear survey



OCEAN-ICE-ATMOSPHERE MODELING & FORECASTING

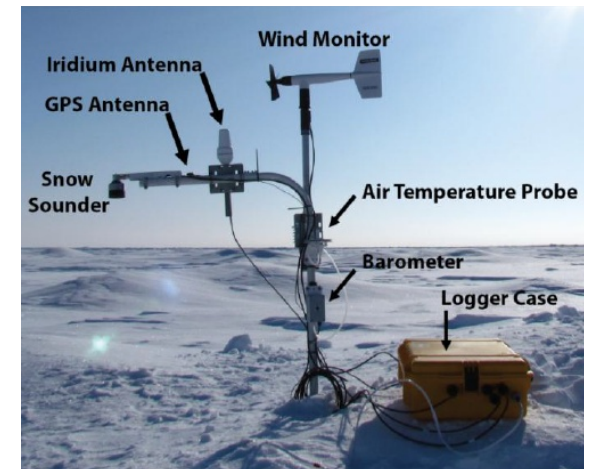
- Southern and North-eastern Beaufort Sea **marine observatories** ([ArcticNet & IMG-Golder](#))
- An **Integrated Environmental Modeling / Forecasting System** for the Beaufort Sea ([3 studies; DFO, EC, Universities of Victoria, McGill and Québec à Rimouski](#))

SEA ICE TYPES AND EXTREME ICE FEATURES

- An **Integrated Sea Ice Project** ([3 studies; Universities of Alberta and Manitoba, National Research Council](#))
- Using satellite-based imagery to **delineate extreme ridge features** in sea ice of the Beaufort Sea ([C-Core](#))
- CanICE - A sea ice information database** ([Environment Canada, Universities of Waterloo, Laval and Ryerson](#))
- Beaufort Sea Environmental Database** ([National Research Council - Joint Industry Project](#))
- Measuring changes in sea ice in the Beaufort** ([Environment Canada](#))



Flight Survey w/ EMI equipment



Ice Mass Balance Buoy