

**Alaska
(Chukchi, Beaufort, Cook Inlet & North
Aleutian)**

**OCS Workshop
January 16, 2008**

**Rance Wall
Regional Supervisor,
Resource Evaluation Alaska
U.S. Minerals Management Service**



MMS: An Ocean, Energy, & Mineral Agency

Oil and Gas Leasing,
Regulation, Monitoring,
Inspections

- Sand, gravel, gold, and other minerals,
- *New >>* Energy from wind, currents, waves



- Environmental
& Technical
Research

- Upcoming lease sales



- Exploration and development



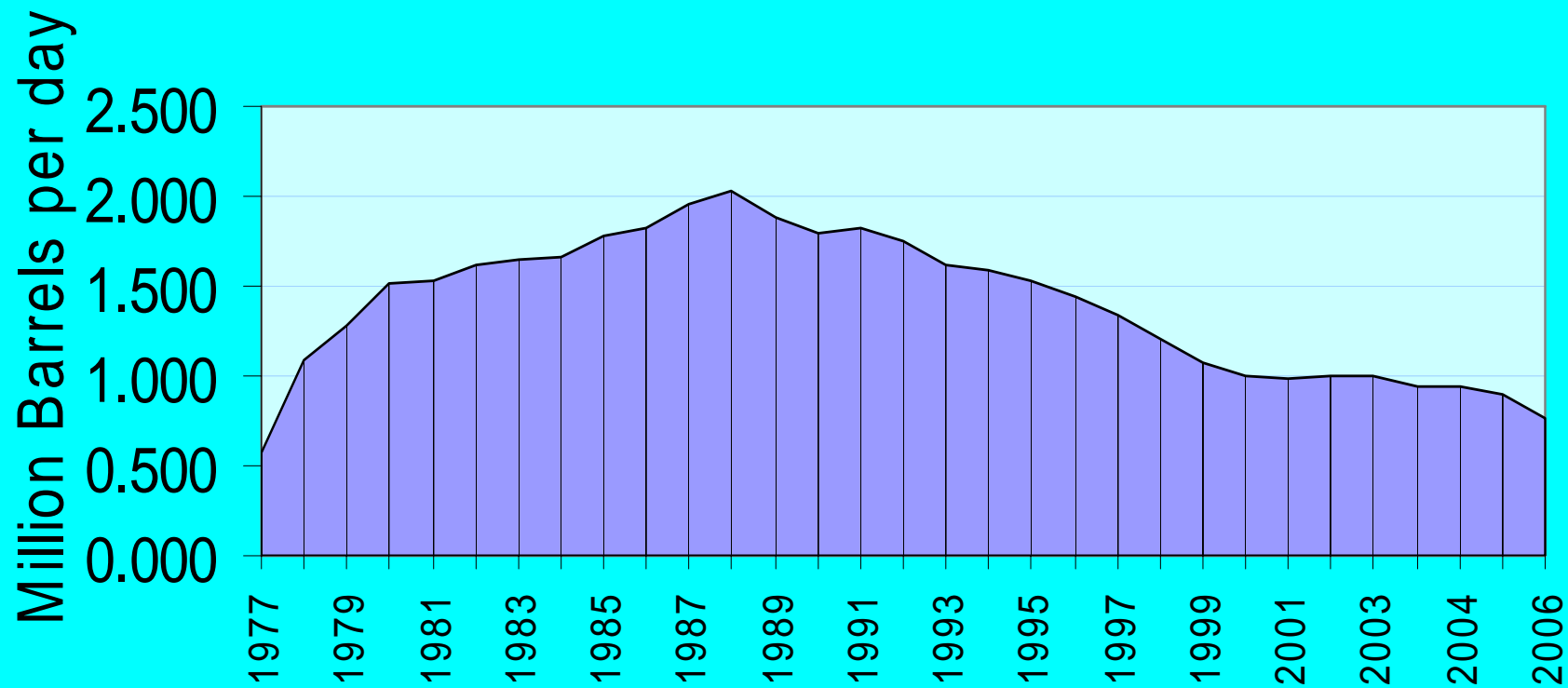
- Issues



- Research



Trans-Alaska Pipeline Daily Throughput 1977-2006



2006: 759,081 BOPD



Outer Continental Shelf Oil & Gas Leasing Program 2007 - 2012



7/26/2007

Alaska 2007-12 OCS Program



Alaska Sales 2007-2012 Program

Arctic

Chukchi Sea

- Sale 193 (2008)
- Sale 212 (2010)
- Sale 221 (2012)

Beaufort Sea

- Sale 209 (2009)
- Sale 217 (2011)

Bering Sea /Gulf of Alaska

North Aleutian Basin

- Sale 214 (2011)

Cook Inlet (if interest)

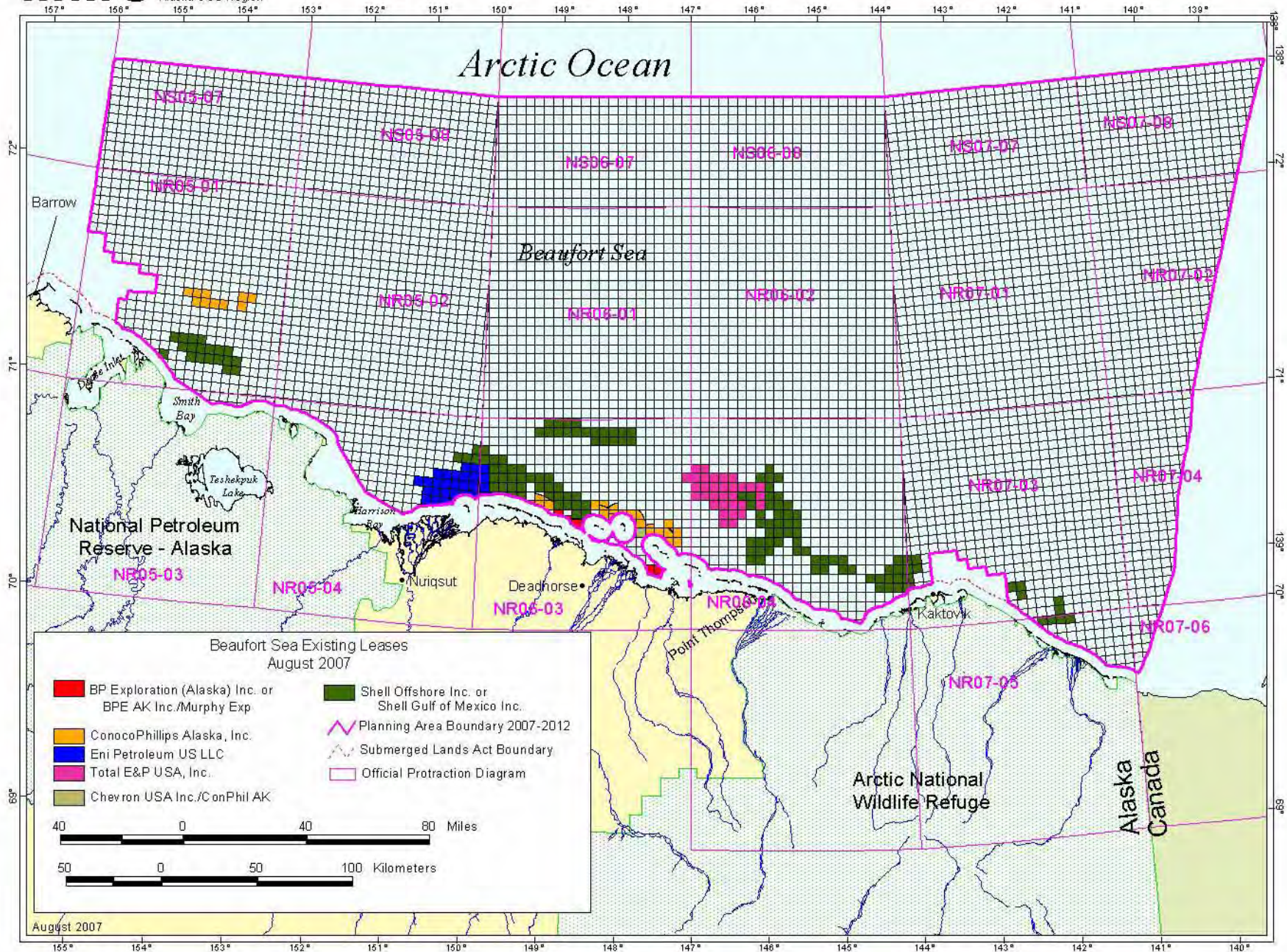
- Sale 211 (2009)
- Sale 219 (2011)

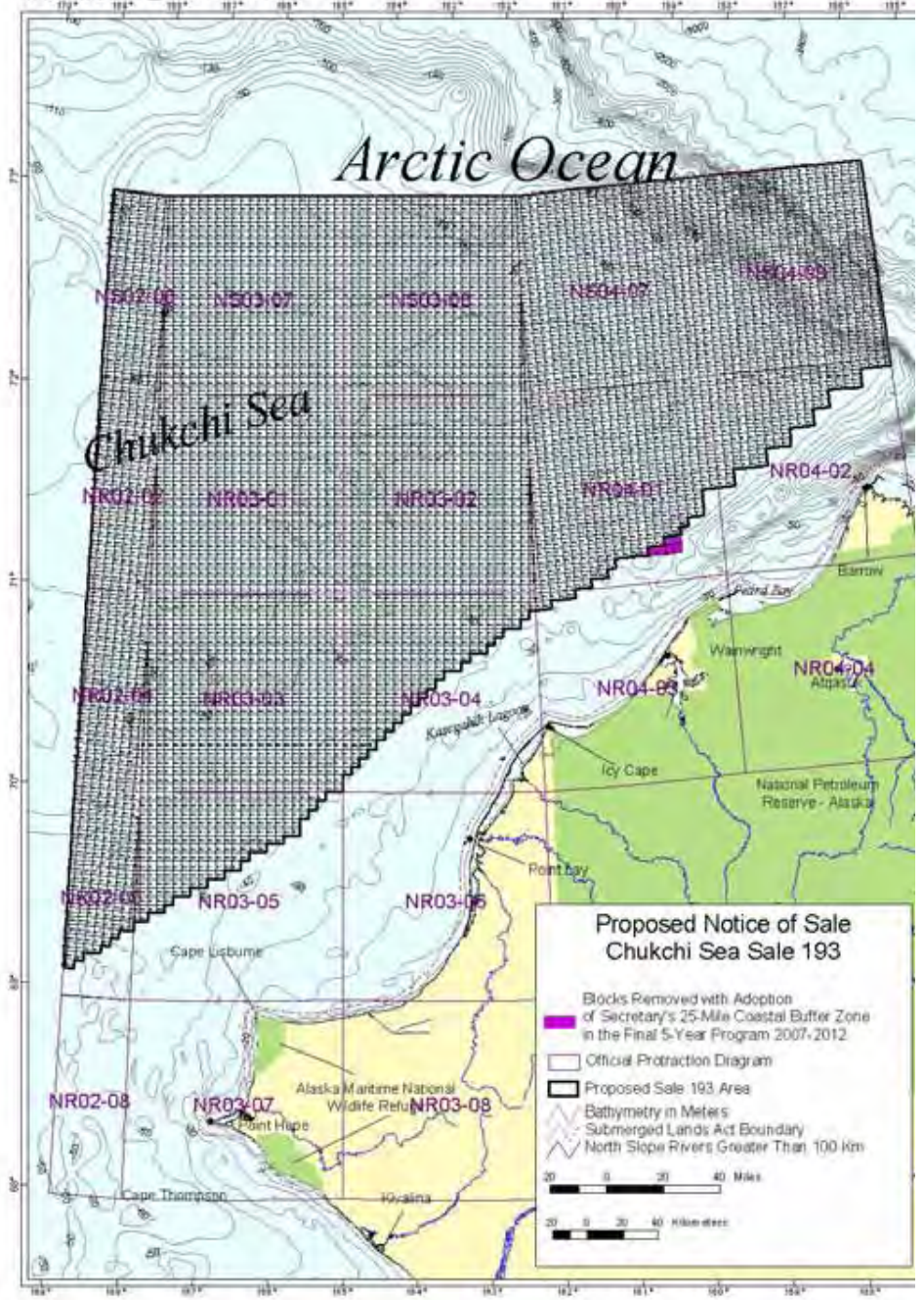
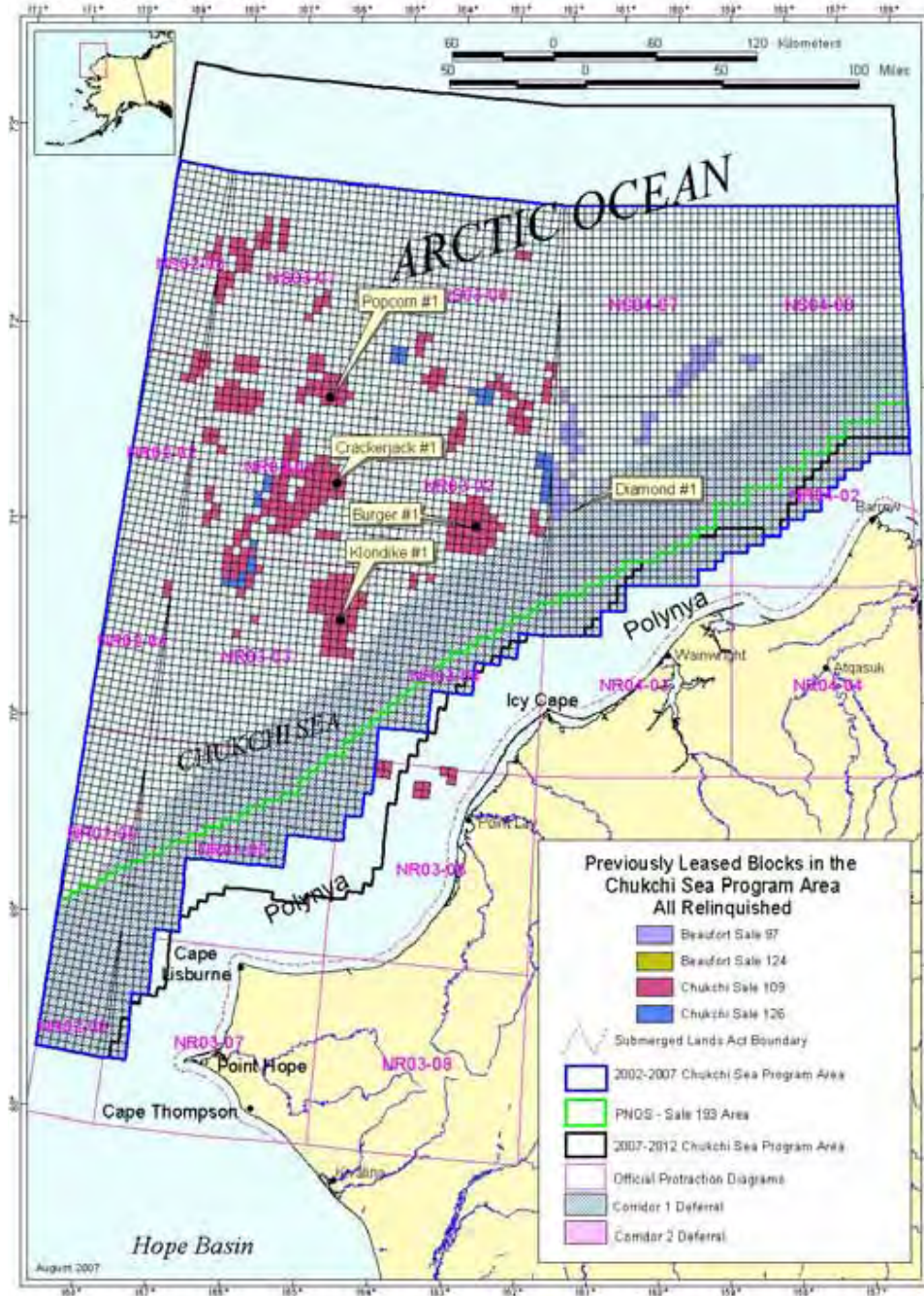
Alaska Oil and Gas Estimates

Undiscovered Technically Recoverable

<u>OCS Planning Area</u>	<u>Oil and Gas Estimates</u>		
	<u>95%</u>	<u>Mean</u>	<u>5%</u>
Beaufort Sea			
Oil (bbo)	0.4	8.2	23.2
Gas (tcf)	0.7	27.7	72.2
Chukchi Sea			
Oil (bbo)	2.3	15.4	40.1
Gas (tcf)	10.3	76.8	209.5
North Aleutian Basin			
Oil (bbo)	0.02	0.75	2.5
Gas (tcf)	0.4	8.6	22.3
Cook Inlet			
Oil (bbo)	0.06	1.0	2.9
Gas (tcf)	0.03	1.2	3.5

MMS 2006 National Assessment

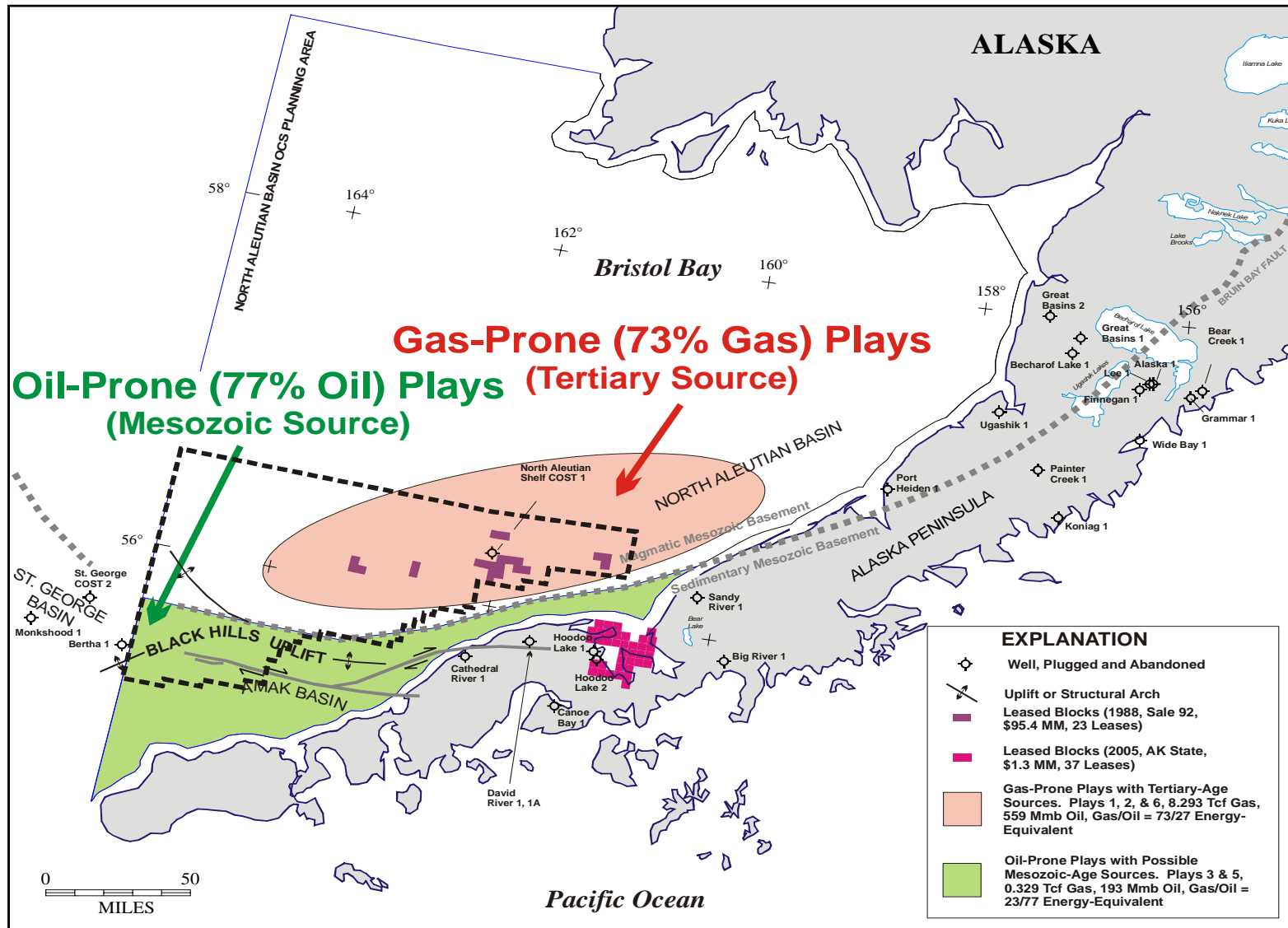




North Aleutian Basin Sale 214 In 2011

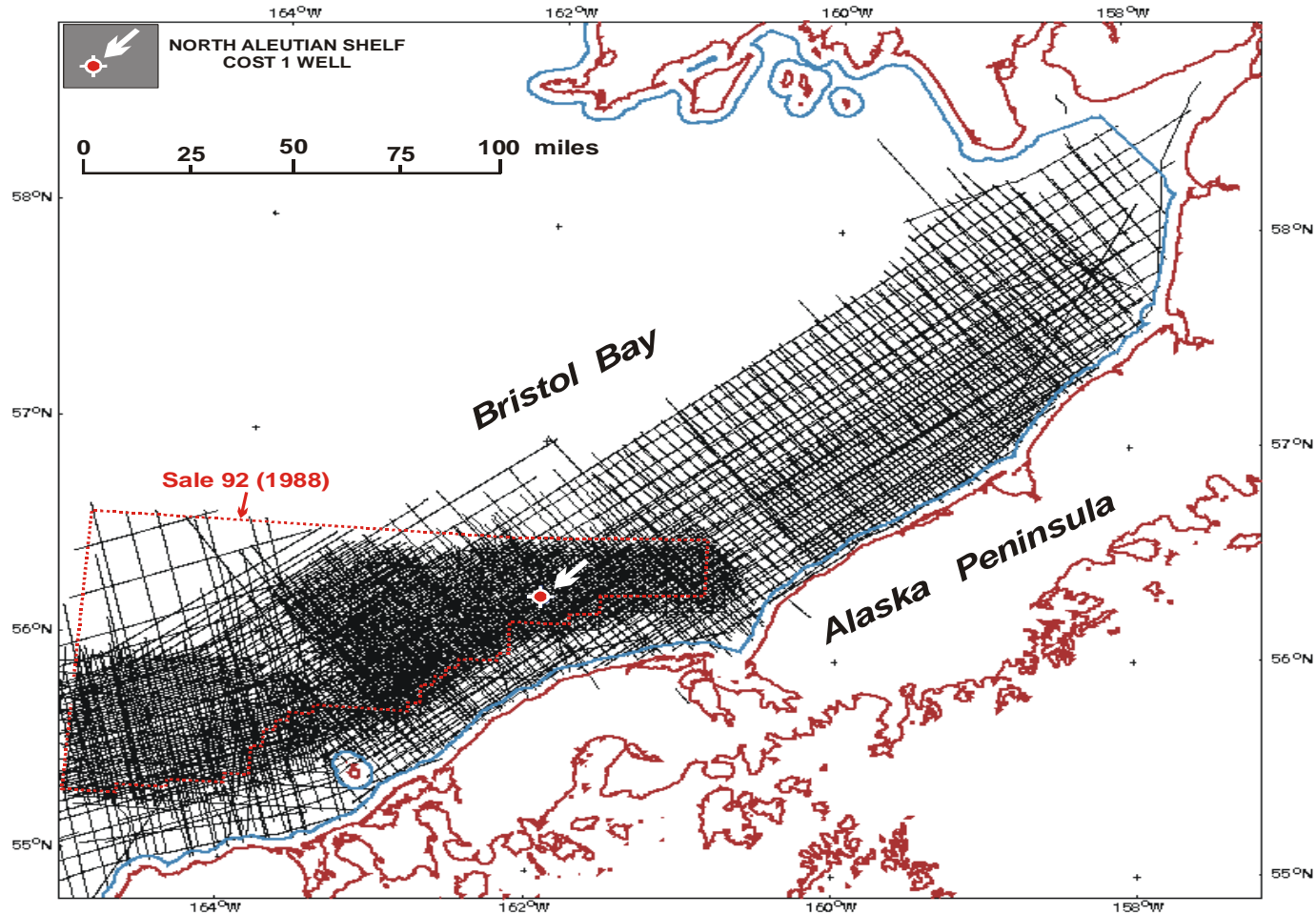


GAS-PRONE VS. OIL-PRONE PLAYS

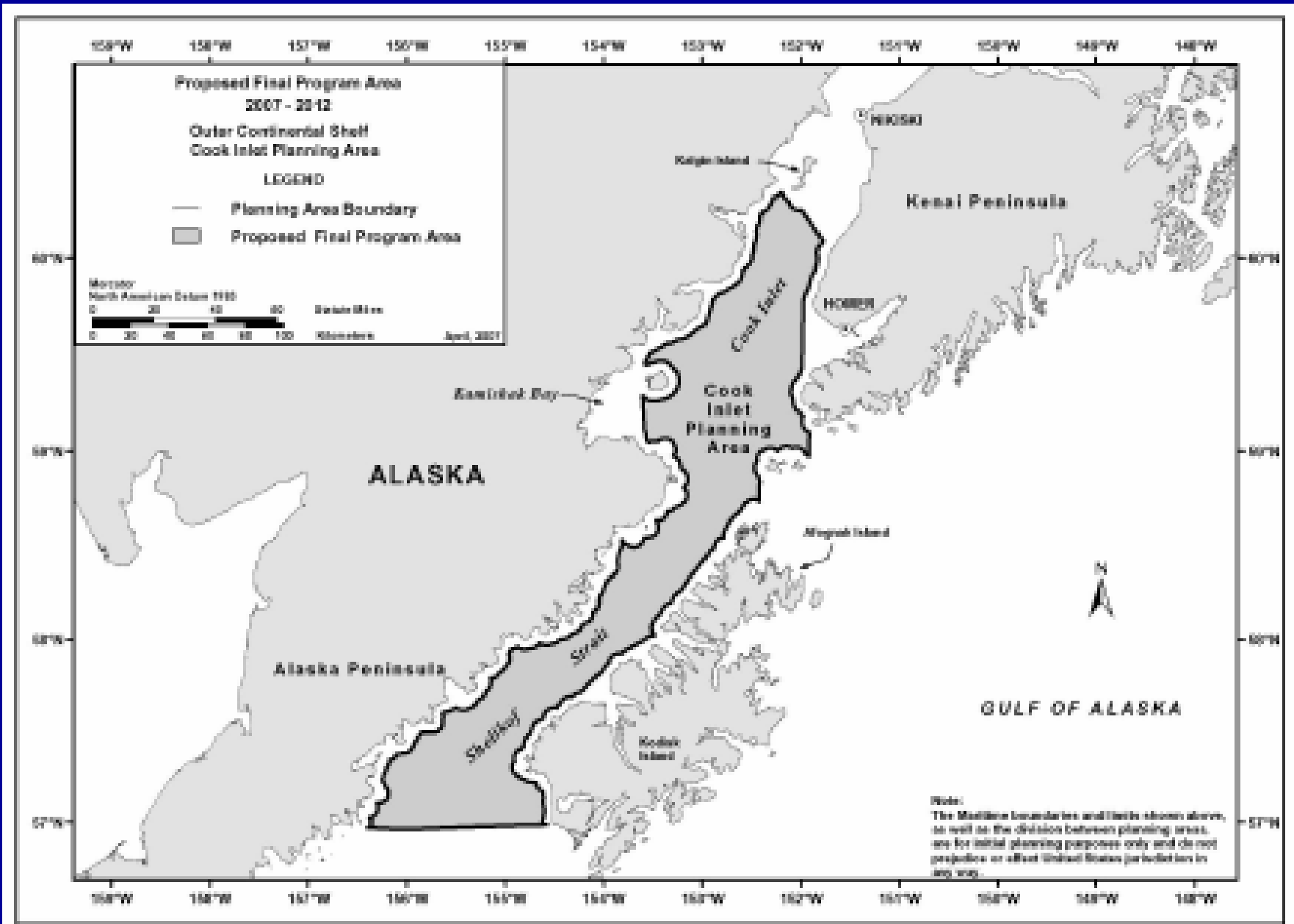


2-D Seismic Data: 64,700 Line-Miles

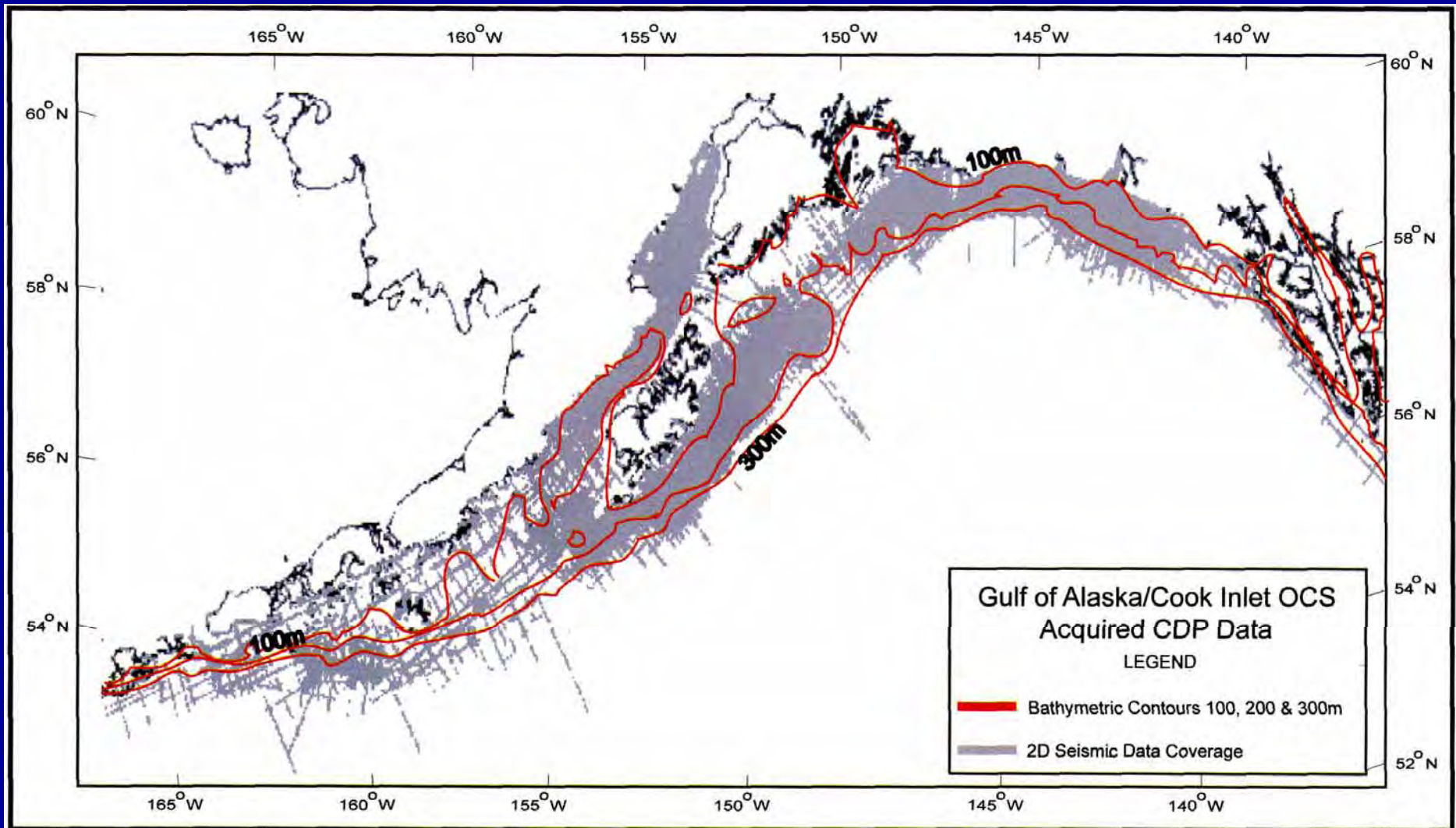
CDP SEISMIC DATA GRID (TWO-DIMENSIONAL)



Cook Inlet



Seismic Data in Cook Inlet



Current Alaska OCS Activities



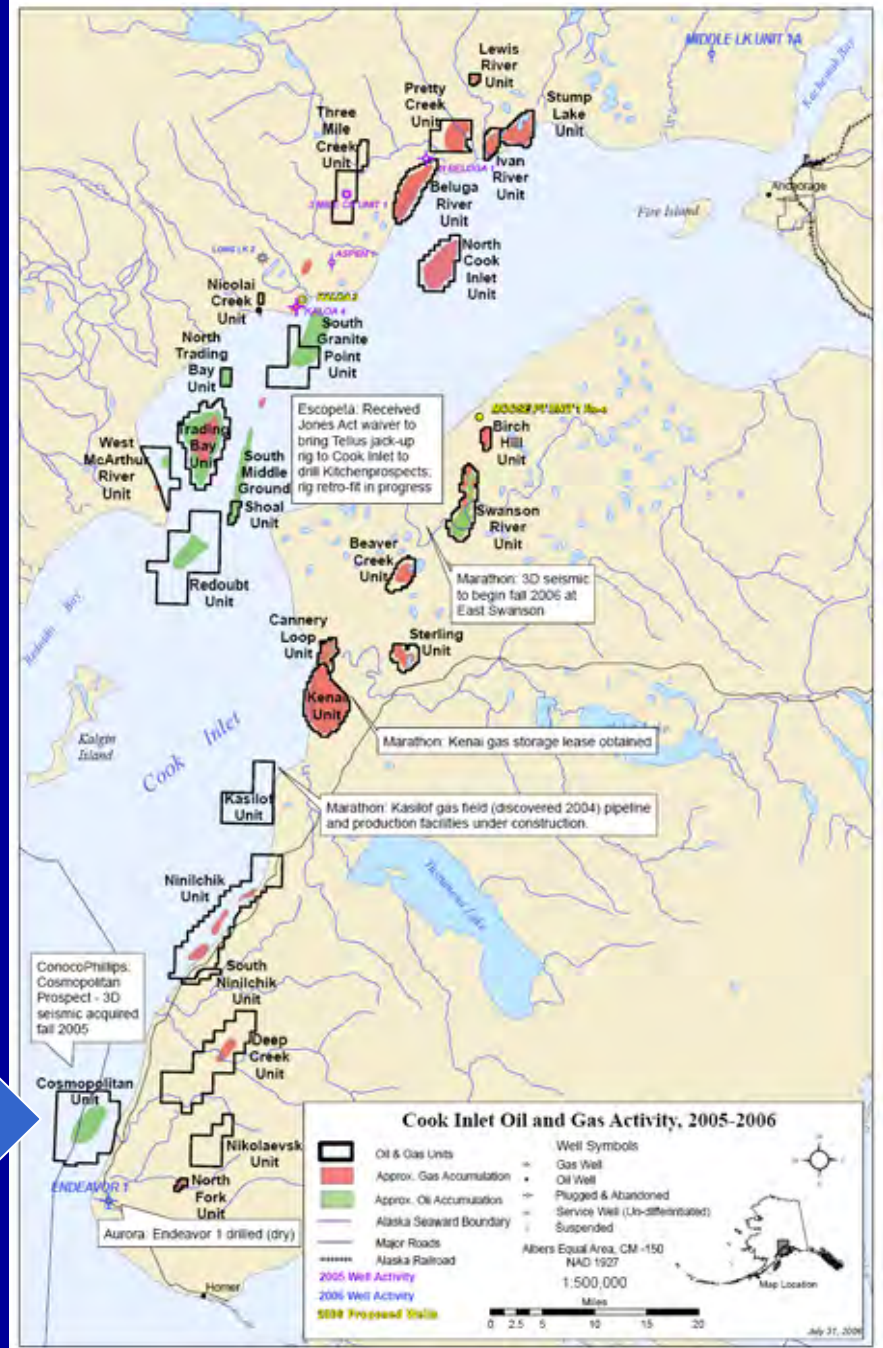
Cook Inlet Cosmopolitan Unit

extended reach delineation
well (State/federal)



ConocoPhillips Cosmopolitan project: photo taken Sept. 29, 2001.

Lin Reid, Eagle Eye Helicopter, Inc.



Source: State of Alaska

Arctic Exploration

- Seismic surveys
 - 2006 & 2007 summer
Chukchi/Beaufort
 - Ice hinders surveys – 2006
 - Late start in 2007 (IHA)
- Exploration drilling
Beaufort Sea
 - Shell – Sivulliq, “open water”
 - Lawsuit
 - Floating vessels
 - Past: ice or gravel islands
 - winter
 - Floaters
 - Ice management



Arctic Offshore Development/Production

Past

Northstar (BF)

producing (State/federal)
buried pipeline



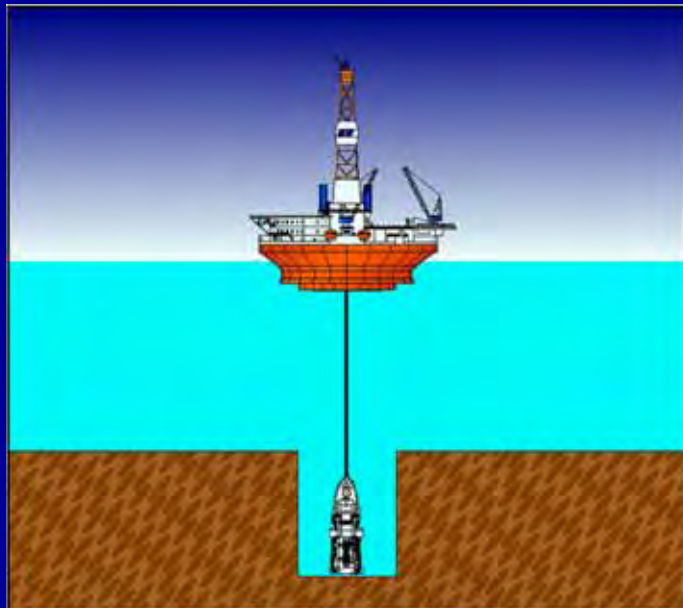
- Near Future

Liberty (BF)

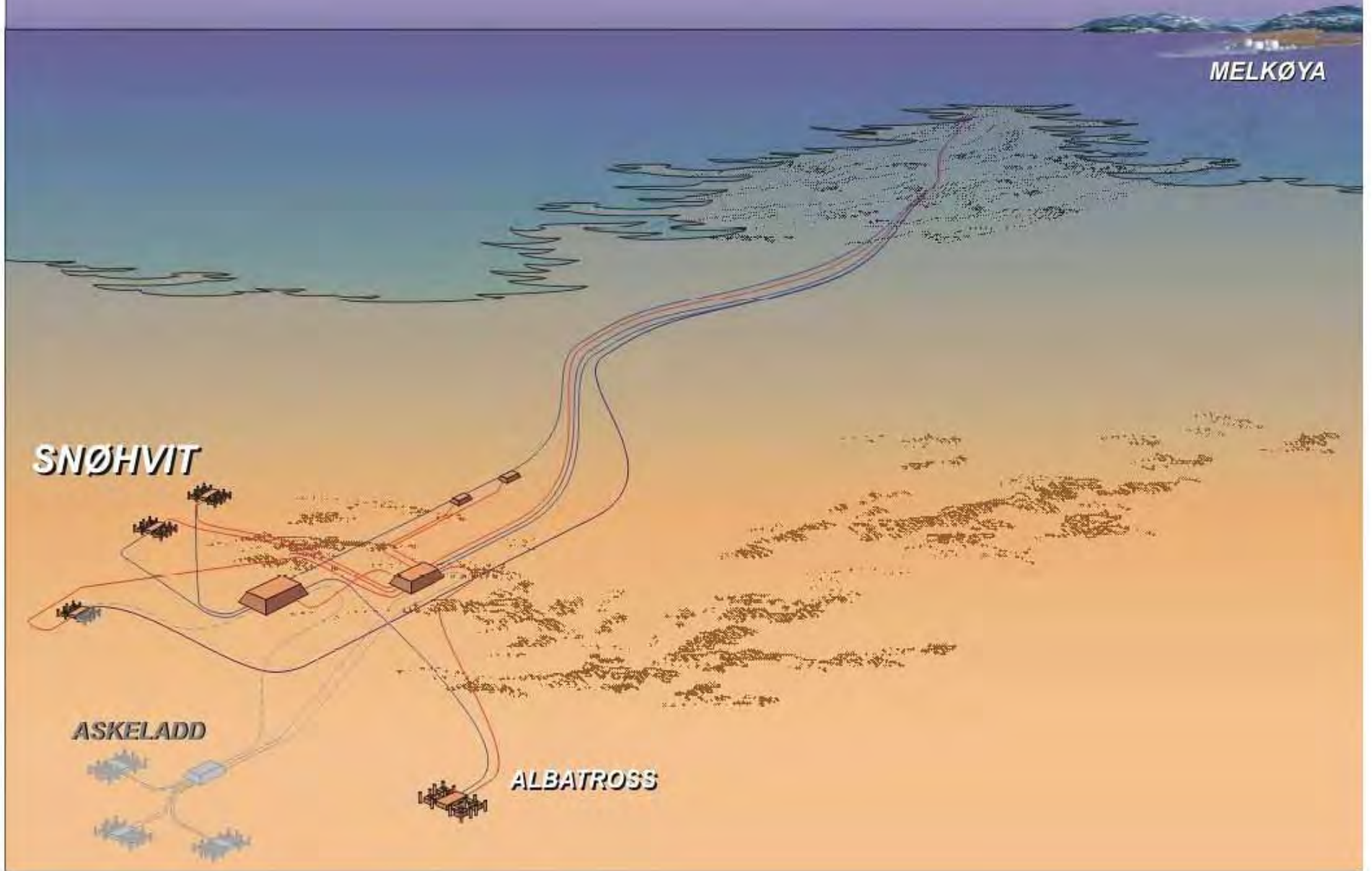
- Development Plan in review
- ultra extended reach

Technology Changes

- Platforms
- Pollution Prevention
- Safety Systems
- Human Factors
- Pipelines



Norway's Barents Sea



Sharing the Shelf

- **The people onshore**
 - Subsistence
 - Overload of projects
 - Cultural Stress
 - Economy
 - New tax base?



Sharing the Shelf

- **Marine fauna**
 - **Protected species**
 - Whales
 - Seals
 - Polar bears
 - Birds
 - **Fish and fisheries**
 - **Noise in the ocean**
 - **Climate change effects**



Sharing the Shelf

- **Coordination - permitting**
 - State of Alaska
 - Boroughs
 - Tribes
 - Villages
- **Federal Agencies**



Sharing the Shelf

- **Opening of the Arctic Ocean**
 - **Shipping**
 - Arctic Marine Shipping Assessment
 - **Other users**
- **Law of the Sea**
 - **Who owns the Arctic Ocean?**
 - **Setting the boundaries**



MMS Research

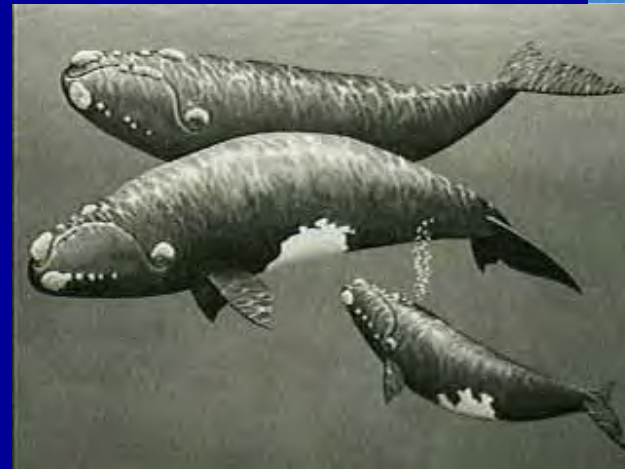
Environmental Studies



Technology Assessment
and Research

Environmental Research Planning

- Physical Oceanography
- Subsistence
- Sociology
- Economics
- Marine Mammals
- Fish
- Birds
- Fate and Effects of Discharges



Partnerships (present and future information sources)

- **ARLIS – Alaska Resources Library and Information Services**

- www.arlis.org



- **Coastal Marine Institute**

- University of Alaska
- <http://www.sfos.uaf.edu/cmi/>



- **AOOS – Alaska Ocean Observing System**

- www.aoos.org



- **NSSI – North Slope Science Initiative**

- www.northslope.org
- DOI, State of Alaska, North Slope Borough, et al



And many more

MMS ALASKA ENVIRONMENTAL STUDIES ONGOING PROGRAM FY 2007

Multidisciplinary

- Continuation of Arctic Nearshore Impact Monitoring in Development Area (cANIMIDA) (Beaufort Sea – Northstar/Liberty areas)
- Chukchi Sea Offshore Monitoring in Drilling Area (COMIDA):
Phase I – Workshop
 - Held November 1 – 3
- North Aleutian Basin Information Status and Research Planning Meeting
 - Held November 28 – 30
- MMS-University of Alaska Fairbanks-State of Alaska Coastal Marine Institute Management
- Beaufort Sea and North Slope Pipeline GIS Database

Protected Species

- Bowhead Feeding Variability in the Western AK Beaufort Sea:
 - A. Satellite Tracking of Bowhead Whales
 - B. Feeding Observations
 - C. Oceanographic Measurements & Analysis
- Aerial Photography of Bowhead Whales to Estimate the Size of the Bering-Chukchi-Beaufort Population
- Monitoring the Distribution of Arctic Whales
- Protocol to Deflect Migrating Bowhead Whales Away from an Oil Spill
- Analysis of Covariance of Human Activities and Sea Ice in Relation to Fall Migration of Bowhead Whales
- Assessing Reproduction and Body Condition of the Ringed Seal Near Sachs Harbour, Northwest Territory, Canada, through a Harvest-based Sampling Program
- King and Common Eider Migrations Past Point Barrow
- Population Structure of Common Eiders Nesting on Coastal Barrier Islands Adjacent to Oil Facilities in the Beaufort Sea
- Premigratory Movements and Physiology of Shorebirds Staging on Beaufort Littoral Zone
- Radio Frequency Identification Tags for Grizzly and Polar Bear Research
- Population and Sources of Recruitment in Polar Bears
- Movements and Habitat Use of Harbor Seals in Cook Inlet
- Distribution and Abundance of Harbor Seals in Cook Inlet

Biology

- Beaufort Sea Marine Fish Monitoring: Pilot Survey and Test of Hypotheses
- Review and Monitoring Ambient Artificial Light Intensity in the OCS and the Potential for Effects on Resident Fauna
- Analysis of Variation in Abundance of Arctic Cisco in the Colville River
- Evaluating a Potential Relict Arctic Invertebrate and Algal Community on the West Side of Cook Inlet
- Foraging Ecology of Common Ravens on Alaska's Coastal Plain and Relationship to O&G Development

Physical Oceanography

- Feasibility and Study Design for Boundary Oceanography of the Beaufort Sea
- Beaufort Sea Mesoscale Meteorology
- Mapping Sea Ice Overflow Using Remote Sensing from Smith Bay to Camden Bay
- Idealized Process Model Studies of Circulation in the Landfast Ice Zone of the Alaskan Beaufort Sea.
- Synthesis and Collection of Meteorological Data in the Nearshore Beaufort Sea: Extension
- Alaska Sea Ice Atlas
- Physical Measurements and Seasonal Boundary Conditions in Cook Inlet, Alaska
- Water and Ice Dynamics in Cook Inlet
- High-Resolution Numerical Modeling of Near-Surface Weather Conditions over Alaska's Cook Inlet and Shelikof Strait
- Simulation of Landfast Sea Ice Along the Alaska Coast
- Beaufort Sea Nearshore Currents
- Sea Ice Modeling for Nearshore Beaufort and Chukchi Seas
- Surface Circulation Radar Mapping in Alaskan Coastal Waters: Field Study Beaufort Sea and Cook Inlet
- Exchange Between Elson Lagoon & the Nearshore Beaufort Sea & Its Role in the Aggregation of Zooplankton

Fate and Effects

- Assessment of the Direction and Rate of Alongshore Transport of Sand and Gravel In Petroleum Development Region of the North Slope of Alaska
- Empirical Weathering Properties of Oil in Snow and Ice
- Updates to the Fault Tree Approach to Oil Spill Occurrence Estimators for the Beaufort and Chukchi Sea
- Sea-Ice-Ocean-Oilspill Modeling System (SIOMS) for the Nearshore Beaufort and Chukchi Seas:Improvement & Parameterization (Phase II)
- Synthesis of Time Interval changes in Trace Metals & Hydrocarbons in Nearshore Sediments of the AK Beaufort Sea: A Statistical Analysis

Social and Economic

- Researching Technical Dialogue with Alaskan Coastal Communities: Analysis of the Social, Cultural, Linguistic, and Institutional
- Parameters of Public/Agency Communication Patterns
- Quantitative Description of Potential Impacts of OCS Activities on Bowhead Whale Hunting and Subsistence Activities in the Beaufort Sea
- Subsistence Mapping of Nuiqsut, Kaktovik and Barrow: Past and Present Comparison
- Publication of a Book/Synthesis on the Socioeconomic Effects of Oil & Gas Industry Activity on the Alaskan OCS
- Social and Economic Assessment of Major Oil Spill Litigation Settlement for the Alaska OCS Region
- Study of Sharing Networks to Access the Vulnerabilities of Local Communities to O&G Development Impacts in Arctic Alaska

Chukchi Sea Planned Studies

COMIDA

- Distribution and Relative Abundance of Marine Mammals
- Chemical and Hydrocarbon Monitoring
- Impact Monitoring of Offshore Subsistence Hunting
- Benthic Monitoring

North Aleutian Basin (Bristol Bay)

Ongoing/Planned studies

Ongoing/In Procurement

- Right Whales
 - MMS-NMFS, started this summer
- Oceanographic Circulation modeling

Studies Proposed for FY 2008

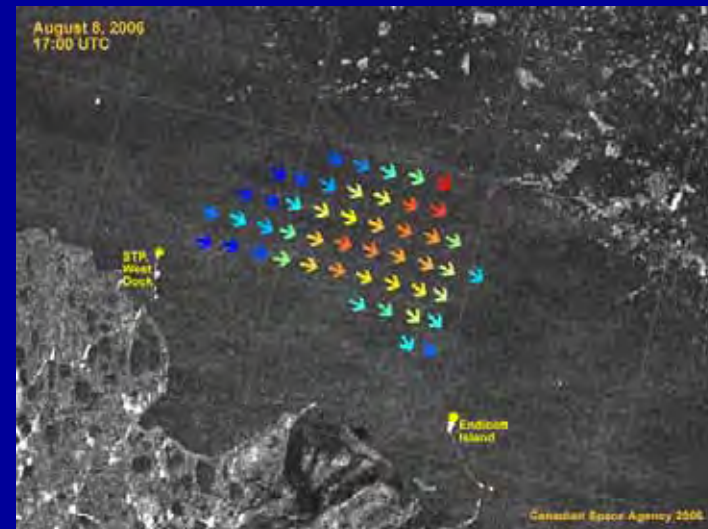
- Subsistence Study for North Aleutian Basin, Phase I
- Juvenile and Maturing Salmon Use of the North Aleutian Basin Lease Area
- Spatial and Temporal Mapping of Nearshore Juvenile Fish and Settling Crab

NAB – Background Fisheries and Subsistence

- Commercial, recreational, and subsistence fisheries
- Bering Sea supports the world's largest food-fishery.
- Most commercial fish species in the Bering Sea pass through or near the Sale area and substantial portions of harvest are taken there.
- Dutch Harbor processes a peak of 70 million lbs per week - 1/2 total US annual catch and is the largest seafood port in the world.

Environmental Studies-Ongoing about Sea Ice

- Mapping over-flooding of the landfast ice zone.
 - Mapping surface currents in the Beaufort Sea.
- www.salmonproject.org

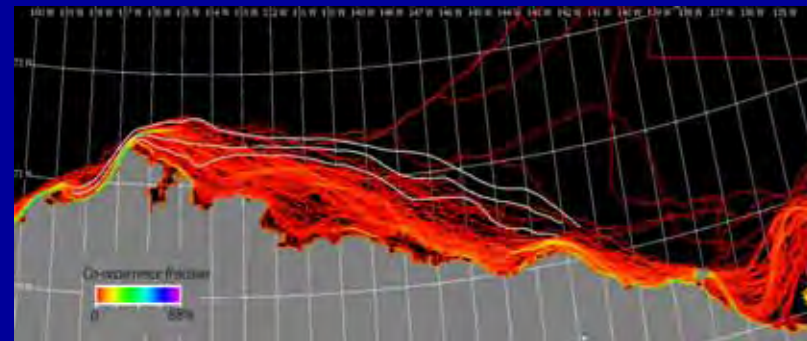
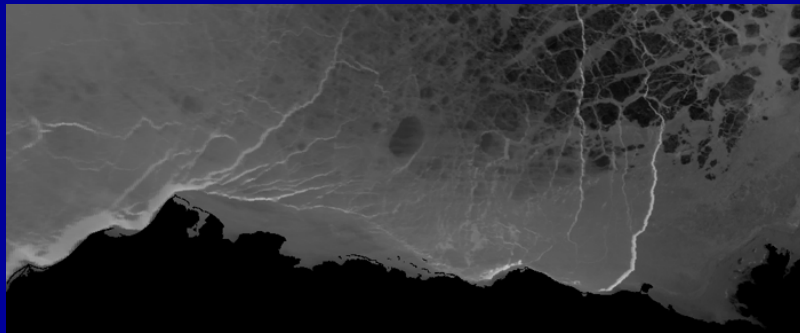


Recent Environmental Studies-Completed

Mapping Ice Conditions in the Beaufort and Chukchi Seas

Lead systems dynamics

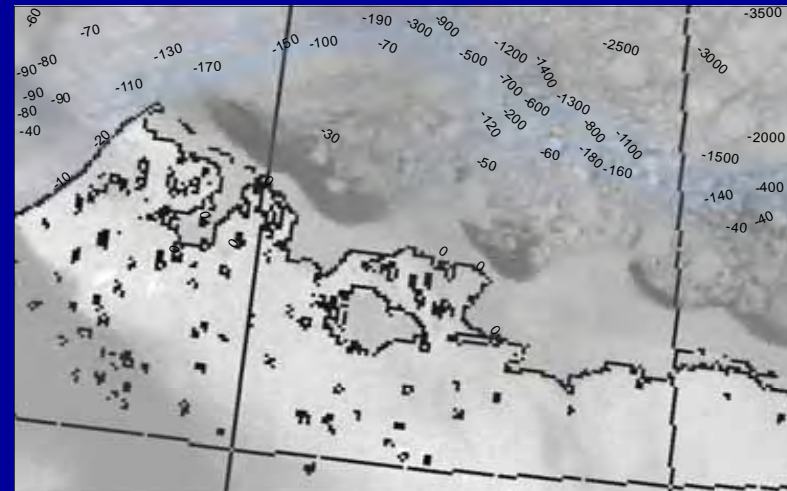
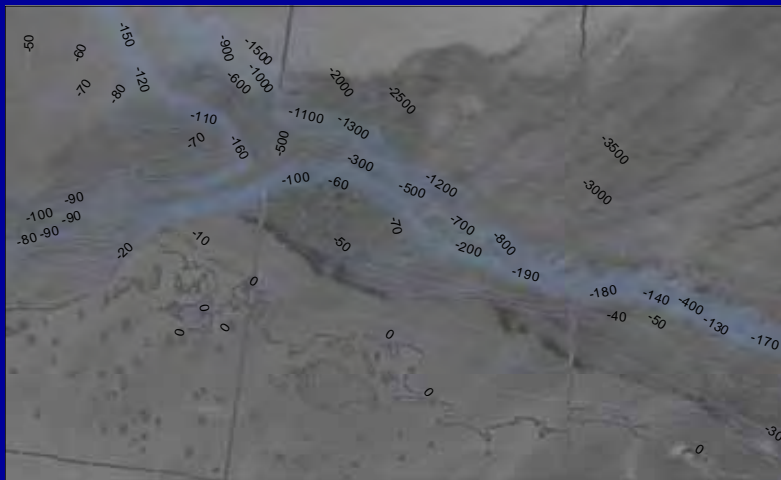
Landfast Ice



Before

Mid-Winter Break-Out Events of the Landfast Ice

After



Technology Assessment and Research Program

- Safety and Engineering
- Oil Spill Research



Arctic Offshore Technology Assessment of Exploration and Production Options for Cold Regions of the US Outer Continental Shelf

Objective:

- Conduct a technology assessment for US OCS oil and gas operations in cold regions
- to determine what may be technically feasible in ice-covered and open water conditions.



Sea Spray Icing of Drilling and Production Platforms

Objective: to develop methods for quantifying the occurrence and severity of sea spray icing on oil exploration and drill rigs in the Chukchi and Beaufort Seas.

- By May 2008, algorithms will provide the ability to process weather data to determine sea spray icing severity on offshore structures



U.S. Army Cold Regions Research
and Engineering Laboratory



*Excellence
in Research, Development, and Engineering
Worldwide*

Assessment of Superstructure Ice Protection As Applied to Offshore Oil Operations Safety

Objective: to assess potential methods for improving safety on drilling and production vessels and platforms operating in the Chukchi and Beaufort Seas and experiencing superstructure icing by May 2008.

- Identify ice protection technologies and evaluate their effectiveness for enhancing operational safety.
- Assess the potential safety improvements following application of these technologies to operations in the marine icing environment.
- Identify research needs and make recommendations for development of new technologies icing.



Design Options for Offshore Pipelines in the US Beaufort and Chukchi Seas

Objective: to provide design options for Pipelines with Arctic hazards such as strudel scour, upheaval buckling, and ice gouging

- Design options include evaluation of pipeline configuration, material selection, design parameters, operating conditions, application of strain-based and design methods.
- Design issues include construction, operations, integrity management, maintenance and intervention.

C-CORE

Seabed Scour and Buried-Pipeline Deformation due to Ice Ridges

Objective: to study factors affecting soil and pipeline deformation below scouring ice ridges in the Arctic



Oil Spill Research and Exercises

MMS OHMSETT Facility



International Oil in Ice Workshop 2007

Objective: To discuss recent advances in the cleanup of oil spills in ice and cold climates and to guide future R&D in areas of common interest

Registration is now open through WWW.SLROSS.COM

- October 10-12 -- Marriott Hotel in Anchorage, AK



- **Workshop funders**
 - Minerals Management Service
 - Alaska Clean Seas
 - Alaska Department of Environmental Conservation
 - Cook Inlet Spill Prevention and Response
 - Prince William Sound Oil Spill Recovery Institute
 - U.S. Coast Guard.

Planning Support for an Experimental Oil Spill in Pack Ice

Objective: plan an experimental oil spill in pack ice offshore Eastern Canada in 2007/2008 to test current technology

- Partnering with the Department of Fisheries and Oceans Canada - Center for Offshore Oil and Gas Environmental Research and the Canadian Coast Guard.



Detection of Oil on and Under Ice

Objective: to assess the technical feasibility and cost of developing and incorporating airborne oil detection systems in future field trials with oil and ice.



Co-funded by

MMS,

Alaska Clean Seas

Alaska Department of Environmental
Conservation



<http://www.mms.gov/>

MMS Minerals Management Service U.S. Department of the Interior

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Current Events

MMS Starts Preparation of New 5-Year OCS Leasing Program

The MMS solicited input from interested and affected parties as part of the process for preparing a new 5-year outer continental shelf oil and gas leasing program for 2002-2007. A notice in the *Federal Register* requested comments and suggestions for preparing the new program as well as information on issues and alternatives that should be addressed in the accompanying environmental impact statement. The comments received have been posted on this web site.

New Study Now Available

The Minerals Management Service (MMS), Gulf of Mexico OCS Region, announces the availability of a new study report, *Meteorology of the Northwestern Gulf of Mexico: Data from 1995 to 1997, Final Report*. This study resulted in a meteorological database of the Northwestern Gulf of Mexico (NREGOM) that may serve as a "handbook" by planners or by analysts preparing initial assessment of conditions associated with routine or accidental events.

Industry Awards Ceremony

Some of the best in the oil and gas industry will be honored April 4, 2001 at the Minerals Management Service annual *Industry Awards Ceremony* in Houston, Texas. Recipients of the 2000 Corporate Leadership Award will be recognized for performing an act or service that enhanced the MMS mission objectives.

35 States Receive Record \$900 Million

MMS Highlights

FIRST GOV
Your First Step to the U.S. Government

<http://www.mms.gov/alaska/>

MMS Minerals Management Service U.S. Department of the Interior

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Guest Book

Welcome!

Welcome to the Alaska Outer Continental Shelf (OCS) Region of the Minerals Management Service (MMS). MMS is a bureau of the Department of the Interior. Our mission is to manage the mineral resources of the Outer Continental Shelf in an environmentally sound and safe manner.

If this is your first visit to the Alaska Region web, be sure to check out the Regional Director's Update and the Navigation Tips pages. If you have any suggestions for improvements or were unable to locate the information you were searching for, be sure to sign our Guest Book and let us know what you would like to see.

MMS issues draft Environmental Impact Statement for the proposed Liberty Development Project in the Beaufort Sea, Alaska. For the full text of the draft EIS and related documents [click here](#).

FIRST GOV
Your First Step to the U.S. Government

Questions?
Need More Information?
Please Write:
[Write Alaska Public Information](#)