

**CLIMATE CHANGE,  
NATIONAL SECURITY, AND  
THE QUADRENNIAL  
DEFENSE REVIEW:  
AVOIDING THE PERFECT  
STORM**

*We make a difference...*

*one student at a time*

*John T. Ackerman, PhD*

*Air Command and Staff College*



# OVERVIEW



*Develop America's Airmen Today ... for Tomorrow*



- **Introduction x2**
- **The Threat x2**
- **Operationalizing the Strategy x2**
- **DoD Changes**
  - **Reshaping the Defense Enterprise**
  - **Developing the Total Force**
  - **Achieving Unity of Effort**
- **Bottom Line**



# INTRODUCTION - QDR



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- **Current threats:**
  - Dispersed, global terrorist networks
  - Radical theocratic tyranny
- **Fundamental Changes to DoD:**
  - Reorient capabilities/forces for agility, asymmetric challenges, uncertainty
  - Enterprise-wide changes to structures, processes, procedures
- **Emphasis:**
  - Reform, irregular warfare, building partnership, strategic comm, intell
- **Priorities:**
  - Defeat terrorist networks
  - Defend the homeland
  - Shape choices of allies and enemies
  - Prevent hostile states/non-states actors from acquiring WMD



# THE THREAT - QDR



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- Terrorism:
  - Afghanistan, Iraq, and globally
  - Weak or Failing States
- The “Long War”
  - Lessons learned:
    - Build partnership capacity
    - Use indirect approach and enabling others
    - Craft early anticipatory measures
    - Improve unity of effort
    - Expect uncertainty and unpredictability



# OPERATIONALIZING THE THREAT



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- Traditional Threats:
  - Force-on-force, head-to-head
- Irregular Threats:
  - Unconventional methods - terrorism, insurgency, guerilla warfare
- Disruptive Threats:
  - Negate traditional US advantages
- Catastrophic Threats:
  - Use of WMD or WMD-like weapons



# OPERATIONALIZING THE THREAT



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## Post-9/11 Security Challenges

### Irregular

Non-state and state actors employing "unconventional" methods to counter stronger state opponents; terrorism insurgency, etc.

### Catastrophic

Terrorist or rogue state employment of WMD or methods producing WMD-like effects against U.S. interests

### Traditional

States employing military forces in well-known forms of military competition and conflict

### Disruptive

Competitors employing technology or methods that might counter or cancel our current military advantages

VULNERABILITY

Lower

Higher

LIKELIHOOD

Lower

## Capability Focus Areas

*Options for President*

- Defeat terrorist networks
- Defend homeland in depth
- Prevent acquisition or use of WMD

*Capabilities for COCOMs*

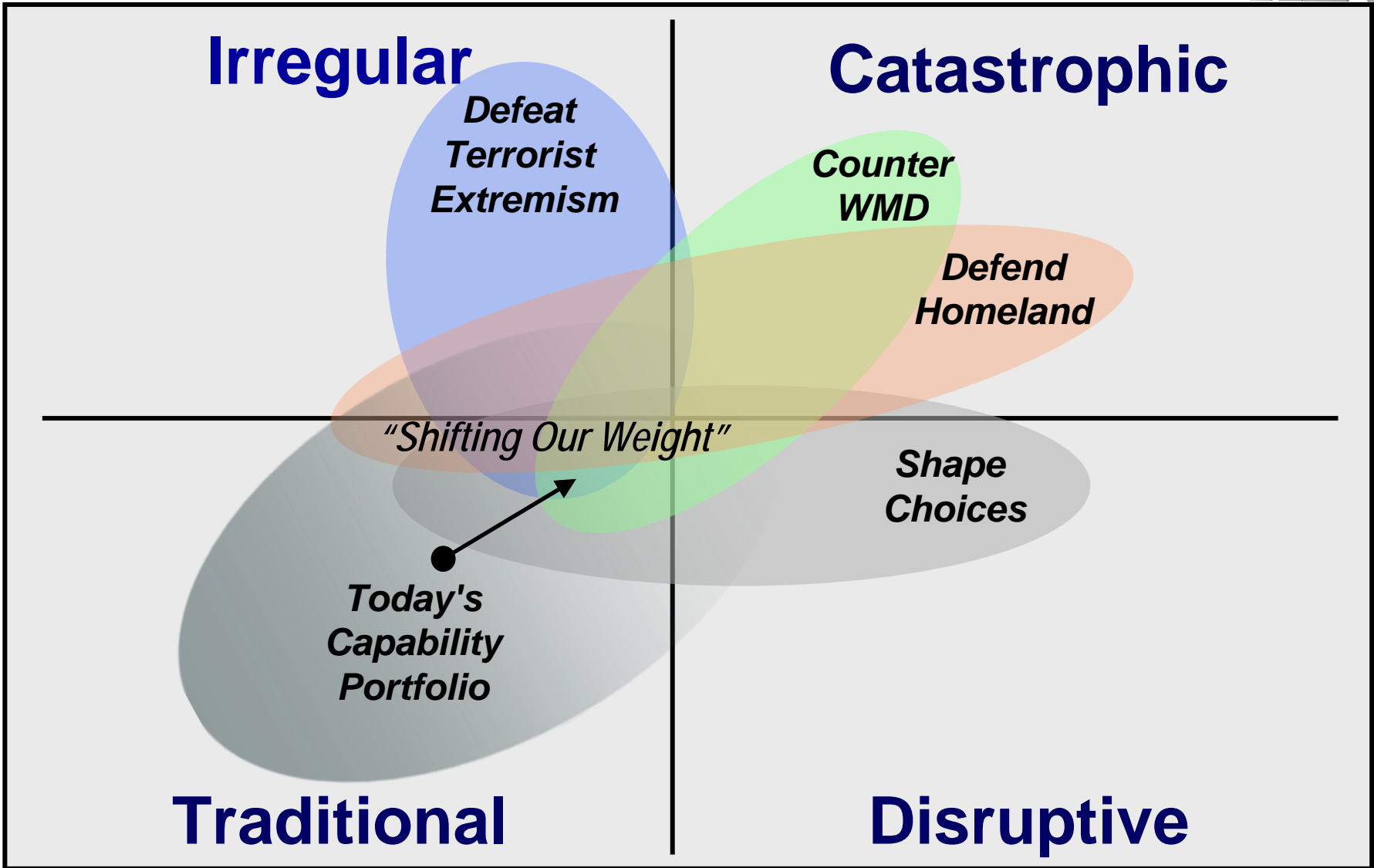
- Shape choices of countries at strategic crossroads  
*(Assure, Dissuade, Deter, Defeat)*



# CURRENT CHALLENGES - QDR



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# INTRODUCTION - SS



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- New Emerging Threats:
  - Dispersed and global
  - Possible abrupt, non-linear, synergistic changes
- Fundamental Changes to DoD:
  - Reorient capabilities and forces
    - Increased agility to counter asymmetric threats/uncertainty
  - Enterprise changes toward sustainability
- Emphasis:
  - Reform, irregular warfare, building partnership, strategic communication, intelligence
- Priority: From WoT to Sustainable Security





# THE THREAT - SS



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- **GLOBAL CLIMATE CHANGE:**
  - Human Activities are Driving Warming
    - “Very High Confidence” (IPCC 2007)
  - Immediate Causes: Greenhouse Gas (GHG) Emissions
    - Burning fossil fuels – oil, gas, and coal
    - Land use change – deforestation
  - Immediate Effects:
    - Warmer days, fewer cold nights (Virtually Certain)
    - More frequent hot days and nights (VC)
    - More frequent heat waves (Very Likely)
    - Increased heavy precipitation events (VL)
    - Increased intensity/length of droughts (Likely)
    - More intense tropical storms (L)
    - Sea level rise (L) (IPCC 2007)



# OPERATIONALIZING THE THREAT



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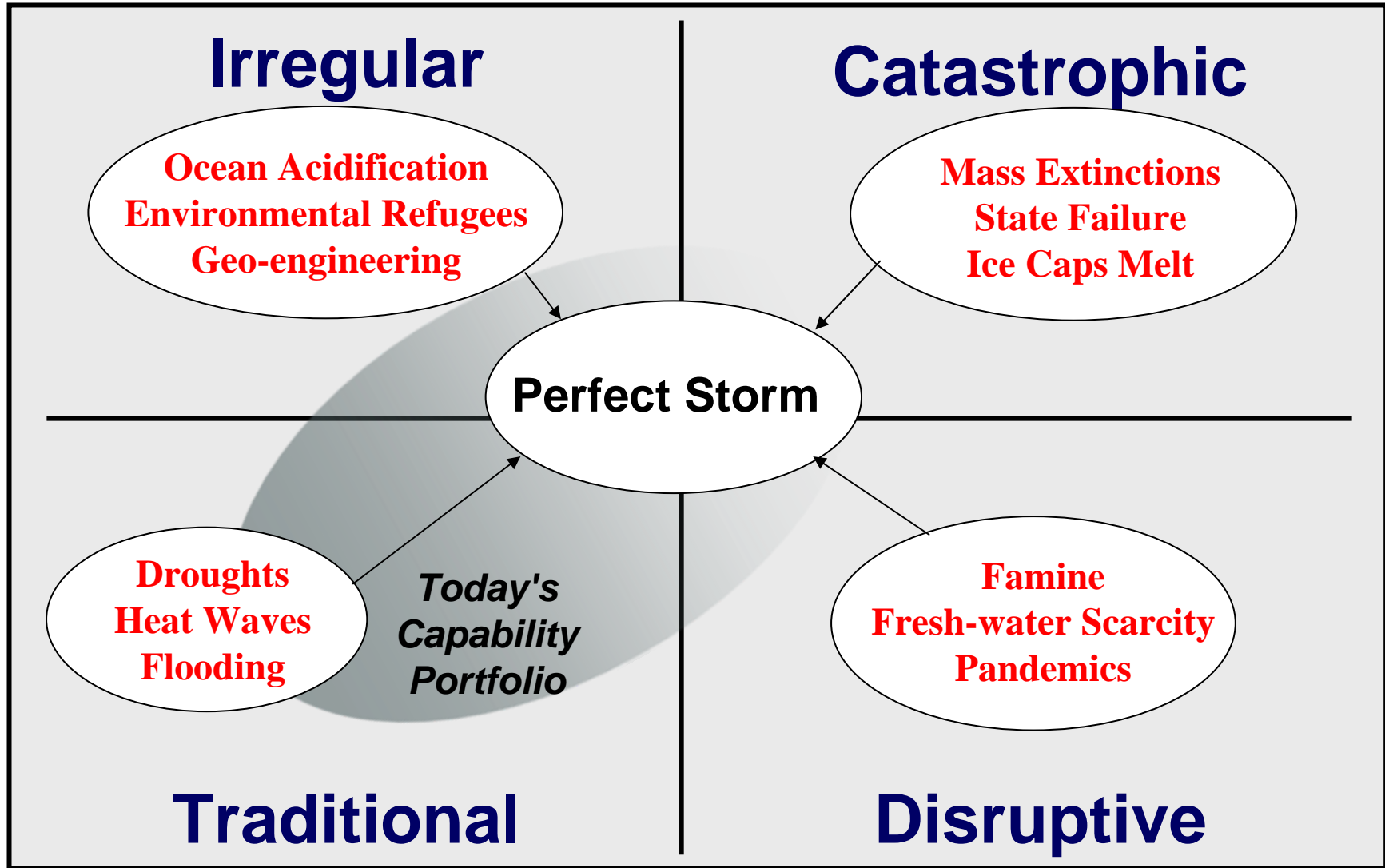
- Traditional Threats:
  - Droughts, floods, and heat waves
- Irregular Threats:
  - Ocean acidification, environmental refugees, geo-engineering
- Disruptive Threats:
  - Famine, fresh-water scarcity, pandemics
- Catastrophic Threats:
  - Ice caps melt, state failure, mass extinctions
- Synergistic Possibilities = Perfect Storm:
  - Multiple threats converge at one time



# CLIMATE CHANGE CHALLENGES



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# DoD CHANGES



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- Reshaping the Defense Enterprise
- Developing the Total Force
- Achieving Unity of Effort



# RESHAPING THE DEFENSE ENTERPRISE



*Develop America's Airmen Today ... for Tomorrow*



- Reforms and Research:
  - Implement ecological accounting
  - Create sustainable markets
  - Learn to resolve equity disputes
    - Recognize unequal responsibilities, vulnerabilities, and capabilities
  - Understand how to make democracy work for everyone
  - Work with not against international organizations
  - Focus on interrelationships between social, political, economic, and environmental security



# RESHAPING THE DEFENSE ENTERPRISE



*Develop America's Airmen Today ... for Tomorrow*



- Efficiency/Conservation:
  - Buildings, vehicles, production, distribution, consumption
- Targeted Research and Investment:
  - Renewables
  - Long-life products, cradle-to-cradle
  - Climate-friendly, emerging technologies
- Emission Market:
  - Cap and trade fairly
- Emission Tax:
  - Pollution, waste, and energy
- DoD sets the example!
  - Comprehensive DoD Climate Action Plan



# DEVELOPING TOTAL FORCE



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- Reconfigure the Total Force
- Build the right skills
- Design an information age human capital strategy



# SUSTAINABLE SECURITY SKILL SETS



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## Guiding Principles

**Mitigate what we can; adapt to those we cannot**

- Adaptation (to adjust oneself to different conditions):
  - Understand the effects
    - Nature, extent, timing
  - Understand underlying factors
    - State capacity, resiliency, capabilities
- Mitigation (to make less severe):
  - Requires acknowledging climate change primarily caused by GHG emissions
  - Research ecosystem effects
  - Requires comprehensive policies to reduce emissions (IPCC)





# TRADITIONAL CHALLENGES



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- **Droughts, floods, heat waves:**
  - Current State:
    - US can respond adequately to domestic events.
    - US less capable of responding to concurrent international events.
  - End State:
    - US is undisputed leader of efforts to mitigate or adapt to heat and water related challenges.
    - US leads efforts to build state capacity and resiliency.
    - US responses improve international opinion.



# IRREGULAR CHALLENGES



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- **Ocean acidification, environmental refugees, geo-engineering problems:**
  - **Current State:**
    - US and international community lack understanding of unconventional threats from or responses to climate change.
    - US lacks strategy to confront distributed, unconventional events.
  - **End State:**
    - US leads efforts to prevent secondary and tertiary effects from climate change responses.
    - US leads efforts to moderate or adjust to unforeseen climatic or environmental disasters.



# DISRUPTIVE CHALLENGES



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- **Famines, fresh-water scarcity, pandemics:**
  - Current State:
    - Developed states possess advantages in national health, food, and water systems.
    - Developing states have many disadvantages.
  - End State:
    - US leads development of sustainable, equitable ecological, technological, or social hedges against potential health, food, or water system failures.
    - US leads efforts to balance unequal responsibilities, vulnerabilities, and capacities of health, food, and water systems.



# CATASTROPHIC CHALLENGES



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- **State failure, mass extinctions, ice caps melt:**
  - Current State:
    - All states are vulnerable to catastrophic elements of global climate change, weak states are most vulnerable.
  - End State:
    - WMD-like climate change-induced events prevented.
    - US helps states build human and natural capital to sustainably mitigate or adapt to catastrophic systemic shocks.
    - US and allies intervene multilaterally when absolutely necessary to prevent state collapse.



# ACHIEVING UNITY OF EFFORT



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- Strengthening Interagency Operations
- Working with International Allies and Partners
- Strategic Communication = Leadership
- Create Sustainable Security



# ACHIEVING UNITY OF EFFORT



*Develop America's Airmen Today ... for Tomorrow*



- Environmental Security (UNEP, EPA, DoS, DoD):
  - Recognize human/nature holistic relationships
- Ecological Economics (WTO, DoT, DoS, DoD):
  - Adhere to finite limits, smaller resource base
- Social/Environmental Equity (UN, DoS, DoJ, DoD):
  - Differential responsibilities, vulnerabilities, and capabilities
- Democracy (UN, EU, DoS, DoD):
  - Accountability, effectiveness, and equity
- Economic Interdependence (UN, WTO, DoS, DoD):
  - Global sustainable free-trade
- International Organizations (UNEP, WWF, IPCC, DoD):
  - Global security/climate/environmental regimes
  - Intergovernmental Organizations and Non-Governmental Organizations



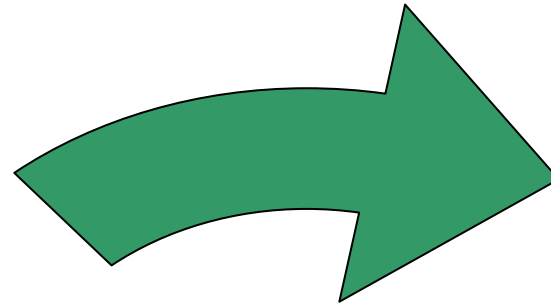
# BOTTOM LINE



*Develop America's Airmen Today ... for Tomorrow*

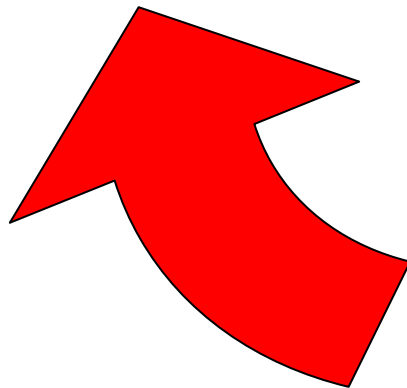


International organizations provide the functional apparatus for implementing fair, ecologically sound agreements

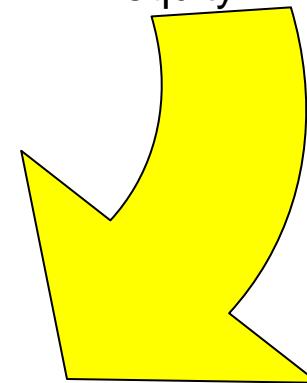


Sustainable security is provided by the interactions of the three "greened" pillars

Democratic governments support and defend social, political, economic, and environmental equity



Ecological economics provide the fiscal foundation for equitable, sustainable, economic interdependence





# SUMMARY



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# *The Intellectual and Leadership Center of the Air Force*

*We Make A Difference ...*



*One Student at a Time*

*One Faculty Member at a Time*

*One Idea at a Time*



# The Emerging Arctic

A New Maritime Frontier

Presented by RADM Gene Brooks to the National Defense University

# Agenda

- The Changing Arctic Frontier
- Strategic Challenges & Drivers
- The Arctic Conundrum



# Summer Sea Ice Retreat

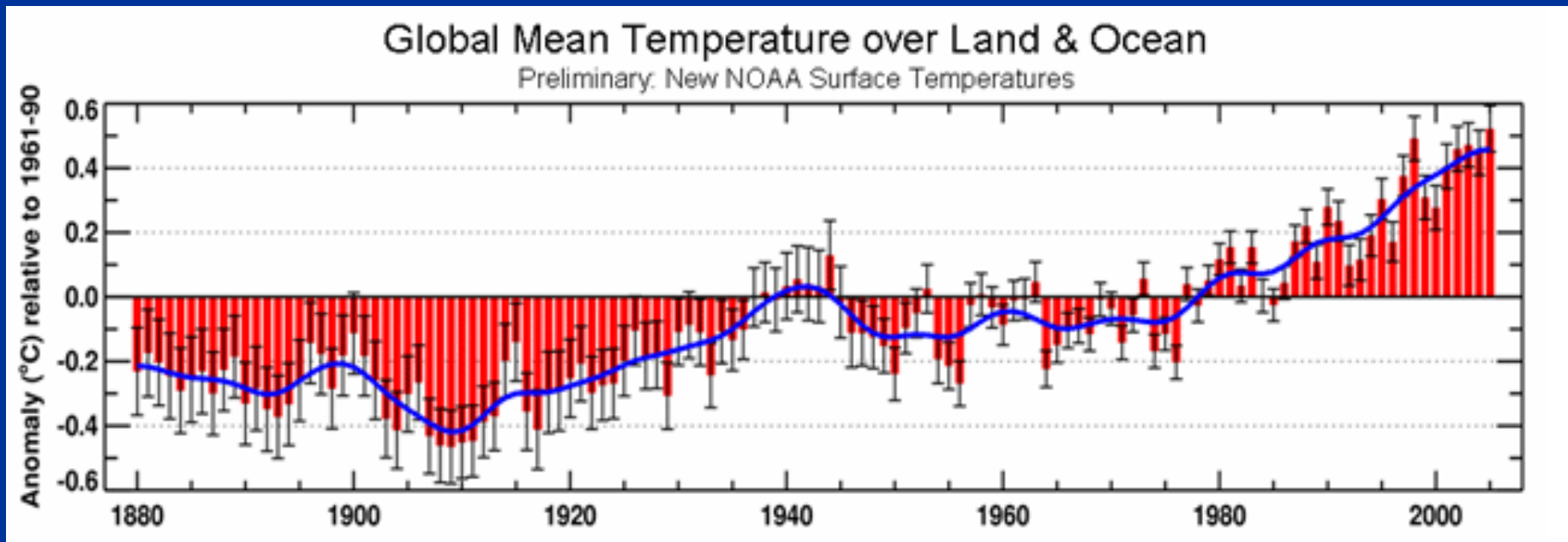
Barrow 



2007



# Deviations from Average Global Temperature



**NOTE:** The timeframe begins at 1880, since most climatologists agree that by 1880 there was enough continuous data from enough stations scattered across the globe to accurately depict a world wide average. The blue line is a weighted average and is designed to show decadal trends



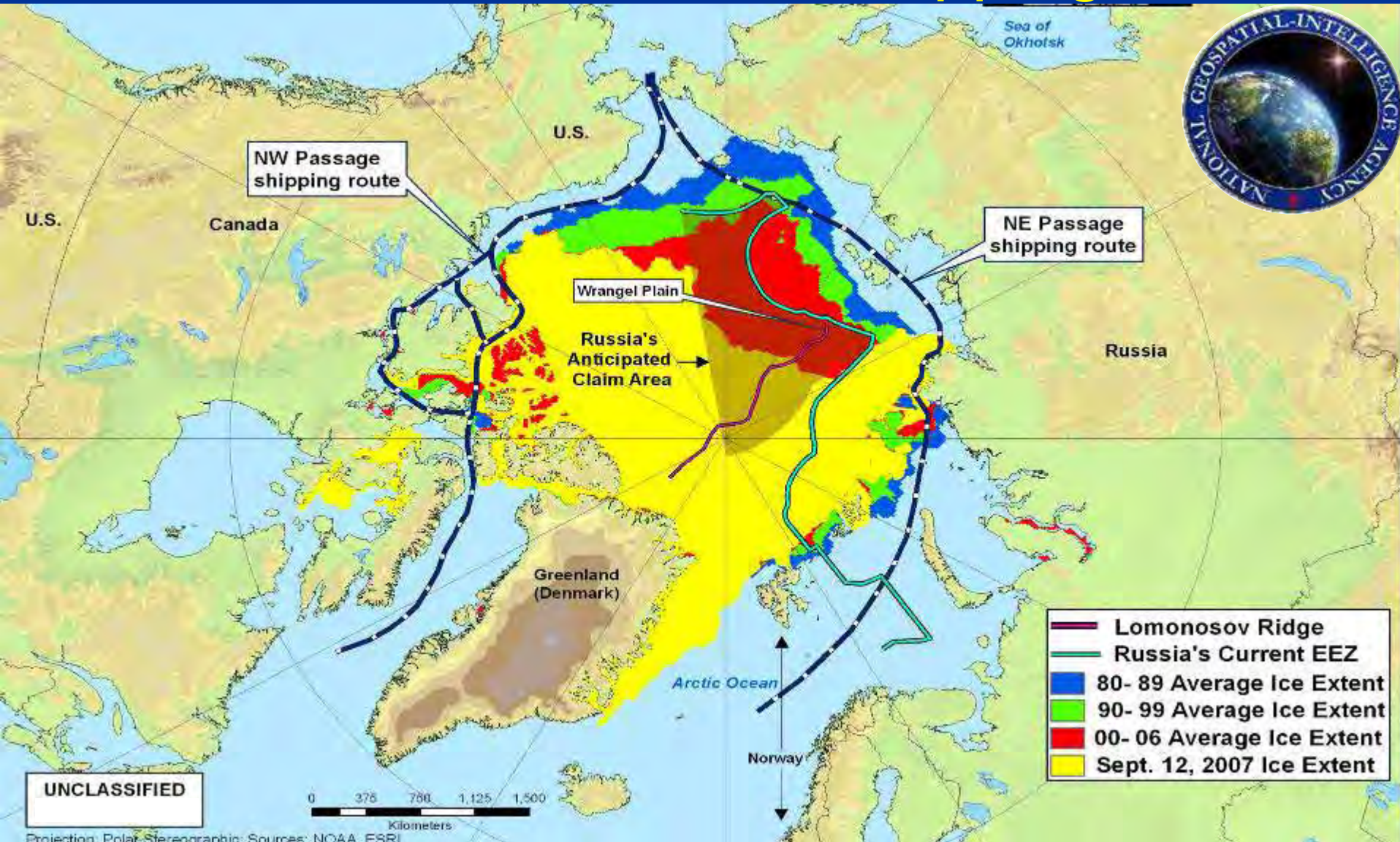


# Sovereign Rights and Jurisdiction



- 1) North Pole
- 2) Lomonosov Ridge
- 3) 200 nautical mile line
- 4) Russian-claimed ECS
- 5) EEZ & CS Dispute

# Future Maritime Arctic – Shipping Routes



UNCLASSIFIED



# Maritime Traffic Management

An aerial satellite image of a coastal region, likely the Bering Sea or Chukchi Sea area, showing a large body of water with a narrow strait or channel. The land is visible on the right side, with a mix of green and brown terrain. The water is dark blue, and the strait is a lighter blue-green color.

- Discuss process for establishing ship routing measures
  - Lengthy process, ultimately approved by International Maritime Organization
    - Port Access Routing Study (PARS)
    - Interagency Clearance Process
    - US/Russia Negotiations
    - IMO Approval

# Economic/Energy Security

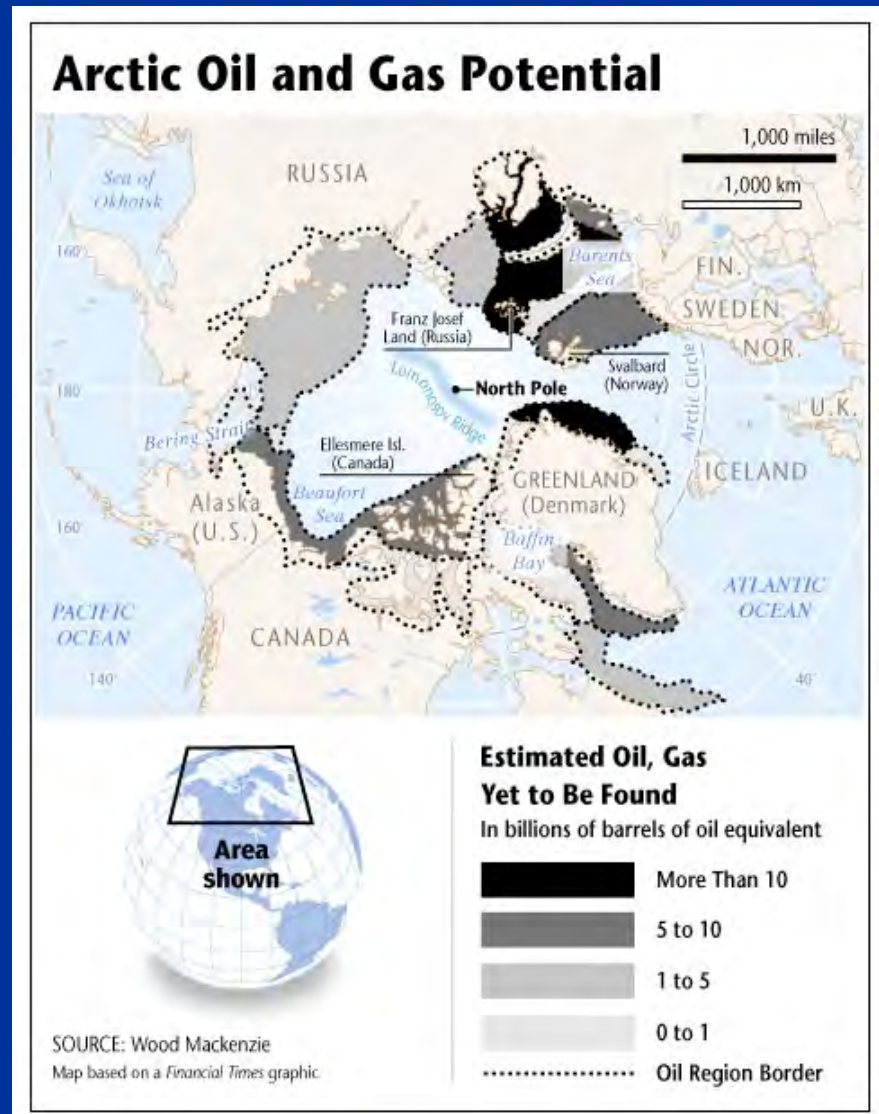
At Least \$1 Trillion

## Hydrocarbons (Oil & Gas)

- Estimated 10 Billion Barrels
- 750,000 sq km sediment > 1 km

## Manganese Nodules & Crusts

- Manganese nodules
  - 182 million tons
  - Highest concentration
  - Highest grades
- Copper: 9 million tons
- Nickel: 12 million tons
- Cobalt: 5,000 tons

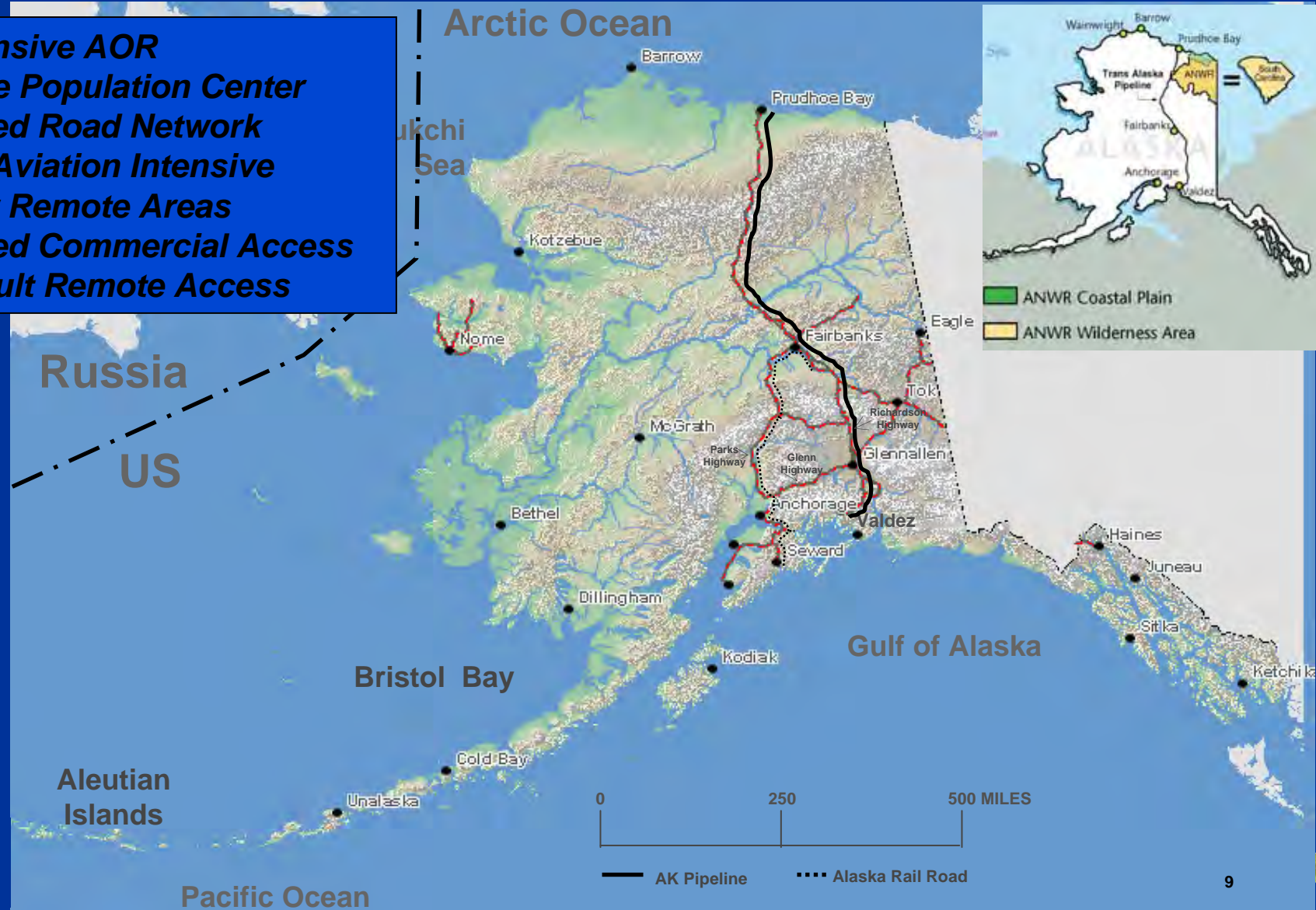


Homeland  
Security



# Theater Infrastructure

- ✓ *Expansive AOR*
- ✓ *Single Population Center*
- ✓ *Limited Road Network*
- ✓ *Civil Aviation Intensive*
- ✓ *Major Remote Areas*
- ✓ *Limited Commercial Access*
- ✓ *Difficult Remote Access*



# Coastal Erosion

Loss of protection from Fall storms



**Kivalina**



**Shishmaref**

# Seasonal Ore Operations



# Growing Eco-Tourism

## M/S Explorer

- Nov 2007: 154 people abandon a cruiseliner that struck an iceberg and sank in the Antarctic



Ice Station Borneo





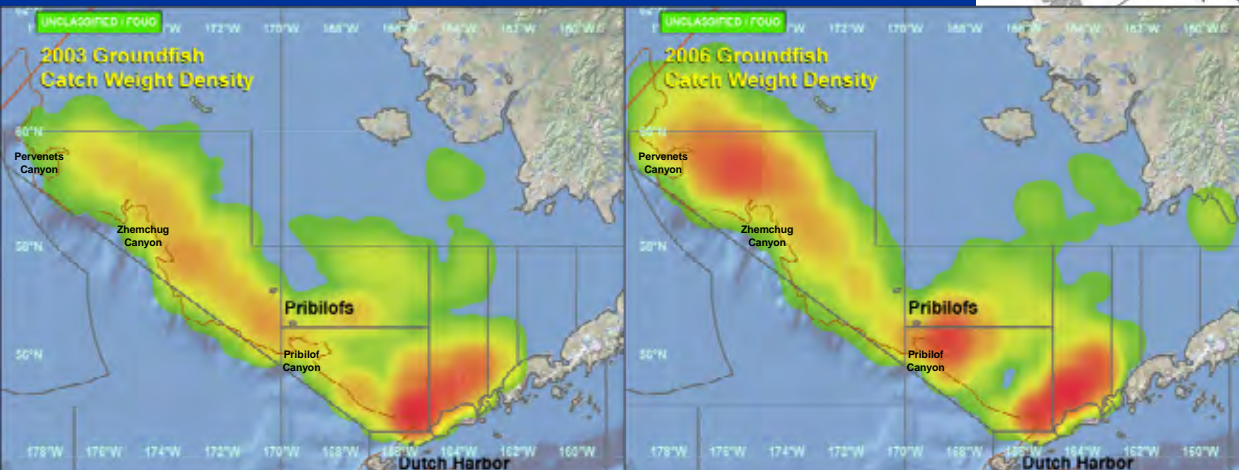
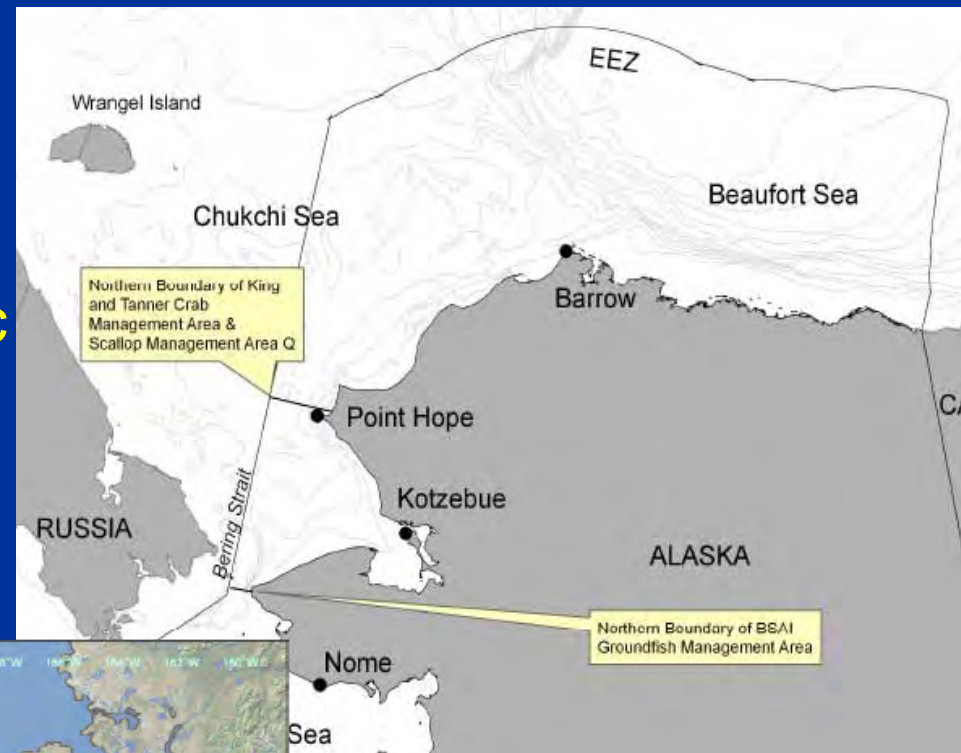
# Expanding Resource Extraction

- Increased offshore development
  - Oil companies bid nearly \$2.7 billion for Chukchi Sea rights.
  - \$1.3 billion plan to tap Point Thomson on North Slope
- Legal issues pending in 9<sup>th</sup> Circuit Court of Appeals



# Species Movement North

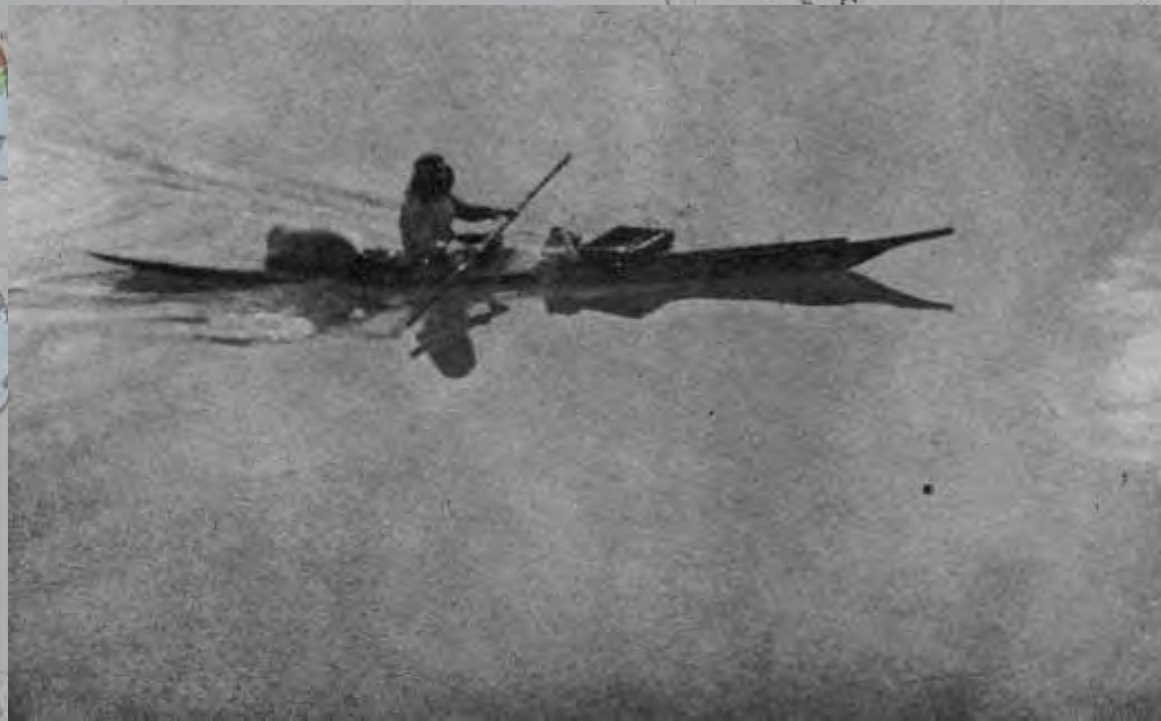
- Stocks are moving North
- No commercial fishing in Arctic
  - Awaiting NPFMC decision
  - Potential large closed area enforcement challenges



**NPFMC – North Pacific  
Fishery  
Management  
Council**

# Alaska Native and Tribal Engagement

- Alaska has 229 of the 562 Federally Recognized Tribes
  - Executive Order 13175 – Mandates Consultation and Coordination with Tribal Governments
  - 13 Native Regional and 200 Village Corporations
  - Coordination with City, Borough, State
  - Subsistence and Climate
- 
- Alaska Eskimo Whaling Commission
  - Eskimo Walrus Commission
  - Nanuk Commission

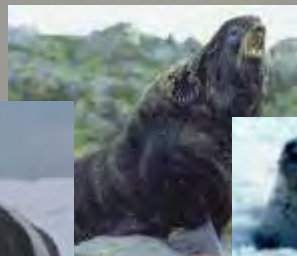


# Threatened and Endangered Species

- Marine Mammal Protection Act - prohibits harassment, injuring, or killing
- Most populations are healthy.
  - Politically charged 'climate canaries'
- Legal issues pending in 9<sup>th</sup> Circuit Court of Appeals



**Bowhead whale**

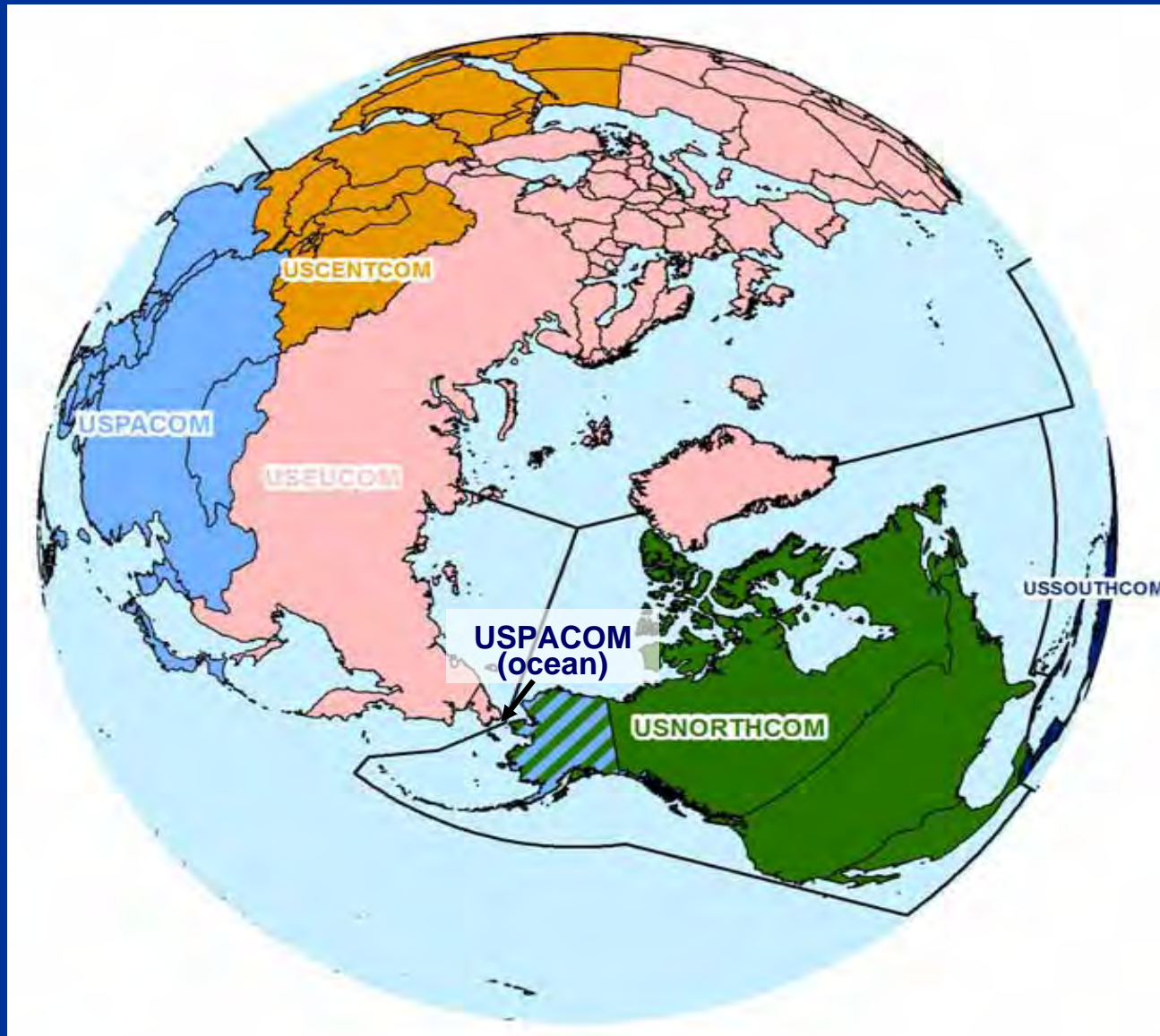


**Seals**



**Walrus**

# US Arctic COCOMS



# Arctic Changes Drive Coast Guard Mission Expansion North

All Coast Guard missions in Southern Alaska must be expanded to Northern Alaska



# Summary

A large cargo ship with a red hull and black upper sections is sailing on a blue sea. The ship is viewed from an elevated angle, moving towards the right. It leaves a white wake behind it. The ship has several masts and antennas on its deck.

- The Arctic is upon us
- Arctic boundaries must be determined
- Balance development & the environment
- All Federal, State & local agencies must prepare for seasonal ops in the Arctic

# Questions?





# Sustainable Shipping in Northern Waters

Jim Calvesbert



*“Unfrozen Treasures – National Security, Climate Change and the Arctic Frontier”*

*National Defense University, Washington DC – May 13-14, 2008*



# Canadian Arctic

**25 communities**  
**Population (2006) –**  
**Approx. 30,000**

**Geographic Area :**  
**2,093,000 Sq Km –**  
**about 20% of Canada**

**Ocean Coastline:**  
**104,000 Km**  
**43% of Canada;**



# **Arctic Shipping Impact Assessment Scoping Study**

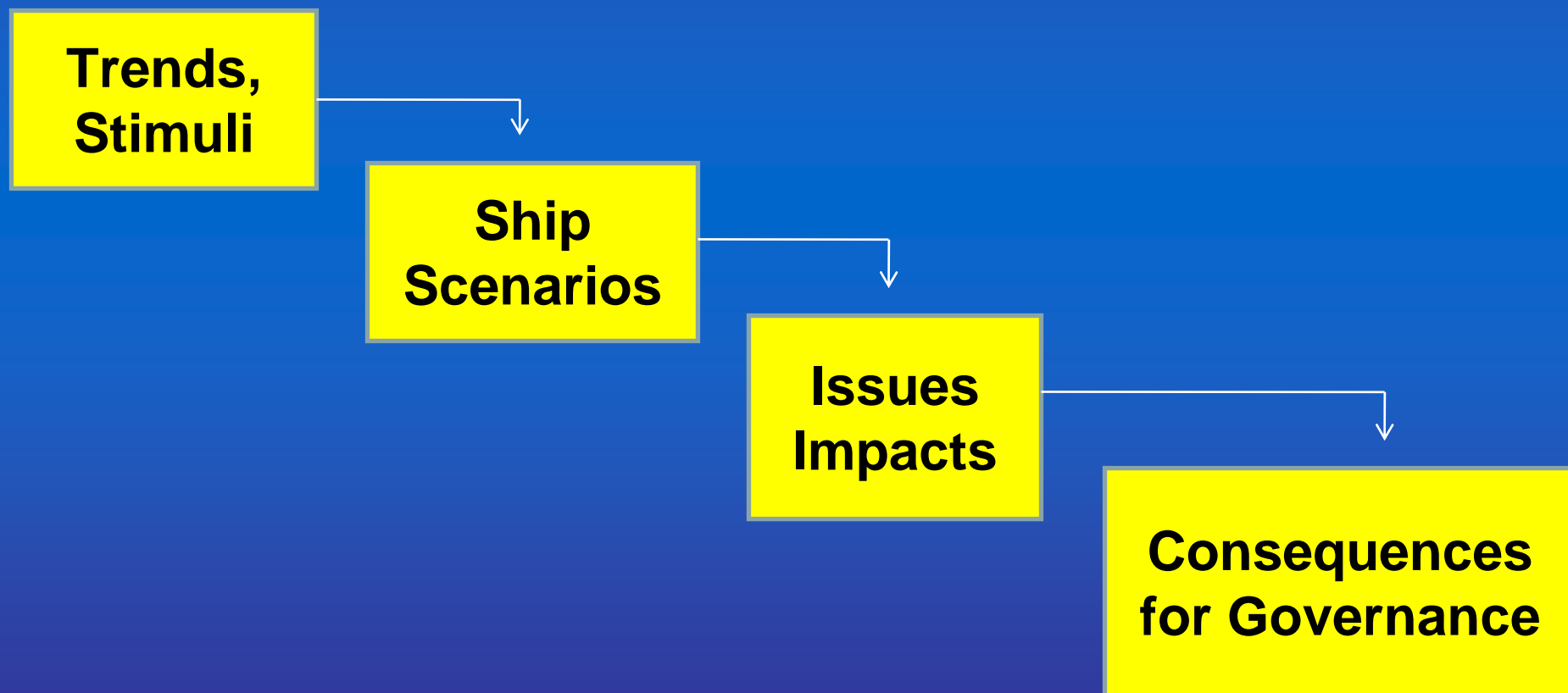
**Marine Affairs Program  
Dalhousie University  
Halifax, NS**

**J.R.F. (Dick) Hodgson**

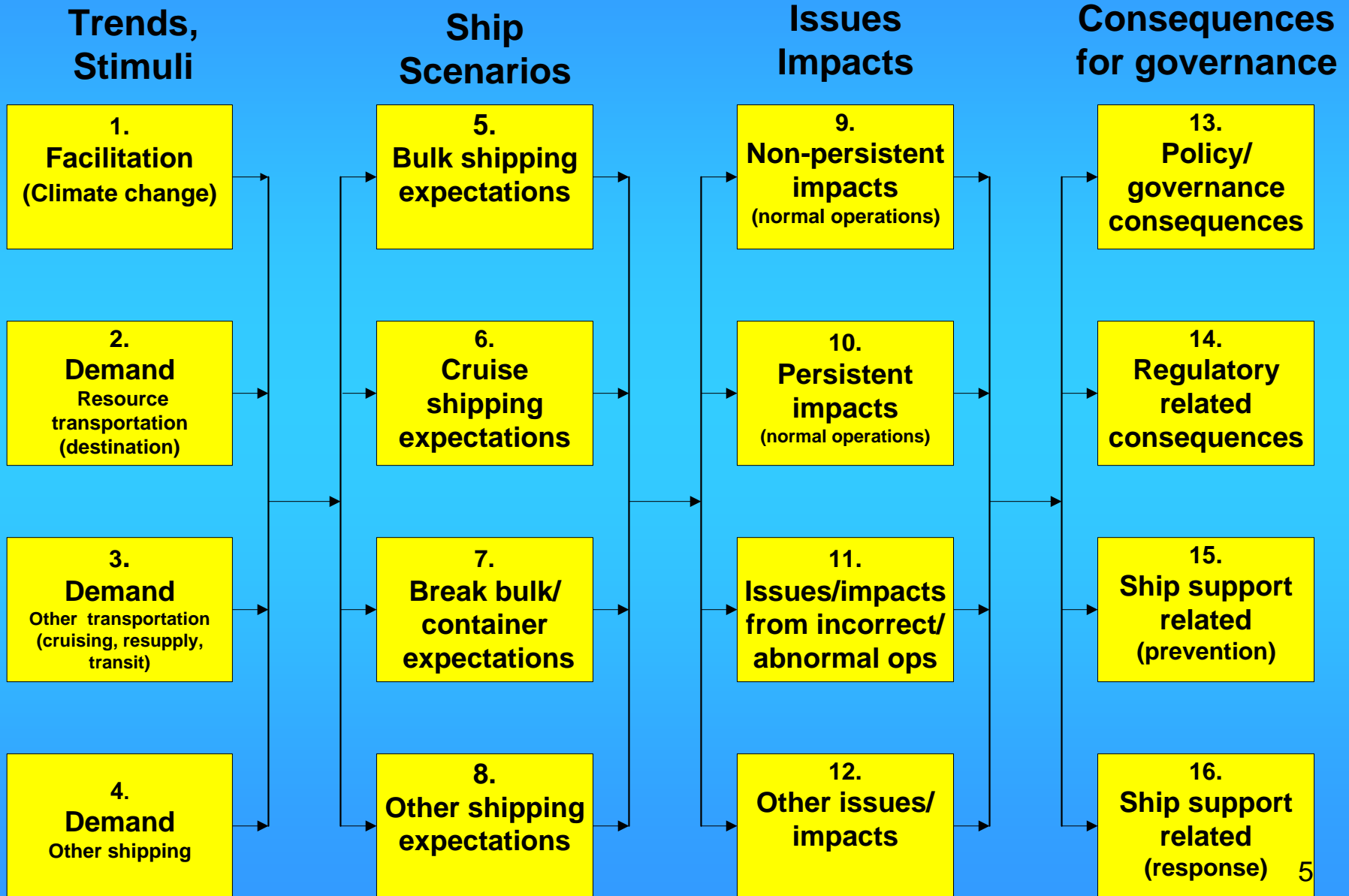
**J.G. (Jim) Calvesbert**

**Marina Winterbottom**

# Arctic Shipping Impact Assessment Logic Flow Chart

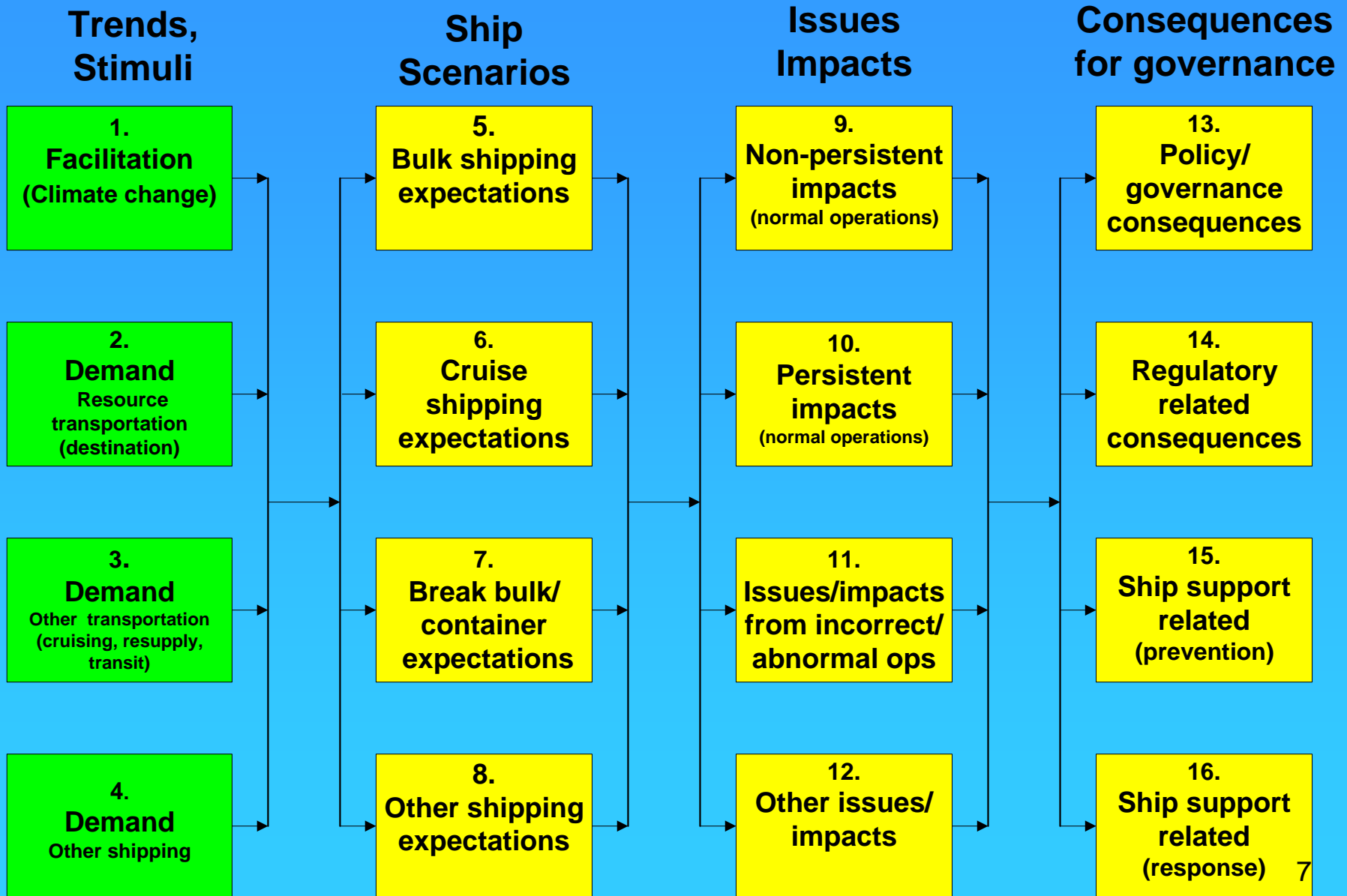


# Arctic Shipping Impact Assessment - Logic Flow Chart



# TRENDS, STIMULI

# Arctic Shipping Impact Assessment - Logic Flow Chart



# 1. Facilitation (Climate Change)

- Currently viewed as the principal stimulus
- Not quite as simple as ice changing to water
  - Regional differences NSR vs NWP
  - Shifting ice patterns, less predictability
  - Seasonal variability
  - Year to year variability
- Navigationally not as appealing as it seems at first



## 2. Demand (Resource transportation)

- The principal driver
- But not huge amounts of development yet
- Minerals
  - Mary River (Baffin Island) – high grade iron ore,
  - High lake (Coronation Gulf) – copper/zinc/gold/silver
  - Beaufort Sea – oil and gas
- First two using ships (see later), the last, pipeline
- Otherwise, lots of potential, but not much action.

# 2. Demand (Resource transportation - continued)



Potential Deep Water Harbours (Future Development)	
▲	Coronation Gulf - Grays Bay – High Lake/ULU – Gold, Silver, Copper, Zinc
▲	Birdport Inlet – High Arctic Gas – Oil
▲	Miline Inlet or Steensby Inlet – Mary River Iron Ore
▲	Hall Beach – Roche Bay Iron Ore Project
▲	Strand Fiord – Coal Project
▲	Seven: Commercial Fishing Projects (SCH)

### **3. Demand (Other marine transportation – cruising, resupply, transit)**

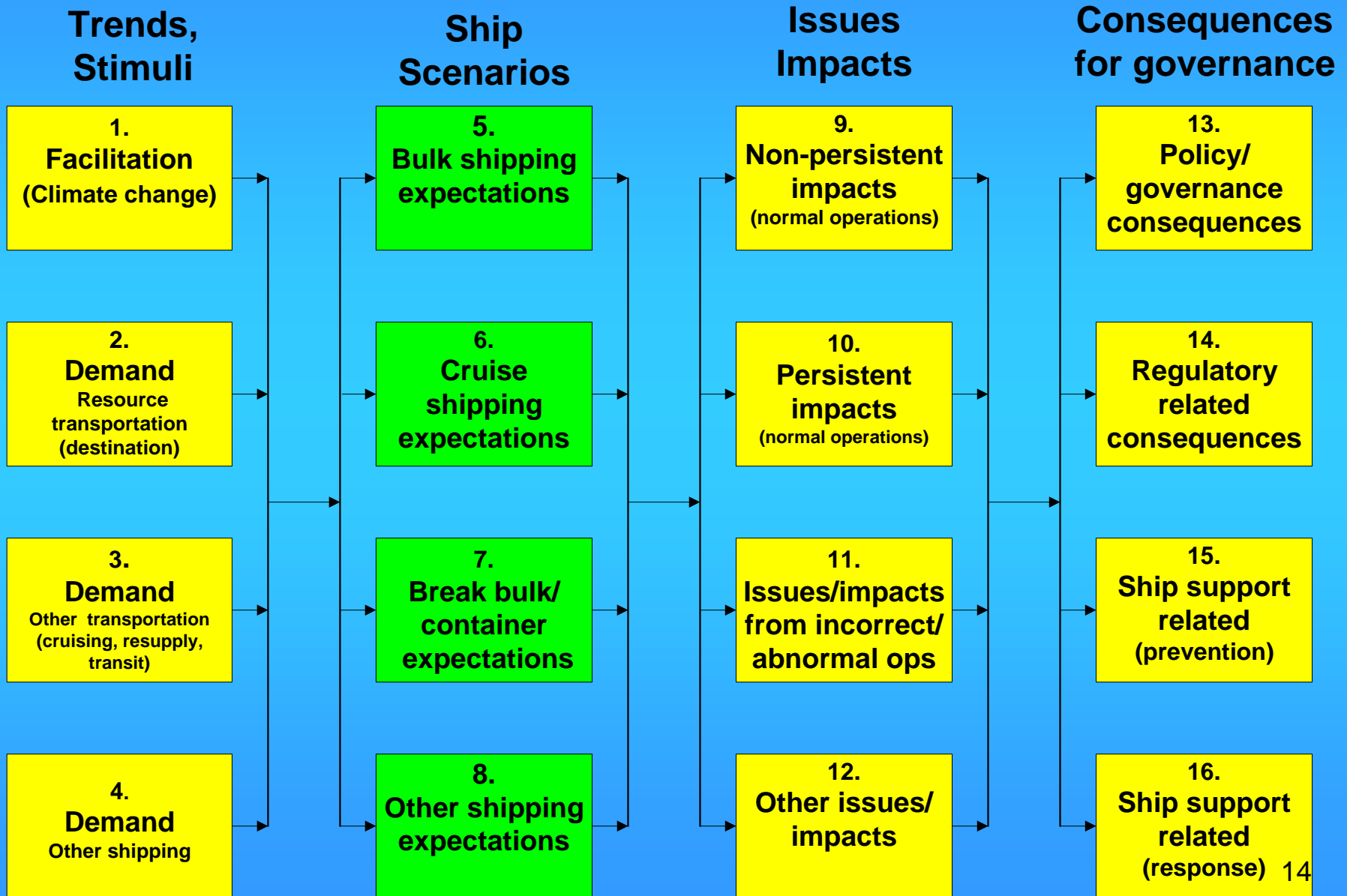
- **Cruising demand**– expected to grow slowly, but unpredictably
- **Resupply demand** – expected to grow as populations expand
- **Transit demand**– nothing expected in the immediate future
  - Includes east/west movements, trans-Arctic movements

# Demand (Other activities)

- Fisheries' potential
- Activities related to offshore exploration, development, production

# SHIP SCENARIOS

# Arctic Shipping Impact Assessment - Logic Flow Chart



# 5. Bulk shipping expectations

- Includes liquid, dry bulk
- Mary River – eight ore carriers, 135k dwt, Polar class 4 operating year round (commencing 2011-2014)
- High Lake – 50k dwt ore carriers (no other details, number, ice class etc. (commencing 2010))
- Presently no oil or gas projects using ships for transportation of resources

# 6. Cruise shipping expectations

- Seasonal operation
- Slowly increasing activity expected
- No clear pattern or trends
- Limited marketing by Inuit interests
- More difficult to offer interest c.f. Antarctic
- No clearly established routes, destinations
- Since preference is to use foreign flag need to involve a foreign port. Hence long transit distances, requiring additional time, expense.



# 7. Break bulk/container shipping expectations

## Resupply:

- Seasonal operation
- Principally associated with resupply activity
- Cabotage movements, hence Canadian operated
- Comparatively old, outdated vessels – need replacement
- But difficult to compete with new modern vessel

## Transit traffic

- Principal focus of debate has been on the potential for trans-Arctic container operations
- No expectation of containerships through the NWP any time soon.

# Other shipping expectations

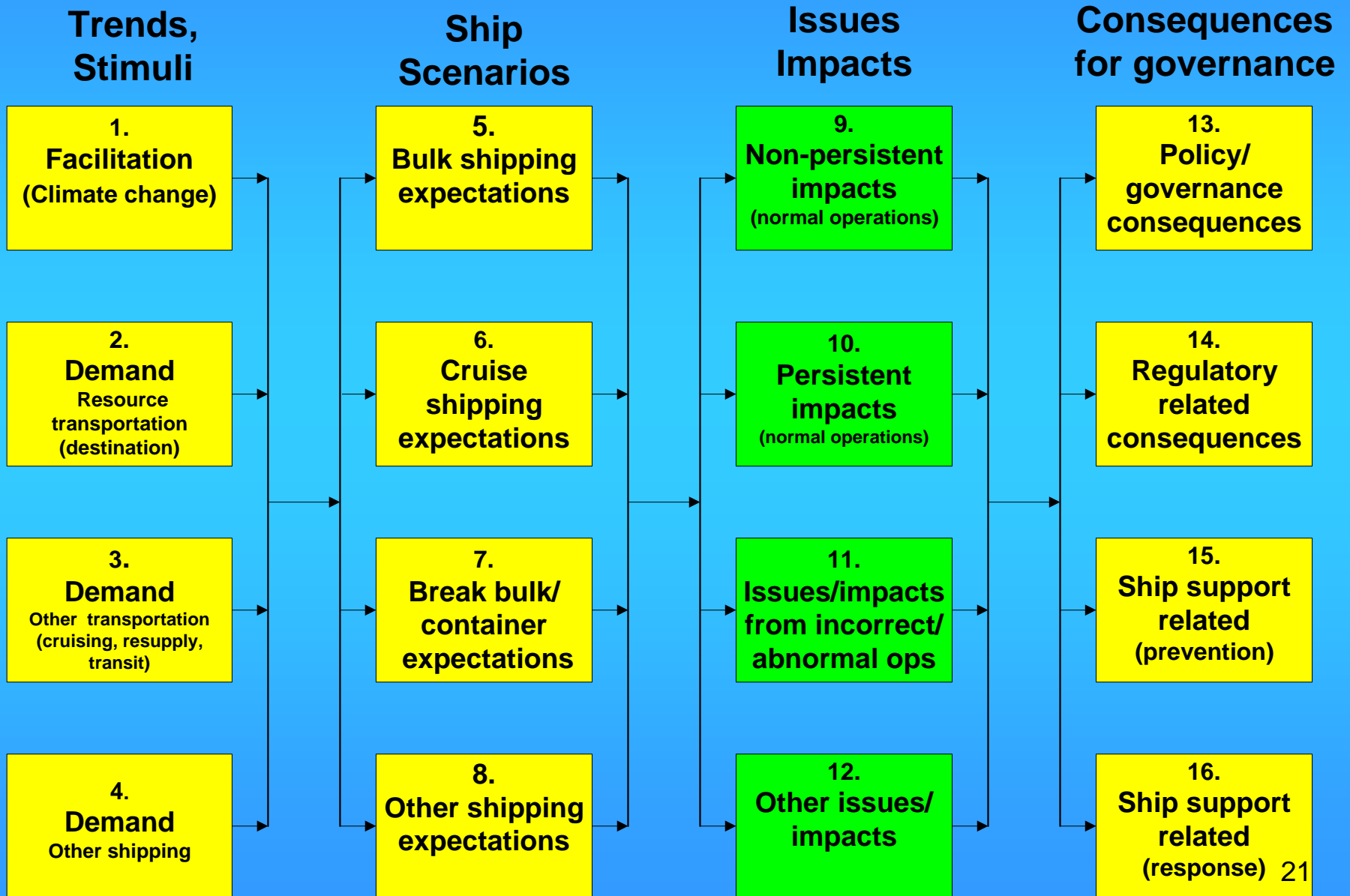
- Shipping activities in support of exploration/exploitation of :
  - Fishing, other renewable resources
  - Non-renewable resources, (including seismic)
- Primary impacts related more to the consequences of exploitation

# Conclusions on ship scenarios

- Present projected activity really quite limited and undefined
- Then overall impact may be viewed as the impacts/risks arising from a single ship extrapolated to include the total number of ships operating at any given time (when eventually known)

# ISSUES, IMPACTS

# Arctic Shipping Impact Assessment - Logic Flow Chart



## 9. Non-persistent impacts (normal operations)

- Engine noise
- Engine cooling water discharge
- Propeller noise, propeller action
- Icebreaking noise
- Ships wash

# 10. Persistent impacts (normal operations)

- Engine exhaust emissions
- Open channels through ice

# 11. Issues/impacts from incorrect/abnormal operations

- Untreated/unexchanged ballast water
- Introduction of alien species via hull-fouling
- Environmental damage from illegal anti-fouling coatings (e.g. TBT)
- Oily water discharges
- Sewage discharges
- Garbage discharges
- Grey water discharges
- Incidents involving dischargers of cargo
  - Liquid – oil, LNG, bunker spills etc
  - Dry – dry HNS, nuclear, etc.



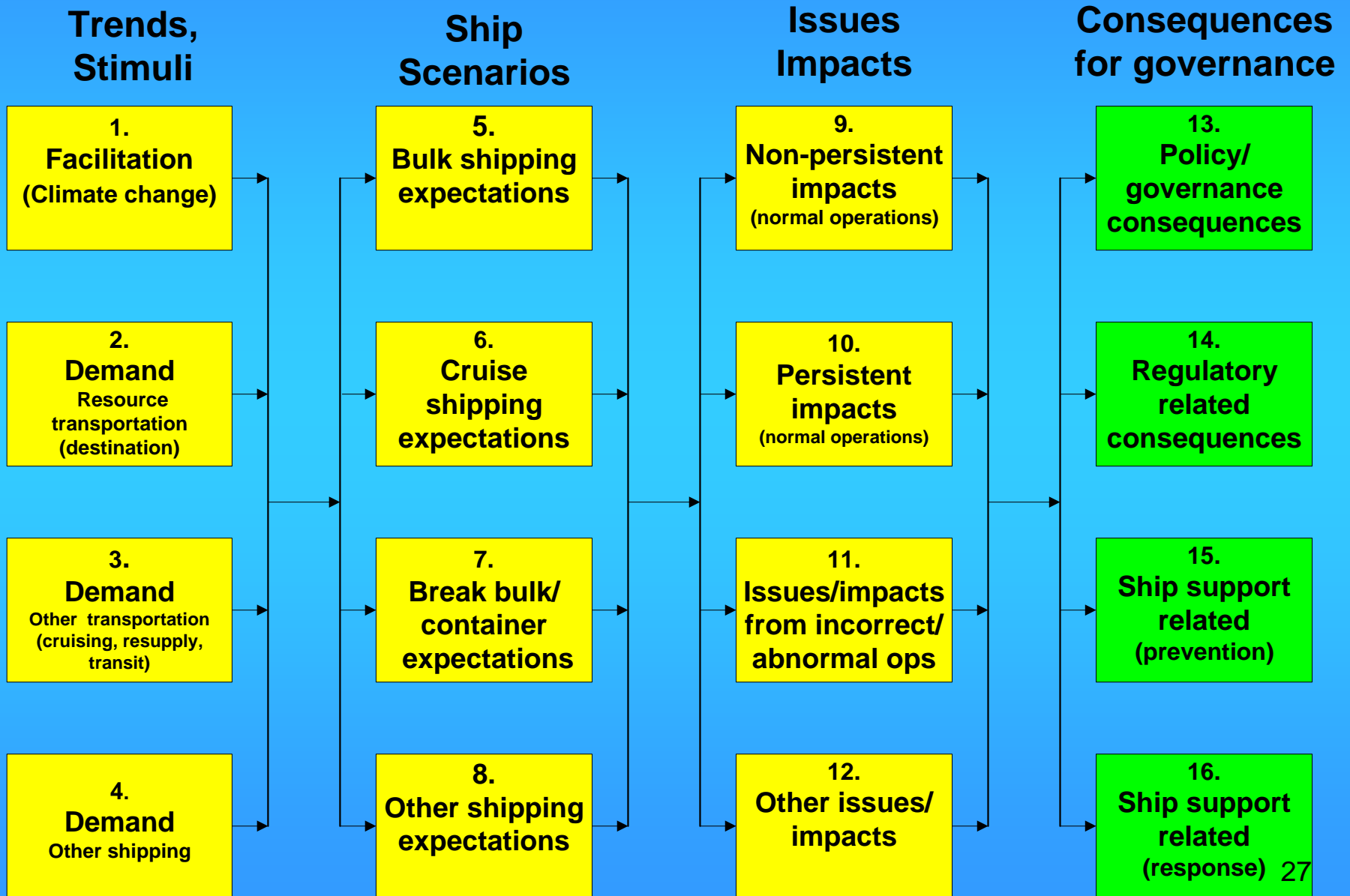
# 12. Other issues, impacts

- Fishing impacts
- Impacts resulting from seismic noise
- Impacts associated with MODU, OSV activities

# **CONSEQUENCES FOR GOVERNANCE**

**in order to ensure  
Sustainable Shipping in Northern Waters**

# Arctic Shipping Impact Assessment - Logic Flow Chart



# 13. Policy/governance consequences

- Arctic marine transportation sustainability strategy
- Multilateral versus unilateral approach
- Proactive versus reactive approach
- Application of the precautionary approach
- Financial management considerations, cost recovery
- Environmental Impact Assessment
- Arctic shipping policy
- Mackenzie River

# 14. Regulatory related consequences

- Updating the regulatory framework
- Making NORDREG reporting mandatory
- Monitoring and enforcement requirements
- Examination of additional/alternative mechanisms
  - SAs
  - PSSAs
  - SECAs, etc.

# 15. Service support related (prevention)

- Navigational support
  - Long-range navigational support (polar-orbiting satellites)
  - Comprehensive Arctic hydrographic data, charts, ECDIS, etc.
  - Selected provision of short-range (fixed, seasonal floating) aids
  - Traffic separation schemes
  - Communication needs, effective AIS
  - Ice-pilotage
  - Improved weather, ice forecasting
- Icebreaker support

# 16. Service support related (response)

- Port facilities, places of refuge
- Search and rescue
- Pollution response (oil, HNS)

# Some Future Opportunities

- Better access to the North
- Review regulations
- Pioneer projects to determine economic return
- Value-added off-shoots from projects
- Joint ventures – new shipowner consortia
- Joint ventures with Northern communities



# Some New Challenges

- Lack of up-to-date hydrographic charts
- Lack of trained Arctic navigators
- Lack of support infrastructure
- Balancing development , the environment and traditional culture
- Educating the public, the policy makers, and the politicians about Arctic issues
- Educating and incorporating the indigenous voice in decision making

# *The Company of Master Mariners of Canada*



- **“Canadian Arctic Issues in a Changing Climate” - December 2006**
- **“Shipping in the Canadian Arctic: The Challenges and Opportunities” – February 2008**

*[www.mastermariners.ca](http://www.mastermariners.ca)*

# Thank You



**DALHOUSIE  
UNIVERSITY**

*Inspiring Minds*



*Marine Affairs Program*

# National / Naval Ice Center (NIC)



## Arctic Sea Ice Recent Trends and Causes; Impact on Arctic Operations

CDR Ray Chartier Jr., NIC Director and Commanding Officer  
NDU Seminar 13-14 May 2008



**USCG**



**USN**



**NOAA**

# Arctic considerations



Commerce and Competition



Weather Patterns



Borders and Governance



Expanded Operating Areas  
Navy  
Merchants  
Tourism  
Fishing



# Outline



- Arctic region overview
- Annual variability and extremes
- Ice extent trends
- Perennial sea ice story
- Operational observation challenges
- Operational impacts



## The Arctic:

Geography diverse

5 Arctic nations / 8 Arctic Council nations

Dynamically coupled atmospheric, ocean and land systems

Large seasonal, annual and inter-annual variations

Extreme conditions



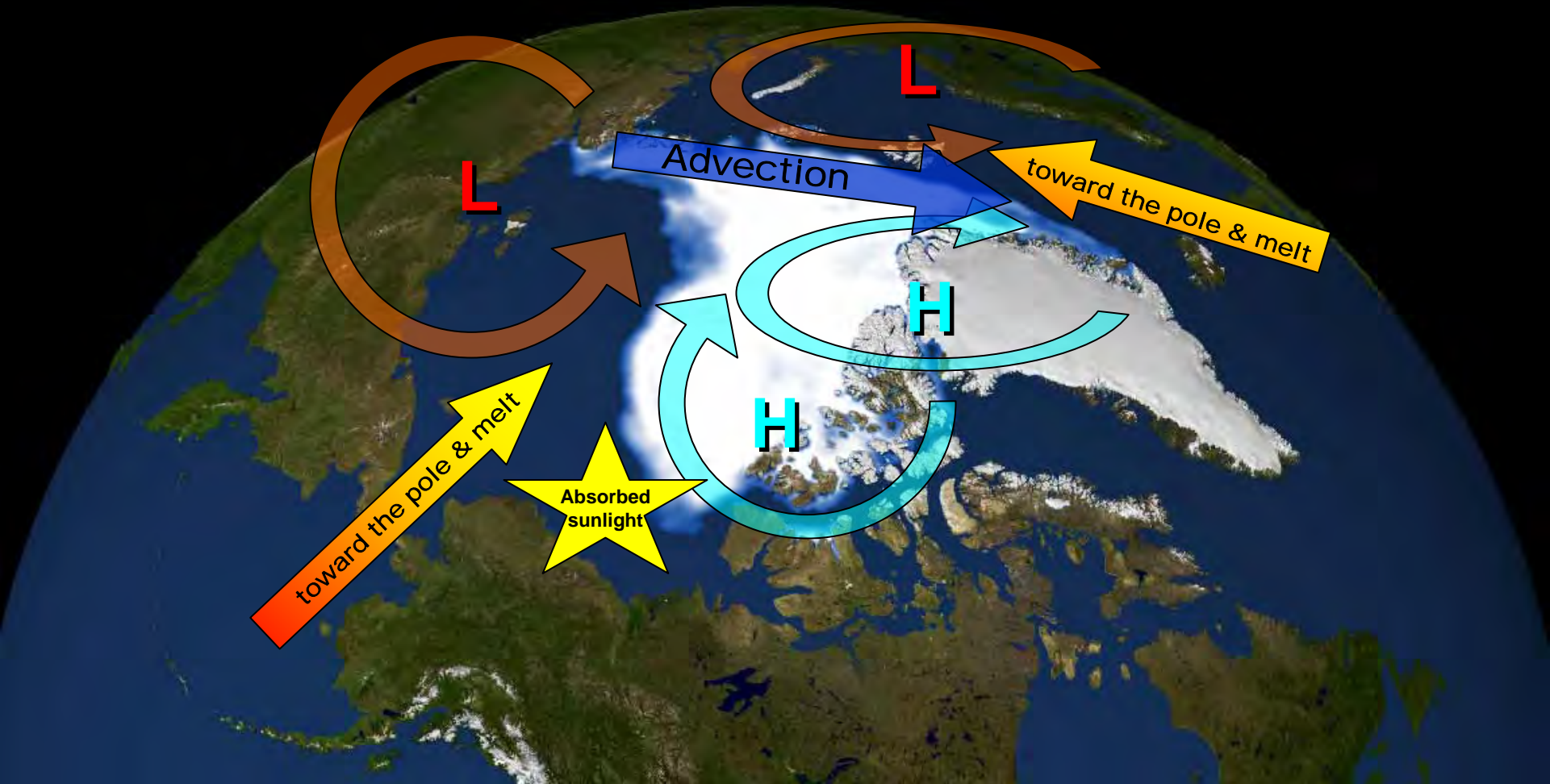
## Dominant forcing functions:

Atmospheric patterns (Arctic Oscillation)

Oceanic warm water intrusion

Solar energy input (Isolation)

These important features have not been fully projected in global climate models!

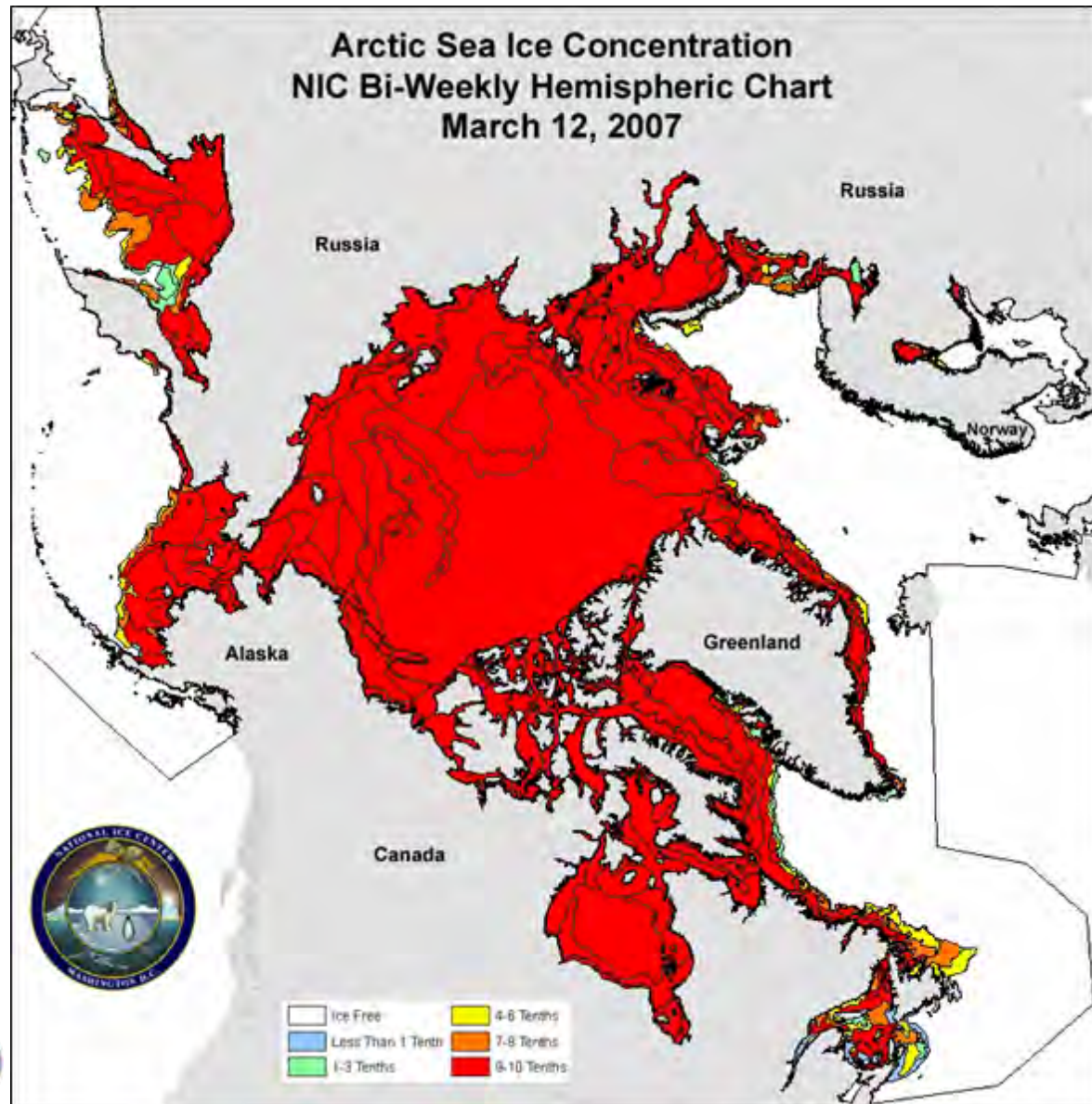




# 2007 Arctic Sea Ice Extent, Record Minimum

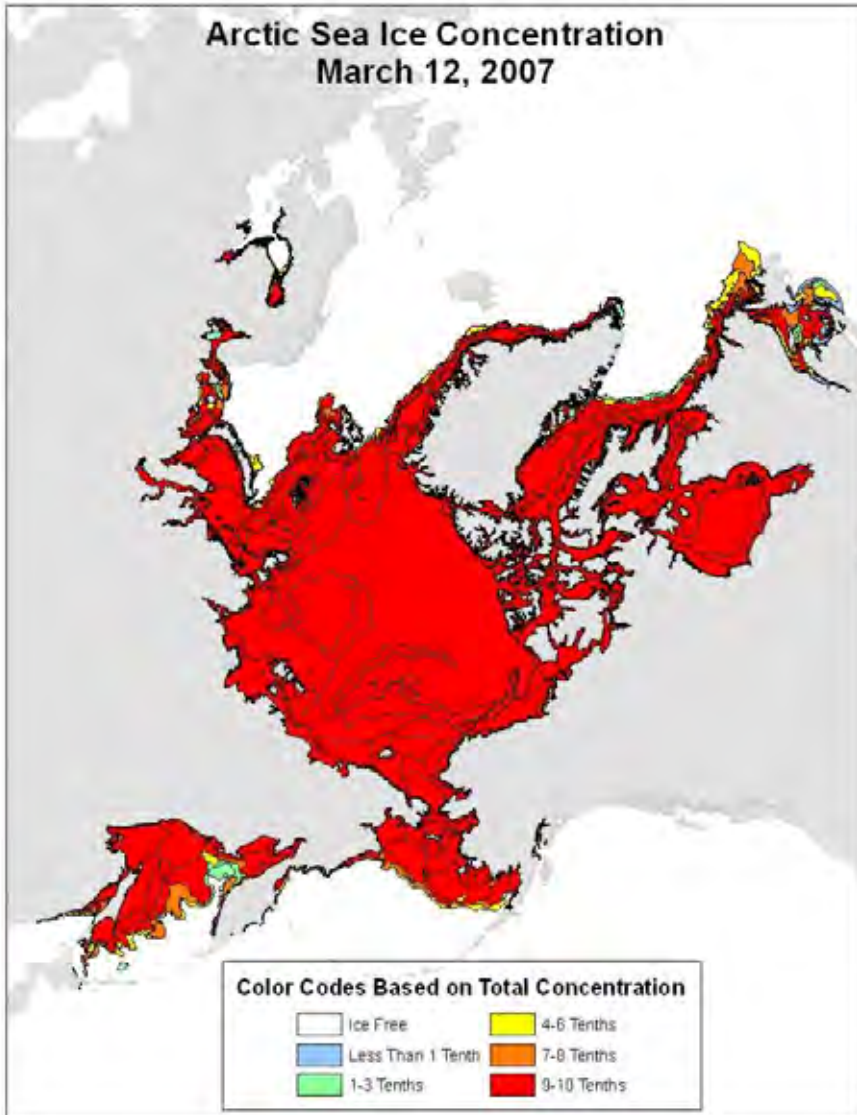
## Annual variability and extremes

- National Ice Center (NIC) weekly and bi-weekly Arctic charts
- Charts produced based on the detailed analysis of satellite data, observations and model sources:
  - CSA RADARSAT-1;
  - ESA Envisat;
  - NASA QuikSCAT;
  - NASA Terra and Aqua;
  - DMSP;
  - NOAA
  - Ship observations
  - Buoy data
  - Polar Ice Prediction System (PIPS)





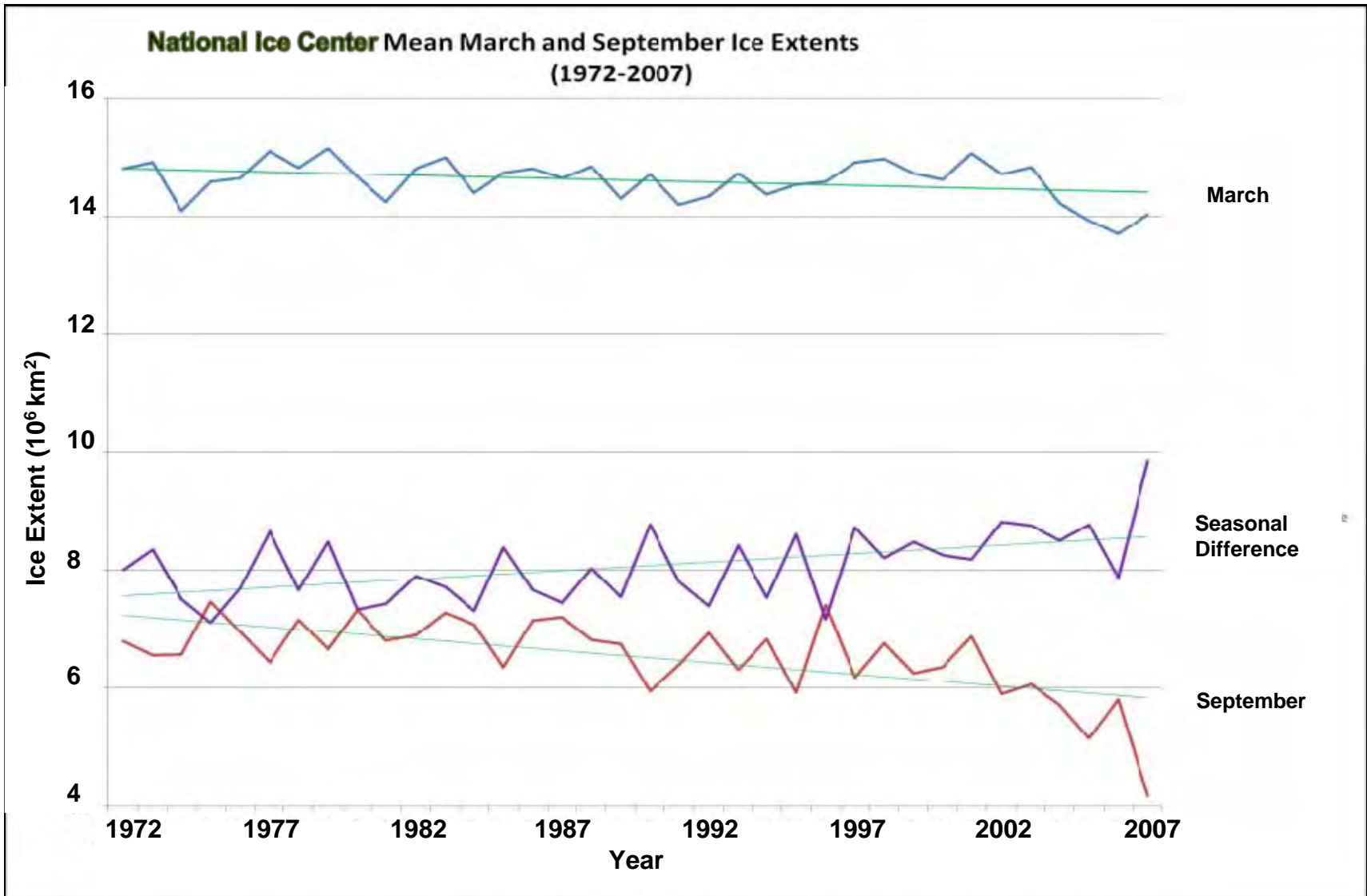
# 2007 Intra-annual Extreme Ice Conditions



Total Ice Area = 14.16 million sq km

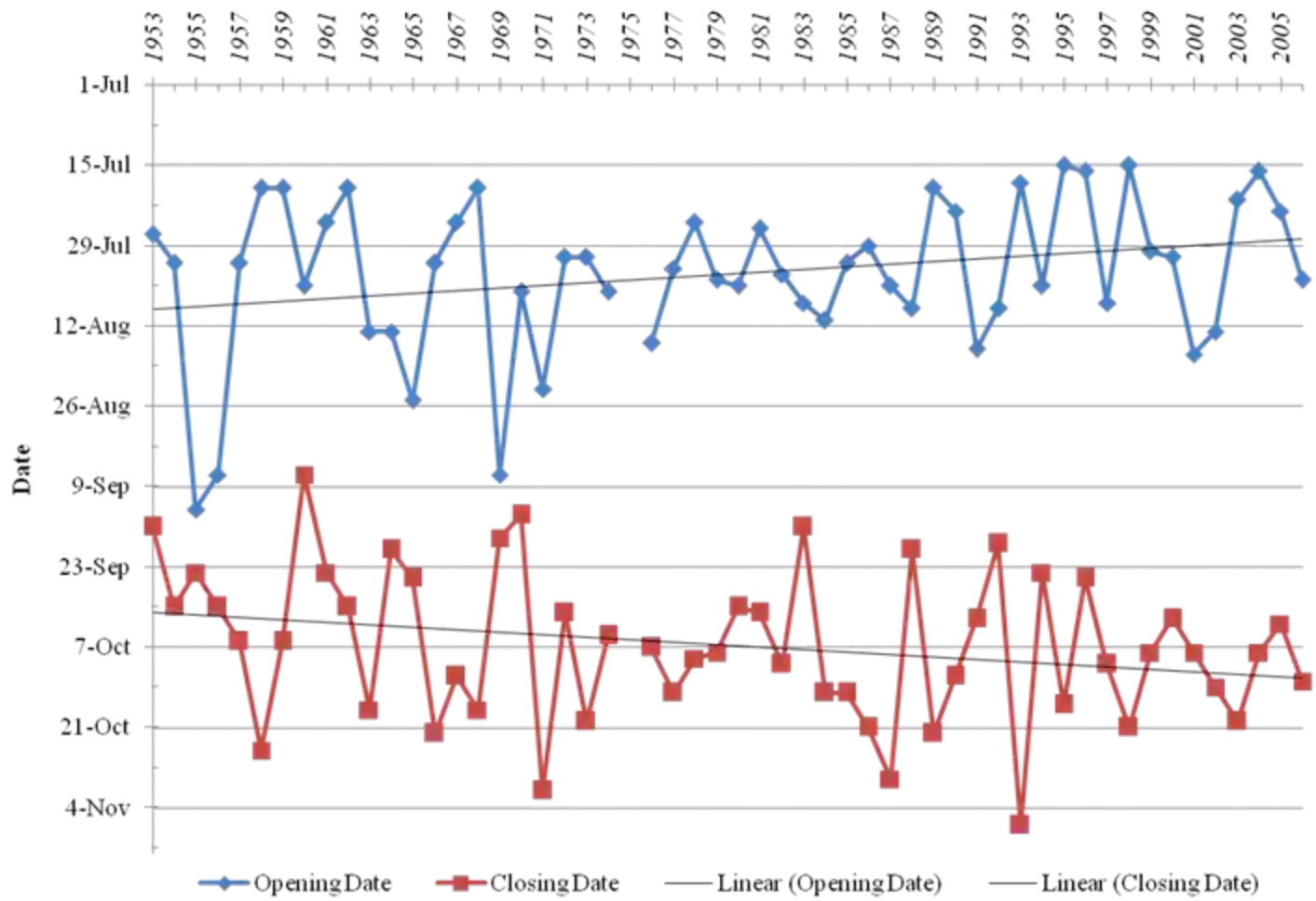
Total Ice Area = 3.98 million sq km

# Arctic Sea Ice Extent - Declining Trend





# Barrow-Prudhoe Bay Observed Trends 1953-2006 Large Inter-annual Variability



+12.29 days

+11.55 days

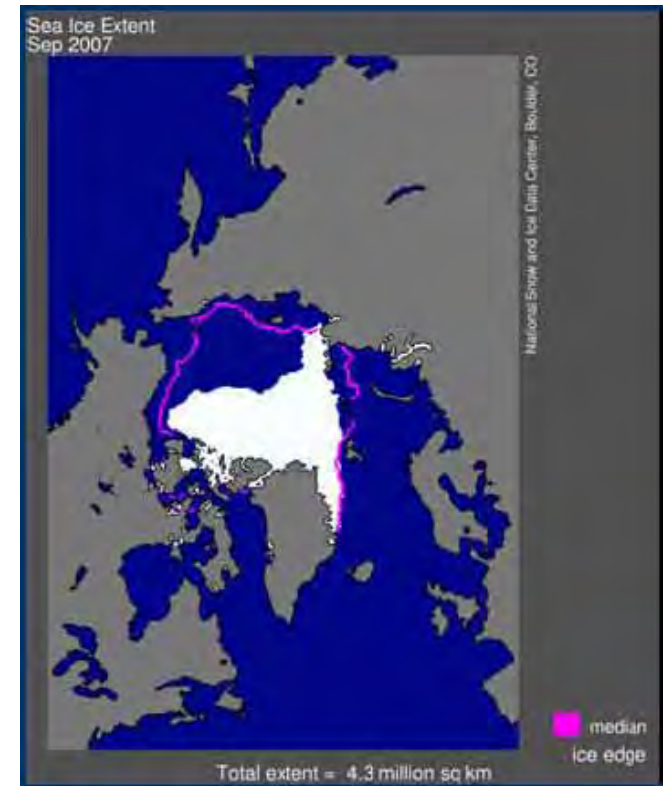
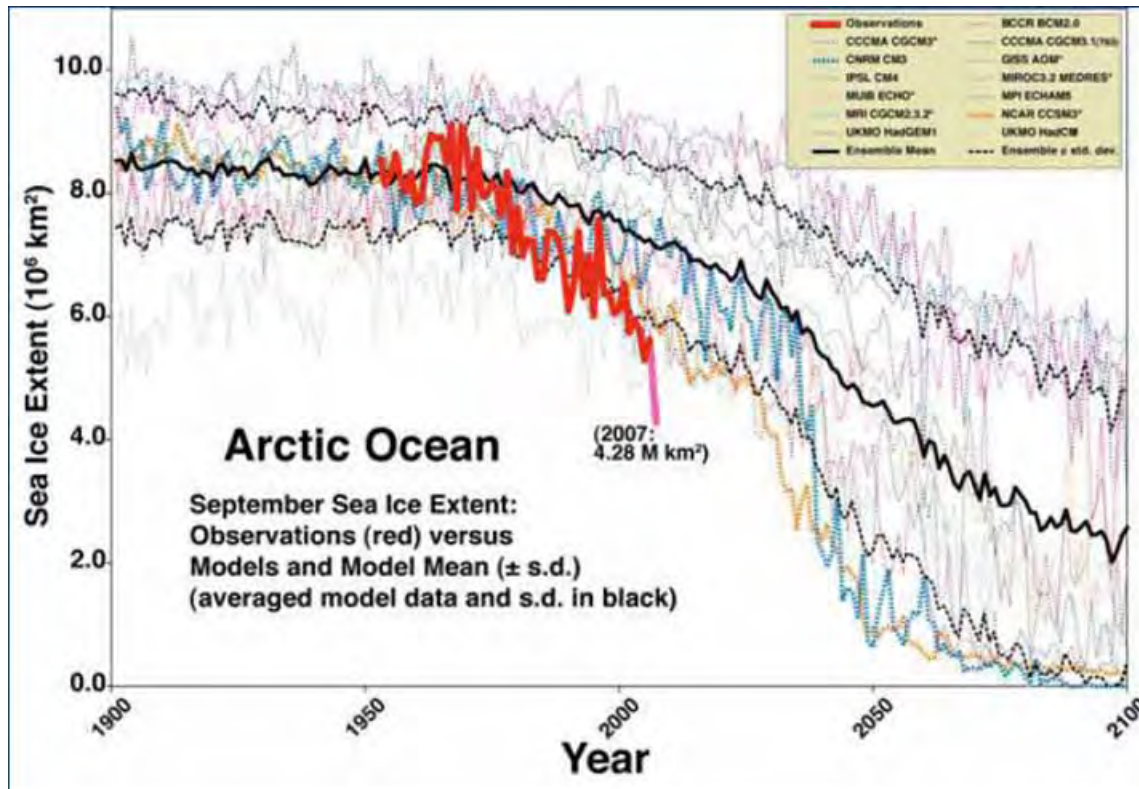
*NIC Analyses indicate +24 days of North Slope navigation since 1953*



# Models are underestimating Arctic Sea Ice



- Arctic warming faster than predicted by global climate change models (GCMs)
- Sea ice retreat may have reached 'tipping point'





# Multi-year Ice (MYI) / Perennial Sea Ice Story – rapidly diminishing

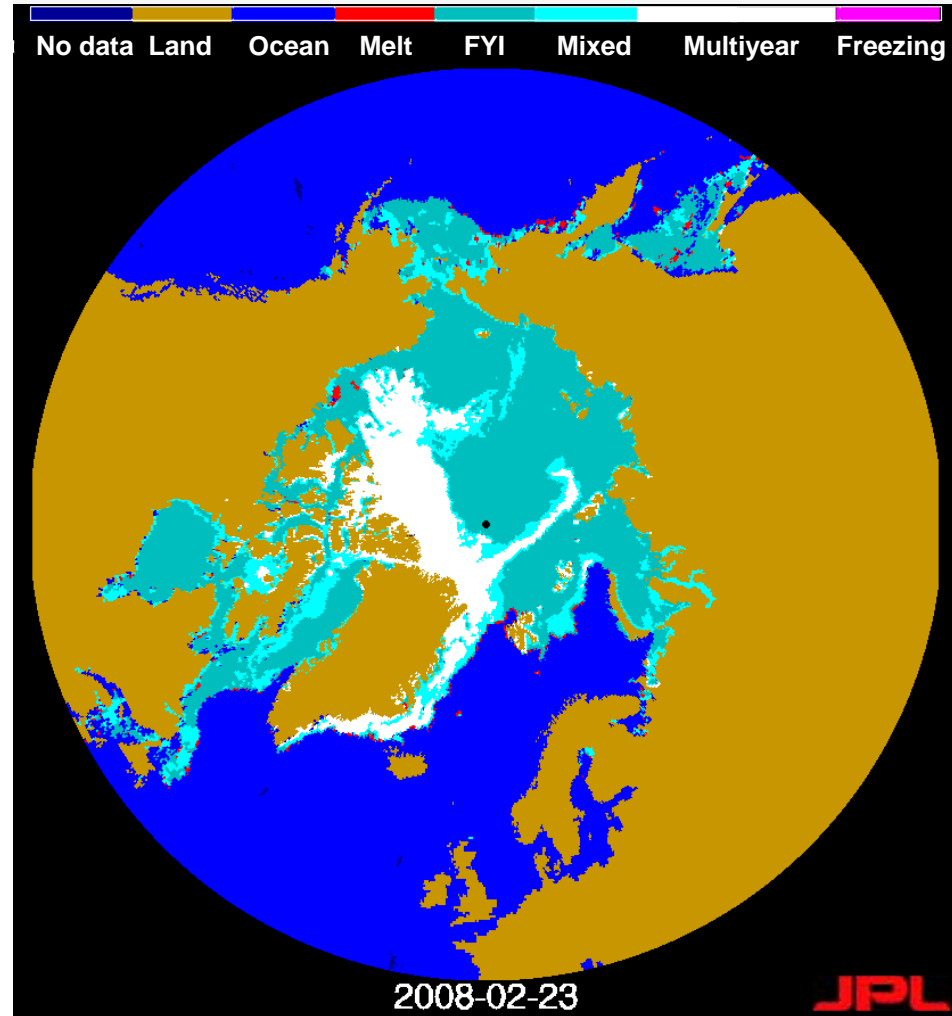
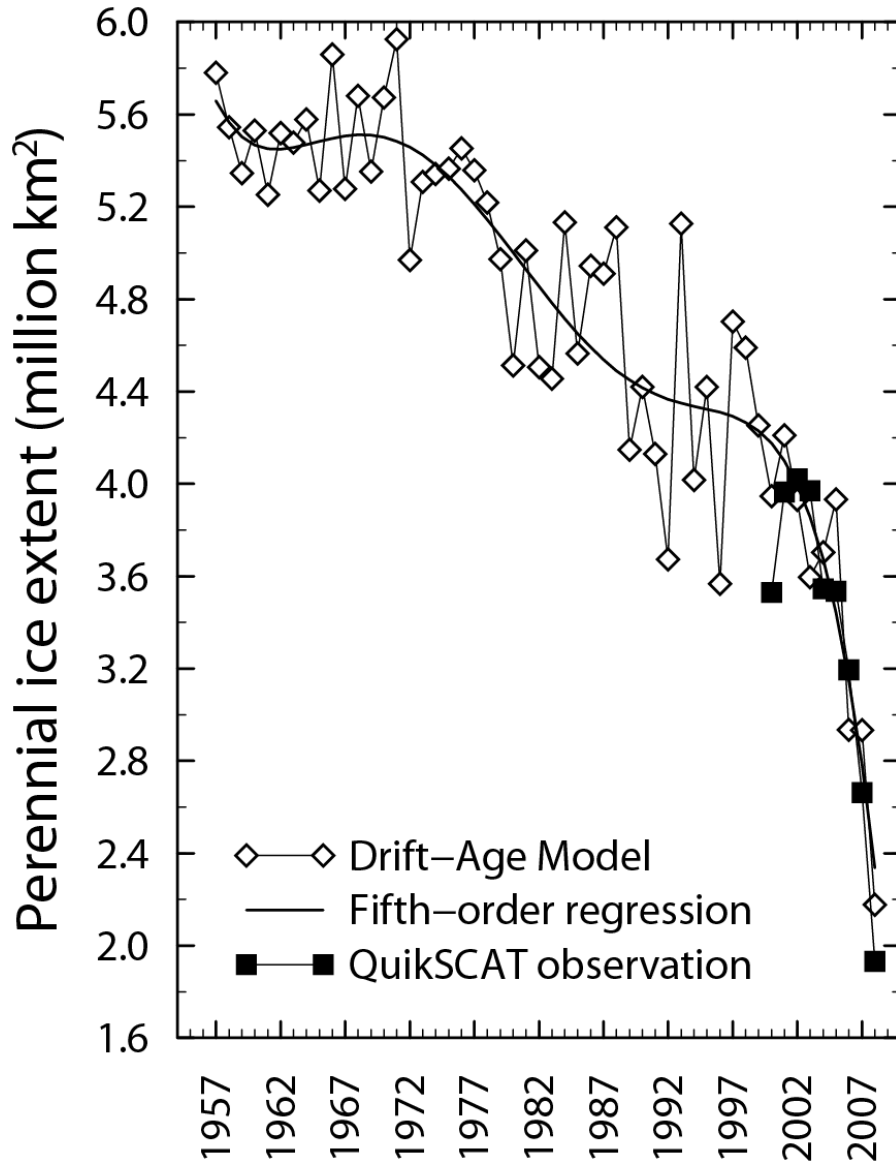


USCGC HEALY conducts operations in the Arctic  
summer 2007

# Perennial Sea Ice Change 1957-2008



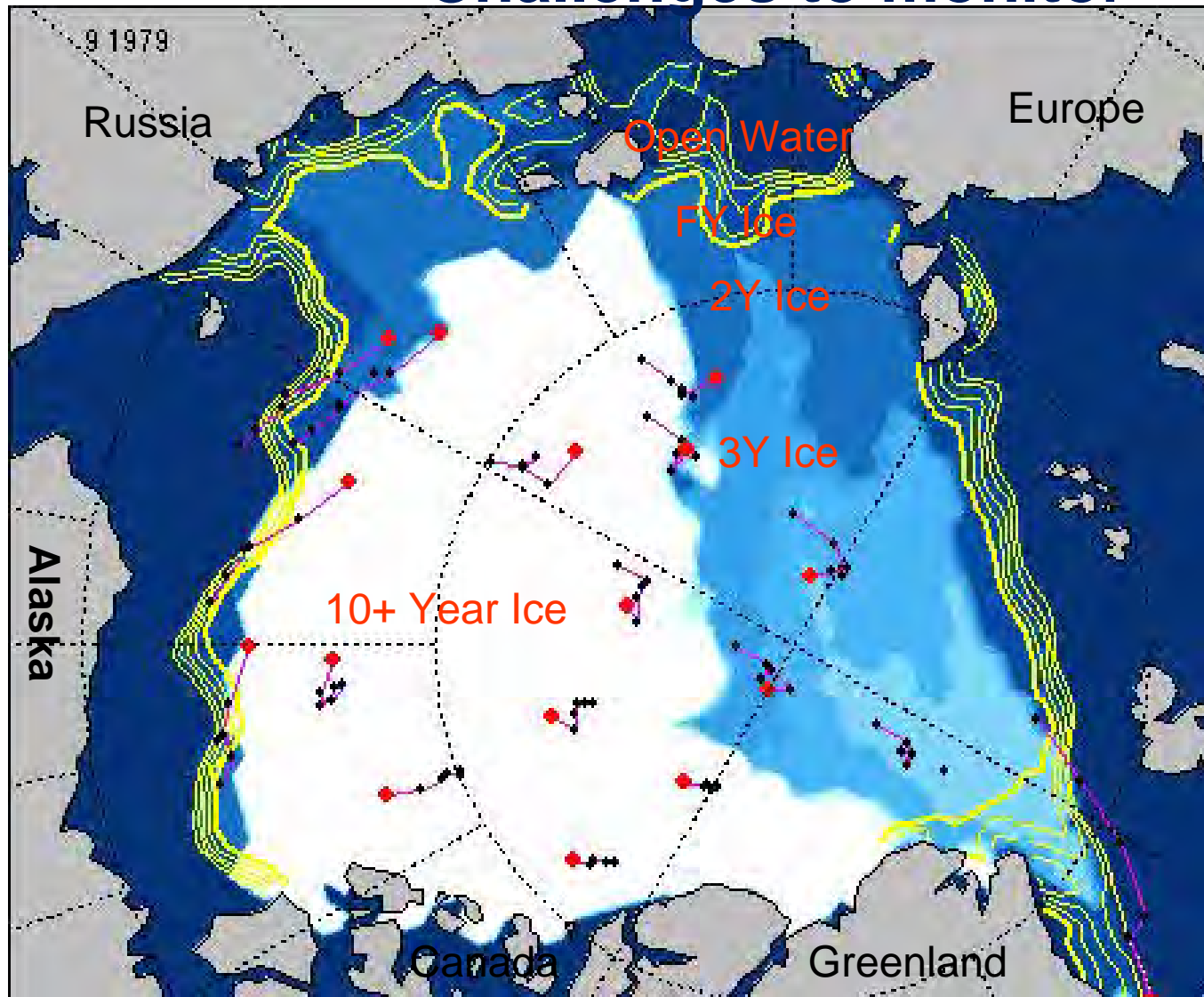
## Winter 2007 Perennial Arctic Sea Ice Distribution



Rigor, Nghiem, Clemente-Colón, Perovich, Richter-Menge, Neumann, and Ortmeyer GRL, 2008.

# Where did all the thick sea ice go?

## Challenges to monitor

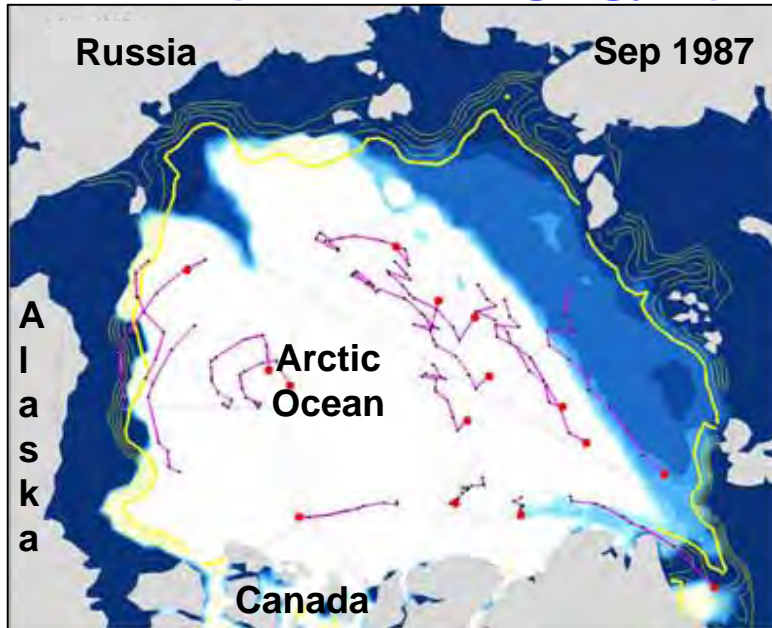


- Sea ice grows thicker with age.
- Prior to 1989, ice over 80% of the Arctic Ocean is at least 10 years old.
- High Arctic Oscillation (AO) conditions from 1989-1991 blew most of the older, thicker sea ice out of the Arctic Ocean.
- Younger (thinner) ice persists through today despite “normal” AO conditions.
- The trend in the AO may be related to increases in Green House Gases.



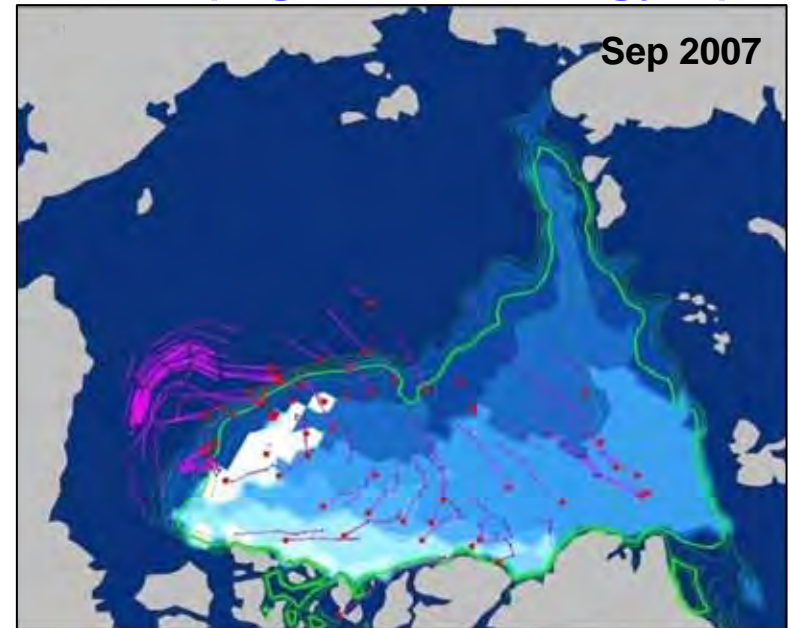
# Have we passed a “tipping point”?

1980's (low AO, large gyre)



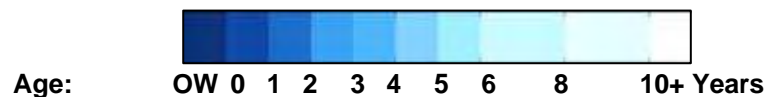
- More older, thicker ice.
- Later onset of melt, earlier onset of freeze.
- Winter and summer forcing is more important.

2007 (high AO, small gyre)



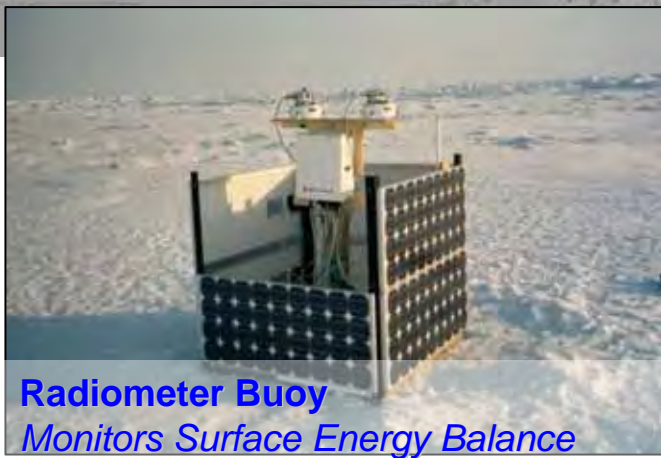
- Less older, thicker ice.
- Earlier onset of melt, more absorbed insolation, later onset of freeze, longer melt season.
- **Warmer temperatures.**

- Positive Feedbacks maintain either state.





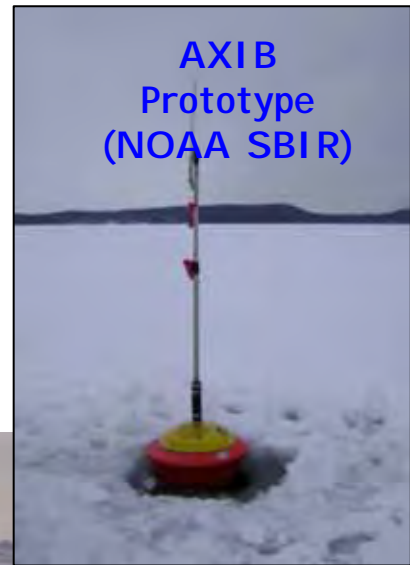
# New Seasonal Ice Beacons, Ocean Buoys, and Deployment Alternatives Needed



**Radiometer Buoy**  
*Monitors Surface Energy Balance*



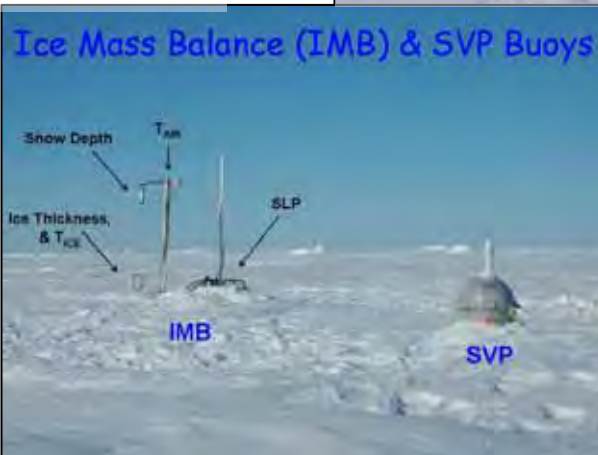
**Polar Ocean Profiling System**  
*Monitors Air and Ocean (typically deployed with IMB buoys)*



**AXIB  
Prototype  
(NOAA SBIR)**



**Metocean Ice Beacon**

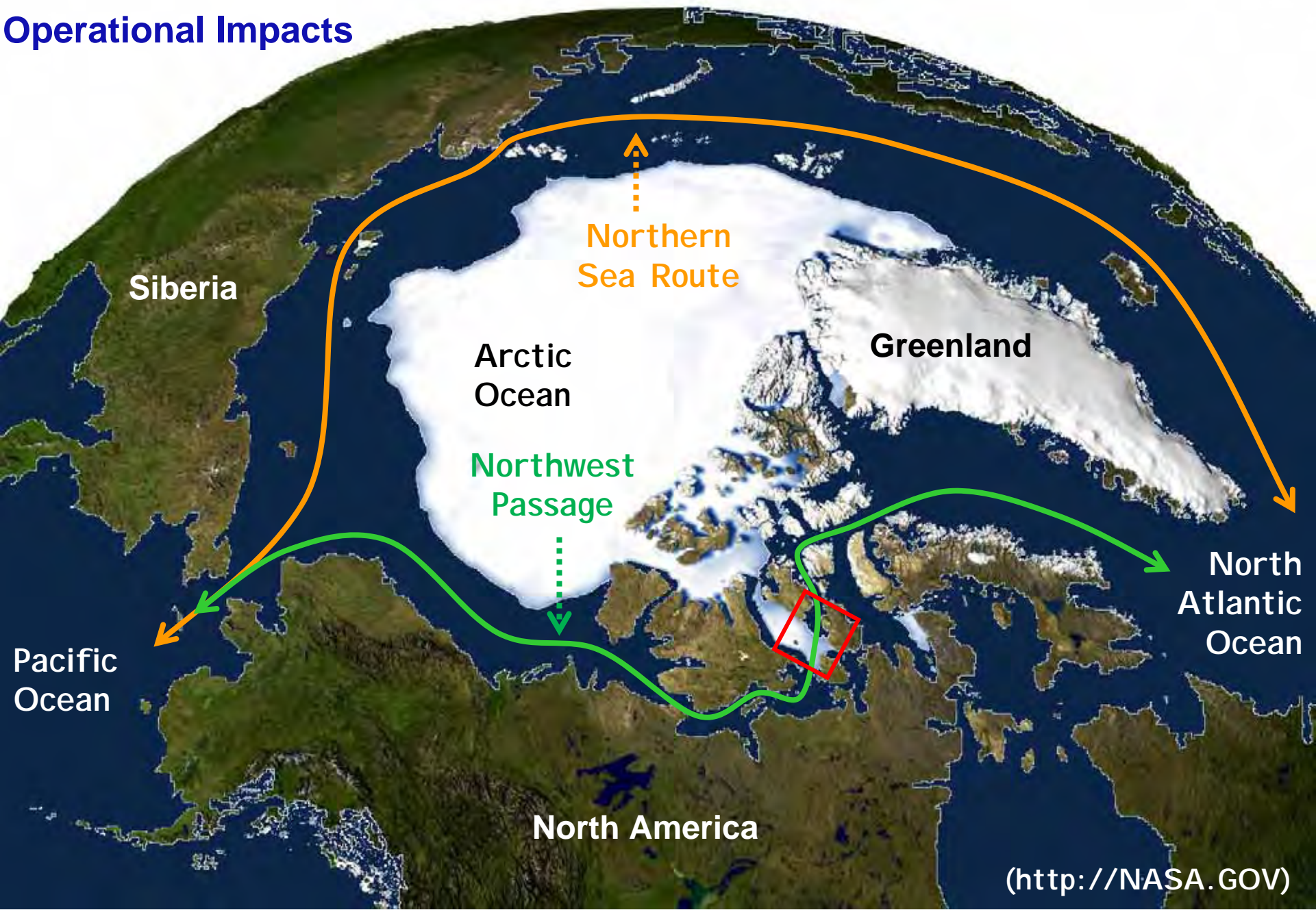


**Ice Mass Balance (IMB) & SVP Buoys**



# Arctic Routes and 2005 Sea Ice Summer Minimum

## Operational Impacts



# Arctic Routes and 2007 Summer Record Minimum



# What is next and when?

“The essence of flexibility is in the mind of the commander; the substance of flexibility is in logistics.” -- Rear Adm. Henry E. Eccles,  
Logistics in the National Defense, 1959





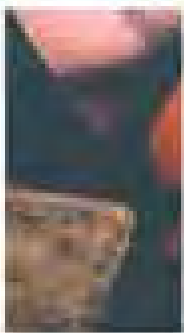
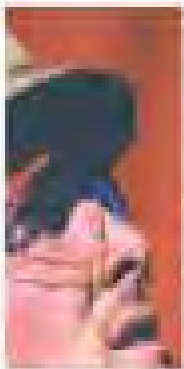
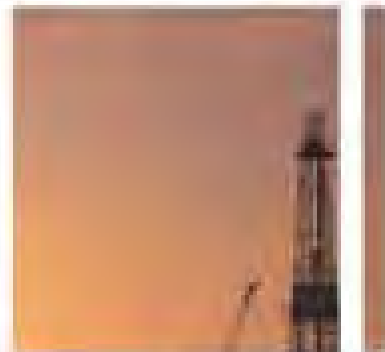
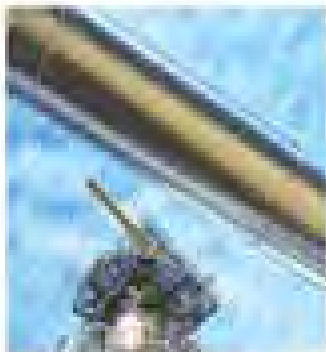
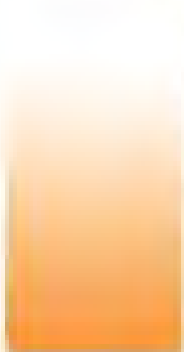
# National / Naval Ice Center



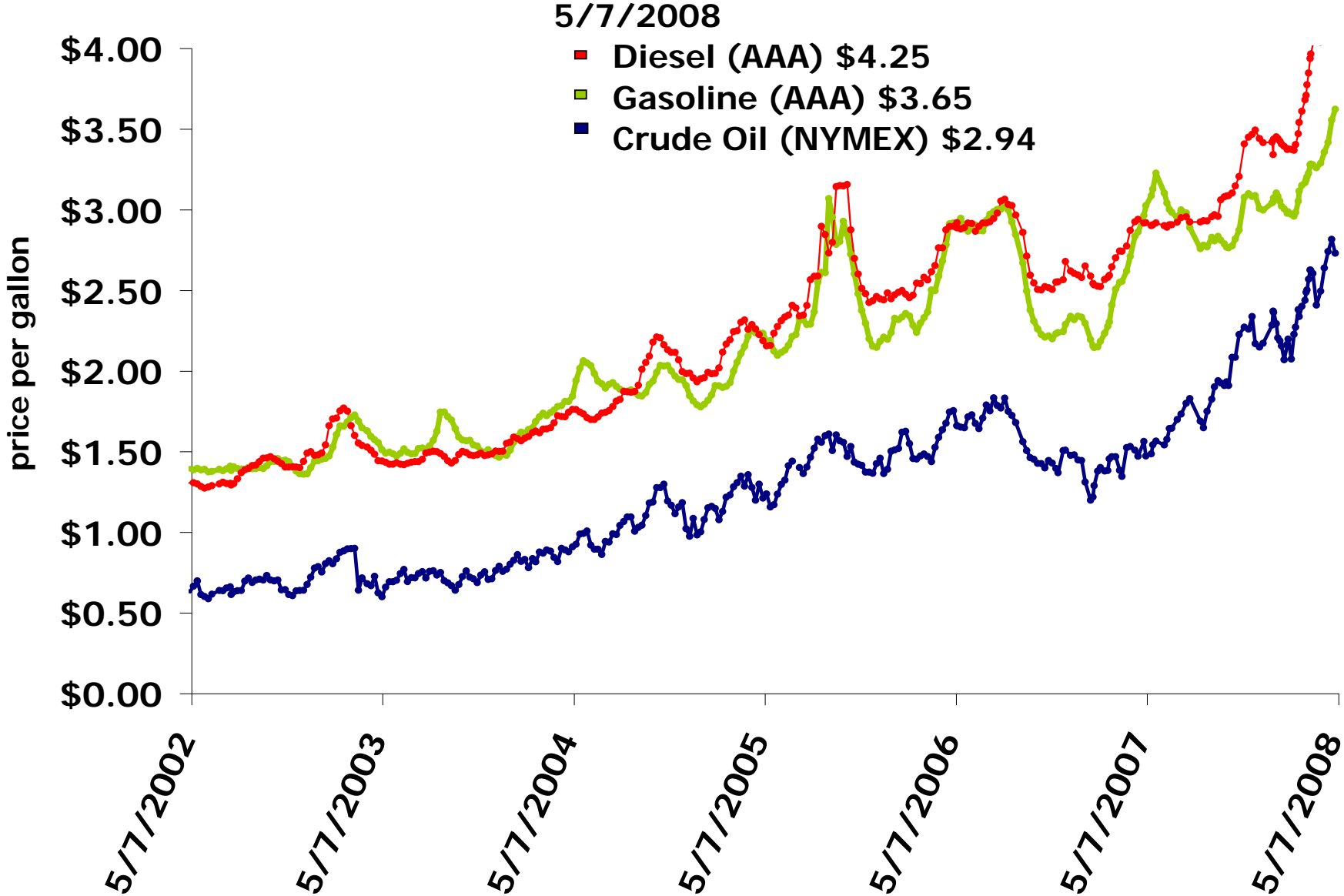
## Questions?

[CDR Ray Chartier Jr.  
co@natice.noaa.gov](mailto:co@natice.noaa.gov)

301-394-3004

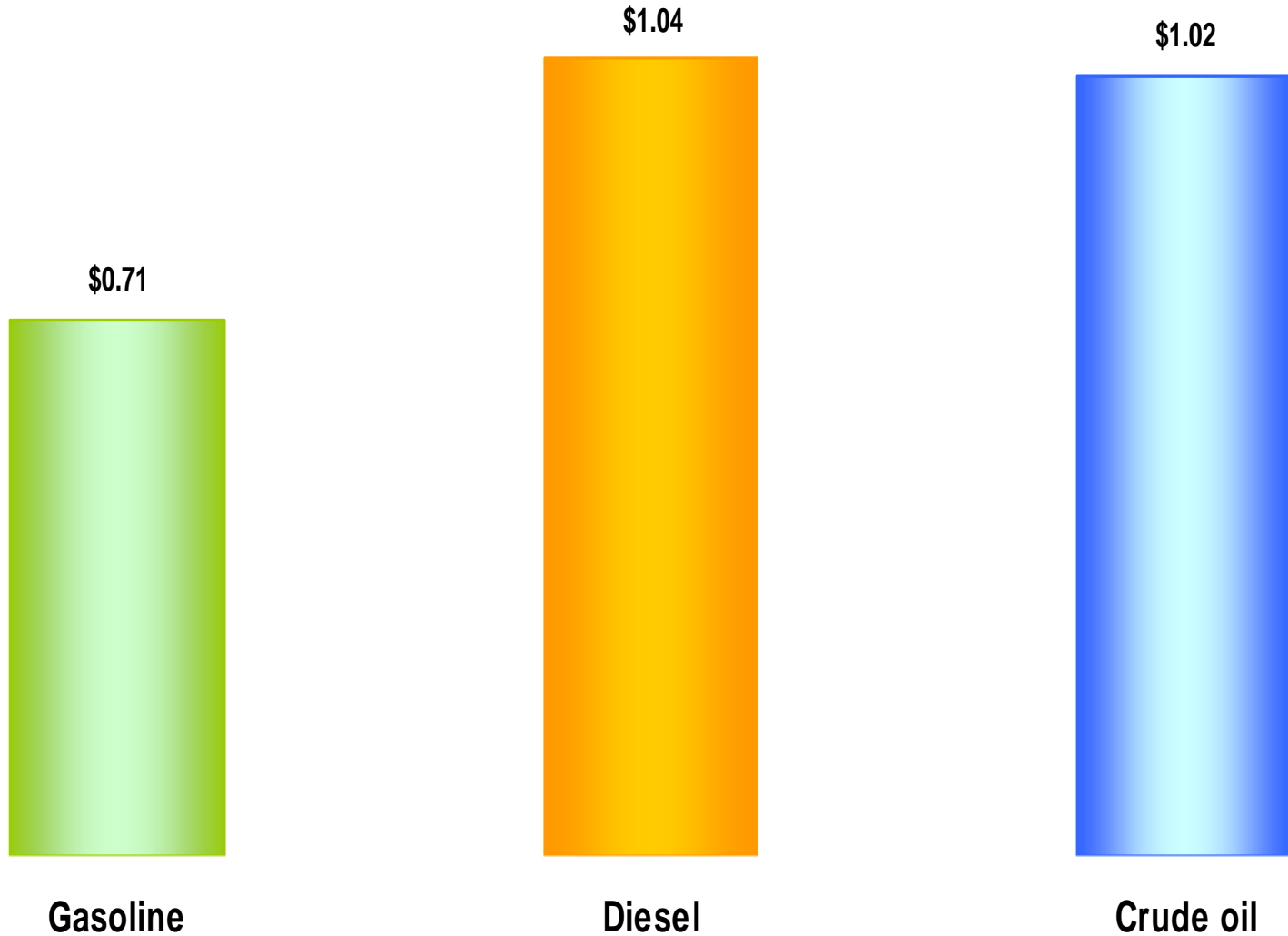


# Diesel, Gasoline and Crude Prices





**Average price increase year to date (cents per gallon)-January 1 to May 8**



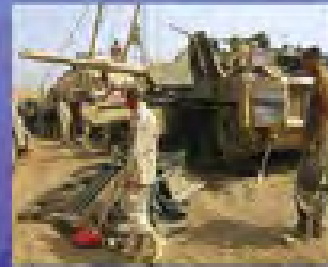
Source: NYMEX (WTI crude oil) AAA (Gasoline and Diesel)

## Key Factors Affecting Markets



Value of  
U.S. Dollar

Weather

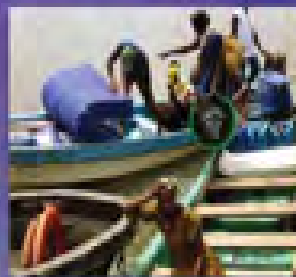


Iraq Insurgency

Iran



Nigerian  
Civil Strife

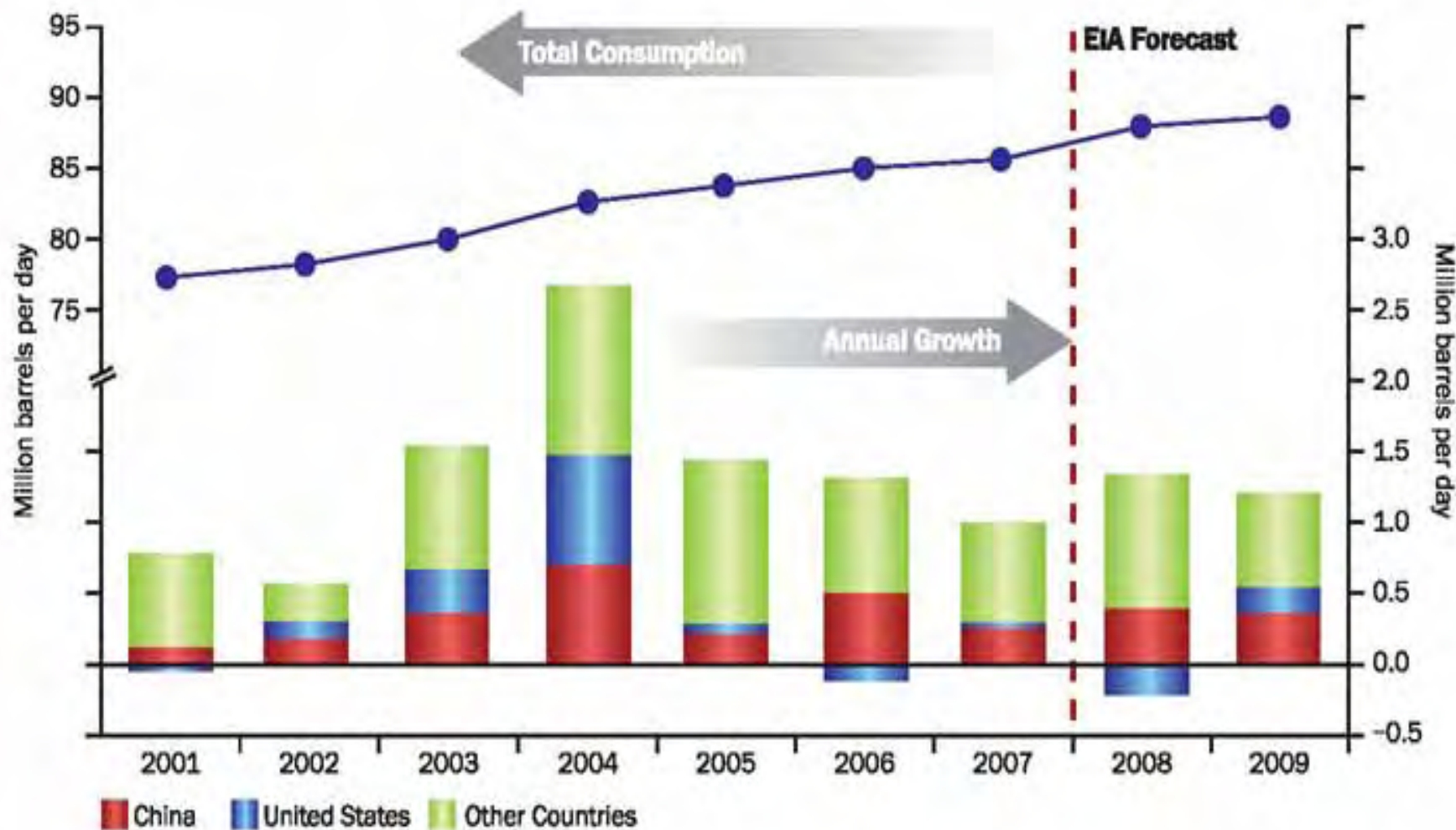


OPEC Decisions



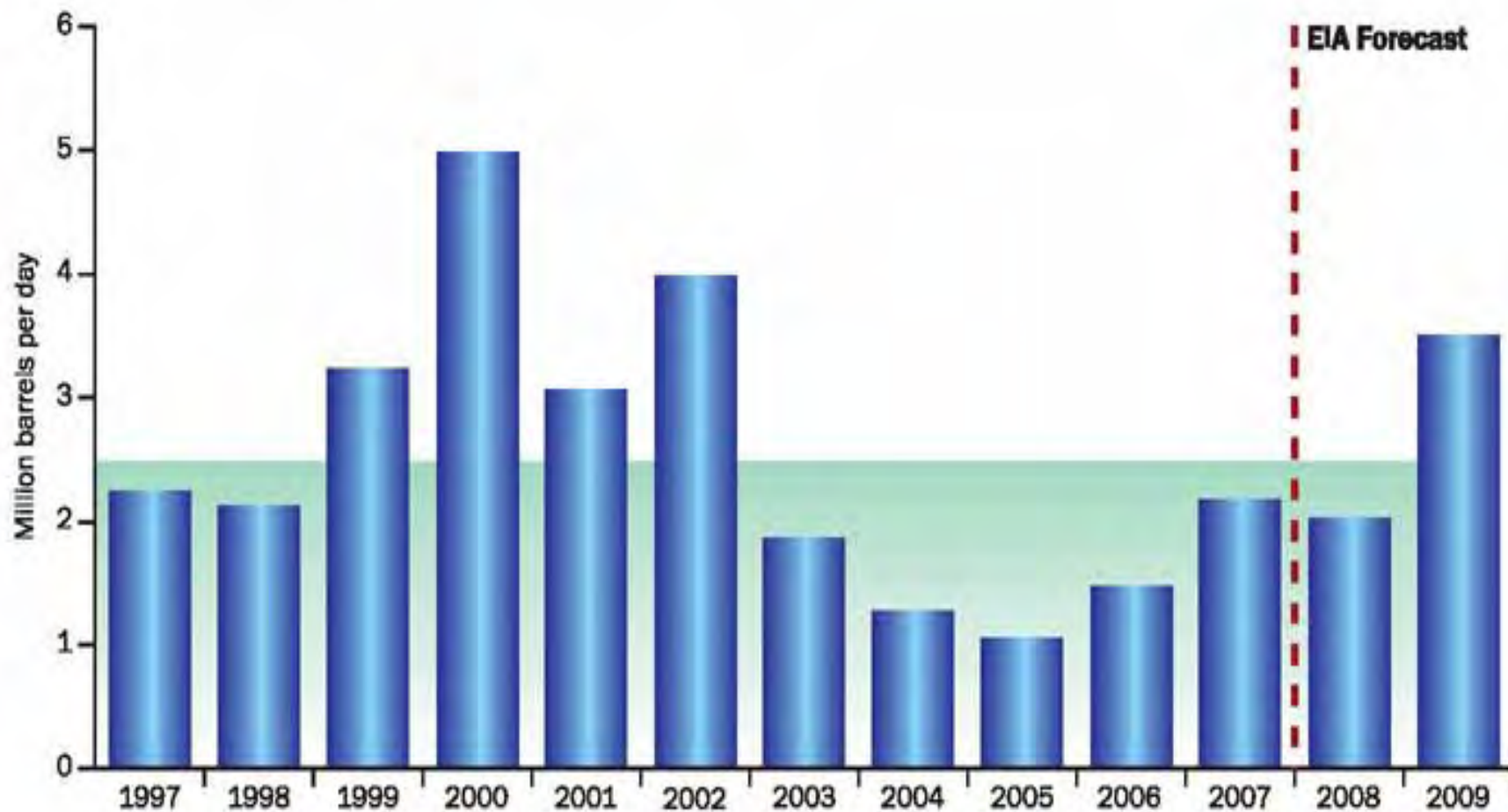
Venezuela

# World Oil Consumption



Source: EIA, *Short-Term Energy Outlook*, May 2008

## OPEC Surplus Crude Oil Production Capacity



Note: Shaded area represents 1997-2007 average (2.5 million barrels per day)

## EIA Price Forecast

	Year				Percent Change		
	2006	2007	2008	2009	2006-2007	2007-2008	2008-2009
<b>WTI Crude<sup>a</sup></b> (\$/barrel)	66.02	72.32	109.53	103.17	9.5	51.5	-5.8
<b>Gasoline<sup>b</sup></b> (\$/gallon)	2.58	2.81	3.52	3.44	8.9	25.4	-2.2
<b>Diesel<sup>c</sup></b> (\$/gallon)	2.70	2.88	3.94	3.67	6.6	36.6	-6.7
<b>Heating Oil<sup>d</sup></b> (\$/gallon)	2.48	2.72	3.67	3.42	9.4	35.0	-6.8
<b>Natural Gas<sup>d</sup></b> (\$/mcf)	13.75	13.00	14.40	15.35	-5.4	10.7	6.6

<sup>a</sup> West Texas Intermediate

<sup>b</sup> Average Regular Pump Price

<sup>c</sup> On-Highway Retail

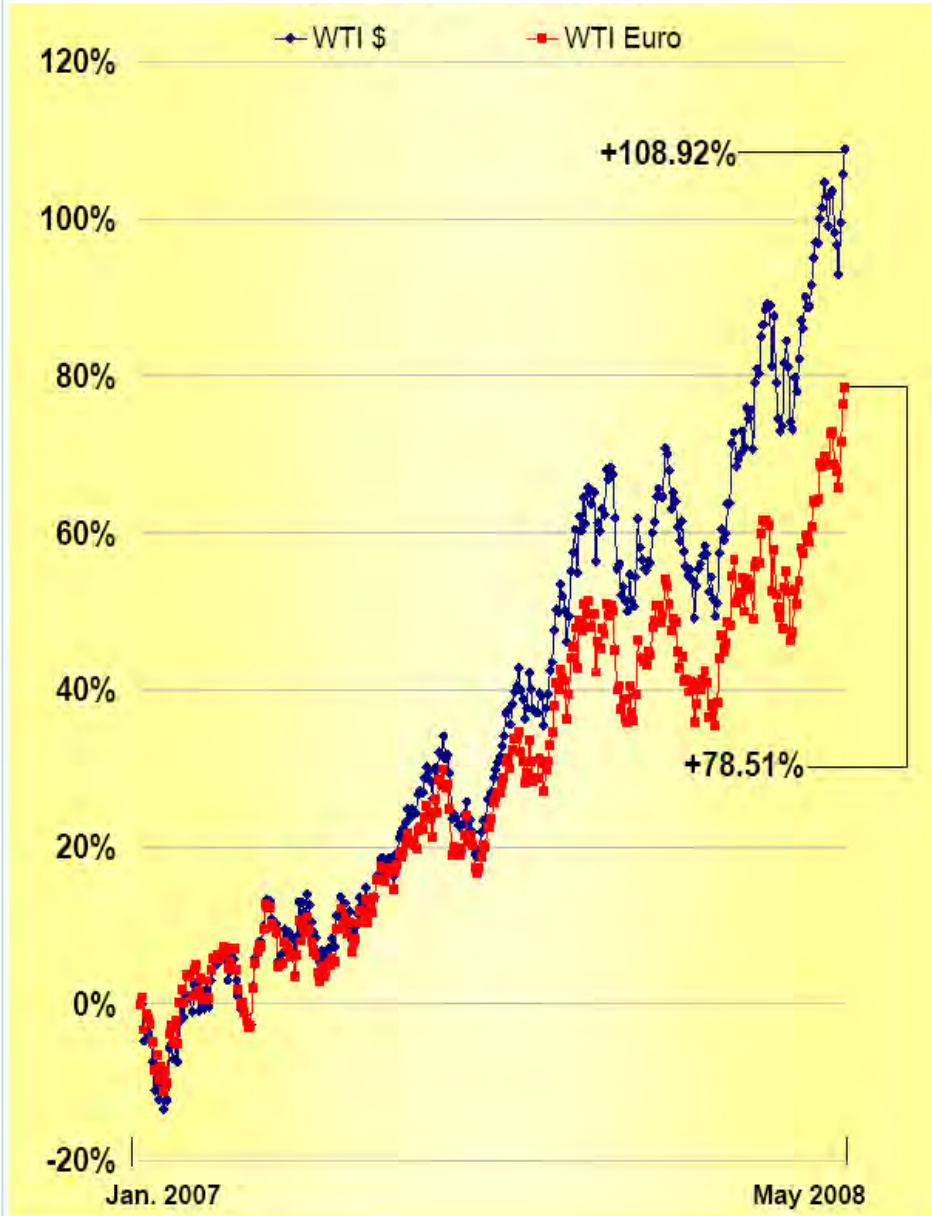
<sup>d</sup> Residential Average

## Commodity performance year to date, January 1 through May 2, 2008

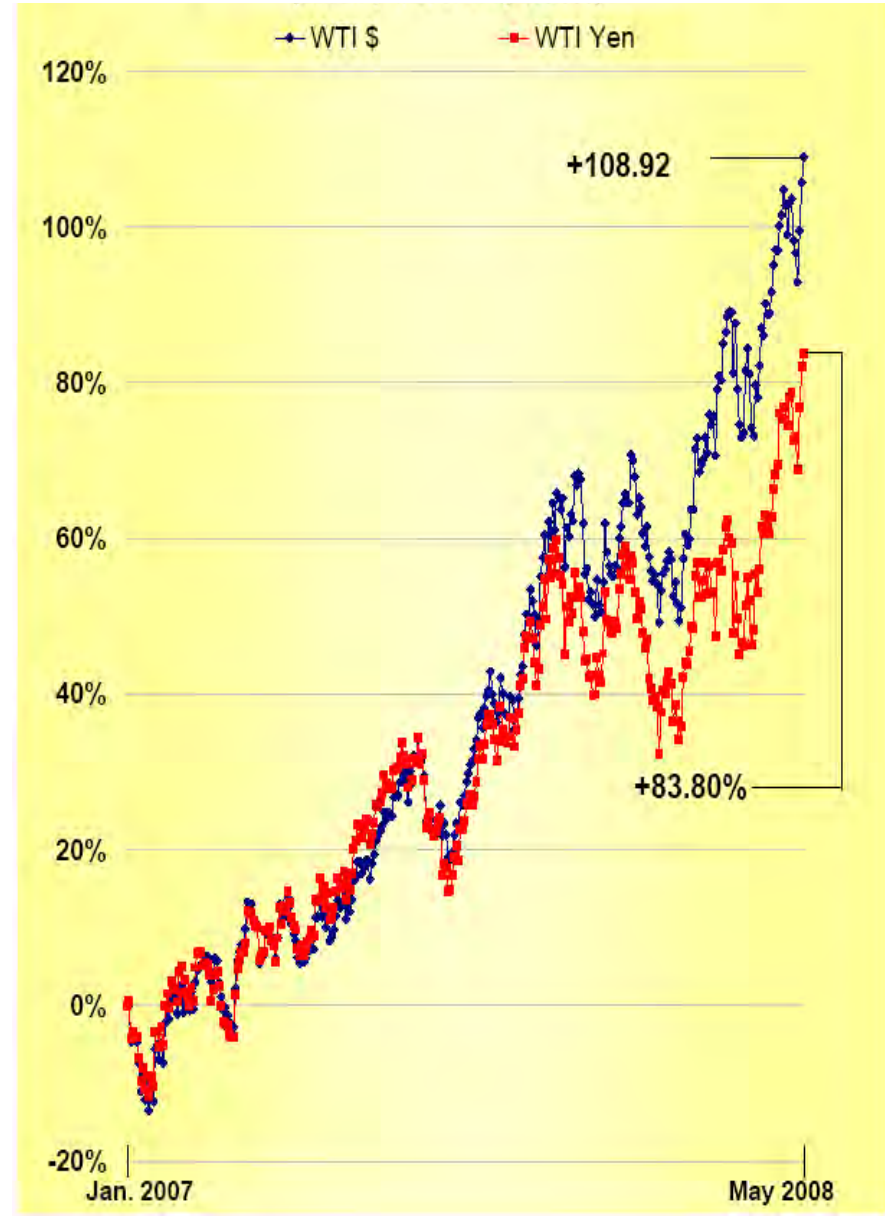


Source: Deutsche Bank Global Markets Research, *Bloomberg*.

Percent Change of West Texas Intermediate Crude (WTI) in Dollars and Euro (January 2007-May 2008)



Percent Change of West Texas Intermediate Crude (WTI) in Dollars and Yen (January 2007-May 2008)



Source: Federal Reserve Bank of St. Louis, EIA, NYMEX

## What consumers are paying for at the gasoline pump



Crude Oil

Refining and  
Retailing

Taxes

# 7.5% Earnings\*

Source: Average of gasoline components from January through March 2008.

\*Earnings differ by company. With 24 companies reporting as of May 8, 2008, figure represents net income divided by sales calculated from company financial reports filed with the federal government.

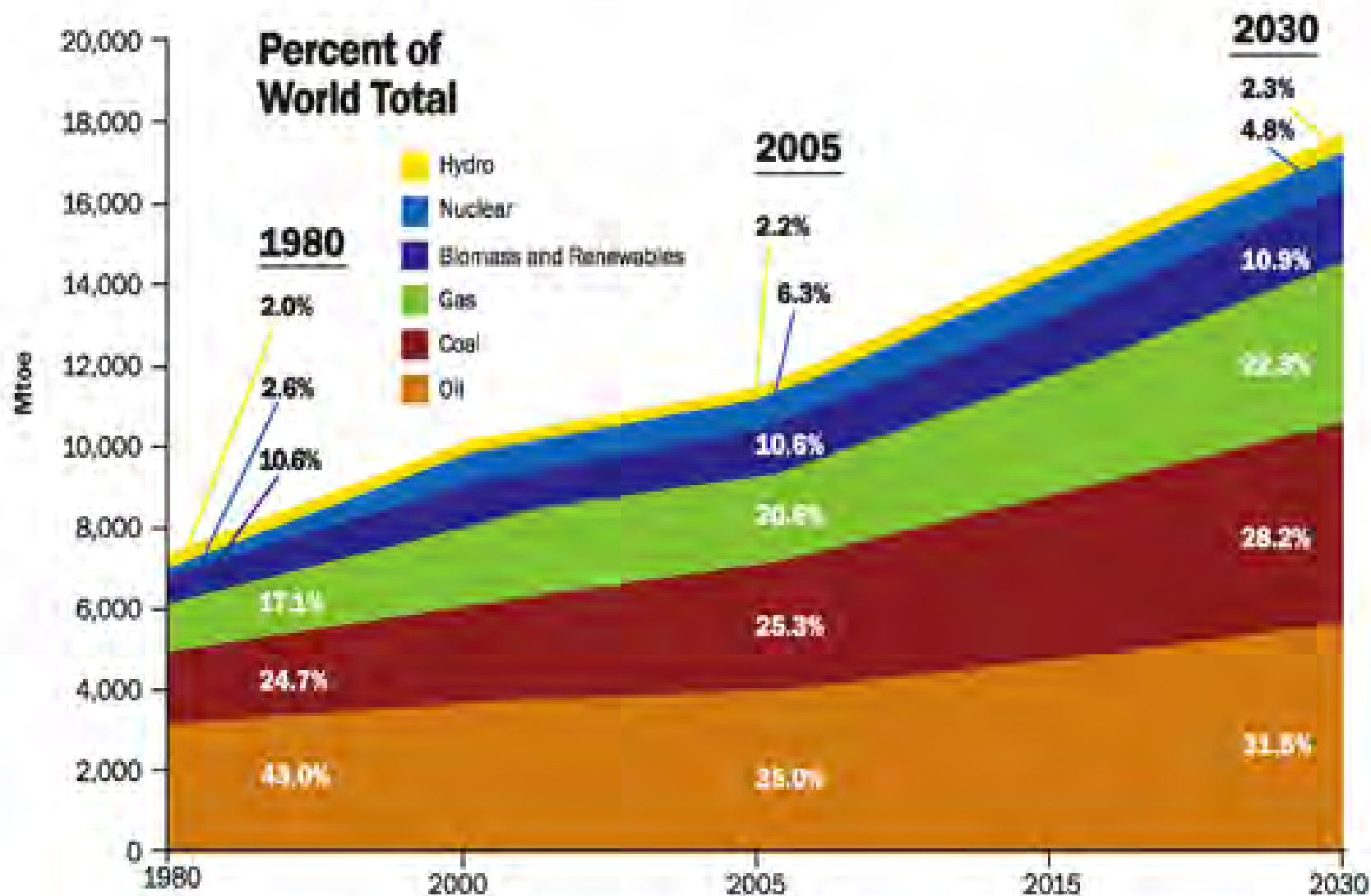


<b>Consumption</b>	<b>2006</b>		<b>2030</b>		<b>% Change</b>
	<b>Quads</b>	<i>% Share</i>	<b>Quads</b>	<i>% Share</i>	
Liquid Fuels and Other Petroleum	<b>39.55</b>	39.7%	<b>41.22</b>	34.9%	<b>4.2%</b>
Natural Gas	<b>22.3</b>	22.4%	<b>23.39</b>	19.8%	<b>4.9%</b>
Coal	<b>22.5</b>	22.6%	<b>29.9</b>	25.3%	<b>32.9%</b>
Nuclear Power	<b>8.21</b>	8.2%	<b>9.57</b>	8.1%	<b>16.6%</b>
Hydropower	<b>2.89</b>	2.9%	<b>3</b>	2.5%	<b>3.8%</b>
Other Biomass & Renewables	<b>4.07</b>	3.3%	<b>10.92</b>	9.3%	<b>168.3%</b>
<b>Total</b>	<b>99.52</b>	<b>100.0%</b>	<b>118.01</b>	<b>100.0%</b>	<b>18.6%</b>
<b>Oil and Gas</b>	<b>61.85</b>	62.1%	<b>64.61</b>	54.7%	<b>4.5%</b>
<b>Oil, Gas and Coal</b>	<b>84.35</b>	84.8%	<b>94.51</b>	80.1%	<b>12.0%</b>

\* Oil equals Liquid Fuels and Other Petroleum excluding Ethanol, Biodiesel and Liquids from Biomass, AEO 2008, table A17

^ Other Biomass & Renewables includes Biodiesel and Liquids from Biomass, AEO 2008, table A17

# Future Global Energy Demand

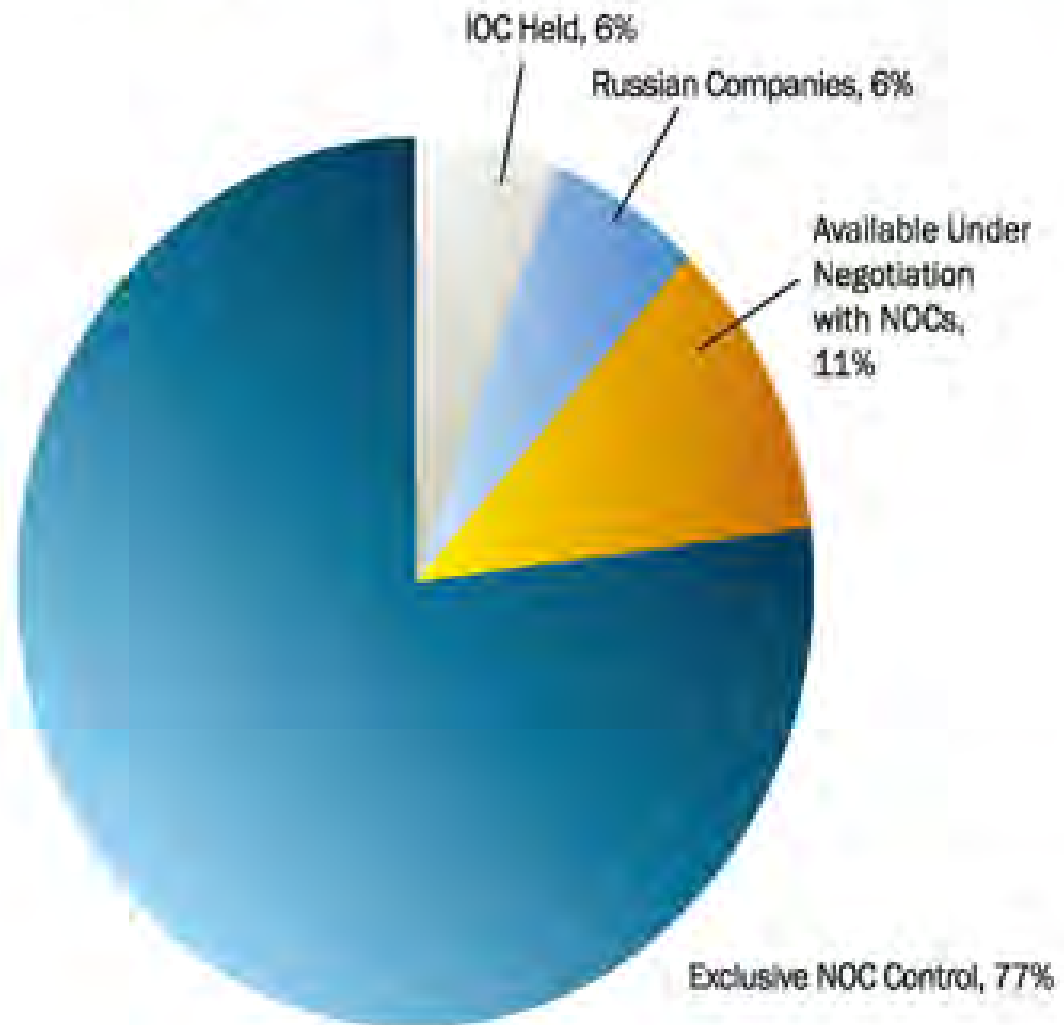


Source: IEA, World Energy Outlook, 2007

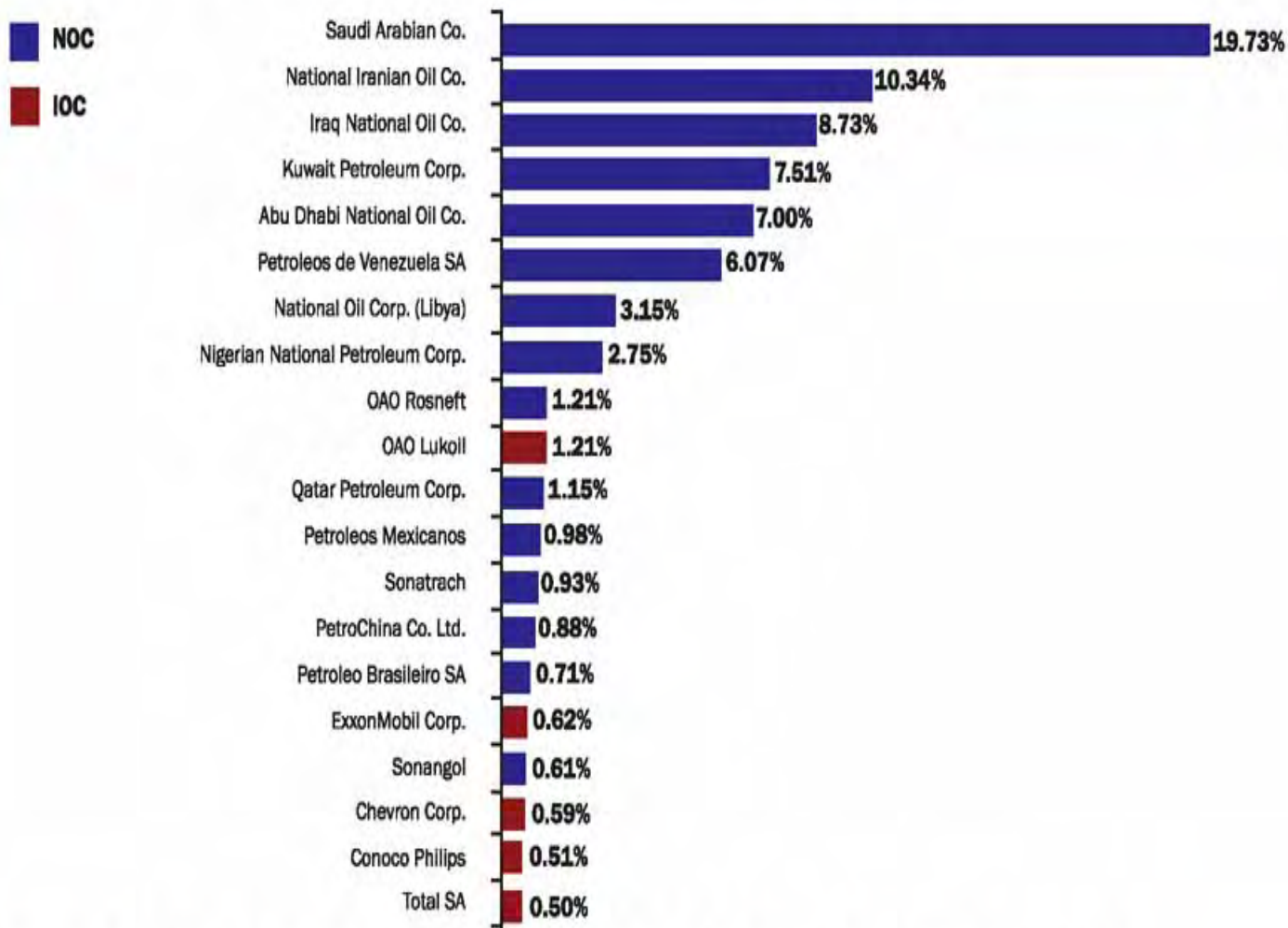
## The Myth of "Big Oil" (As a Percent of Proven Reserves)

**The total amount of proven oil reserves held by all investor-owned oil companies (IOCs) is just 6 percent**

**Almost 80 percent is exclusively controlled by foreign national oil companies (NOCs)**

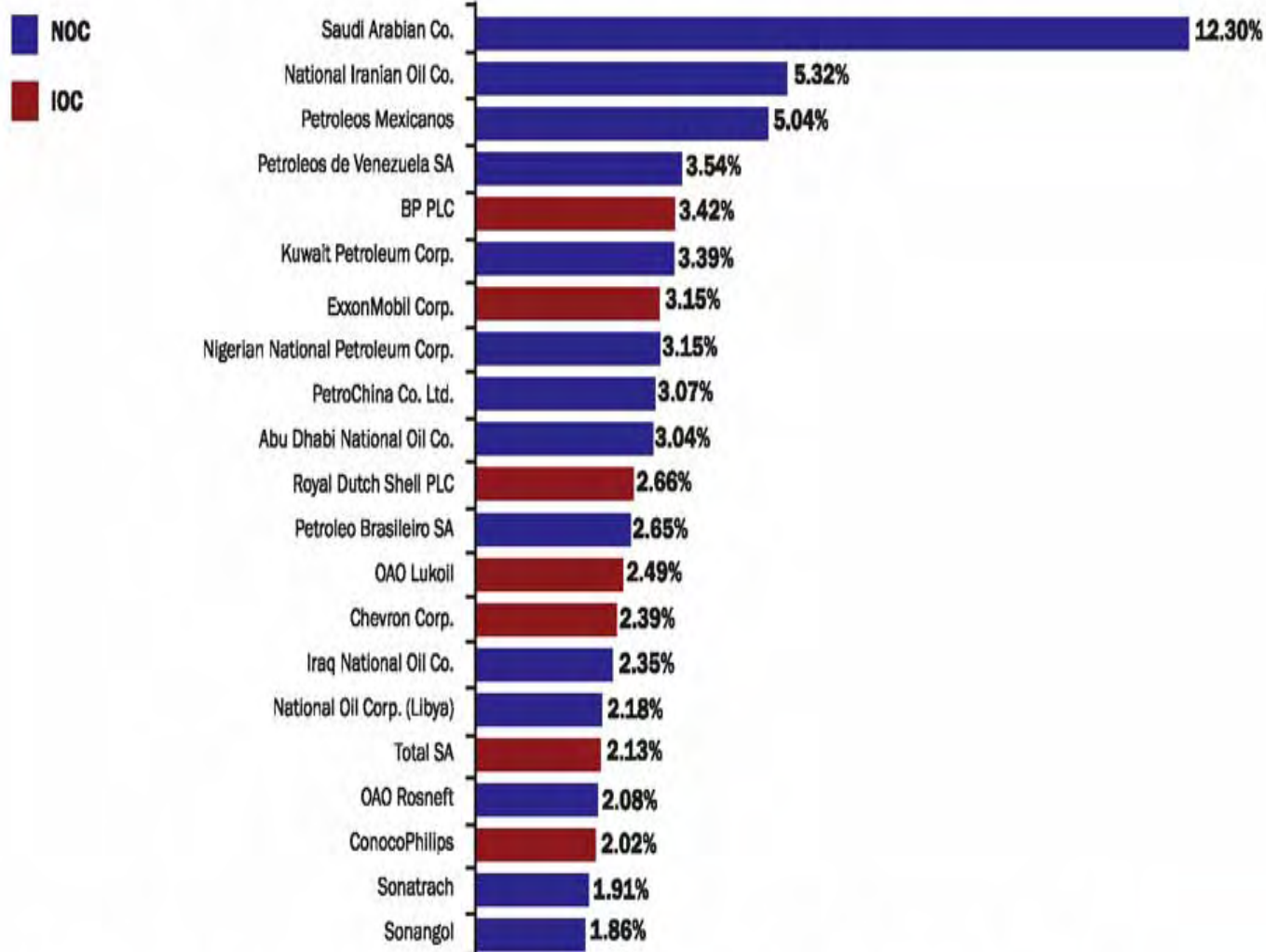


## 2006 Largest Oil and Gas Companies (percent of worldwide reserves)



Source: World reserves of 1.3 trillion barrels as of January 1, 2007 according to *Oil and Gas Journal* December 24, 2007  
Leading companies: *Oil and Gas Journal* September 17, 2007

## 2006 Largest Oil and Gas Companies (percent of worldwide production)



Source: Estimated world total of 72.4 million barrels a day in 2007 according to *Oil and Gas Journal* December 24, 2007  
Leading companies: *Oil and Gas Journal* September 17, 2007

## Policy Choices Needed to Ensure Future Energy Security

- ❖ Encourage Energy Efficiency.
- ❖ Encourage investment in long-term energy initiatives and advanced technologies.
- ❖ Reduce barriers to increasing domestic supplies.
- ❖ Rely on market forces to allocate products.
- ❖ Refrain from new taxes that make it more expensive to develop our domestic supplies.
- ❖ Support the need to participate actively in global energy markets rather than isolate the U.S.



# **NATIONAL SECURITY AND THE THREAT OF CLIMATE CHANGE**

# Background

---

- **Debate on climate change was polarized in the U.S.**
  - Full implications not realized
- **Help inform the national debate**
- **Panel of respected military leaders**
  - Not weigh in on the science issues



# Questions Addressed

---

- What *conditions* are climate changes likely to produce around the world that would represent security risks to the United States?
- What are the ways in which these conditions may *affect* America's national security interests?
- What *actions* should the nation take to address the national security consequences of climate change?

# Military Advisory Board

---

GEN Gordon R. Sullivan (Ret.), MAB Chairman

ADM Frank "Skip" Bowman (Ret.)

Lt Gen Lawrence P. Farrell Jr. (Ret.)

VADM Paul G. Gaffney II (Ret.)

GEN Paul Kern (Ret.)

ADM T. Joseph Lopez (Ret.)

ADM Donald "Don" L. Pilling (Ret.)

ADM Joseph W. Prueher (Ret.)

VADM Richard H. Truly (Ret.)

Gen Charles "Chuck" Wald (Ret.)

Gen Anthony C. "Tony" Zinni (Ret.)

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Sherri Goodman, Executive Director

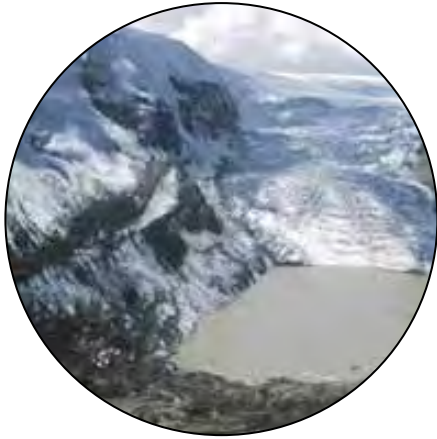
# Information Gathering Process

---

- **Received briefings**
  - Intelligence community
  - Business leaders
  - Climate scientists
- **Reviewed literature**
- **Internal discussion, briefings from individual MAB members**
  - Experiences of Regional Combatant Commanders
- **Traveled to UK**
  - Climate modelers
  - Senior government & military officials
  - Senior business leaders

# Natural & Human Systems Affected

**Water Supply**



**Agriculture**



**Human Health**



**Sea Level / Flood**



# Mechanisms for Instability and Conflict

---

- Instability in weak or failing states
- Cross-border resource conflicts
- Mass migrations
  - Resource shortfalls
  - Land loss (sea level rise)
- Humanitarian crises
- Direct effects on military operations

# Regional Impacts

## Europe



**Tensions may rise as climate change exacerbates immigration from Africa and the Middle East**

**Europe will be focused inward, affecting coalitions and military exercises**

# Regional Impacts

## Africa

Climate change will facilitate:

- weakened governance
- economic collapse
- human migrations
- potential conflicts

Stability operations and humanitarian missions could increase for U.S.



# Regional Impacts

## Middle East

**Water security will be threatened – two-thirds of the Arab world already depends on water sources external to their borders**

**Loss of food and water security will increase pressure to emigrate across borders**





# Regional Impacts

## Asia

**Almost 40 percent (1.6 billion) of Asia's 4 billion people live within 45 miles of the coast**

**Reduced agricultural productivity, threats to water, and spread of infectious disease will stress the region**



# Regional Impacts

## Western Hemisphere



Coastal areas vulnerable to sea level rise coupled with more intense hurricanes

Loss of glaciers will strain water supply in several areas, such as Peru and Venezuela

Migration into the U.S. will likely increase

# Conclusions

---

- Climate change acts as a threat multiplier for instability in some of the most volatile regions of the world
- Projected climate change will add to tensions even in stable regions of the world
- Climate change, national security, and energy dependence are a related set of challenges
- Projected climate change poses a serious threat to America's national security

# GEN Sullivan on Risk

---

**We never have 100% certainty.**

**If you wait until you have 100% certainty,  
something bad is going to happen on the  
battlefield.**

**That's something we know.**

# Recommendations

---

- **National security consequences of climate change should be fully integrated into national security and national defense strategies**
- **U.S. should commit to stronger national and international roles to help stabilize climate change at levels that will avoid significant disruption to global security and stability**
- **U.S. should commit to global partnerships that help less developed nations build the capacity and resiliency to better manage climate impacts**

# Recommendations (continued)

---

- The Department of Defense should enhance operational capability by accelerating the adoption of improved business processes and innovative technologies that result in improved U.S. combat power through energy efficiency
- The Department of Defense should conduct an assessment of the impact on U.S. military installations worldwide of rising sea levels, extreme weather events, and other projected climate change impacts

# A Final Thought

---

**We will pay for this one way or another.**

**We will pay to reduce greenhouse gas emissions today,  
and we'll have to take an economic hit of some kind.**

**Or, we will pay the price later in military terms.**

**And that will involve human lives.**

**There will be a human toll.**

**— Gen Zinni**

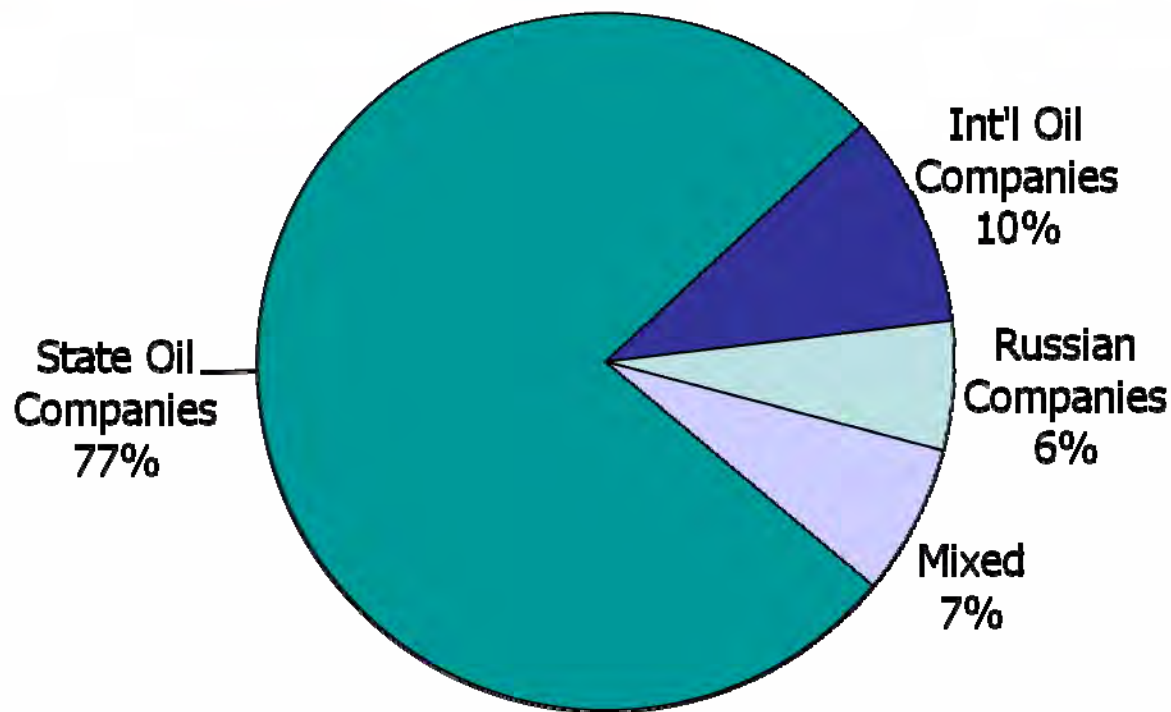


INTERNATIONAL  
**TRADE**  
ADMINISTRATION

# “Above-Ground” Issues and Arctic Oil and Gas Development



# Control of Global Proven Oil Reserves, 2005



But – 4 of the 5 Arctic countries do **not** have restrictions on foreign equity participation in the development of oil and gas.

Source: *The Changing Role of National Oil Companies in International Energy Markets*, Baker Institute for Public Policy, 2007

# Current Arctic Oil and Gas Development

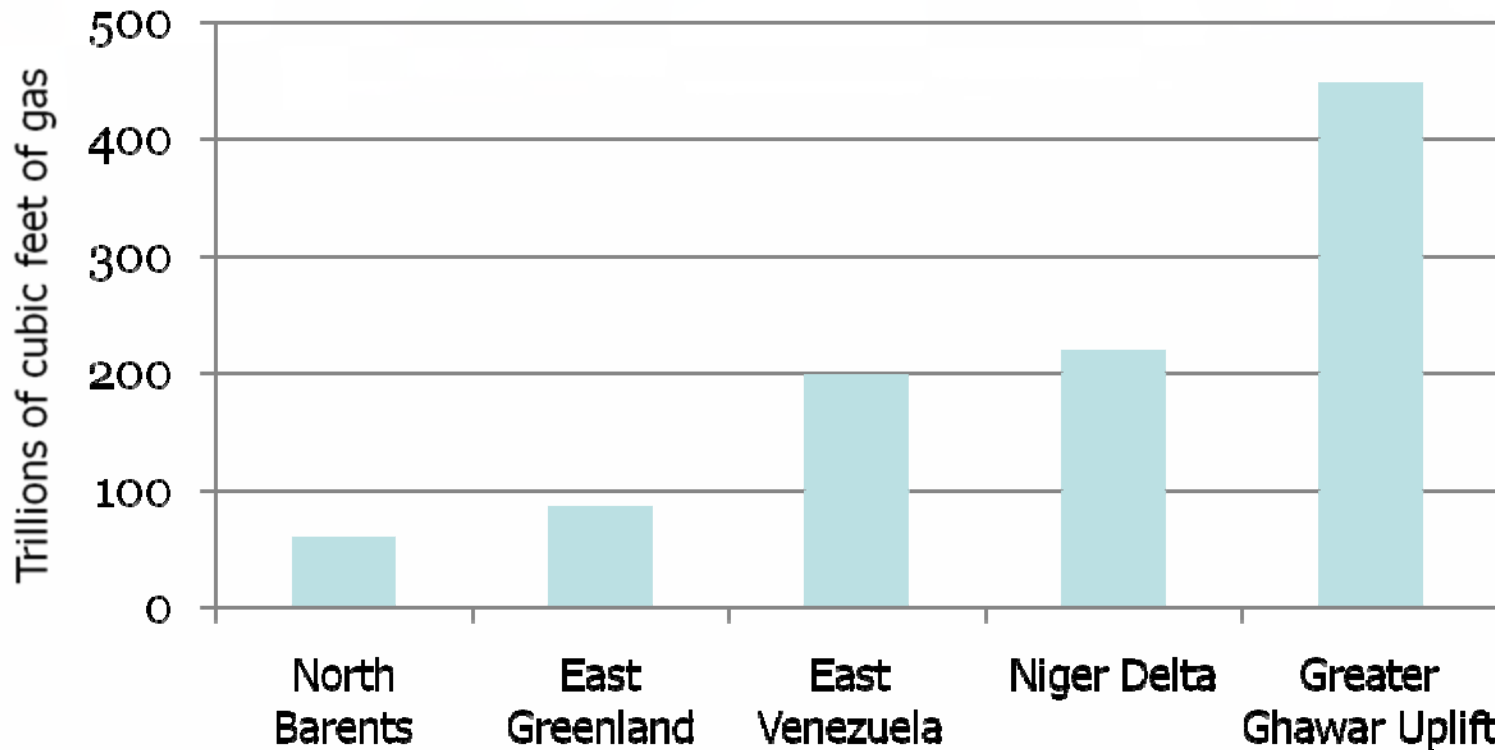


# How Much Gas in the Undeveloped Arctic?

Selected USGS and MMS Assessments

Region/geologic province	USGS estimates of mean undiscovered gas (billion cubic feet)
MacKenzie Delta (Canada)	86,601
East Greenland Rift	86,179
North Barents Sea (Russia)	59,820
Timan Pechora (Russia)	52,079
Laptev Sea (Russia)	32,252
Chukchi Sea (US)	76,770 (MMS, technically recoverable)
Beaufort Sea (US)	13,195 (MMS, technically recoverable)

## Arctic Potential Compared to Other Geologic Provinces



Undiscovered gas resources + known, unproduced gas reserves

# Access to Arctic Resources

## Russia

- Trend towards increased state control
- Ban on offshore without Rosneft or Gazprom

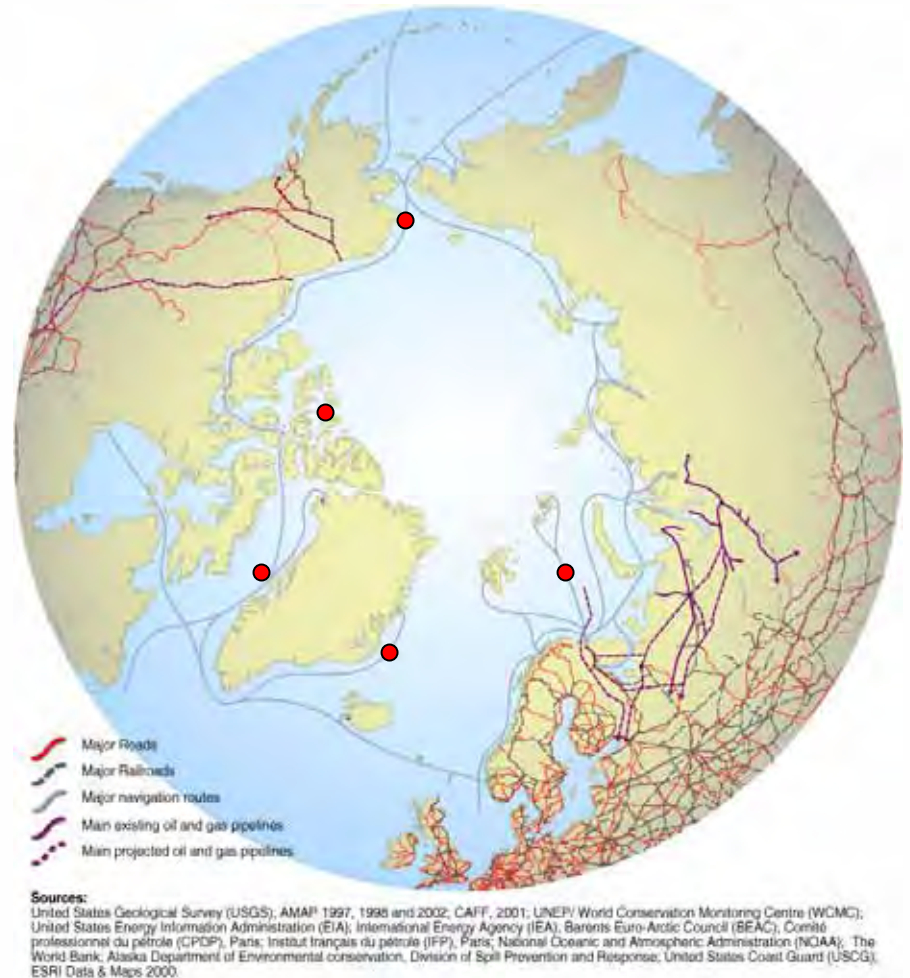


## Environmental restrictions

- Norway: Northern Barents
- U.S. could designate polar bears to be endangered

# Transportation

- Preponderance of gas complicates transportation options
- Pipelines highly dependent on government terms
- LNG feasible if resources sufficient and prices right



● = Prospective areas for o&g

# Fiscal Issues

<b>Government Take from Petroleum Development</b>	
Alaska (state)	56 – 68 %
US Outer Continental Shelf and Gulf of Mexico	37 – 51 %
Canada Arctic	58 %
Norway	73 – 77 %
Russia	Up to 90 %
Greenland	46 – 65 %

*Sources: GAO, 2007; OECD, 2006; Daniel Johnston & Co., 2007.*

# Relations Among Jurisdictions and Populations

- Some countries have unresolved issues
- New discoveries could prompt revision of agreements on regulation and revenue sharing
  - Greenland and Denmark
  - Canada and Nunavut

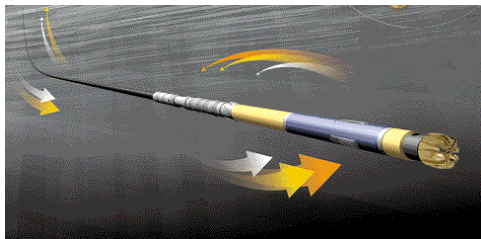
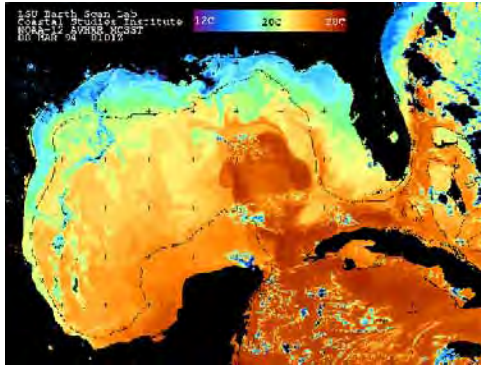




Join our webinar on May 14, 2:00 – 4:00 pm, on  
Arctic Oil and Gas Resources  
(a recording will also be available afterwards)

Rachel Halpern  
Office of Energy and Environmental Industries  
U.S. Department of Commerce  
(202) 482-4423  
[Rachel.Halpern@mail.doc.gov](mailto:Rachel.Halpern@mail.doc.gov)  
[www.trade.gov/energy](http://www.trade.gov/energy)

# Arctic Offshore Energy: The Promise and the Challenges



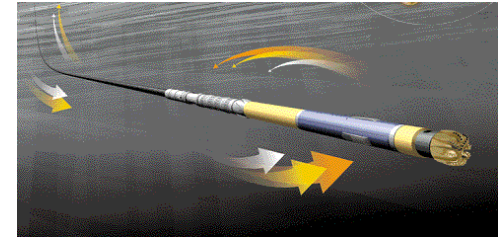
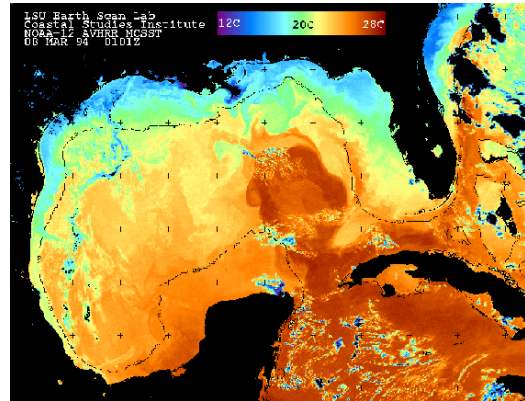
**National Ocean  
Industries  
Association**

Kim Harb  
Director of Policy  
and Government  
Affairs

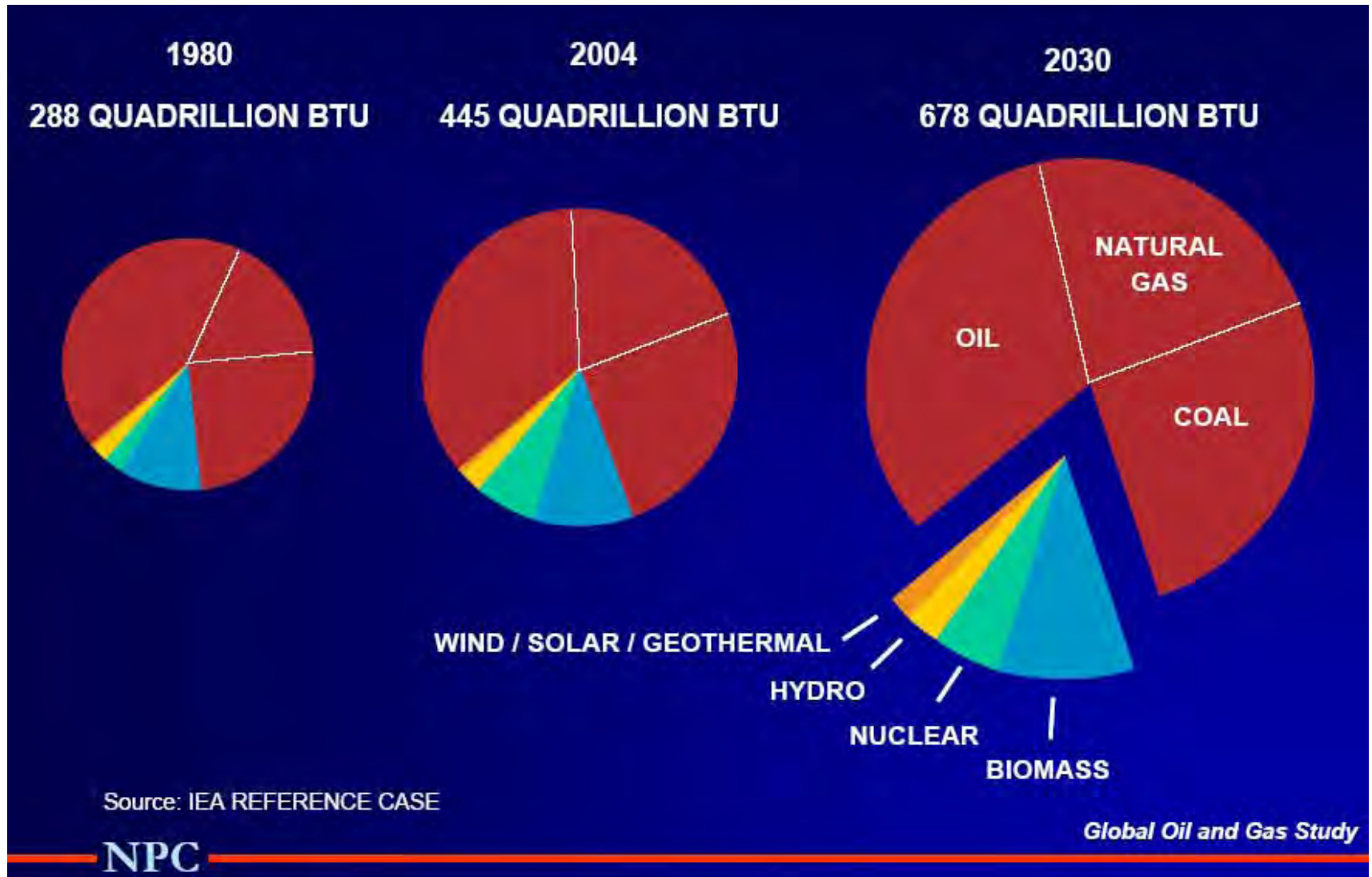
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# NOIA represents the full spectrum of U.S. businesses that produce energy from the offshore

A Tradition of Service



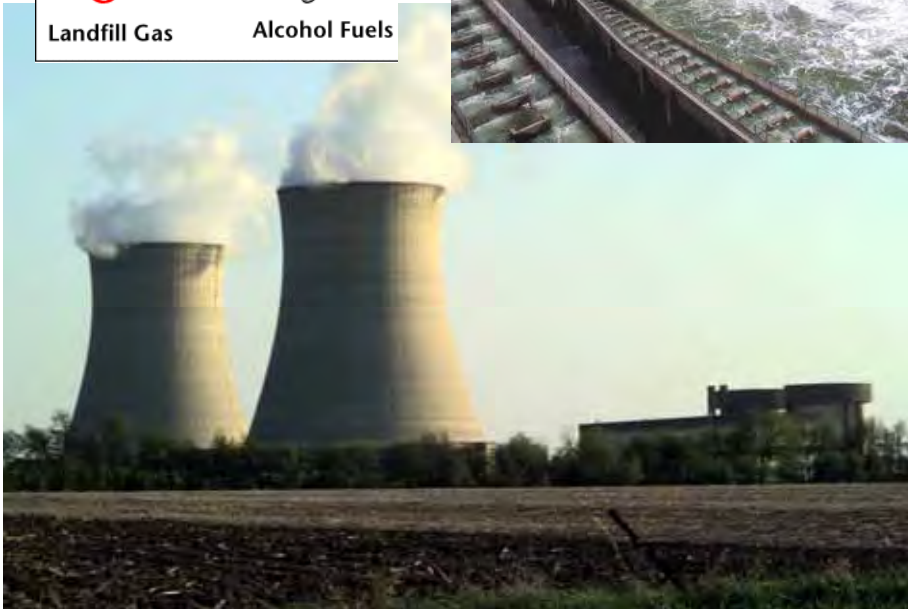
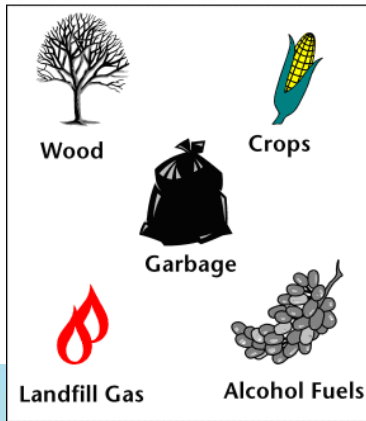
# Oil, Natural Gas and Coal Will Remain Indispensable



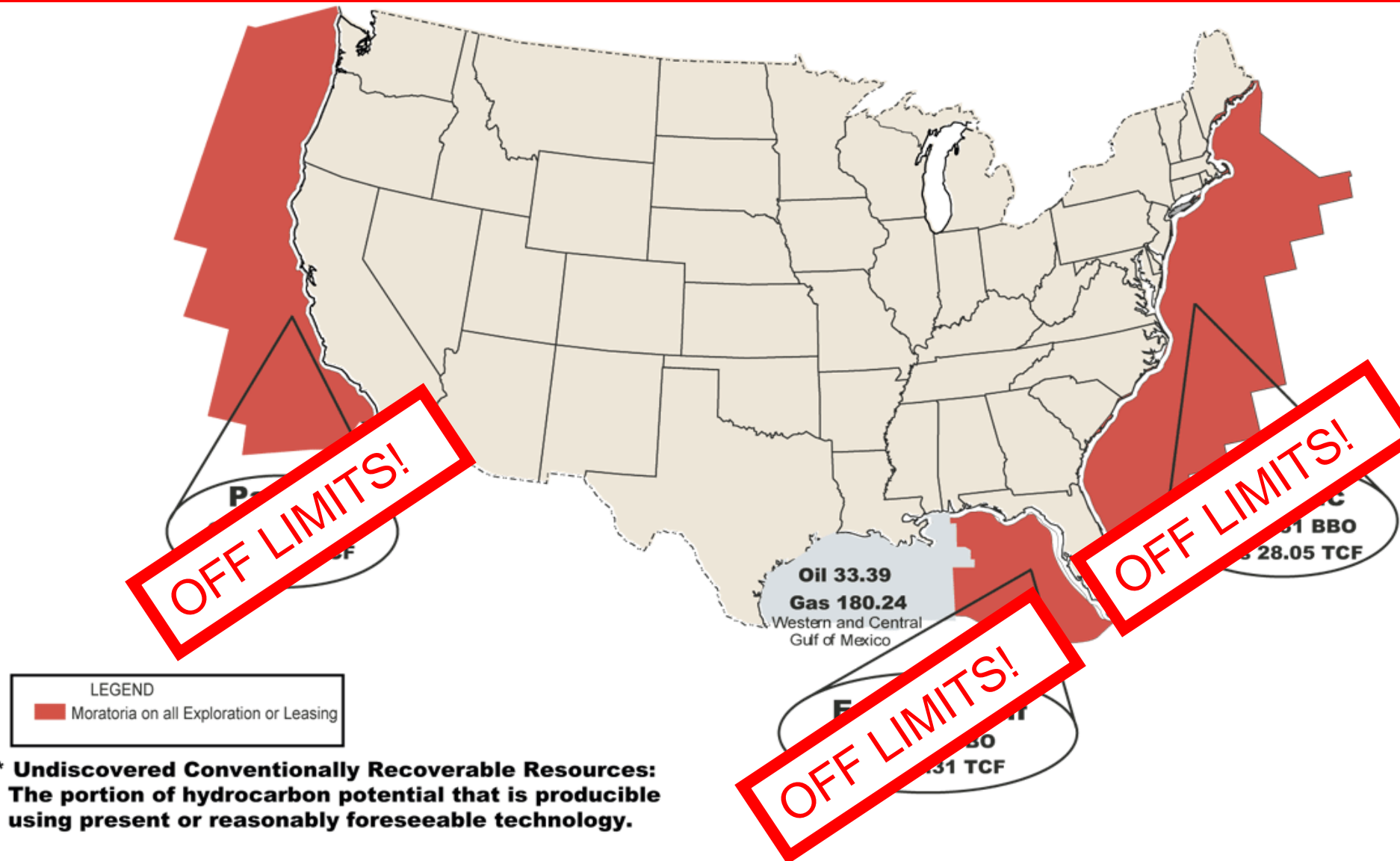
Source: National Petroleum Council Study: *Facing the Hard Truths*

# Renewable sources alone cannot meet rising demand

Types of Biomass

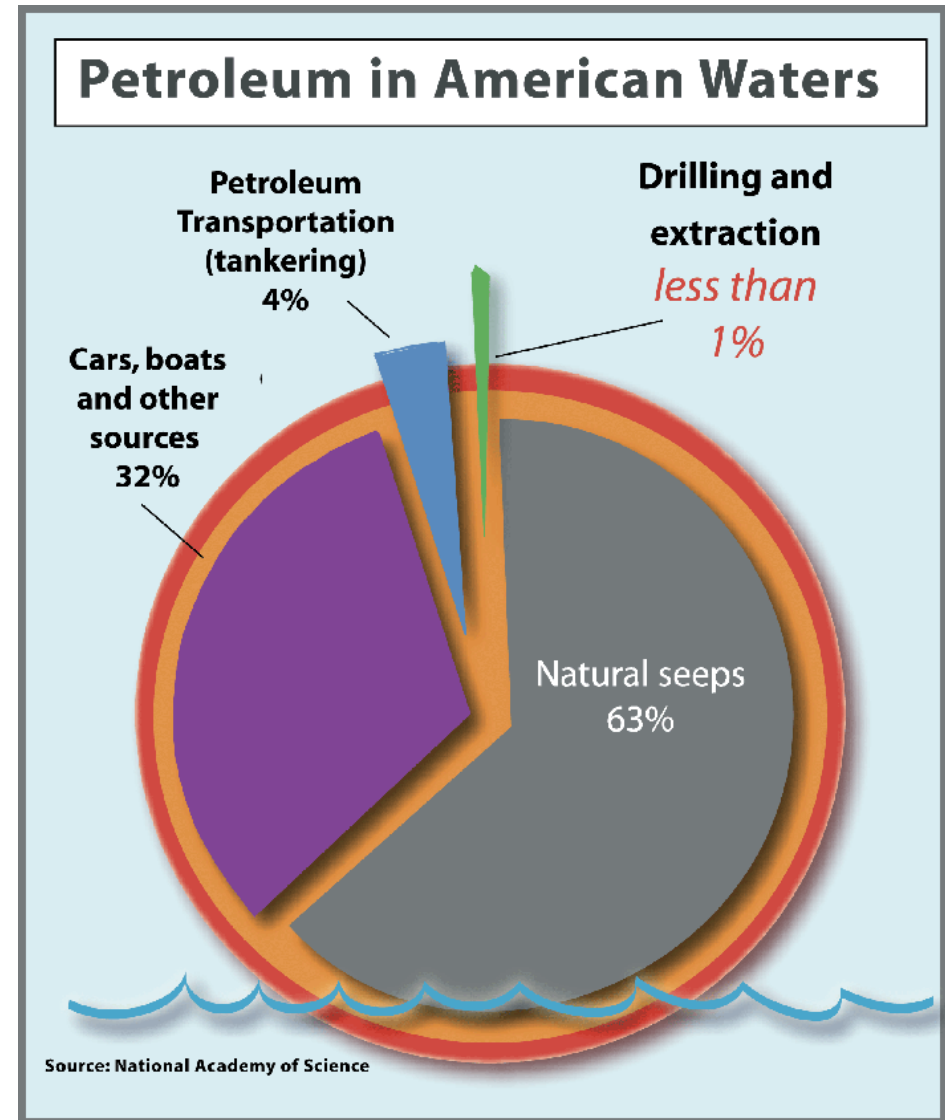


# Less than 19% of OCS is Open to Development

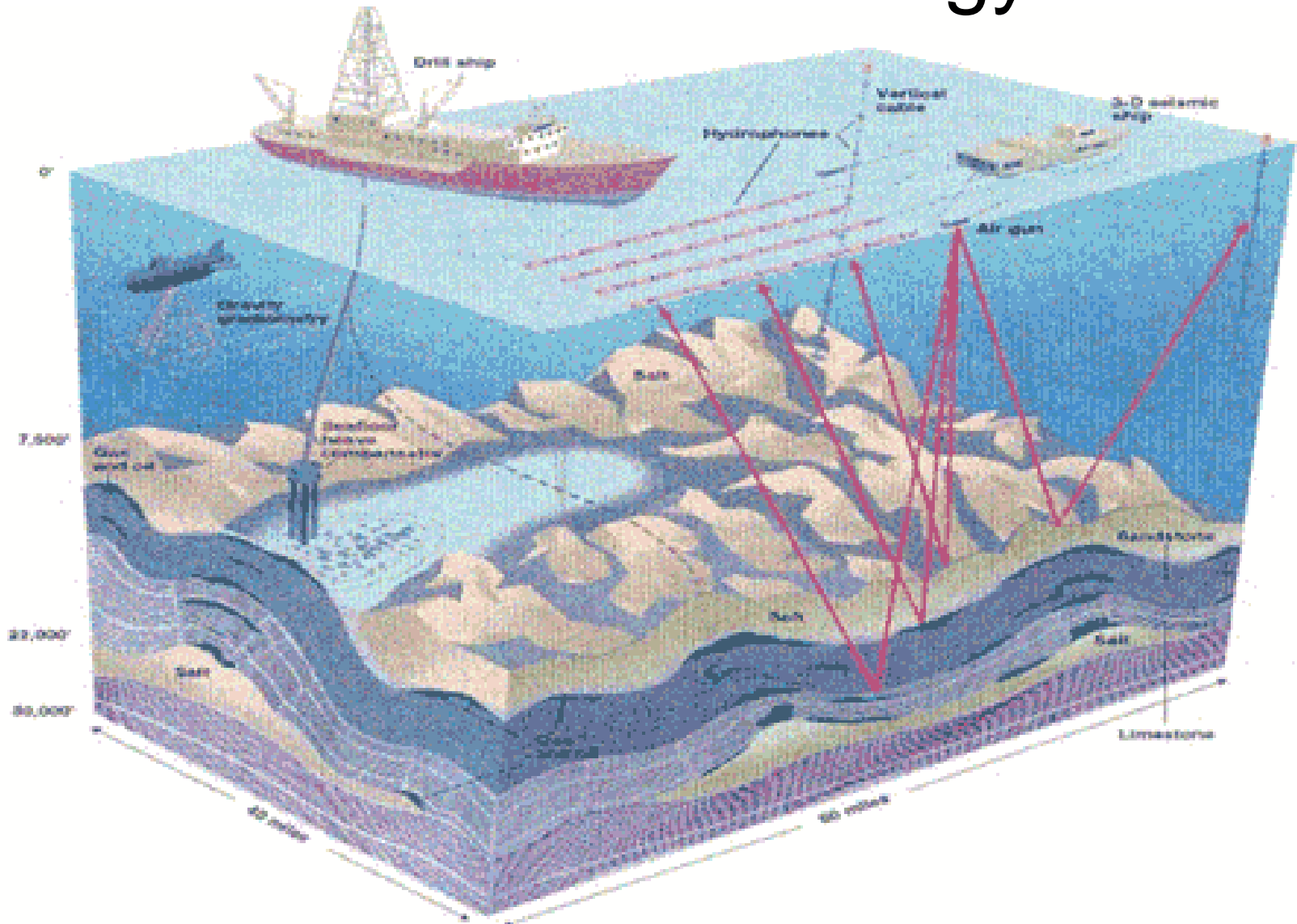


# Safety and Offshore Energy

- Enviably Record of Environmental Performance
- Continuous improvements in safety and environmentally sensitive operations
- MMS conducts 12,000 inspections annually



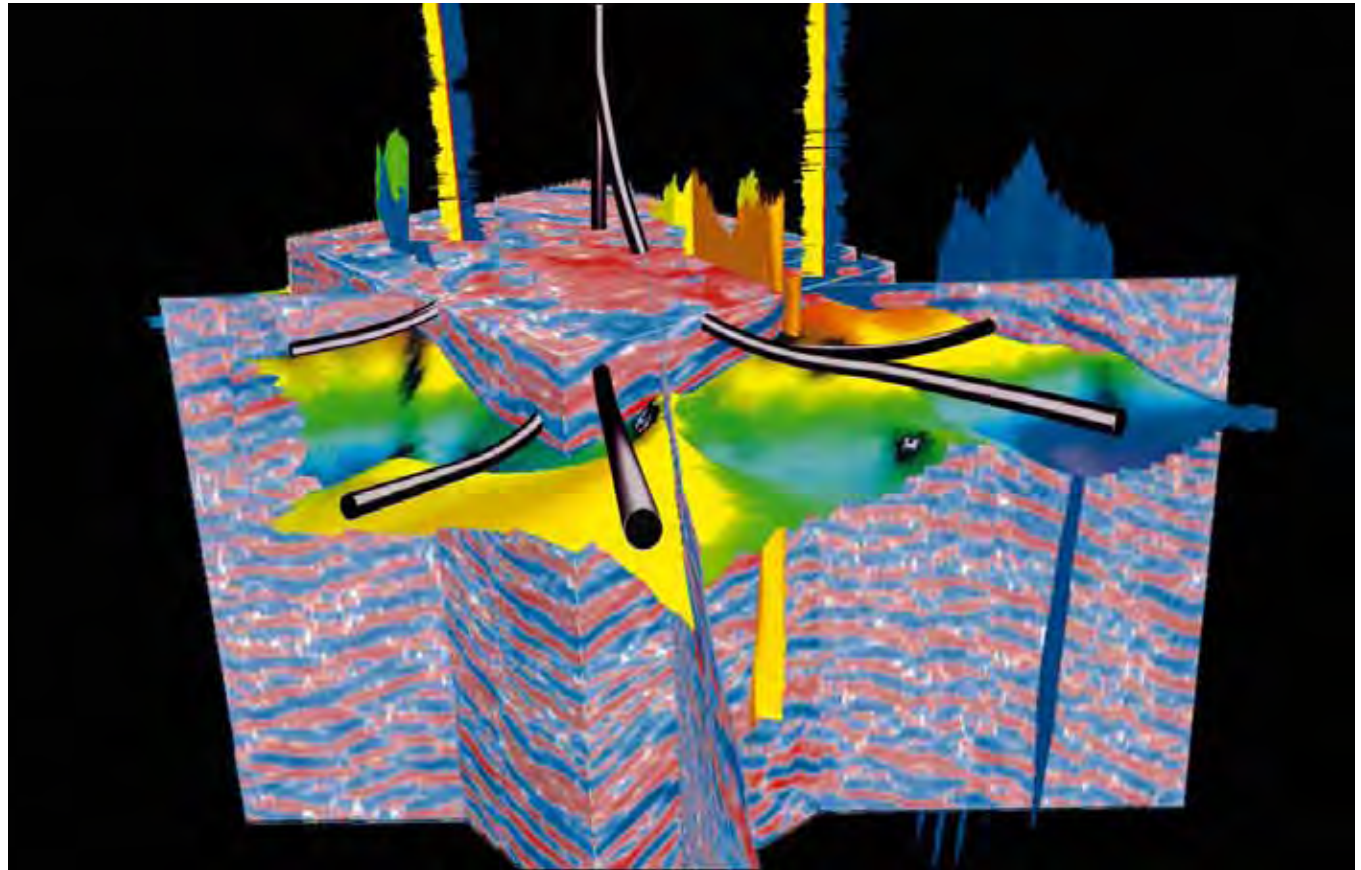
# An Overview of Exploration: Seismic Technology





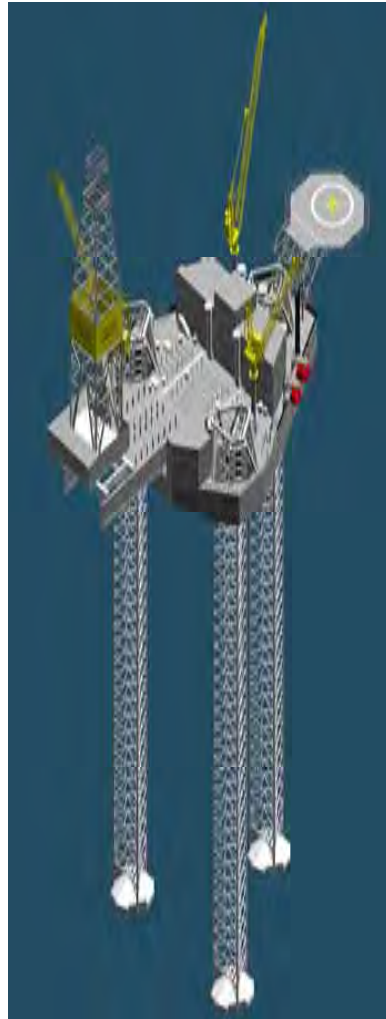
# An Overview of Exploration: Geologic & Geophysical Analysis

- Advances in computing power lead to 3-D and 4-D analysis and more targeted drilling

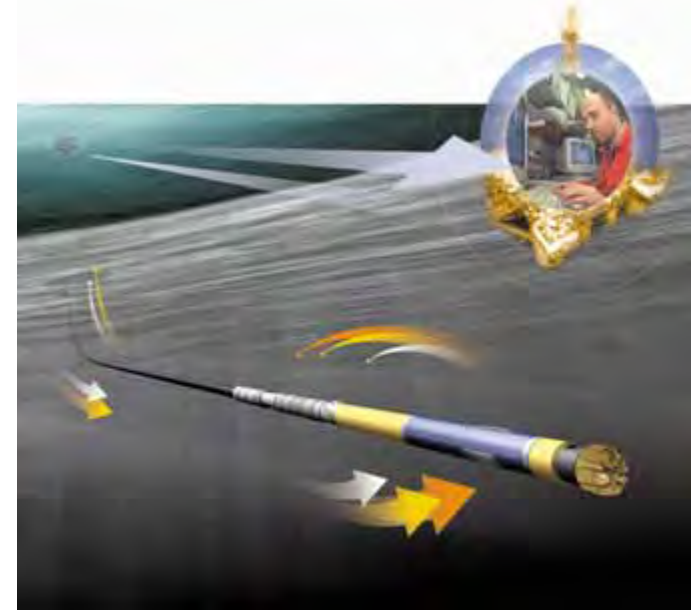


# An Overview of Exploration: Drilling Wells

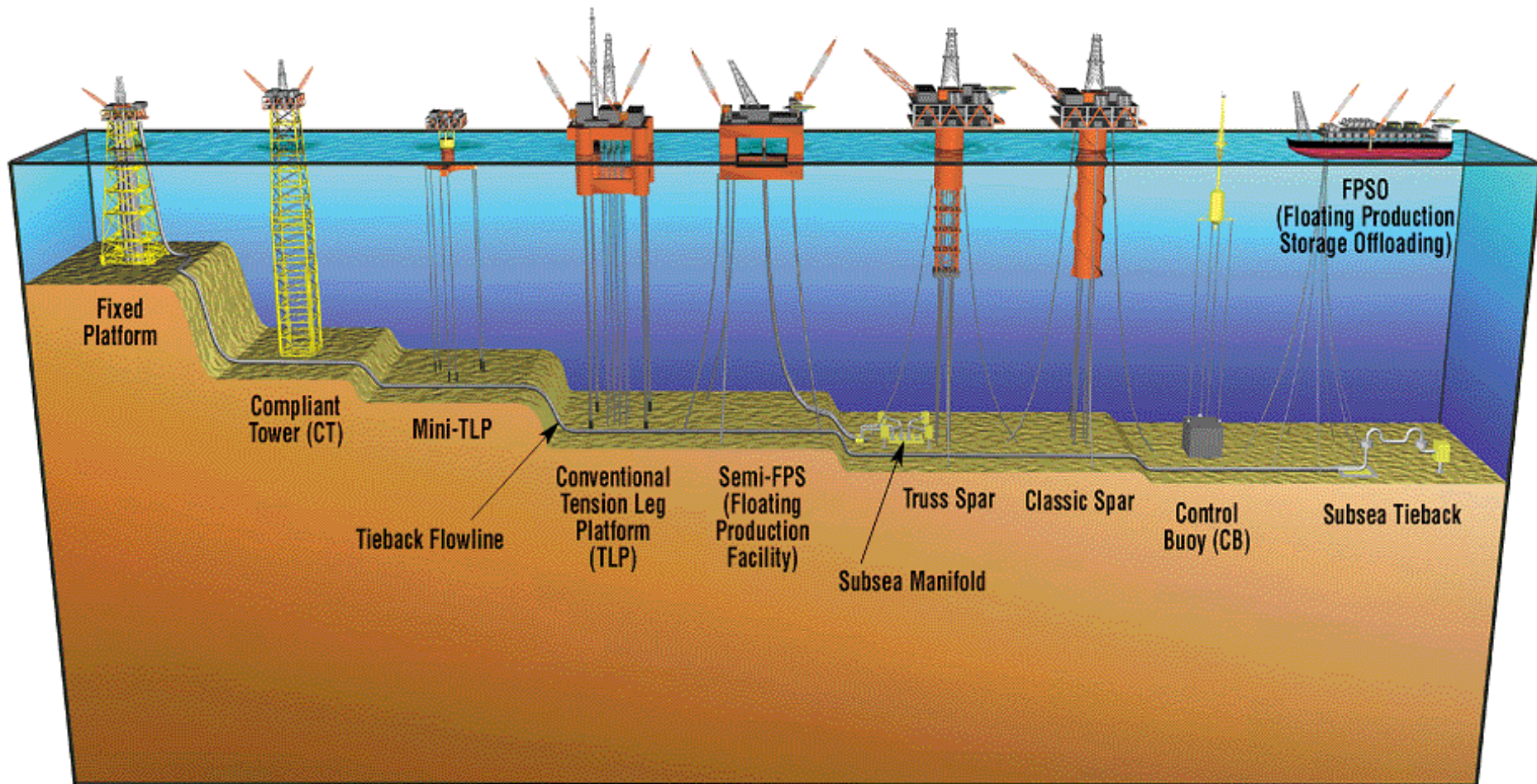
Drill Ships Reach  
Record Depths: In  
2004, Transocean's *Discoverer  
Deep Seas* drilled a well nearly  
200 miles from Galveston,  
Texas in 10,011' tvd



Directional drilling:  
Real-time data improves drilling  
accuracy/speed

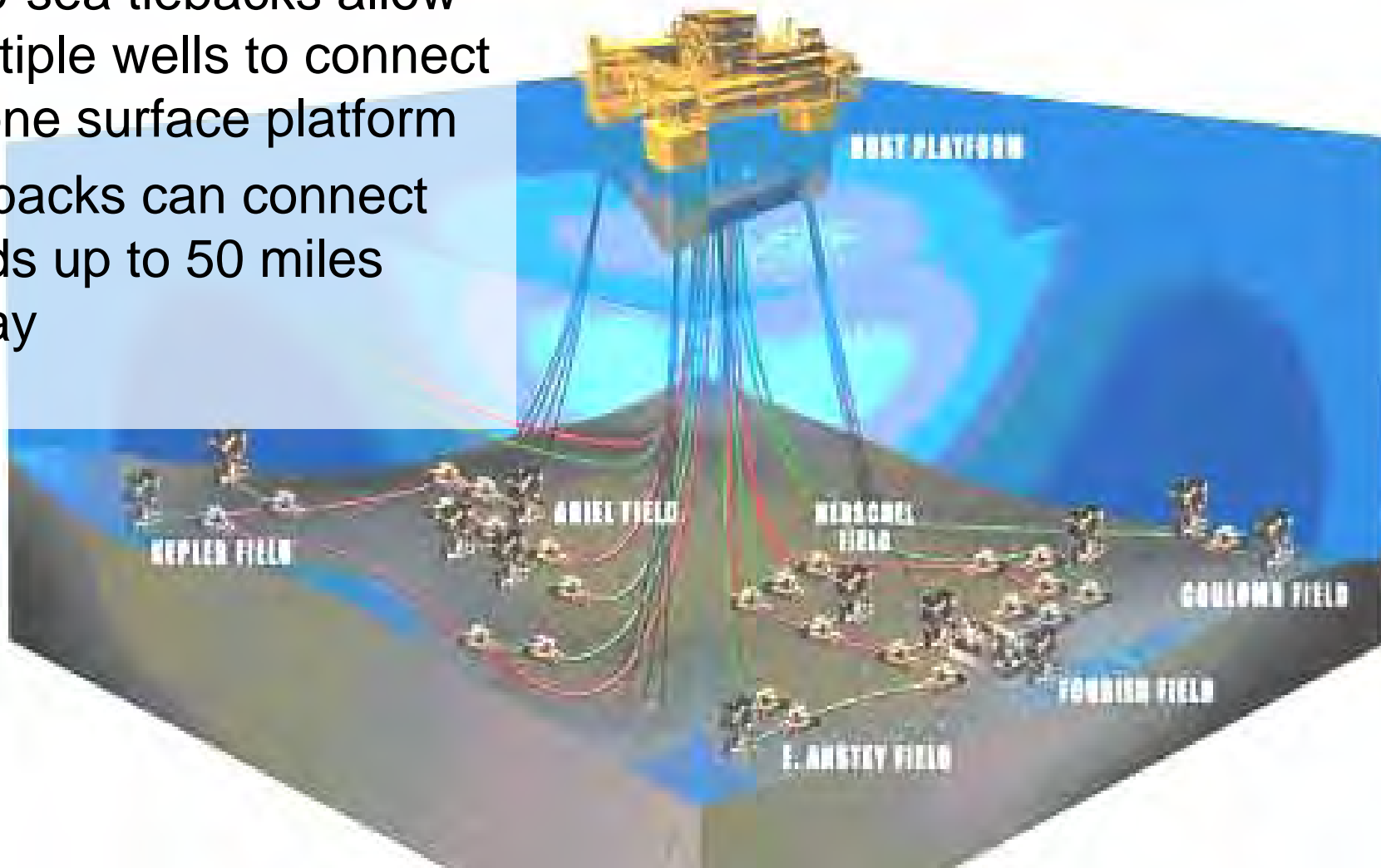


# An Overview of Production: Different Types of Platforms



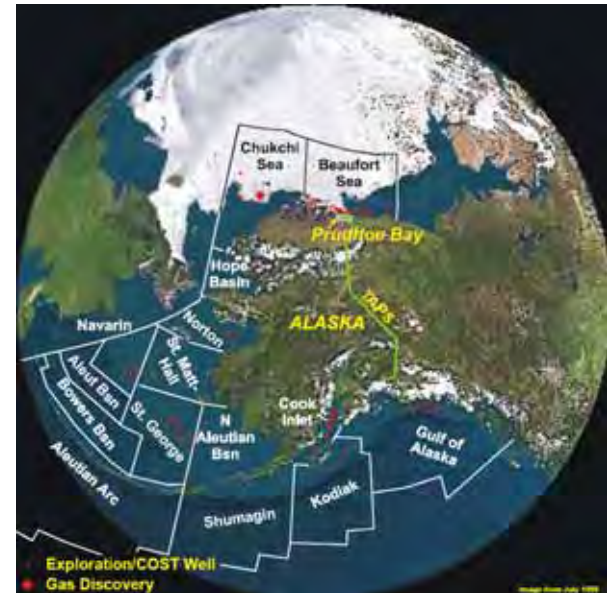
# An Overview of Production: Sub-sea Tie-back Wells

- Sub-sea tiebacks allow multiple wells to connect to one surface platform
- Tiebacks can connect fields up to 50 miles away



# Arctic Energy Resource Estimates

- Overall, Arctic is believed to account for between 25% of the world's remaining reserves of oil and natural gas
- U.S. Arctic oil and gas resources account for 40% of the nation's remaining reserves.
- 60% to 70% of U.S. Arctic reserves are offshore, concentrated largely beneath the Chukchi and Beaufort Seas
- Alaska OCS = 55 billion barrels of oil and 280 trillion cubic feet of natural gas



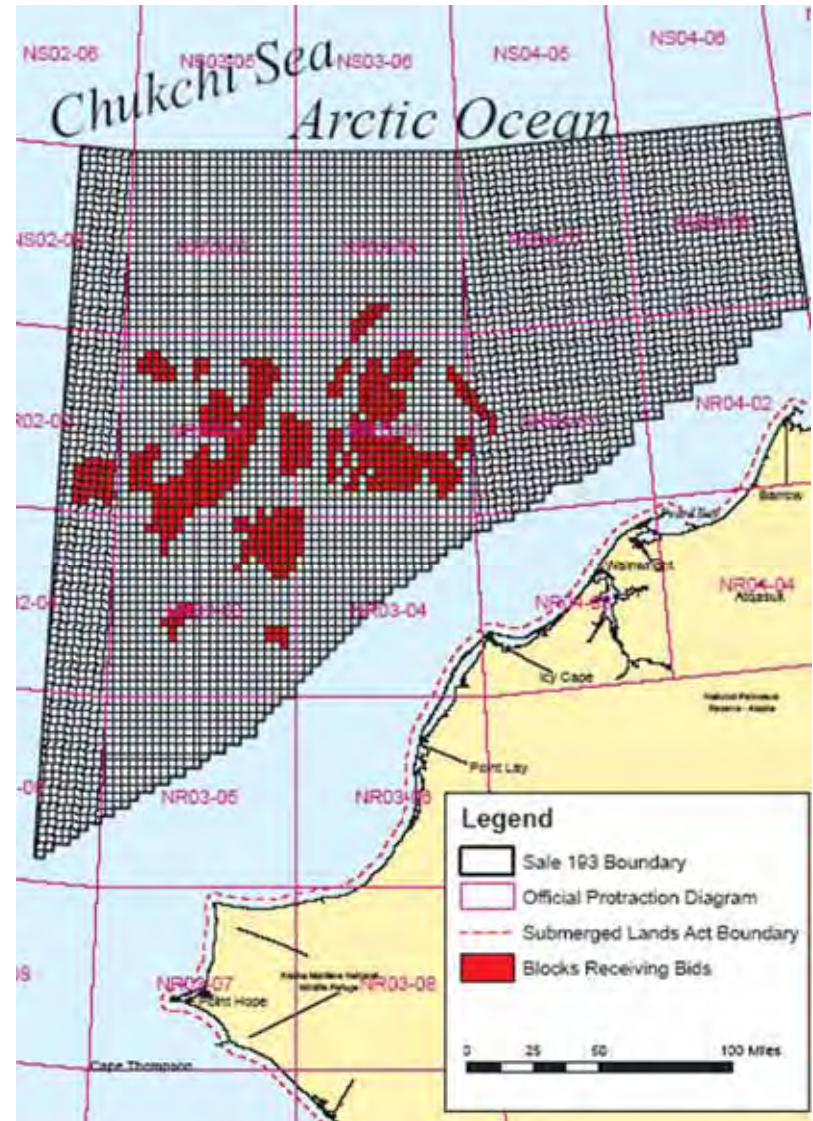
Year 2006 National Assessment - Alaska Outer Continental Shelf  
RISKED, UNDISCOVERED, TECHNICALLY RECOVERABLE OIL AND GAS

AREA	OIL AND COND (BBO)			GAS (TCFG)			BOE (BBOE)			MPhc (Geol)
	F95	MEAN	F05	F95	MEAN	F05	F95	MEAN	F05	
ALASKA OFFSHORE	8.66	26.61	55.14	48.28	132.06	279.62	17.25	50.11	104.89	1.00



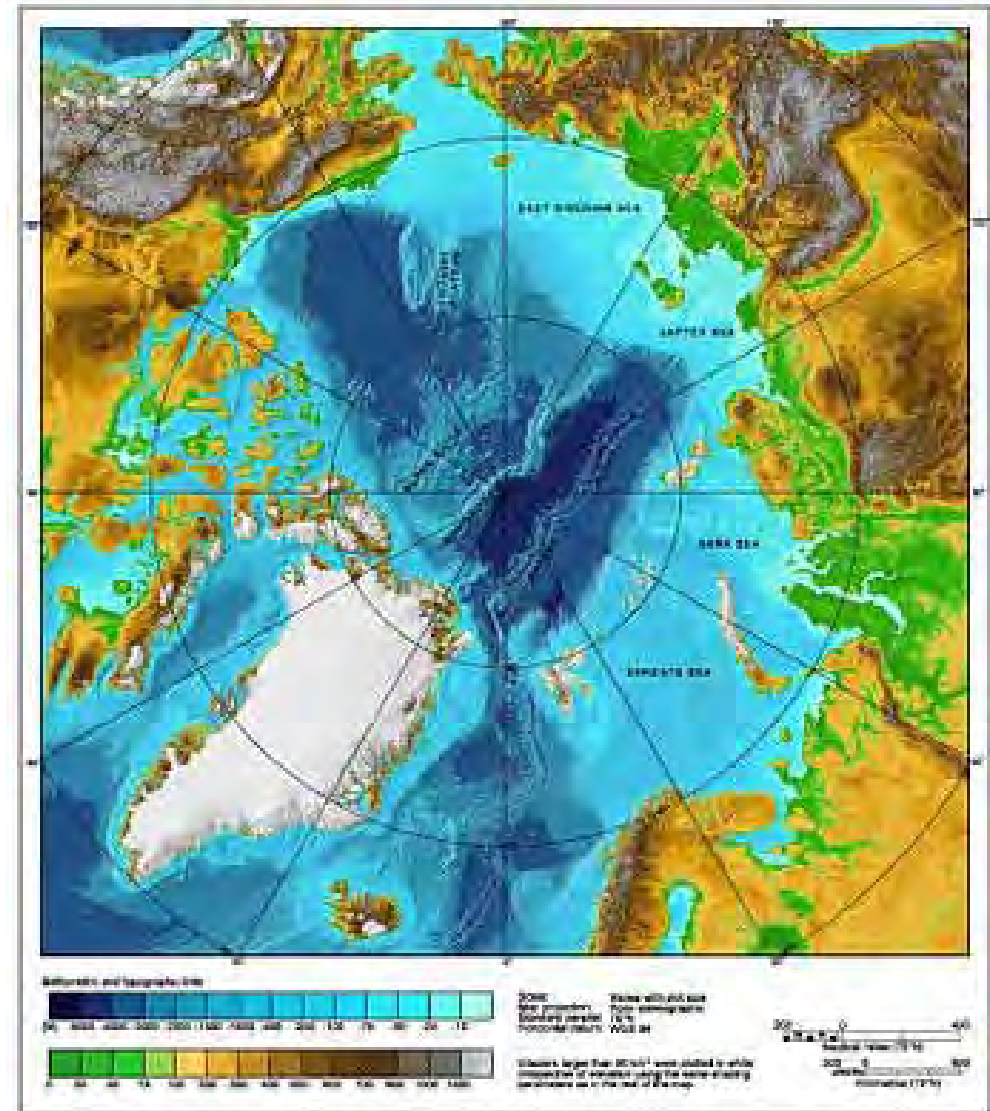
# Arctic Resources Attract Industry

- February 6 Chukchi Lease Sale generated **\$2.6 billion** in winning bids for 488 offshore leases.



# Accessing the Arctic's vital oil & gas resources will require a combination of:

- Advanced Technology
- Commitment to Safety
- Political will



# Advanced Technology

- All the advanced technologies mentioned earlier must be brought to bear

**AND**

- Equipment must be built to special specifications:
  - Cold-tempered steel
  - Double-hulled vessels

**AND**

- Operations are limited to brief summer months



Shell's drill ship Frontier Discoverer, anchored in Dutch Harbor, Alaska. The vessel carries an oil derrick 190 feet high — taller than the Statue of Liberty.



# Commitment to Safety

- Study Concludes: Offshore Drilling Has Had No Significant Impact on Marine Environment in the Arctic
- Rapid response clean-up crews and equipment pre-positioned to contain any spills that might occur

# Political Will

United States Must Accede to the Law of the Sea Convention...



...or risk losing out to claims by other countries



# The U.S. Stands to Gain 1.2 million Nautical Square Kilometers By Acceding to the Law of the Sea Treaty

**The United States could gain almost as much land as it did when purchasing Alaska in 1867.**



Light blue - Areas of potential national claims to the continental shelf beyond 200 n.m.  
(potential US claims comprise all or part of areas 1,4,5 & 14 with total area of 1.2 million sq. km.)

# Additional offshore acreage may yield significant new hydrocarbon resources

**Acreage beyond 200 miles would be free of the moratoria that currently limit OCS energy production.**



Light blue - Areas of potential national claims to the continental shelf beyond 200 n.m.  
(potential US claims comprise all or part of areas 1,4,5 & 14 with total area of 1.2 million sq. km.)

# The U.S. Stands to Gain 1.2 million Nautical Square Kilometers By Acceding to the Law of the Sea Treaty

The Continental Shelf Commission will begin deciding on claims for extended territory in exactly 1 year!

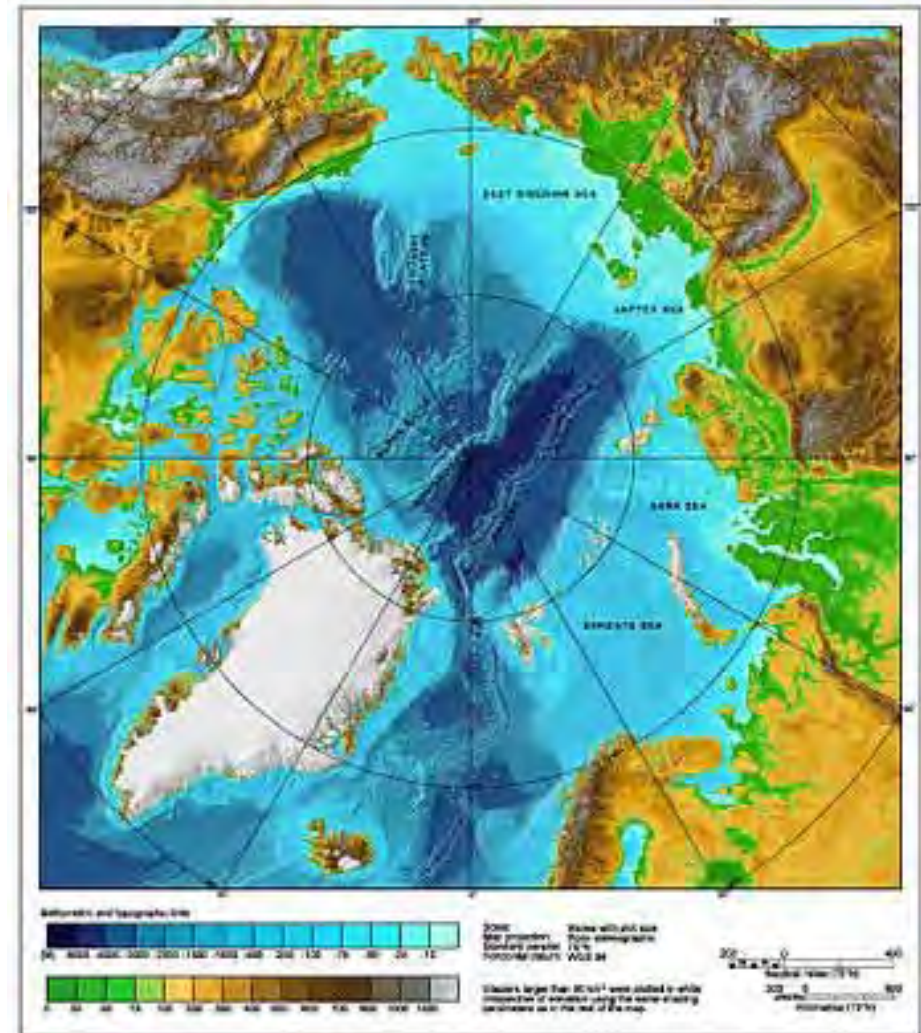


Light blue - Areas of potential national claims to the continental shelf beyond 200 n.m.  
(potential US claims comprise all or part of areas 1,4,5 & 14 with total area of 1.2 million sq. km.)

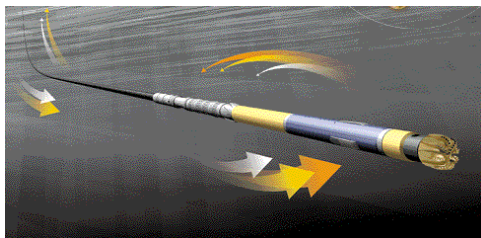
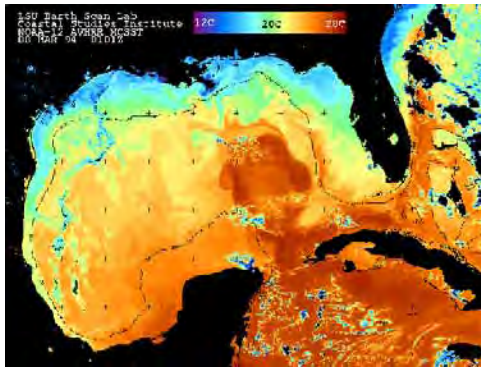


# Conclusion:

The United States must accede to the Law of the Sea Convention or risk losing out to claims by other countries and foregoing desperately needed energy resources.



# Arctic Offshore Energy: The Promise and the Problems



**National Ocean  
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# ITSSD

INSTITUTE FOR TRADE, STANDARDS,  
AND SUSTAINABLE DEVELOPMENT

## ***ARCTIC ESCAPADES***

**Can The Precautionary Principle Be  
Invoked via UNCLOS to Undermine U.S.  
Polar Interests? <sup>(c)</sup>**

**By**

**Lawrence A. Kogan, Esq.**



Presented at  
the National Defense University and  
Forces Transformation and Resources Seminar

# Transforming National Security Unfrozen Treasures

National Security, Climate Change  
and the Arctic Frontier

*Laws of the Sea: Changing Air Land and Sea  
Routes*

**MAY 14, 2008, WASHINGTON, DC**

**ISSUE OVERVIEW**

- ▶ **I. Maintaining Sovereignty Amid UN & State Efforts to Redefine It**
- ▶ **II. The UN's Heavy Hand in Shaping the Evolving UNCLOS & Global Property Rights & Environmental Legal Regimes**
- ▶ **III. Polar Posturing Reflects Competing Notions of Sovereignty & Property w/in UNCOS**
- ▶ **IV. The Arctic Continental Shelf Gold Rush – Going Beyond the EEZ**
- ▶ **V. A Not So Innocent Passage**
- ▶ **VI. Noise Pollution Invites Lawfare**
- ▶ **VII. What Goes Around, Comes Around – Curious U.S. Initiatives**
- ▶ **VIII. Possible Polar Prescriptions – Is UNCLOS Indispensable?**

# ARCTIC ESCAPADES

- ▶ **I. Maintaining Sovereignty Amid UN & State Efforts to Redefine It**
  - **Traditional 'Physical' Territorial Sovereignty (political/national jurisdiction over geographic space).**
  - **At least one commentator now maintains that there are four different types of sovereignty:**
    - ▶ 1) ***International legal*** (mutual recognition between territories that have formal juridical independence);
    - ▶ 2) ***Westphalian legal*** (political organization based on the exclusion of external actors);
    - ▶ 3) ***Domestic*** (internal) (see below); and
    - ▶ 4) ***Interdependence*** (the ability of public authorities to regulate the flow of information, ideas, goods, pollutants, or capital across their borders).
      - (Stephen D. Krasner, *Sovereignty: Organized Hypocrisy*, (Princeton NJ: Princeton University Press, 1999)
  - **'Domestic Sovereignty** (maintenance and control of domestic internal affairs without interference from beyond the borders). Can be violated in the case of int'l treaties, where one State (unilaterally) or a treaty obligation (multilaterally) has intervened in the internal Affairs of Another State, or the treaty such that:
    - ▶ (Direct) - A government is directly led to make commitments that alter the normal operation of its domestic institutions within the domain of its internal affairs.
    - ▶ (Indirect) - A government's decisions, not the subject of int'l negotiation, are distorted away from the decisions that would normally have been made under the domestic institutional arrangements of the country.

- ▶ **I. Maintaining Sovereignty Amid UN & State Efforts to Redefine It**
  - **'Functional' Sovereignty** (national or international jurisdiction over determined uses);
    - ▶ Permits interweaving of national jurisdiction and int'l competencies within the same territorial space (e.g., environmental regulation & taxation).
    - ▶ Creates the possibility that the **'Common Heritage of Mankind'** doctrine and the **Precautionary Principle** can apply both beyond & within the limits of national jurisdiction.
    - ▶ Club of Rome (1976) – 'Sovereignty' no longer involves governmental control within a geographic space, rather it refers to governmental control of specific functions within a geographic space.
      - *"Effective planning and management calls for the fundamental restructuring of the United Nations so as to give it broad economic powers and a more decisive mandate for international economic decision-making... The most effective way of articulating the planning and management functions of this organization would be through a functional confederation of international organizations, based upon existing, restructured and, in some instances, new United Nations agencies - to be linked through an integrative machinery. This system and its machinery, if it is really to reflect interdependencies between nations and solidarity between peoples, should ultimately aim at the pooling and sharing of all resources, material and non-material, including means of production, with a view to ensuring effective planning and management of the world economy and of global resource use in a way which would meet the essential objectives of equity and efficiency... In the long term, and assuming progress towards the creation of an equitable international economic and social order leading to a pooling of material and non-material resources, mineral resources will need to be viewed as a common heritage of mankind."* (See: RIO – Club of Rome (1976), at pp. 185 and 188).

# ARCTIC ESCAPADES

## ▶ I. Maintaining Sovereignty Amid UN & State Efforts to Redefine It

- ▶ International law changes and may even reduce or strengthen national sovereignty, depending on *what* the rule of law in question is and which Nation's interests are favored...
  - Attributes of sovereignty flow from the existence of a state as an international legal entity. **The most specific definition of sovereignty is supreme authority within a territory.** But, is The state supreme over all matters or merely over some of them within this context? **Matters to which sovereignty do not extend are typically covered by international law.** *Furthermore, states may choose which matters are covered by state sovereignty and by international law.*
  - *Nowhere is this more evident than in Europe... France* has authority with respect to defence policy **but not trade policy**, since it has chosen to join the European Union. ***Invoking international law, therefore, does not necessarily revoke sovereignty – it just changes or modifies the authority.***
  - **Canada, in particular, has promoted the rule of international law as a tool of world order** that, in many ways, has strengthened its sovereignty. For example, as will be discussed, ***Canada's Arctic Waters Pollution Prevention Act was translated into Article 234 of the United Nations' Convention on the Law of the Sea (UNCLOS)***, which protects fragile arctic environments – Canada's as well as those of other states. While certain states do not believe Canada's Arctic Water Act applies to them, they do recognize Article 234...Canada's Arctic Water Pollution Prevention Act (AWPPA)<sup>45</sup> is legislation that has enabled Canada to exercise functional jurisdiction over shipping in the Passage in order to protect the Arctic marine environment, but does not change the position of Canada with respect to her claim of sovereignty over the Passage.” (See: Andrea Charron, *The Northwest Passage in Context*, Canadian Military Journal (Winter 2005-2006) 41-48 at pp. 41 and 45.)

## ▶ I. Maintaining Sovereignty Amid UN & State Efforts to Redefine It

### ▶ UN General Assembly 2008 –

- "Recalling its resolutions...concerning *the United Nations Law of the Sea Convention*... Emphasizing the **universal and unified character of the Convention**, and reaffirming that the Convention sets out **the legal framework within which all activities in the oceans and seas must be carried out** and is of strategic importance as the basis for national, regional and global action and cooperation in the marine sector, and that its integrity needs to be maintained, **as recognized also by the United Nations Conference on Environment and Development in chapter 17 of Agenda 21**,... Conscious that the problems of ocean space are closely interrelated and need to be considered as a whole through **an integrated, interdisciplinary and intersectoral approach**, and reaffirming the need to improve **cooperation and coordination at the national, regional and global levels, *in accordance with the Convention***..." (UN General Assembly Res. A/RES/62/215, Oceans and the Law of the Sea (March 14, 2008))
- ...5. Calls upon States to harmonize, as a matter of priority, their national legislation with the provisions of the Convention...*to ensure also that any declarations or statements that they have made or make when signing, ratifying or acceding to the Convention do not purport to exclude or to modify the legal effect of the provisions of the Convention in their application to the State concerned and to withdraw any such declarations or statements*;... "

- ▶ **UNCLOS** entails "Three zones of **functional jurisdiction** [that] extend seaward from the outer limit of the territorial sea..." (Bernard Oxman *The Territorial Temptation: A Siren Song at Sea*, 100 Am. J. Int. L. 830 (Oct. 2006)).

### ▶ **U.S. RESOLUTION OF ADVICE AND CONSENT TO RATIFICATION - SEC. 3. OTHER DECLARATIONS AND UNDERSTANDINGS UNDER UNCLOS ARTICLE 310**

- *Does the administration actually believe that paragraphs 7, 12, 15, 16, 19, and 21 contained within the text of its "Resolution of Advice and Consent to Ratification" of the UNCLOS 1982 and the 1994 Agreements concerning the right of the U.S., as Coastal State, to impose environmental regulations to protect & preserve the marine environment will prevent other Coastal State adoption of **the Precautionary Principle**?*

## ▶ II. The UN Has Had a Heavy Hand in Shaping the Evolving UNCLOS & Global Property Rights & Environmental Legal Regimes

### ▪ The *UNCLOS Property Rights Regime* Threatens U.S. Private Property Rights

▶ Some scholars find that there is an inherent tension between the three different models of COMMON PROPERTY (oceans resource) management currently employed within the UNCLOS legal framework. These models include:

- a) **privatization of a portion of the oceans** found “in the form of Exclusive Economic Zones (EEZs)”;
- b) “ceding control of resources to...an authority figure...[such as]...the International Seabed Authority [whose] regulatory and taxing authority covers fishing, shipping, mineral resources outside of EEZs and environmental protection”; and
- c) the multilateral “institutionalization of” and concurrent administration over the global marine environment through **‘nested’ layers of regulation and enforcement**.
  - ▶ (See Stephen C. Nemeth, Sara McLaughlin Mitchell, Elizabeth A. Nyman and Paul R. Hensel, “UNCLOS and the Management of Maritime Conflicts”, Paper prepared for presentation at the Annual Meeting of the American Political Science Association (Aug. 30-Sept. 2, 2007) at pp. 4-6 14-15.

### ▪ The LOST 45 UN Environmental Restrictions on U.S. Sovereignty

- ▶ “[A] number of former and current administration officials have declared their support for the UN Law of the Sea Treaty (LOST), the largest environmental regulatory treaty in the history of the world. Based on their recommendations, President Bush, as did his predecessor, former President Clinton, agreed to resubmit the LOST to the US Senate once again for ratification.
- ▶ ...Granted, US LOST ratification would signal our acceptance of long-established customary international freedom of navigation principles, as the US Navy and Coast Guard have asserted. However, the general rule of “freedom of navigation/innocent passage” which the administration relies upon as the chief justification for binding America to this treaty has, over time, been eroded and diminished in scope by the LOST’s more numerous environmental regulatory exceptions...Collectively, these overwhelming environmental restrictions on American sovereignty obligate the US government and private US citizens to preserve and protect the ‘marine environment’ and its ‘living resources’ against all kinds of possible human-induced ‘pollution’...” (JW Middendorf II and LA Kogan, Reprinted in the Cape Cod Times FORUM as “Sea Treaty May Sink Our Naval Operations” – Dec. 2, 2007).

## ARCTIC ESCAPADES

- ▶ **II. The UN's Heavy Hand in Shaping the Evolving UNCLOS & Global Property Rights & Environmental Legal Regimes**
  - **The *UNCLOS Property Rights Regime* is Heavily Influenced by the UN's Environment-Centric General Assembly Where the U.S. Has Only 1 Vote**
    - ▶ **“Role of the General Assembly of the United Nations –**
      - **The General Assembly of the United Nations has been providing stewardship of the world's oceans and seas since the establishment of the Organization.** It was the General Assembly that convened the Third United Nations Conference on the Law of the Sea which adopted UNCLOS. It was also the General Assembly that convened the United Nations Conference on Environment and Development (UNCED) which adopted Agenda 21. The General Assembly is in a unique position to give effect to *the fundamental principle laid down in UNCLOS that 'the problems of ocean space are closely interrelated and need to be considered as a whole.'* In this context, convinced of the importance of **the annual consideration and review of ocean affairs and the law of the sea by the General Assembly, as the global institution having the competence to undertake such a review** (resolution 49/28), the General Assembly has been carrying out such annual reviews since 1983, following the adoption of UNCLOS in 1982, based on annual comprehensive reports prepared by the [UN] Secretary-General.
      - Following the recommendation of the Commission on Sustainable Development, and consistent with the legal framework provided by UNCLOS and the goals of chapter 17 of Agenda 21, the General Assembly decided on 24 November 1999 to establish an open-ended informal consultative process in order to facilitate the annual review by the General Assembly, in an effective and constructive manner, of developments in ocean affairs and the law of the sea by **considering the Secretary-General's annual report** on oceans and the law of the sea and by suggesting particular issues to be considered by it (resolution 54/33).
    - ▶ **Meetings of the Consultative Process**
      - The meetings deliberate on the **Secretary-General's report** on oceans and the law of the sea, with due account given to any particular resolution or decision of the General Assembly, any relevant special reports of the Secretary-General and any relevant **recommendations of the Commission on Sustainable Development.**
        - ▶ (See: United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea)



- ▶ **II. The UN's Heavy Hand in Shaping the Evolving UNCLOS & Global Property Rights & Environmental Legal Regimes**
- ▶ “[T]he United Nations Convention on the Law of the Sea (UNCLOS) sets out the legal framework within which all activities in the oceans and seas must be carried out. **Chapter 17 of Agenda 21, adopted in 1992 at the United Nations Conference on Environment and Development, remains the fundamental programme of action for achieving sustainable development in respect of oceans and seas.**”
    - “A large number of activities at the global, interregional, regional, subregional and national levels are being fostered and implemented by international organizations and national bodies, promoting, for example, safety of navigation, sustainable development of marine resources, conservation and sustainable use of marine and coastal biodiversity, protection and preservation of the marine environment, and better scientific understanding of the oceans and seas, their resources and their interactions with the earth's ecosystem.” (See: United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea).
  - ▶ Chapter 17 of Agenda 21 mentions repeatedly the need to employ a Precautionary Approach or Precautionary Measure in order to fulfill UNCLOS' mandates.
    - “[T]his chapter of Agenda 21, sets forth rights and obligations of States and provides the international basis upon which to pursue the protection and sustainable development of the marine and coastal environment and its resources. This requires new approaches to marine and coastal area management and development, at the national, subregional, regional and global levels, approaches that are integrated in content and are precautionary and anticipatory in ambit” (emphasis added). *Id.*, at Par. 17.1. “Coastal States commit themselves to integrated management and sustainable development of coastal areas and the marine environment under their national jurisdiction. To this end, it is necessary to, inter alia... d) Apply preventive and precautionary approaches in project planning and implementation, including prior assessment and systematic observation of the impacts of major projects”. *Id.* at Par. 17.5. “A precautionary and anticipatory rather than a reactive approach is necessary to prevent the degradation of the marine environment. This requires, inter alia, the adoption of precautionary measures, environmental impact assessments, clean production techniques, recycling, waste audits and minimization...” (emphasis added). *Id.* at Par. 17.21. States, in accordance with the provisions of the United Nations Convention on the Law of the Sea on protection and preservation of the marine environment, commit themselves, in accordance with their policies, priorities and resources, to prevent, reduce and control degradation of the marine environment so as to maintain and improve its life-support and productive capacities. To this end, it is necessary to: (a) Apply preventive, precautionary and anticipatory approaches so as to avoid degradation of the marine environment, as well as to reduce the risk of long-term or irreversible adverse effects upon it”. *Id.*, at Par. 17.22.

- ▶ **II. The UN's Heavy Hand in Shaping the Evolving UNCLOS & Global Property Rights & Environmental Legal Regimes**
  - **“The United Nations and the Law of the Sea”**
    - ▶ **“Throughout the years, beginning with the work of the Seabed Committee in 1968 and later during the nine-year duration of the Third United Nations Conference on the Law of the Sea, the United Nations has been actively engaged in encouraging and guiding the development and eventual adoption of the Law of the Sea Convention. Today, it continues to be engaged in this process, by monitoring developments as they relate to the Convention and providing assistance to States, when called for, in either the ratification or the implementation process.”**
    - ▶ **“...The United Nations also gives assistance to the two newly created institutions - the International Seabed Authority and the International Tribunal for the Law of the Sea.”**
    - ▶ **“...The United Nations will continue to play a major role in the monitoring of, collection of information on and reporting on State practice in the implementation of the new legal regime. It will also have a significant role to play in reporting on activities of States and relevant international organizations in marine affairs and on major trends and developments. This information will be of great assistance to States in the acceptance and ratification of the Convention, as well as its early entry into force and implementation.”**
    - ▶ **“...The United Nations will continue to strengthen the cooperation that has developed over the last two decades among the organizations in the United Nations system involved in marine affairs... With the passage of time, United Nations involvement with the law of the sea is expected to expand as awareness increases that not only ocean problems but also global problems as a whole are interrelated.” (See: The United Nations Convention on the Law of the Sea (A historical perspective)).**

- ▶ **II. The UN's Heavy Hand in Shaping the Evolving UNCLOS & Global Property Rights & Environmental Legal Regimes**
  - ▶ “The annual reports of the [UN] Secretary-General on the law of the sea have provided the General Assembly since 1984 with a comprehensive overview of developments relating to the law of the sea. These reports on the law of the sea have been complemented periodically by Special Reports on specific topics of current interest, e.g., marine environment, marine scientific research, needs of States, progress made in the implementation of the comprehensive legal regime embodied in the Convention, etc.” (See: “About the Reports of the Secretary General”, UN Website.)
  - ▶ *“The critics urge that the Convention will turn the world’s oceans over to the United Nations. To the contrary, the Convention establishes **coastal nations’ control over the principal resources of the oceans** while protecting freedom of navigation. The United Nations has no decision authority over any oceans issue under the Convention and no organization created is a branch of the United Nations. Rather, the three strictly limited organizations created report to the States parties to the treaty, not the United Nations. As with many arms control agreements of the United States, the negotiations proceeded under United Nations auspices. **It was individual nations, however, who developed the Convention, not the United Nations.**” (See John Norton Moore and William L. Schachte, Jr., “The Senate Should Give Immediate Advice and Consent to the Law of the Sea Convention: Why the Critics Are Wrong”, at p. 7.)*
    - **CONSIDERING THE AFOREMENTIONED EVIDENCE, HOW CAN THE EXPERTS CLAIM THAT THE U.N. IS *NOT* MATERIALLY INVOLVED IN SHAPING THE CONTINUING EVOLUTION OF THE UNCLOS, ESPECIALLY THE APPLICATION & ENFORCEMENT OF ITS MANY ENVIRONMENTAL ARTICLES, ANNEXES, REGULATIONS, & PROTOCOLS AMONG STATES???**
    - **WHAT CAN AMERICANS EXPECT FROM UNLOS? WHERE IS CONGRESS?**

### ▶ III. Polar Posturing Reflects Competing Notions of Sovereignty & Property w/in UNCLOS

#### ▶ The U.S. and Canada:

- The U.S. rush into the Arctic is for **TERRITORY** – *extension of the U.S. continental shelf beyond the U.S. EEZ to procure ENERGY*, even though Claudia A. McMurray, Assistant Secretary of State for Oceans and International Environmental and Scientific Affairs and Bernard Coakley, professor at the University of Alaska's Geophysical Institute, recently admitted to the press that, although "**there is reason to believe there could be** substantial oil resources on the continental shelves[...]'no one knows exactly the extent of the Arctic's riches'" (See: Nicholas Kralev, "U.S. pursues Arctic Claim", Washington Times (May 13, 2008)).
- The U.S. and Canada dispute over the *Arctic Northwest Passage* concerns whether the waterway qualifies as the 'internal' waters or 'territorial sea' of Canada or as an 'international strait', for purposes of ensuring 'innocent passage' of U.S. & foreign military & commercial vessels *without* conditions. It is argued that it may save time & money in global shipping & facilitate greater coordination of North American security.

#### ▶ The U.S. and Russia:

- The U.S. rush into the Arctic is for **TERRITORY & ENERGY** – to sort out competing claims over adjacent continental shelves around Alaska – Both inner & outer continental shelves.
- The U.S. and Russia over Bering Straits maritime boundaries is for purposes of properly designating the EEZs, ensuring 'freedom of navigation' and maintaining security into the North American Arctic Region. The 1990 US-Russia Treaty was signed but never ratified.
- 'Physical' unilateral sovereignty is limited to a State's INTERNAL WATERS (UNCLOS Art. 8);
- 'Functional' jurisdiction/ sovereignty begins with the TERRITORIAL SEA (e.g., 12 miles from coastal low water-line). (UNCLOS Part II)
  - **Coastal states may enact a broad (comprehensive) range of laws and regulations pertaining to the territorial sea**, including safety of navigation, protection of living and non-living marine resources, PRESERVATION OF THE ENVIRONMENT, and customs, fiscal, immigration, and health-related regulations. Outside of straits, 'Innocent Passage' may be limited/suspended & subject to coastal state regulation."

### ▶ III. Polar Posturing Reflects Competing Notions of Sovereignty & Property w/in UNCLOS

- ‘Functional’ jurisdiction / sovereignty extends to the **CONTIGUOUS ZONE**, which extends seaward from the outer limit of the territorial sea to a maximum of 24 miles from the coastal baselines. (UNCLOS Part II, Art. 33)
  - ▶ Coastal state may prevent and punish infringement of its customs, fiscal, immigration, or sanitary laws in its territory or territorial sea;
- ‘Functional’ jurisdiction / sovereignty over the **EXCLUSIVE ECONOMIC ZONE (EEZ)**, which extends up to 200 miles from the coastal baselines – 1/3 marine environment;
  - ▶ Coastal state possesses sovereign rights over the exploration and exploitation of the natural resources of *the waters and* the seabed and subsoil, and certain other specific competences, including ENVIRONMENTAL REGULATION TO PROTECT MARINE ENVIRONMENT pursuant to relevant international standards;
  - ▶ "...the EEZ embraces freedom of navigation, overflight, and communications, and is NOT in principle subject to comprehensive coastal state jurisdiction..." (UNCLOS Part V)
- ‘Functional’ jurisdiction / sovereignty over the **CONTINENTAL SHELF**, which can extend up to, but no further than, the outer edge of the continental margin - 200 miles from the coastal baselines. (UNCLOS Art. 76)
  - ▶ Coastal state exercises sovereign rights over the exploration and exploitation of the natural resources of the seabed and subsoil and certain other specific competences (UNCLOS 77).

## ARCTIC ESCAPADES

- ▶ **IV. The Arctic Continental Shelf Gold Rush – Going Beyond the EEZ**
  - **'HIGH SEAS'** - All parts of the sea that are ***NOT included in the zones under national jurisdiction*** (UNCLOS Part VII).
    - ▶ In light of UNCLOS Parts VI and XI, **'HIGH SEAS'** refers only to the **WATER COLUMN**
    - ▶ "...**the regime of the high seas applies both *beyond (seaward of) the EEZ and, except with respect to living resources, within the EEZ* to the extent not incompatible with other provisions regarding the zone.** (UNCLOS Art. 78).
    - ▶ **Open to Six Freedoms from CIL** – Freedom of/to: Navigation, Overflight, Lay submarine cables and pipelines, construct artificial islands and other installations permitted under international law, fishing, scientific research (UNCLOS arts. 86 to 89).
  - The **SEABED**, and **OCEAN FLOOR** and **SUBSOIL** underlying high seas, are ***NOT*** a part of the **HIGH SEAS**. They are either **CONTINENTAL SHELF** or **THE 'AREA'**.
    - ▶ While the **HIGH SEAS** and the **AREA** both extend beyond the limits of national jurisdiction, they do **NOT** always correspond - Either the **CONTINENTAL SHELF** or the **AREA** underlies the High Seas.
  - **The 'AREA'** - the seabed and ocean floor and subsoil thereof, ***beyond the limits of national jurisdiction*** and the resources thereof are the **'COMMON HERITAGE OF MANKIND'** (UNCLOS Art. 1).
    - ▶ **The 'AREA' shall NOT be subject to appropriation and no State shall claim or exercise sovereignty or sovereign rights over any part thereof.** The exploration of the Area and its resources shall be carried out for the benefit of mankind as a whole.

- ▶ **IV. The Arctic Continental Shelf Gold Rush – Going Beyond the EEZ**
  - **OUTER CONTINENTAL SHELF (OCS)– continental shelf beyond 200 nautical miles from the baselines (UNCLOS Art. 82).**
    - ▶ The area of sea-bed and subsoil ranging from the 200 nautical mile EEZ limit to the seaward limit of the legal continental shelf, incorporating the geological continental shelf, rise, slope and margin but not including the superjacent water column above it.
      - However, **it shall not exceed 350 nautical miles** from the baselines from which the breadth of the territorial sea is measured or **shall not exceed 100 nautical miles from the 2,500 metre isobath**, which is a line connecting the depth of 2,500 metres. UNCLOS Art. 76(5).
    - ▶ **Balancing of interests coastal states vs. foreign states: the waters above the continental shelf are EEZ within 200 (nautical) miles and HIGH SEAS beyond that distance.**
    - ▶ Unlike (inner) continental shelf, **OCS exploitation requires revenue-sharing (UNCLOS Article 82).**
      - **1 per cent of the value or volume of all production at the site after the first five years of production at that site, increased by 1 per cent for each subsequent year until the twelfth year and shall remain at 7 per cent thereafter.**
      - States shall make payments or contributions in-kind **through** the **INTERNATIONAL SEABED AUTHORITY** to other States Parties of the Convention. (Art.82(4)). Commentators believe **this obligation is a limited application of the Common Heritage of Mankind (CHM) principle**, even though OCS is within the coastal state's maritime jurisdiction. (Scholars view this as a quid pro quo for rights to exploit the OCS)
      - Where shared or common (transboundary) hydrocarbon deposits are found lying across the OCS limits and the deep sea bed Area, **Coastal State consent must be obtained before commencement of any activities in the Area that may result in exploitation of resources within Coastal State's national jurisdiction (UNCLOS Art. 142(2)).**

## ARCTIC ESCAPADES

- ▶ **IV. The Arctic Continental Shelf Gold Rush – Going Beyond the EEZ**
  - **OCS – (cont'd)**
    - ▶ Unlike (inner) continental shelf, *OCS exploitation requires revenue-sharing* (UNCLOS Article 82). (cont'd)
      - A **Coastal State** need NOT, however, obtain **Int'l Seabed Authority** consent before exploiting resources extending *beyond the OCS* into the 'AREA'.
    - ▶ Coastal States Are Potentially Subject to 'Creeping Jurisdiction' of the Int'l Seabed Authority via promulgation of **new PRECAUTIONARY PRINCIPLE-Based ENVIRONMENTAL regulations** covering the protection of OCS Transboundary and even EEZ living & nonliving resources.
      - A 2004 Resolution adopted by the United Nations General Assembly, “reiterates the importance of *the ongoing elaboration by the International Seabed Authority, pursuant to article 145 of the Convention, of rules, regulations and procedures to ensure the effective protection of the marine environment, the protection and conservation of the natural resources of the Area* and the prevention of damage to its flora and fauna from harmful effects that may arise from activities in the Area.” (See: A/RES/58/240, paragraph 14).
      - “*Invites the relevant global and regional bodies, in accordance with their mandates, to investigate urgently how to better address, on a scientific basis, including the application of precaution, the threats and risks to vulnerable and threatened marine ecosystems and biodiversity in areas beyond national jurisdiction; how existing treaties and other relevant instruments can be used in this process consistent with international law, in particular with the Convention...*” (See: A/RES/58/240, paragraph 52).



## ARCTIC ESCAPADES

### ▶ IV. The Arctic Continental Shelf Gold Rush – Going Beyond the EEZ

▶ ***“Since its establishment in 1994, the Authority has kept environmental protection as one of its highest priorities, as evidenced by the comprehensive regime for monitoring and protecting the marine environment in the Area... by the adoption of the environmental guidelines by the Legal and Technical Commission of the Authority. We must remember that nowadays, more than in 1982, the development of the international environmental law leads to the application of a precautionary approach to ocean management.”***

- (See Statement by Satya N. Nandan, Secretary-General of the International Seabed Authority in the Commemoration of the 20th Anniversary of the Opening for Signature of the 1982 United Nations Convention on the Law of the Sea, Fifty-seventh Session of the General Assembly United Nations (Dec. 9, 2002), cited in Frida M. Armas Pflirter, THE MANAGEMENT OF SEABED LIVING RESOURCES IN “THE AREA” UNDER UNCLOS, 11 REVISTA ELECTRÓNICA DE ESTUDIOS INTERNACIONALES (2006). Mr/Ms. Frida is a Member of the Legal and Technical Commission of the International Seabed Authority.)

▶ **There is currently one completed set of ISBA regulations covering polymetallic nodules and two sets of draft regulations, one covering cobalt-rich ferromanganese crusts and the other, polymetallic sulphides. Although each of these sets of regulations currently contain *‘Precautionary Approach’* language, within a section of Part V entitled, ‘Protection and Preservation of the Marine Environment’, the record reflects marked differences of opinion between the European and American delegations over its actual legal meaning. These delegations did manage to agree that this section of the regulations generally should parallel the requirements of UNCLOS Article 145. See “Outstanding Issues With Respect to the Draft Regulations on Prospecting and Exploration for Polymetallic Nodules In the Area” (ISBA/5/C/4/REV.1) – Note by the Secretariat, Doc. No. ISBA/6/C/INF.1 (Dec. 30, 1999), in *International Organizations and the Law of the Sea – Documentary Yearbook 2000*, Barbara Kwiatkowska and The Netherlands Institute for the Law of the Sea (Eds.) Vol. 16 (Martinus Nijhoff Publ. 2000©) at 401, 403).**

## ▶ IV. The Arctic Continental Shelf Gold Rush – Going Beyond the EEZ

- **The Int'l Seabed Authority (ISBA) has broad powers to protect the marine environment of the 'AREA', and can potentially regulate (indirectly) activities undertaken in the OCS, via 'CREEPING JURISDICTION'.**
  - ▶ The ISBA elaborates and adopts rules, regulations and procedures for exploration and exploitation of minerals of the deep seabed. Such rules, regulations and procedures shall incorporate applicable standards for the **protection and preservation of the marine environment** (UNCLOS Art. 145).
    - To ensure the effective protection of the marine environment, the protection and conservation of the natural resources of the Area and the prevention of damage to its flora and fauna from harmful effects that may arise from activities in the Area. (See: A/RES/58/240, paragraph 14.)
    - Some commentators have concluded that coastal state regulation of nearly all the types of activities undertaken within the OCS area (other than freedom of navigation on superadjacent waters) represent qualitative expansions of jurisdiction by these states that impinge upon the rights and freedoms of other states within the outer continental shelf marine space. **'CREEPING' COASTAL STATE JURISDICTION**
    - Not only States display a tendency of creeping jurisdiction. In theory, nothing inhibits institutions from behaving in the same way. As remarked by Thomas Franck and Evan Chesler: "There is no reason to expect an International Authority for the High Seas and Sea-Bed to behave differently."<sup>85</sup> As with respect to creeping jurisdiction, the origins of **'CREEPING COMMON HERITAGE'** are directly related to the seabed. (See: Erik Franckx, *The 200-Mile Limit: Between Creeping Jurisdiction and Creeping Common Heritage?* 39 *George Washington Law Review* 3, p. 467-498 (2007)).
  - ▶ The ISBA Council receives recommendations from the Legal and Technical Commission with regard to the **protection of the marine environment**, taking into account the views of recognized experts in that field. (See: *Recommendations for the Guidance of the Contractors for the Assessment of the Possible Environmental Impacts Arising from Exploration for Polymetallic Nodules in the Area*).
  - ▶ Additionally, the ISBA possesses 'incidental powers' as are implicit in and necessary for the exercise of its powers and functions expressly conferred upon it, with respect to activities in the Area. **The drive towards an internationalization of the deep ocean seabed was, therefore, to a large extent inspired by the idea to call a halt to the creeping jurisdiction of coastal States with respect to the seabed.**
  - ▶ "[...N]owadays, more than in 1982, the development of the international environmental law leads to the application of **a precautionary approach** to ocean management." (See: Frida M. Armas Pfirter, THE MANAGEMENT OF SEABED LIVING RESOURCES IN "THE AREA" UNDER UNCLOS".

- ▶ **IV. The Arctic Continental Shelf Gold Rush – Going Beyond the EEZ**
  - **UNCLOS Ratification is NOT Necessary for the U.S. to Extend its Continental Shelf.**
    - ▶ **The “as soon as possible but in any case within 10 years of the entry into force of this Convention for that State’ language of Art. 4 of Annex II and the drafting history of UNCLOS suggests that it was not intended to accord this right to States that are not parties to the Convention.”**
      - **However, “The acceptance of the compromise concerning the extent of the continental shelf in article 76 was based on the inclusion in the Convention of article 82 on revenue sharing in respect of the outer continental shelf... Article 82 has not created an obligation for third States.”**
      - **“...In this light, *it would seem desirable that the consideration of the question by the States parties to the Convention to accord third States the right to establish the limits of their outer continental shelf in accordance with the procedures under article 76 is linked to the acceptance by these States of the obligation concerning revenue sharing under article 82 of the Convention.*” (See: Atsuko Kanehara, *The Revenue Sharing Scheme with Respect to the Exploitation of the Outer Continental Shelf under Article 82 of the United Nations Convention on the Law of the Sea –A Plethora of Entangling Issues*, Presented at Seminar on the Establishment of the Outer Limits of the Continental Shelf beyond 200 Nautical Miles under UNCLOS—Its Implications for International Law (Ocean Policy Research Foundation Feb. 27, 2008)).**
    - ▶ **While UNCLOS ratification would likely enable the U.S. “to appoint someone to the continental shelf commission and have a seat at the table when Law of the Sea-related negotiations are taking place...*The United States is not going to be deprived of a seat at the table even if it is not a treaty member... So a virtual or indirect seat will be found, in some way or another...* (though one of 21 votes probably makes no difference). (See: Eric Posner, *The Race to the Arctic and International Law*, OuterContinentalShelf.us (Aug. 13, 2007)).**
      - **(See, e.g.: *US Can Declare Extension of Sovereign Boundaries Independent of the UNCLOS, Precedents Show*, ITSSD Journal on the Law of the Sea Convention (May 5, 2008)).**

## ARCTIC ESCAPADES

- ▶ **IV. The Arctic Continental Shelf Gold Rush – Going Beyond the EEZ**
  - ▶ **Continental Shelf Commission determinations are NOT binding.** If countries refuse to accept them, they will likely end up in dispute with each other, and subsequently, arbitration/litigation, unless the opt-out provision is invoked. (See: UNCLOS Arts. 76(8) and (10) and 298(1)(a)(i)). And the Commission cannot rule on rule on territory claimed by more than one state, which is subject to dispute resolution. (See UNCLOS Art. 83).
  - ▶ **When Australia submitted limits for the continental shelf off that part of Antarctica claimed by Australia...states from other regions complained that they did not recognize that claim.** (See: Bernard Oxman, *The Territorial Temptation: A Siren Song at Sea*, 100 Am. J. Int. L. 830 (Oct. 2006) at p. 838).
    - “The Commission’s findings confirm the location of the outer limit of Australia’s continental shelf in nine distinct marine regions and Australia’s entitlement to large areas of shelf beyond 200 nautical miles. **It should not be underestimated how long this process took: According to Australian Minister for Resources and Energy Martin Ferguson, “This is the culmination of over fifteen years of cutting edge work by a range of Government agencies...”** (See: The Hon Martin Ferguson AM MP, “UN CONFIRMS AUSTRALIA’S RIGHTS OVER EXTRA 2.5 MILLION SQUARE KILOMETRES OF SEABED”).
    - However, **if it is true that the UN Continental Shelf Commission recognized Australia's extended territorial claims as being adjacent to Australia's Antarctica claims, the Commission, in effect, seems to have recognized the division of Antarctica in contravention of the Antarctica Treaty, which is premised on the ‘COMMON HERITAGE OF MANKIND’.** Thus, it may have acted contrary to international law, which would render its determination invalid and/or subject to a litigation challenge. Policymakers should carefully review the map accompanying the Continental Shelf Commission’s determination to see if it reflects Australia dominion of the Continental Shelf adjacent to their Antarctic claims. “If this is true...[t]hat would be a UN sanctioned recognition of the division of Antarctica.” (Paraphrased Comments of Dr. Peter Leitner, author, *Reforming the law of the Sea Treaty – Opportunities Missed, Precedents Set, and U.S. Sovereignty Threatened*, University Press of America (©1996).

- ▶ **IV. The Arctic Continental Shelf Gold Rush – Going Beyond the EEZ**
  - **Will Australia's 'Successful' Claim Trigger New Territorial Urges Among UNCLOS/Antarctica Treaty Parties?**
    - ▶ When the **Antarctic treaty** was signed nearly 50 years ago, the original Parties *agreed to put their territorial claims over the remote continent into abeyance*. Pursuant to the Treaty, the interests of individual nations were to come second to preserving Antarctica as a **COMMON HERITAGE** for all countries. So, even at the height of the cold war, Antarctica as thought of as a demilitarised continent dedicated to science in a spirit of international cooperation.
      - *But the high seas surrounding Antarctica, technically speaking, lie outside the bounded land of the Antarctic continent and are therefore arguably subject to the UNCLOS. **Does Britain, which has indicated its intention to register a similar Antarctic claim, believe that UNCLOS will take precedence in seabed disputes??*** (See Michael Bravo, The Tip of the Iceberg, The Guardian Unltd (Oct. 17, 2007)).
    - ▶ One recent news article revealed that, given all the claims being filed by Arctic and Antarctic coastal states, **the limited group of 21 scientists who sit on the UNCLOS Continental Shelf Commission** will be extremely overworked, and the review process lengthened. *"The commission will be facing very, very significant workload issues in the next while because many countries will be turning in claims," says Donald Rothwell of the Australian National University in Canberra. "An already lengthy process could take longer."* (See: Colin Woodard, Who Resolves Arctic Oil Disputes? Antarctica Provides a Model for Settling Competing Claims, Christian Science Monitor (Aug. 20, 2007)).

## ▶ V. A Not So Innocent Passage

- **U.S. Position:** The Northwest Passage, though owned by Canada, is **an 'international strait' with free passage for all**, like other straits around the world;
- **Canada Position:** It has **sole jurisdiction** over the Northwest Passage and wants to enforce its own laws on ships in the Arctic waters, including environmental laws.
  - ▶ At least one adviser to the Canadian government has recommended that Canada avoid the 'Sovereignty' issue and instead focus on the 'Environmental' issue:
    - “[S]overeignty must be ‘put to the side,’ in order to ensure the protection of Canada's Northern inhabitants *and the environment* – the wiser course for Canada would be to take the lead in the North by establishing a bi-lateral agenda with the United States in order to ensure the continued continental security of North America in a ‘joint’ modality...**The main reason to increase Canada’s presence in the north is to fulfill Canada’s international responsibility to protect the environment.**
    - **“Even if the NWP were an international strait, it is recognized that Canada would have legal authority to impose certain types of measures regarding passing vessels.”** Canada has and **exerts considerable control over vessels that visit ports (or lands)** in Canada – including denying permission to enter a port (or land). Therefore, encouraging the use of Canada’s ports and services gives Canada control...Canada, however, should not consider charging mandatory pilotage charges for traversing the NWP without any stops at Canadian ports. **This has been rejected for the Torres Strait (Australia)**, and is likely to be rejected for the NWP as well.” (See: Andrea Charron, *The True North: Stronger and Freer with Help*, in DEFENCE REQUIREMENTS FOR CANADA’S ARCTIC Edited by Brian MacDonald, Vimy Paper 2007, Presentations Delivered at The Conference of Defence Associations Institute).

## ▶ V. A Not So Innocent Passage

- "On 6 October 2006, Australia introduced compulsory pilotage for the Torres Strait and Great North East Channel...to protect sensitive marine habitats...This initiative was hotly debated at the International Maritime Organization (IMO) and has been formally protested by the United States and Singapore..." (See: Compulsory Pilotage in the Torres Strait, NEWSLETTER OF THE SEA POWER CENTRE AUSTRALIA - (APRIL 7, 2007)).

### ▶ Designating the Passage as International Straits

- "The Honorable Pierre Pettigrew, Minister of Foreign Affairs, delivered a speech in 2005 in which he laid out Canada's assessment of its claims of sovereignty in the Canadian Arctic...[H]e offered that no nation disputes Canada's authority over resources or environmental protection...[H]e expressed concern over increasing shipping in the Canadian Arctic, but indicated Ottawa does not oppose international navigation, 'so long as conditions and controls established by Canadians to protect the security, environmental and economic interests of our northerners are met.' This assertion is not contentious so long as Canadian regulations reflect internationally accepted standards, are applied in a manner that does not discriminate among foreign flag states, and are endorsed by the International Maritime Organization. (See: James Kraska, *The Law of the Sea Convention and the Northwest Passage*, in DEFENCE REQUIREMENTS FOR CANADA'S ARCTIC Edited by Brian MacDonald, Vimy Paper 2007, Presentations Delivered at The Conference of Defence Associations Institute).

### ▶ Designating the Passage as Territorial Waters

- "Coastal states may enact a broad range of laws and regulations pertaining to the territorial sea, including safety of navigation, protection of living and non-living marine resources, preservation of the environment, and customs, fiscal, immigration, and health-related regulations. Vessels of all states enjoy the right of innocent passage through the territorial sea." However, such "coastal state laws and regulations shall not apply to the design, construction, manning, or equipment (CDEM) of foreign ships, unless those regulations are giving effect to internationally accepted standards. This prevents coastal states from imposing varying, arbitrary, unreasonable, or discriminatory standards on transiting vessels that would hamper world shipping and undermine the interests of all states." *Id.*
  - ▶ Vessels conducting innocent passage shall not conduct activities that are prejudicial to the peace, good order, or security of the state... Foreign ships... are obligated to comply with coastal state environmental laws, so long as those laws do not relate to CDEM." *Id.*"

## ▶ V. A Not So Innocent Passage

### ▪ Canada's Ability to Protect & Preserve the Marine Environment in its EEZ

#### ▶ UNCLOS Part V, Article 56(1) (EEZ) provides Canada with:

- The right to exercise **exclusive control** and **sovereign rights over all of the living and non-living resources throughout the Northwest Passage in areas extending out to 200 nm from each point extending seaward along lawfully drawn baselines.**

- ▶ This means Ottawa **controls conservation and exploitation of fishing** as well as the development (or non-development) of oil and natural gas and other resources contained in those waters.

- ▶ Moreover, Canada **may lawfully exercise jurisdiction over the preservation of the marine ecosystem** and the conduct of marine scientific research in this area.

#### ▶ UNCLOS Part XII, Article 234 provides Canada, as coastal state, with:

- The right to to adopt and enforce **non-discriminatory laws and regulations** to control vessel source pollution in ice-covered areas of the EEZ.

- ▶ It permits the coastal state to preserve the fragile ecology of ice-covered areas, but **only within the limits of its EEZ that extends into the Arctic.** (See: James Kraska, *The Law of the Sea Convention and the Northwest Passage*, in DEFENCE REQUIREMENTS FOR CANADA'S ARCTIC Edited by Brian MacDonald, Vimy Paper 2007, Presentations Delivered at The Conference of Defence Associations Institute).

#### ▶ UNCLOS Part XII, Article 236, in any event, exempts any warship, **naval auxiliary, other vessels or aircraft owned or operated by a State and used, for the time being, only on government non-commercial service** from UNCLOS provisions regarding the protection and preservation of the marine environment.

- But, if U.S. federal courts say that the U.S. Navy can't exempt itself from U.S. environmental laws how does the Navy intend to exempt itself from INTERNATIONAL ENVIRONMENTAL LAWS?? (See **Section VI, supra** on Lawfare).



## ▶ V. A Not So Innocent Passage

- **But, what about the vessels owned or operated by the military's private commercial contractors??**
  - ▶ **U.S. Military's private contractors NOT ABSOLUTELY eligible UNDER ALL CIRCUMSTANCES for UNCLOS Arts. 297 -298 tribunal jurisdiction exemption for 'military activities'.**
  - ▶ **UNCLOS Art. 236 exemption for 'navy auxiliary' or 'other vessels...owned and/or operated by a State' arguably does NOT include privately owned vessels owned or operated by private contractors delivering 'dual-use' equipment. How broadly does the U.S. Navy intend to define the term 'operate'??? And, How do they intend to deal with 'dual-use' equipment???**
  - ▶ **Thus countries such as Canada can invoke evolving int'l environmental norms and standards based on the Precautionary Principle, as an assertion of 'legal sovereignty' (and perhaps as disguised trade protectionism), to protect & preserve the Arctic marine environment, consistent with its UNCLOS obligations. As a result, tribunals, and UNCLOS tribunals are likely to uphold such restrictions in the Northwest Passage, Canada's territorial sea leading to it, and Canada's EEZ.**
  - ▶ **Invocation of the Precautionary Principle could potentially hamper shipments & storage of U.S. Navy 'dual-use' technologies through the NWP and in Canadian and other countries' ports. UNCLOS vests coastal states with potentially unlimited regulatory authority to control internal waterways, including the ports.**
  - ▶ **This is now more likely to occur given DoD's plan to increase its reliance on private commercial contractors more than 50% during the next 5-10 years, It should be noted that private corporations provide a wide variety of supply chain services to the DoD. *Much of the DoD's peacetime transportation needs are met through contracting with the private sector. And this will entail greater use of private commercial contractors both off and on the battlefield.* (See *Getting to a 21st Century Supply Chain*, Lexington Institute (April 2007), Exec. Sum. at pp. 1 and 6; *Contractors on the Battlefield*, Lexington Institute (Feb. 2007) Exec. Sum. at p. i; 18.)**

## ▶ V. A Not So Innocent Passage

### ▪ Canada's Banning of LNG Shipments Thru Passamaquoddy Bay to Maine

- ▶ "Canada threatens legal action against the U.S. to ensure that liquefied natural gas (LNG) tankers do not transit its waterways en route to deliver LNG to new storage terminals being built along Maine's coastline abutting Passamaquoddy Bay. It bases its claim on environmental reasons – "the waters are narrow & difficult to navigate, raising the specter of significant environmental and property damage should an accident (or even a terrorist attack) occur" and competitive reasons – "new LNG terminals would obviously compete with its own supply of LNG to the [US] through the very same pipelines." (See: Duncan Hollis, Passing Gas through Passamaquoddy Bay, Opinio Juris (5/9/07)).
- ▶ On May 11, 2008, the University of New Brunswick and the Canadian Council for International Law convened a symposium to discuss "the Passamaquoddy Bay LNG Terminal Controversy." A number of issues were addressed, including:
  - "The status under international law of the waters of the proposed shipping route through Head Harbour Passage and the Passamaquoddy Bay;
  - The right of **innocent passage** of foreign ships;
  - **The extent to which environmental risks may affect the right of innocent passage;**
  - **The constraints that the rules of international environmental law place on a state proposing to locate a potential hazardous activity in close proximity to another state;**
  - The need for a more cooperative approach to the governance of shared marine resources within the Passamaquoddy Bay, and the Gulf of Maine;
  - **The potential for the proposed LNG terminals to impact marine biological resources, including protected species, and the potential economic impact on coastal communities suggest the need for regulatory coordination that accounts for eco-system wide impacts.**
  - The application of general principles of international environmental law, such as the duty to cooperate, ecosystem integrity, **the precautionary principle and environmental assessment.**"

## ▶ VI. Noise Pollution Invites Lawfare

### ▪ Defined:

- ▶ “[L]awfare...a variant of warfare...is a strategy of using or misusing law (e.g., filing human rights or environmental lawsuits against the military to stop opposed activities) as a substitute for traditional military means to achieve military objectives...[L]awfare is often conducted during peacetime by international groups and service organizations. Its definition and the limits of the phenomenon are still vague.” (See: *Lawfare, the Latest in Asymmetries - Part One*, Council on Foreign Relations (March 18, 2003); *Lawfare, the Latest in Asymmetries - Part Two*, Council on Foreign Relations (May 22, 2003).

### ▪ Examples:

- ▶ A recent U.S. Navy document states that “The Department of Defense has given the Navy a two-year exemption from certain provisions of the Marine Mammal Protection Act, a decision that will cause more lawfare from environmental groups”. (See: Harold C. Hutchison, *The War Against U.S. Submarines*, STRATEGYPAGE.COM (Feb. 5, 2007)).
- ▶ This followed previously from “the decision of the National Marine Fisheries Service (NMFS) to authorise an incidental take of cetaceans under the Marine Mammals Protection Act 1972... [T]he US navy was successfully challenged in 2002 resulting in the grant of a preliminary injunction to prevent the deployment of peace-time SURTASS-LFA until further safeguards are devised. Finally, many states provide for detailed regulation of the whale-watching industry, in particular, in relation to the impact of noise on cetaceans.” (See: Karen N. Scott, *Sonar, Seismic Surveys and Cetaceans: International Regulation of Undersea Noise*, 53 ICLQ 287, 324 at 323-324 (April 2004).

## ▶ VI. Noise Pollution Invites Lawfare

▶ Although the antisubmarine warfare (ASW) portion of the U.S. Navy's Fleet Battle Experiment Kilo (FBE Kilo) conducted during 2003 went well and “provided numerous insights into managing the underwater battlefield”, it attracted environmentalist litigation.

- “...The experiment also utilized several new technologies, including the experimental common undersea picture, low-frequency active sonar (LFAS), and data networks....[T]he undersea portion aimed to use new technologies for antisubmarine warfare command and control. The experiment mainly focused on experimental common undersea picture technology and a variety of active and passive sonar systems, including the controversial low frequency active sonar... When used to its fullest potential, the common undersea picture could give undersea and maritime theater commanders situation awareness similar to that of aircraft commanders, who use technology to know the locations of nearby aircraft and pinpoint incoming threats... During the experiment, the Navy planned and executed a series of tests of its Surveillance Towed-Array Sensor System Low-Frequency Active (SURTASS LFA) and Passive Acoustic Systems. The Navy considers the systems to be vital for detecting the next generation of quiet diesel submarines. But the systems, especially the low-frequency active sonar, are controversial and have been the target of litigation from environmental groups and marine scientists. Opponents argue that the sonar harms marine mammals and other aquatic life by disrupting their environments. They allege that the sonar causes hemorrhaging, hearing loss, and brain damage. Morrissey said that numerous scientific observers joined the Navy for the low frequency sonar portion of FBE Kilo and there was no evidence of injury to marine mammals. The deployment of the sonar was deemed a success by the 7th Fleet and development center analysts who wrote that it "led to successful prosecutions of opposing-force submarines." (See: Patricia Kime, Navy Should Bolster Crisis Planning for Theater ASW: Fleet Battle Experiment Indicates Common Undersea Picture Sensors Work Well, Seapower (Sept. 2003)).

## ▶ VI. Noise Pollution Invites Lawfare

### ▪ Environmentalists Allege That Navy Sonar Exercises Correlate With Whale Strandings

- ▶ “[A] number of researchers have connected recent incidences of multiple (and often fatal) strandings to the testing of NATO and US military sonar. Multi species strandings of between 12 and 17 individuals (more often than not Curviers’ beaked whales (*Ziphius cavirostris*)), took place off the coasts of the Canary Islands in 1985, and 2002, Greece in 1996, and the Bahamas in 2000. All these incidences coincided with military active sonar operations. An investigation carried out by the NOAA, NMFS and the US Navy based on necropsies of the dead animals found in the Bahamas concluded that acoustic or impulse source trauma caused the strandings. The report also found that the use of tactical mid-range frequency sonar aboard US Navy ships was the most plausible source of the trauma although the mechanisms by which sonar caused both stranding and tissue damage are unknown.” (See: Karen N. Scott, *Sonar, Seismic Surveys and Cetaceans: International Regulation of Undersea Noise*, supra, citing Joint Interim Report – Bahamas Stranding Event of 11-16 March 2000 at 14.)

### ▪ President Bush Grants Exemption from Marine Mammal Protection Act in Response to Recent 2008 Ninth Circuit Court Decision:

- ▶ The Ninth Circuit Court of Appeals recently ruled that the Navy’s plan for protecting marine mammals off the West Coast during sonar training was inadequate, and ordered the case back to U.S. District Court Judge Florence-Marie Cooper. Judge Cooper proceeded to ban sonar use within 12 nautical miles of the coast and mandated shutdown procedures when the Navy spotted marine mammals. All this in spite of the fact that the Navy already employs 29 procedures to lessen the impact of sonar on marine life. The Navy requested an exemption from the Marine Mammal Protection Act and President Bush granted the request, declaring the sonar training to be “in the paramount interest of the United States... *This exemption will enable the Navy to train effectively and to certify carrier and expeditionary strike groups for deployment in support of world-wide operational and combat activities, which are essential to national security.*” (See: Frank Gaffney, *Mugged By Legality*, Washington Times (April 2008)).

## ▶ VI. Noise Pollution Invites Lawfare

- ▶ “U.S. District Judge Marie Florence-Marie Cooper ruled this month in Los Angeles that the Navy's plan to limit harm to whales -- especially deep-diving beaked whales that have at times stranded and died after sonar exercises -- were "grossly inadequate to protect marine mammals from debilitating levels of sonar exposure." A federal appeals court had previously ruled that the Navy plan was inadequate and sent the case back to Cooper to set new guidelines for the exercise. In her ruling, Cooper banned sonar use within 12 nautical miles of the coast and required numerous procedures to shut it off when marine mammals are spotted. After the ruling, the Navy indicated that the guidelines would render the exercise useless, but the judge disagreed. ***The Navy had received a federal exemption from the Marine Mammal Protection Act for the exercises, which are scheduled to continue through January 2009, but the NRDC [National Resource Defense Council, an environmental activist group,] and other groups filed suit under other environmental laws.*** The Navy will still have to convince federal judges that the exemptions are legal. The NRDC said yesterday that waivers are not allowed under the National Environmental Protection Act. The NRDC also said the situation does not constitute an emergency, because the Navy is allowed to continue sonar training under Cooper's ruling.” (See: Marc Kaufman, *Navy Wins Exemption From Bush to Continue Sonar Exercises in Calif*, Washington Post (Jan. 17, 2008)).
- ▶ In a court filing Tuesday [Jan. 15, 2008], government lawyers said ***President Bush had determined that allowing the use of mid-frequency sonar in ongoing exercises off Southern California was "essential to national security" and of "paramount interest to the United States."*** Based on that, the documents said, ***Bush issued the order exempting the Navy from provisions of the Coastal Zone Management Act, and the White House Council on Environmental Quality granted the Navy a waiver from the National Environmental Protection Act. The exemptions were immediately challenged by the environmental group that had sued the Navy and by the California Coastal Commission a state agency that ruled last year that the Navy's plans to protect marine mammals were too limited and deeply flawed... Sen. Barbara Boxer (D-Calif.) sharply criticized the exemptions...Adm. Gary Roughead, the chief of naval operations, said that the White House waivers were essential and warranted...*** *Id.*

# ARCTIC ESCAPADES

## ▶ VI. Noise Pollution Invites Lawfare

- ▶ A federal judge in California on Monday [Feb. 4, 2008,] reinstated a series of provisions meant to protect whales from high-powered sonar during military exercises in the Pacific Ocean. *The decision was a rebuke to an effort by the Bush administration to exempt the Navy from those rules and from federal law. The decision, by Judge Florence-Marie Cooper of Federal District Court, found that the administration's Council on Environmental Quality had overreached on Jan. 15 when it cited "urgent national security reasons" to approve weaker rules for the exercises.* In early January, Judge Cooper issued an injunction on naval exercises in the Pacific, requiring a series of mitigation efforts including shipboard and aerial monitors to watch for whales and a mandatory shutdown of midfrequency sonar whenever whales were spotted within 2,200 yards of ships. But **the council's move coincided with the president's waiver exempting the Navy from the Coastal Zone Management Act, which environmental groups had used as a legal basis for their arguments against the Navy's use of midfrequency sonar.** (See: Jesse McKinley, *Judge Reinstates Rules on Sonar, Criticizing Bush's Waiver for Navy*, New York Times (Feb. 5, 2008).

## ▶ VI. Noise Pollution Invites Lawfare

- **Environmentalists, as Do Some States, Interpret UNCLOS as Imposing an Obligation on Coastal State Parties to Ensure Protection of Marine Life From Noise Pollution From Vessels**
  - ▶ Commentators have cited **UNCLOS Article 194(1)** which obliges parties to take all measures that are “necessary to prevent, reduce and control pollution of the marine environment from any source.”
  - ▶ Commentators have also cited **UNCLOS Article 1(4)** because of its breadth:
    - “The introduction by man, directly or indirectly, of substances *or energy* into the marine environment, including estuaries, which results or is *likely to result* in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities.”
    - The term “energy” in Article 1(4), as interpreted in accordance with its ordinary meaning in the context of the objects and purposes of UNCLOS, plainly encompasses noise within its remit. Textually, “energy” as classically defined is subdivided into a number of components including sound waves.
  - ▶ Commentators, furthermore, reference **UNCLOS Article 211(1)**, which seeks to prevent, reduce and control the pollution of the marine environment from vessels. They conclude that this provision permits states to implement routing measures for the protection of the environment from pollution. States may therefore route traffic so as to avoid areas which are, for example, particularly important for breeding or migration. - **‘Marine Protected Areas (MPAs)**.
  - ▶ Moreover, commentators refer to **chapter 17 of Agenda 21 (Agenda 21: Programme of Action for Sustainable Development, adopted at the 1992 United Nations Conference on Environment and Development (UNCED))**, which is alleged “to describe the customary international law obligations of protection and sustainable development of the marine and coastal environment as ‘reflected in the provisions of’ **UNCLOS 1982.**” (See: **Karen N. Scott, *Sonar, Seismic Surveys and Cetaceans: International Regulation of Undersea Noise*, supra).**



## ▶ VI. Noise Pollution Invites Lawfare

- Chapter 17 of Agenda 21, mentions repeatedly the need to employ a Precautionary Approach or Precautionary Measure in order to fulfill UNCLOS' mandates. At least one commentator has argued that, since UNCLOS reflects the Precautionary Principle (in contrast to a Precautionary Approach), state parties must apply it to prevent acoustic pollution.
  - ▶ Par. 17.21. states, "in accordance with the provisions of the United Nations Convention on the Law of the Sea on protection and preservation of the marine environment, commit themselves, in accordance with their policies, priorities and resources, to prevent, reduce and control degradation of the marine environment so as to maintain and improve its life-support and productive capacities. To this end, it is necessary to: (a) Apply preventive, **precautionary and anticipatory approaches** so as to avoid degradation of the marine environment, as well as to reduce the risk of long-term or irreversible adverse effects upon it" (emphasis added). *Id.*, at Par. 17.22.
  - ▶ According to one commentator, "[P]recautionary and anticipatory approaches...can be applied equally in respect of the introduction of noise into the marine environment. States are required therefore, to take preventive measures based on existing knowledge to avoid pollution, rather than to take remedial measures once it has occurred, and to apply a precautionary approach when scientific certainty about the harmful effects is not (yet) available. **In its mildest form, the precautionary principle provides that 'where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.'** More firmly put, the precautionary principle envisages preventive measures to be taken when there are reasonable grounds for concern that the introduction of substances or energy into the marine environment is likely to result in hazards to human health or harm to marine living resources and marine ecosystems, damage amenities, or interfere with other legitimate uses of the sea even when there is no conclusive evidence of a causal relationship between inputs and their alleged effects. The precautionary principle does not specify how much evidence is needed to take action, nor does it specify what kind of preventive measures are to be taken. However, it does require some form of positive action when there is sufficient evidence that environmental harm is likely to occur. It can also be read as putting the burden of proof upon the state conducting or allowing the activity, who will have to demonstrate that it is not likely to have such effects. (cont'd on next page)

## ▶ VI. Noise Pollution Invites Lawfare

- ▶ “**Aside from the general obligation to prevent pollution, prevention and precaution are reflected in particular in the duty for states to assess the risks related to activities conducted within their jurisdiction or control and the potential harm that may result from such activities. The LOS Convention requires states to assess the potential effects of planned activities within their jurisdiction or control (i.e., irrespective of where they occur), when there are reasonable grounds for believing that they may cause ‘substantial pollution of or significant and harmful changes to the marine environment.’ States are required to prepare assessment reports, which have to be communicated to the competent international organization, which is to make them available to all states. Although it is unclear when the threshold for such assessment will be reached and states are only required to fulfill this obligation ‘as far as practicable,’ it is evident that this obligation can apply in the same way to activities that can result in acoustic pollution**”. (See: Harm M. Dottinga and Alex G. Oude Elferink, *Acoustic Pollution in the Oceans: The Search for Legal Standards*, 31 *Ocean Development & International Law*, 151–182 at p. 161 (Taylor & Francis 2000)).

## ▶ VII. What Goes Around, Comes Around – Curious U.S. Initiatives

### ▪ Oceans Act of 2000

- ▶ **“The Oceans Act requires that the Commission suggest ways to reduce duplication, improve efficiency, enhance cooperation, and modify the structure of federal agencies involved in managing the oceans and coasts. With input from the states, a science advisory panel, and the public, the Commission was instructed to prepare a report presenting recommendations to the President and Congress on ocean and coastal issues for the purpose of developing a coordinated and comprehensive national ocean policy. The Oceans Act states that this national ocean policy should promote protection of life and property, responsible stewardship of ocean and coastal resources, protection of the marine environment and prevention of marine pollution, enhancement of marine commerce, expansion of human knowledge of the marine environment, investment in technologies to promote energy and food security, close cooperation among government agencies, and preservation of U.S. leadership in ocean and coastal activities. In developing its recommendations, the Commission was required to give equal consideration to environmental, technical feasibility, economic, and scientific factors.”**

## ARCTIC ESCAPADES

### ▶ VII. What Goes Around, Comes Around – Curious U.S. Initiatives

#### ▪ Final Report of the U.S. Commission on Ocean Policy 2004

##### ▶ Recommends UNCLOS Ratification

- “There are many compelling reasons for the United States to expeditiously accede to the Convention. International bodies established under the LOS Convention are in the process of making decisions that directly affect important U.S. interests. The Convention will no doubt continue to evolve. In 2004, the Convention will be open for amendment by its parties for the first time. If the United States is to ensure that its interests as a maritime power and coastal state are protected, it must participate in this process. The best way to do that is to become a party to the Convention, and thereby gain the right to place U.S. representatives on its decision-making bodies. Participation in the Convention would also enhance America’s prestige and credibility as a leader on global ocean issues. *Recommendation 29-1: The United States should accede to the United Nations Convention on the Law of the Sea.*”

##### ▶ Distinguishes Between Precautionary Principle & Precautionary Approach; Recommends Adopting Latter as U.S. Law

- **The precautionary principle** has been proposed by some parties as a touchstone for managers faced with uncertain scientific information. In its strictest formulation, the precautionary principle states that when the potentially adverse effects of a proposed activity are not fully understood, the activity should not be allowed to proceed. While this may appear sensible at first glance, its application could lead to extreme and often undesirable results. Because scientific information can never fully explain and predict all impacts, strict adoption of the precautionary principle would prevent most, if not all, activities from proceeding.
- **In contrast to the precautionary principle, the Commission recommends adoption of a more balanced precautionary approach** that weighs the level of scientific uncertainty and the potential risk of damage as part of every management decision...To ensure the sustainability of ecosystems...decision makers should follow a balanced precautionary approach, applying judicious and responsible management practices based on the best available science and on proactive, rather than reactive, policies. Where threats of serious or irreversible damage exist, lack of full scientific certainty shall not be used as a justification for postponing action to prevent environmental degradation...” (See: An Ocean Blueprint for the 21<sup>st</sup> Century: Final Report on the U.S. Commission on Ocean Policy (Sept. 20, 2004)).

### ▶ VII. What Goes Around, Comes Around – Curious U.S. Initiatives

#### ▪ **Bush Administration - US Ocean Action Plan**

▶ **The Final Report was issued to the President and the Congress on September 20, 2004, triggering the 90-day (legislatively mandated) response window for the White House. On December 17, 2004, two days before the Commission was scheduled to expire, pursuant to the Oceans Act of 2000 (P.L. 106-256), the White House issued Presidential Executive Order 133663. The E.O established a cabinet-level Committee on Ocean Policy (COP), which then released the U.S. Ocean Action Plan (OAP).**

- **“As a matter of national security, economic self-interest, and international leadership, the Bush Administration is strongly committed to U.S. accession to the UN Convention on the Law of the Sea. The Administration urges Congress to provide advice and consent to this treaty as early as possible in the 109th Congress.” (See: *U.S. Ocean Action Plan: The Bush Administration’s Response to the U.S. Commission on Ocean Policy*, at p. 5.)**

#### ▪ **H.R. 21 - The Oceans Conservation, Education, and National Strategy for the 21st Century Act (Jan. 4, 2007), as amended**

▶ **The purpose of the bill is to “Establish[] a national policy to protect, maintain, and restore the health of marine ecosystems and [to] require[] that federal agencies administer U.S. policies and laws accordingly.”**

- **The bill expressly incorporates what appears to be the Precautionary Approach as a national standard for addressing circumstances where there is “incomplete or inconclusive information as to the effects of a covered action on United States ocean waters or ocean resources” (See: Sections 4(23) and 101 (b)(2)(C)).**

### ▶ VII. What Goes Around, Comes Around – Curious U.S. Initiatives

- **H.R. 21 - The Oceans Conservation, Education, and National Strategy for the 21st Century Act (Jan. 4, 2007), as amended**
  - “The purpose of this Act is to secure, for **present and future generations** of people of the United States, the full range of ecological, economic, educational, social, cultural, nutritional, and recreational benefits of healthy marine ecosystems, by-- (1) establishing a comprehensive national oceans policy regarding all **‘covered actions’** that may significantly affect United States ocean waters and ocean resources; (2) requiring **‘covered actions’** to be consistent with the policies and standards of this Act; (3) setting clear **standards** against which compliance with the national oceans policy can be measured; (4) providing **standards** through which compliance with this Act can be assured; (5) promoting **ecologically sustainable** ocean resource use and management by **strengthening and empowering ocean governance** on regional and Federal levels; (6) promoting **ecosystem-based approaches** to management of ocean waters and resources;...” Section 3.
  - **“COVERED ACTION-** The term **‘covered action’** means any activity affecting United States ocean or coastal waters or resources, that is authorized (including the issuance of a Federal license or permit), carried out, or funded by a Federal agency.” Section 4.
  - **PRECAUTIONARY APPROACH-** The term **‘precautionary approach’** means the approach used to ensure the health and sustainability of marine ecosystems for the benefit of current and future generations, in which ***lack of full scientific certainty shall not be used as a justification for postponing action to prevent environmental degradation.***

▶ **WOULD A FUTURE U.S. PRESIDENT HONOR THIS DEFINITION??**

## ▶ VII. What Goes Around, Comes Around – Curious U.S. Initiatives

- ▶ **Efforts Underway to Interpret Broadly & With Nuance, US Federal Environmental & Wildlife Laws. Consistent or Inconsistent w/UNCLOS?? Prior Lawsuits Against U.S. Navy Highly Instructive. Does this encourage Canadian & European Territorialization & Imposition of the Precautionary Principle in their EEZs & on the ‘High Seas’?? Does this help the UN universalize the Precautionary Principle?? Does this permit triangulation of the U.S.??**

- ***Natural Resources Defense Council v. Department of the Navy, No. CV-01-07781 CAS(RZx), 2002 U.S. Dist. LEXIS 26360 (C.D. Cal. Sept. 17, 2002)***

- ▶ **In *Natural Resources Defense Council v. Department of the Navy*, the plaintiffs sought to enjoin the Navy from active sonar testing in the U.S. EEZ due to potential effects on marine wildlife and alleged non-compliance with NEPA, the MMPA, the ESA, and the Magnuson-Stevens Fishery Conservation and Management Act. During the court’s consideration of both parties’ motions for summary judgment, the court discussed only the NEPA and ESA claims...[T]he court agreed with the plaintiffs that NEPA applied in the U.S. EEZ and the Navy conceded that the ESA applied in the U.S. territorial sea, the U.S. EEZ, and on the high seas. *The significance of this case is twofold. First, the court and all parties agreed that ESA jurisdiction extends to at least the FEEZ. This is true because the plaintiffs and the Navy appeared to agree that ESA jurisdiction applied in U.S. territorial seas, the U.S. EEZ, and the high seas. Additionally, the Navy policy extends ESA jurisdiction to at least the FEEZ. [Memorandum for the Chief of Naval Operations Commandant of Marine Corps, 2 n.1 (28 Dec. 2000)]. This means that all parties agreed that the ESA applies in the U.S. EEZ when the statute only states the ESA applies in the “territorial seas” and the “high seas... Thus all parties recognized Congressional intent to extend ESA jurisdiction to all those areas containing natural resources under U.S. control (i.e., EEZ) and those areas free from sovereign control (i.e., high seas). Second, the court’s recognition of U.S. sovereign control in its EEZ evidences implicit U.S. recognition of the difference between the EEZ and high seas for all sovereign States in the natural resource context. Once again, if the United States has control over the natural resources in its EEZ, then other countries have the same authority in their EEZs.*”\*\*\* (See: Keith S. Gibel, *Defined By The Law of the Sea: ‘High Seas’ in the Marine Mammal Protection Act and the Endangered Species Act*, Naval Law Review (2007) at p. 26).**

## ▶ VII. What Goes Around, Comes Around – Curious U.S. Initiatives

- ***Natural Resources Defense Council v. Department of the Navy, No. CV-01-07781 CAS(RZx), 2002 U.S. Dist. LEXIS 26360 (C.D. Cal. Sept. 17, 2002)***
  - ▶ “Defining ‘high seas’ in the MMPA and the ESA consistently with international law, in accordance with the ‘Charming Betsy cannon,’ is supported by the plain language and legislative history of the statutes. ***In the jurisdictional sections of both Acts, where the taking of marine mammals or listed endangered species on the ‘high seas’ is prohibited, there is no language indicating the prohibitions extend to waters with natural resources subject to foreign sovereign control.*** The EEZ is an area of the ocean where a State has sovereign rights. The United States recognizes the EEZ, defined by UNCLOS, as customary international law. *The Acts’ legislative history evidences Congressional intent to prohibit conduct by U.S. citizens only in areas of the ocean where Congress may legally assert control over natural resources, not in areas that conflict with foreign jurisdiction.* Thus, when Congress first used the term ‘high seas’ in both the MMPA and the ESA, it understood this term to be defined by international law as an area free from the exercise of foreign sovereign rights over natural resources.” *Id.*, at p. 49.
- ***Murray v. Schooner Charming Betsy, 6 U.S. 64, 118 (1804).*** “[A]n Act of Congress ought never to be construed to violate the law of nations if any other possible construction remains.” *Murray v. Schooner Charming Betsy.*
  - ▶ “This rule of law is called the ‘Charming Betsy cannon’, and it ‘directs courts to construe ambiguous statutes to avoid conflicts with international law’... *Samson v. Federal Republic of Germany, 250 F.3d 1145, 1152 (7th Cir. 2001)*...As an established rule of statutory interpretation, ***this rule supports interpretation of the term ‘high seas’ in the MMPA and the ESA consistently with international law.*** (See also *Princz v. Federal Republic of Germany, 26 F.3d 1166, 1183 (D.C. Cir. 1994)* (Wald, J., dissenting) (quoting *The Paquette Habana, 175 U.S. 677, 700 (1900)*). “It is a well-established canon of statutory construction that, because ‘[i]nternational law is part of our law,’ . . . we must, wherever possible, interpret United States law consistently with international law.”) *Id.* ***This rule clearly supports the position that undefined UNCLOS terminology (‘high seas’) used in U.S. law should be defined in a way that is consistent with UNCLOS and established State practice.***” (See: Keith S. Gibel, *Defined By The Law of the Sea: ‘High Seas’ in the Marine Mammal Protection Act and the Endangered Species Act*, *Naval Law Review* (2007) at p. 47).



## ▶ VII. What Goes Around, Comes Around – Curious U.S. Initiatives

- ***United States v. Mitchell*, 553 F.2d 996, 1002 (5th Cir. 1977)** - “[I]f the nature of the law does not mandate its extraterritorial application, then a presumption arises against such application.”
- **RESTATEMENT (THIRD) OF FOREIGN RELATIONS LAW OF THE UNITED STATES § 114 (2005)**. “Where fairly possible, a United States statute is to be construed so as not to conflict with international law or with an international agreement of the United States”.
- ▶ ***Proclamation No. 5030, 48 Fed. Reg. 10605 (1983); President Ronald Reagan, Statement on United States Oceans Policy (1983)*** (stating that although the United States is not signing UNCLOS, the convention “contains provisions with respect to traditional uses of the oceans which generally confirm existing maritime law and practice and fairly balance the interests of all states.”).
- ▶ **Outer Continental Shelf Lands Act of 7 August 1953, as amended. Section 1333 - Laws and regulations governing lands (a) Constitution and United States laws; laws of adjacent States; Publication of projected State lines; restriction on State taxation and jurisdiction. (1) The Constitution and laws and civil and political jurisdiction of the United States are extended to the subsoil and sea-bed of the outer Continental Shelf and to all artificial islands and fixed structures which may be erected thereon for the purpose of exploring for, developing, removing, and transporting resources therefrom, to the same extent as if the outer Continental Shelf were an area of exclusive Federal jurisdiction located within a State;**
- ▶ **Presidential Executive Order 13158 on Marine Protected Areas (May 2000)**. An MPA is: “Any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection to part or all of the natural or cultural resources therein.”
  - “Three types of MPAs: ‘Cultural’... ‘Natural Heritage’...and ‘Sustainable Production’...”
    - ▶ (See: ***U.S. Marine Protected Areas – FACTSHEET***).

## VII. What Goes Around, Comes Around – Curious U.S. Initiatives

### ▶ The Environmental Dimensions of ‘Military Operations Other than War’ –

- **The U.S. military, including the Navy, previously focused, during the Clinton-Gore administrations, on the environmental dimensions (marine environmental stewardship) of ‘Military Operations Other Than War’ (MOOTW).**
  - ▶ “The strategic principles of OOTW [military operations other than war] require U.S. forces to achieve ‘full spectrum dominance’ across a wide range of military operations, ranging from peace missions to operations short of war. ***Political imperatives are closely intertwined with this new military strategy, and the ultimate success of these missions may depend on a political outcome as much as a military victory. In the past decade, concerns about the degradation of the world’s environment and dwindling natural resources have become a politically sensitive issue, especially during operations other than war... the political reality remains that any inappropriate action by U.S. Forces during OOTW which results in the degradation of the host nation’s ecosystem or causes adverse effects to the health and safety of the civilian population is contrary to our national interest and may result in the failure to achieve the desired political victory. U.S. military forces must therefore balance the application of appropriate standards of environmental protection with mission accomplishment and force protection during OOTW...The legitimacy of any U.S. military mission is directly related to compliance with national and international laws, treaties, and agreements. The politically sensitive nature of OOTW makes it imperative for U.S. forces to abide by both U.S. and host nation environmental laws to the extent that the tactical situation permits.***”
  - ▶ “This report assesses the need for a joint environmental policy for OOTW, identifies the key policy issues, and provides specific recommendations for future policy development. This report also emphasizes the need to integrate joint doctrine on environment, health, and safety issues during OOTW, and is intended to serve as the foundation for a Department of Defense Instruction on Environmental Policy for OOTW... Environmental security issues have become an integral part of a changing National Military Strategy. ***New military doctrine must be written to reflect the critical role that environmental protection plays throughout the full spectrum of operations other than war***”. (See: David L. Carr, *Considerations for the Development of a DoD Environmental Policy for Operations Other Than War*, U.S. Army Environmental Policy Institute White Paper (May 1997), at pp. i, 1, 11 and 39.

## ▶ VII. What Goes Around, Comes Around – Curious U.S. Initiatives

### ▪ The Environmental Dimensions of ‘Military Operations Other than War’

- ▶ The U.S. military, including the Navy, previously focused, during the Clinton-Gore administrations, on the environmental dimensions (marine environmental stewardship) of ‘Military Operations Other Than War’ (MOOTW).

- ▶ *“The Law of the Sea (LOS) Convention is a fundamental framework for the array of international agreements that protect ocean access, maintain the environmental quality of the oceans, and guard against imprudent exploitation of marine resources...*

Recognizing that national and global security are enhanced by protection of ocean resources, the Navy, Coast Guard and National Marine Fisheries Service (NMFS) have mounted a combined effort to detect, monitor, and suppress illegal large-scale high-seas driftnet activity... In an effort to assist in the recovery of the endangered Northern Right Whales in the critical habitat located off the coasts of Georgia and Florida, the Navy has undertaken extensive operational measures to preclude whale injury resulting from operations along the Eastern Seaboard. The Coast Guard and the Navy are also providing direct monitoring assistance to the NMFS and conservation organizations to study the migratory and other behavioral patterns of the Northern Right Whales to protect that species... On the international scale, the serious decline of fisheries in the Grand Bank of Newfoundland, the George’s Banks off New England, and other areas have either spawned incidents of violence involving armed forces or created other clear implications for global security. Legal regimes are being negotiated to deal with ‘ownerless’ resources and marine pollution that cannot be specifically linked to particular vessels or nations, especially land-based sources...”

- ▶ *“By maintaining compliance with all environmental standards, we ensure our access to training and operating ranges on land, in the air, and at sea. We recognize that many of our actions, whether it is to train new Sailors or Marines, maintain readiness of combat forces, or test new weapon systems have an impact on the natural environment. We need to understand those impacts, and take appropriate actions to minimize them.” (See: 1998 Year of the Ocean – The Oceans and National Security, The Ocean Principals Group, at pp. B-16 – B-18 (NOAA website)).*

## ▶ VII. What Goes Around, Comes Around – Curious U.S. Initiatives

### ▪ The Environmental Dimensions of ‘Military Operations Other than War’

- The U.S. military, including the Navy, previously focused, during the Clinton-Gore administrations, on the environmental dimensions (marine environmental stewardship) of ‘Military Operations Other Than War’ (MOOTW).

- ▶ **“Therefore, an important part of the Navy’s mission is to prevent pollution, protect the environment, and protect natural, historic, and cultural resources.’ *Consistent with that policy, protection of the marine environment is mission essential. Navy ships conduct operations, in port and at sea, in such a manner as to minimize or eliminate any adverse impact on the marine environment. The sea services work hard to be good stewards of the oceans. The Navy views protection of the environment as a very practical challenge for operations and logistics.*** Recognizing the importance of assessing environmental factors and impacts during operations at sea, the Navy, in conjunction with the Joint Staff, is developing a Naval Warfare Publication (NWP 4-11). This document will serve as a ready reference for operational planners, afloat staffs, and vessel commanders seeking to integrate complex environmental requirements into day-to-day operations... Public and congressional support is key to the ability of naval forces to maintain the required readiness to achieve national security objectives and execute the National Military Strategy. **Therefore, the Navy has involved the public, environmental groups, and legislative representatives in Navy marine environmental protection programs. A forward looking environmental policy ensures that the sea services operating overseas can continue to enjoy port access because of their good reputation abroad for pollution control and waste disposal”.** (See: *1998 Year of the Ocean – The Oceans and National Security*, The Ocean Principals Group, supra).
- ▶ **“Today, the United States and its partners find themselves competing for global influence in an era in which they are unlikely to be fully at war or fully at peace.** Our challenge is to apply seapower in a manner that protects U.S. vital interests even as it promotes greater collective security, stability, and trust. While defending our homeland and defeating adversaries in war remain the indisputable ends of **seapower, it must be applied more broadly if it is to serve the national interest. We believe that preventing wars is as important as winning wars. There is a tension, however, between the requirements for continued peacetime engagement and maintaining proficiency in the critical skills necessary to fighting and winning in combat.** Maritime forces must contribute to winning wars decisively while enhancing our ability to prevent war, win the long struggle against terrorist networks, positively influence events, and ease the impact of disasters...” (See: *A Cooperative Strategy for 21st Century Seapower*, US Navy, Marines & Coastguard (Oct. 2007) Introduction at pp. 4-5).

## ▶ VII. What Goes Around, Comes Around – Curious U.S. Initiatives

### ▪ The Environmental Dimensions of ‘Military Operations Other than War’

- The U.S. military, including the Navy, previously focused, during the Clinton-Gore administrations, on the environmental dimensions (marine environmental stewardship) of ‘Military Operations Other Than War’ (MOOTW).
  - ▶ **“Military Operations Other Than War can take years to accomplish... Unlike war, MOOTW rarely generates the national will required to stay engaged in the expenditure of human and monetary resources.** The American people have the power to grant patience and persistence to U.S. military forces, who are often the major players in providing presence in the MOOTW area of operations. Today's post-Cold War domestic marketing environment is characterized by pragmatic rather than ideological priorities. **At the national level, poor presentation of the cost-to-benefit ratio has resulted in the public's lukewarm embrace of MOOTW.** This paper analyzes the obstacles that must be overcome to sell MOOTW to the American people. **It then presents techniques, borrowed from the commercial advertising and mass communications worlds, required to advertise MOOTW to the American people-- to convince them of MOOTW's positive cost-to-benefit ratio...** Key to this concept is the critical link between strategic, operational, and tactical public relations efforts. What is ‘advertised’ at the national level must be reflected by the actions and words of those forces actually executing the MOOTW.” (See: James F. Jamison, *The Selling Of Military Operations Other Than War*, Exec. Sum. (CSC 1995) Global Security.org website).
  - ▶ “U.S. military forces have become increasingly involved in OOTW over the past decade. Based on our review of unit readiness and capability assessments and observations confirmed at military headquarters such as the U.S. European Command, U.S. Army Europe, U.S. Air Forces in Europe, and the Air Force’s Air Combat Command in the United States, **OOTW has adversely affected the combat capability of deployed units in Bosnia and Southwest Asia and some units that remain at the home station as they have to pick up the work of the deployed units...** OOTW has affected Army and Air Force units more than it has Navy and Marine Corps units. Returning units to their wartime mission capability levels during peacetime can take from several weeks for some support units to more than a year for some combat units, although in wartime the recovery period can be compressed if necessary... **The effects of OOTW on morale and retention is a mixed picture.** Army morale studies indicate that morale was generally high among soldiers in Bosnia, but **Air Force personnel indicate that morale is declining partly due to recurring OOTW deployments.**” (See: *Military Operations – Impact of Operations Other Than War on the Services Varies*, Report to the Chairman, Subcommittee on Military Readiness and Management Support Committee on Armed Services, U.S. Senate (GAO/NSIAD-99-69), General Accounting Office (May 1999)).

## ▶ VII. What Goes Around, Comes Around – Curious U.S. Initiatives

- ▶ The U.S. oil & gas industries support US ratification of the UNCLOS & its application in the Arctic because U.S. environmental activists have thus far left the OCS in Alaska as the *only* place within the U.S. to undertake new drilling. Wouldn't it be rational for the USG to reopen OCS drilling along the eastern & western U.S. coastlines, and to enable U.S. coastal states to share in the revenues, to ensure US energy security in the short-medium term while newer cleaner technologies are being developed???
- *“Oil and gas leasing has been prohibited on most of the outer continental shelf (OCS) since the 1980s. Congress has enacted OCS leasing moratoria for each of fiscal years 1982-2006 in the annual Interior Appropriations bill, allowing leasing only in the Gulf of Mexico (except near Florida) and parts of Alaska. President George H.W. Bush in 1990 issued a Presidential Directive ordering the Department of the Interior not to conduct offshore leasing or preleasing activity in areas covered by the annual legislative moratoria until 2000. In 1998 President Clinton extended the offshore leasing prohibition until 2012. Proponents of the moratoria contend that offshore drilling would pose unacceptable environmental risks and threaten coastal tourism industries, while supporters of expanded offshore leasing counter that more domestic oil and gas production is vital for the nation's energy security.” (See: Marc Humphries, Outer Continental Shelf: Debate Over Oil & Gas Leasing and Revenue Sharing, CRS Issue Brief for Congress (April 7, 2006) at p. CRS-1).*
- ▶ Apparently, Ted Stevens, the U.S. Senator from Alaska, sought administration support for OCS drilling to bring jobs & economic growth to the State of Alaska, and suggested that Alaska be cited as an example of how USG OCS licensing could be structured elsewhere in the U.S. (See: *Senator Stevens Asks for Bush Administration Support for OCS Revenue Sharing for Alaska, Opening ANWR*, Press Release, Office of United States Senator Ted Stevens for Alaska (April 15, 2008)).
- ▶ U.S. environmental activists effectively invoke the Precautionary Principle – they recently sued to block ALL OCS oil & drilling around Alaska, alleging that “the Minerals Management Service did not fairly evaluate the potential effects if offshore petroleum fields were developed in the lease area...

## ► VII. What Goes Around, Comes Around – Curious U.S. Initiatives

- “Earthjustice attorney Eric Jorgensen said the lawsuit does not seek an injunction to block the sale, but asks the court to declare leases invalid if they are sold improperly. He said the groups hope federal authorities will cancel the sale based on the lawsuit and pending legislation. On Tuesday, [U.S. Sen. John Kerry, D-Mass.](#), introduced legislation to prohibit oil and gas exploration in the Beaufort and Chukchi seas until the full effect on polar bear populations was understood. Jorgensen said the lawsuit seeks a more thorough environmental review.” (See: *Environmentalists, Natives Sue Feds to Halt Petroleum Lease Sale in Alaska*, Associated Press (Feb. 1, 2008)).
- “Royal Dutch Shell is determined to exploit vast reserves believed to lie off Alaska’s coast. The Bush administration backs the idea and has issued offshore leases in recent years totaling an area nearly the size of Maryland... By some estimates, the oil under the Alaskan seabed could exceed the reserves remaining in the rest of the United States, though how much might ultimately be recoverable is uncertain... Shell is eager to find out. It tried to make headway this summer, only to be stopped by an unusual alliance of Inupiat whalers and environmental groups who filed a suit in federal court. They argue that noisy drilling off the Alaska coast could disrupt migration routes for the bowhead whales, making it impossible for the Inupiat to capture their allotted share of about 60 animals per year. A court hearing is scheduled for today to consider whether the company can move forward, though a ruling is not expected for months.” (See: *Jad Mouawad, In Alaska’s Far North Two Cultures Collide*, New York Times (Dec. 4, 2007)).
- “Environmental groups and Alaska Natives who harvest whales, seals, walrus and salmon said not one acre should have been opened for drilling until oil companies prove they can overcome a basic environmental hurdle: cleaning up a major spill in sea water that's partially covered by broken ice. No oil spill responders have demonstrated that they can clean up oil in broken ice that ranges from slush to cakes, said [Margaret Williams of the World Wildlife Fund in Alaska](#)...The same conditions that contribute to oil spill risk — darkness during the long Alaska winter, extreme cold, moving ice, high wind and low visibility — would make spill response difficult or ineffective, according to the WWF...The stakes are enormous as federal policy makers look to find new sources of domestic oil and conservation groups turn to lawsuits to protect northern marine mammals and birds already facing habitat loss from the effects of global warming on sea ice... Williams said the MMS pushed ahead with the Chukchi sale **despite information gaps**, including an agreement for spill cleanup with Russia. ***The burden to prove risk continues to fall on conservation groups, she said.*** The Arctic and vulnerable wildlife already are undergoing stresses with global warming and don't need more from seismic activity, marine traffic and the potential for petroleum spills, she said. (See: *Icy Area Opens to Drills, But What About Spills*, Associated Press (April 13, 2008)).
- **\*THE PRECAUTIONARY PRINCIPLE REVERSES THE BURDEN OF PROOF & REQUIRES PROOF OF NO HARM\***

## ARCTIC ESCAPADES

- ▶ VII. What Goes Around, Comes Around – Curious U.S. Initiatives
  - **Canada's Views on Coastal State Sovereignty over EEZ & OCS Differ from those of the U.S.**
    - ▶ “According to Article 77 of UNCLOS, a coastal state has *sovereign rights [over the continental shelf, including the portion that extends over 200 nautical miles,] to explore the shelf and exploit its natural resources*, which consist of mineral and other non-living resources of the seabed and subsoil, as well as living resources (sedentary species).”
    - ▶ “Within the 200-nautical-mile EEZ, a coastal state has sovereign rights [over the water column above the continental shelf] to explore and exploit, conserve and manage the natural resources, both living or non-living, and to pursue other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds. **A coastal state has jurisdiction to establish and use artificial islands, installations and structures; carry out marine scientific research; and ensure the protection and preservation of the marine environment.** Outside the 200-nautical-mile EEZ, a coastal State does not have sovereign rights over resources in the water column above the continental shelf.” (See: “Canada’s Extended Continental Shelf: FAQs, Foreign Affairs and International Trade Canada website (last visited 5/13/08)).



### ▶ VII. What Goes Around, Comes Around – Curious U.S. Initiatives

#### ▪ European Union Views on Coastal State Territorial & Legal Sovereignty over EEZ & OCS Appear to Track Those of the U.S.

▶ "...The European Community and its member states seem on the verge of leading a new wave of *territorialization* against navigation itself *in the name of environmental protection*." (See: Bernard Oxman, *The Territorial Temptation: A Siren Song at Sea*, 100 Am. J. Int. L. 830, at 850 (Oct. 2006)).

▪ One key European Commission document reflects two primary rationales for exercising 'functional' legal sovereignty over the 'water columns' within EU Member State EEZs to 'protect and preserve the marine environment' consistent with their UNCLOS obligations: economic & cultural/political preference.

▶ "...[O]ver two thirds of the Union's borders are coastal and that the maritime spaces under the jurisdiction of its Member States are larger than their terrestrial territory... As the EU seeks to revitalise its economy, it is important to recognise the economic potential of her maritime dimension. **Between 3 and 5% of Europe's Gross Domestic Product (GDP) is estimated to be generated by marine based industries and services, without including the value of raw materials, such as oil, gas or fish. The maritime regions account for over 40% of GDP.**" (See: GREEN PAPER, *Towards a future Maritime Policy for the Union: A European vision for the oceans and seas*, Commission of the European Communities (June 7, 2006), COM(2006) 275 final, Volume II – ANNEX).

▪ Since adherence to the **Precautionary Principle** is a fundamental environmental legal principle within EU regional law, the EU has increasingly invoked it within member state EEZs to create MPAs and to secure IMO approval for 'Particularly Sensitive Sea Areas'. (See: **Revised Guidelines for Identification and Designation of Particularly Sensitive Sea Areas, A24/Res.982(2/6/06) 1.2; 3.1.**

▶ "The IMO is the only international body responsible for designating areas as Particularly Sensitive Sea Areas and adopting associated protective measures... **A PSSA is an area that needs special protection through action by IMO because of its significance for recognized ecological, socio-economic, or scientific attributes where such attributes may be vulnerable to damage by international shipping activities.** At the time of designation of a PSSA, an associated protective measure, which meets the requirements of the appropriate legal instrument establishing such measure, must have been approved or adopted by IMO to prevent, reduce or eliminate the threat or identified vulnerability."

## ▶ VIII. Possible Polar Prescriptions - Is UNCLOS Indispensable?

- **Is it certain that the UNCLOS covers the Arctic Oceans region and is necessary to resolve competing claims??**
  - ▶ **Former UN Legal Adviser Hans Corell and the Arctic Council believe that UNCLOS covers the Arctic Ocean. (See: Hans Corell, *The North is Not the Wild West*, Arctic Council (April 29, 2008)).**
  - ▶ **Council on Foreign Relations commentator Scott Borgerson believes not. He believes that while U.S. UNCLOS ratification could achieve int'l political goodwill, it is NOT necessary to secure U.S. national interests. (See: Scott G. Borgerson, *Arctic Meltdown: The Economic and Security Implications of Global Warming*, Foreign Affairs (March/April 2008)).**
  - ▶ **He has looked to other alternatives:**
    - **A Plurilateral Agreement** between and among the 5 polar states of Canada, Denmark, Norway, Russia and the U.S. This might yield quicker results than awaiting the determinations from the Continental Shelf Commission. Also, the Commission is not authorized to determine disputed claims over adjacent/contiguous continental shelf areas. Such an agreement could address security, innocent passage and oil & gas rights, thus allocating up most of the Arctic Circle resources among themselves. Such an agreement could be used to establish risk-assessment based scientific environmental standards which could be invoked whenever transiting vessels and/or their cargo can be shown to pose an actual environmental risk.
    - **Bilateral Agreement** between U.S. and Canada over NWP for North American security, innocent passage and science-based environmental standards. This could even bring in NATO.
    - **Bilateral Agreement** between U.S. and Russia over Bering Straits – the 1990 treaty on maritime boundaries negotiated between these countries was never ratified by either legislature. There is a need for the Russians to put bad feelings behind them.
- **Cannot the U.S. Submit an OCS Claim to the UN Continental Shelf Commission w/o ratifying UNCLOS??**
- **Is the UNCLOS the right tool to halt future Russia use of its oil & gas revenues to remilitarize & claim large portions of the Arctic?** (See: Mark A. Smith and Keir Giles, *Russia and the Arctic: The Last Dash North*, Defence Academy of the United Kingdom (Sept. 2007).



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<http://itssdjournalunclos-lost.blogspot.com>



# Mapping the Uncharted Arctic Ocean

Larry Mayer  
Center for Coastal and Ocean Mapping /  
NOAA-UNH Joint Hydrographic Center  
University of New Hampshire, USA

# The Lead Line

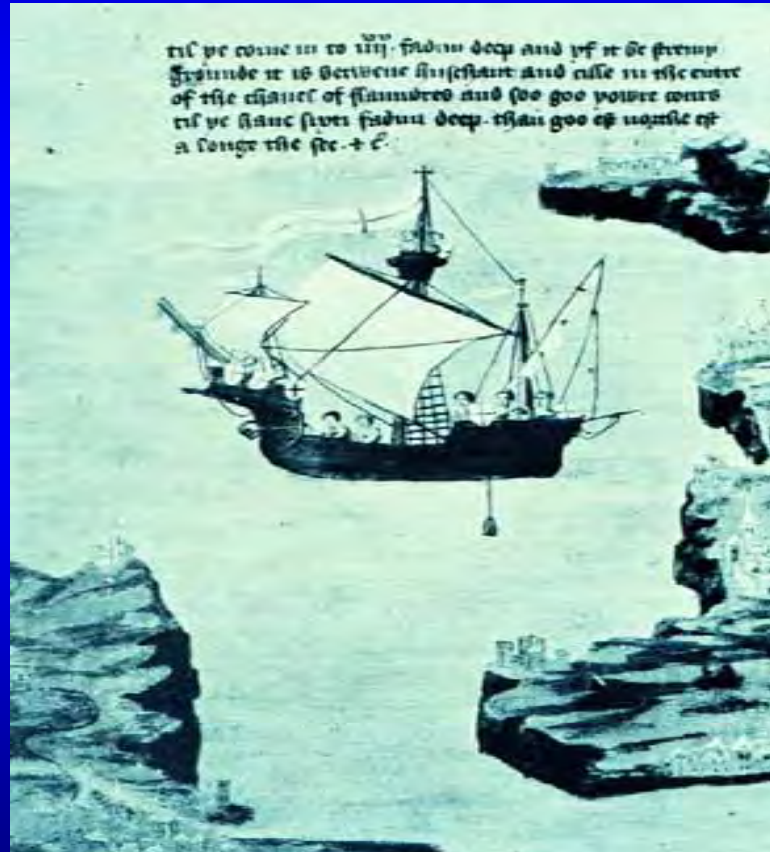


© Alfred Molon [www.molon.de](http://www.molon.de)

Boat model retrieved from the tomb of Meket-re who was buried at Thebes in about 2000 BC. From, *The Ocean Basins: Their Structure and Evolution*, The Open University

# The History of Ocean Mapping

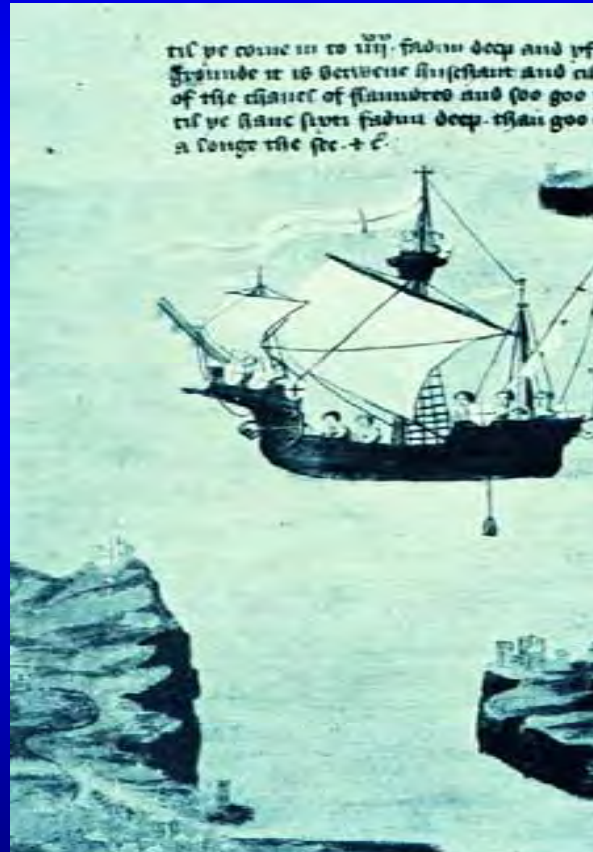
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# The History of Ocean Mapping

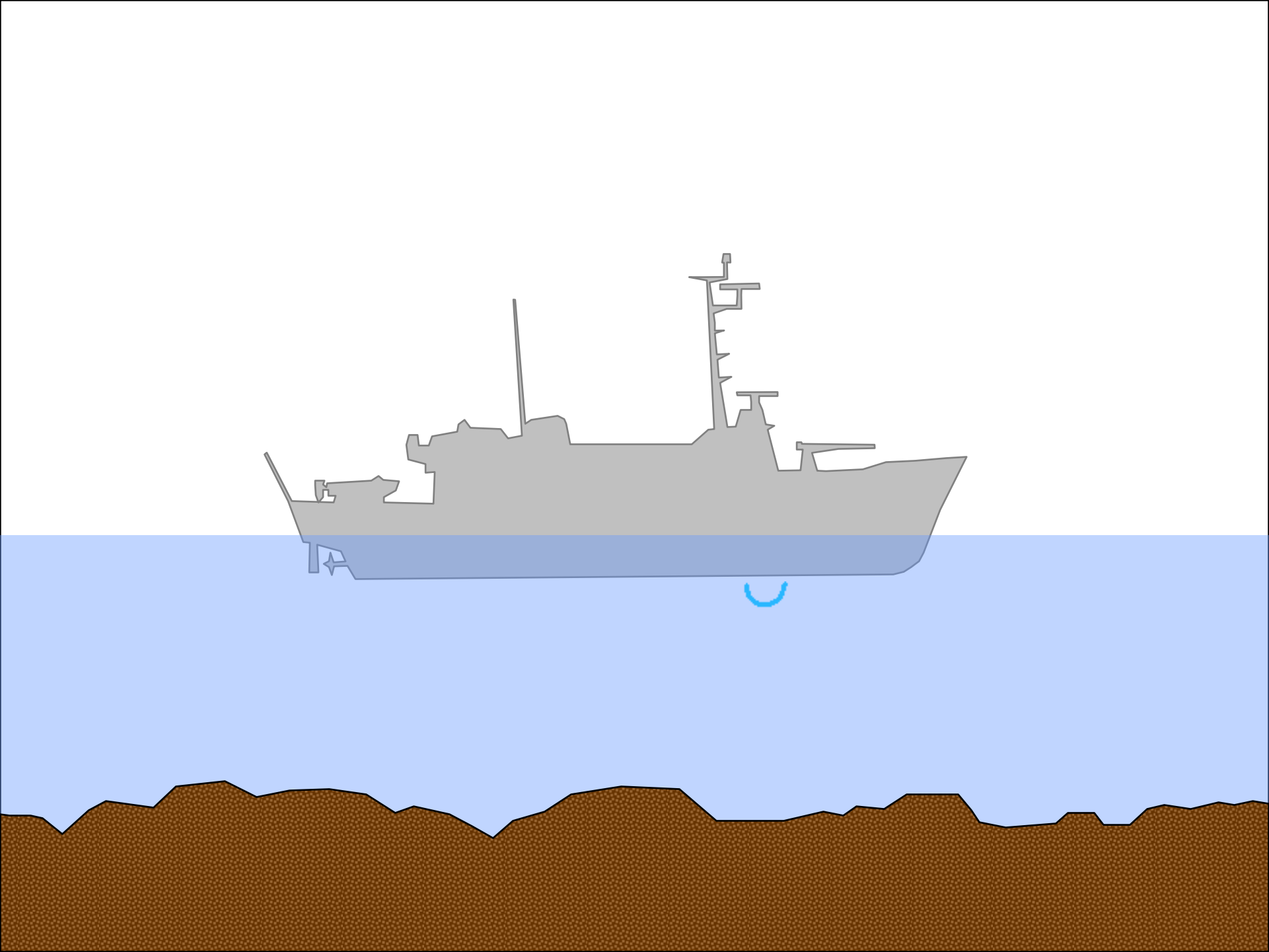
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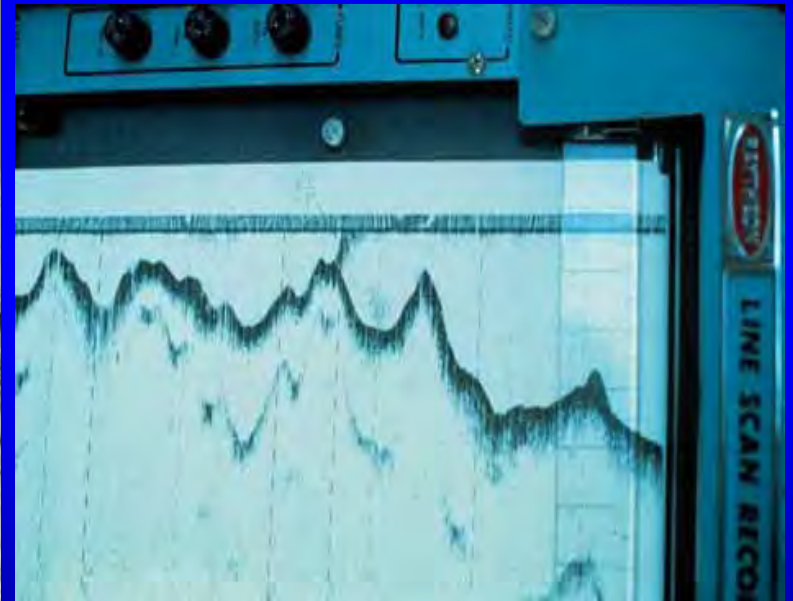
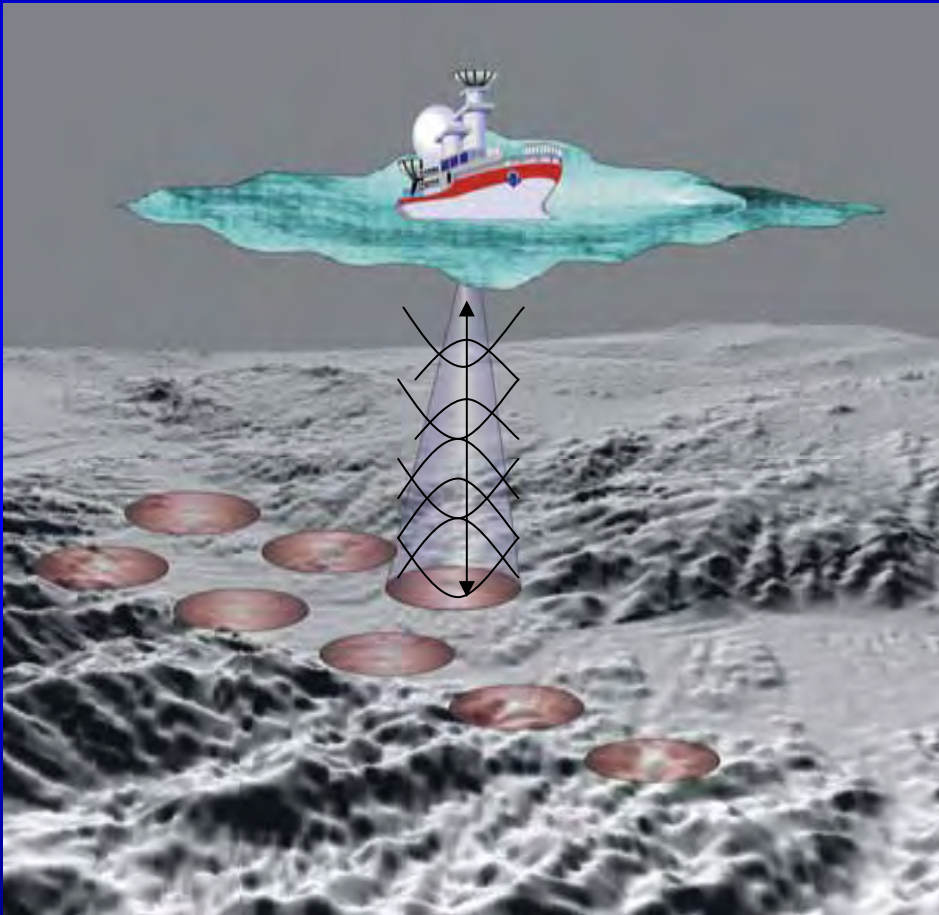


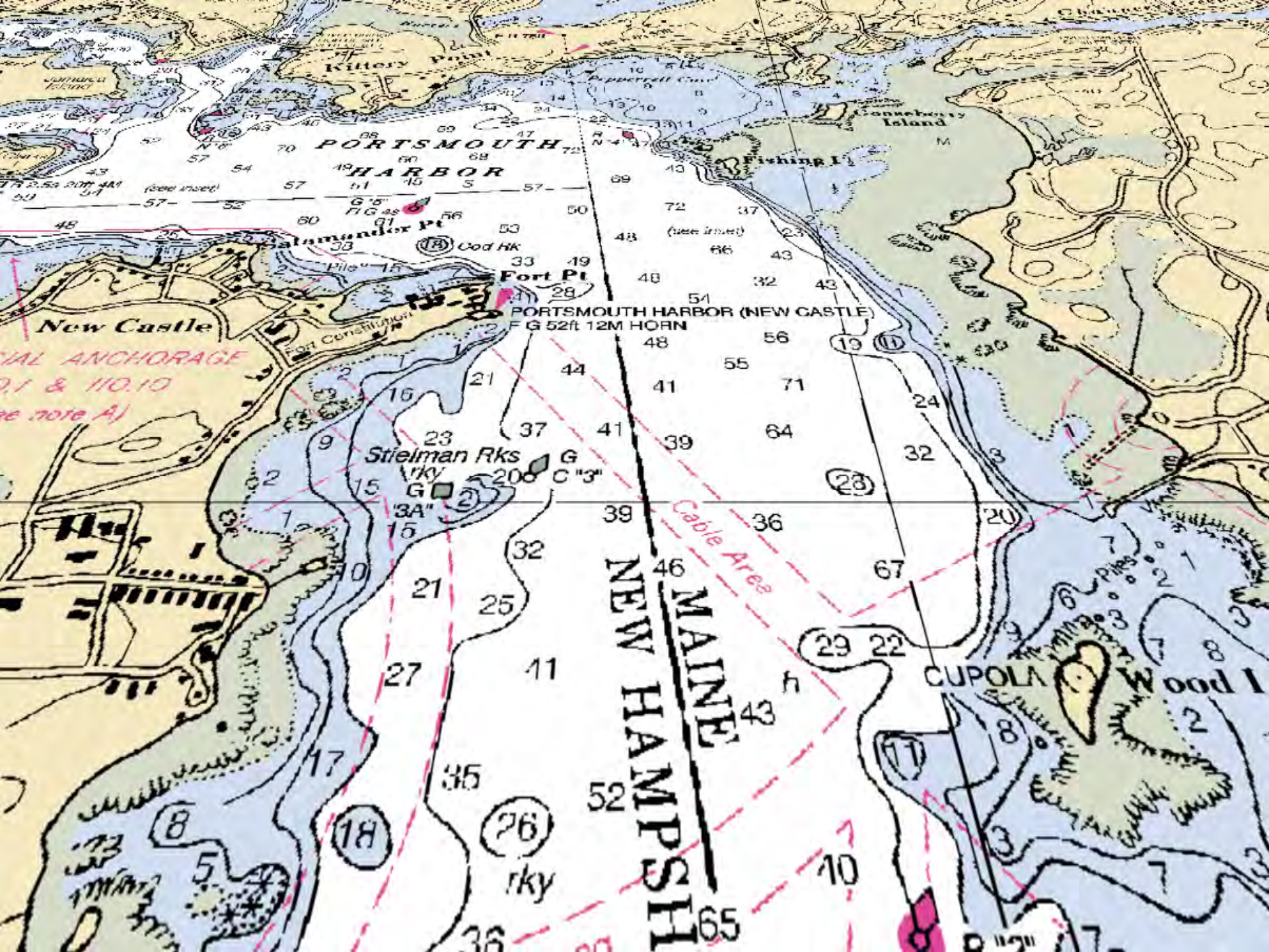
1940





# The Echo Sounder





**New Castle**  
SPECIAL ANCHORAGE  
10.1 & 110.10  
(see note A)

**PORTSMOUTH HARBOR**

**MAINE**  
**NEW HAMPSHIRE**

*Cable Area*

**Stielman Rks**  
15 G 2  
3A"  
15

**Fort Pt**

**PORTSMOUTH HARBOR (NEW CASTLE)**  
F G 52ft 12M HORN

**CUPOLA**

**Wood I**



# *Multibeam Sonar*



# *Single Beam Sounding*

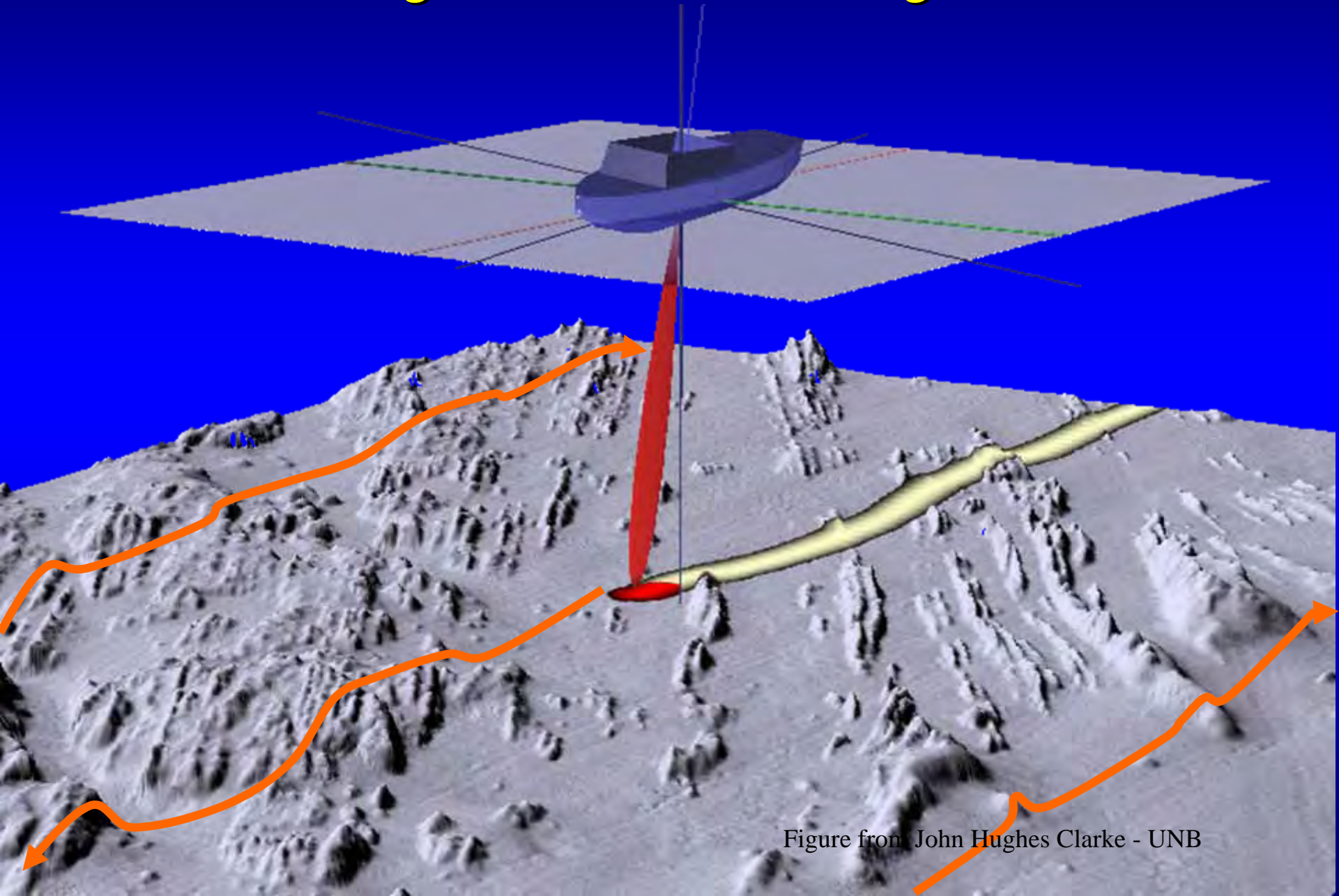


Figure from John Hughes Clarke - UNB

# *Multibeam Sounding*

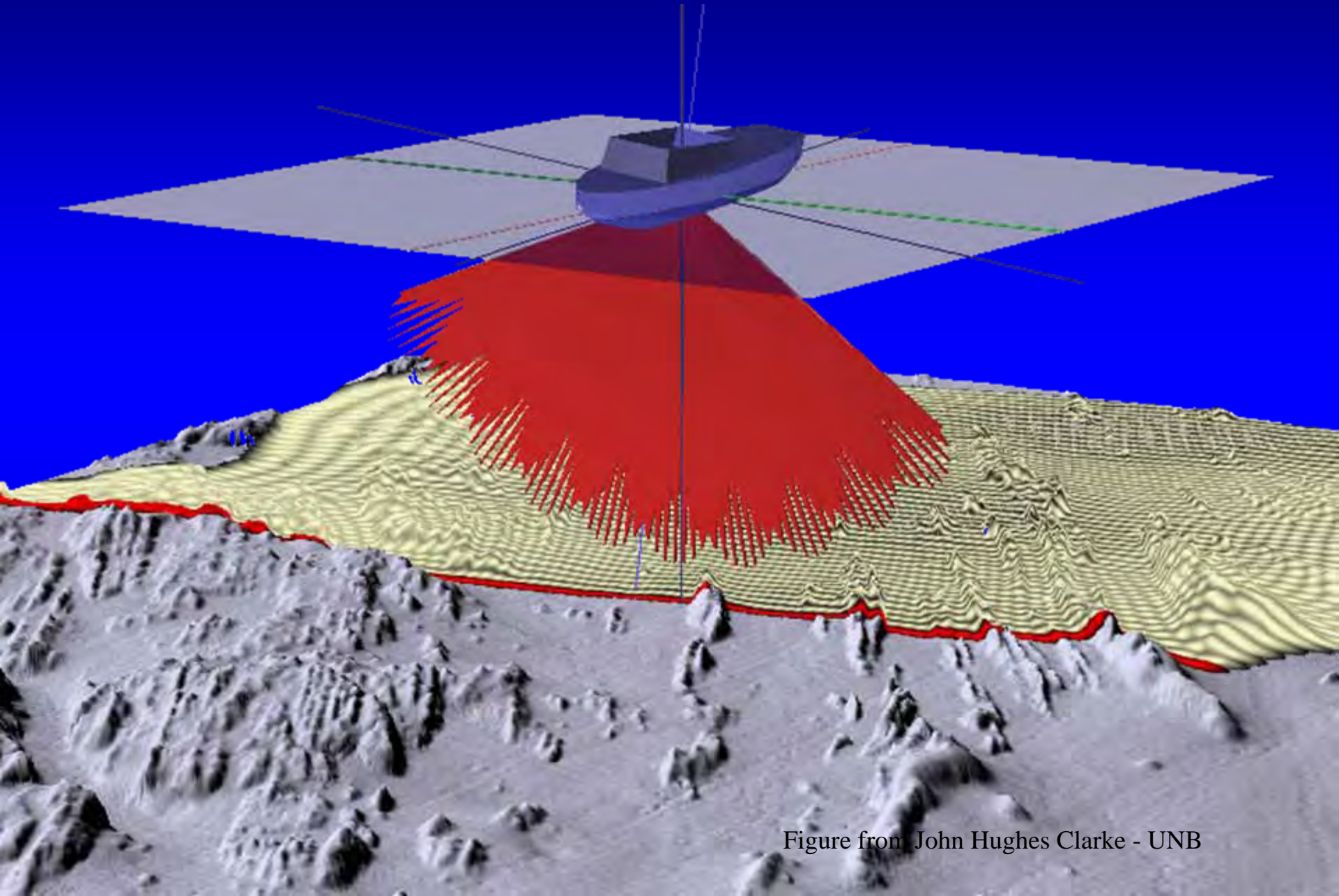
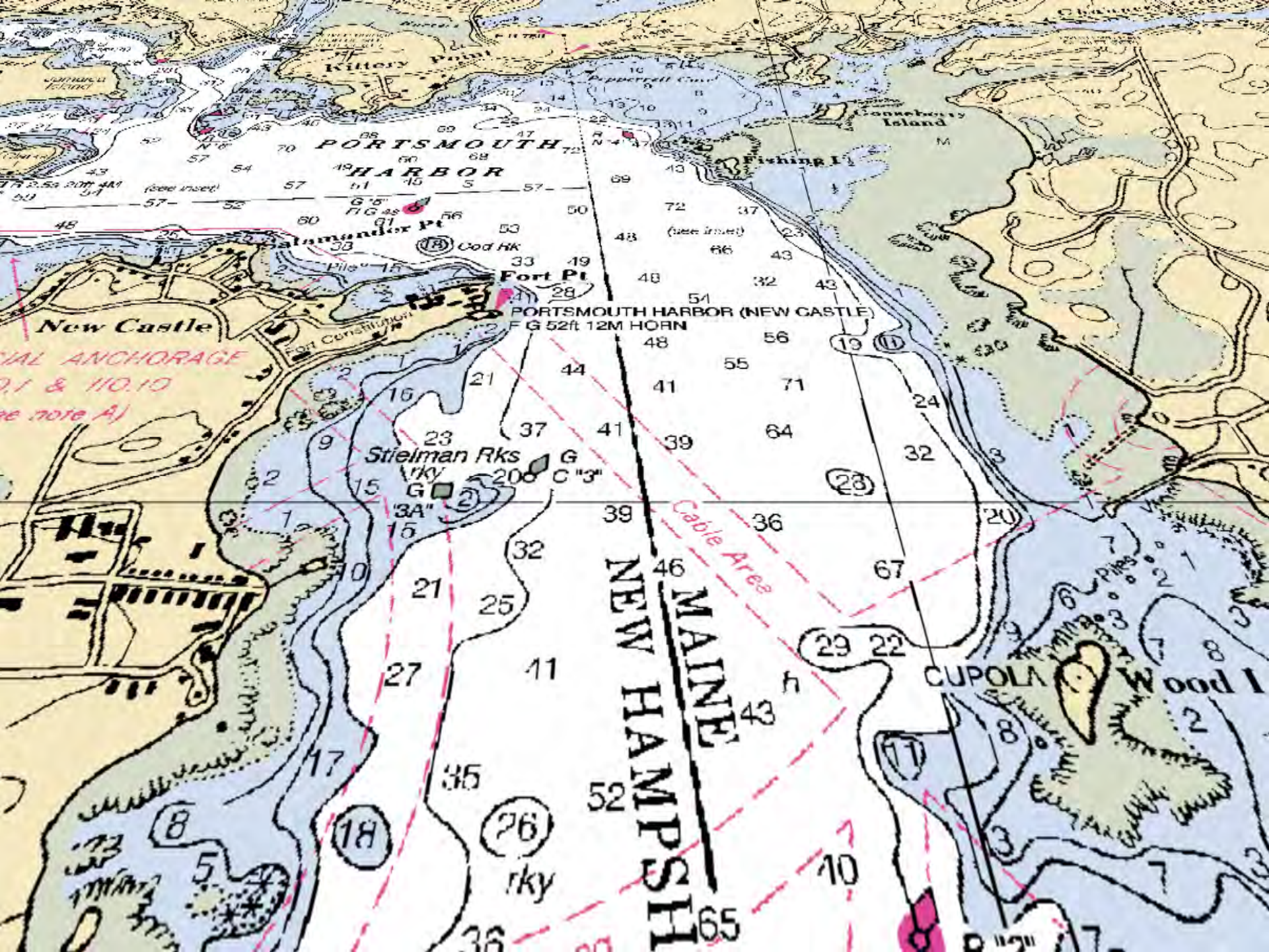
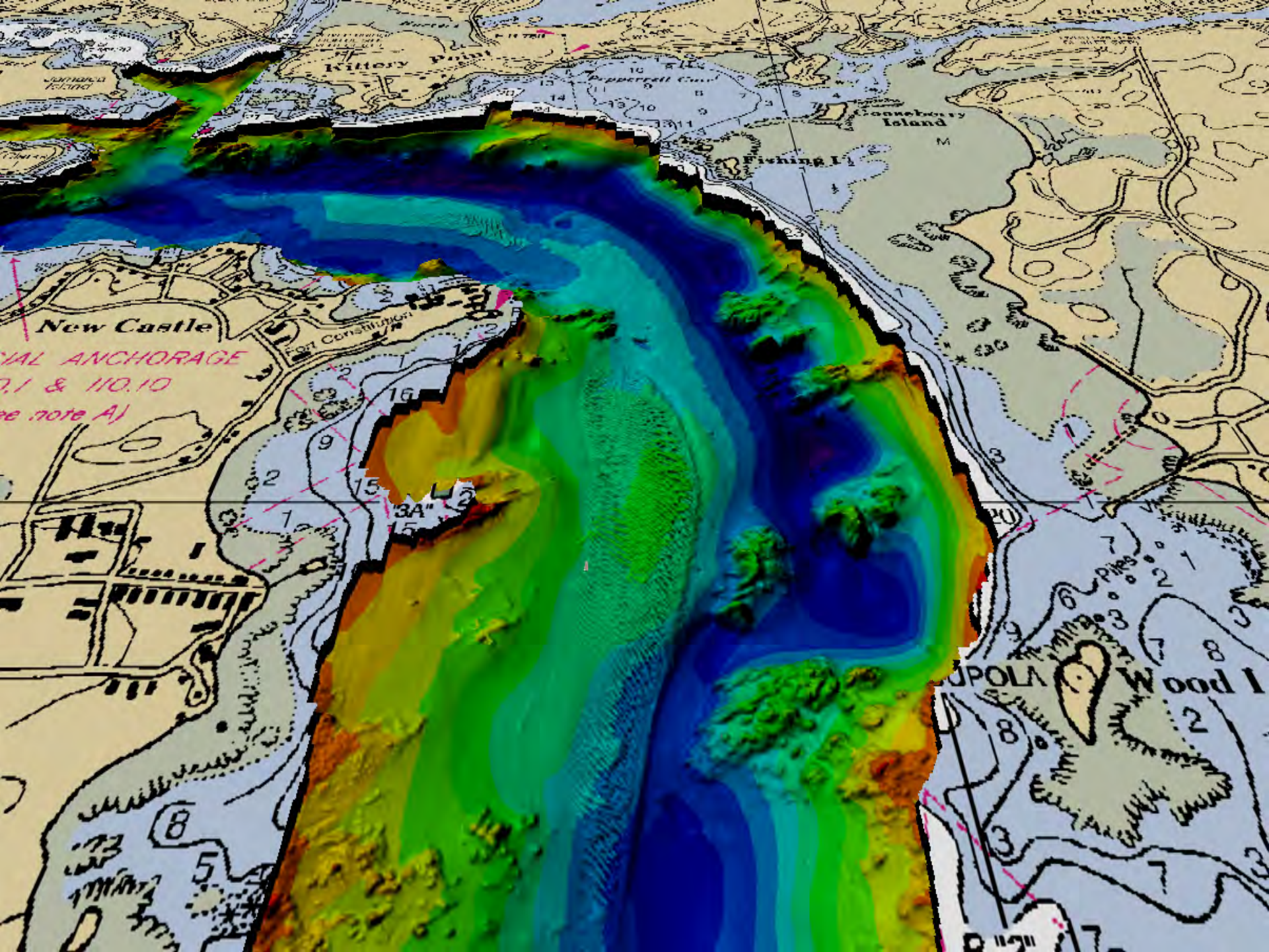


Figure from John Hughes Clarke - UNB





Kittery Point

Pepperell Cove

Fishing I.

Houseberry Island

New Castle

ANCHORAGE  
10.1 & 110.10  
(see note A)

Fort Constitution

POLA

Wood I.

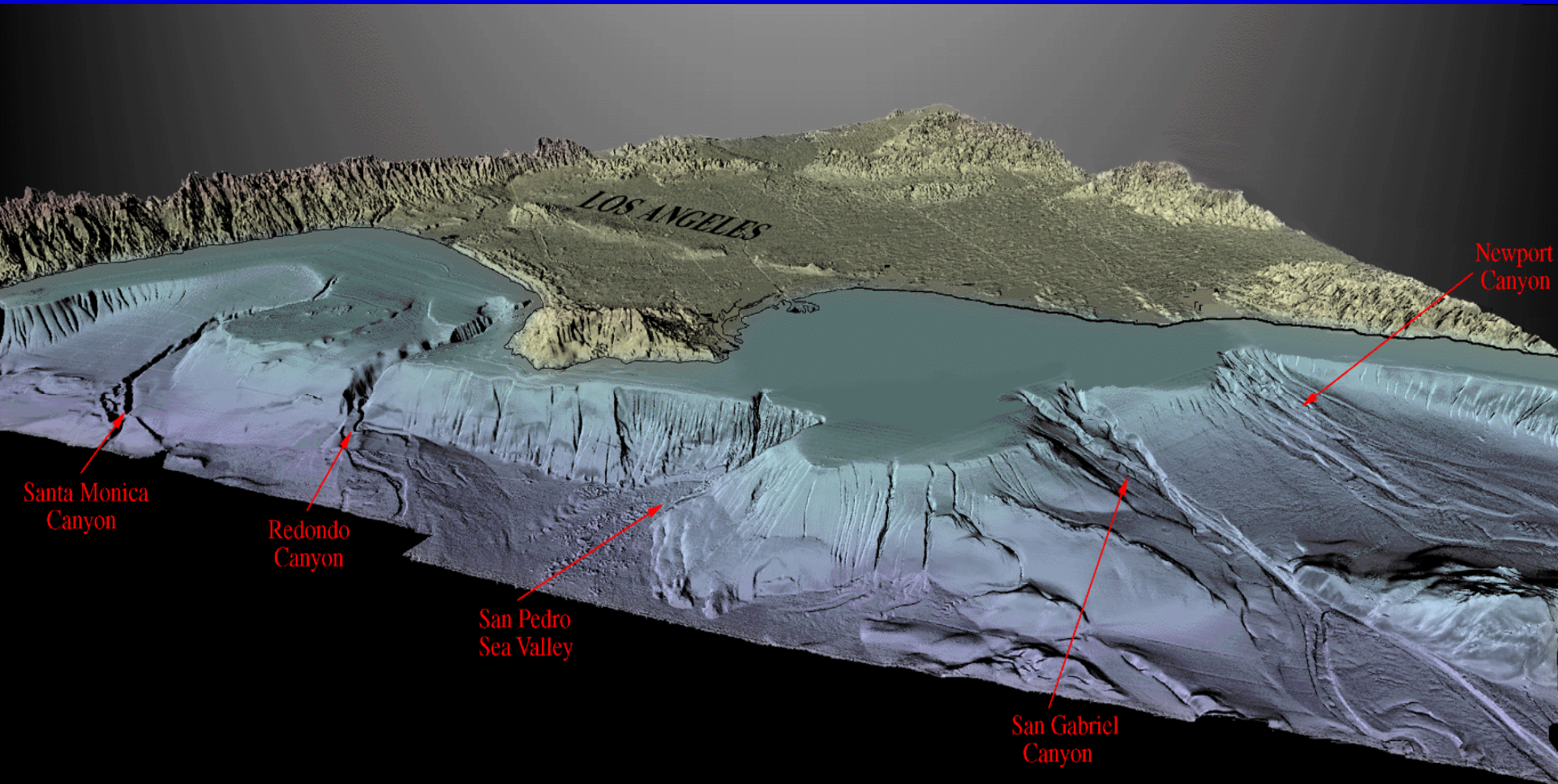
3A

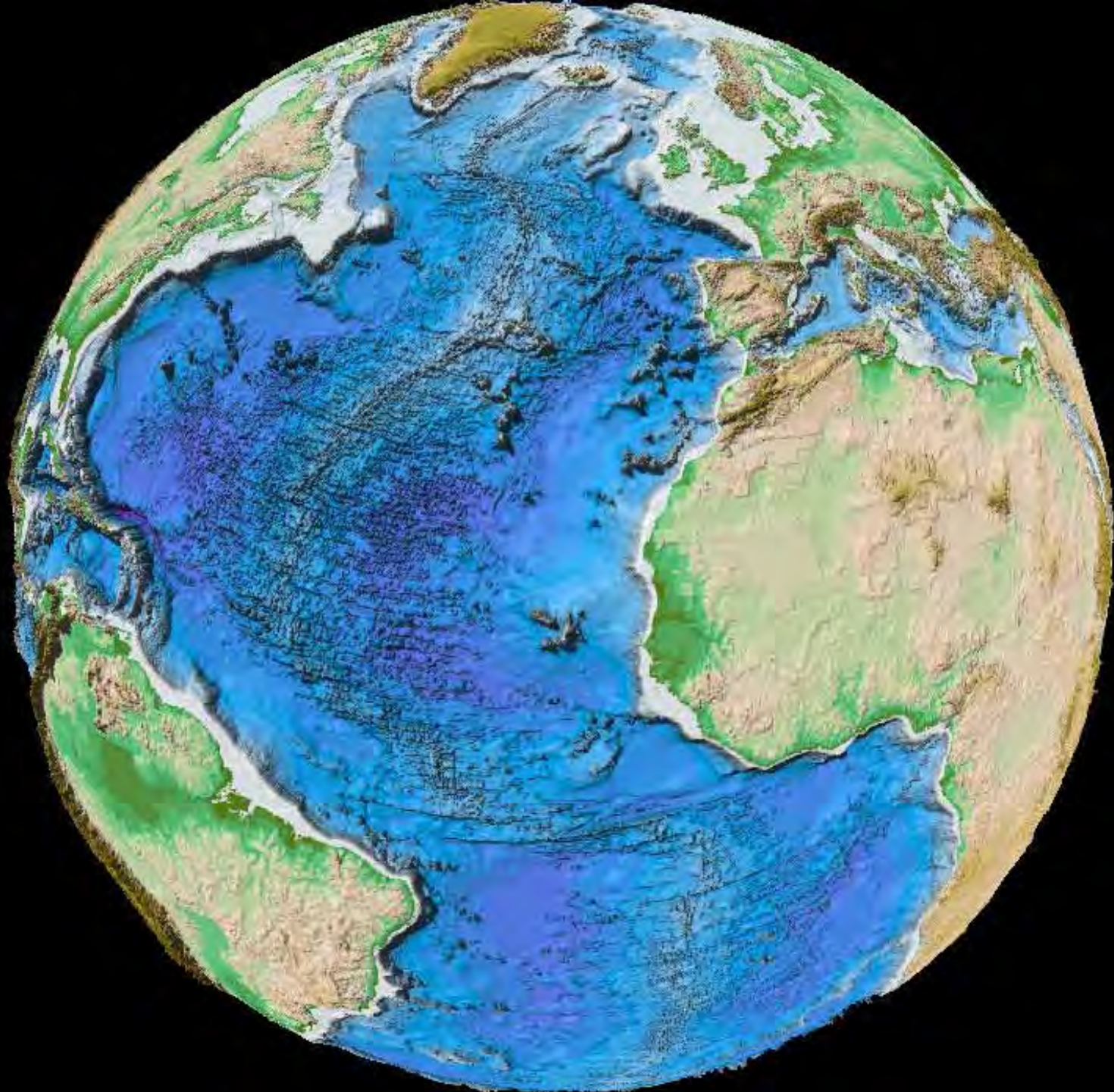
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# A new perspective → new insights







# *It's Not So Simple in the Arctic*



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<http://www.reiki.org/GlobalHealing/photocat.html>



NASA/JPL

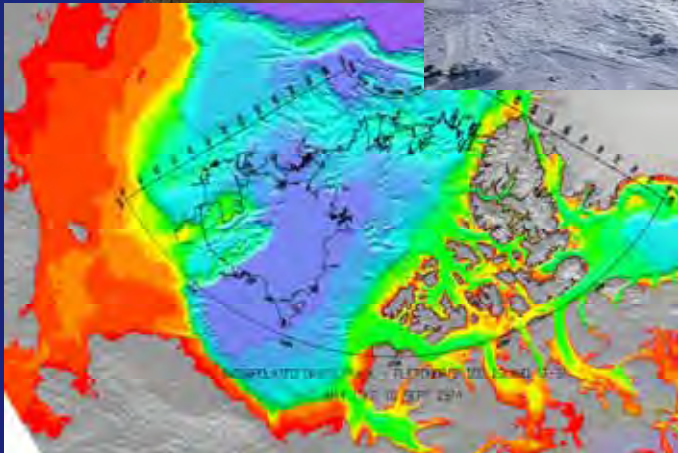


<http://cires.colorado.edu/steffen/polynya/>



# Fletcher's Ice Island (T-3)

1962 - 1974





# Airborne Measurements and Point Soundings



From Geoterrex (tm) advertising flyer.



Gravity Measurement



Magnetometer

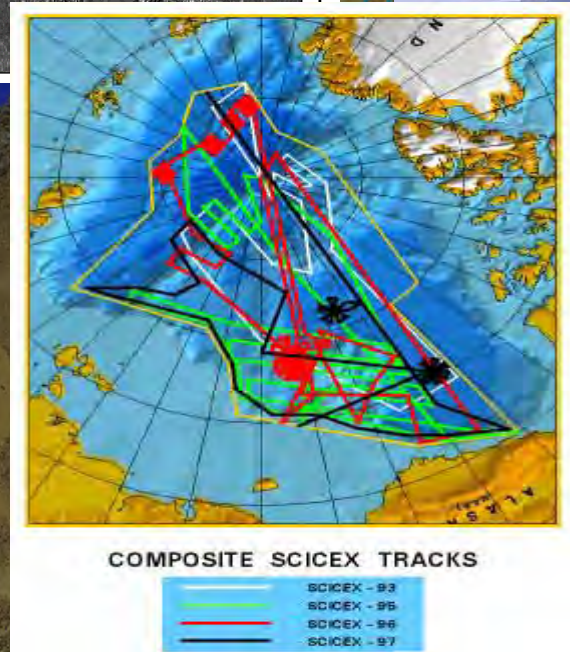
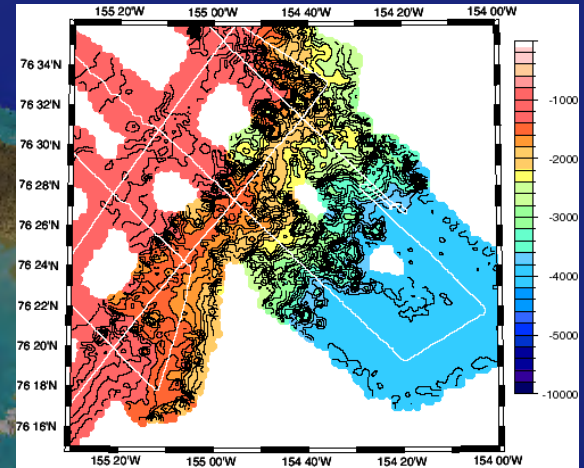
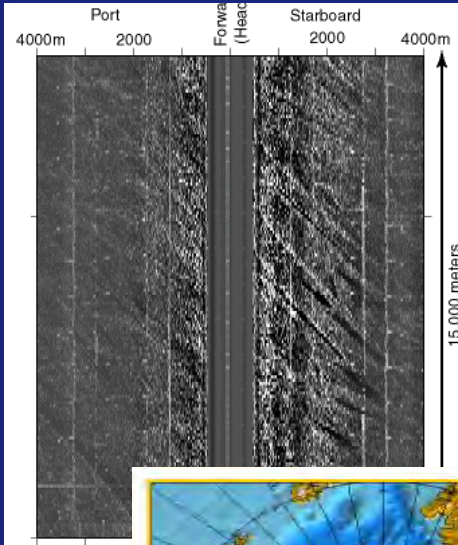


Depth Sounding



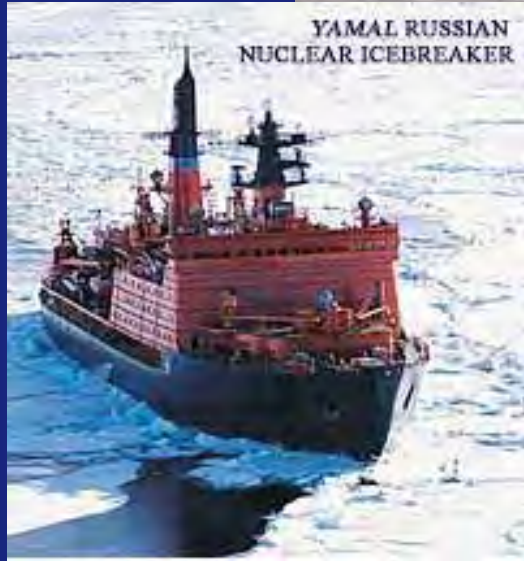


# Data from Nuclear Submarines



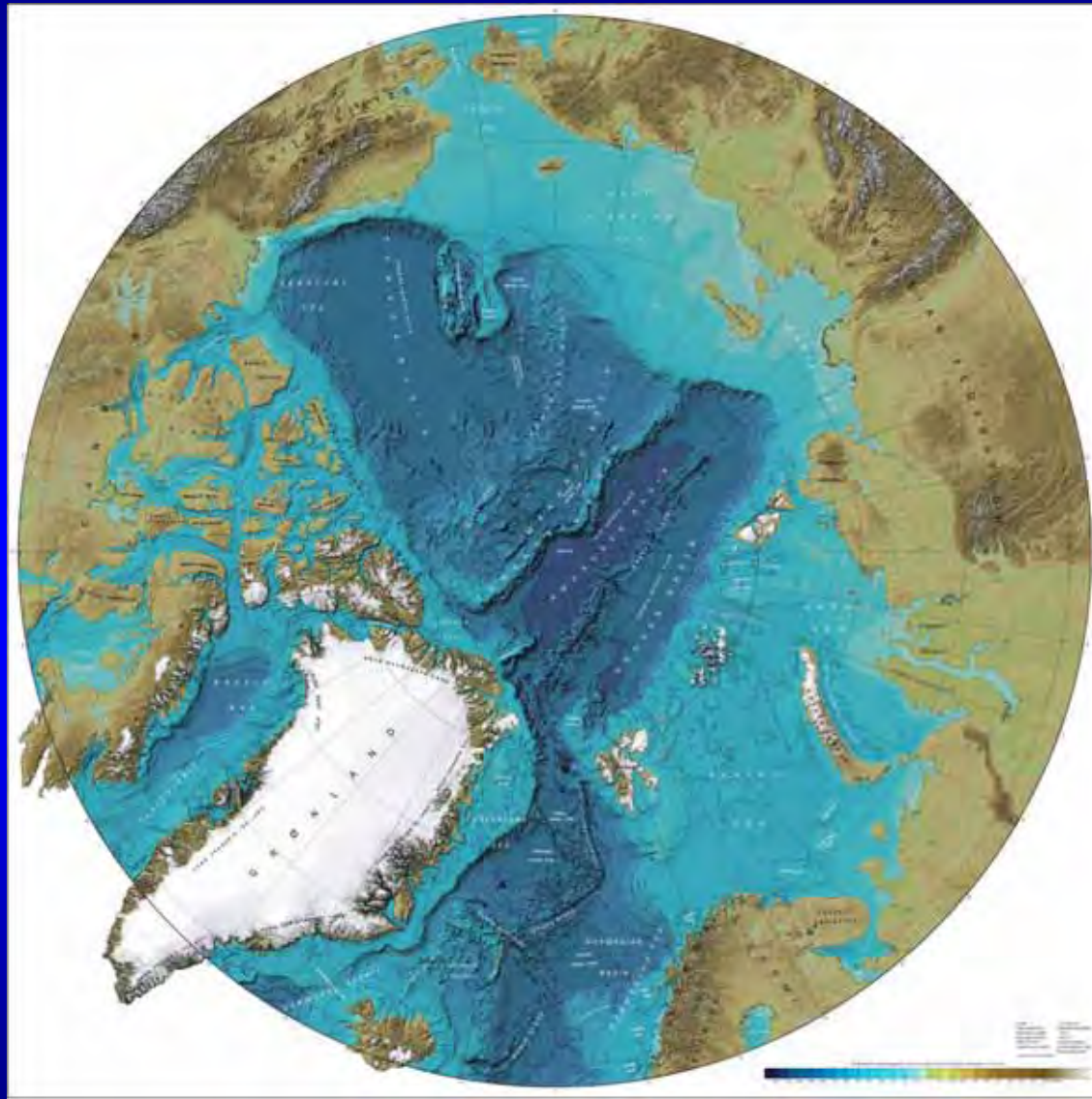


# *Icebreaker Deployed Seismic and Bathy*





# *Bathymetric Compilation*



**IBCAO (2002)**



# *United Nations Convention on the Law of the Sea*



## *Article 76*

Ten paragraphs that redefine the “continental shelf” of a coastal state and provide a mechanism for the state to extend its sovereign rights over the resources of the “seabed and subsoil” of the continental shelf



# UNCLOS Article 76

## The Process

- A coastal state is entitled to sovereign rights over the resources of the seabed and subsoil of "submerged extensions of the continental margin" beyond their current Exclusive Economic Zone (EEZ)
- Demonstrate a "natural prolongation" of a coastal state's territorial landmass and apply the "test of appurtenance"
  - typically broad continental shelf and/or thick sedimentary wedge



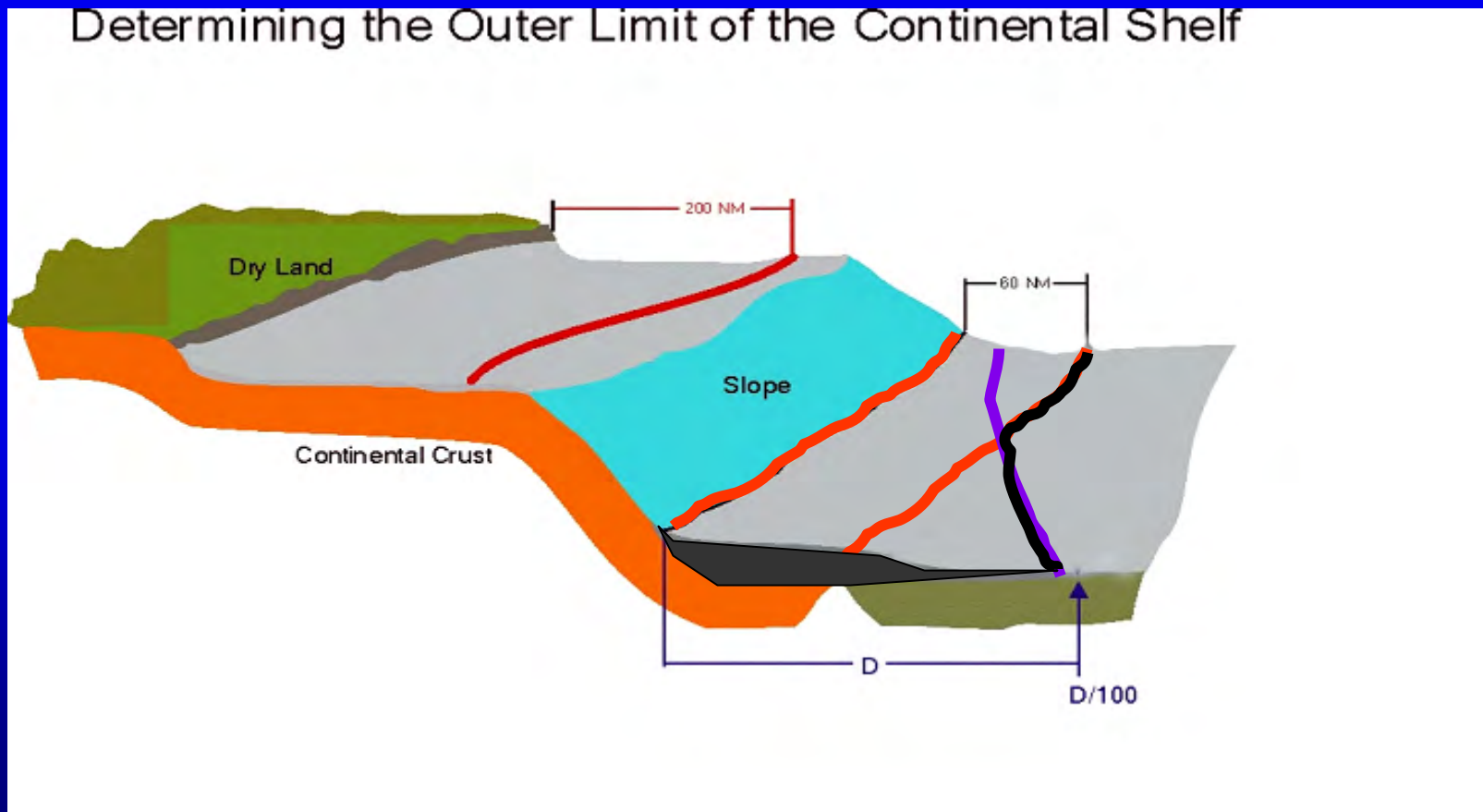
# Data Required

- Once the natural prolongation is established the extended continental shelf beyond the existing 200 nm EEZ is determined by a set of formulae and limit lines defined from the:
  - depth and shape of the seafloor (FOS and 2500m contour)
  - the thickness of the underlying sediments (1% line)
  - distances from the territorial sea baselines (350 nm line)

## *Formula Lines:*

*Foot of Slope + 60 nmi* - bathy

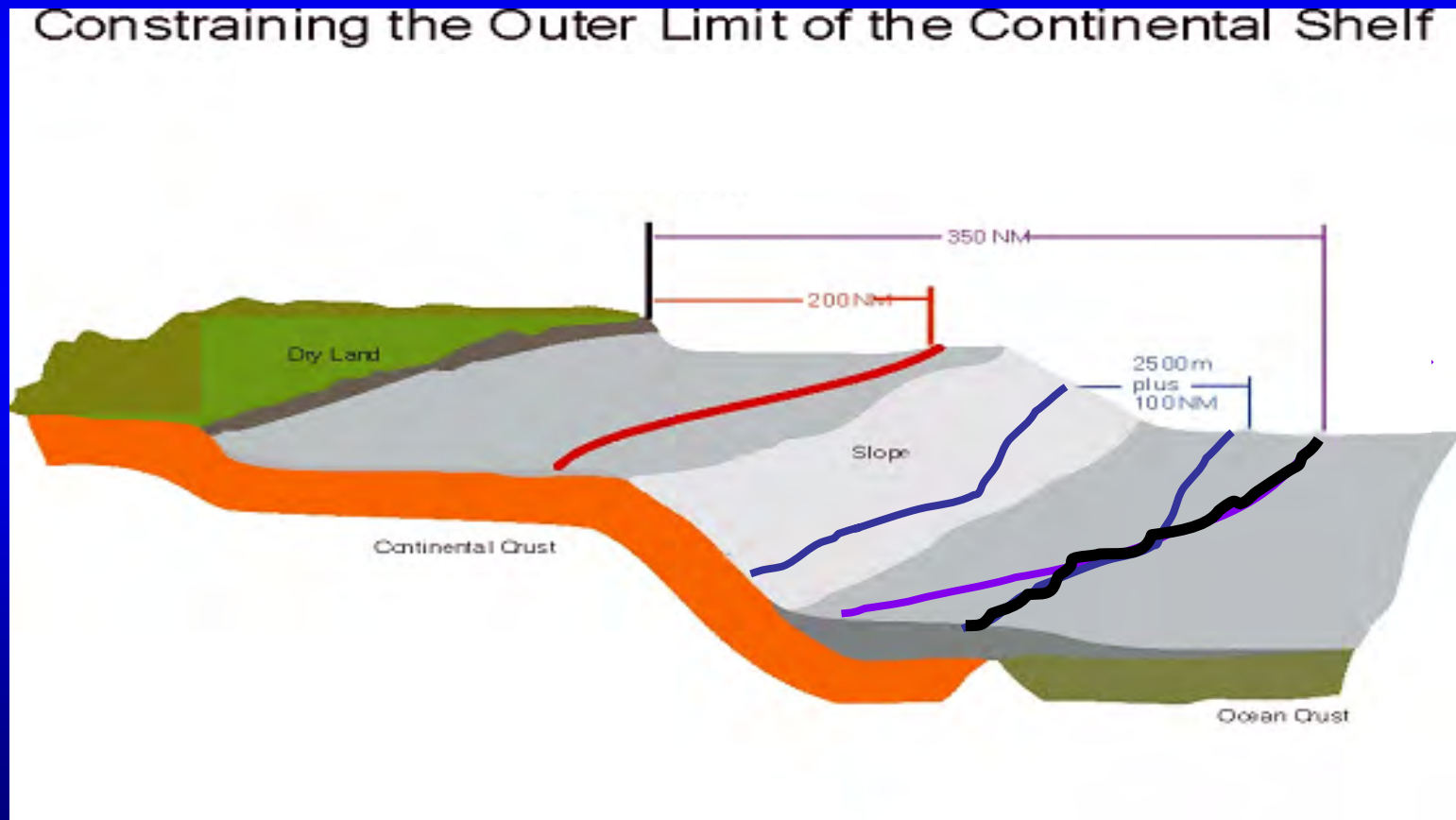
*Gardiner line* - sediment thickness less than  
*1% of distance back to FOS* - seismic and bathy



# Cutoff Lines:

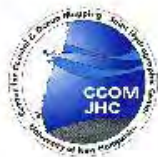
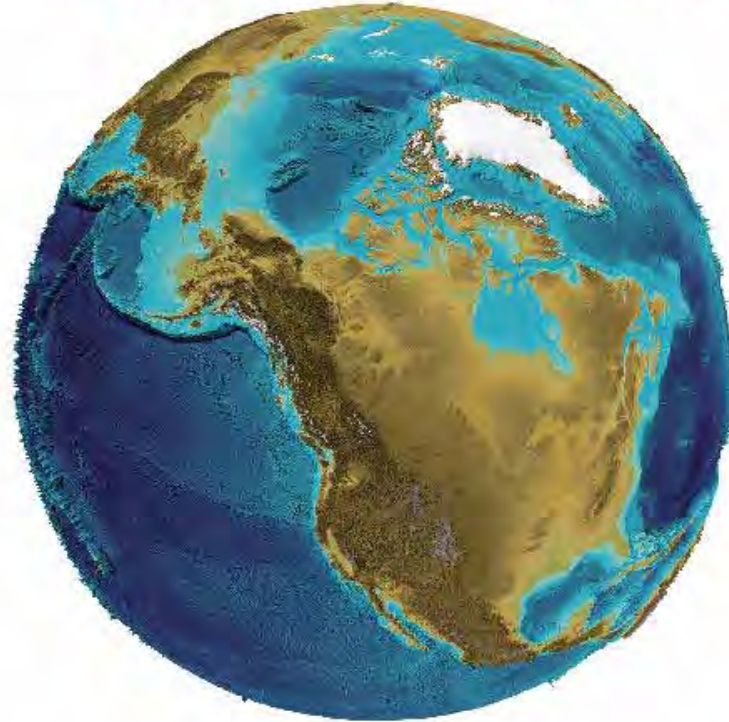
2500 m contour+100 nmi - bathy

350 nmi from baseline - distance



The Compilation and Analysis of Data Relevant to a U.S. Claim  
Under United Nations Law of the Sea Article 76:  
A Preliminary Report

<http://ccom.unh.edu/unclos>



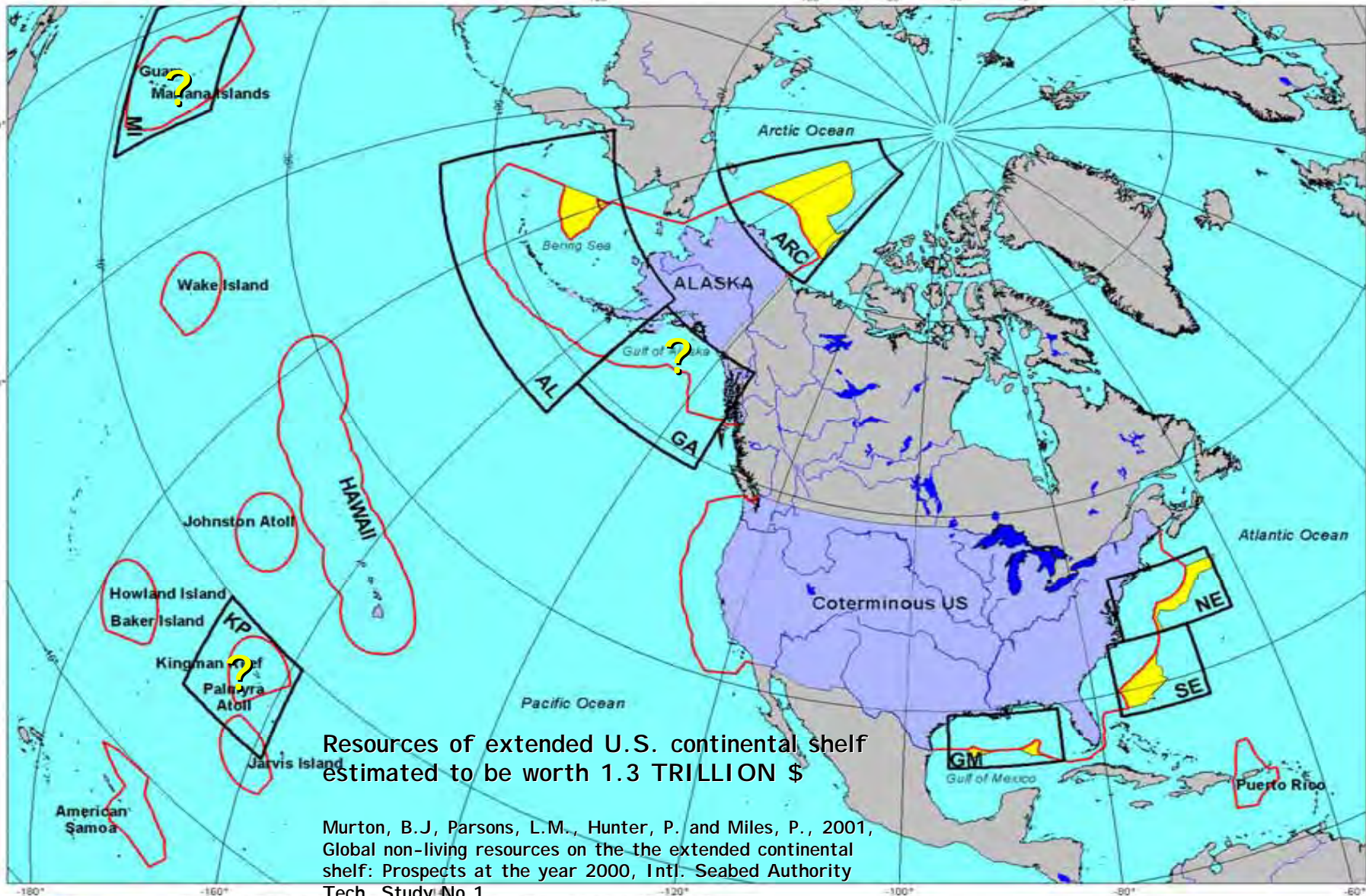
Center for Coastal and Ocean Mapping/Joint Hydrographic Center  
University of New Hampshire

Durham, N.H.  
May, 2002

Larry Mayer, Martin Jakobsson and Andrew Armstrong



# POTENTIAL EXTENSION OF U.S. CONTINENTAL SHELF UNDER ARTICLE 76



Resources of extended U.S. continental shelf  
estimated to be worth 1.3 TRILLION \$

Murton, B.J., Parsons, L.M., Hunter, P. and Miles, P., 2001,  
Global non-living resources on the the extended continental  
shelf: Prospects at the year 2000, Intl. Seabed Authority  
Tech. Study No 1

## POTENTIAL EXTENSION OF U.S. CONTINENTAL SHELF UNDER UNCLOS ARTICLE 76

This figure shows the current U.S. 200 nautical mile EEZ limit (red lines) along with eight areas preliminarily identified as having potential for an extended claim and for which further survey work has been recommended (black boxes). Yellow areas represent a very rough preliminary estimate of the potential extension of the juridical shelf limits under Article 76 guidelines for five of these regions (total additional area beyond existing EEZ is approximately 960,000 sq. km). For the other three regions (Guam/Marianas, Kingman/Palmyra, and the Gulf of Alaska) sufficient information to estimate a potential claim has not yet been collected. Potential claim areas have been estimated without regard for international boundary treaties. Both treaty negotiations and new data collection may alter these estimates. The limits presented in this figure are the result of an academic study and do not represent the position of the United States Government. Further details on the recommended survey areas can be found in Mayer, L.A., Jakobsson M., and Armstrong, A., 2002, The Compilation and Analysis of Data Relevant to a U.S. Claim under UNCLOS Article 76: A Preliminary Report, <http://www.ccom.unh.edu/unclos>.



Projection: **Latin North America (WGS 84)**  
Datum: **WGS 84**

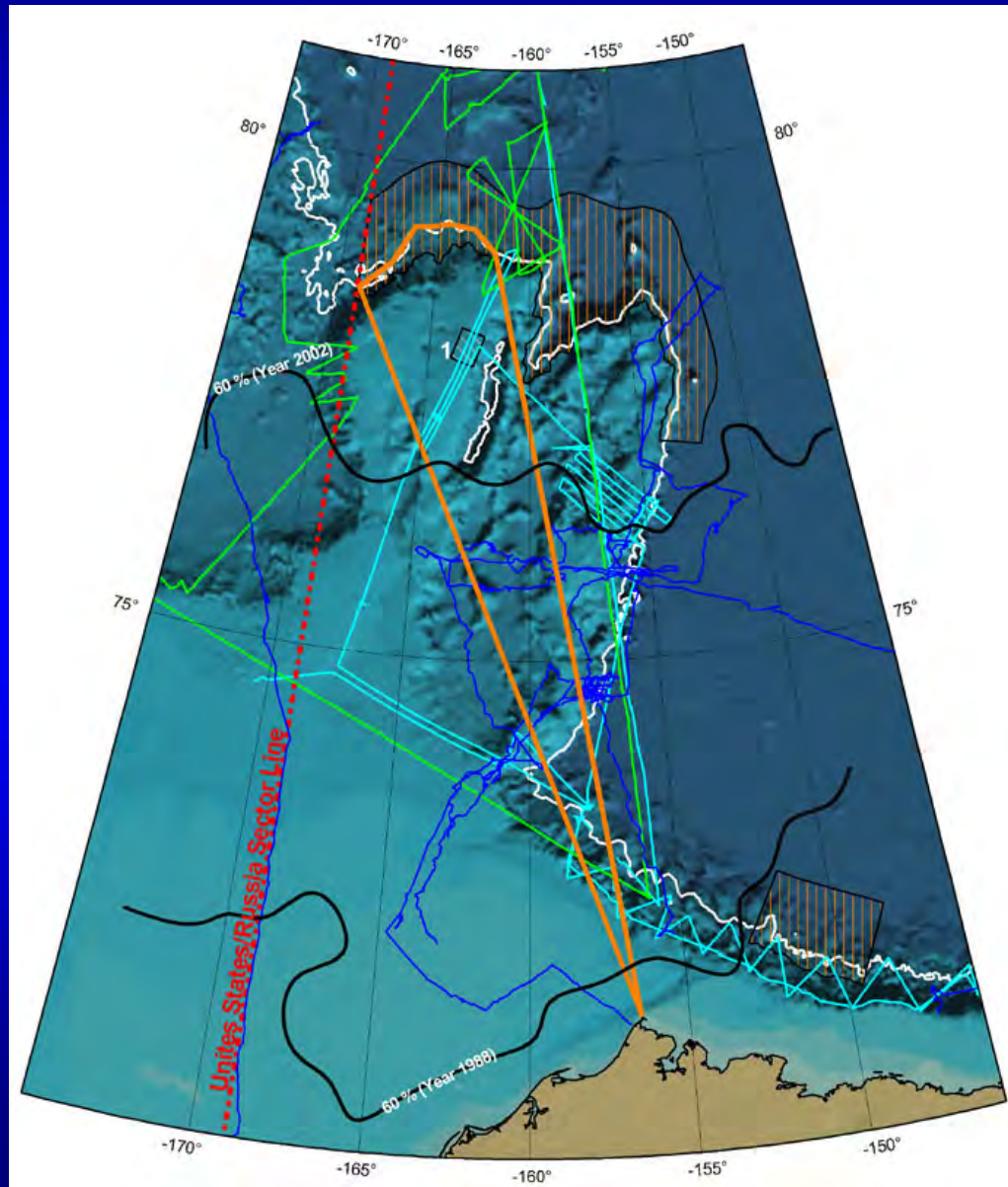
Map compiled by:  
**Martin Jakobsson,**  
**Andy Armstrong and Larry Mayer**  
Center for Coastal and Ocean Mapping  
Joint Hydrographic Center  
University of New Hampshire, NH, USA



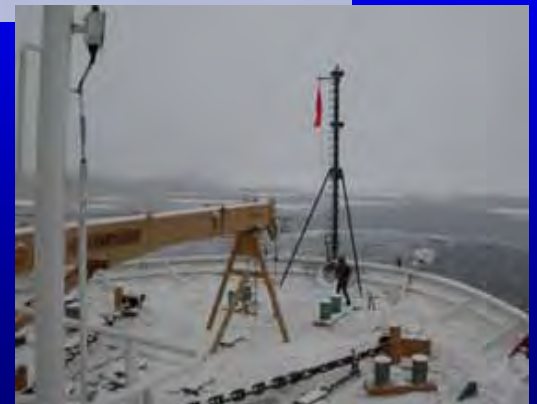
2003 & 2004 & 2007



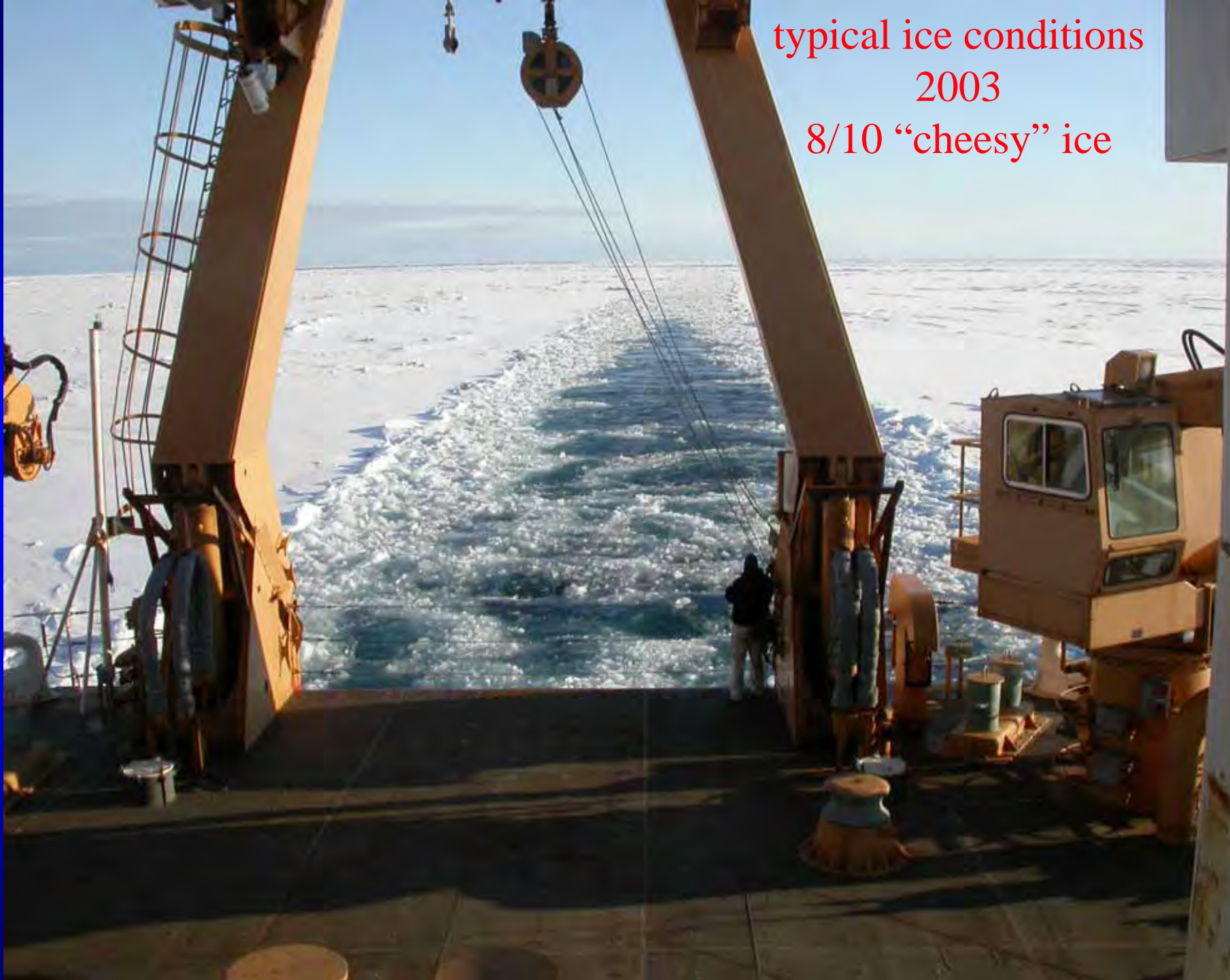
# HEALY 03-02 Sept 2003



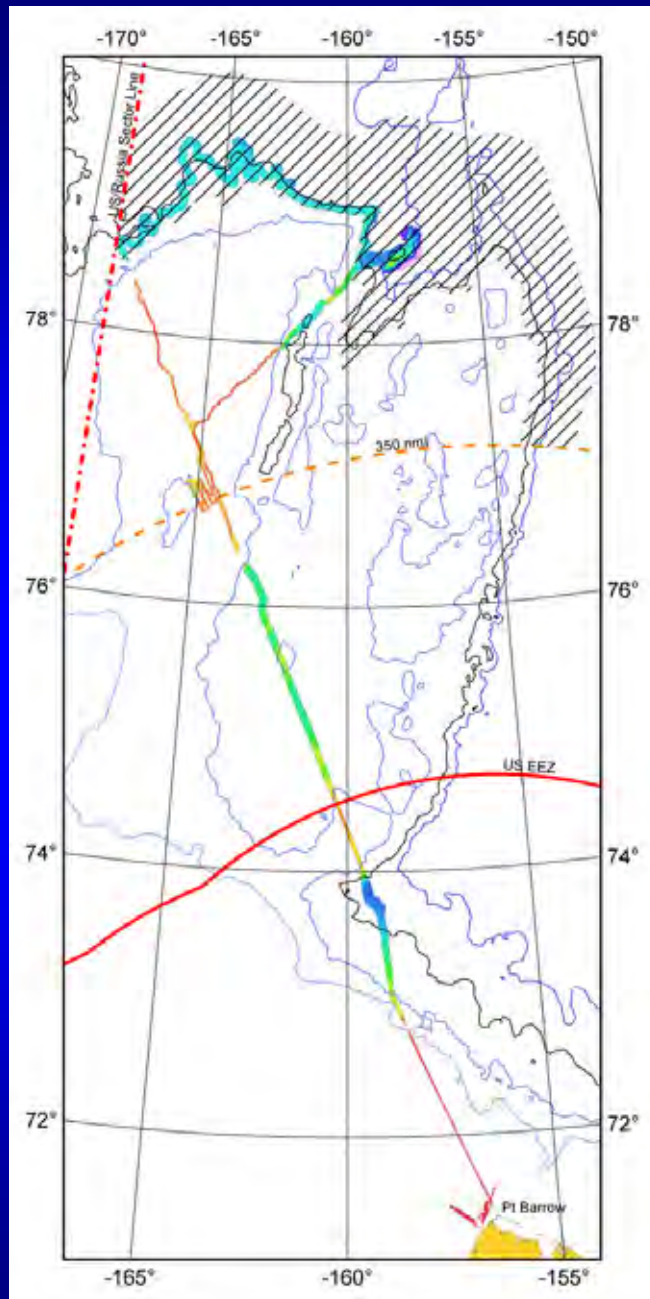
# HEALY 03-02 Chukchi Cap



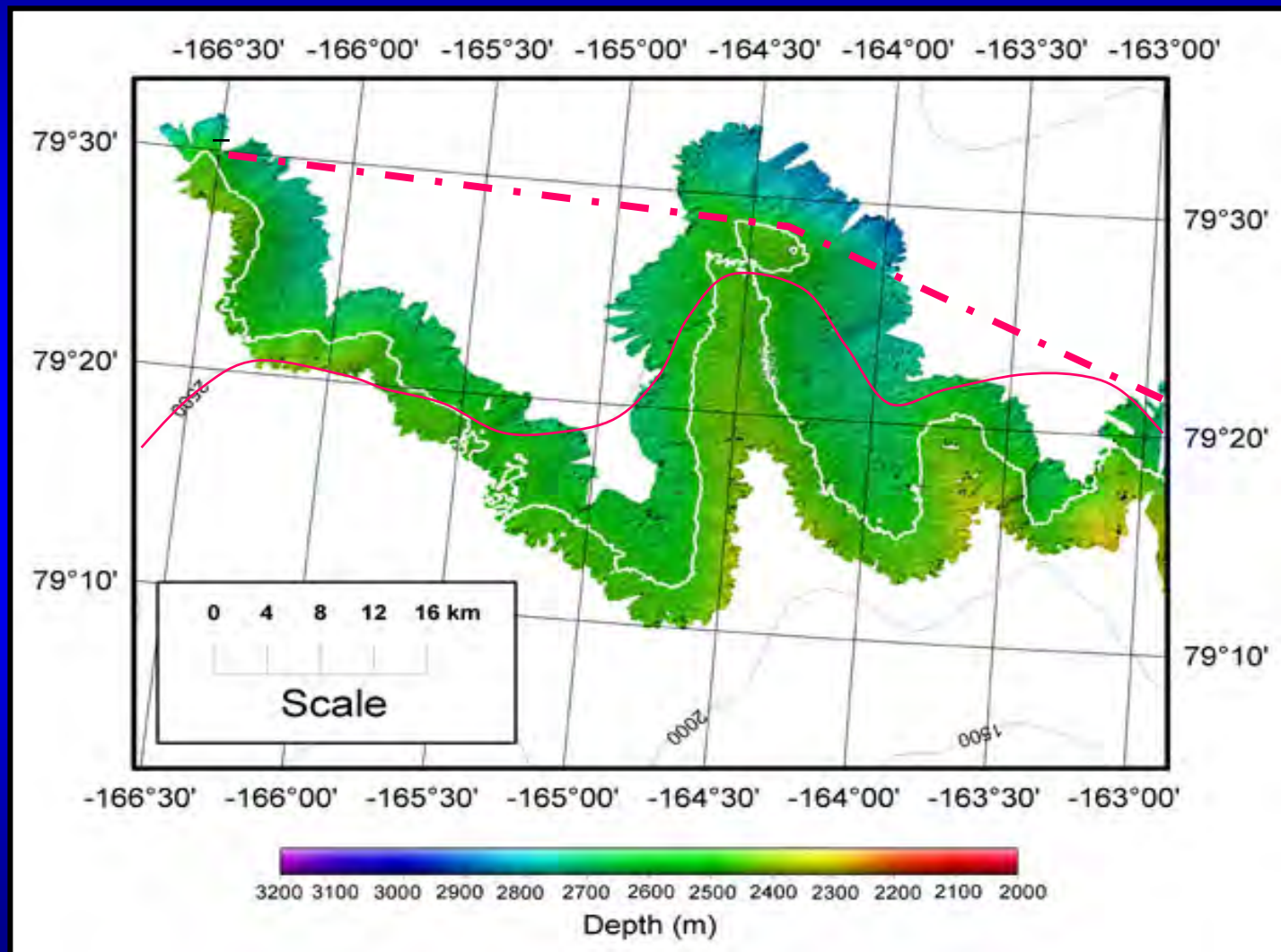
typical ice conditions  
2003  
8/10 "cheesy" ice



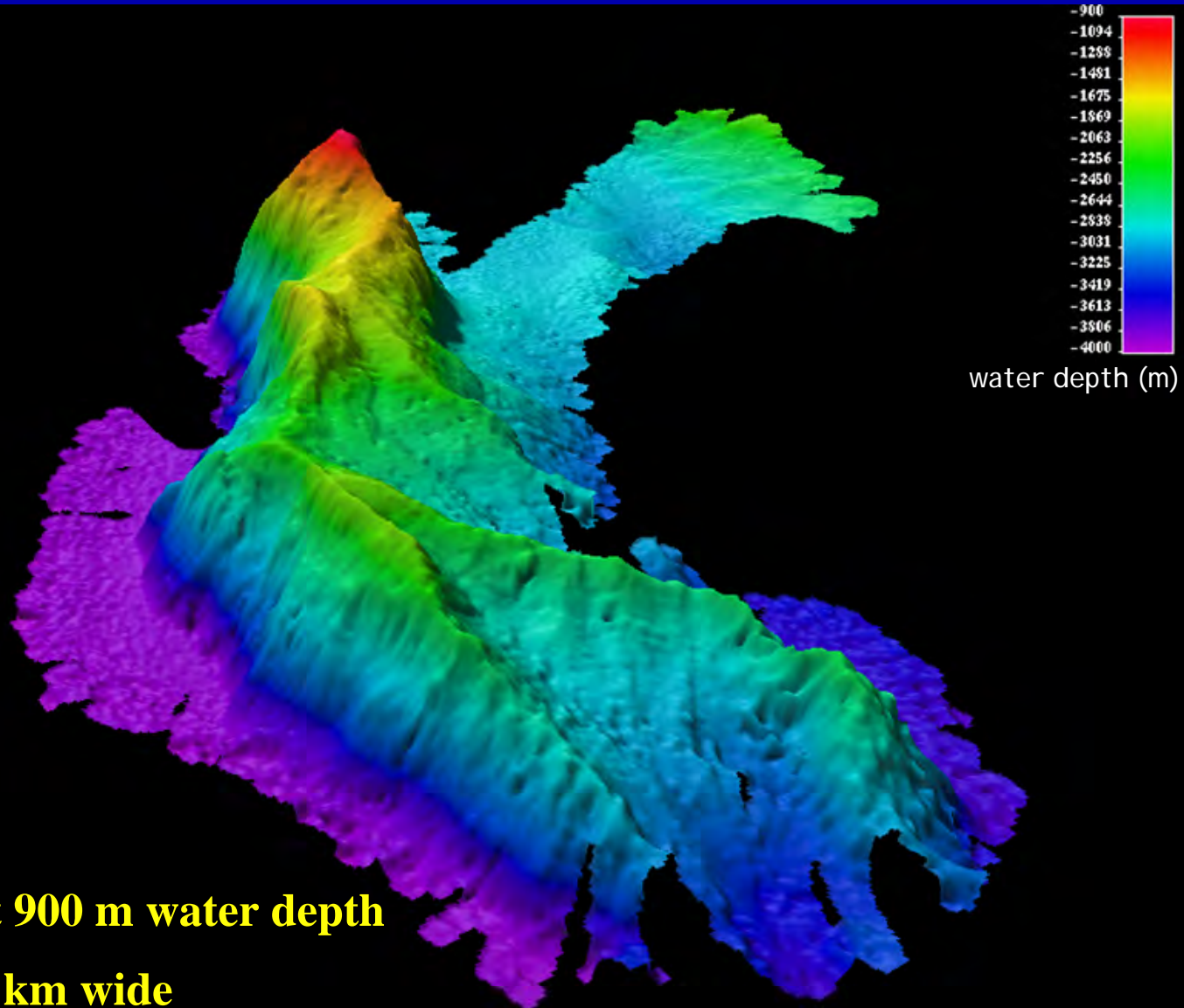
Healy 03-02  
~3000 km of  
multibeam  
sonar  
bathymetry  
1-11 Sept 03  
8/10 ice



## Redefinition of the 2500 m contour



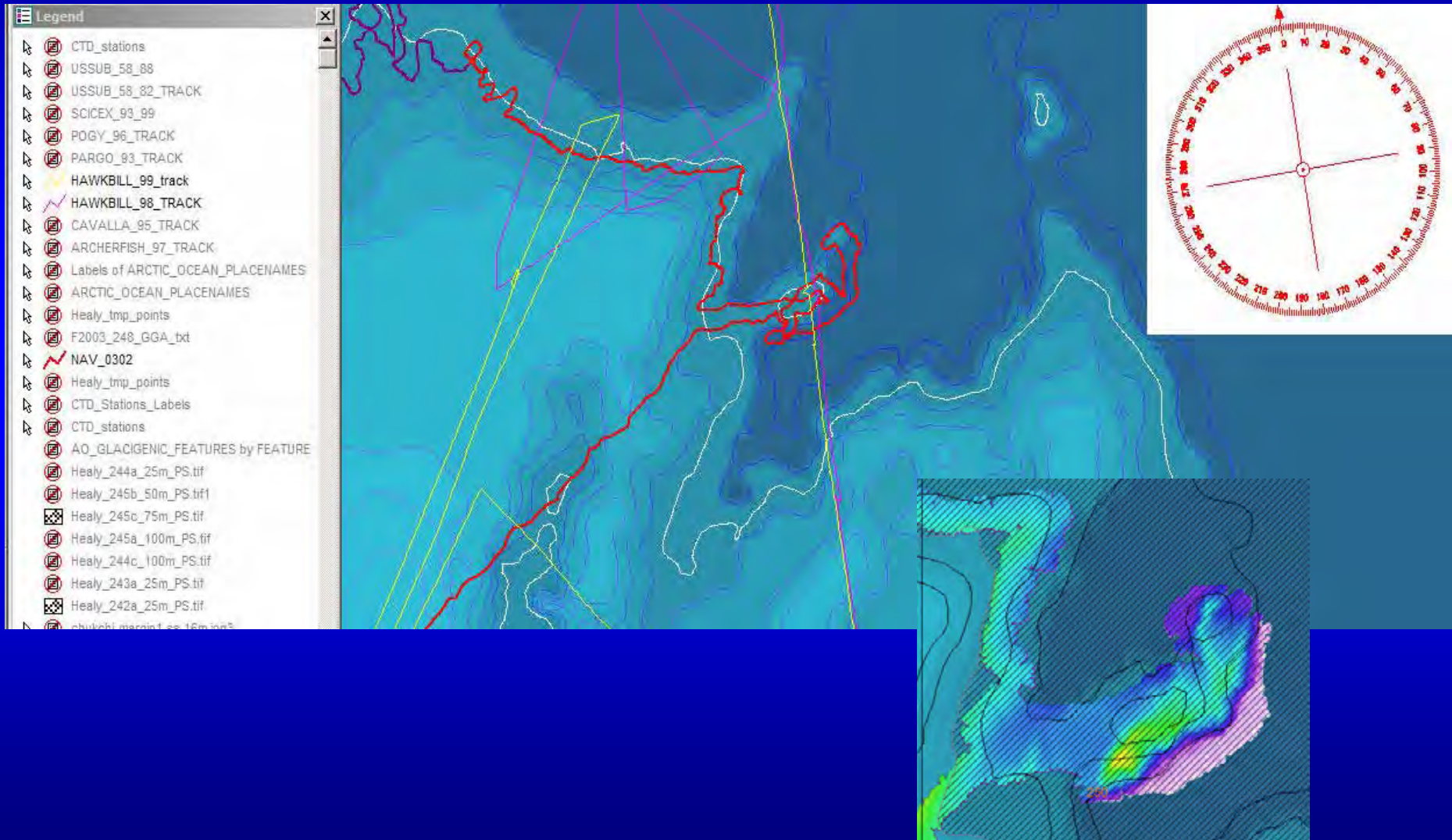
# Healy Seamount looking S, ve=6x



**3100 m high, summit at 900 m water depth**

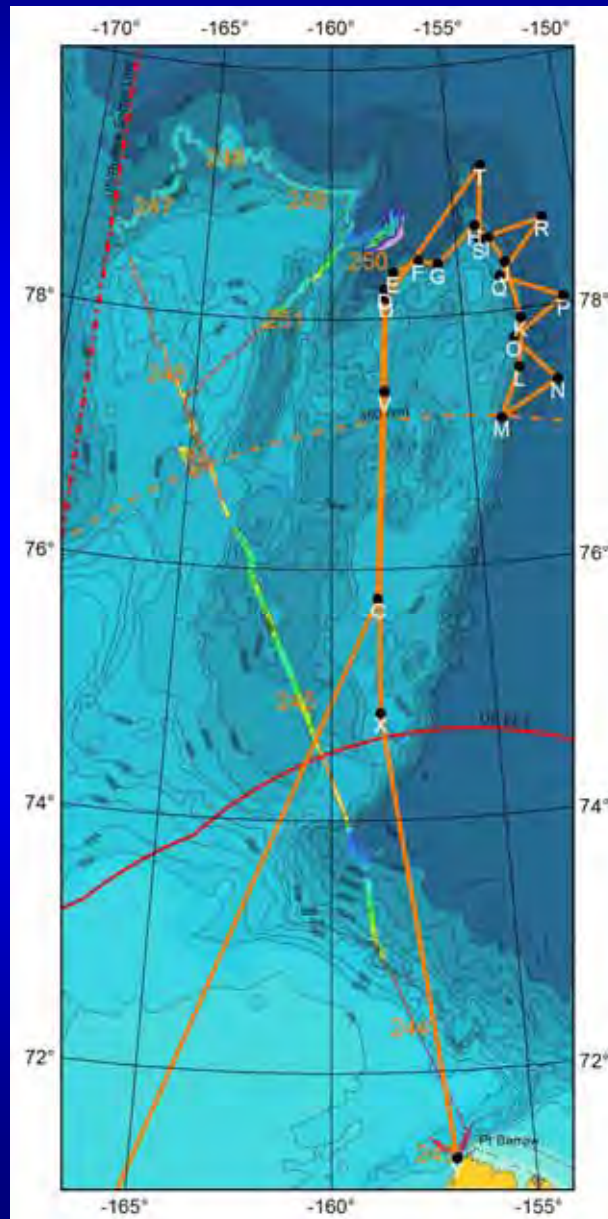
**45 km long x 15 km wide**

# Healy Seamount Survey





# HEALY 2004



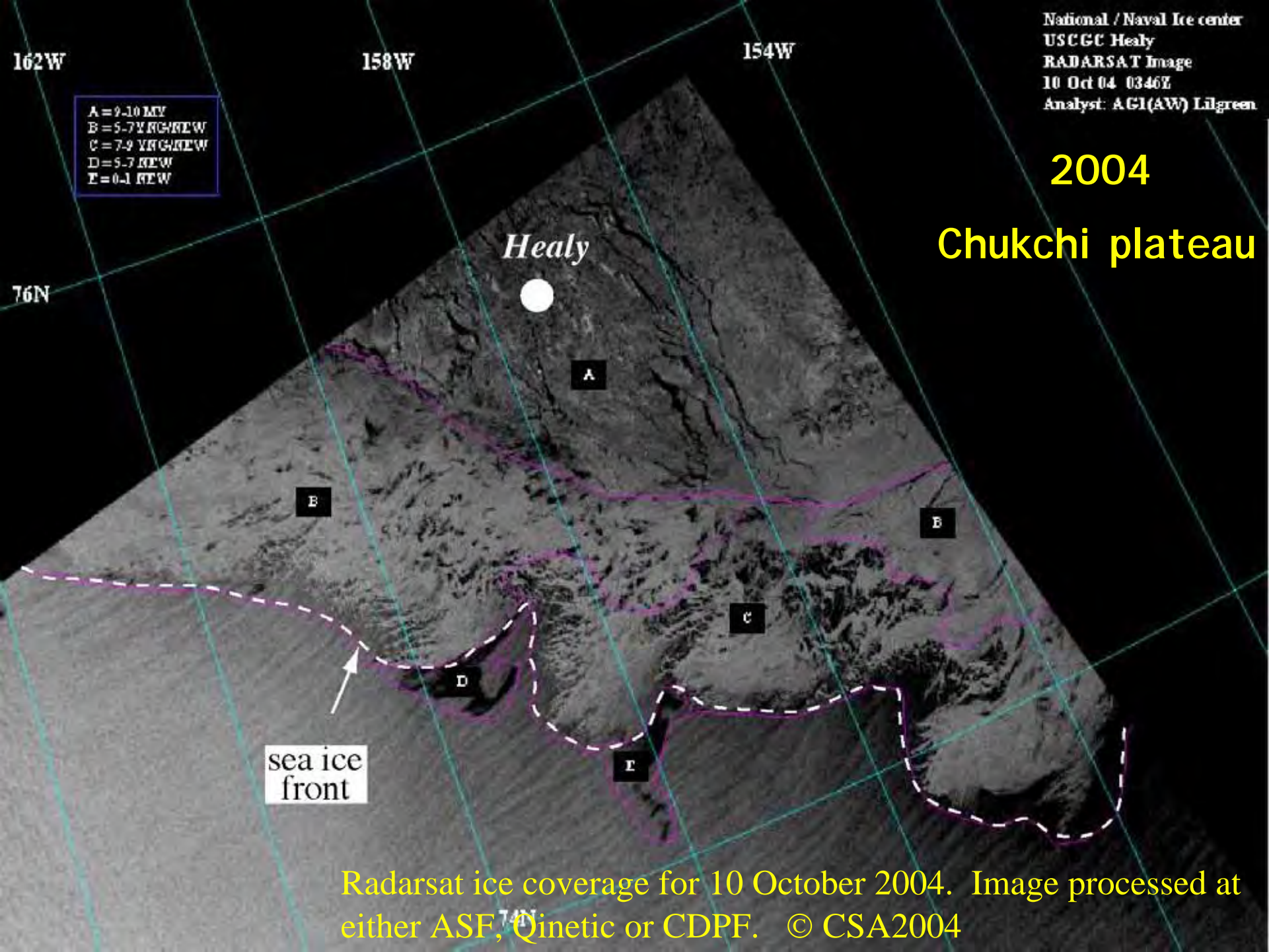
typical ice conditions  
2004



National / Naval Ice center  
USCGC Healy  
RADARSAT Image  
10 Oct 04 0346Z  
Analyst: A G1(AW) Lilgreen

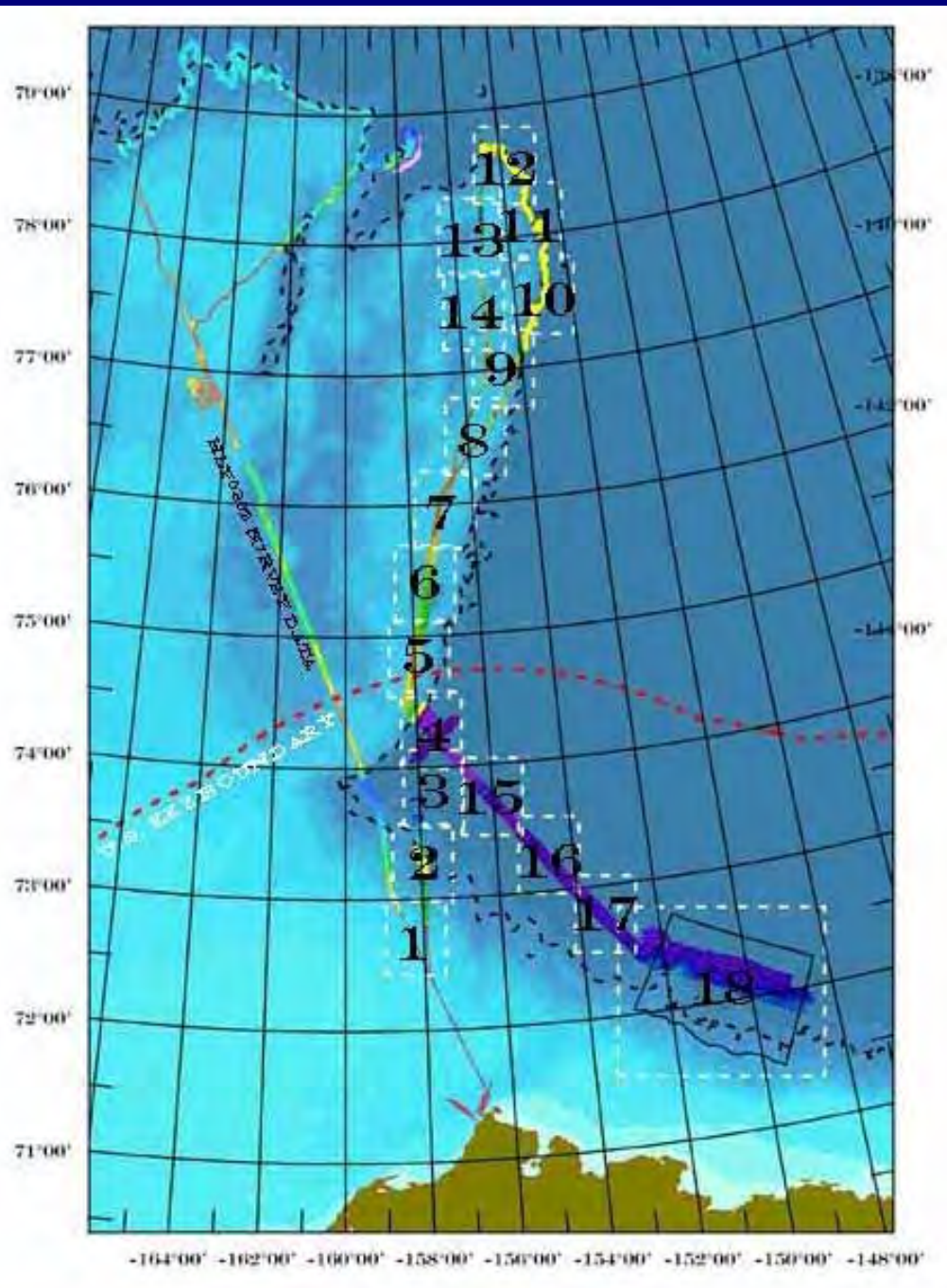
2004

Chukchi plateau



Radarsat ice coverage for 10 October 2004. Image processed at either ASF, Qinetiq or CDPF. © CSA2004

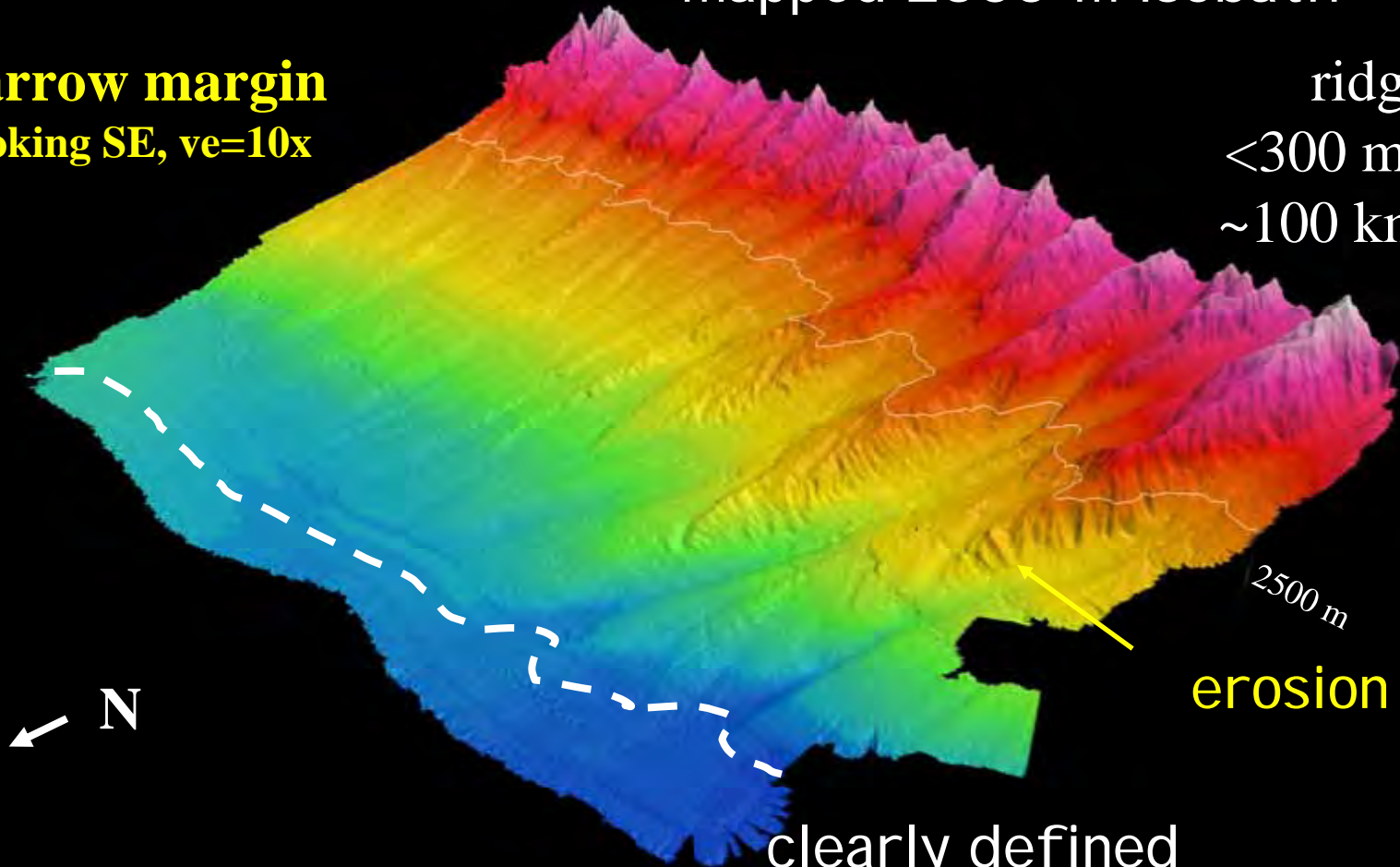
HEALY 04-  
05 TRACK  
6-26 Oct.  
2004  
6700 line km



**Barrow margin**  
looking SE, ve=10x

mapped 2500-m isobath

ridges  
<300 m high,  
~100 km long



2500 m  
erosion

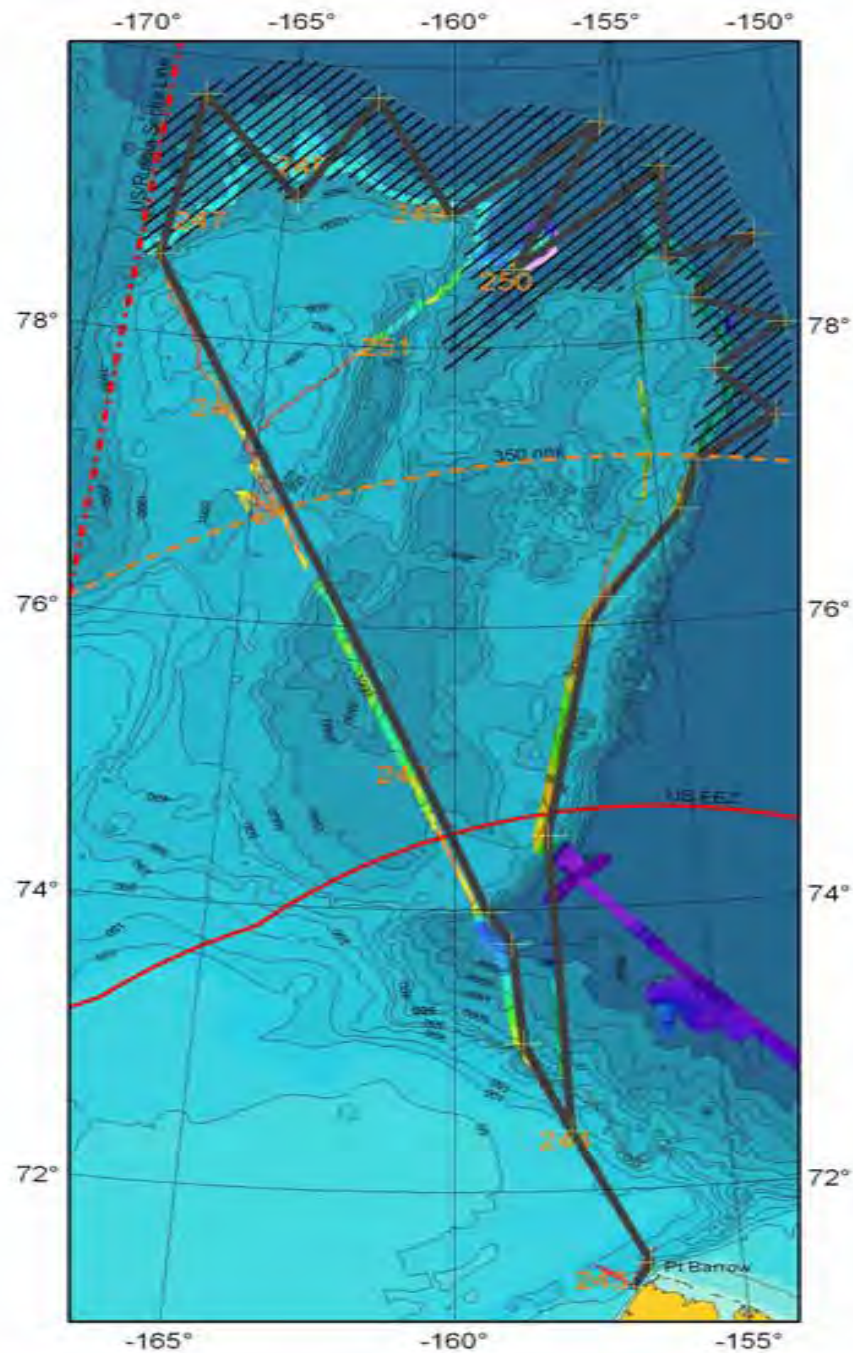
clearly defined  
foot of the slope

# HEALY 07-03

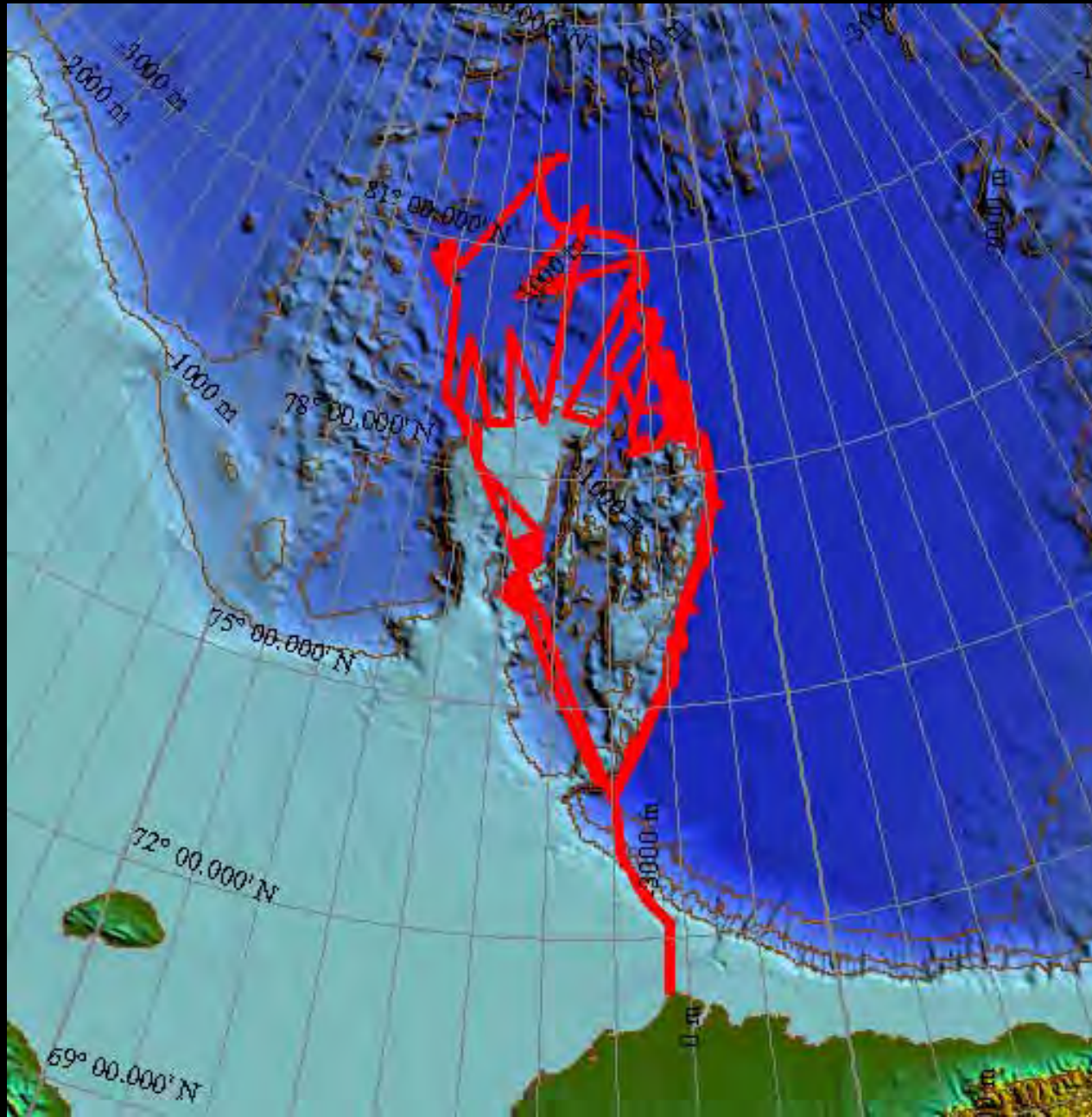


HEALY 07-03  
Depart Barrow:  
17 Aug. 07  
Return Barrow  
15 Sept. 07

PLANNED  
TRACK



# HEALY 0703



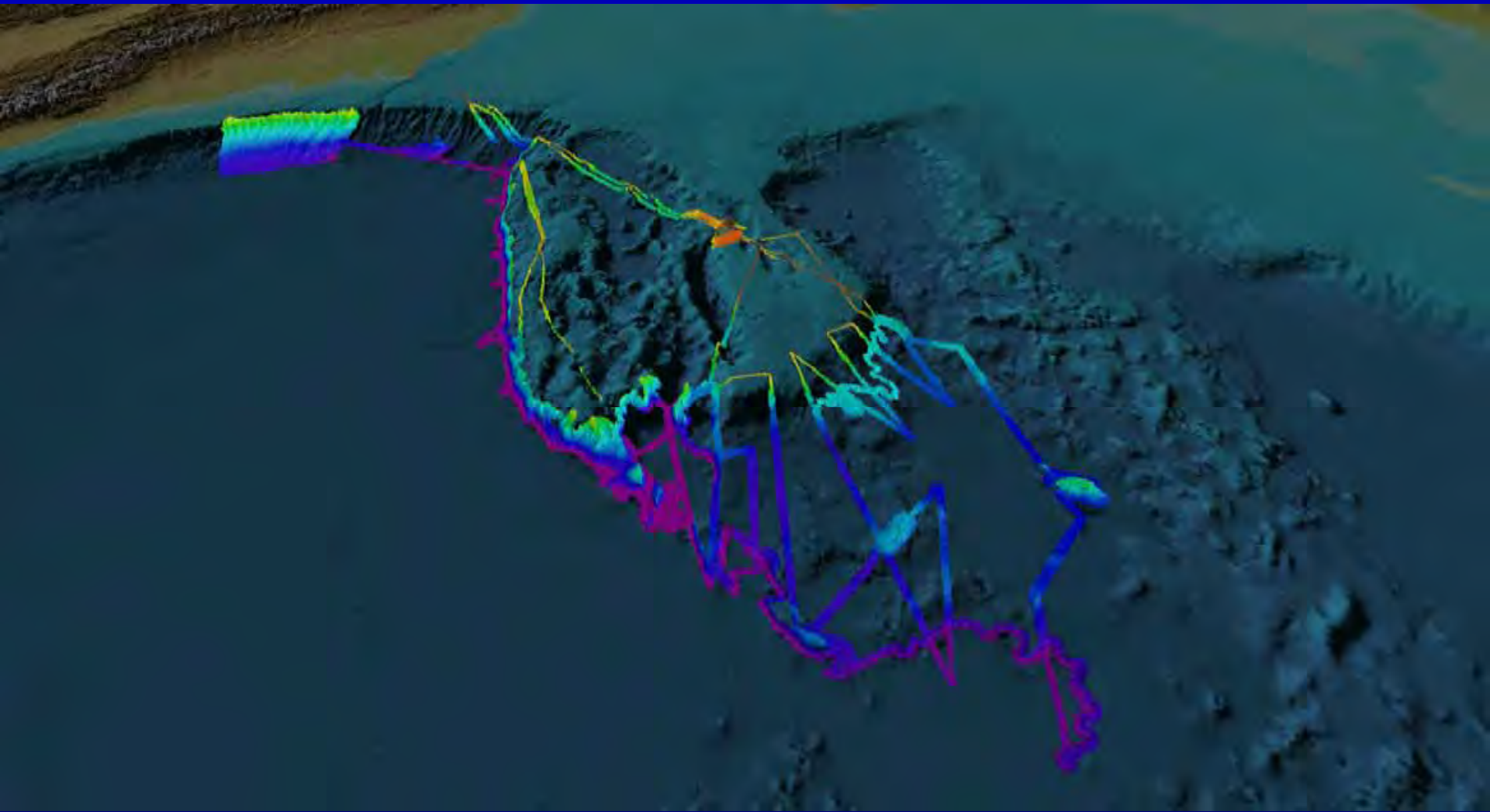




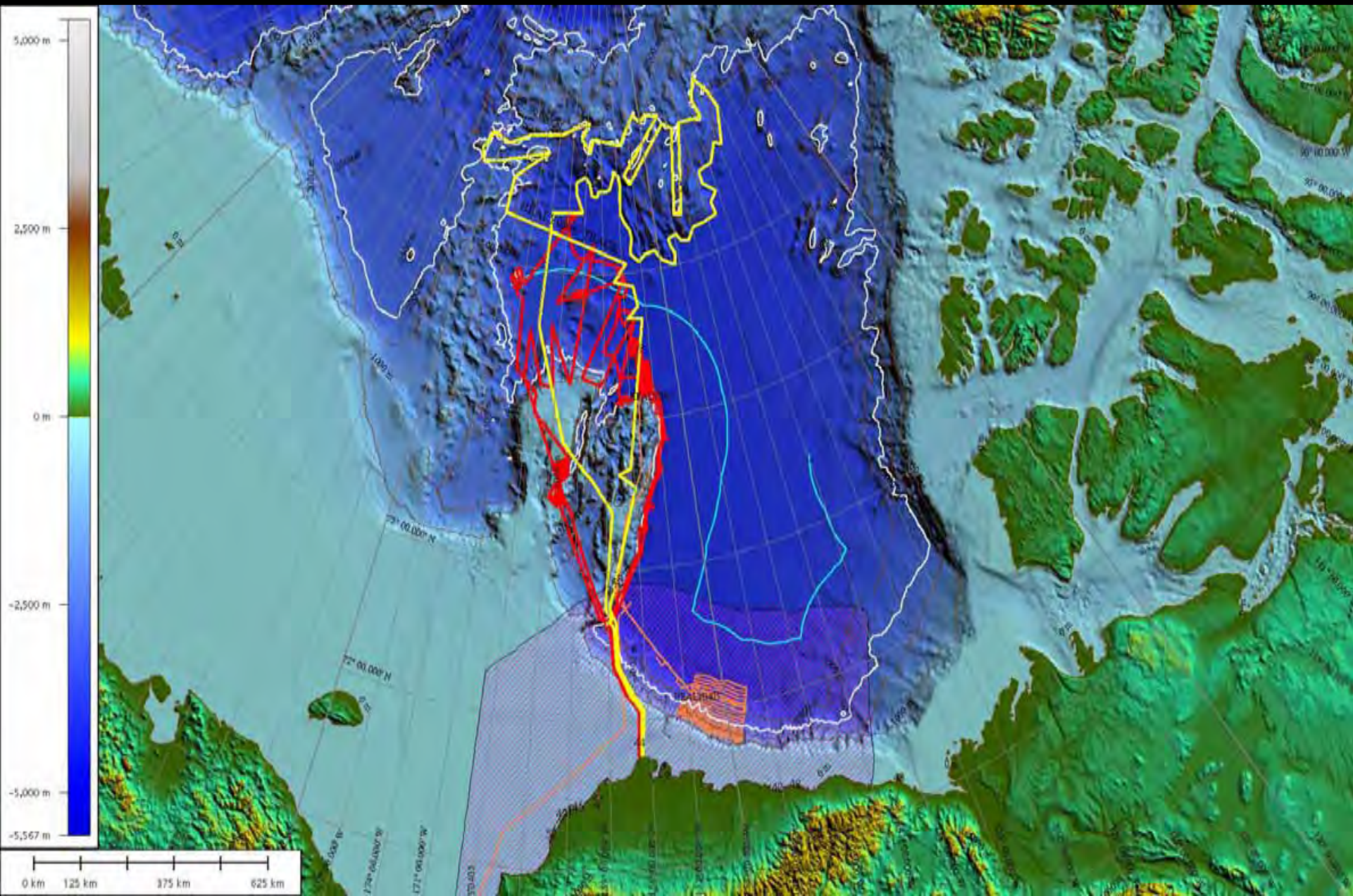




# Healy 03-02, 04-05, 07-03



# HEALY 0805 - PROPOSED SHIPTRACK







# Law of the Sea: Navigation Rights, High Seas Freedoms, and the Arctic

Captain Patrick J. Neher, JAGC, USN

National Defense University

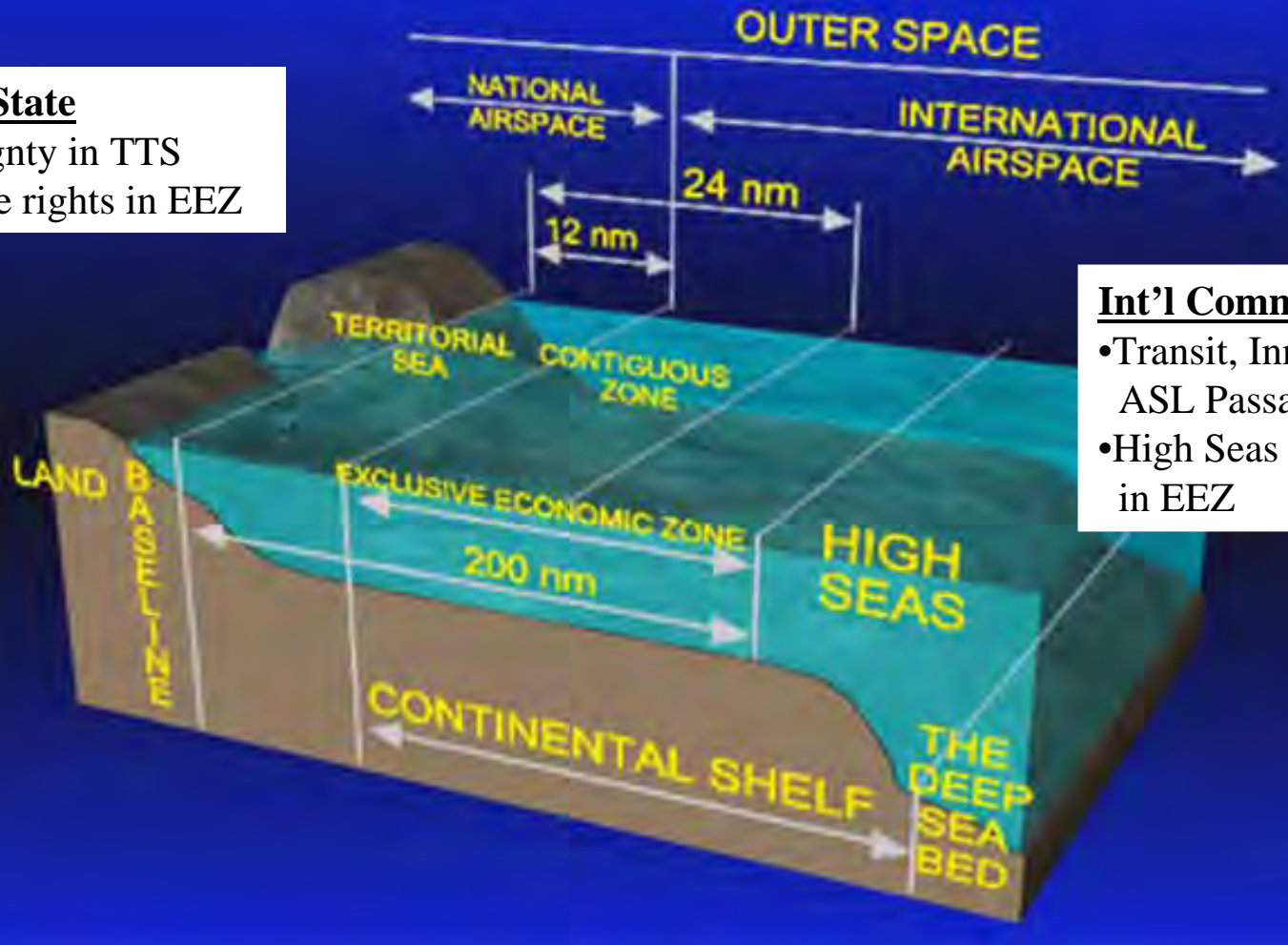
14 May 2008



# Delicate Balance

## Coastal State

- Sovereignty in TTS
- Resource rights in EEZ



## Int'l Community

- Transit, Innocent, ASL Passage in TTS
- High Seas Freedoms in EEZ



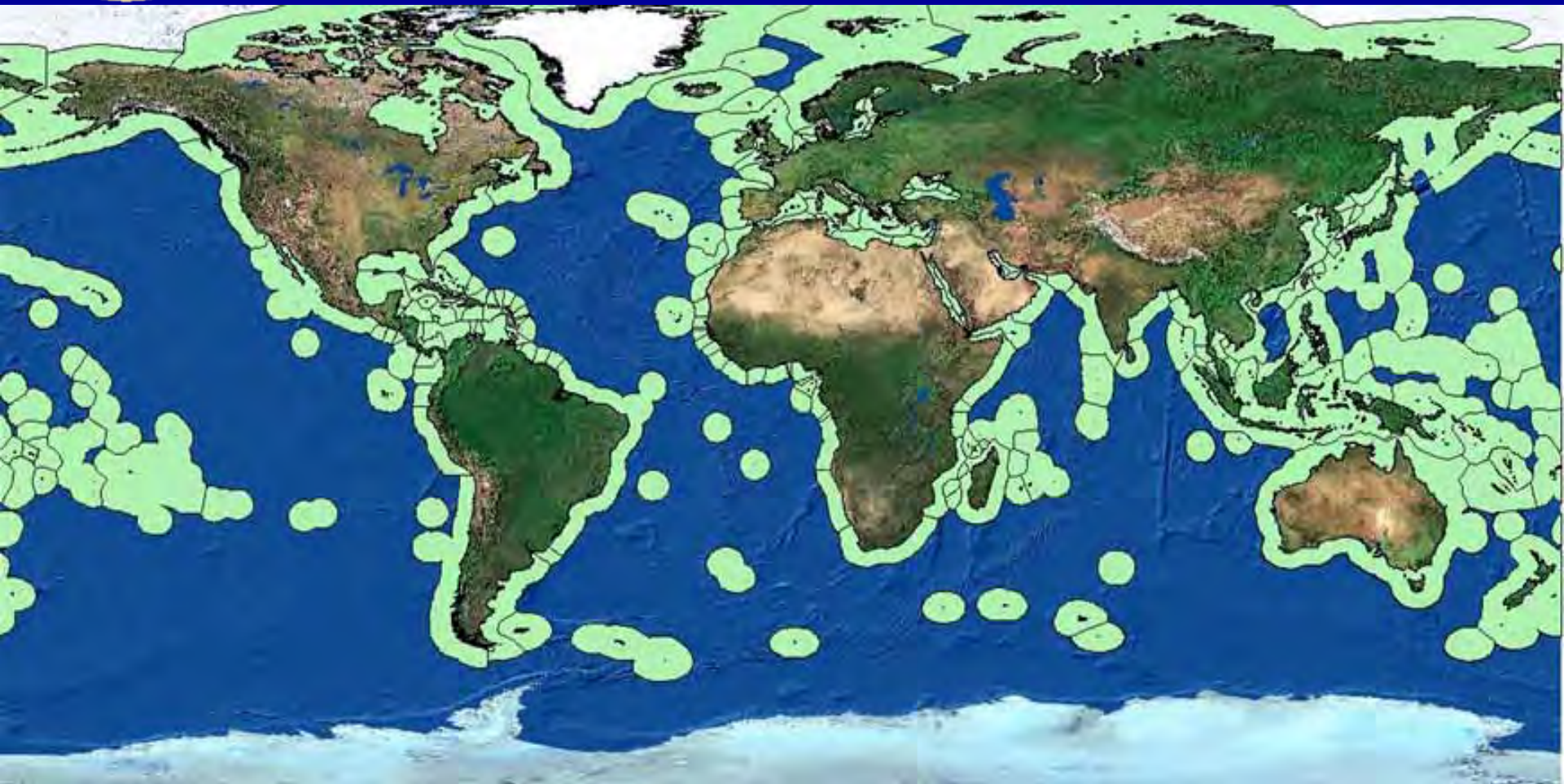


# National Security/ Defense Benefits

- Convention extremely favorable to U.S.
  - Limits breadth of territorial sea (Art. 3)
  - Innocent passage (Art. 19-23, 45)
  - **Transit passage** (Art. 37-44)
  - Archipelagic sea lanes passage (Art. 52-54)
  - **Freedom of navigation and overflight in EEZs** (Art. 58, 87)
  - Sovereign immunity of warships & public vessels (Art. 29-32, 95, 96, 236)
  - Right of approach and visit (Art. 110)
  - Laying submarine cables (Art. 79, 87)
  - Legitimate coastal state authority in territorial sea and contiguous zones (Art. 2, 24-25, 27-28, 33)



# Worldwide EEZs





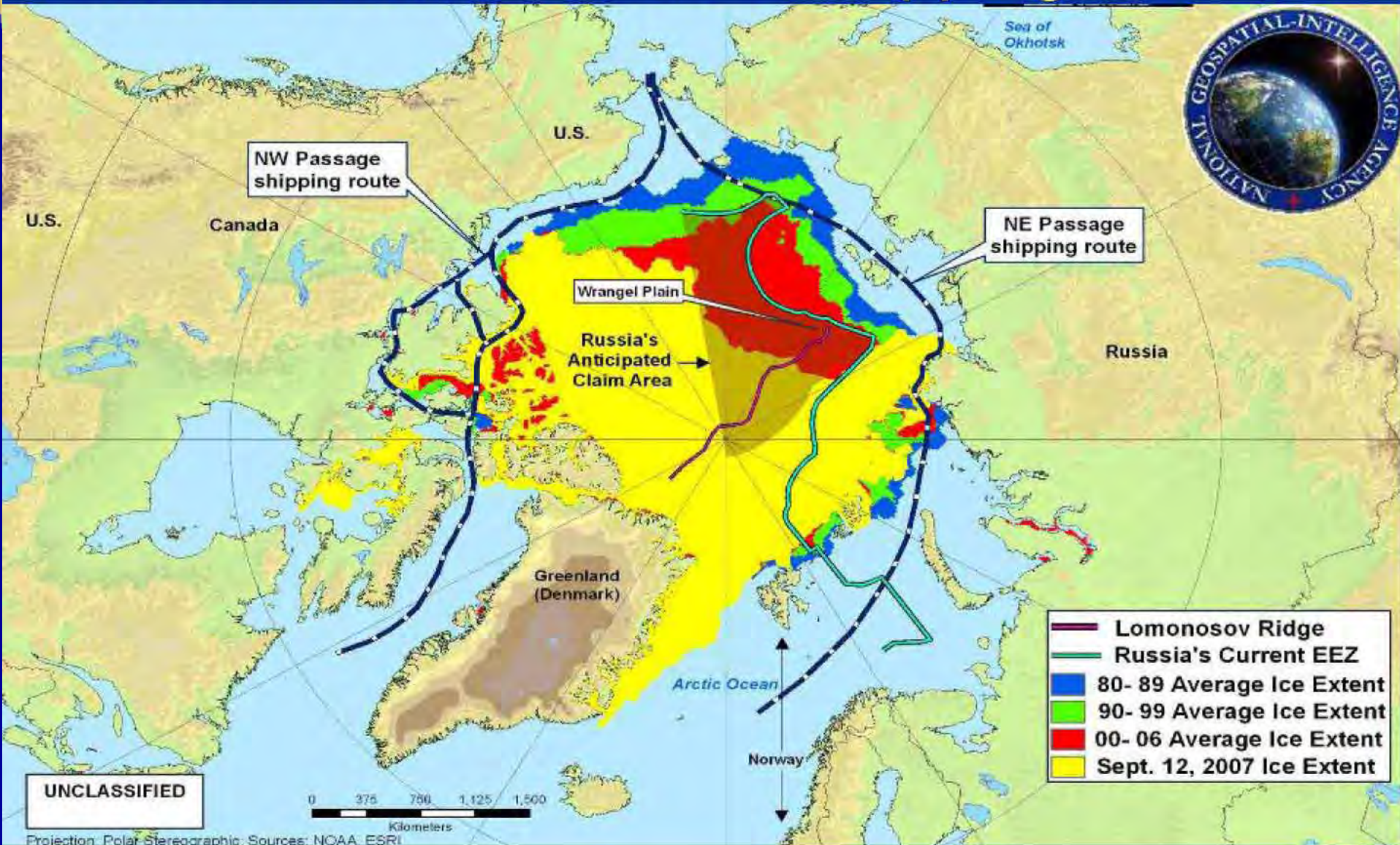
# Troubled Waters Ahead?



*“The legal system relating to oceans and seas based on UNCLOS needs to be developed to face new challenges. The UNCLOS regime for EEZ and international straits makes it harder for coastal states to exercise jurisdiction over transiting ships, despite the fact that any pollution incident in these zones presents an imminent risk for them. This makes it difficult to comply with general obligations (themselves set up by UNCLOS) of coastal states, to protect their marine environment against pollution.”*

*-- Commission of the European Communities, Green Paper: Towards a Future Maritime Policy for the Union: A European Vision for the Oceans and Seas (June 7, 2006)*

# Future Maritime Arctic – Shipping Routes



UNCLASSIFIED

U.S. DEPARTMENT OF  
**Homeland  
Security**





Questions?



# UNCLOS

## Article 236



### Sovereign Immunity

“The provisions of this Convention regarding the protection and preservation of the marine environment do not apply to any warship, naval auxiliary, other vessels or aircraft owned or operated by a State and used, for the time being, only on government non-commercial service. However, each State shall ensure, by the adoption of appropriate measures *not impairing operations or operational capabilities* of such vessels or aircraft owned or operated by it, that such vessels or aircraft act in a manner consistent, *so far as is reasonable and practicable*, with this Convention.”



# **America's Strategic Interests in an Accessible Arctic**

**Mead Treadwell, Chair  
U.S. Arctic Research Commission  
National Defense University Symposium  
Washington, DC  
May 14, 2008**



# US ARCTIC RESEARCH COMMISSION



Mead Treadwell, Chair



Michele Longo Eder



Susan Sugai



Duane Laible



Vera Kingeekuk Metcalf



Tom Royer



Charles Vörösmarty



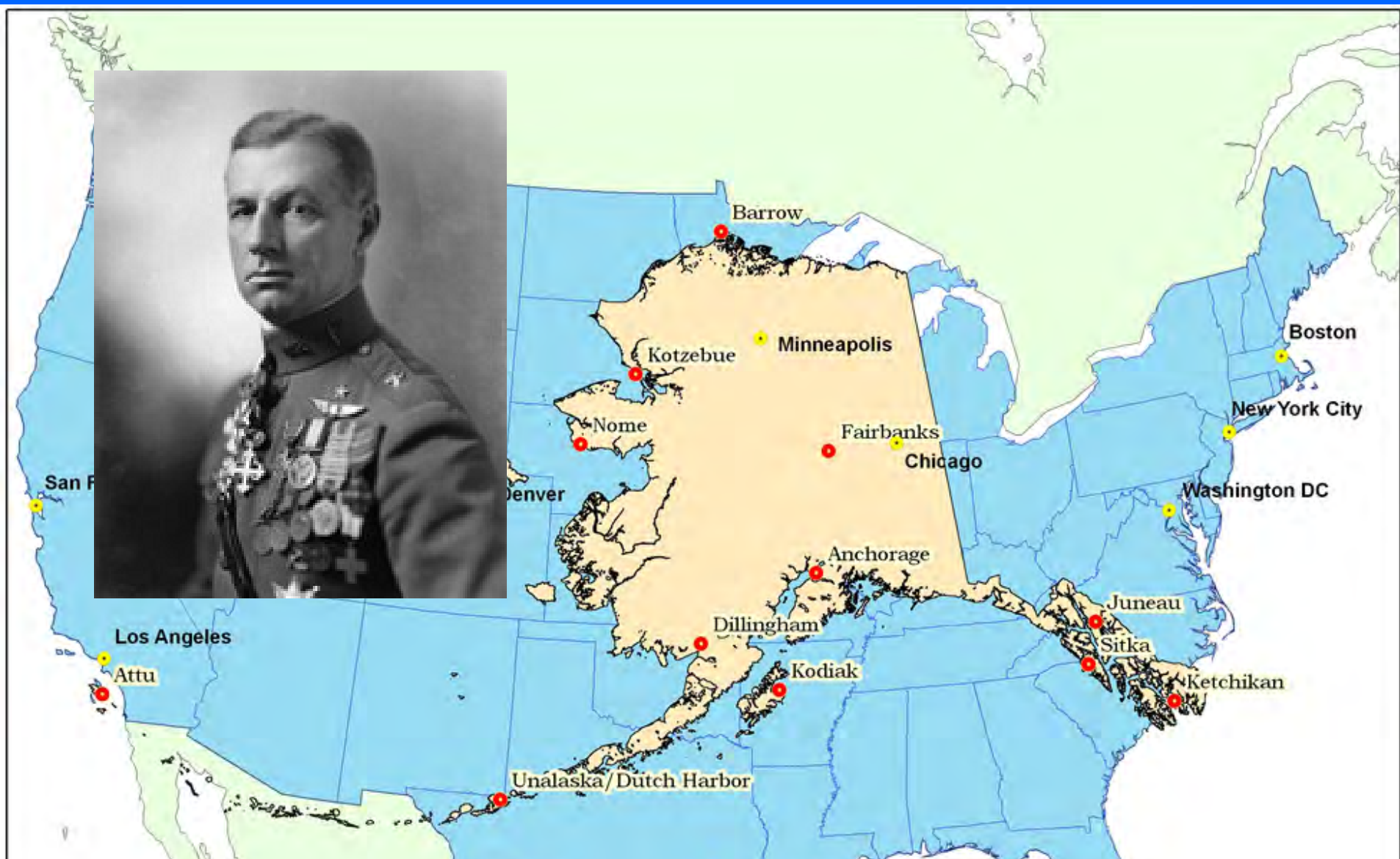
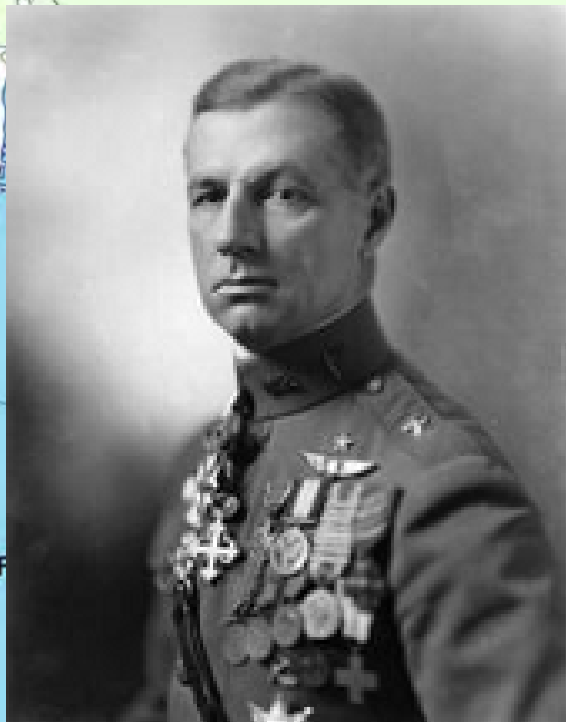
# Check from U.S. to Purchase Alaska from Russia



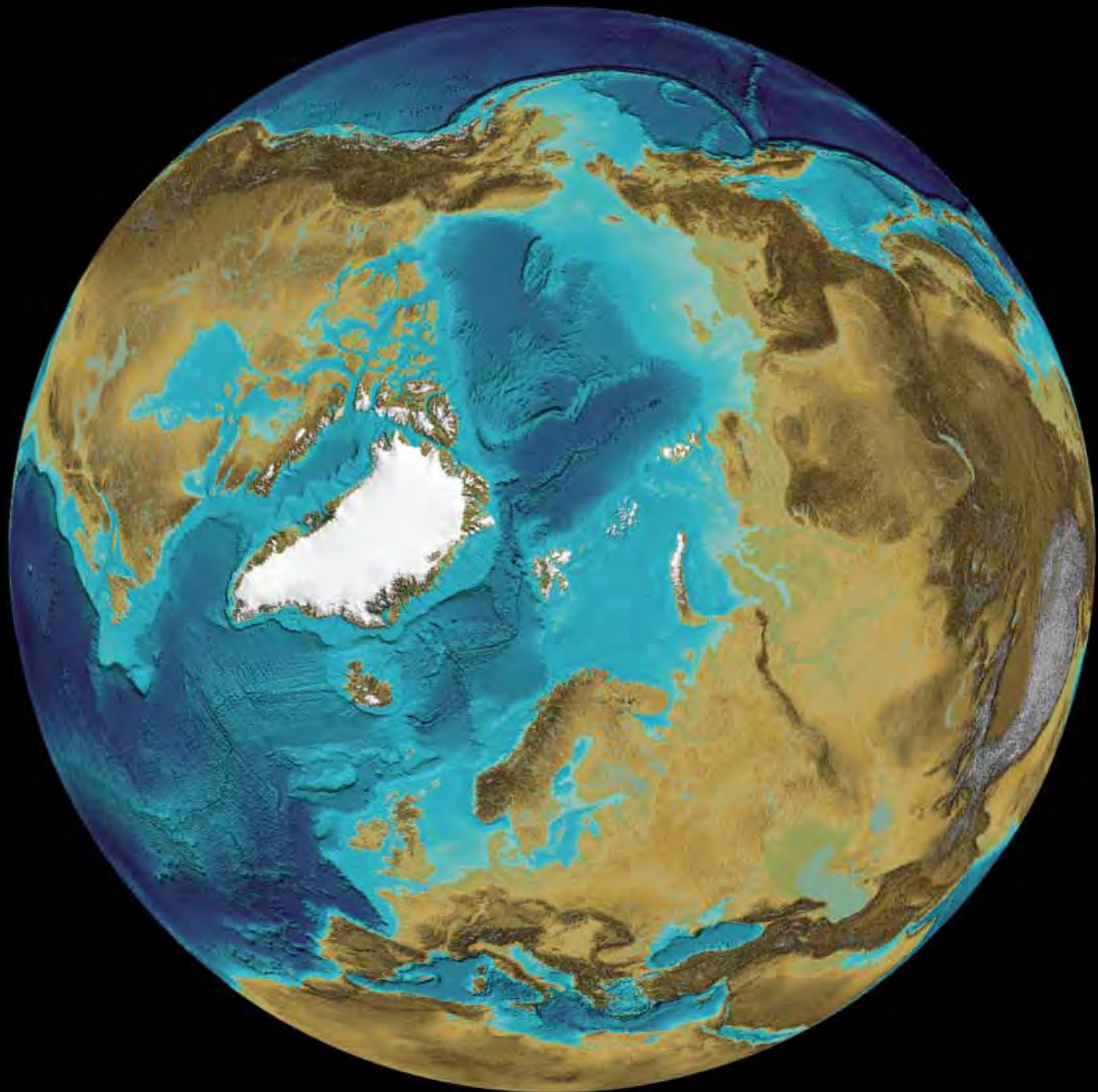
August 1, 1868

Alaska  
Common  
wealth:  
location,  
people,  
critters,  
culture,  
beauty,  
land,  
oil,  
gas,  
minerals,  
timber,  
fresh  
water . .





*"I believe that in the future, whoever holds Alaska will hold the world ... I think it is the most important strategic place in the world."*  
-- Billy Mitchell, Father of the Air Force, (1879-1936)



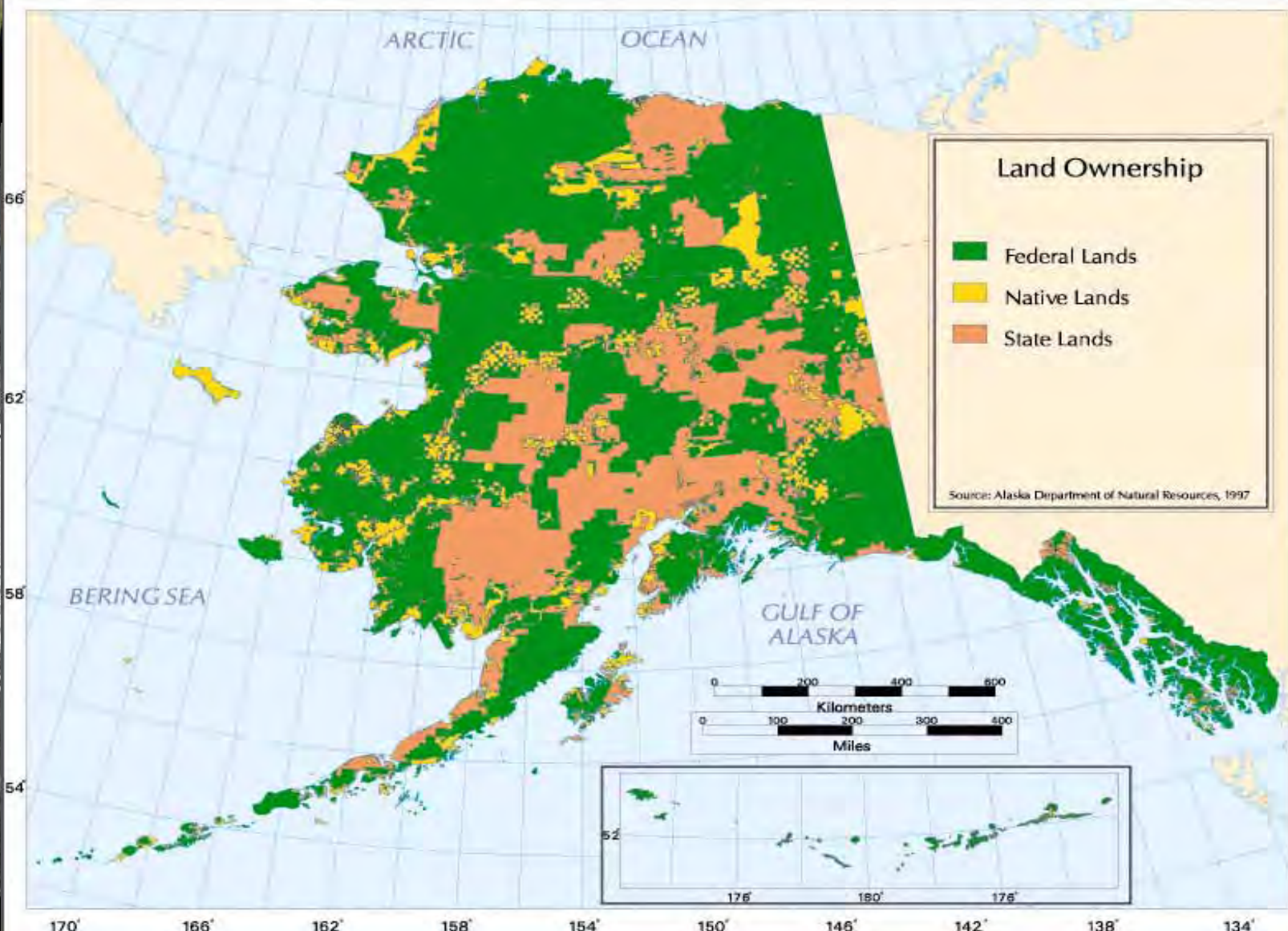


# Trillion Dollar Issues

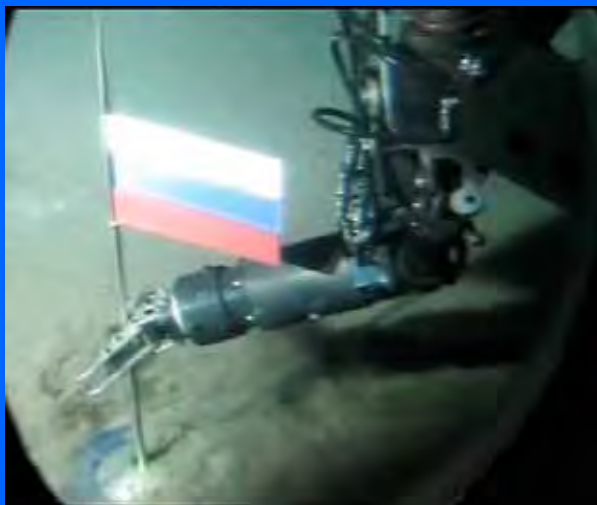
- Arctic ownership, sovereignty
- Harvesting Arctic resources
- Global Trade: Trans-Arctic Shipping
- Climate Change Mitigation/Adaptation
- Protecting values we share – culture and conservation



**Our “nested” ownership is from international to individual, a “bridge between capitalism and communism”**



2007



LAURA KIPPERS ON THE NEW FEMALE DRUPES

# HARPER'S

HARPER'S MAGAZINE / OCTOBER 2007 \$6.99



## COLD RUSH

The Coming Fight for the Melting North  
By McKenzie Funk



It's a harsh, frozen land of ice and snow. But it's also a land of opportunity. As the world's climate warms, the Arctic is becoming a hot spot for resource extraction.

## The next land rush

As countries race to file claims to areas of the sea floor before a United Nations deadline, geo logists and geophysicists are getting caught up in the frenzy. David C. Creamer reports.

Recent months have seen a flurry of activity in the Arctic region. In the past few years, the United States, Canada, and Russia have all filed claims to areas of the sea floor. The United States has filed a claim to an area of the sea floor in the Arctic Ocean. Canada has filed a claim to an area of the sea floor in the Arctic Ocean. Russia has filed a claim to an area of the sea floor in the Arctic Ocean. The United States, Canada, and Russia are all racing to file claims to areas of the sea floor before a United Nations deadline. Geo logists and geophysicists are getting caught up in the frenzy.

### The next big Arctic oil boom

By David C. Creamer

—Special Advertising Section

Over the past few years, the Arctic region has become a hot spot for resource extraction. As the world's climate warms, the Arctic is becoming a hot spot for resource extraction. The United States, Canada, and Russia are all racing to file claims to areas of the sea floor before a United Nations deadline. Geo logists and geophysicists are getting caught up in the frenzy.

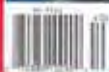
Fifty Years

Joe Klein on Hillary's New Health-Care Plan  
Is There Really A Case Against The Polygamist Prophet?  
Ride 'Em Cowboy: Why The Western Won't Die

# TIME

## Who Owns the Arctic?

As global warming shrinks the ice to record lows, the global battle for resources heats up



A \$1.50 cover price at outlets near the end of the month of publication. © 2007 Time Inc. Magazine. All rights reserved.



NAVY / MARINE CORPS / COAST GUARD / MERCHANT MARINE

# SEAPOWER

## THE NEW COLD WAR?

U.S., Canada, Russia, Denmark Rush to Stake Arctic Claims

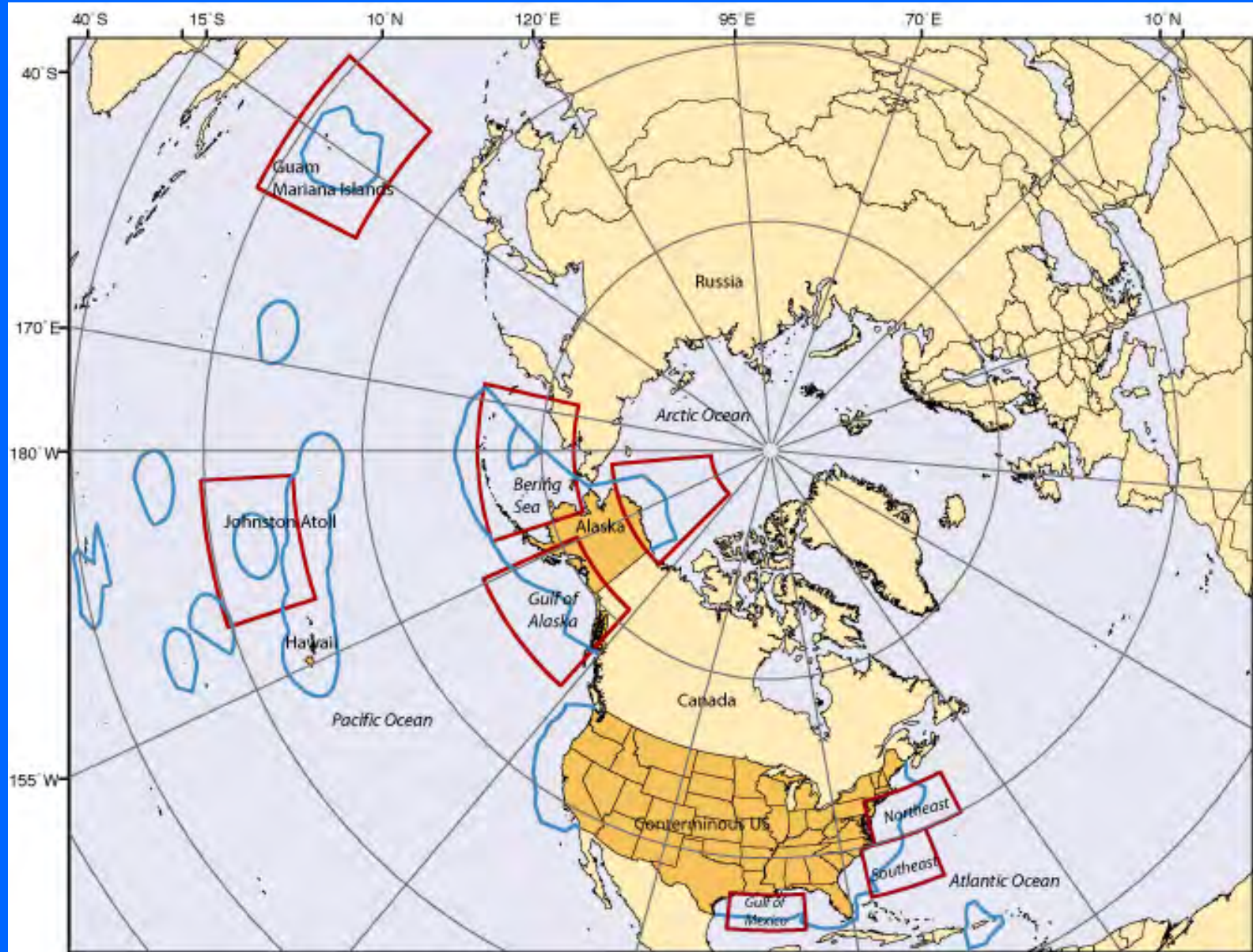
NAVY'S NEW GATEWAY / SPECIAL REPORT: U.S. NAVY PROGRAM REVIEW

October 2007 \$4.99  
NAVY LEAGUE OF THE UNITED STATES  
www.navyleague.org





# Where Is Our ECS?



# How Much Are the Resources Worth?

**At least \$1 trillion in resources**

## **Hydrocarbons (Oil & Gas)**

- Estimated 10 Billion Barrels
- 750,000 square kilometers where sediment thickness exceeds 1 km

## **Manganese Nodules and Crusts**

- Highest concentration of manganese nodules and at the highest average grades
- Manganese: 182 million tons
- Copper: 9 million tons
- Nickel: 12 million tons
- Cobalt: 5,000 tons



**Jack #2 Well in the Gulf of Mexico**  
Drilled in record 7,000 feet of water  
AP Photo/Devon Energy Corporation

Reference: *Global Non-Living Resources on the Extended Continental Shelf: Prospects at the Year 2000*.  
Values based on June 2000 prices.



# USARC ECUMENICAL BELIEF



- The United States must maintain its global maritime capability—as a government AND as a Nation
- If the U.S. does not exercise its visible maritime presence in the Arctic Ocean—we cede it to whomever wants it!



# Trillion Dollar Issues

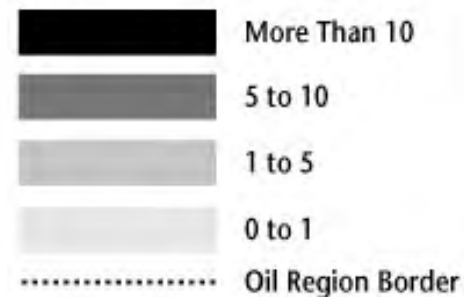
- Arctic ownership and sovereignty
- **Harvesting Arctic resources**
- Global Trade: Trans-Arctic Shipping
- Climate Change Mitigation/Adaptation
- Protecting values we share – culture and conservation

# Arctic Oil and Gas Potential



## Estimated Oil, Gas Yet to Be Found

In billions of barrels of oil equivalent



SOURCE: Wood Mackenzie  
Map based on a *Financial Times* graphic.

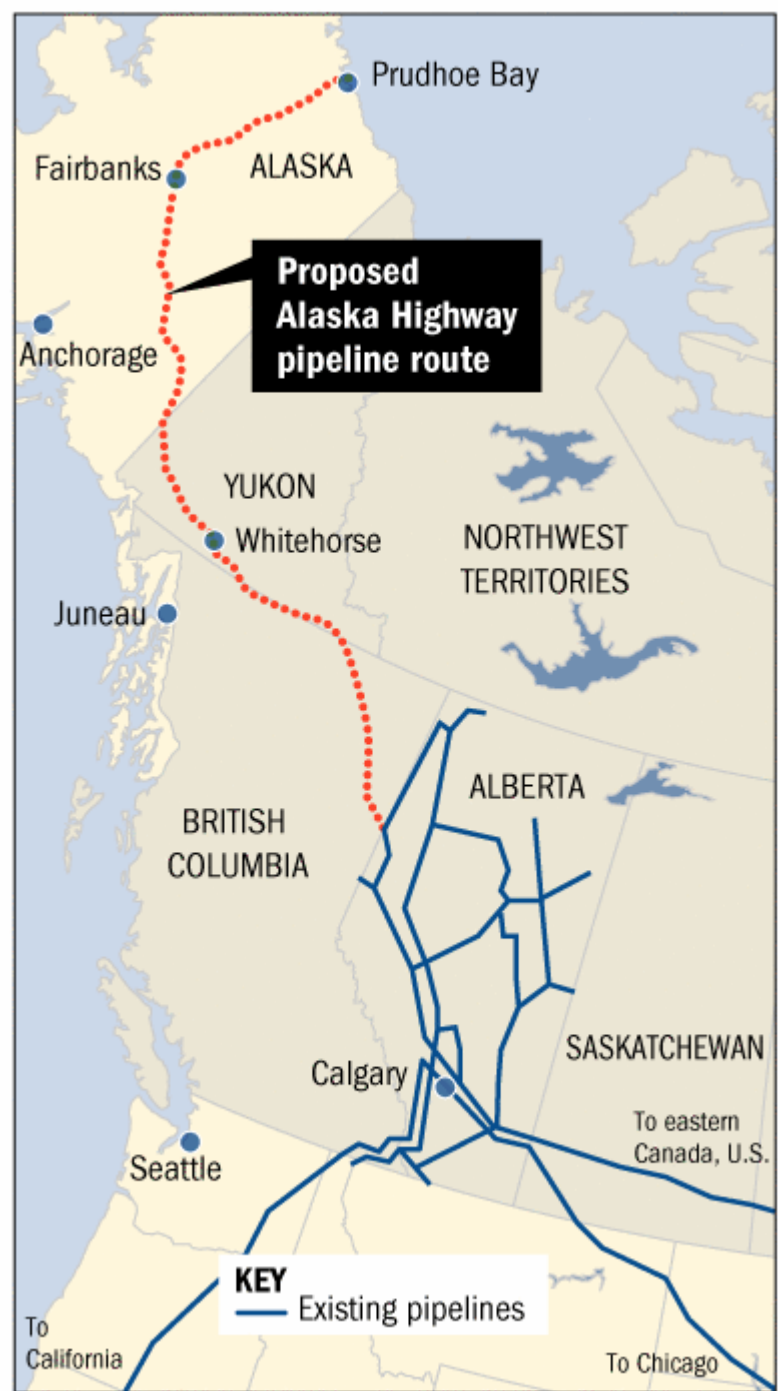
# Record \$2.7 billion bid for Alaska oil and gas leases



RON ENGSTROM / Anchorage Daily News



Minerals Management Service's Alaska Regional Director John Goll pours a glass of water before reading the 667 lease sale bids for the Chukchi Sea that totaled \$2.66 billion, the largest lease sale in Alaska's history. Photo/Rob Stapleton/AJOC



Source: TransCanada Corp. **RON ENGSTROM** / Anchorage Daily News



*"I'm not sure what I am, but I believe  
I'm a product of Norway."*





# Trillion Dollar Issues

- Arctic ownership and sovereignty
- Harvesting Arctic resources
- **Global Trade: Trans-Arctic Shipping**
- Climate Change Mitigation/Adaptation
- Protecting values we share – culture and conservation

# Timeless Arctic Marine Transport





# Shorter Shipping Distances

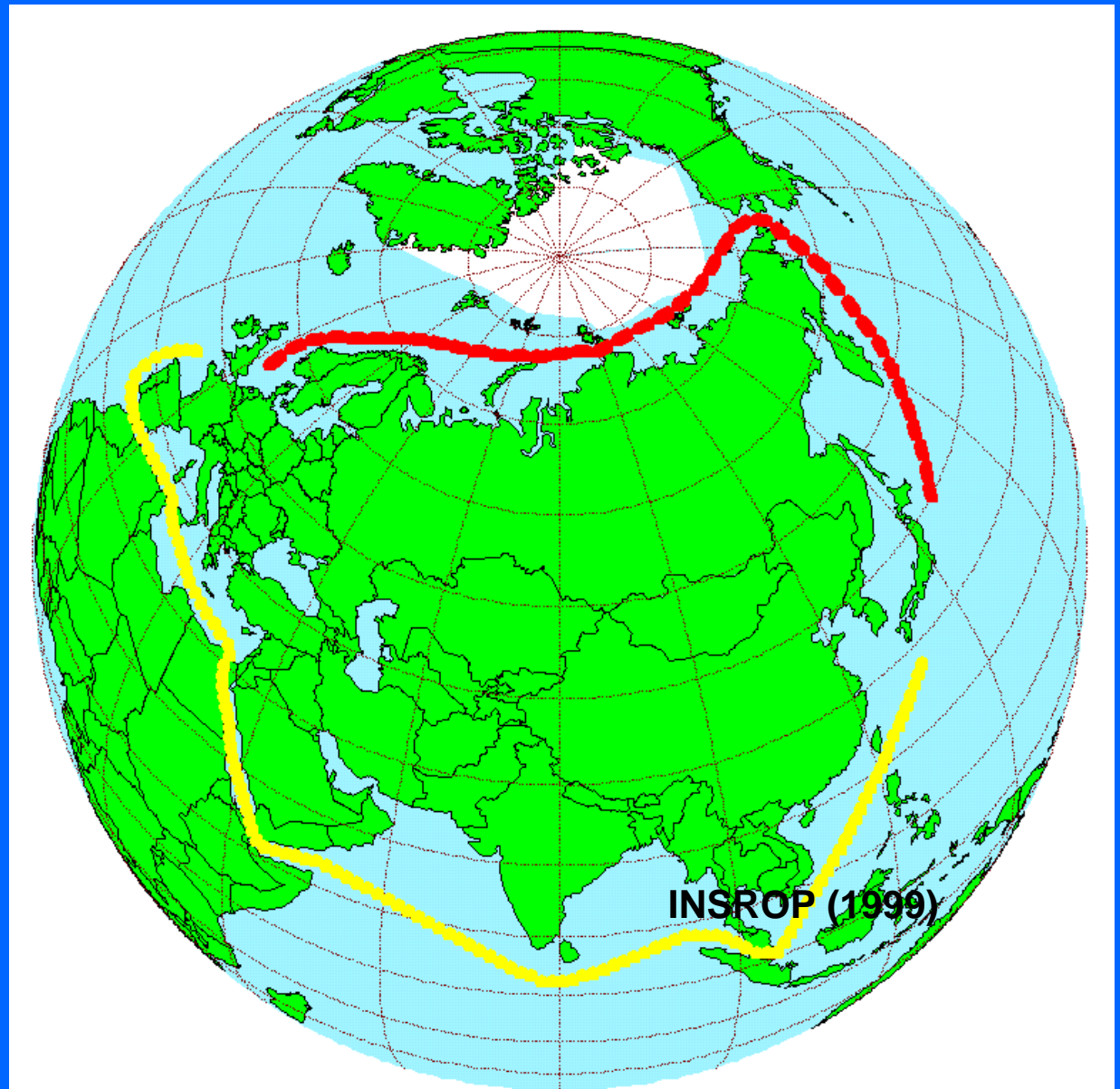
**Distance:  
Hamburg  
to Yokohama  
(nautical miles)**

**Northern Sea  
Route ~ 6,920**

**Suez Canal ~  
11,073**

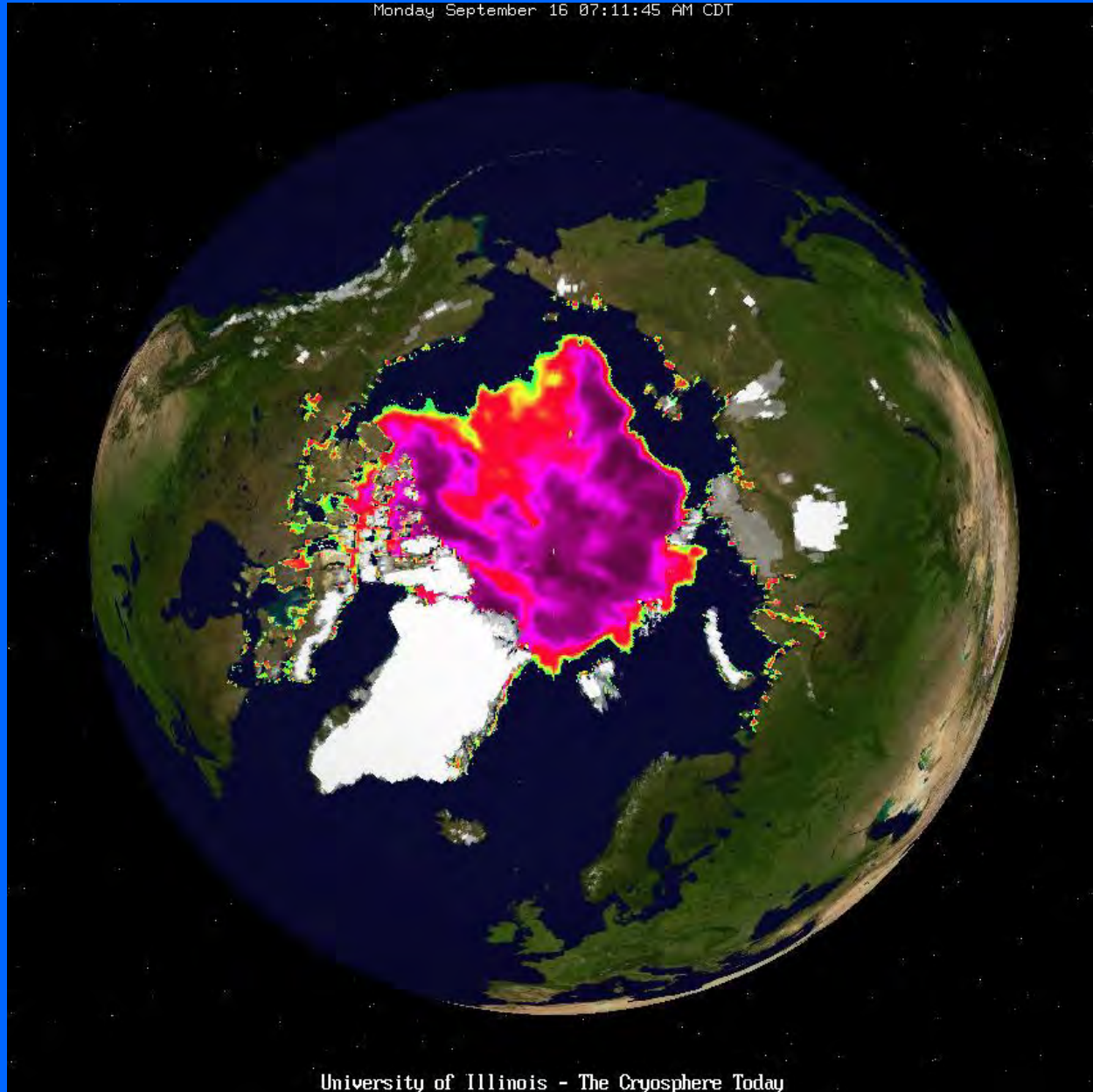
**Panama Canal ~  
12,420**

**Cape of Good  
Hope ~ 14,542**



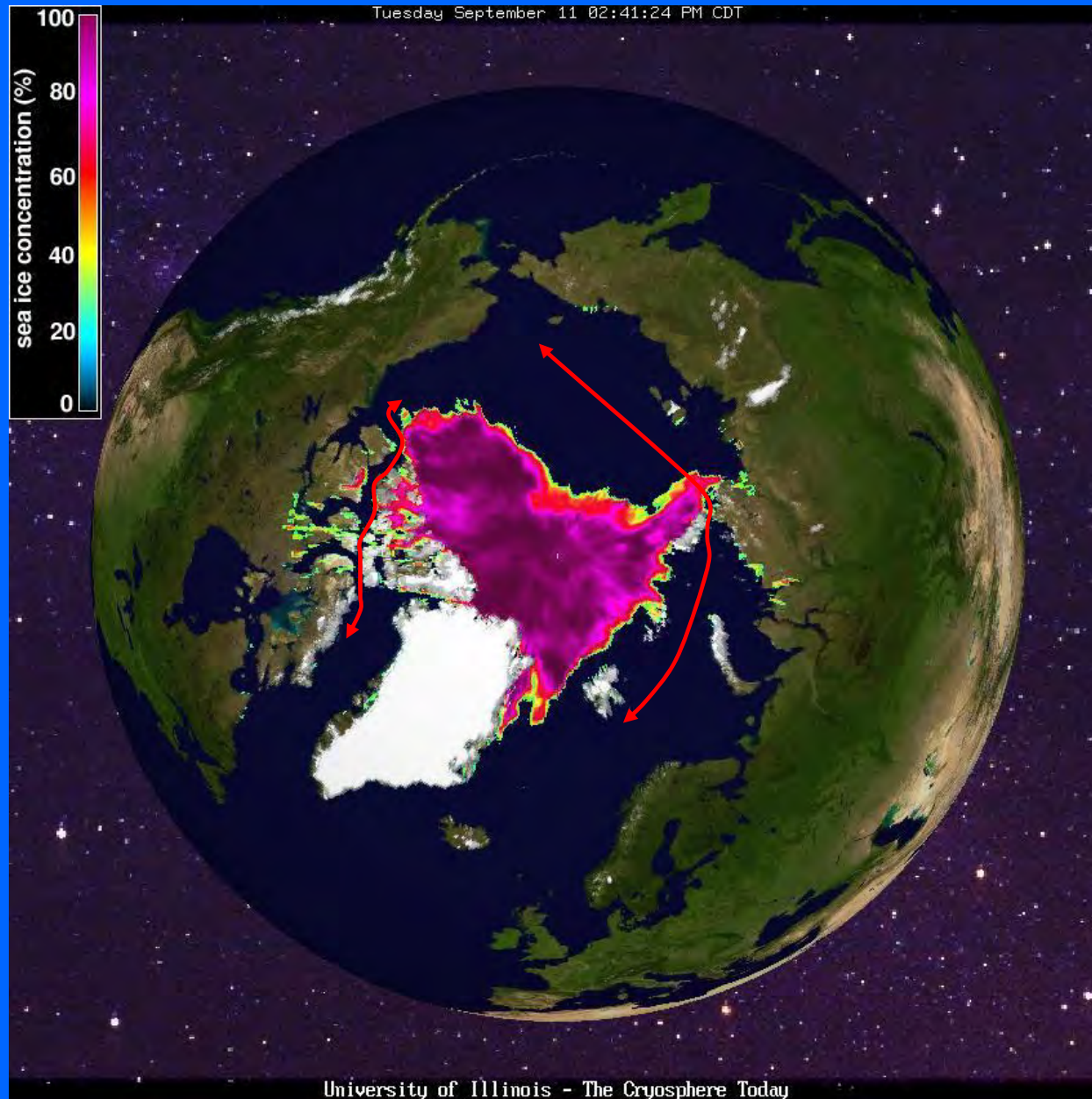
# 16 September 2002

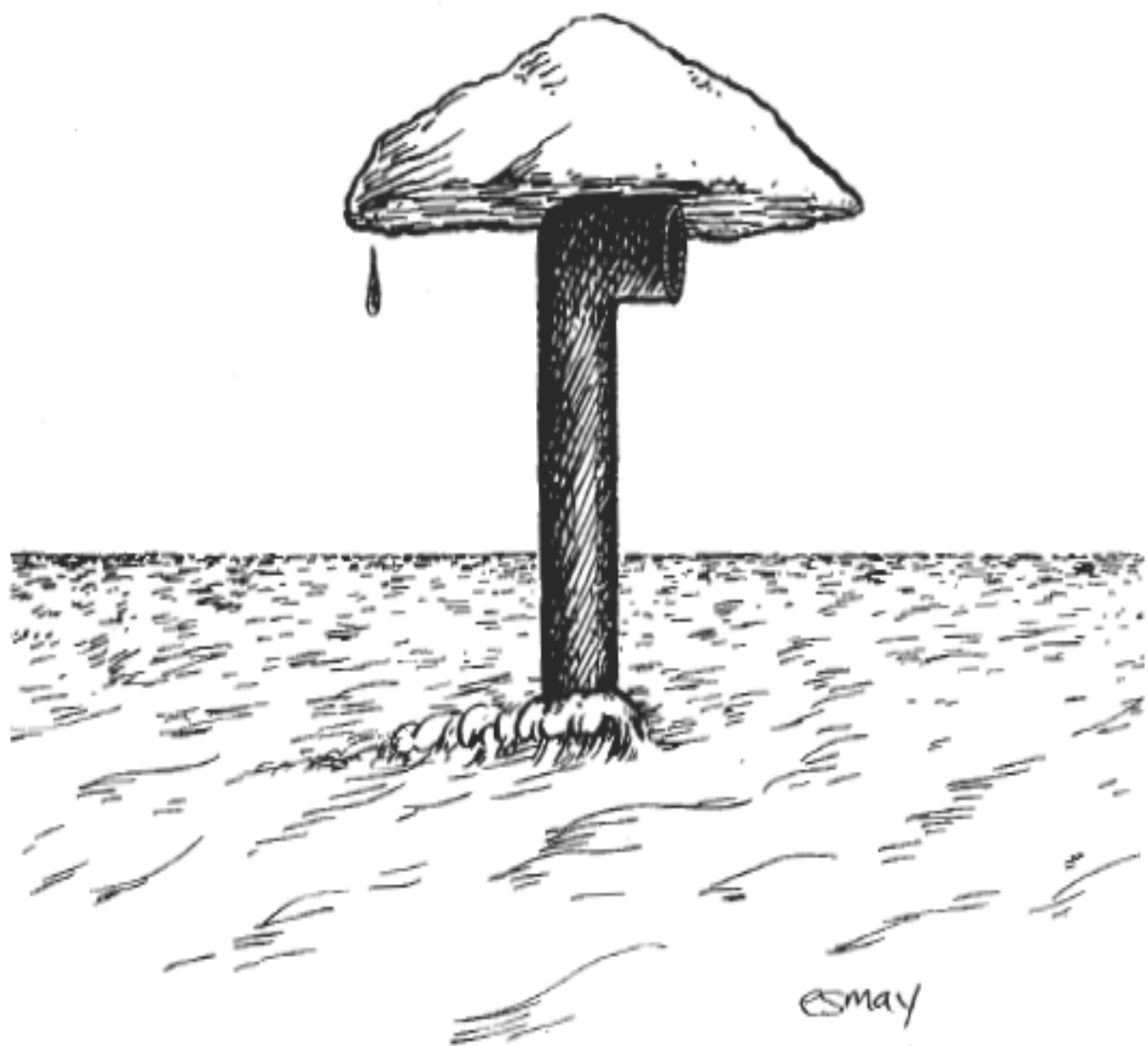
Monday September 16 07:11:45 AM CDT



University of Illinois - The Cryosphere Today

# 11 September 2007





*Last Trip Under the Polar Ice Cap*

# Icebreaker Design for Greater Efficiency

Future Convoy Requirements?

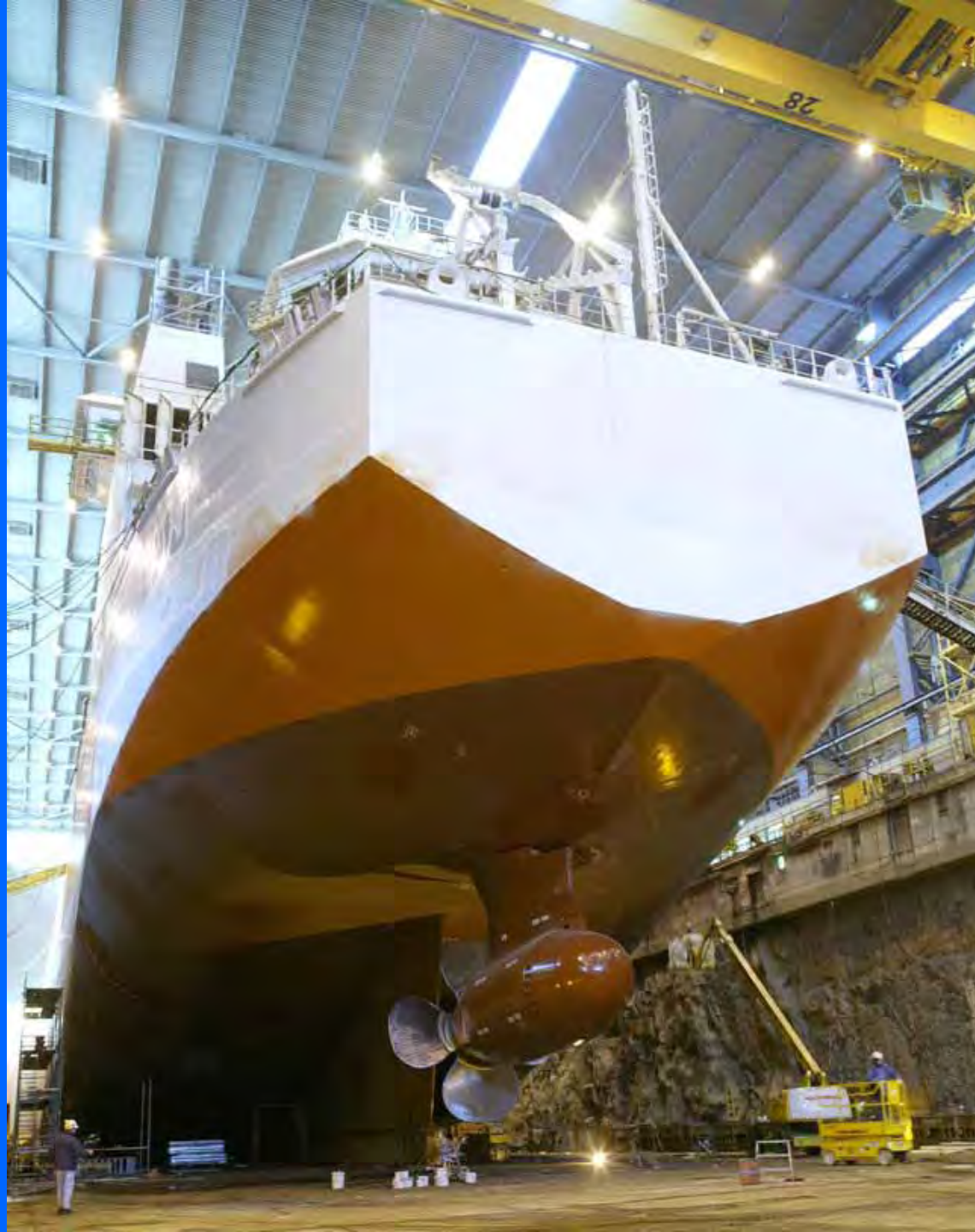


**Icebreaking (Double Acting) Container Ship**

***Norilskiy Nickel* in the Kara Sea**

**Aker Arctic**

**March 2006**



**Aker Arctic  
Technology**



# ARCTIC MARINE SHIPPING ASSESSMENT

Scenarios of the Future



An Assessment Undertaken by the Protection of Arctic Marine Environment Working Group of the Arctic Council



Institute of the North  
925 N. Third Avenue  
Anchorage, Alaska 99501, USA  
Tel: 1.907.771.2445 Fax: 1.907.771.2466  
Web Site: [www.institutethenorth.org](http://www.institutethenorth.org)  
E-mail: [institute@institutethenorth.org](mailto:institute@institutethenorth.org)



ARCSA Chair & Science Lead  
U.S. Arctic Research Commission  
420 L Street, Suite 315  
Anchorage, Alaska 99501-1071, USA  
Tel: 1.907.271.4577 Fax: 1.907.271.4578  
E-mail: [scars@arcscisite.net](mailto:scars@arcscisite.net)



Arctic Council  
Secretariat  
P.O. Box 10  
400 Norway  
Tel: 47 22 75 81 40 Fax: 47 22 75 05 81  
E-mail: [AC-chair@arctic-council.org](mailto:AC-chair@arctic-council.org)



Protection of the Arctic Marine Environment  
Secretariat  
Barrig, Nordstrand  
400 Norway  
Tel: 354 461 1955 Fax: 354 462 3389  
E-mail: [pame@pame.is](mailto:pame@pame.is)

# Arctic Council

## Arctic Marine Shipping Assessment (AMSA)

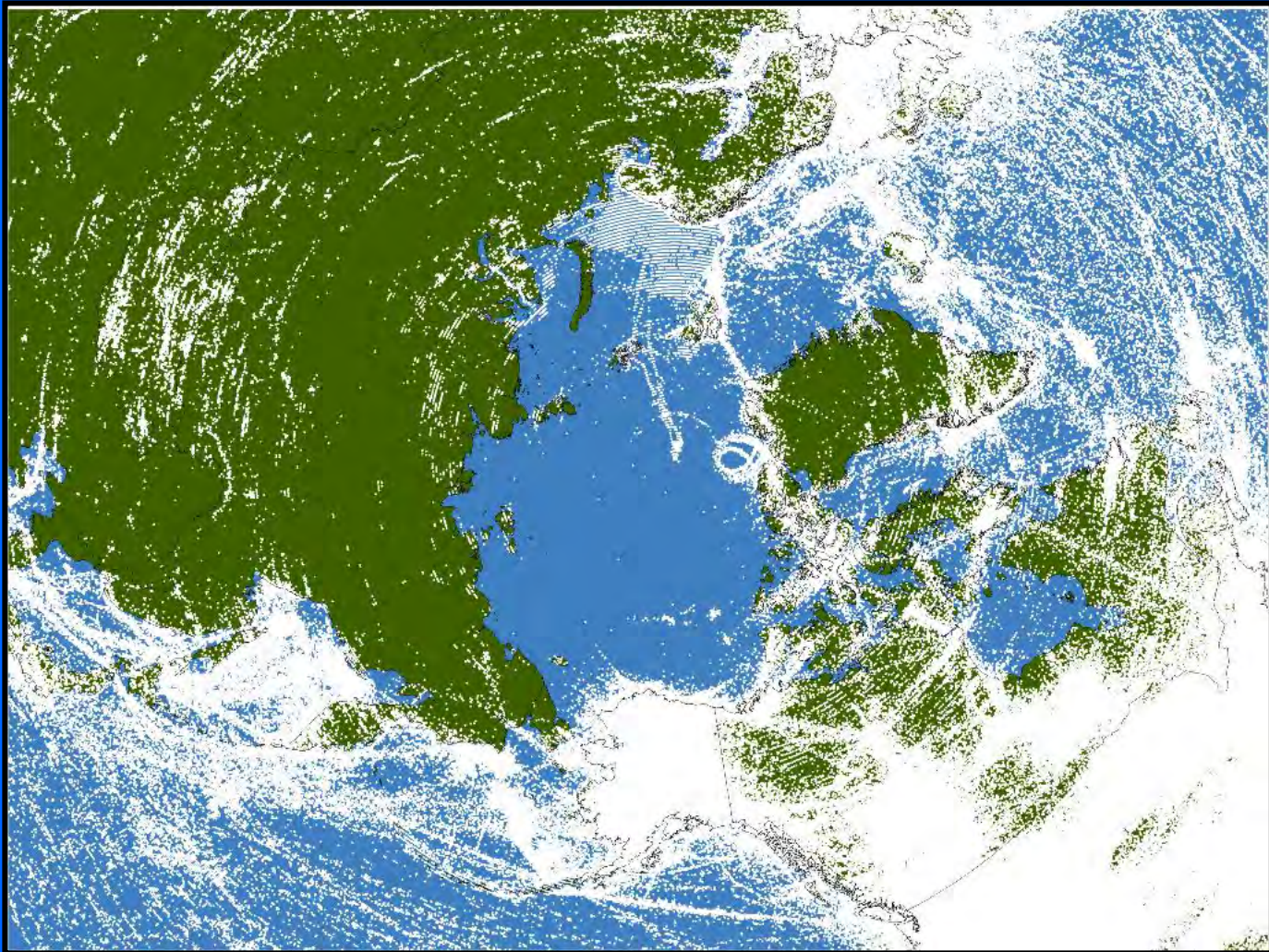
- Reykjavik Declaration, 4<sup>th</sup> Ministerial (Nov 2004)
- “ *Request PAME to conduct a comprehensive Arctic marine shipping assessment as outlined in the AMSP under the guidance of **Canada, Finland, and the United States as lead countries** and in collaboration with the EPPR working group and other working groups of the Arctic Council and Permanent Participants as relevant.*”

# July 2001 Arctic Voice and Data



Source: Iridium, LLC

# July 2006 Arctic Voice and Data

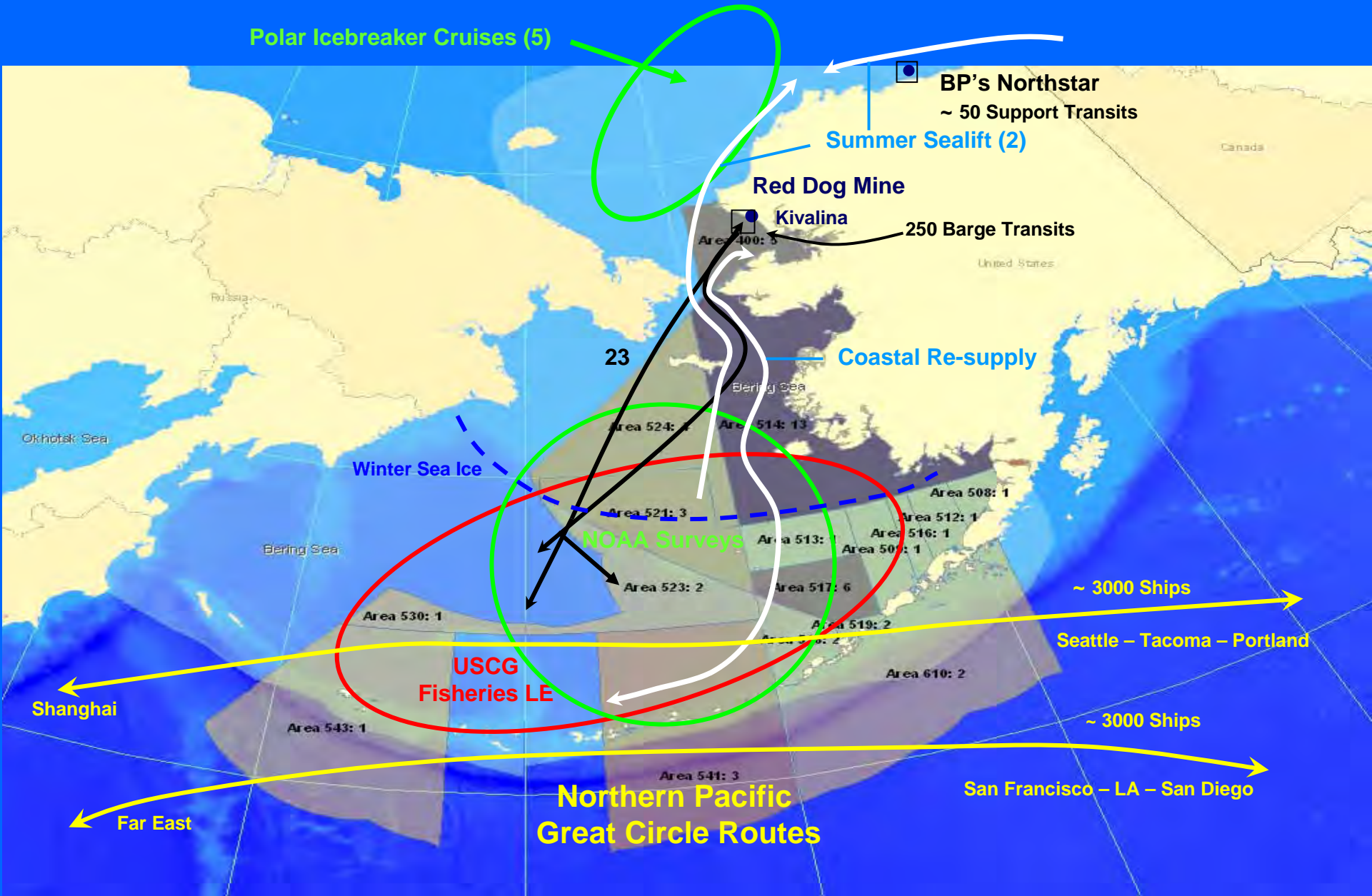


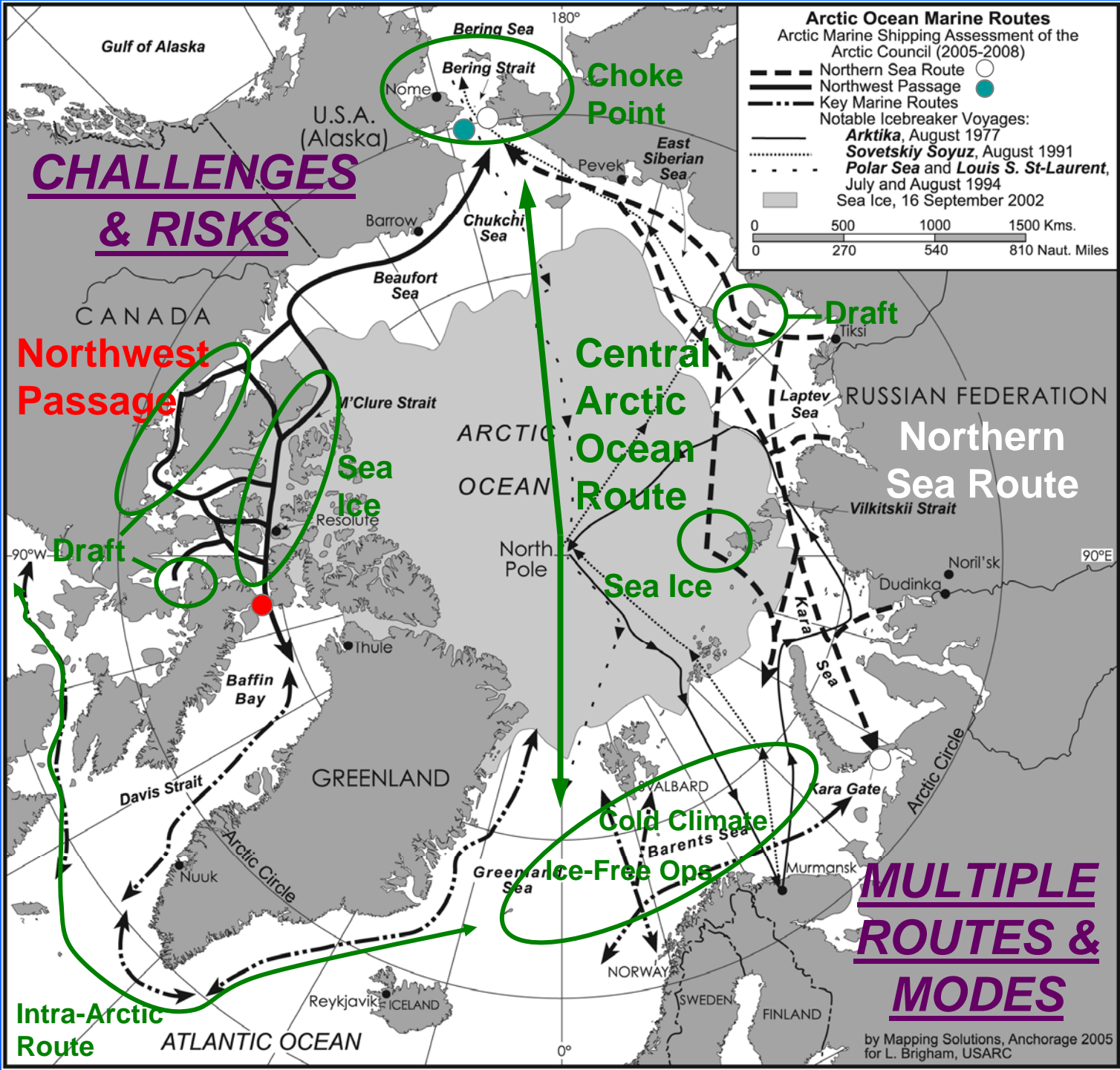
Source: Iridium, LLC

# Examples of Increasing Arctic Marine Use

- **Largest Number of Cruise Ship Voyages off Greenland in Summer 2007 (250+)**
- **Norwegian Arctic Offshore LNG to Spain**
- **Arctic Tanker Shuttle ~ Pechora Sea to Murmansk: Tankers Under Construction in Korea 7 Russia**
- **World's Largest Copper & Nickel Mine ~ Norilsk Nickel Expansion**
- **Year-round Navigation to Dudinka ~ Icebreaking Carriers (No Icebreaker Convoying/Escort)**
- **World's Largest Zinc Mine ~ Red Dog (Access ++)**
- **Expanding Marine Exploration in Marginal Seas (Greenland EEZ) & Central Arctic Ocean**
- **2004 to 2007 ~ 28 Icebreaker North Pole Transits**
- **Offshore Lease Sales in U.S. Arctic Offshore (\$2 Bil+)**
- **Largest # of Ships in the Barents Sea**

# U.S. AMSA 2004 Data Survey





**CHALLENGES & RISKS**

**Northwest Passage**

**Choke Point**

**Draft**

**Central Arctic Ocean Route**

**Northern Sea Route**

**Draft**

**Sea Ice**

**Sea Ice**

**Cold Climate Ice-Free Ops**

**MULTIPLE ROUTES & MODES**

**Intra-Arctic Route**

**Arctic Ocean Marine Routes**  
 Arctic Marine Shipping Assessment of the Arctic Council (2005-2008)

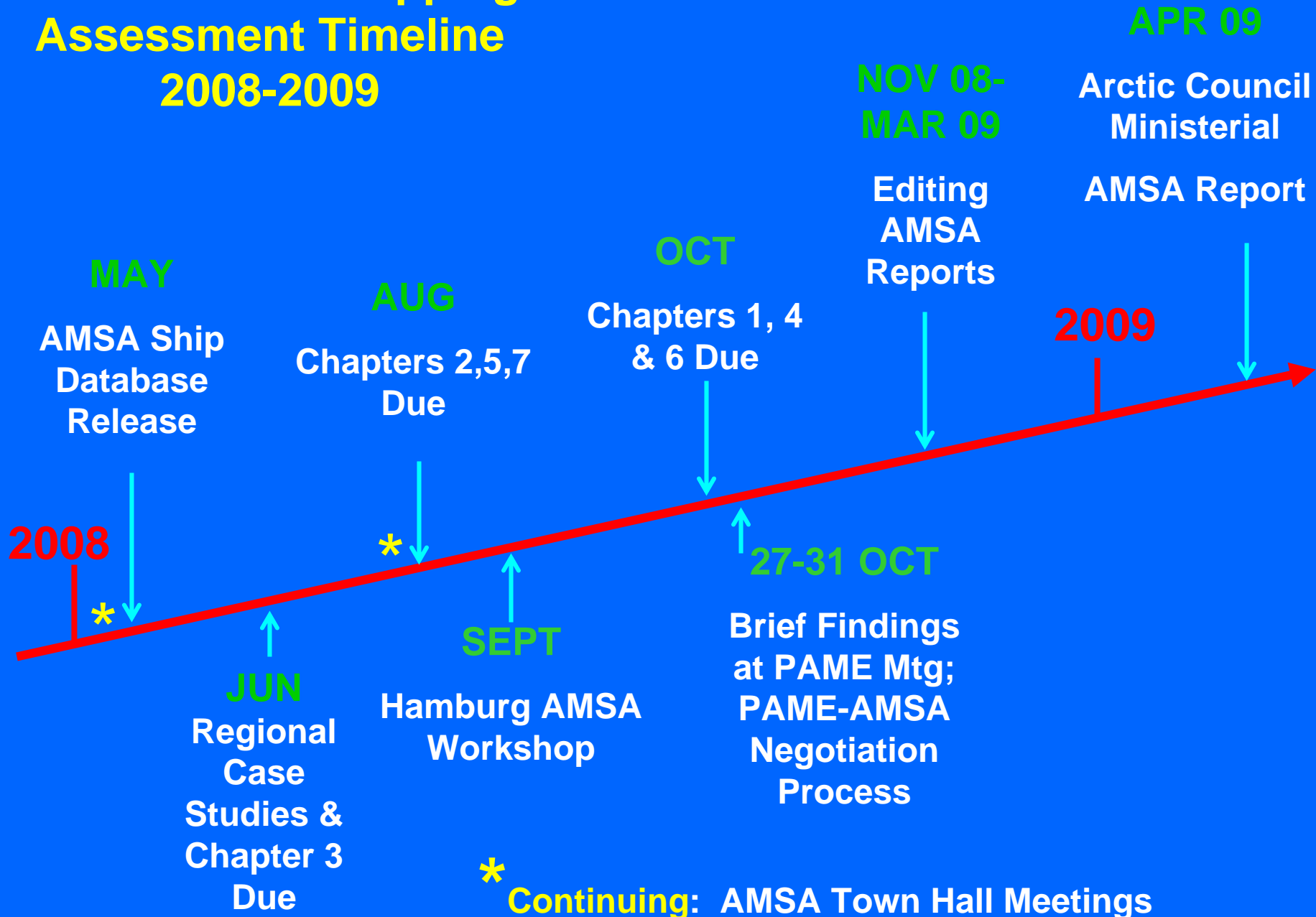
- Northern Sea Route
- === Northwest Passage
- .-.- Key Marine Routes

Notable Icebreaker Voyages:

- Arktika**, August 1977
- Sovetskiy Soyuz**, August 1991
- Polar Sea and Louis S. St-Laurent**, July and August 1994
- Sea Ice, 16 September 2002

0	500	1000	1500 Kms.
0	270	540	810 Naut. Miles

# Arctic Marine Shipping Assessment Timeline 2008-2009

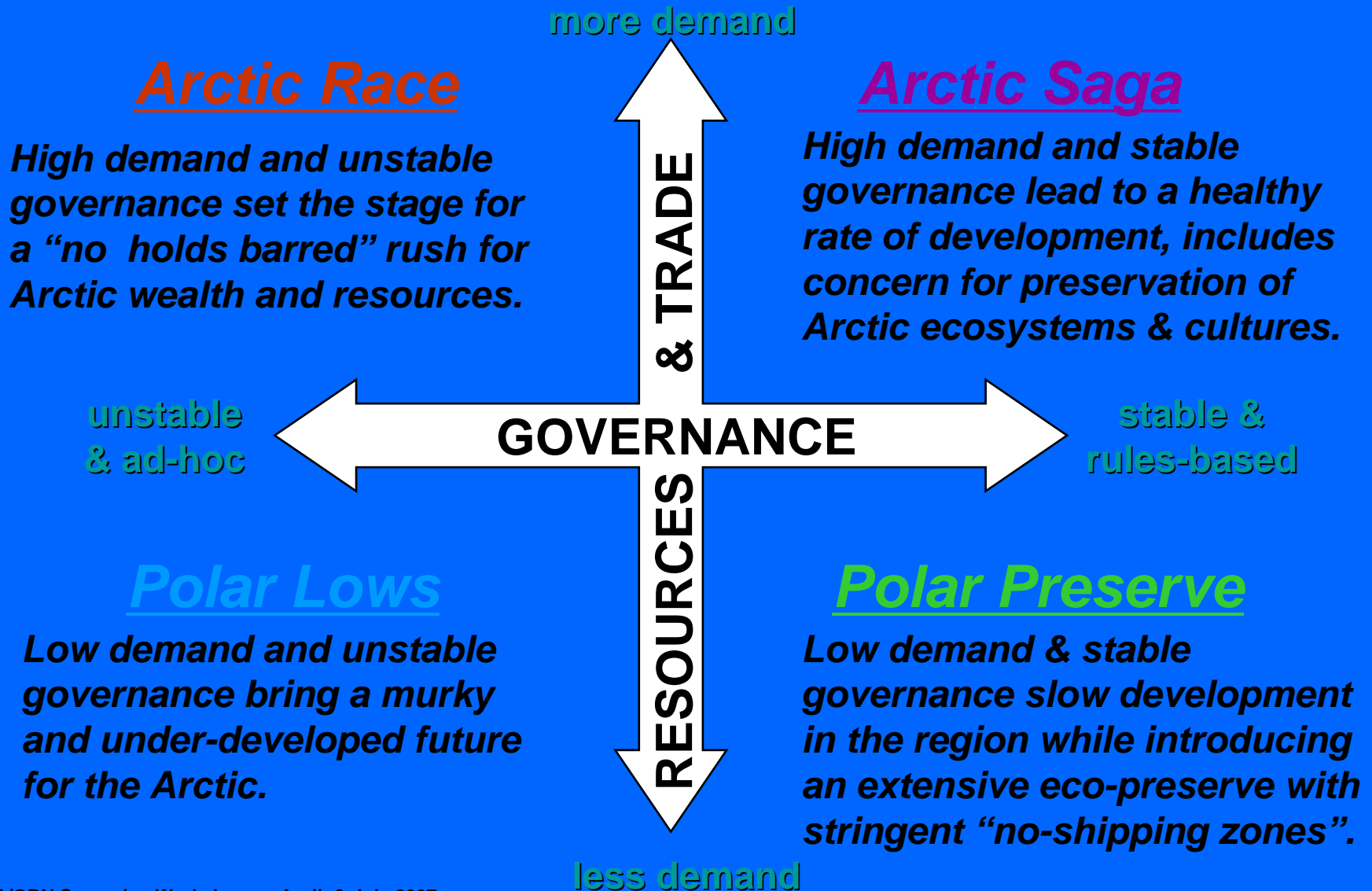




# “Stricken cruise ship off Antarctica evacuated” MSNBC- 11/23/07



# Scenarios on the Future of Arctic Marine Navigation in 2050



# Potential Themes for AMSA Discussions

**IMO Arctic Ship Guidelines/ Future Polar Code**

**International Arctic SAR Agreement**

**Monitoring/ Observing the Environment (SAON/IPY Legacy)**

**Use of Large Marine Ecosystems Concept**

**International Arctic Environmental Response**

**Protection & Marine Safety ~ Central Arctic Ocean**

**Indigenous Marine Use ~ Multiple Use Management**

**Surveillance of Arctic Marine Activity ~ Sharing Arctic Ship Information**

**Arctic States & Global Cruise Ship Industry**

**Enabling Maritime Infrastructure**

**AMSA Communication to the Arctic & Global Maritime Communities**

**Future Role & Responsibilities of EPPR**



**Having a safe, secure and reliable Arctic shipping regime is vital to the proper development of Arctic resources, especially now given the extent of Arctic ice retreat we witnessed this past summer...We can have such a regime only through cooperation, not competition, among Arctic nations. Denial of passage through international waterways, even though they may be territorial waters, and burdensome transit requirements will not benefit any nation in the long run.”**

**-- Assistant Secretary of State Daniel S. Sullivan, 10/15/2007**



**“I’m not sure I’m qualified to talk about the scientific issues related to global warming,” the Coast Guard commandant, Adm. Thad W. Allen, said in an interview. “All we know is we have an operating environment we’re responsible for, and it’s changing.” --NY Times, 10/18/2007**



# USARC ECUMENICAL BELIEF



- The United States must maintain its global maritime capability—as a government AND as a Nation
- If the U.S. does not exercise its visible maritime presence in the Arctic Ocean—we cede it to whomever wants it!

SARAH PALIN  
GOVERNOR  
GOVERNOR@GOV.STATE.AK.US



STATE OF ALASKA  
OFFICE OF THE GOVERNOR  
JUNEAU

March 18, 2008

P.O. Box 11  
JUNEAU, ALASKA 99801  
(907) 465-3535  
FAX (907) 465-3535  
WWW.GOV.STATE.AK.US

The President  
The White House  
Washington, DC 20500

Dear Mr. President:

I write in support of new icebreakers for the U.S. Coast Guard. The nation's only two icebreakers built to handle heavy sea ice are more than 30 years old and nearing the end of their service lives. Yet at the same time as our icebreakers are hobbled by years of hard service and lack of maintenance funds, more freighters and cruise ships than ever before are traveling through the Arctic – with many more on the way to U.S. waters. Oil and gas explorers are spending billions of dollars in the Arctic to find the energy resources our nation needs to power its homes and businesses. Similar commercial work is under way on both sides of the U.S. Arctic borders, moving ahead while our nation remains at the dock.

All the while our country needs more access and information about the Arctic region to understand climate change and its effects, especially in remote areas. Our energy and national security, and to recognize the United States to build a pair of new icebreakers.

The U.S. Coast Guard is in poor shape and needs to be recognized.



# Trillion Dollar Issues

- Arctic ownership and sovereignty
- Harvesting Arctic resources
- Global Trade: Trans-Arctic Shipping
- **Climate Change Mitigation/Adaptation**
- Protecting values we share – culture and conservation



# *Changes across many sectors of Arctic*

Plants & Vegetation



Ocean & Climate



Snow & Ice



Fish, Sea Birds & Marine Mammals



Forest & Grassland



Freshwater, Lakes & Rivers



Permafrost & Tundra



Indigenous Culture



Wildlife & Waterfowl



Sea Ice & Icebergs



Human Health

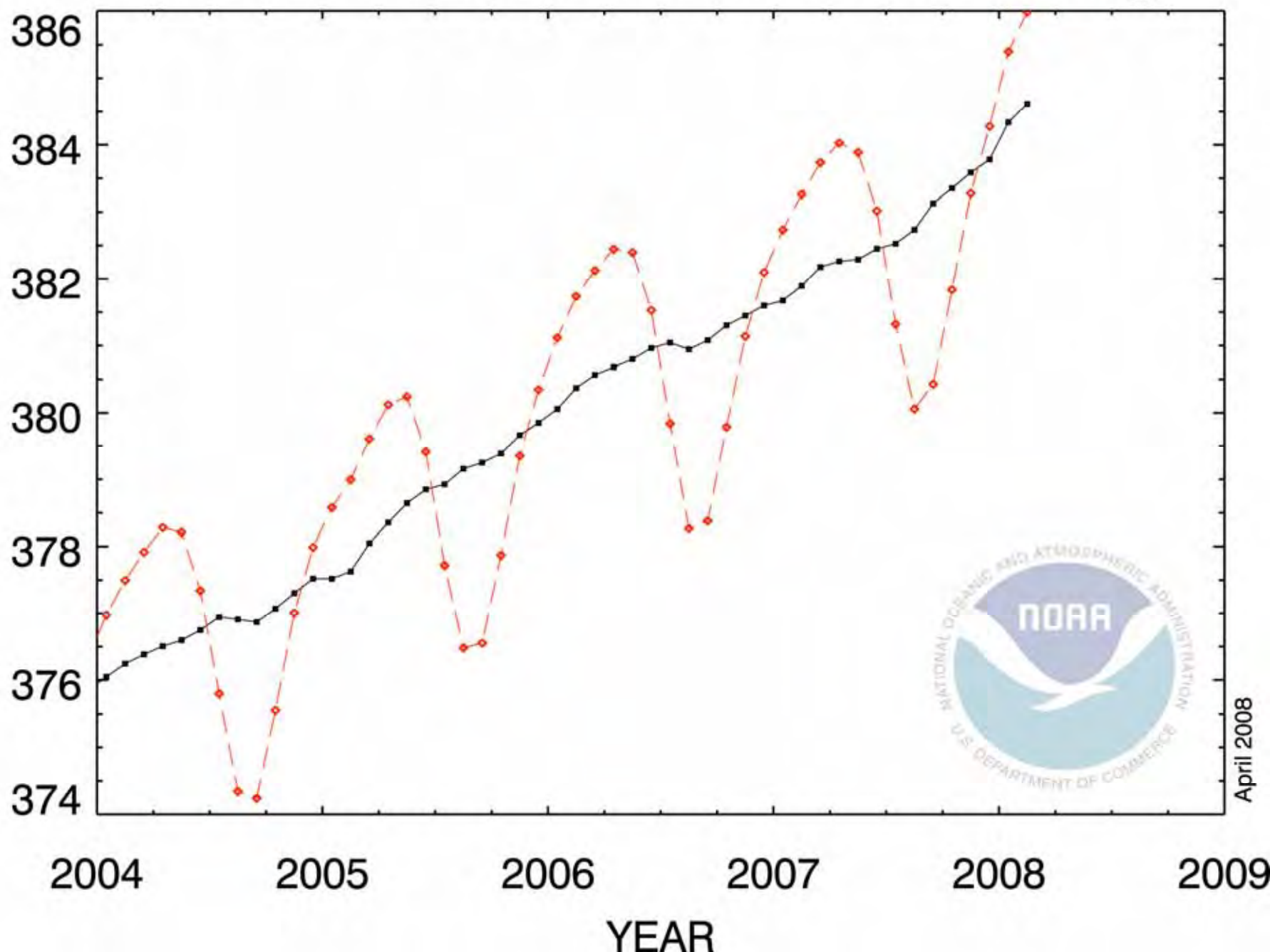


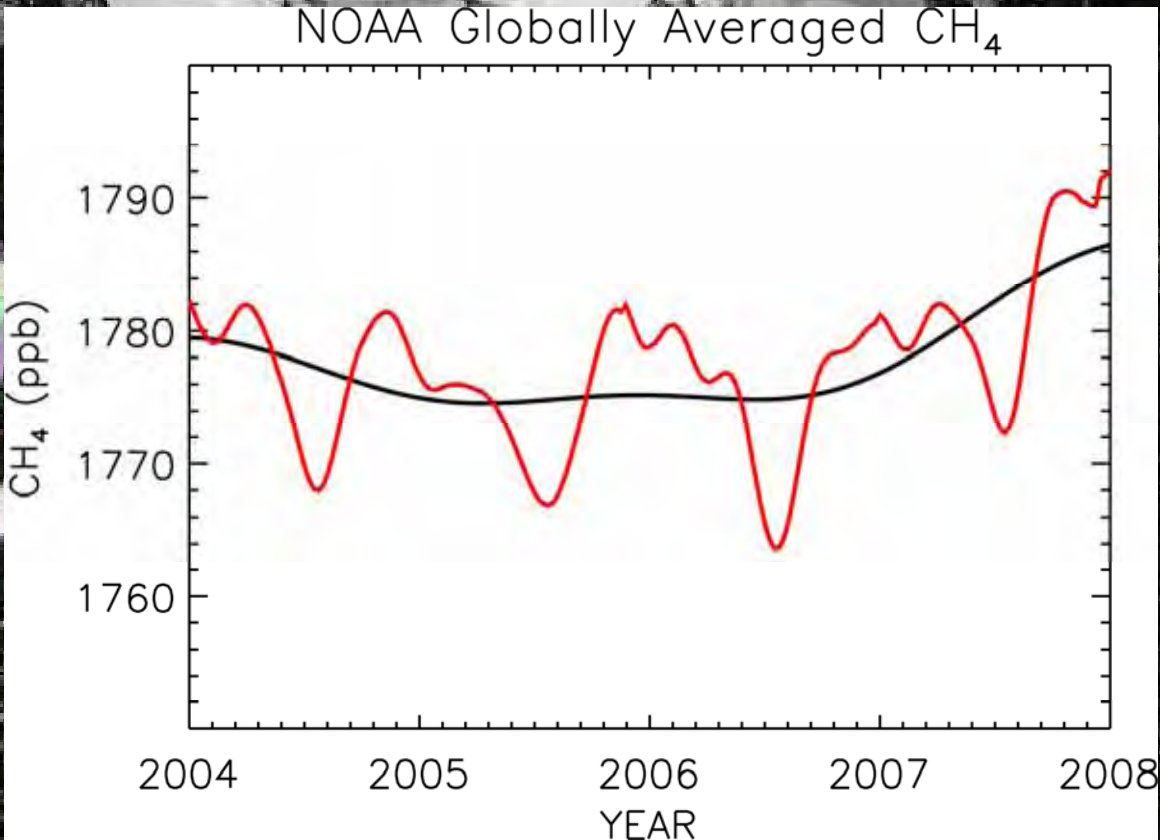
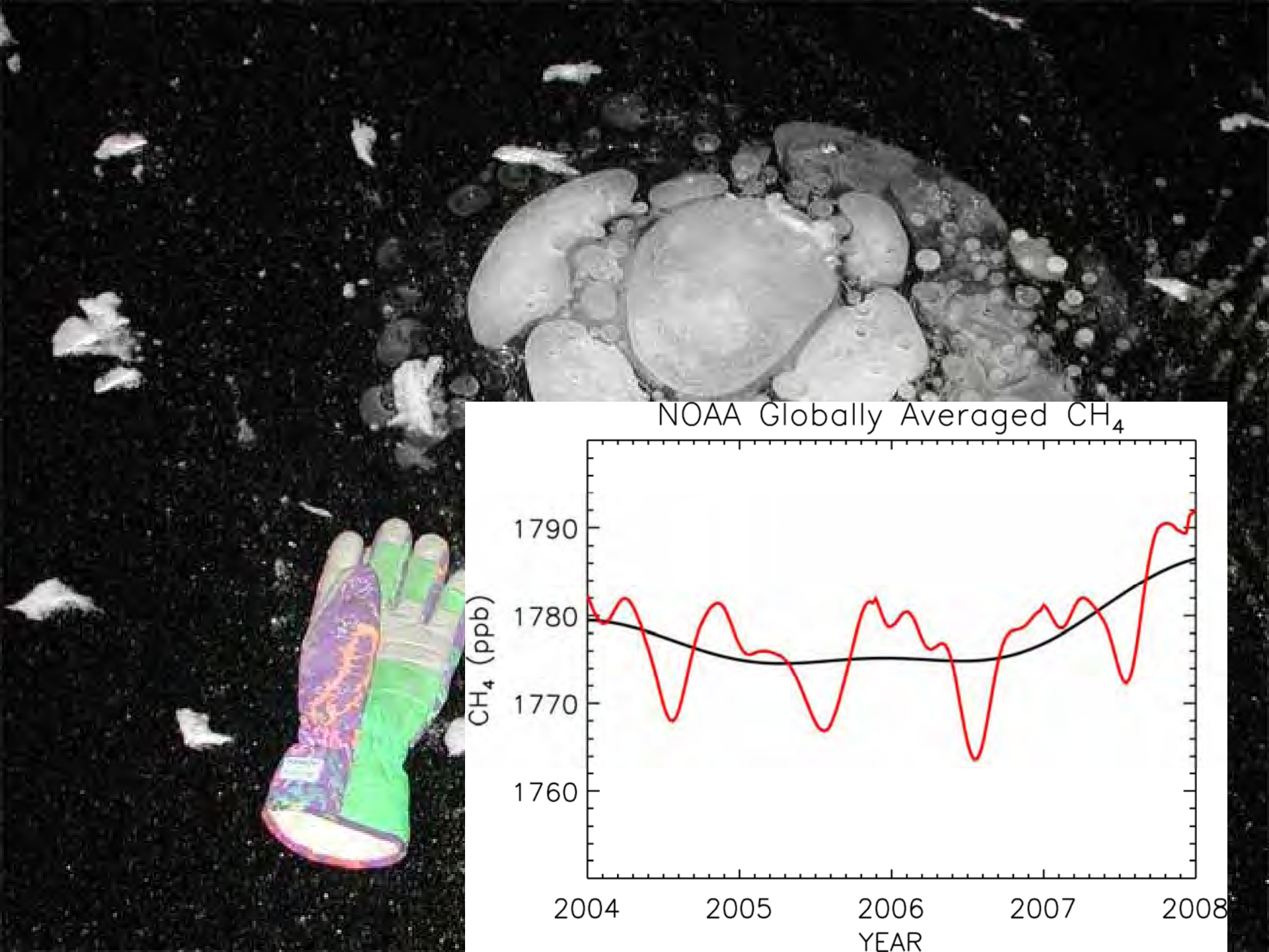
Land Use & Agriculture



# RECENT GLOBAL MONTHLY MEAN CO<sub>2</sub>

PARTS PER MILLION





THE RULING POWERS IN THE EARLY AZTEC EMPIRE BELIEVED THEY COULD AFFECT THE WEATHER BY RIPPING OUT A FEW HEARTS!

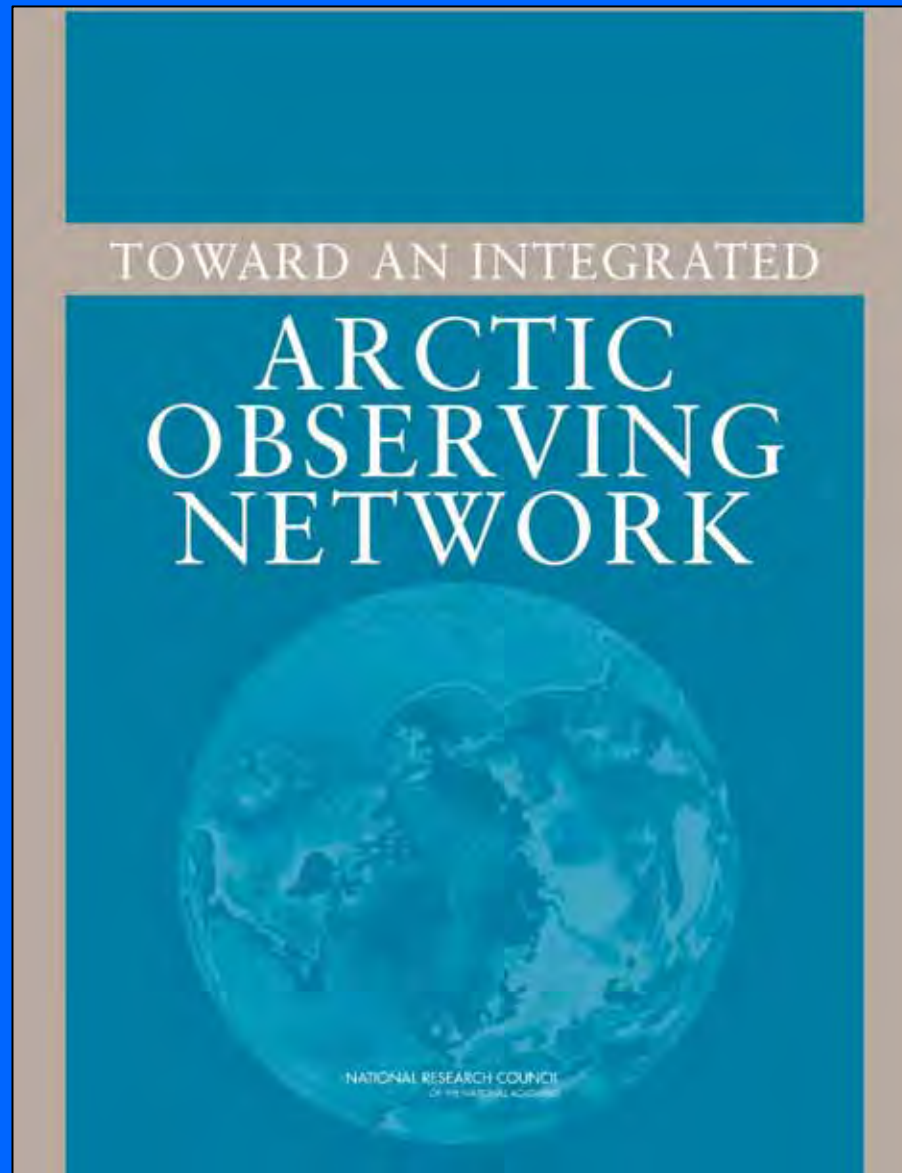
WE MUST HELP THE SUN GROW HOTTER!



IN TODAY'S ADVANCED SOCIETY, WE NOW UNDERSTAND ALL IT TAKES IS A LOT OF BILLFOLDS!

WE MUST STOP GLOBAL WARMING!





For PDF version,  
google "PRB AON"

**Polar Research Board**

THE NATIONAL ACADEMIES

*Advisers to the Nation on Science, Engineering, and Medicine*

# Why the Arctic Warms Faster

**A Critical Reason is that:**

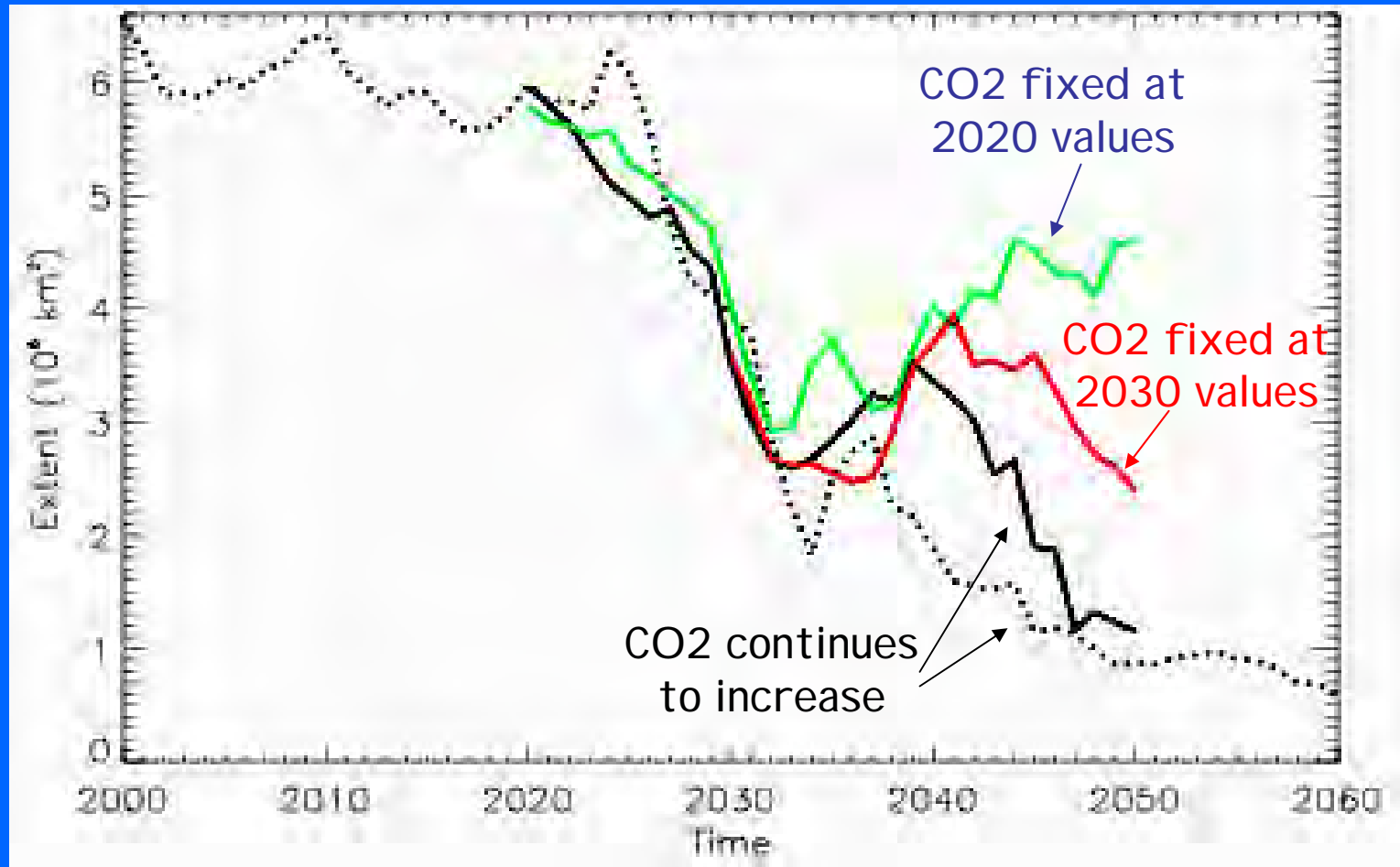
**As snow and ice melt the darker land and dark blue ocean surfaces that are revealed absorb more of the Sun's energy.**



# Permafrost degradation - NPRA, Alaska



# Have we passed a point of no return?



Preliminary model results suggest

- that sea ice can recover if CO2 levels fixed/decline
- that a seasonally ice-free Arctic might be avoidable.
- May depend on when/for what ice state this occurs.





# Trillion Dollar Issues

- Arctic ownership and sovereignty
- Harvesting Arctic resources
- Global Trade: Trans-Arctic Shipping
- Climate Change Mitigation/Adaptation
- Protecting values we share – culture and conservation

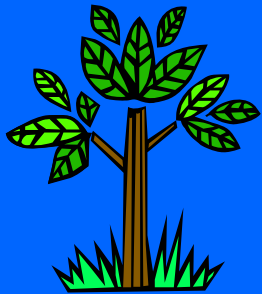






“People, people’s needs,  
and nature...”

**Resource /  
biological  
sustainability**



**Economic  
sustainability**



**Social equity**



# International Polar Year



<http://www.ipy.org>

[www.arctic.gov](http://www.arctic.gov)

[www.us-ipy.org](http://www.us-ipy.org)

[www.us-ipy.gov](http://www.us-ipy.gov)

# U.S. Arctic Research Commission



*Report on  
Goals & Objectives  
2007*

Report on Goals and Objectives for Arctic Research

**IARPC<sup>2007</sup> meeting**

**April 27, 2007**

Loon Platt Crabb, Dr. Martin Jakobson  
Department of Geology and Geophysics  
Michigan University

# Arctic Research in the US

- **The U.S. Arctic Research Program is approximately \$400 million per year...across at least 15 federal agencies...cooperating with over a dozen nations ...using research infrastructure worth billions...and building America's competitive position**







# Five Objectives

- **Environmental Change of the Arctic & Bering Seas**
- **Arctic Human Health**
- **Civil Infrastructure**
- **Natural Resource Assessment & Earth Science**
- **Indigenous Languages, Identities, Cultures**

