Climate Change, National Security, and the Thawing Arctic

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Climate change and the Arctic: Our Roadmap

- Climate and economic drivers
  - *Review the changing climate and growing interests in accessing/exploiting the Arctic*
  - The international stakeholders
- *Recent history of US activity in the Arctic*
- New Arctic Policy

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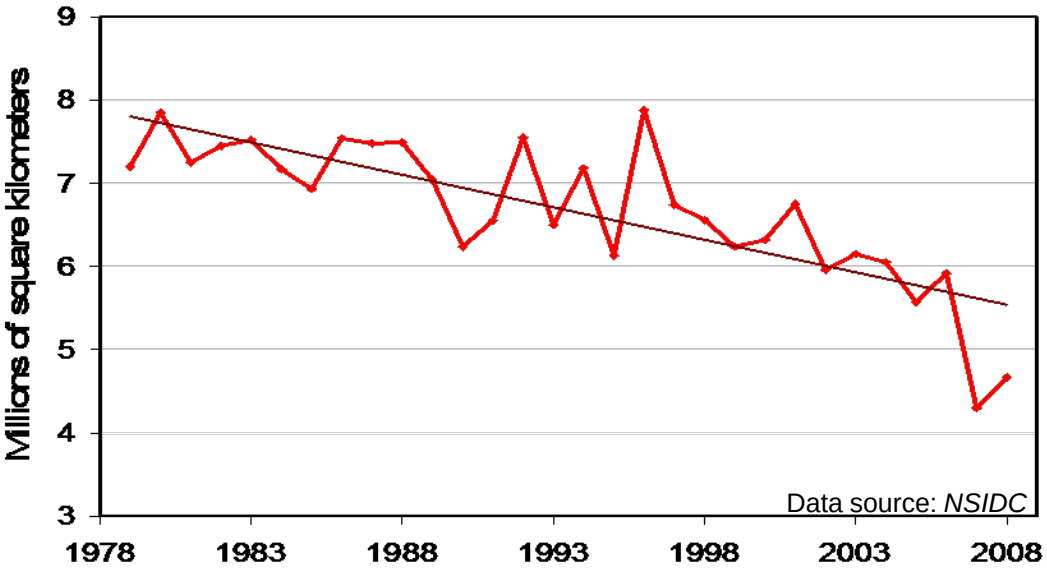
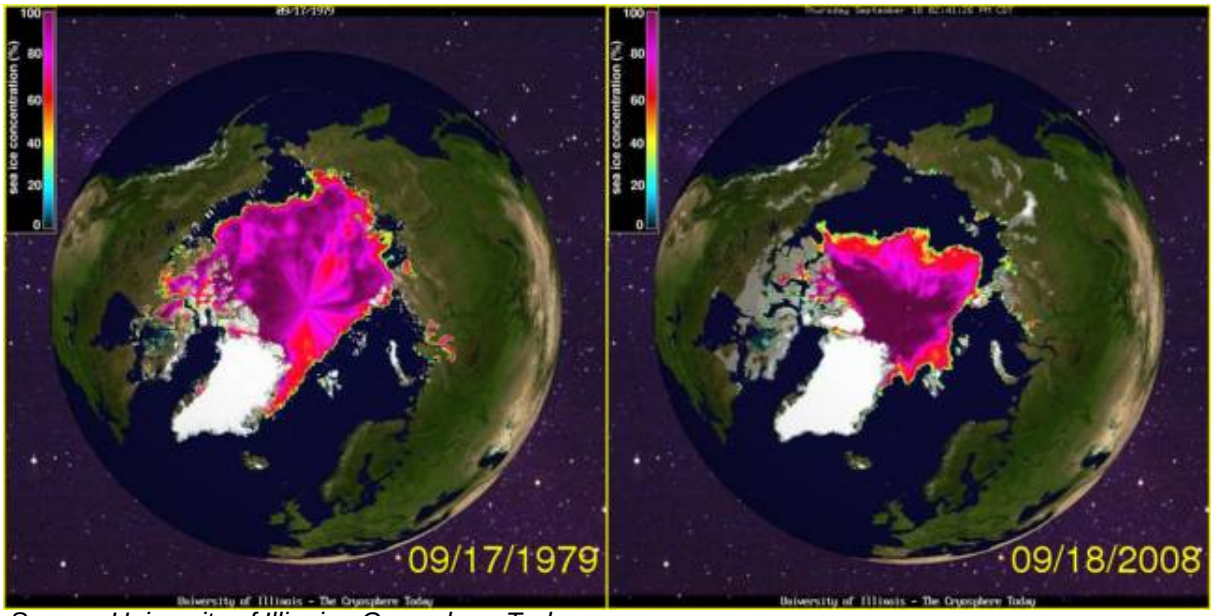
Climate: We've seen a decline in summer ice

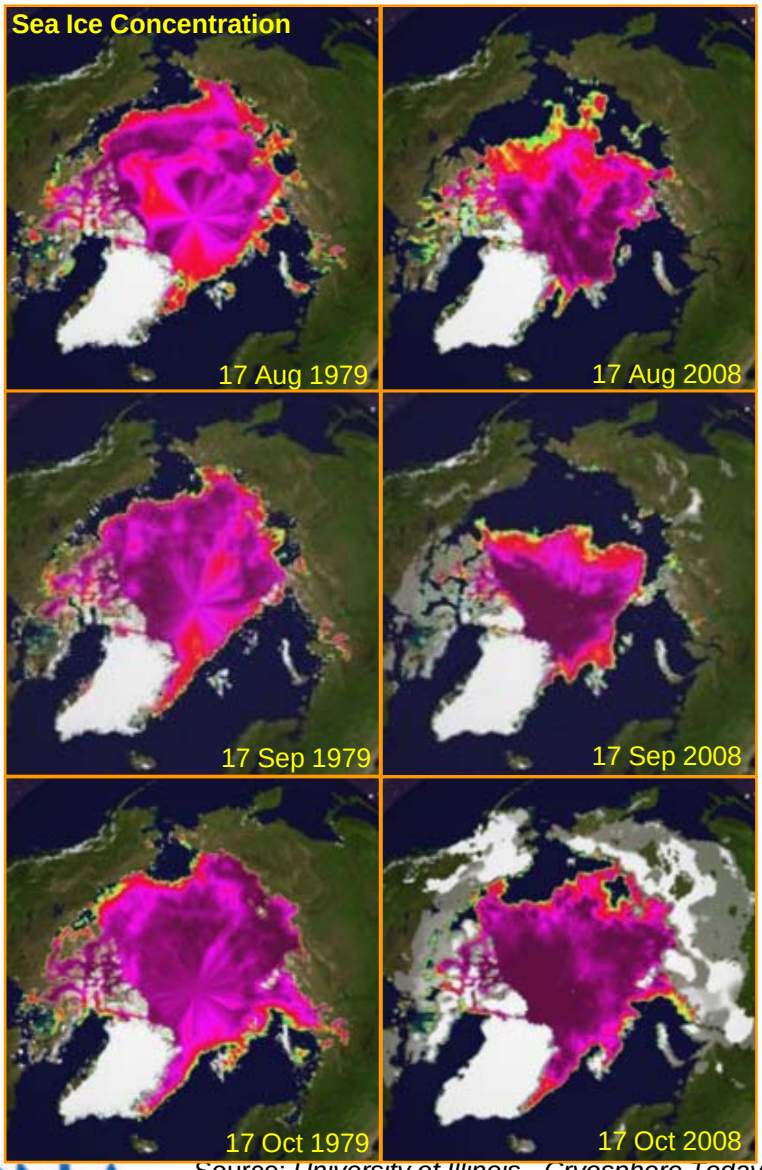


- As of Sept 2008, sea ice extent was second lowest on record
  - *34% below the 1979-2000 mean*
- While above the 2007 record low, 2008 reinforced a strong downward trend in summer ice



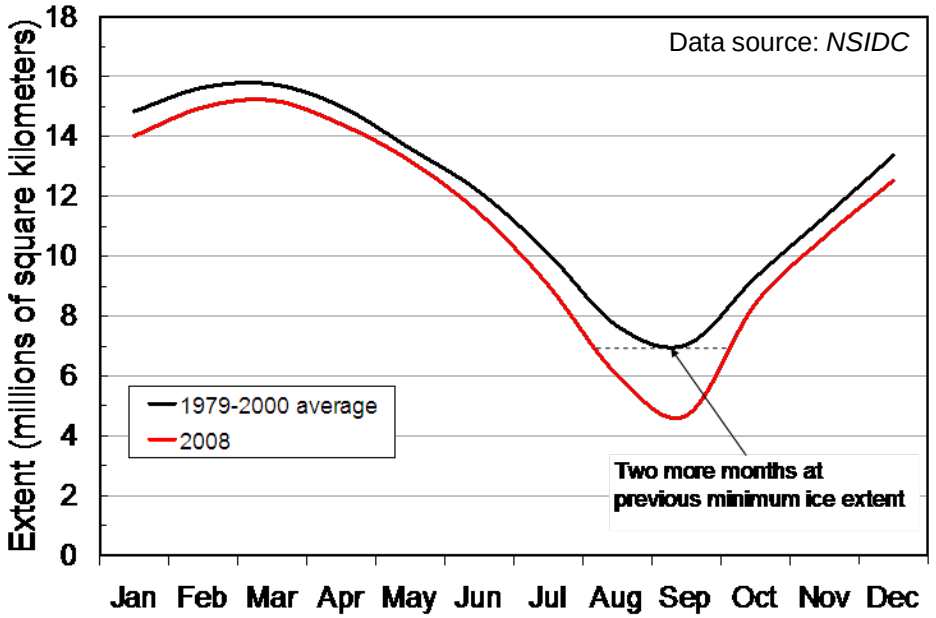
Source: *University of Illinois - Cryosphere Today*

Period of open water has increased only slightly



Source: *University of Illinois - Cryosphere Today*

- The number of summer weeks with open water over Alaska and Siberia has increased
- Winter remains ice-covered from Nov - Jun
  - *Winter max: <3% decrease per decade*



Shipping: NW Passage will remain challenging

- There is a false sense of optimism regarding future ease of shipping in the NWP
  - *This is a remote area with little infrastructure and many risks*
  - *The direct route though McClure Strait is always ice-choked. It may remain so, as multi-year ice drifts in from above.*
  - *The southern route by Victoria Strait has shallow drafts (10m) that limit ship size. It can also be choked with windblown ice.*

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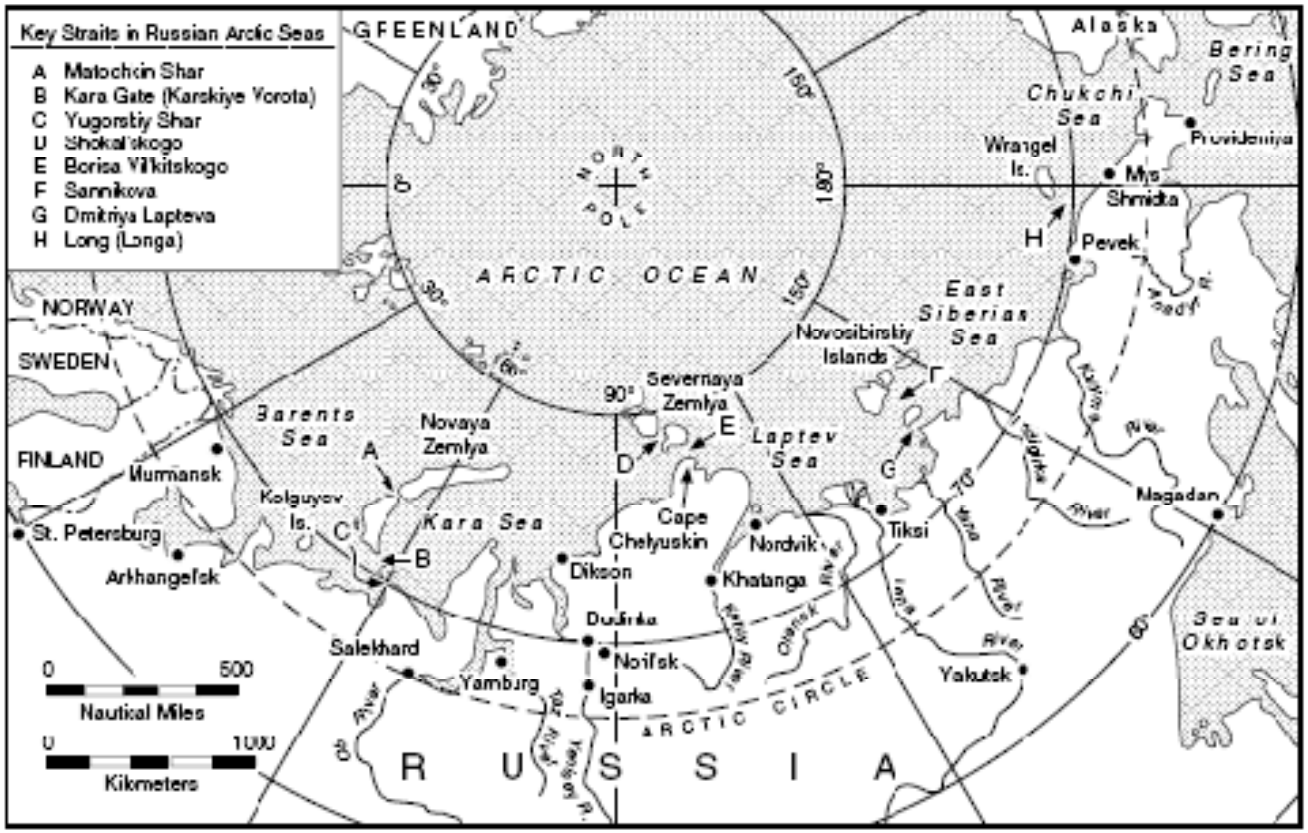
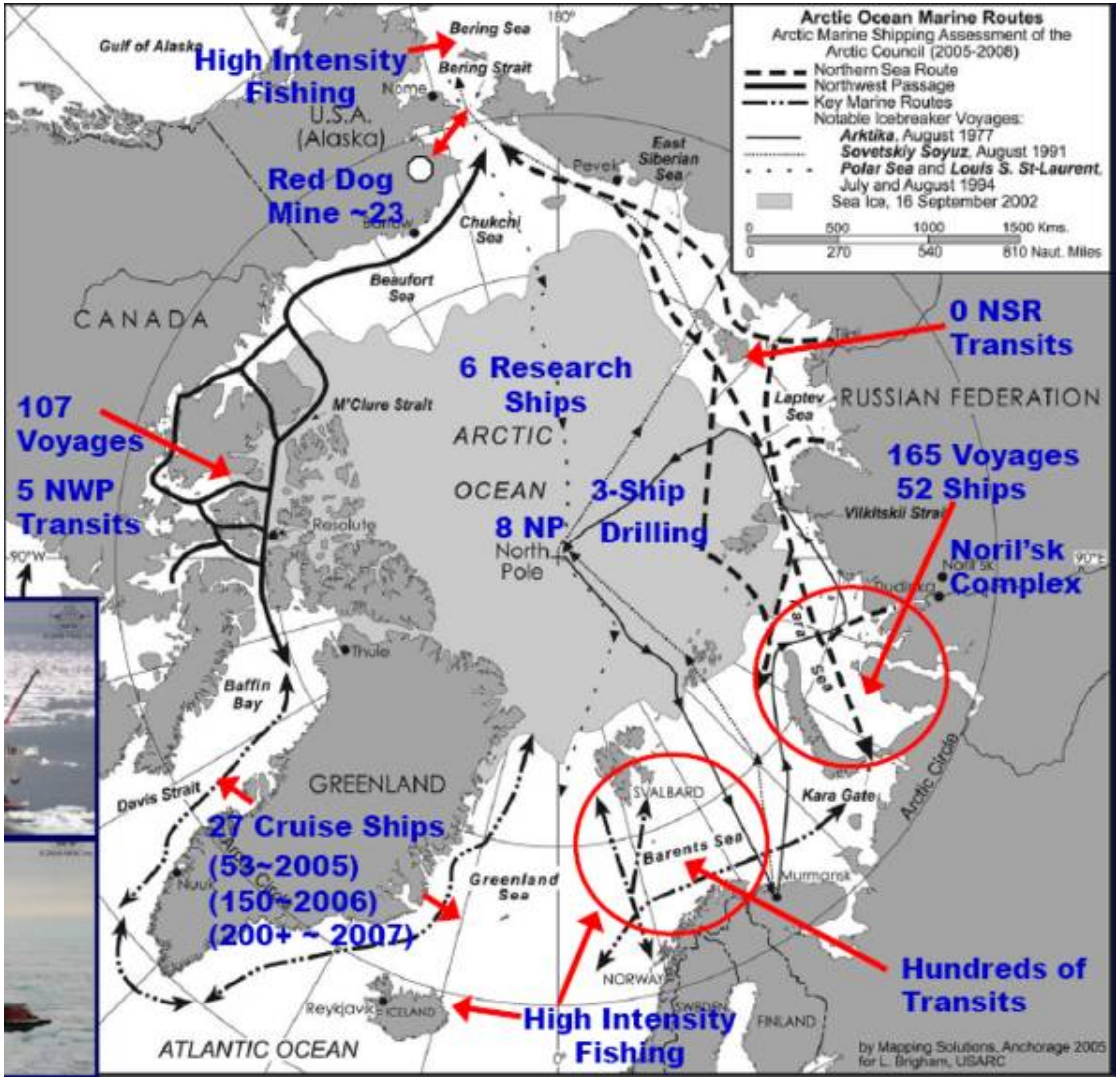
The Northern Sea Route may also be challenging



Source: US Army Corps of Engineers, CRREL, *Northern Sea Route and Icebreaking Technology*

Recent Arctic ship traffic



Source: L. Brigham, AMSA, "Update - Arctic Marine Shipping Assessment of the Arctic Council", 12 August 2008, *Conference of Arctic Parliamentarians,* Fairbanks, Alaska

- There's limited traffic – except in the warmer waters over Europe
  - *No transit of NSR in 2004*
  - *5 transits of NWP in 2004; 11 transits in 2007.*
  - *27 cruise ships in Davis Strait in 2004; 200 by 2007*
  - *130+ ships entered the Bering Strait in 2008 (many of them research vessels)*

Ore carrier with ice breaking stern, near Kara Gate

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Summary – climate and economic drivers

- The pace of Arctic opening is uncertain – but many expect largely ice free summers between 2030 and 2060
  - *However, the Arctic will remain ice covered and hazardous in winter and shipping seasons may be extended by little more than 2 months in 20 yrs*
- It is unlikely we'll see big increases in transits by cargo ships within 20 yrs
  - *Despite the potential distances saved – a limited shipping season, lack of facilities, schedule risks, ice hazards, and costs weigh against Arctic transits*
- However, some expansion of traffic related to resource extraction, local supply needs, and summer tourism does seem possible
  - *Waters above Alaska are already accessible by mid Aug and into Sept*
  - *Interest in offshore oil and gas is heating up and cruise traffic is growing*
- With the possibility of offshore drilling, cruise traffic, and fisheries eventually moving north – issues of SAR, ship safety, oil spills, enforcement, and maritime awareness are the drivers for an expanded presence
  - *These are issues that call for a Coast Guard presence*

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International stakeholders

- Arctic countries are beginning to assert maritime claims and sovereignty
  - *Interest in offshore resources is driving efforts to establish claims to the extended continental shelf under UNCLOS*
  - *Canada plans new patrols and Arctic bases; Russia has expanded its presence*
- There are tensions and concerns
  - *A few disagreements over EEZ boundaries; more may arise over extended claims*
  - *Somewhat provocative Russian military activity – many involving Norway*
  - *Canada's assertion that Northwest Passage is not an international strait*
- Overall, the likelihood of actions that seriously disturb stability seems low
  - *Arctic nations met at a 2008 summit aimed at easing tensions over territorial claims*
  - *Russia has the greatest commercial opportunities and much to lose from uncertainty*
  - *There is no obvious current threat to our Arctic borders*

United States – selected history of Arctic activity

- Mid 1940s - post World War II
  - *With Soviet-American relations deteriorating, it was feared the Arctic might become a battleground and there were preparations for polar operations.*
- The 1950s - DEW Line era
  - *Concern over Soviet bombers led the US and Canada to build a system of Arctic radar stations in the Arctic, with a massive maritime supply effort*
  - *In 1958, USS Nautilus completes the first submerged transit across the North Pole*
- Late 1970s and 1980s
  - *In a period of cold war tensions, the US again begins to explore their capabilities for operating surface combatants in Arctic conditions*
- Post Cold War – mid 1990s to today
  - *Limited surface presence in true Arctic conditions*
  - *Cooperative exercises, science, supply missions*
  - *USCG begins to expand its Arctic presence*

***USS Midway* - Operation Frostbite (1946)**

***USS Sennet* - Operation High Jump, (1946)**

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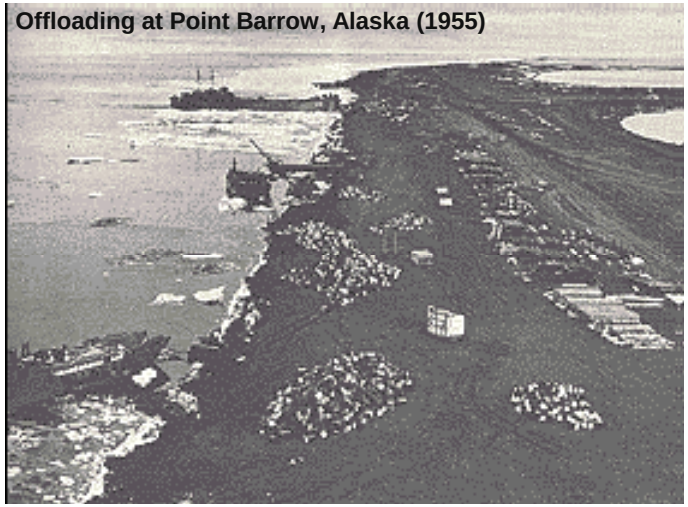
Post World War II – the mid 1940s

- Operation Frostbite (Mar 1946)
  - *USS Midway went to the Davis Strait to test the capabilities and limitation of carriers under severe weather. It was found feasible to operate carriers in the sub-arctic, but the recommendation to planners was to "resist pressures to get up into the ice"*
- Operation High Jump (Aug 1946-Feb 1947)
  - *An expedition to explore the feasibility of establishing Antarctic bases – but also viewed as way to train men in handling ships and aircraft in polar climates*
  - *13 Navy ships, over 4000 men, and a large fleet of aircraft participated. Three ships badly damaged; three dead in a seaplane crash caused by impaired visibility.*

The DEW Line era – 1950s

- Operation SUNAC (1951-1952)
  - *Over 50 ships of the Military Sea Transportation Service (MSTS, now MSC) supported construction of radar outposts and enlargement of Thule Air Force base*
- Operation Sealift for Security (1955-1957)
  - *Navy and MSTS assisted in construction of the Distant Early Warning (DEW) Line*
  - *118 ship fleet delivered over 1 million tons of cargo, despite some of the worst ice conditions ever recorded. After numerous hull punctures and broken propellers, ships were hardened and modified propellers added*
  - *In 1957, Coast Guard vessels transited and charted NW Passage as an escape route*
- The late 1950s mark the beginning of the nuclear submarine era in the Arctic
  - *USS Nautilus completes the first submerged transit of the North Pole in 1958*

***USNS Wacissa* - aground near Baffin Island (1952)**



Offloading at Point Barrow, Alaska (1955)

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What are we doing today?

- Military Sealift Command - resupplies Thule and Antarctic bases
  - *Ice-hardened tankers, chartered supply ships, icebreaker support*
- Surface Navy routinely exercises in sub-Arctic – but not full Arctic conditions
- Submarines - continue Arctic operations, testing, and training
- US Coast Guard – supports science and now looks to expand Arctic presence
  - *USCG icebreakers are funded through NSF to support the science community*
    - *Two are currently active – a third is in need of substantial modernization and repair*
  - Operation Salliq – *a 2008 USCG initiative to test and renew Arctic competencies*
    - *Biweekly C-130 surveillance flights from Kodiak; buoy tenders and cutters to the Arctic; forward deployment of helicopters and small boats*

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The New US Arctic Policy

- A new directive NSPD-66/HSPD-2 establishes the policy of the United States with respect to the Arctic region. An example:
  - The United States must safeguard their broad and fundamental national security interests in the Arctic region. These interests include:
    - *Missile defense and early warning*
    - *Deployment of sea and air systems for strategic sealift*
    - *Strategic deterrence*
    - *Maritime presence and maritime security operations*
    - *Freedom of navigation and overflight consistent with international law*
- Although the directive does highlight security needs, it is equally (at least) focused on cooperative relations and sustainable development

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Overall summary and recommendations

- Striking changes in the Arctic environment are taking place
  - However conditions will remain sufficiently challenging and uncertain that it is unlikely there will be extensive Arctic transit traffic within the next 20 years
- Although resurgence of Russian patrols in the Arctic is a concern, the possibility of surface threats seems unlikely
  - *It's unclear that a Navy surface combatant operating near ice would be much of a deterrent; aircraft and submarines seem better suited to that mission.*
  - *Increased Navy ship presence could itself upset the stability of the region.*
  - *Still, some Navy training to better understand the Arctic challenges seems wise.*
- Primary drivers for expanded presence are maritime safety concerns, SAR, environmental risks, and fisheries enforcement
  - *These are issues that call for an expanded Coast Guard presence.*
- We recommend:
  - *Invest in enabling capabilities in communications, domain awareness, weather and ice forecasting, and improved charts.*
  - *Conduct Navy training and SAR exercises in the summer above Alaska – with Canada, Russia, and other Arctic nations.*
  - *Actively cooperate on common ship safety rules and SAR/oil spill response plans.*

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Summary

- Striking changes in the Arctic environment are taking place
  - Which might open it more for exploration and exploitation
  - However, conditions will remain sufficiently challenging such that its unlikely there will be extensive Arctic transit within the next 20 years
- The primary drivers for US action are maritime safety concerns, SAR, environmental risks, and fisheries enforcement - Coast Guard issues.
  - *USCG presence with ice-hardened patrol vessels and maritime awareness flights may be required*
- *Conflicting claims and border disputes are occurring, but most are minor and are being settled under existing international procedures*
  - *US ratification of the LOS treaty would greatly aid US interests*
- We recommend:
  - *Invest in enabling capabilities in communications, domain awareness, weather and ice forecasting, and improved charts.*
  - *Conduct Navy training and SAR exercises in the summer above Alaska – with Canada, Russia, and other Arctic nations.*

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Back-up Slides

Canada's capabilities and plans

- *Current capabilities*
  - *Two heavy Arctic icebreaker and four medium icebreakers – all aging*
  - *Their Navy is not currently capable of entering the ice*
  - *The 18 Aurora patrol aircraft are in need of modernization*
    - *Arctic surveillance flights down from high of 22 in 1990 to one or two a year now*
- *Renewed interest in Arctic sovereignty and in expanding capabilities*
  - *In 2004, Navy ships went north of the Arctic circle for the first time in 15 years*
  - *Propose 6 Arctic patrol boats capable of year round operation in first-year ice*
  - *Propose deep water port facilities at Nanisivik, near mouth of Northwest Passage*
  - *New Arctic Training Centre in Resolute Bay*
  - *New overhead surveillance and ice detection capability*

HMCS **Fredericton** in the Northwest Passage, August 2005