

ARCTIC NAVIGATION: RECENT DEVELOPMENTS

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Panel III: Arctic Shipping

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Preview

- Arctic ice cover
- Shipping routes
- Polar Code



National Snow and Ice Data Center, Boulder, CO

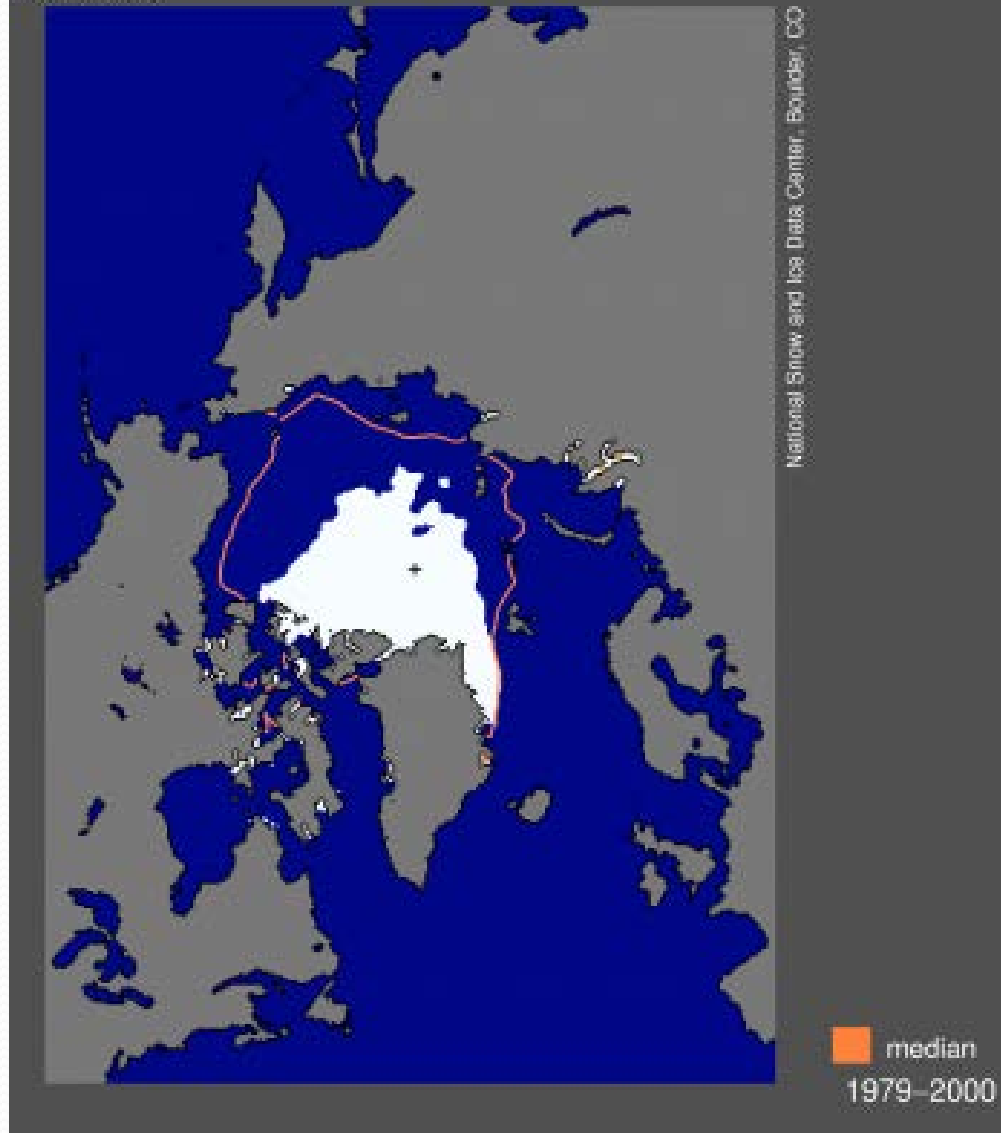
Sea Ice Extent
03/11/2014



National Snow and Ice Data Center, Boulder, CO

median
1981-2010

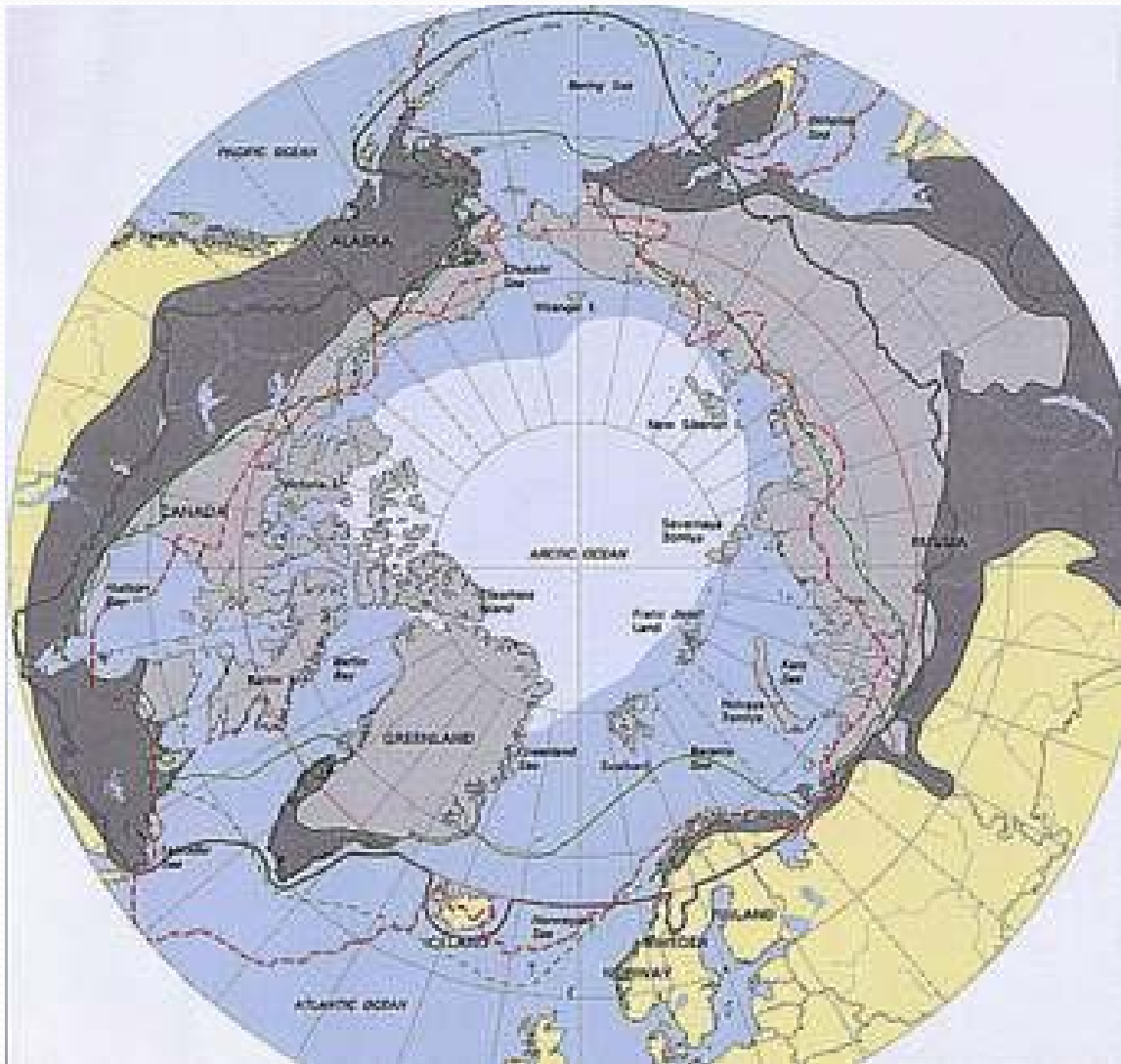
Sea Ice Extent
09/16/2012



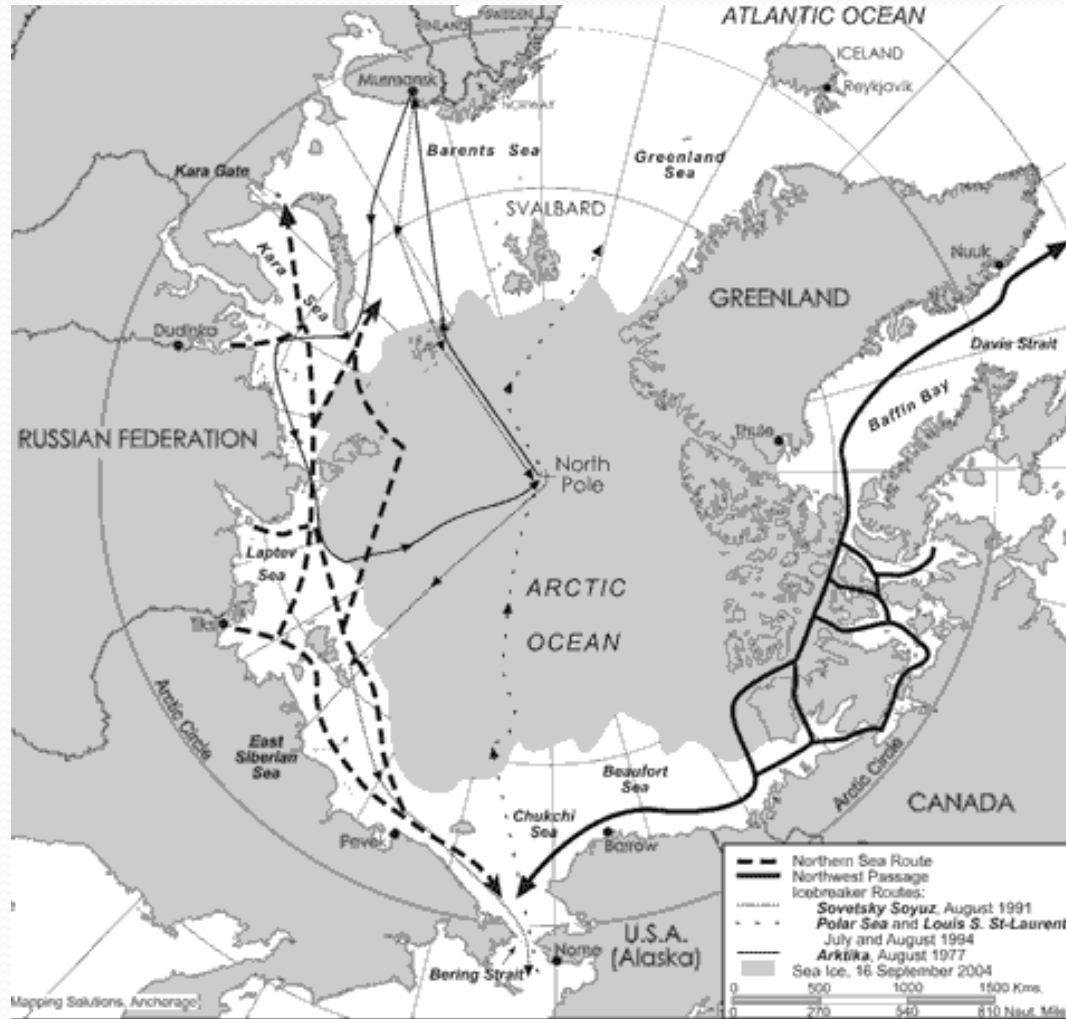
The 2012 Arctic sea ice minimum, on September 16, 2012, reached the lowest ice extent in the satellite record.
—Credit: National Snow and Ice Data Center

Some Arctic Routes used for International Navigation

- Bering Strait
- Northwest Passage
- Northeast Passage
- Arctic Ocean (“over the top”)
- Eastern Arctic Straits



General Portrayal of the Major Arctic Marine Routes

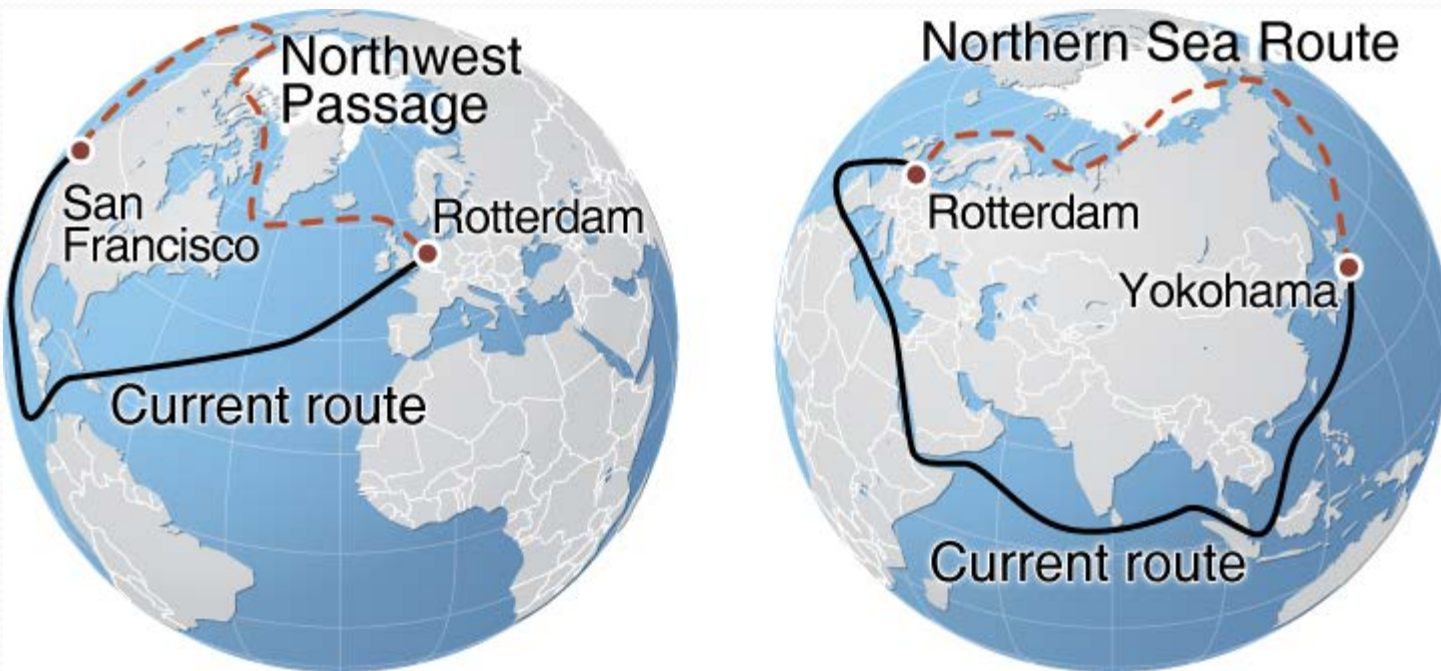


Source: <http://www.marinelog.com/DOCS/PRINTMMV/MMVjularc1.html>, adapted from the report of the Arctic Marine Transport Workshop held September 28-30, 2004

Trans-Arctic Shipping

- Trans-Arctic shipping is happening
- During summer of 2013 there were at least 71+?? transits of the Arctic Ocean (only 24 in 2010)
 - 71 via Northern Sea Route (5 in 2010)
 - ?? via the Northwest Passage (18 in 2010, 21 in 2012)
 - One circumpolar in 2010
- More transits are expected in 2014
- 185 documented full transits of Northwest Passage 1853-2012

NORTHWEST PASSAGE AND NORTHERN SEA ROUTE compared with currently used shipping routes



Shorter distance: around 3,900 to 4,500 nm in both cases

Source: <http://maps.grida.no/go/graphic/northern-sea-route-and-the-northwest-passage-compared-with-currently-used-shipping-routes>

Northwest Passage



Northern Sea Route



“Over the Top”

- Year round ice covering the high seas areas of the Arctic Ocean, including the North Pole, suggests that to date there has been few transits “Over the Top”.
- Reliable data does not appear to be available.

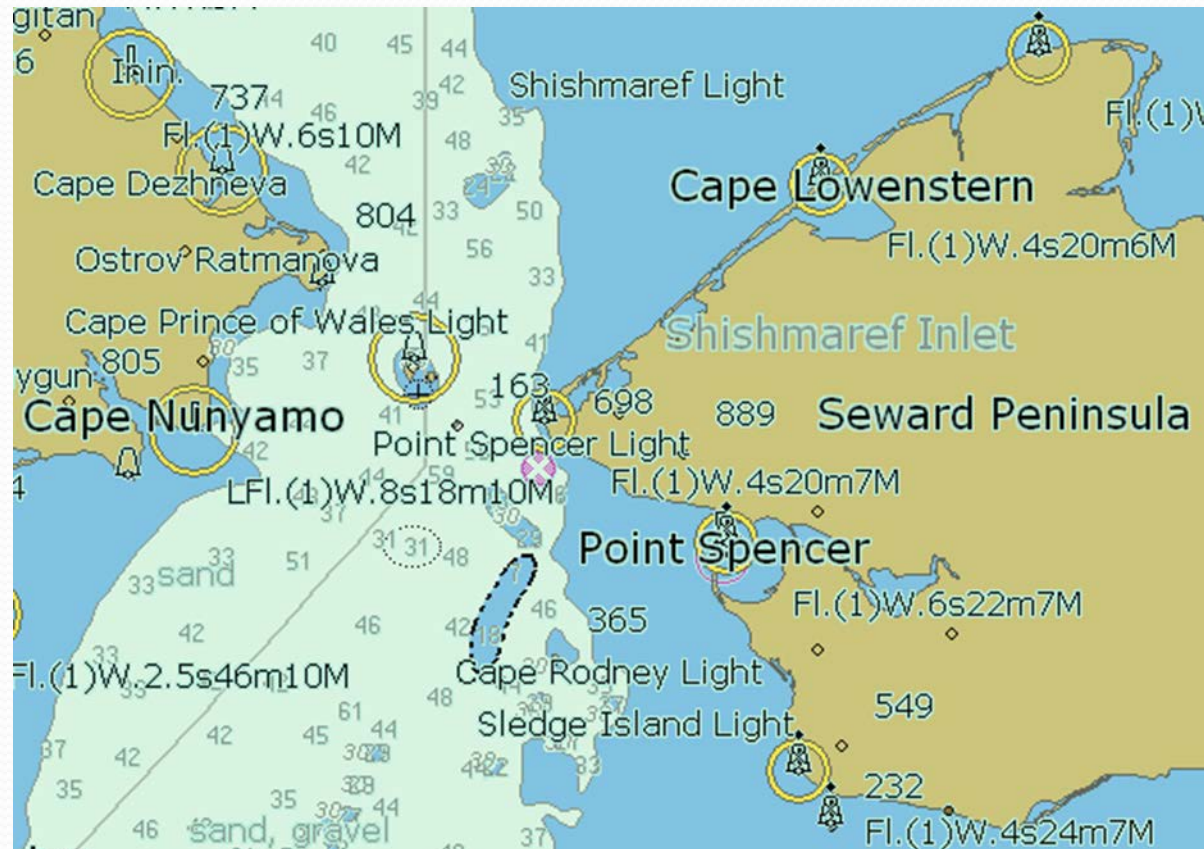
Eastern Entrances to Arctic Ocean

- To NSR from the Kara Sea through the straits Yugorskiy Shar or Karskiye Vorota, or from the Barents Sea by passing north of Ostrova Novaya Zemlya around Mys Zhelaniya
- Through the Greenland Sea between eastern Greenland and Spitsbergen
- From the Barents Sea between Svalbard and Franz Josef Land

Bering Strait

- 51 nm wide, divided into two straits
 - East of Little Diomedede Island (US)
 - West of Big Diomedede Island (Russian)
 - Each about 22.5 nm wide
 - Diomededes are about 2.4 nm apart
- Transits rose from 220 in 2008 to 480 in 2012
- No routeing measures in place
- Some AtoN
- 2 year PARS underway by USCG

NOAA Nautical Chart of Bering Strait



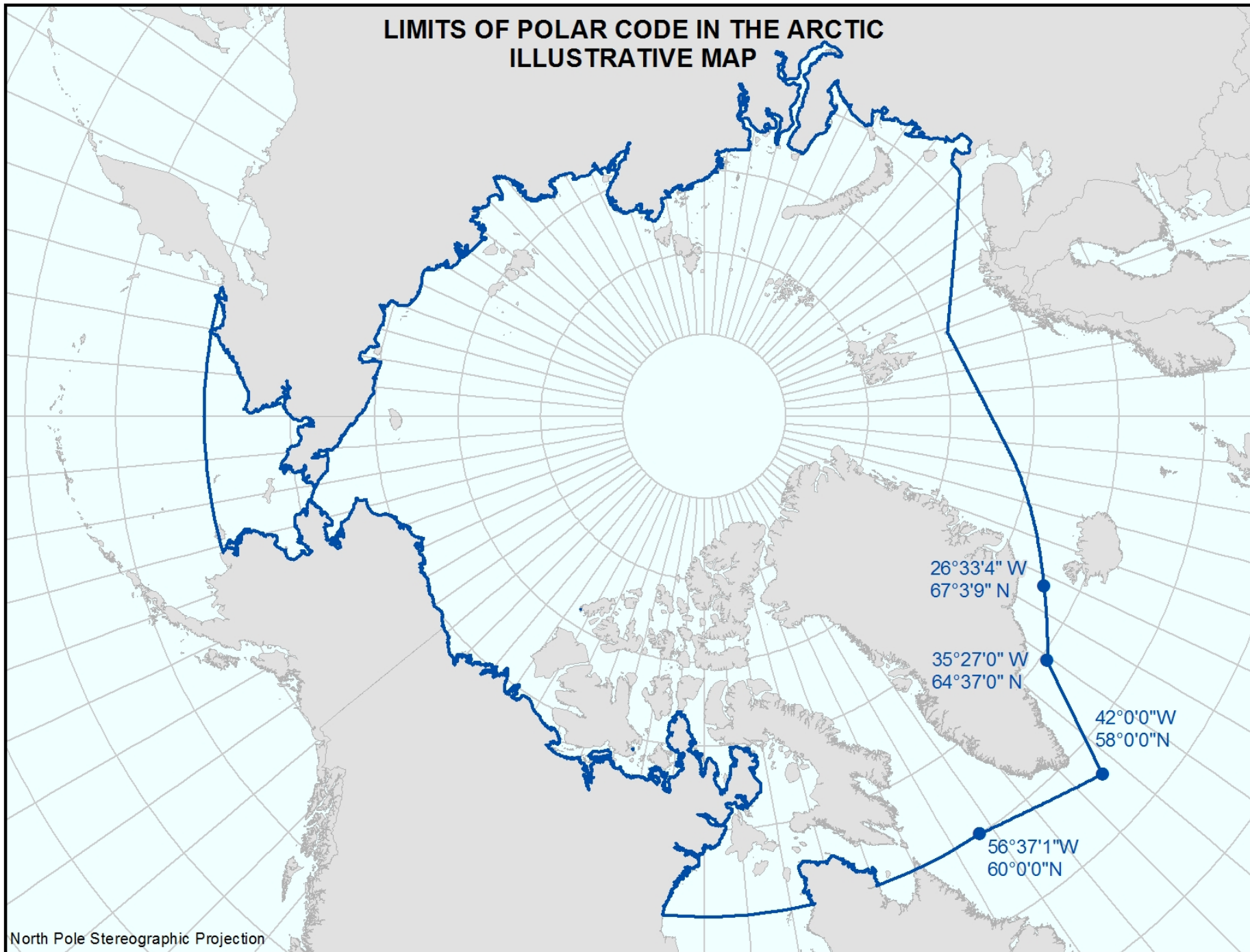
Source: Wikipedia, Bering Strait



Polar Code

- Following adoption in 2009 of the Guidelines for Ships Operating in Polar Waters, IMO agreed to develop a mandatory Code for ships operating in polar waters (Arctic and Southern Oceans)
- Various subcommittees progressed the work 2010-2014 but not all are finished
- MEPC and MSC considering the draft Code in 2014
- Expectation: mandatory code will become effective in 2015 by tacit amendments to SOLAS and MARPOL annexes, but Part II may be delayed until 2016

LIMITS OF POLAR CODE IN THE ARCTIC ILLUSTRATIVE MAP



North Pole Stereographic Projection

Source: U.S. Department of State (OES/OPA)

Polar Code Structure

- Mandatory measures covering
 - Part I-A: safety
 - Part II-A: pollution prevention
- Recommendatory provisions
 - Part I-B: safety
 - Part II-B: pollution prevention
- New SOLAS chapter XIV, Safety measures for ships operating in polar waters:
 - MSC 93, May 14-23, 2014 and MSC 94, November 17-21, 2014, also considering Parts I-A and I-B
- New chapters for MARPOL Annexes I, II, IV and V:
 - MEPC 66, April 2014; MEPC 67, October 13-17, 2014; and MEPC 68, May 2015, considering Parts II-A and II-B

Polar Code Safety Chapters

Mandatory	Part I-A
Introduction	
1- General	7 – Fire safety/protection
2 – Polar Water Operational Manual	8 – Life-saving appliances and arrangements
3 – Ship structure	9 – Safety of navigation
4 – Stability and subdivision	10 – Communication
5 - Watertight and weathertight integrity	11 – Voyage planning
6 – Machinery installations	12 – Manning and training familiarity

Polar Code Safety Recommendations

- Part I-B Additional Guidance
- Chapter 1, Definition
- Chapter 2, Polar Water Operational Manual
- Chapter 3, Ship structure
- Chapter 8, Life-saving appliances
- Chapter 9, Safety of navigation
- Chapter 11, Voyage planning

Polar Code Pollution Measures

- Part II-A: Mandatory chapters on prevention of pollution by
 - 1 – Oil
 - 2 – Noxious liquid substances
 - 4 – Sewage from ships
 - 5 – Garbage

Polar Code Pollution Guidance

- Part II-B: Recommendatory information and additional guidance
- General information
- [BWM management]
- [Anti-fouling]
- [Bio-fouling]

STCW Polar Amendments

- Sub-Committee on Human Element, Training and Watchkeeping (HTW) (formerly STW)
- HTW 1 (17-24 February 2014) formally endorsed chapter 13 [now 12] of draft Polar Code on training and certification for ships operating in polar waters
- HTW 1 progressed work in developing amendments to update certification and training requirements for officers and crew serving on board ships operating in polar waters in Chapter V of annex to STCW Convention, to reflect training requirements in draft Polar Code

Polar Code – MEPC 66

- Met 31 March-4 April 2014
- Considered draft Code and many papers
- Report of meeting: MEPC 66/21, pp. 50-55, paras. 11.19-11.53
- Correspondence Group to finalize work on amendments to MARPOL Annexes and Parts II-A, II-B, and provide written report to MEPC 67
- Will continue work on the Annexes and Polar Code at MEPC 67 (October 2014) and planned to conclude at MEPC 68 (May 2015) (MEPC 66/21, Annex 18 Planned Output No. 5.2.1.15 and Annex 19)

Polar Code – MSC 93

- Met 14-23 May 2014
- Polar Code Agenda item 10 (14 papers on Polar Code)
- Working Group prepared clean text of Chapter XIV (MSC 93/WP.7)
- Working Group prepared cleaner text of Parts I-A and I-B (MSC 93/WP.7/Add.1)
- MSC 93 approved draft SOLAS Chapter XIV for circulation with a view to adoption at MSC 94
- MSC 93 approved, in principle, draft Polar Code with a view to adoption at MSC 94 in conjunction with adoption of associated new SOLAS Chapter XIV

Polar Code – NCSR 1

- Sub-Committee on Navigation, Communications and Search and Rescue (NCSR 1) (formerly COMSAR and NAV)
- Meets 30 June-4 July 2014 to consider
- Polar Code Chapters 10 and 11 and portion of Chapter 12 on reporting: NCSR 1/23
- NCSR 1/23/1 (USA) revisions to Chapter 11
- NCSR 1/27/3 (Canada and others) Participation in WMO VOS Ships' Scheme – Arctic observations
- Further taskings from MSC 93 per WG recommendations
- Comments and recommendations directly to MSC 94

Polar Code - MEPC 67

- Meets 13-17 October 2014
- Polar Code is Agenda item 9
- Papers due 11 July or 8/22 August 2014 depending on length/subject matter
- May approve the amendments to MARPOL Annexes and Part II of Code for circulation; if not, at MEPC 68 May 2015

Polar Code – MSC 94

- Meets 17-21 November 2014
- Expected to adopt new SOLAS Chapter XIV and International Code for Ships Operating in Polar Waters (Polar Code) Preamble, Introduction and Parts I-A and I-B
- Entry into force date to be determined at MSC 94

Tacit Acceptance Procedure

Committee meeting	Interval	Committee meeting	Interval	Entry into Force
SOLAS article VIII Amendments to regulations except chapter I:				Date to be set at MSC 94
MSC 93		MSC 94		
Approved for circulation new Chapter XIV May 2014	Minimum 6 months	Adoption Nov 2014	Minimum one year	6 months later
MARPOL article 16 Amendments to Annexes				Date to be set at MEPC 68 or 69
MEPC 67 or 68		MEPC 68 or 69		
Approve for circulation	Minimum 6 months	Adoption	Minimum 10 months	6 months later

New Polar Code Approach

- Polar Code applies new IMO risk-based approach to its regulations
- Mandatory provisions set out functional requirements and risk-based performance standards
- SOLAS regulations and MARPOL annexes use traditional prescriptive measures
- Polar Code adjusted to “marry” the two
- Compliance to be measured against prescriptive requirements in SOLAS or Polar Code
- What in Polar Code is a “rule or standard”?

Applicability - SOLAS

- Polar Code will apply to ships operating in polar waters certified to do so
- Ships constructed before entry into force of Chapter XIV have one year thereafter to meet the relevant requirements of the Polar Code
- Intention is to apply the Code to new and existing ships certificated under SOLAS, whether or not such ships are engaged on international voyages
- Non-SOLAS ships are not required to meet Code requirements, but may do so
- Polar Code does not apply to government ships on non-commercial service, although encouraged to do so in a manner consistent, insofar as reasonable and practicable, with Chapter XIV

Applicability - MARPOL

- Not yet decided