Maritime Space and the Arctic Ocean

Chapel Hill, North Carolina

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WHO "OWNS" THE ARCTIC?

An International and Interdisciplinary Conference

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ARCTIC LANDGRAB

Where is the Arctic?

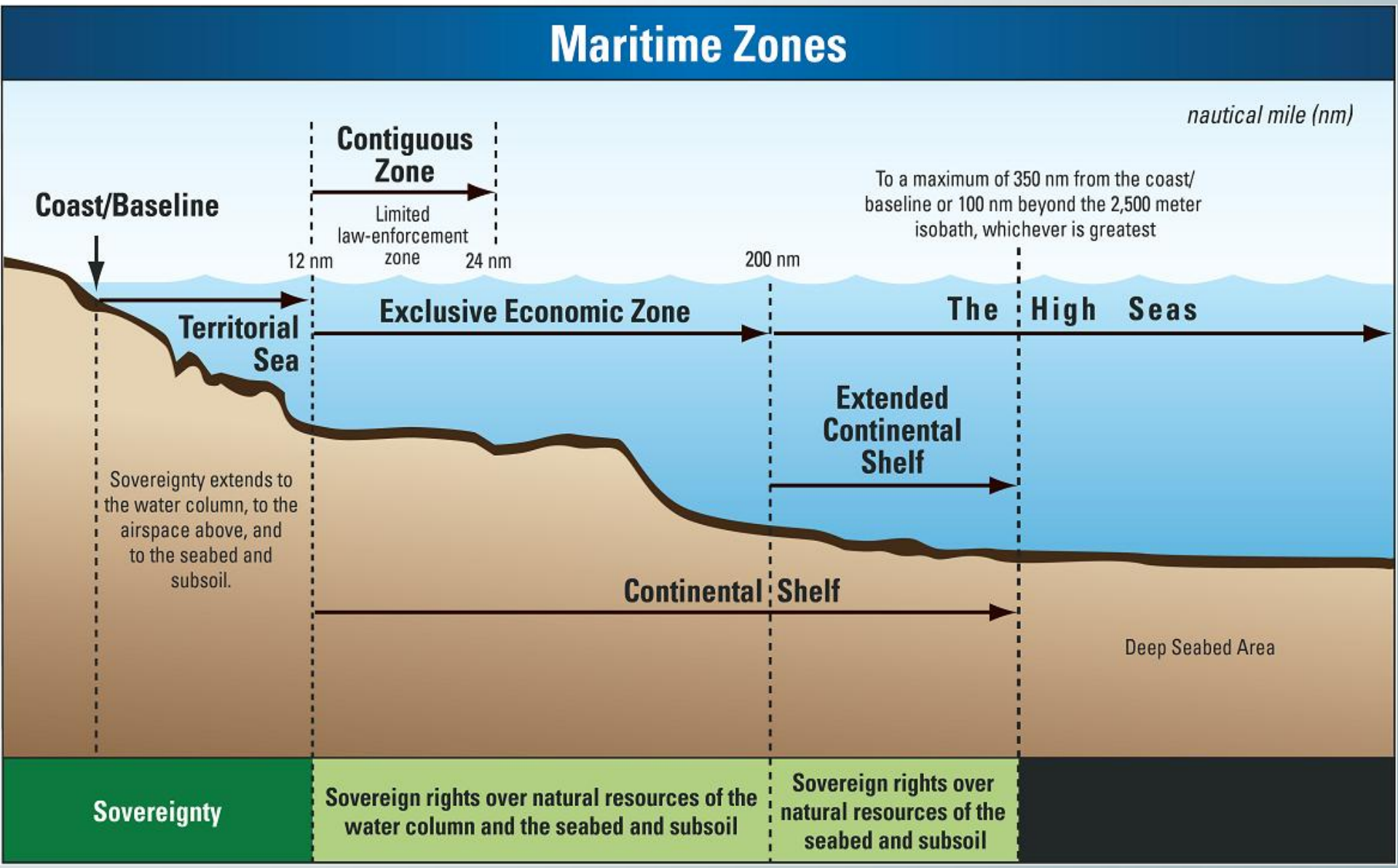
- All land, submerged lands, and water north of Arctic Circle (66º33’ N)
- U.S. Arctic Research Commission statute includes Bering Sea and Aleutian Islands
- Canadian Arctic Waters Pollution Prevention Act includes all Canadian land and waters north of 60º N
- Denmark considers all of Greenland and the Faroe Islands as Arctic
- Bioregions (tree line, where permafrost begins, etc)

Where is the Arctic Ocean?

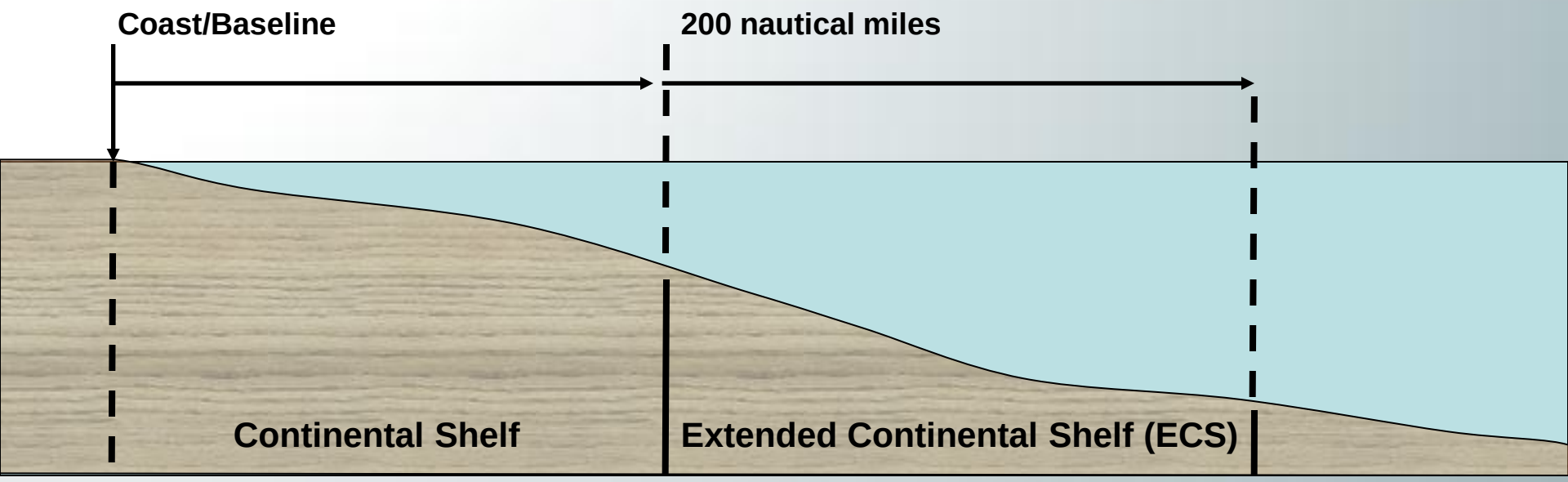
- Definition adopted by IHO in 1953.

Neither has a definitive and obvious extent. The United States has an interest in not subscribing to one particular definition for all purposes. Rather each definition serves its own purpose.

Maritime Zones



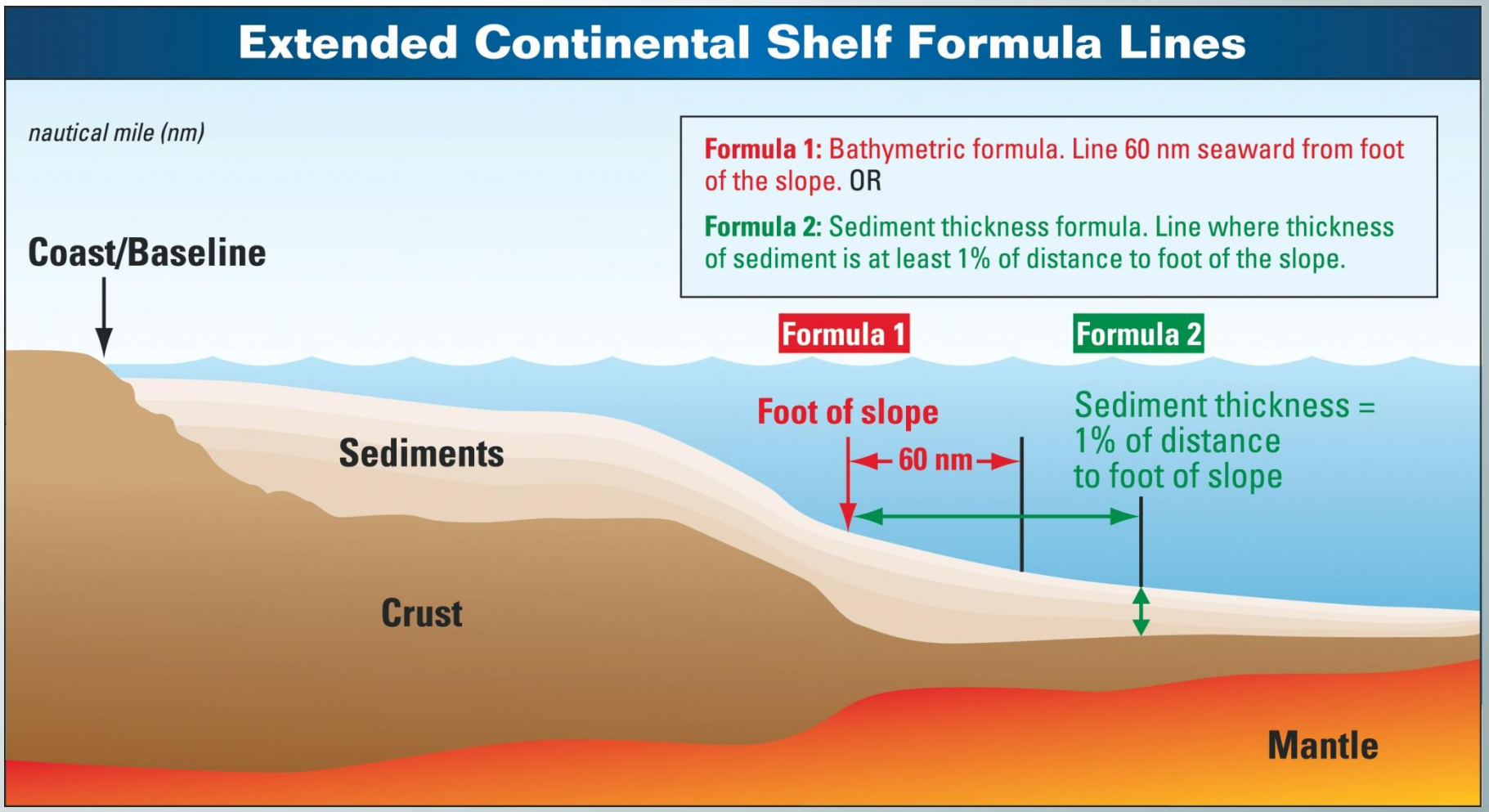
Maritime Zones
The Continental Shelf



How is the extent of an ECS determined?

Formula Lines (Two Options)

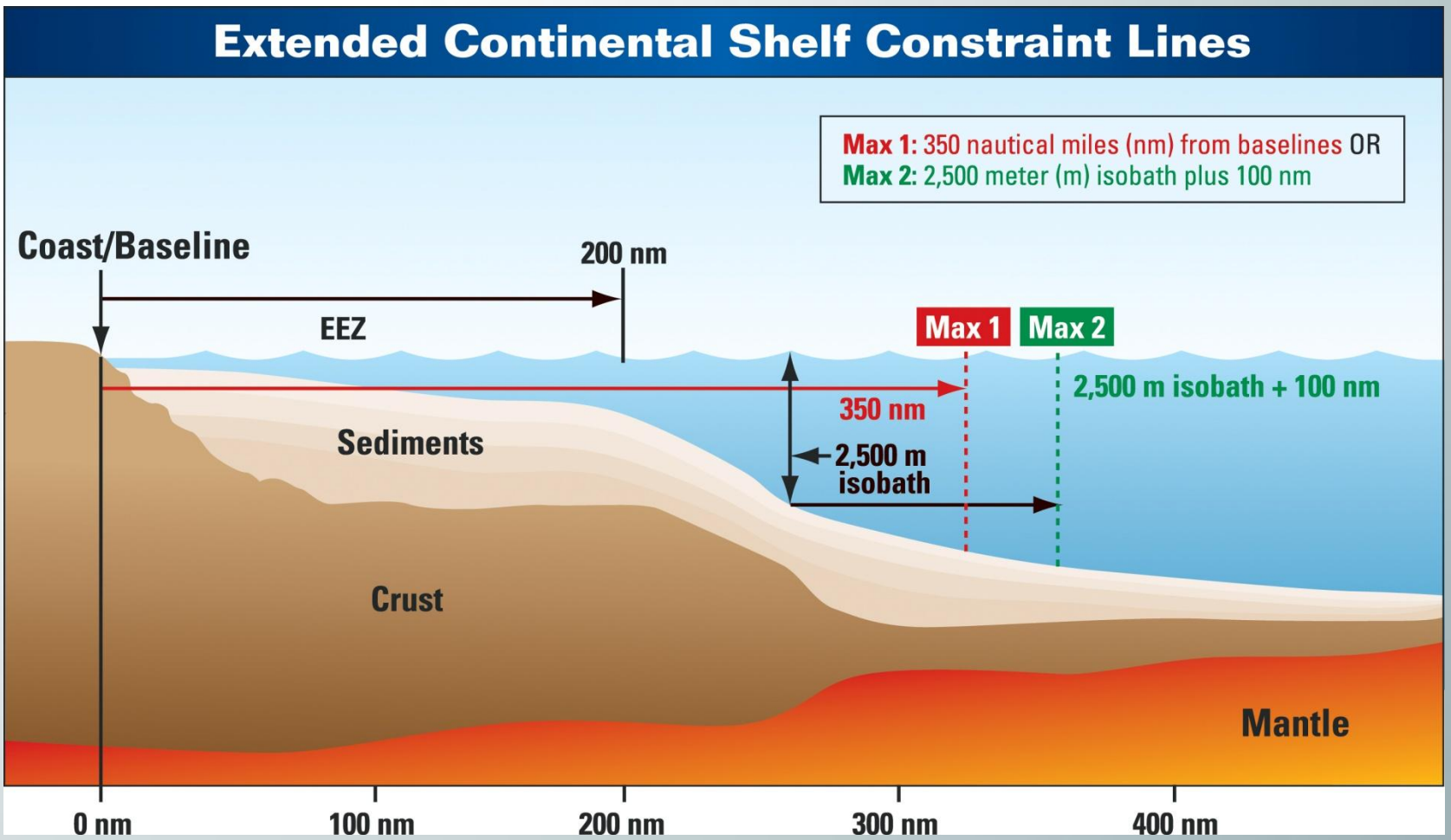
- One based entirely on morphology of sea floor
- Another based on morphology of sea floor and thickness of sediments
- Can use either one in any combination



How is the extent of an ECS determined?

Constraint Lines (Two Options)

- One is 350 nautical miles (nm) from coast (baselines)
- Another is based on finding the 2,500 meter contour and adding 100 nm
- Can use either one in any combination



Why does it matter?

Sovereign rights over the natural resources likely worth many billions:

- ❑mineral resources (manganese nodules, ferromanganese crusts, and polymetallic sulfides, etc)
- ❑petroleum (oil, gas, and gas hydrates)
- ❑“sedentary” species (clams, crabs, scallops, sponges, corals, mollusks, etc)

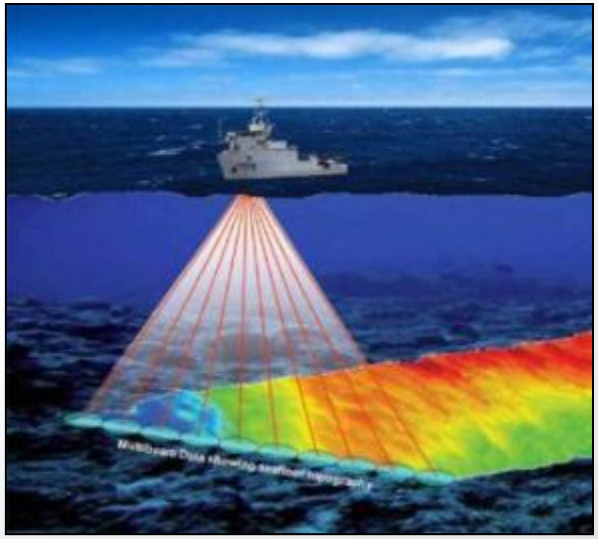
Defining those rights in concrete geographical terms provides the specificity and certainty necessary to protect, manage, and/or use those resources.

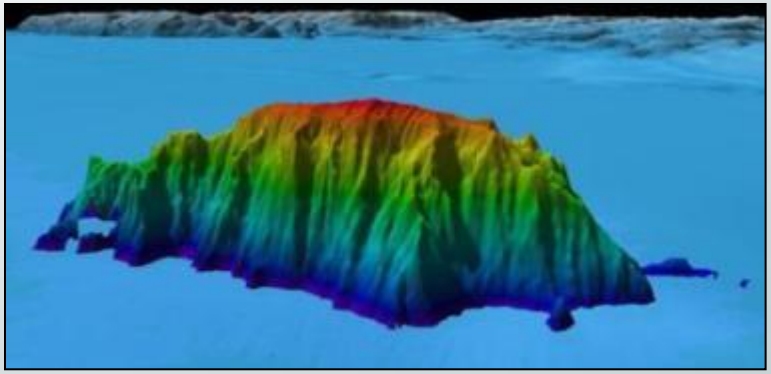
The U.S., like other countries, has an inherent interest in knowing, and declaring to others, the exact extent of our sovereign rights.

What types of data do we need?

Bathymetric Data

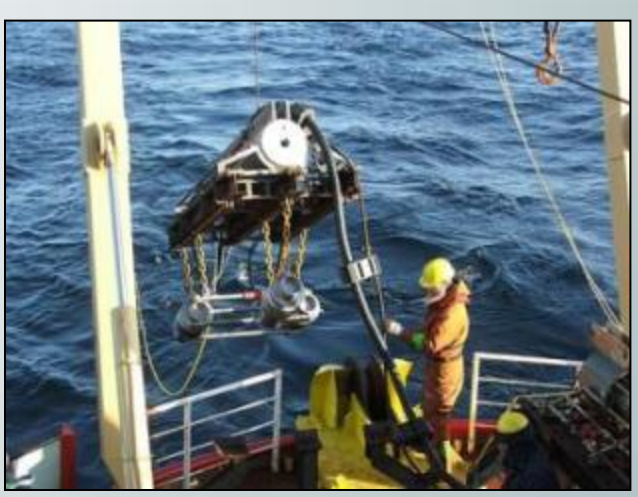
Used to determine foot of the slope

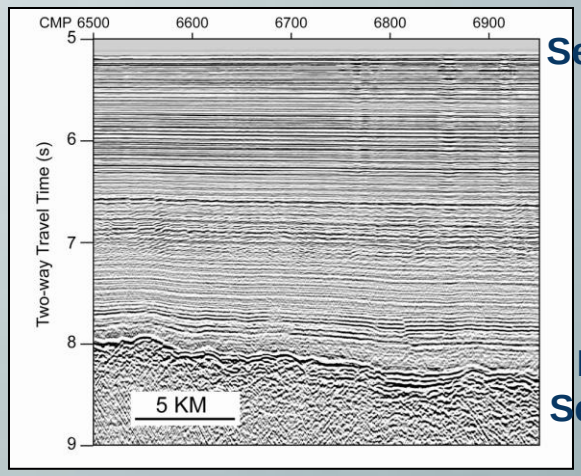




Seismic Data

Used to determine sediment thickness

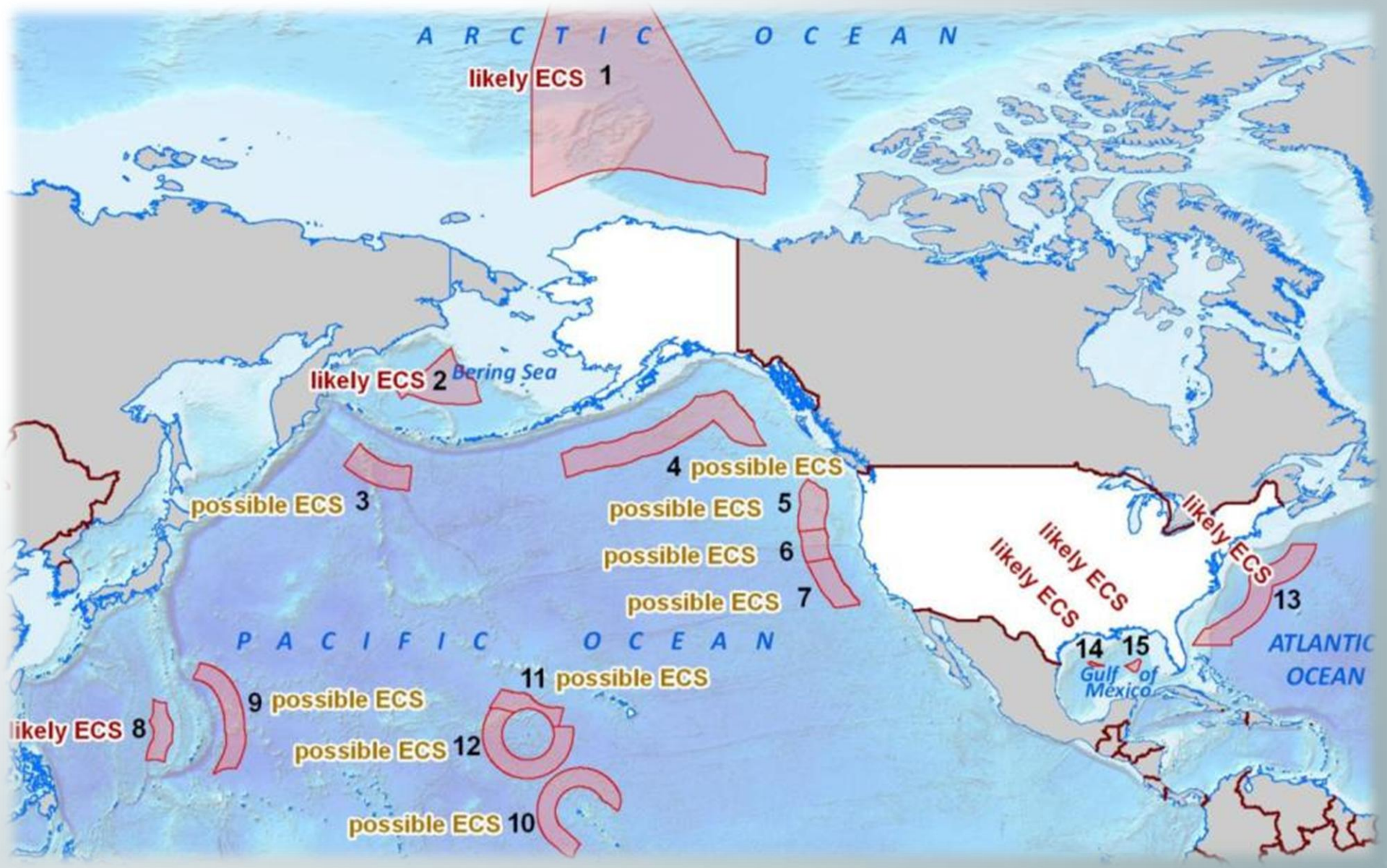




Seafloor

Base of Sediments

Areas of Possible United States' ECS



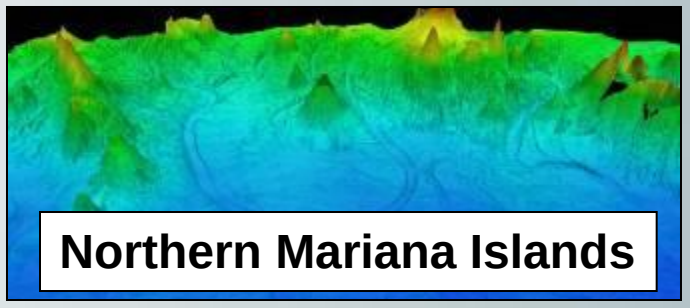
U.S. Extended Continental Shelf Project

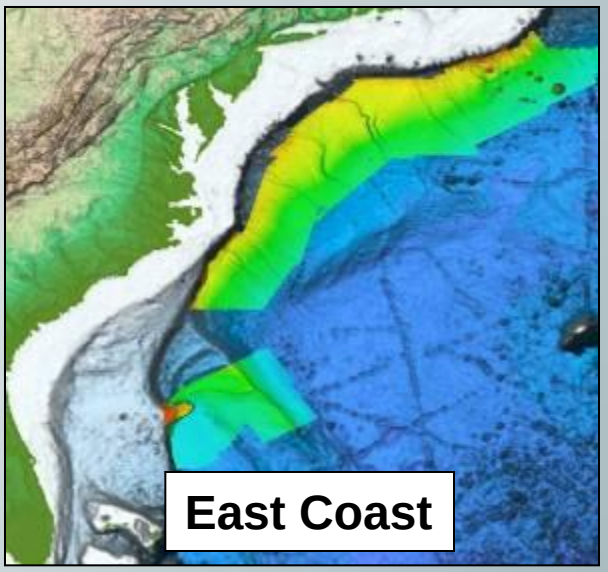
The ECS Task Force was established in April 2007 by the Interagency Committee on Ocean Science and Resource Management Integration. The Task Force is chaired by Department of State, with co-vice chairs from Department of the Interior and National Oceanic and Atmospheric Administration.

The Task Force now reports to the National Ocean Council (NOC) Steering Committee. A revised ECS charter was adopted by the NOC on September 24, 2010.

What has been done so far?

- **Bathymetric Data Collection**
  - Arctic Ocean (2003, 2004, 2007, 2008, 2009, 2010, 2011, 2012)
  - Atlantic Ocean (2004, 2005, 2008, 2012)
  - Bering Sea (2003)
  - Gulf of Alaska (2005)
  - Gulf of Mexico (2007)
  - Northern Marina Islands & Guam (2006, 2007, 2010)
- **Seismic Data Collection**
  - Arctic Ocean (2008, 2009, 2010, 2011)
  - Gulf of Alaska (2011)
  - Bering Sea (2011)
- **Data Management**
  - Developing metadata standards for bathymetric and seismic data (2008-present)





Arctic Data Collection Missions

Accomplishments

8 cruises (4 with Canada)

<u>Bathymetric Data</u>
Area mapped: ~320,000 km^2
(size of Montana)

<u>Seismic Data</u>
Seismic tracklines: ~15,000 km
(LA to NYC x 3.5)

Seismic data collection completed in 2011; joint cruises have concluded

One more 30-day bathymetric cruise left (just *Healy)*.

Why Cooperate?

- Mutual interest to delineate continental shelf in the Arctic
- Saves millions for both countries
- It's Canada and the U.S.—we're friends. And we also have a long history of scientific collaboration.
- Utilize collective, rare expertise, especially given the challenges of the Arctic.
- Collect data only once over the same area
- Provide data the other needs
  - Canada has a proven multi-channel seismic system that works in ice-covered conditions
  - The *Healy* has a multibeam bathymetric system and can clear a path

Why Cooperate?

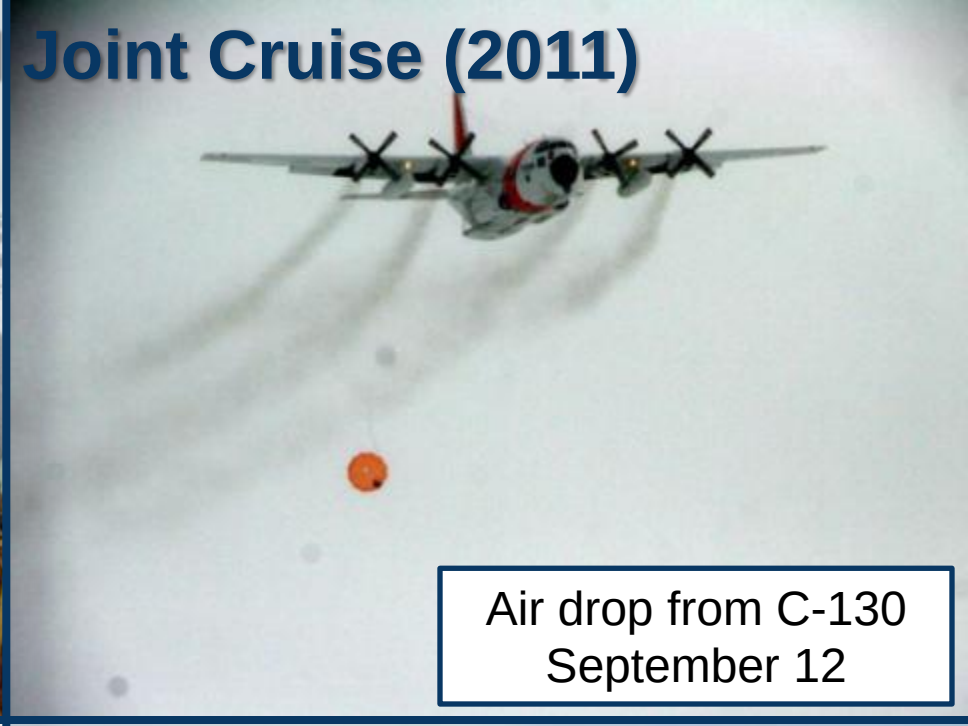
Seismic data collection with no ice

Seismic data collection in ice

Courtesy of Jacob Verhoef

Scenes from Final Joint Cruise (2011)

Rendezvous
August 23

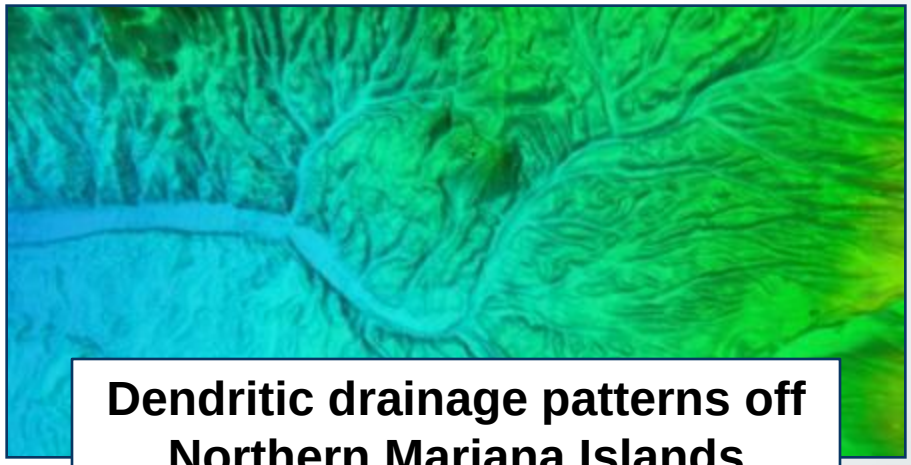


Air drop from C-130
September 12

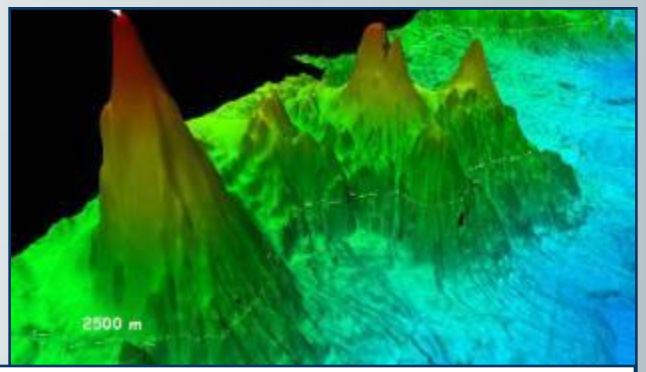
AUV launch from
Louis S. St. Laurent

Deploying ice buoys
September 3

Maximizing the Effort (Science)

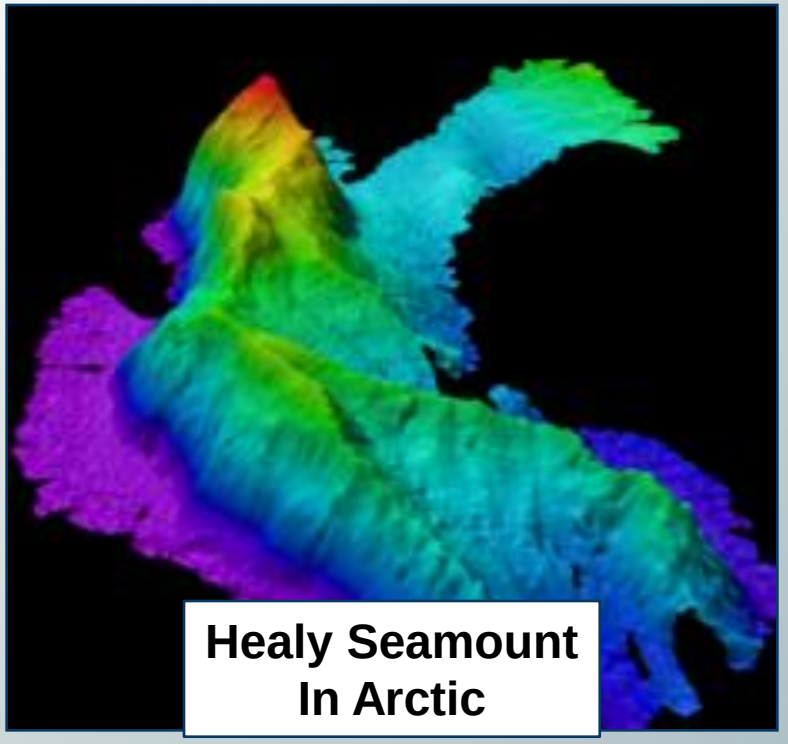


Dendritic drainage patterns off Northern Mariana Islands



Guyots off Northern Mariana Islands, one less than 7 meters from surface

Dredge samples in Arctic



Healy Seamount In Arctic

Iceberg scours In Arctic

Press and Outreach

ECS Website
www.continentalshelf.gov

Teachers at Sea and Blogs

Online videos and photos

Press conferences and press releases

Interviews

What work is left?

- **Planning**
  - Determine priorities
  - Execute remaining work
- **Data Collection**
  - Additional bathymetric data required (Arctic, Gulf of Alaska, Pacific Islands)
  - Additional seismic data required (Atlantic and Gulf of Alaska)
- **Analysis and Compilation**
  - Construct a Geographic Information System
  - Apply formula and constraint lines
  - Document legal and scientific approaches

Planning | **Data Collection** | **Analysis and Compilation**

Commission on the Limits of the Continental Shelf (CLCS)

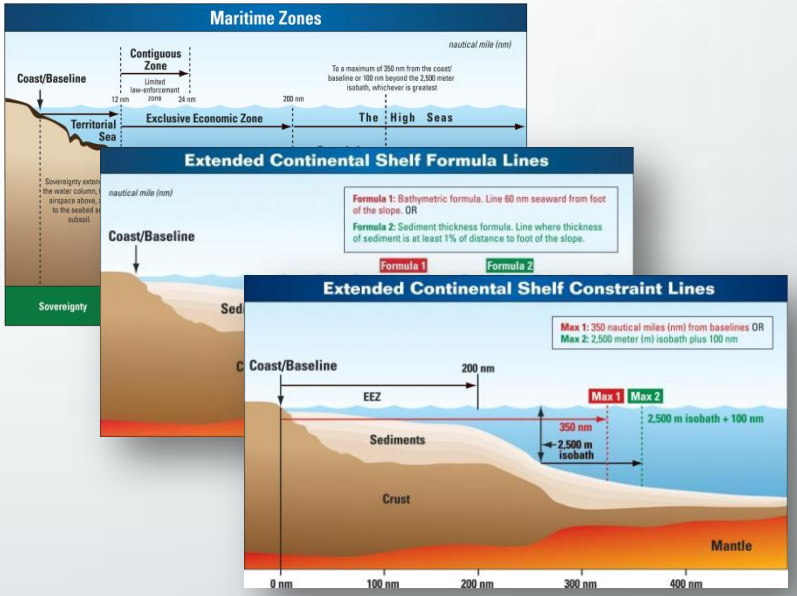
- Commission on Limits of Continental Shelf (CLCS)
  - A coastal State submits its coordinates, data, and analyses to CLCS. 21 members, all scientists.
  - CLCS makes recommendations back to State. Cannot address boundaries.
  - Purpose? International recognition.
  - If the coastal State establishes its ECS limits "on the basis of" CLCS recommendations, those limits are "final and binding."
  - Why the interest now? 10 year clock. (not a race or due to climate change)

- Submissions and Recommendations
  - 79 countries likely have an ECS, including all 5 Arctic States.
  - 55 submissions, 11 recommendations from CLCS, an additional 45 preliminary information documents.

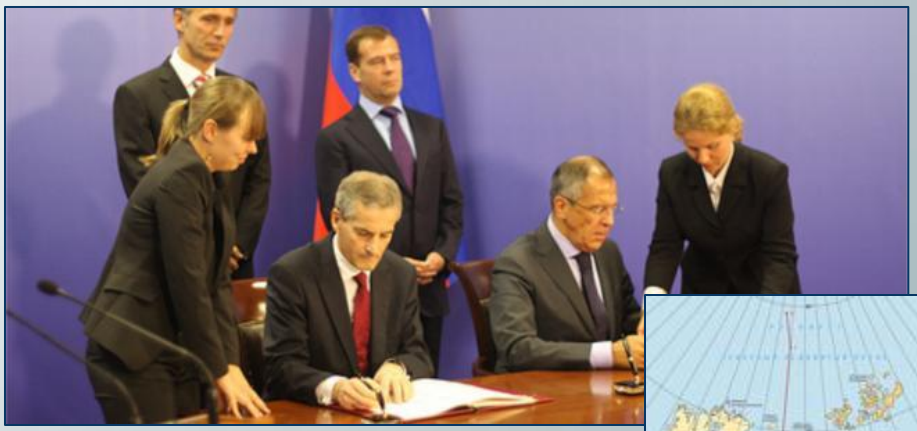
ECS Areas Already Submitted
(in orange)

It's a Two-Step Process

Step 1:
Delineate the ECS



Step 2:
Negotiate maritime boundary where ECS overlaps



Signing maritime boundary agreement between Norway and Russia

Credit: Office of the Norwegian Prime Minister

The U.S. and Maritime Boundaries

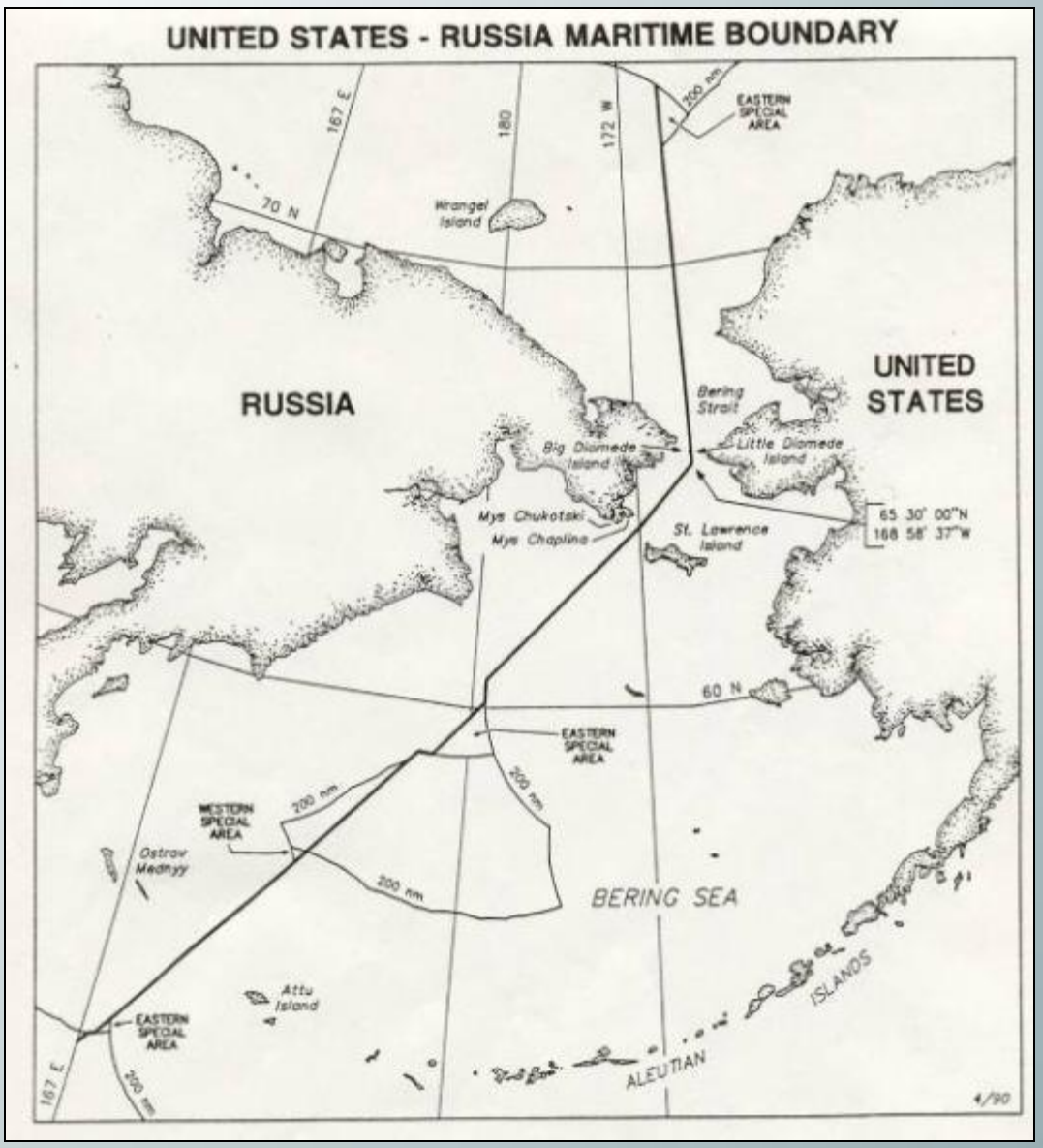
- Half of all maritime boundaries have yet to be determined across the globe.
- The U.S. has 30 potential maritime boundaries with 16 different countries.
  - 12 boundaries based on treaty and 1 based on decision from chamber of ICJ.
  - 17 undelimited boundaries.
  - The U.S. only has one delimited maritime boundary with Canada; the other three are unresolved.

U.S. – Russia Maritime Boundary

Agreement between US & USSR

- Signed: June 1990
- Advice and consent from Senate: Sept 1991
- Provisionally applied: June 1990

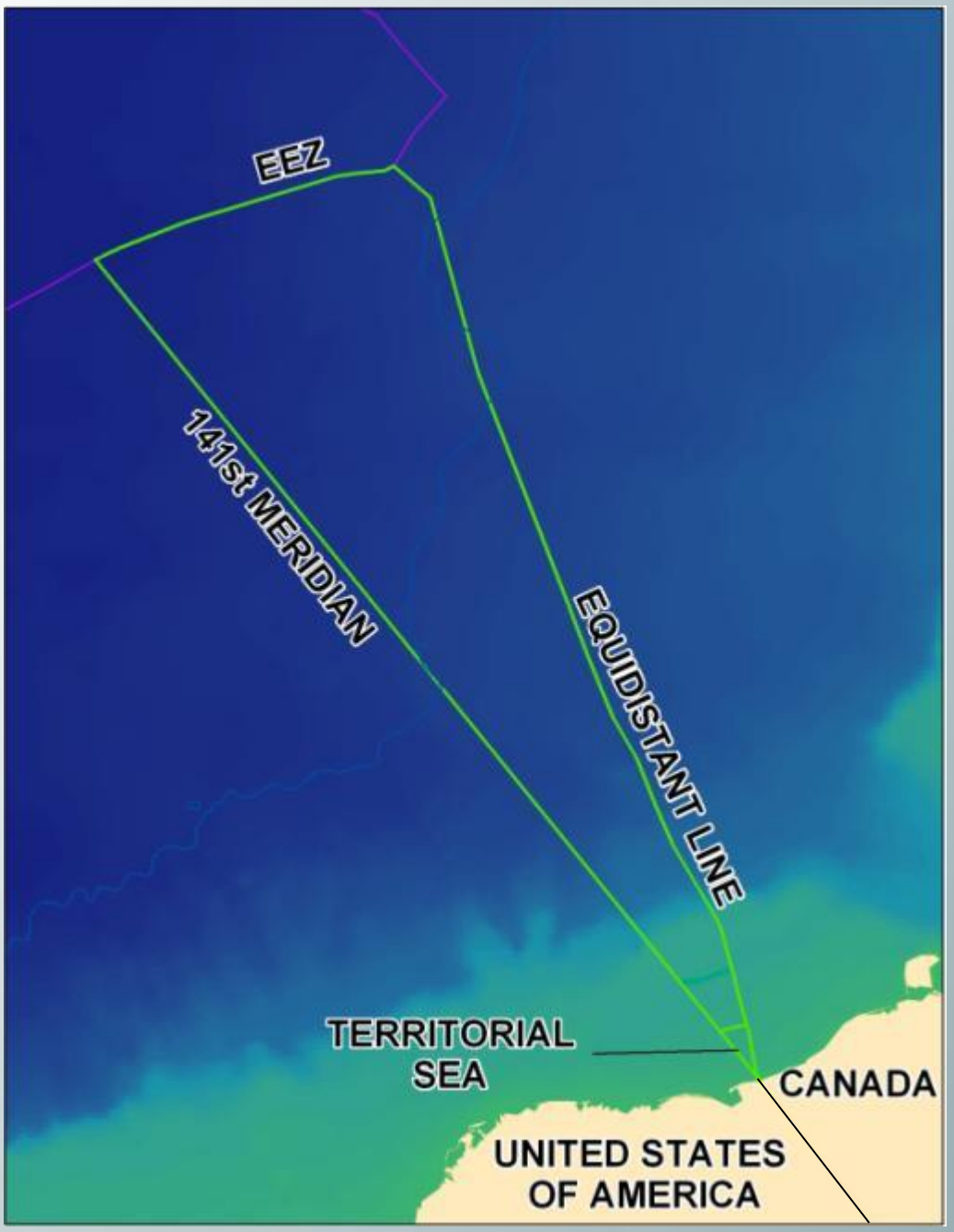
Russia's ECS delineation follows boundary.



U.S. – Canada Boundary
The EEZ

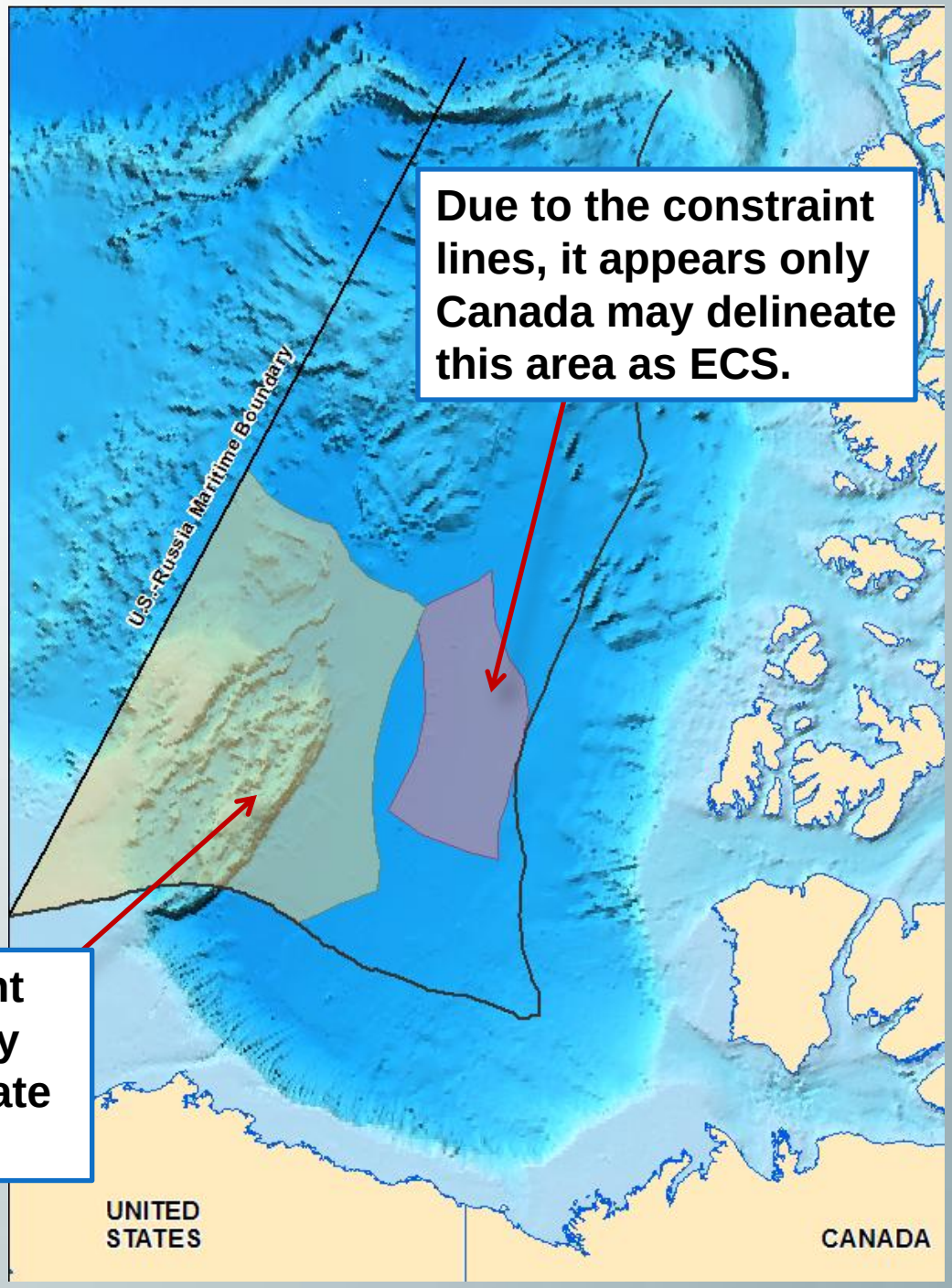
- A maritime boundary is required within and *beyond* 200 nm.

- The U.S. has declared a maritime boundary based on equidistance out to 200 nautical miles.



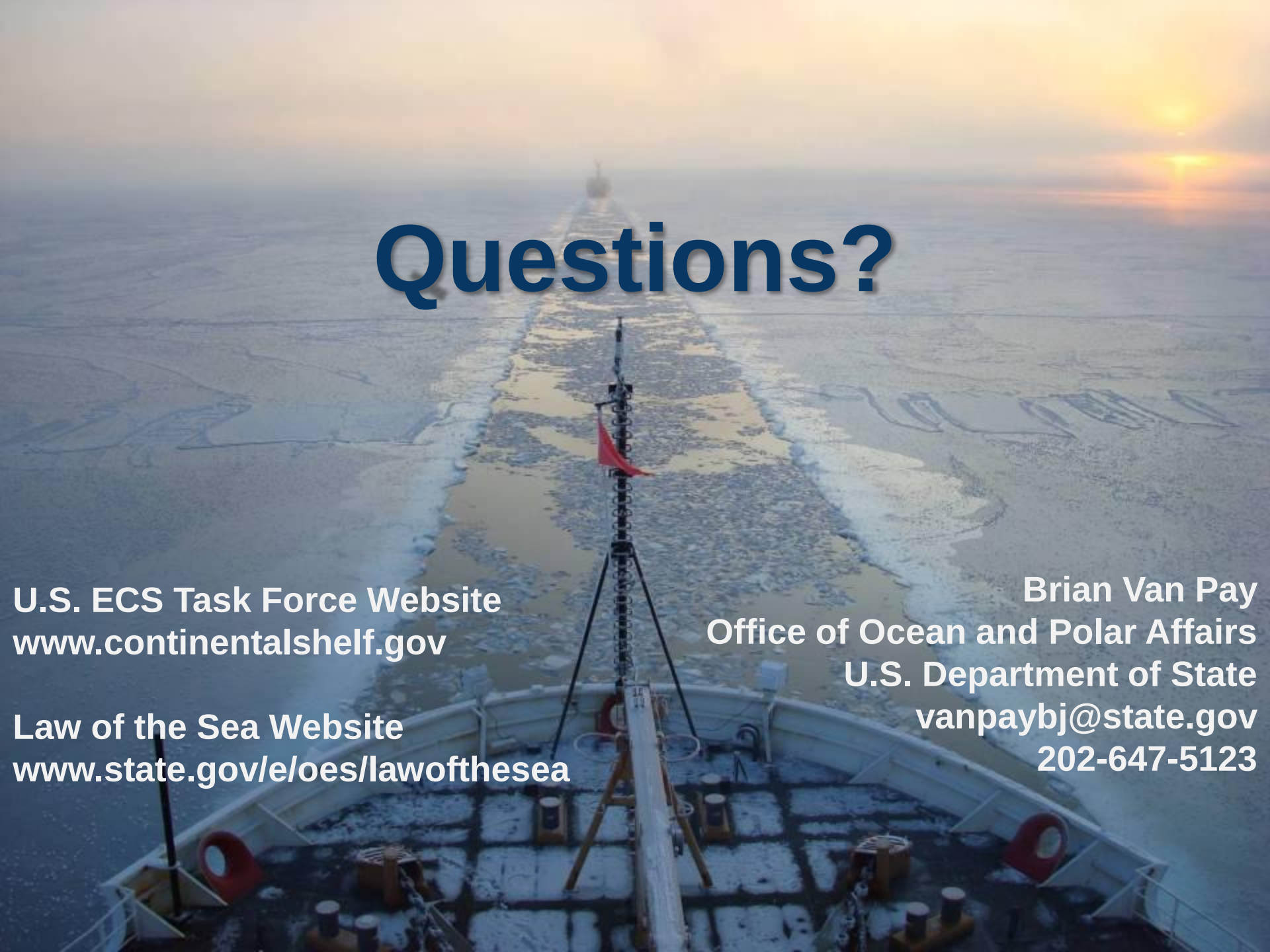
U.S. – Canada Boundary
Beyond 200 nautical miles

This map does *not* show the areas where the U.S. and Canada will delineate ECS, but it does show the approximate size of two areas where it appears each may delineate an ECS and the other cannot based on applying both constraint lines.



Due to the constraint lines, it appears only Canada may delineate this area as ECS.

Due to the constraint lines, it appears only the U.S. may delineate this area as ECS



Questions?

U.S. ECS Task Force Website
www.continentalshelf.gov

Law of the Sea Website
www.state.gov/e/oes/lawofthesea

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