



Office of Response & Restoration

Arctic ERMA[®] Environmental Response Management Application

Data Management

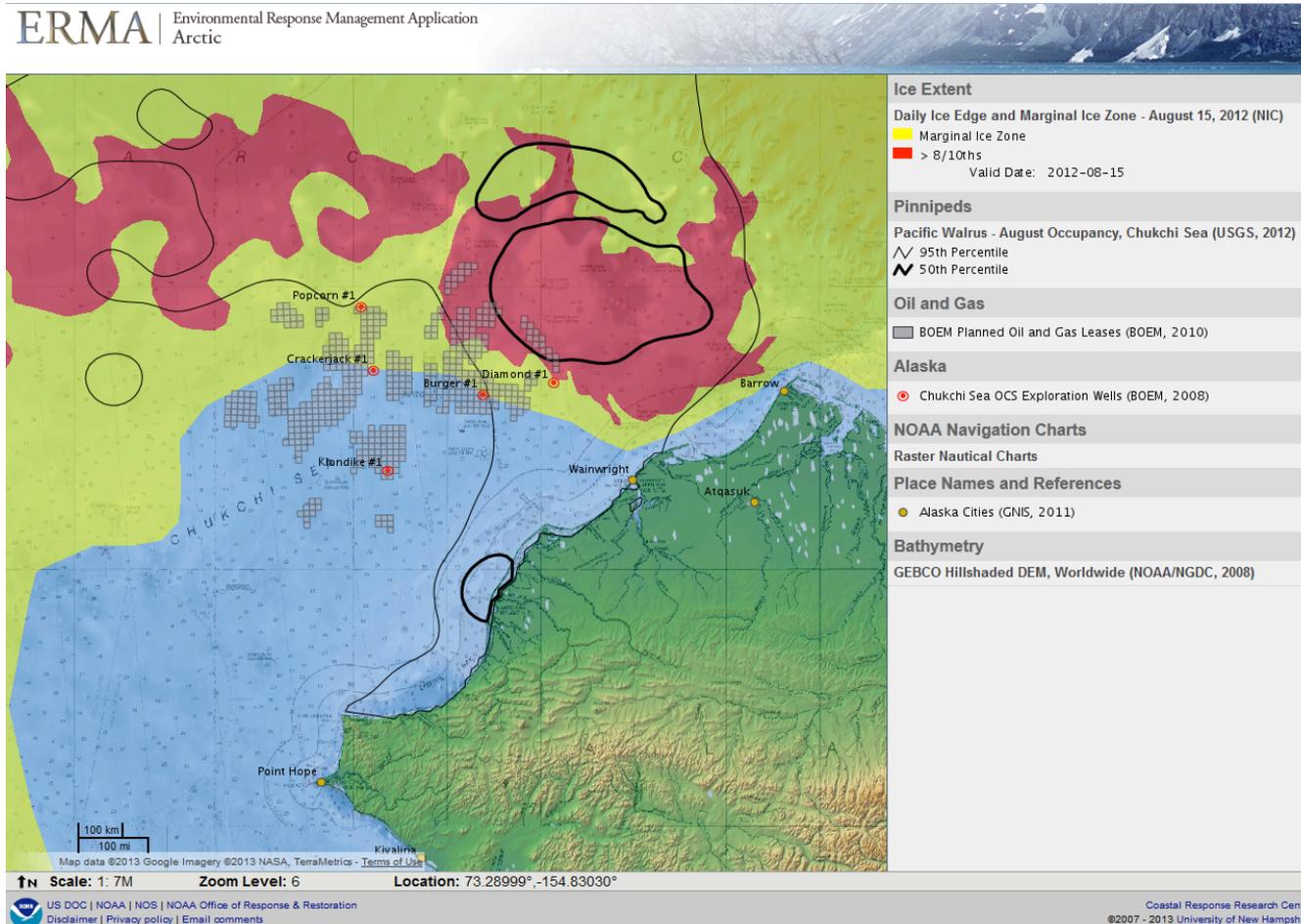
Robb Wright, Amy Merten, Zach Winters-Staszak
NOAA

6th Ice-Diminishing Arctic Symposium
July 16, 2015



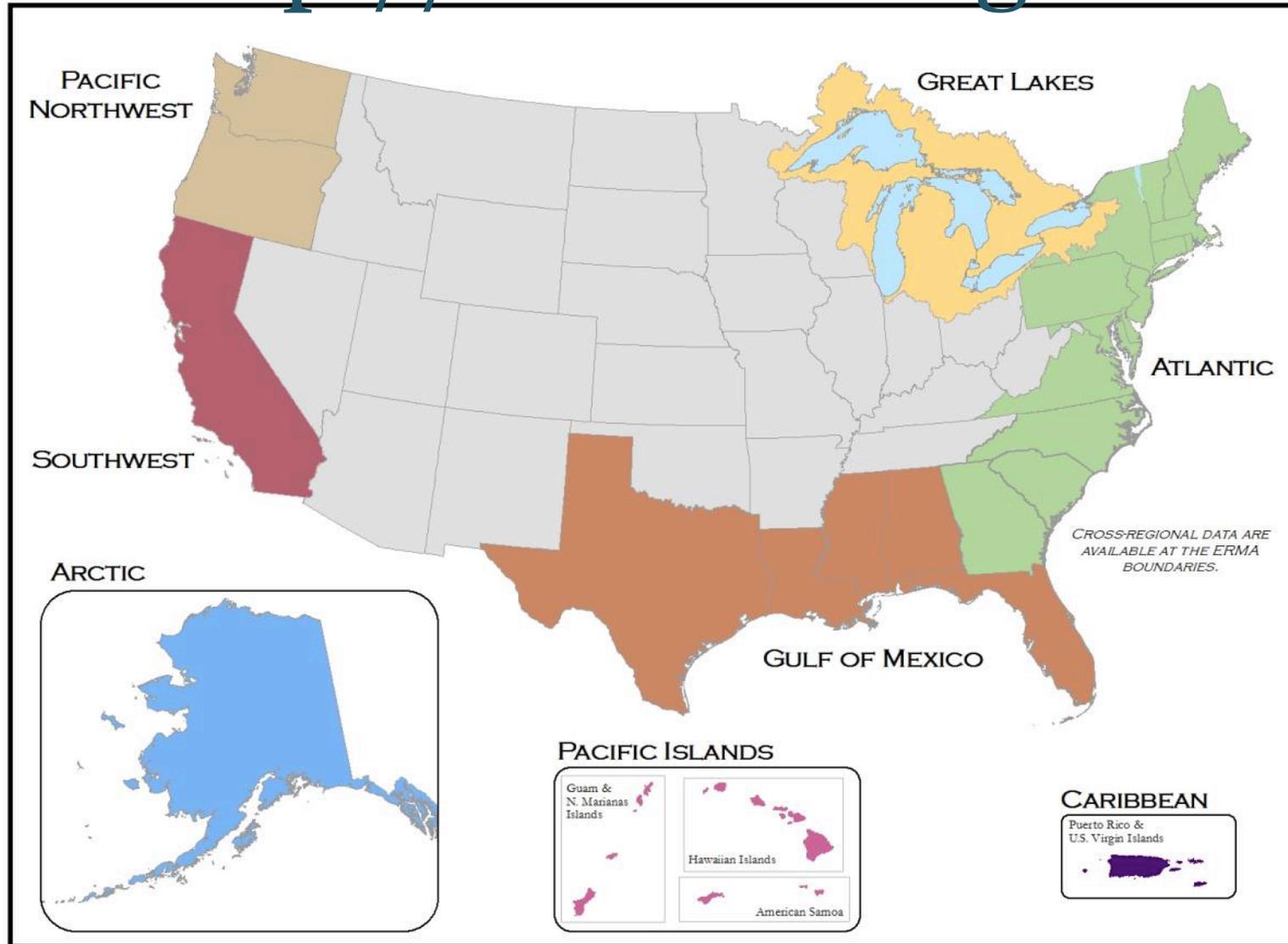
What is ERMA?

ERMA is an online mapping tool for visualizing environmental information relevant to oil spills and natural disasters.

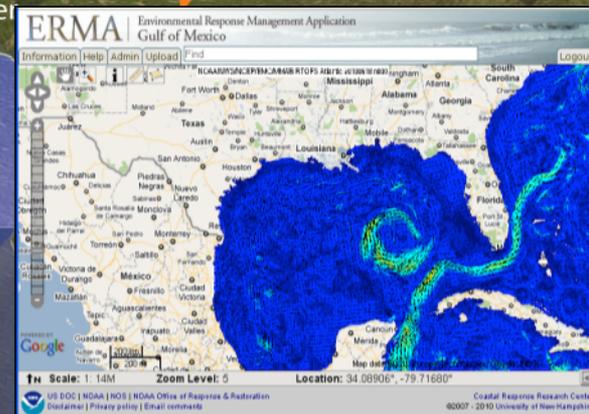
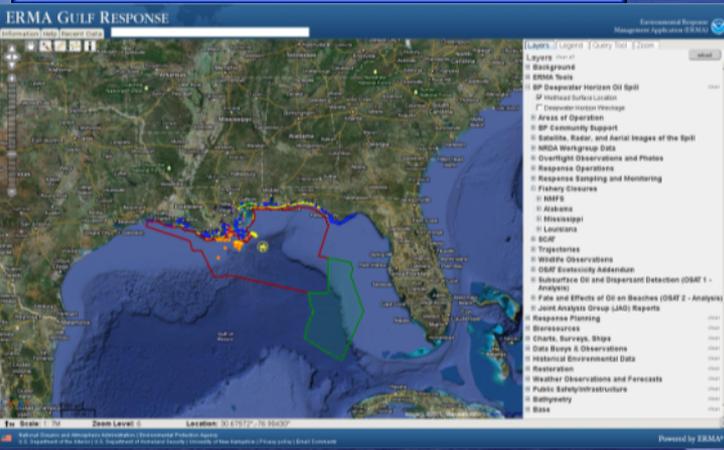




<http://erma.noaa.gov>



Environmental Response Management Application (ERMA)

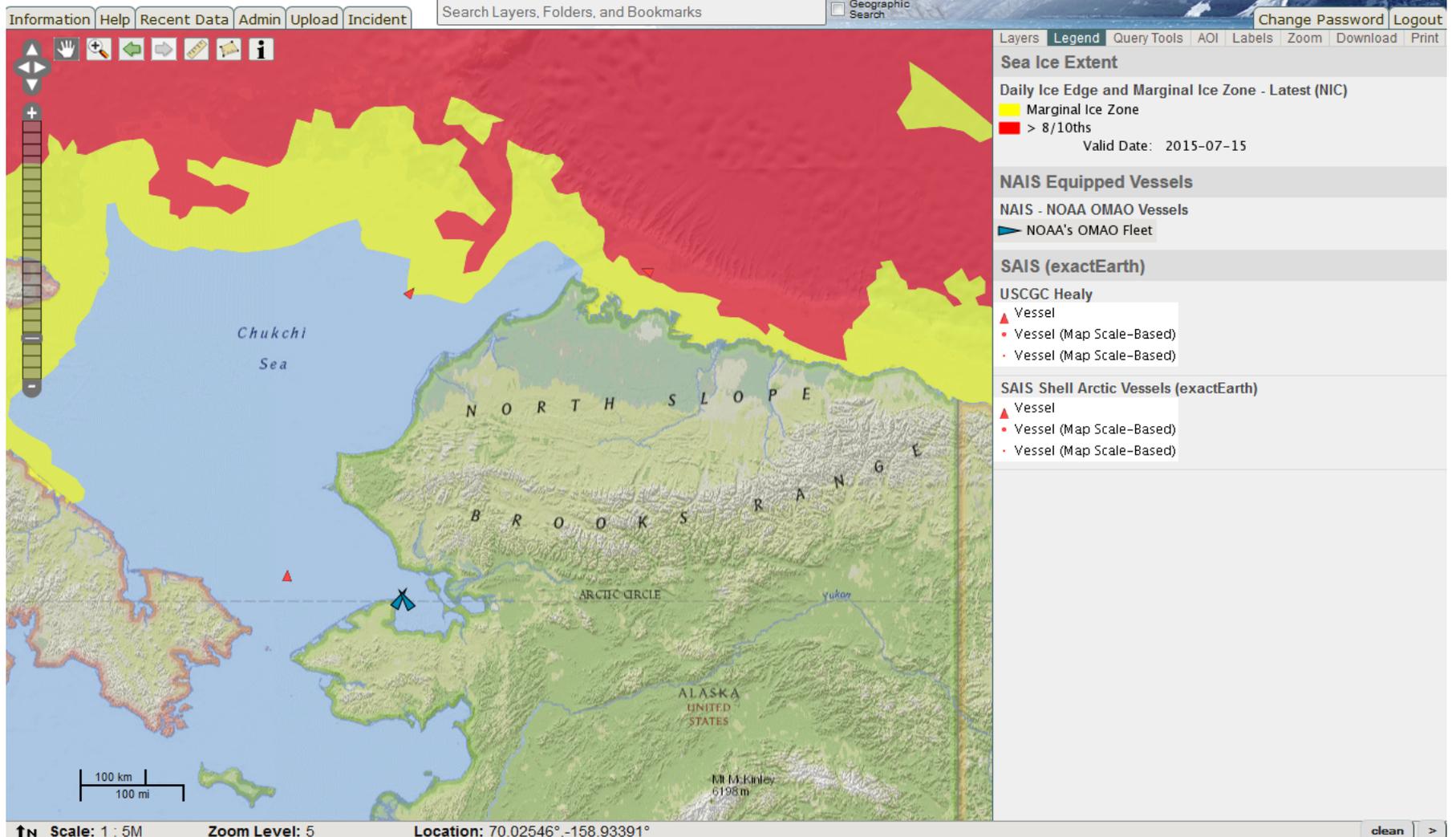


Kurt Schwehr
CCOM/JHC



Daily Ice Edge and MIZ

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Daily Ice Edge

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NAIS Equipped Vessels

NAIS - NOAA OMAO Vessels

▶ NOAA's OMAO Fleet

SAIS (exactEarth)

USCGC Healy

- ▲ Vessel
- Vessel (Map Scale-Based)
- Vessel (Map Scale-Based)

SAIS Shell Arctic Vessels (exactEarth)

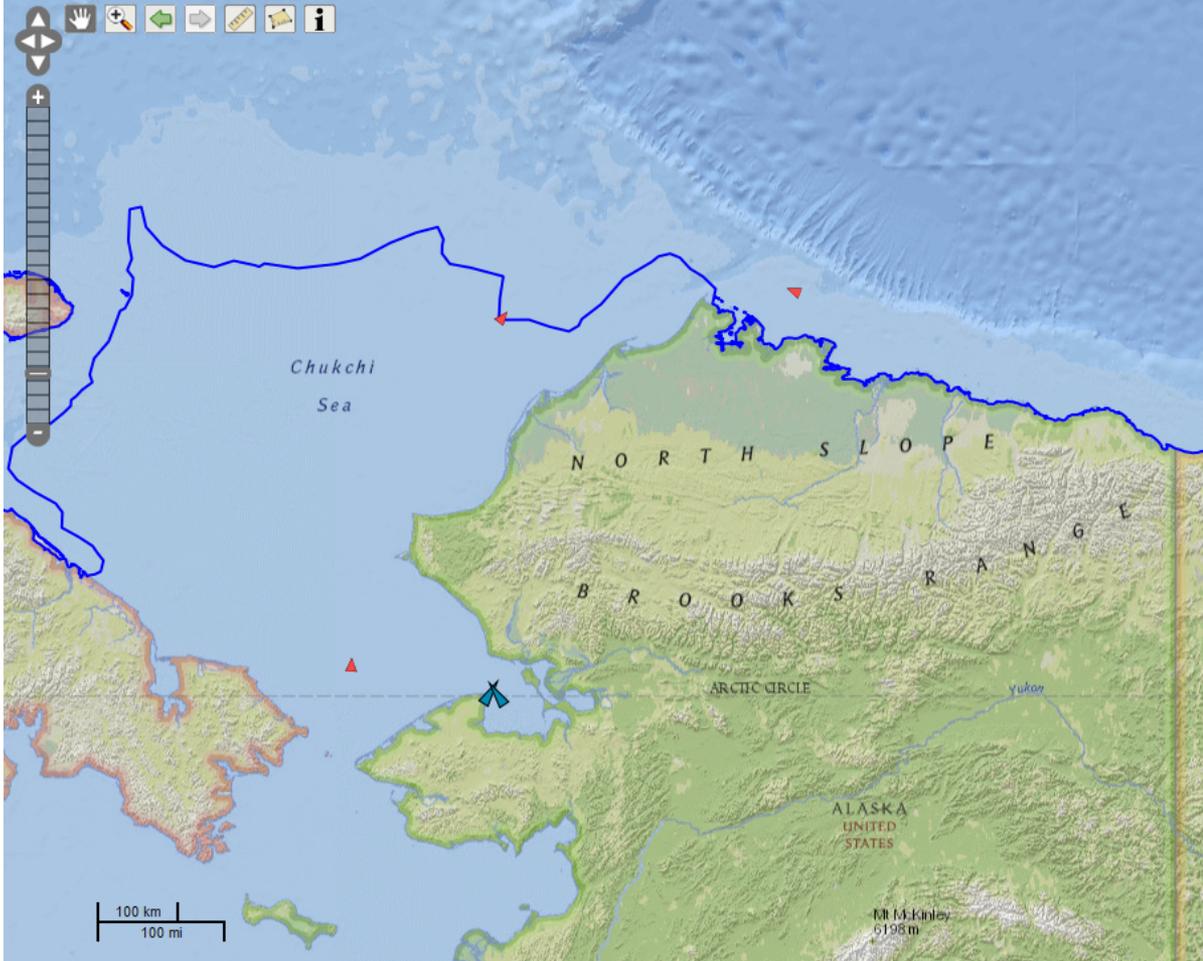
- ▲ Vessel
- Vessel (Map Scale-Based)
- Vessel (Map Scale-Based)

Sea Ice Extent

Daily Ice Edge - Latest (NIC)

~> 8/10ths

Valid Date: 2015-07-15



Scale: 1 : 5M Zoom Level: 5 Location: 74.25169°,-143.02570°

clean >



MASIE

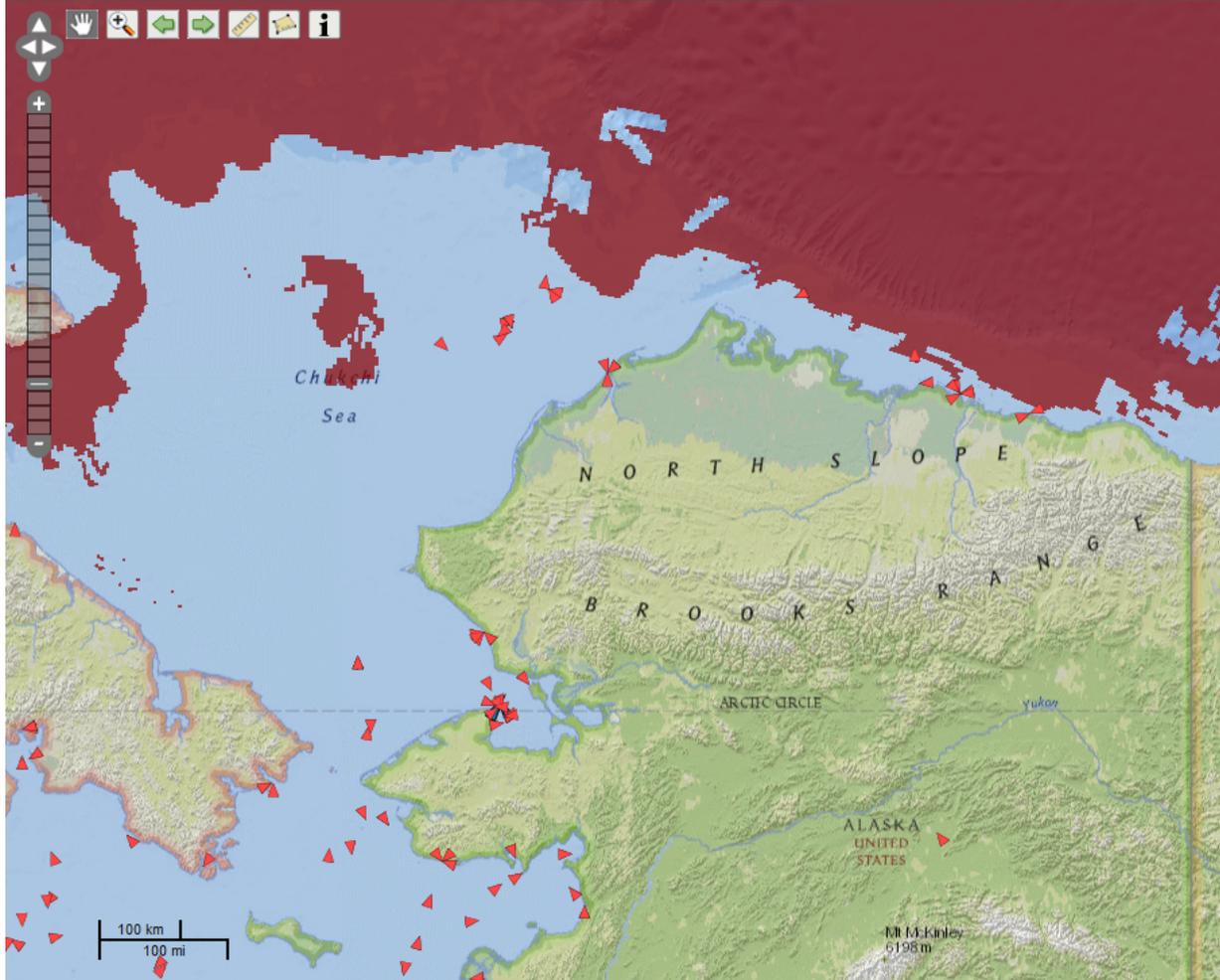
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NAIS Equipped Vessels

NAIS - NOAA OMAO Vessels

▶ NOAA's OMAO Fleet

SAIS (exactEarth)

SAIS Shell Arctic Vessels (exactEarth)

- ▲ Vessel
- Vessel (Map Scale-Based)
- Vessel (Map Scale-Based)

SAIS Vessels (exactEarth)

- ▲ Vessel
- Vessel (Map Scale-Based)
- Vessel (Map Scale-Based)

Sea Ice Extent

■ Multisensor Analyzed Sea Ice Extent (MASIE), Northern Hemisphere, 4 km (NSIDC)

Scale: 1 : 5M | Zoom Level: 5 | Location: 73.48254°, -139.64191°

clean >



Sea Ice Concentration

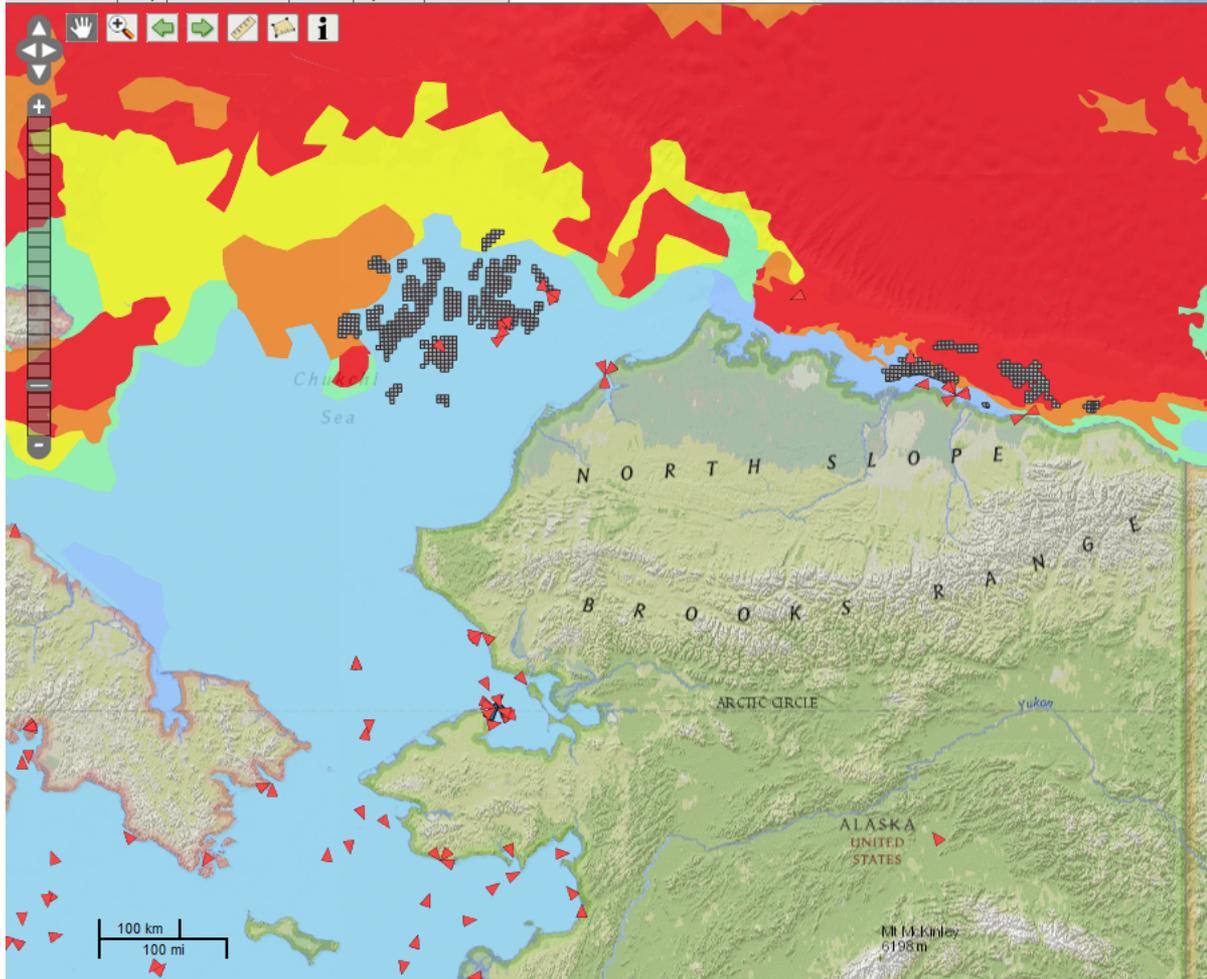
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NAIS Equipped Vessels

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SAIS Shell Arctic Vessels (exactEarth)

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SAIS Vessels (exactEarth)

- ▲ Vessel
- Vessel (Map Scale-Based)
- Vessel (Map Scale-Based)

Ice Concentration

Sea Ice Concentration in Tenths - Latest

- Ice Free
- 1-3 Tenths
- 4-6 Tenths
- 7-8 Tenths
- 9-10 Tenths
- Fast Ice

Oil & Gas Leases

■ BOEM Planned Oil and Gas Leases (BOEM, 2010)

Scale: 1 : 5M Zoom Level: 5 Location: 67.39609°,-141.88312°

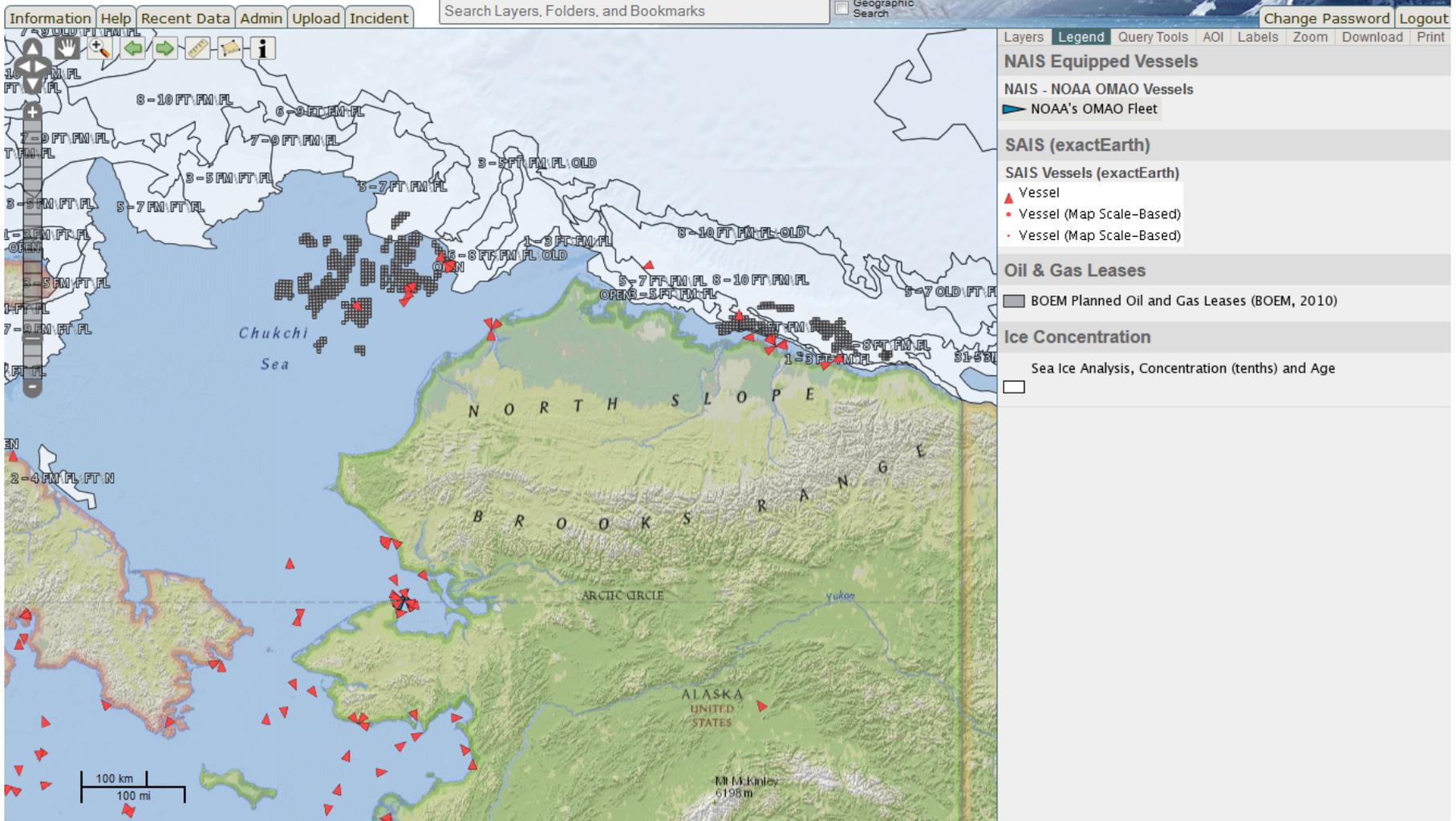
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Sea Ice Analysis: Concentration and Age

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Scale: 1 : 5M Zoom Level: 5 Location: 70.50034°,-150.97980° clean >



Sea Ice and Iceberg Limit

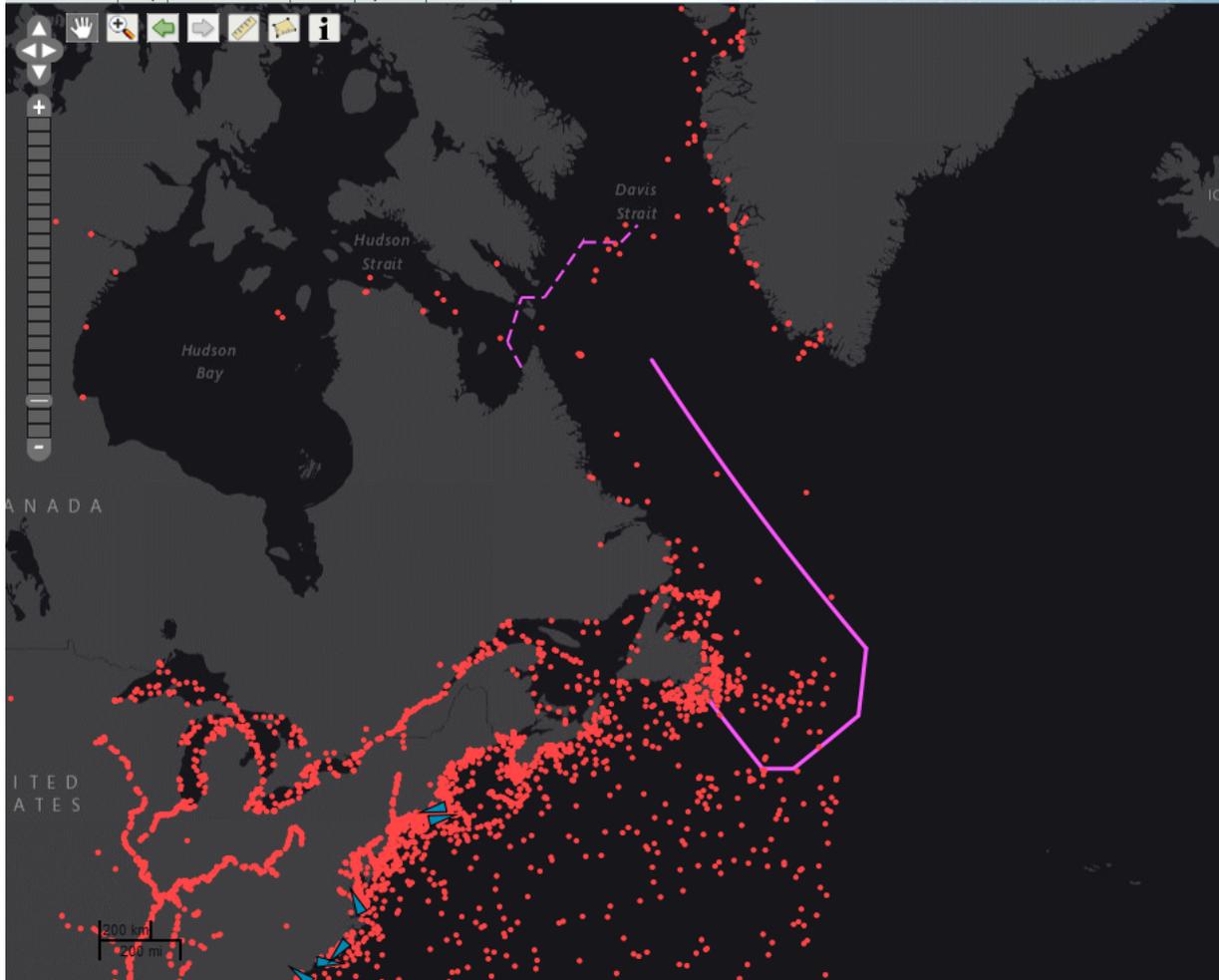
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Sea Ice Extent

Iceberg Limit for Newfoundland and Labrador Coast 16-Jul-2015 (NAIS)



Sea Ice Limit for Newfoundland and Labrador Coast 16-Jul-2015 (NAIS)



NAIS Equipped Vessels

NAIS - NOAA OMAO Vessels

NOAA's OMAO Fleet

SAIS (exactEarth)

SAIS Vessels (exactEarth)

Vessel

Vessel (Map Scale-Based)

Vessel (Map Scale-Based)

↑N Scale: 1 : 16M Zoom Level: 4 Location: 63.32882°,-19.17716°

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Geographic Response Strategies

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NW Arctic Subarea Geographic Response Strategies

DRAFT June 2011

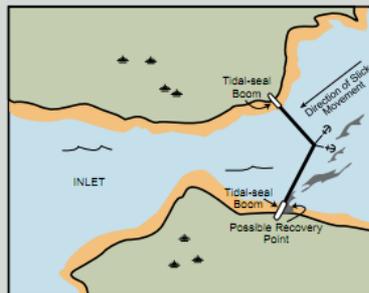
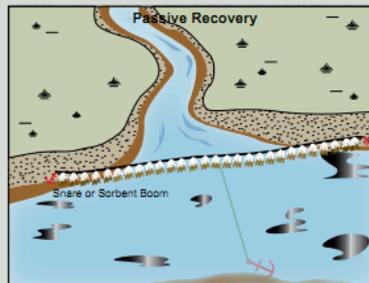
ID	Location and Description	Response Strategy	Implementation	Response Resources	Staging Area	Site Access	Resources Protected (months)	Special Considerations
N-22-01 FO-S	Nugnugluktuk River & Kougachuk Creek Nearshore waters in the general area	Free-oil Recovery Maximize free-oil recovery in the offshore & nearshore	Deploy free-oil recovery strike teams upwind and up current of Nugnugluktuk River & Kougachuk Creek	Deploy multiple free-oil recovery strike teams as required to maximize interception of oil before it impacts sensitive areas	Deering	Via marine waters Chart 16005	Same as N-22-02	Vessel master should have local knowledge. Use extreme caution, shoal waters
N-22-02 PR	Nugnugluktuk River & Kougachuk Creek Nearshore waters in the general area	Passive Recovery	Deploy passive recovery booms upwind and up current of Nugnugluktuk River & Kougachuk Creek	Deploy passive recovery booms as required to maximize interception of oil before it impacts sensitive areas	Deering	Via marine waters Chart 16005	Same as N-22-01	Vessel master should have local knowledge. Use extreme caution, shoal waters
N-22-03 EX	Nugnugluktuk River & Kougachuk Creek Nearshore waters in the general area	Exclusion Booming	Deploy exclusion booms upwind and up current of Nugnugluktuk River & Kougachuk Creek	Deploy exclusion booms as required to maximize interception of oil before it impacts sensitive areas	Deering	Via marine waters Chart 16005	Same as N-22-01	Vessel master should have local knowledge. Use extreme caution, shoal waters

Site Information for Northwest Arctic, NWA-N22

Identify

Geographic Res

gid	subarea	name
22	Northwest Arctic	NWA-N22



Map Legend

- FO-S** Free-oil Recovery
- PR** Passive Recovery
- EX** Exclusion Booming
- Protected-water Boom
- Snare or Sorbent Boom
- Bears in Area, Guards Recommended

Nugnugluktuk River & Kougachuk Creek, NWA-N22

Center of map at 66° 13'20" N Lat., 163° 54'23" W Lon.



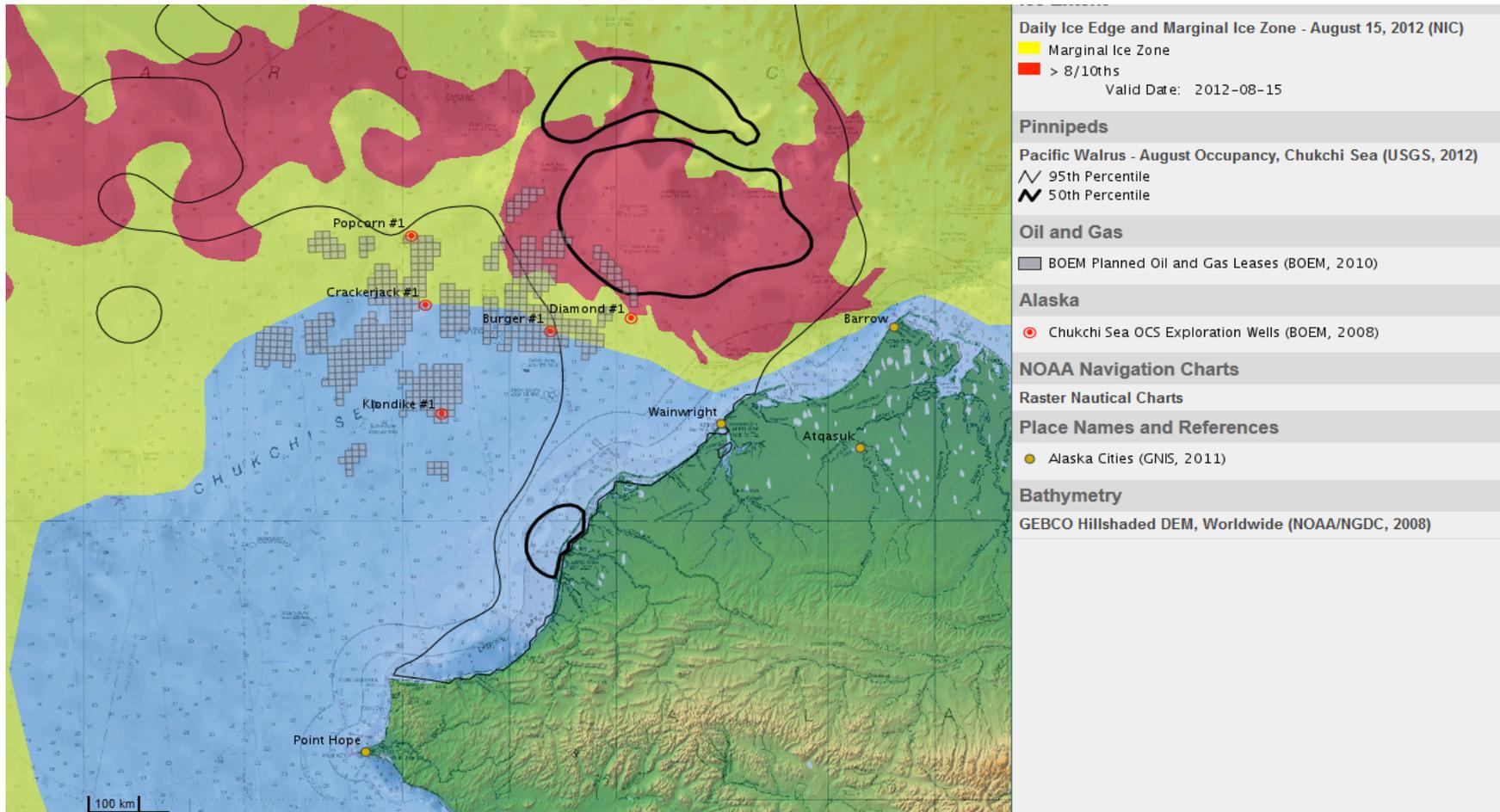
Geographic Response Strategies for Northwest Arctic Subarea, Northern Zone

Aerial photography of this area is unavailable at this time, but may be included as it becomes available.

This is not intended for navigational use.



Resources at Risk: Pacific Walrus Occupancy





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Identify

Alaska ShoreZone North Slope Imagery					
Tape Number	Datetime	Video Link	Photo Link	Latitude	Longitude
A106AK_01	20060807223053	Play Video	No Photo Available	70.309291	-148.407174

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ShoreZone

- Alaska ShoreZone Photos



(GDC, 2008)

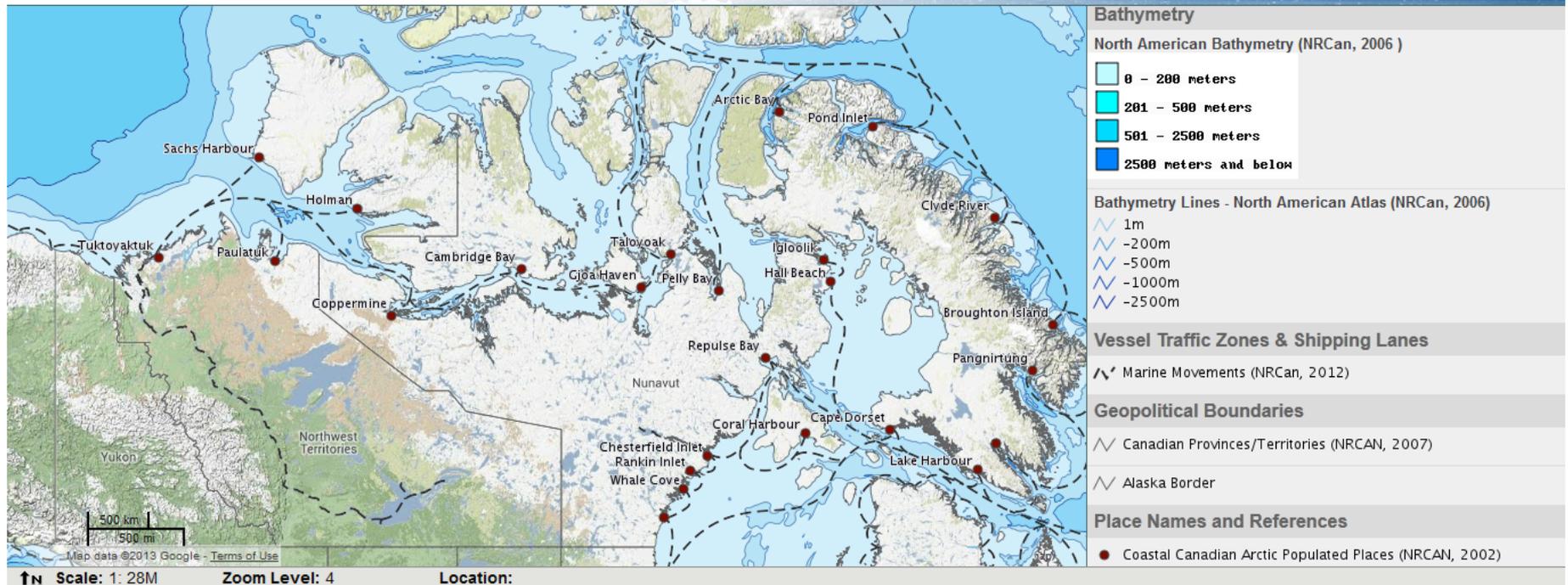
500 km

500 m



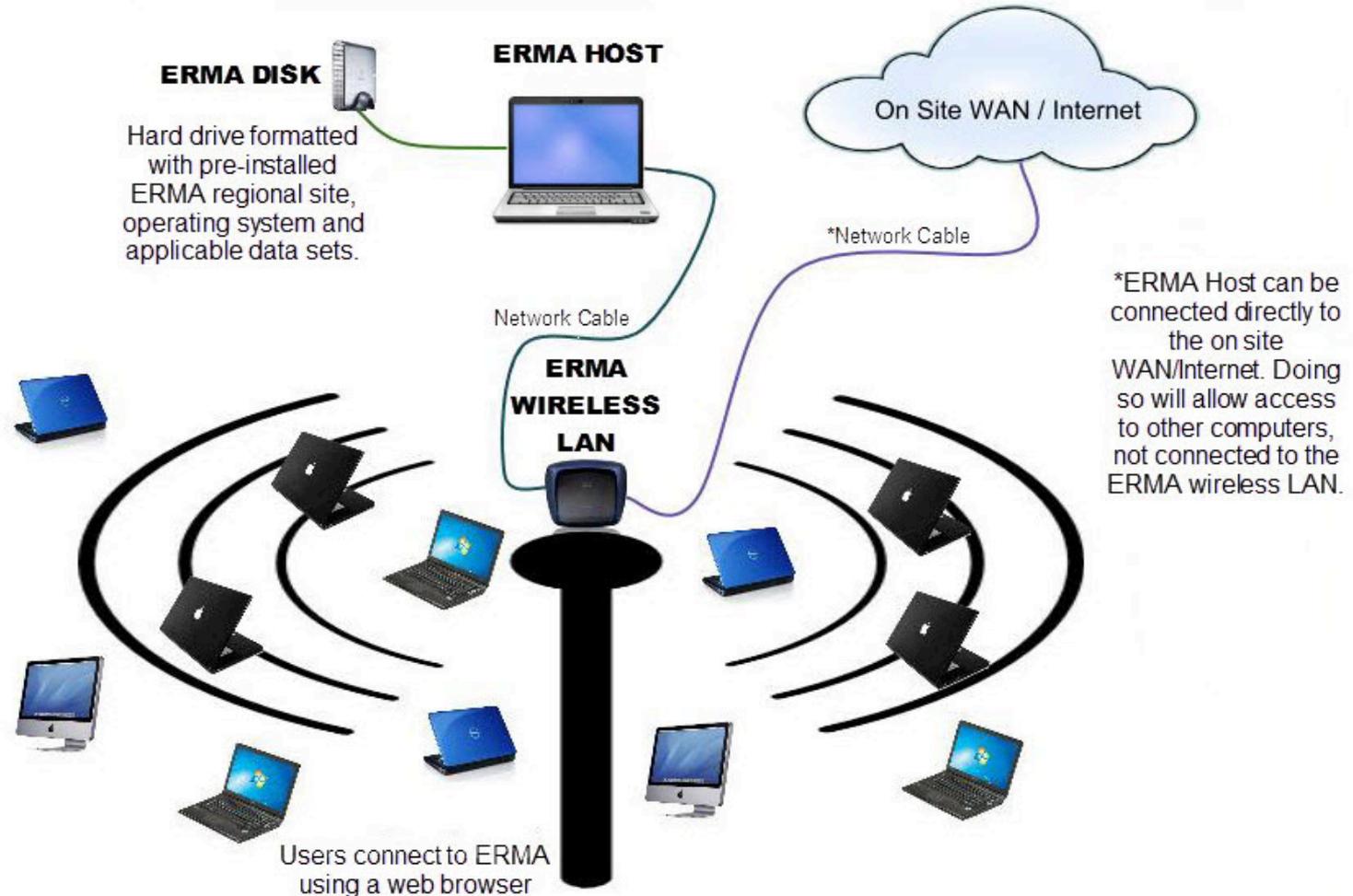
Canadian Data (NRCan)

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Standalone ERMA





Unmanned Aerial Systems

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PUMA UAS

Puma Flightpath 19-Aug-2014 1800hrs

Puma Flightpath 19-Aug-2014 1800hrs

Puma Overflight Photos 19-Aug-2014 - High Resolution



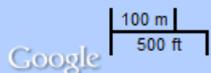
Puma Overflight Photos 19-Aug-2014 (Re-Processed)



Arctic Shield 2014 Alaska at 73.967711 - ...



Arctic Shield 2014 Alaska at 73.967711 -155.0560611



Map data ©2014

↑N Scale: 1 : 7503 Zoom Level: 14 Location: 73.96932°,-155.05536°



Next Steps for Arctic ERMA

- Remote Support for Arctic Shield 2015
- Continue work integration UAS output with ERMA
- Continuing discussing best practices for data sharing with partners
 - Direct applicability to Arctic ERMA data sets.
 - Continue test sharing of data among Canadian, ERMA, and Shell mapping systems
- Perform Test case with Arctic Spatial Data Infrastructure (SDI) connections
- Work with USCG to integrate ERMA into the Arctic Council Exercises under the U.S. Chairmanship (2015-2017)



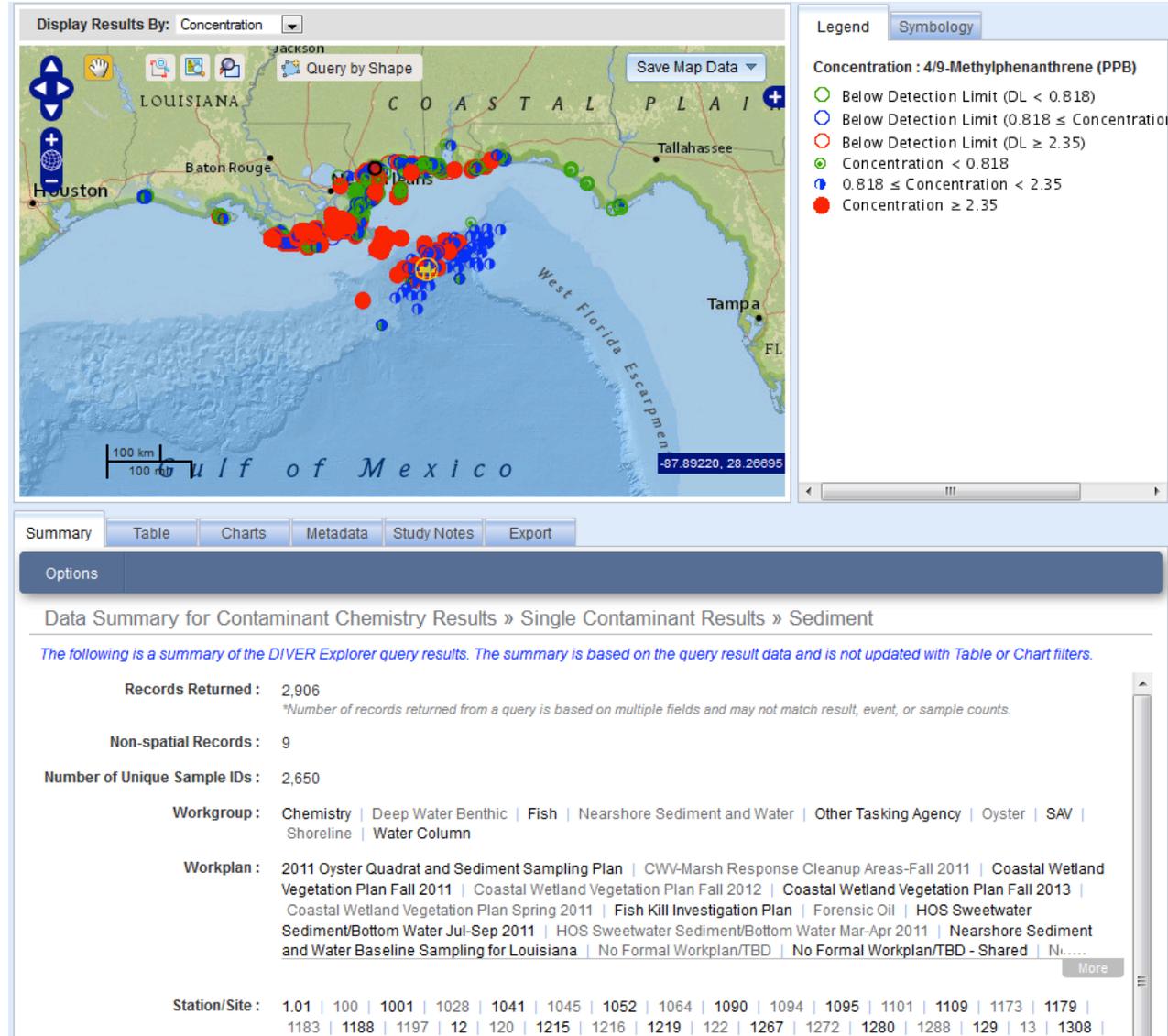


Data Warehouse: DIVER

DWH required the tracking and collection of vast amounts of field data

DIVER (Data Integration Visualization Exploration and Reporting) was developed for the express purpose of aggregating and standardizing field data to be searchable, viewable and translatable

A national DIVER application is being developed out of the framework developed for DWH, so that the same data collection and archiving solution that provided invaluable for DWH can be used in other regions.





All-Hazards use as NOAA's Geo COP

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Query Tools

Step 1: Create and Edit Shapes:

Create shapes by selecting the Create Polygon button. Draw it on the map by left clicking your mouse. **double click OR press any key to end drawing.**

[Create Polygon](#) [Delete Selected](#) [Delete All](#)

Step 2: Select a Query Tool:

Please select at least one shape to run the query tools. Select with left mouse click, multiple selects hold down shift, remove select hold down control. (Blue polygons are selected, yellow are unselected.)

ERMA Layer Query by Polygon tool

Select all features that touch these polygons (intersect)
 Select only features COMPLETELY inside these polygons (contains)

[Run ERMA Query By Shape](#)

The query by shape tool allows queries against all currently enabled ERMA hosted layers (**layers externally hosted are not supported by this tool.**)

NOAA ESI Query tool

[Run ESI Query](#)

Scale: 1 : 48M Zoom Level: 3 Location: 16.32175°, 148.10519°

noaa_staff	fac_code	lo_staff	zip_code	cnty_code	st_code	facility	address	buildi
<input type="text" value="Search noaa"/>	<input type="text" value="Search fac_"/>	<input type="text" value="Search lo_staff"/>	<input type="text" value="Search zip"/>	<input type="text" value="Search cnty_"/>	<input type="text" value="Search st"/>	<input type="text" value="Search facility"/>	<input type="text" value="Search add"/>	<input type="text" value="Search"/>
126	fac_709 W 9th Street	NMFS(114),USEC(12)	zip_99801	cnty_AK Juneau	st_AK	fac_FRPM_AK0013ZZ_NSD_1538	709 W 9th Street	
90	fac_17109 Pt Lena Loop Road	NMFS(90)	zip_99801	cnty_AK Juneau	st_AK	fac_FRPM_14000969_NSD_2425	17109 Pt Lena Loop Road	
	fac_8500						8500	



Thank You

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<http://response.restoration.noaa.gov/arctic>
<http://erma.noaa.gov>

