Alaska Natural Resource Governance & Spill Response

Rutgers University Arctic Studio
E.J. Bloustein School of Planning & Public Policy
New Brunswick, NJ

Presenting:
Prof. Hal Salzman
Ronit Anspach, Matt Campo

Team Members:
Susannah Dyen, Tim Shek, Dori Nguyen,
Warren Berry, Jennifer Pastore, Margaret Ricke,
Emily Blackman, Lauren Willis

Presented at:
Congressional Briefing
U.S. House Committees on Education & the Workforce; Natural Resources
Washington, D.C.
28 June 2012

Supported, in part, by the E.J. Bloustein School of Planning and Public Policy and the National Science Foundation, Office of Polar Programs; Program Officer: Dr. Anna Kerttula.
The work presented here draws, in part, on research supported by an International Polar Year grant from the National Science Foundation, Arctic Social Science Program/Office of Polar Programs (Grant #0732973; PI: Hal Salzman; HSalzman@Rutgers.edu)

RUTGERS
Edward J. Bloustein School of Planning and Public Policy

Introduction

Source: Tim Shek

RUTGERS
Edward J. Bloustein School
of Planning and Public Policy

Clients

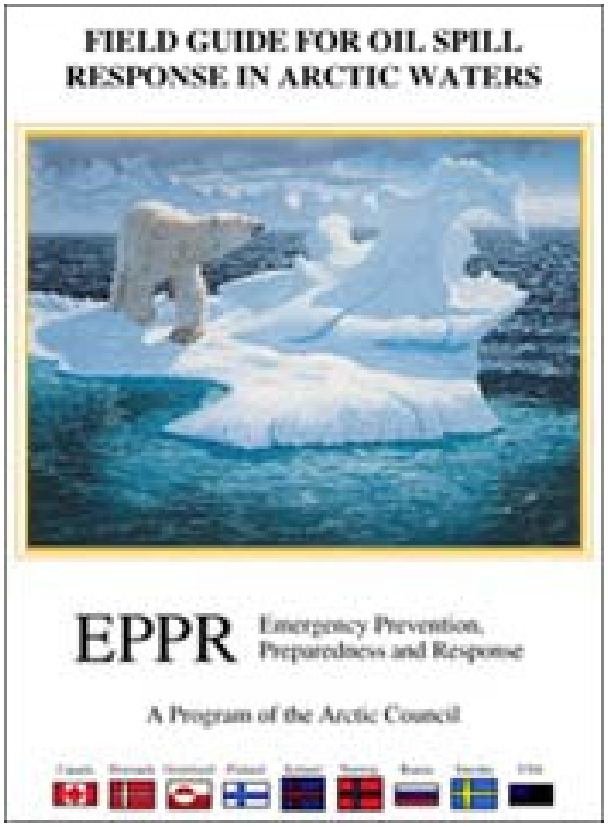
- United Nations University, Traditional Knowledge Institute (UNUTKI)
  - Objectives: report on natural resource management governance
  - Purpose: comparative study of governance; international networks of knowledge for other native communities

- Center for Disease Control (CDC), National Institute for Occupational Safety & Health (NIOSH)
  - Objectives: map and study marine incidents
  - Purpose: increase preparedness; assess responder risks

RUTGERS
Edward J. Bloustein School of Planning and Public Policy

Spill Mapping Project

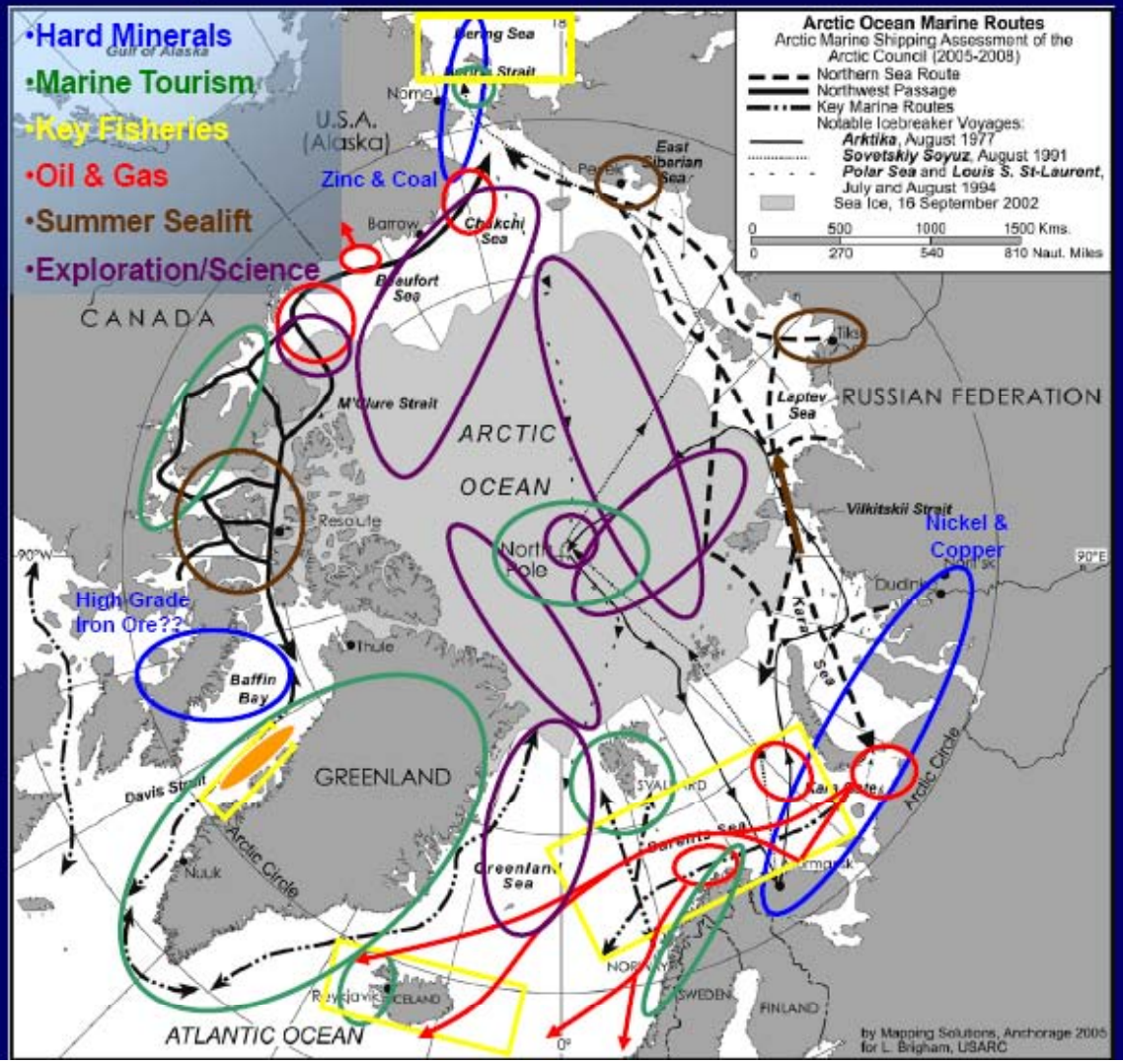
- Analysis to support:
  - Improved regional operational capabilities
  - Protection for Arctic oil spill response workers
  - Addressing gaps in knowledge and control of the unique hazards in the Arctic
- Supplement to the Arctic Council's *"Field Guide for Oil Spill Response in Arctic Waters"*



Source: Conway, G., "Preventing Morbidity and Mortality among Arctic Oil Spill Response Workers Proposal for EPPR consideration" Oslo. October 21, 2011.

RUTGERS
Edward J. Bloustein School of Planning and Public Policy

Today's Arctic Commercial Marine Use



Source: Brigham, Lawson W. "The New Maritime Arctic: Global Connections, Uncertainties & Wildcards ." *Marine Board 2011 Fall Meeting - Anchorage, Alaska - September 6 - 9, 2011*: Transportation Research Board. Washington, D.C. 2011. (http://onlinepubs.trb.org/onlinepubs/mb/2011Fall/ppt/presentations.pdf)

RUTGERS
Edward J. Bloustein School of Planning and Public Policy

Our project

Changing high-arctic conditions:

- Increased marine traffic
- Offshore oil production

Incident analysis in Alaska Arctic & sub-Arctic:

- Spills
- Response analysis
- Implications for responder risk

Research Questions:

1. What are potential impacts of increased marine traffic as well as oil production on spill risk, response, and the current residents?

2. What can we learn from previous experiences in Alaska for high-latitude Arctic?

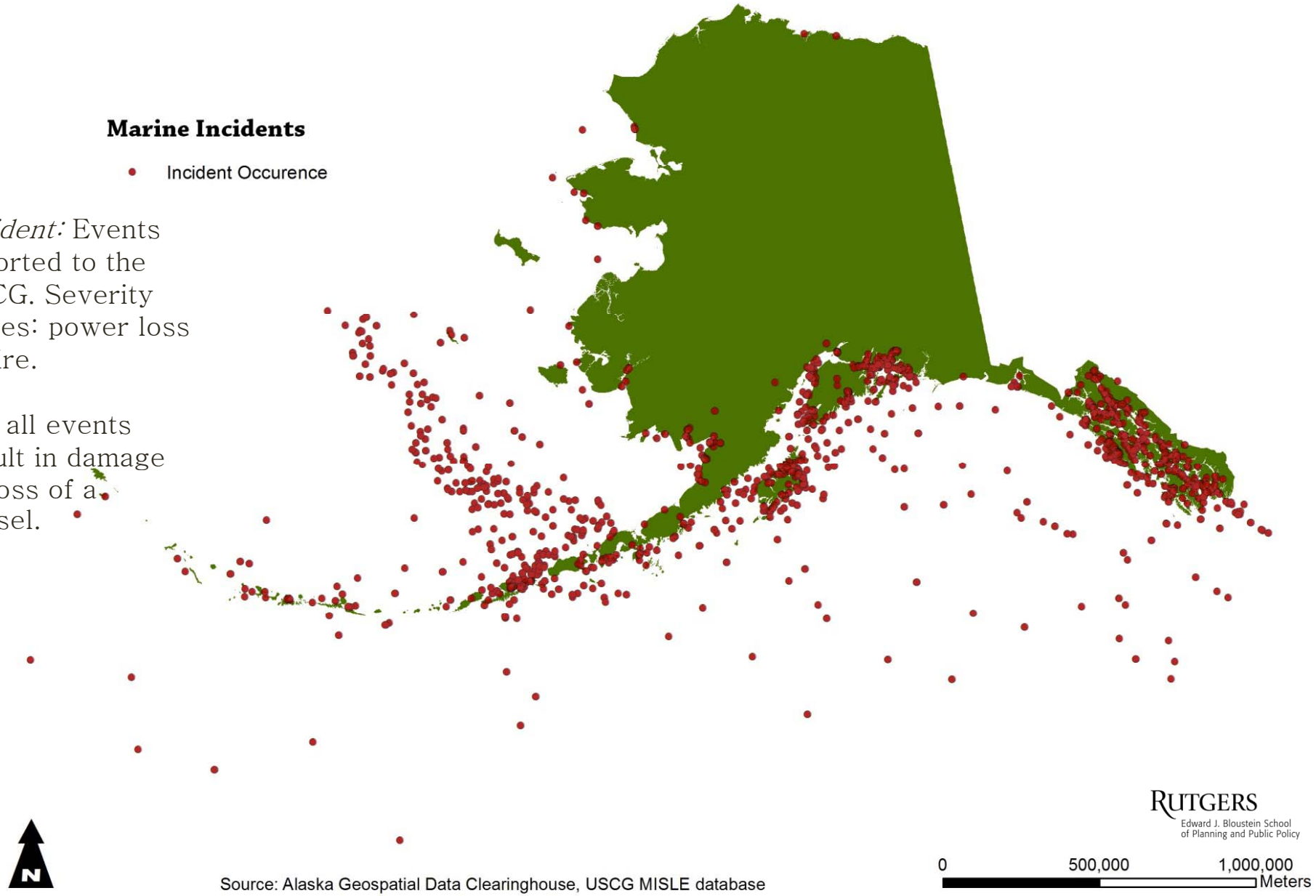
RUTGERS
Edward J. Bloustein School
of Planning and Public Policy

A couple of weeks ago…

Source: Alaska Department of Environmental Conservation. *M/V Monterrey* Grounding. (http://dec.alaska.gov/spar/perp/response/sum_fy12/120608201/120608201_index.htm)

RUTGERS
Edward J. Bloustein School
of Planning and Public Policy

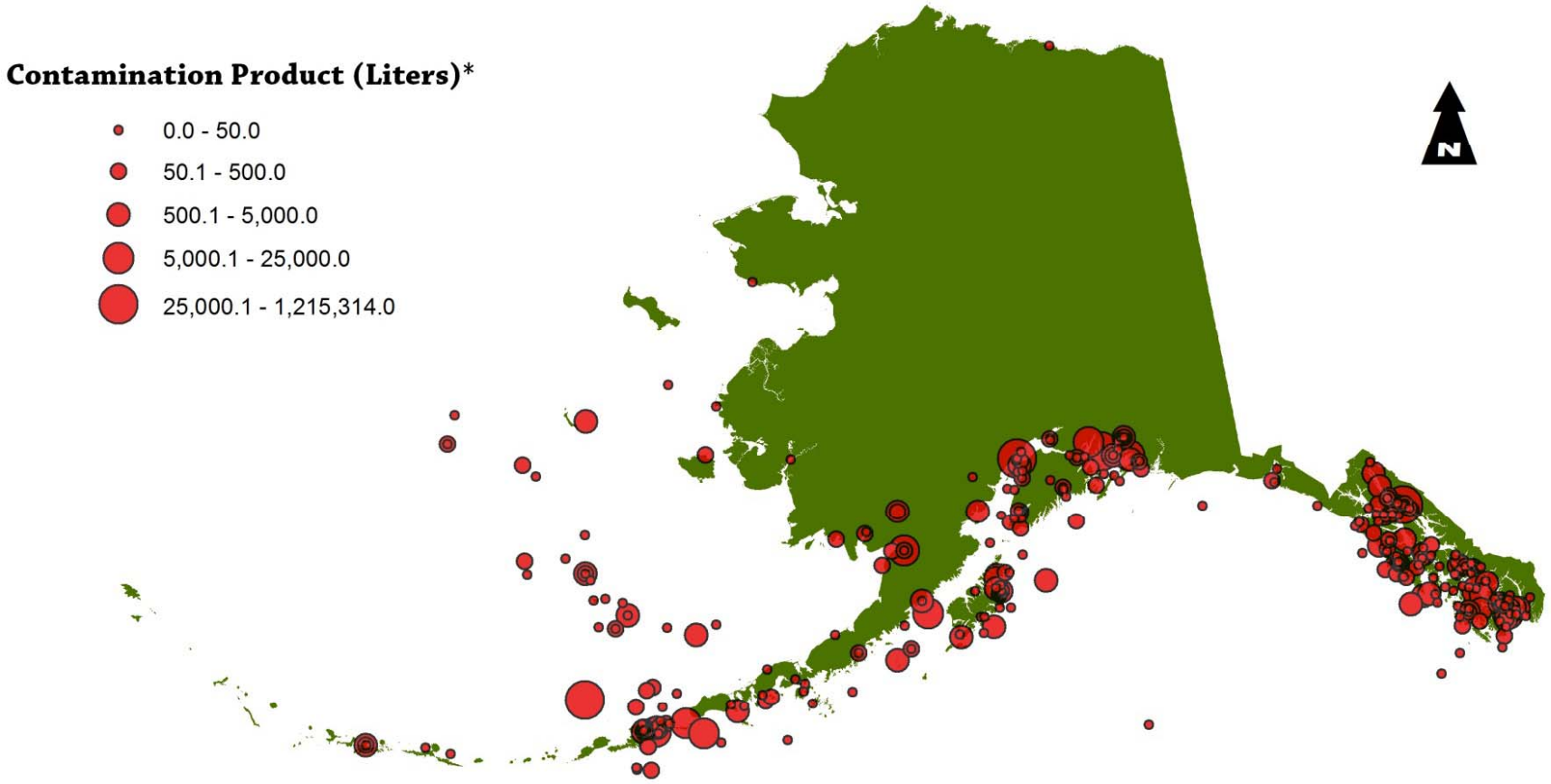
A Decade of Reported Incidents



Incident: Events reported to the USCG. Severity varies: power loss to fire.

Not all events result in damage or loss of a vessel.

Incidents with Spills of Hazardous Materials



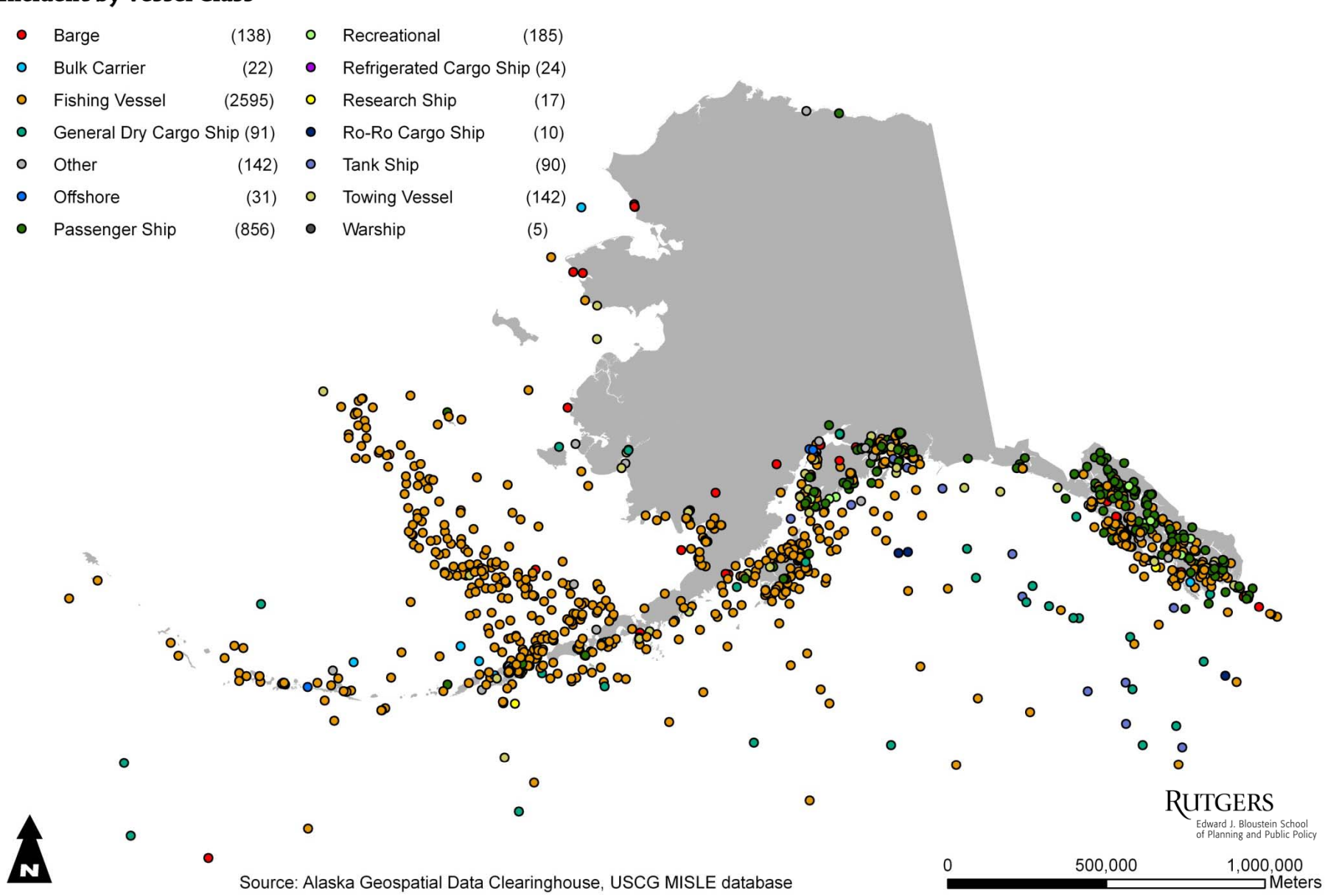
* Products spilled include, and often in combination: diesel oil, motor oil, No 2 fuel, No 4 fuel, lubricating, ethylene glycol, bilge oil, bilge waste, bilge waste oil, bilge stop oil, produced water, Jet fuel, hydraulic fluid, automotive gasoline (unleaded), etc.

Source: Alaska Geospatial Data Clearinghouse, USCG MISLE database

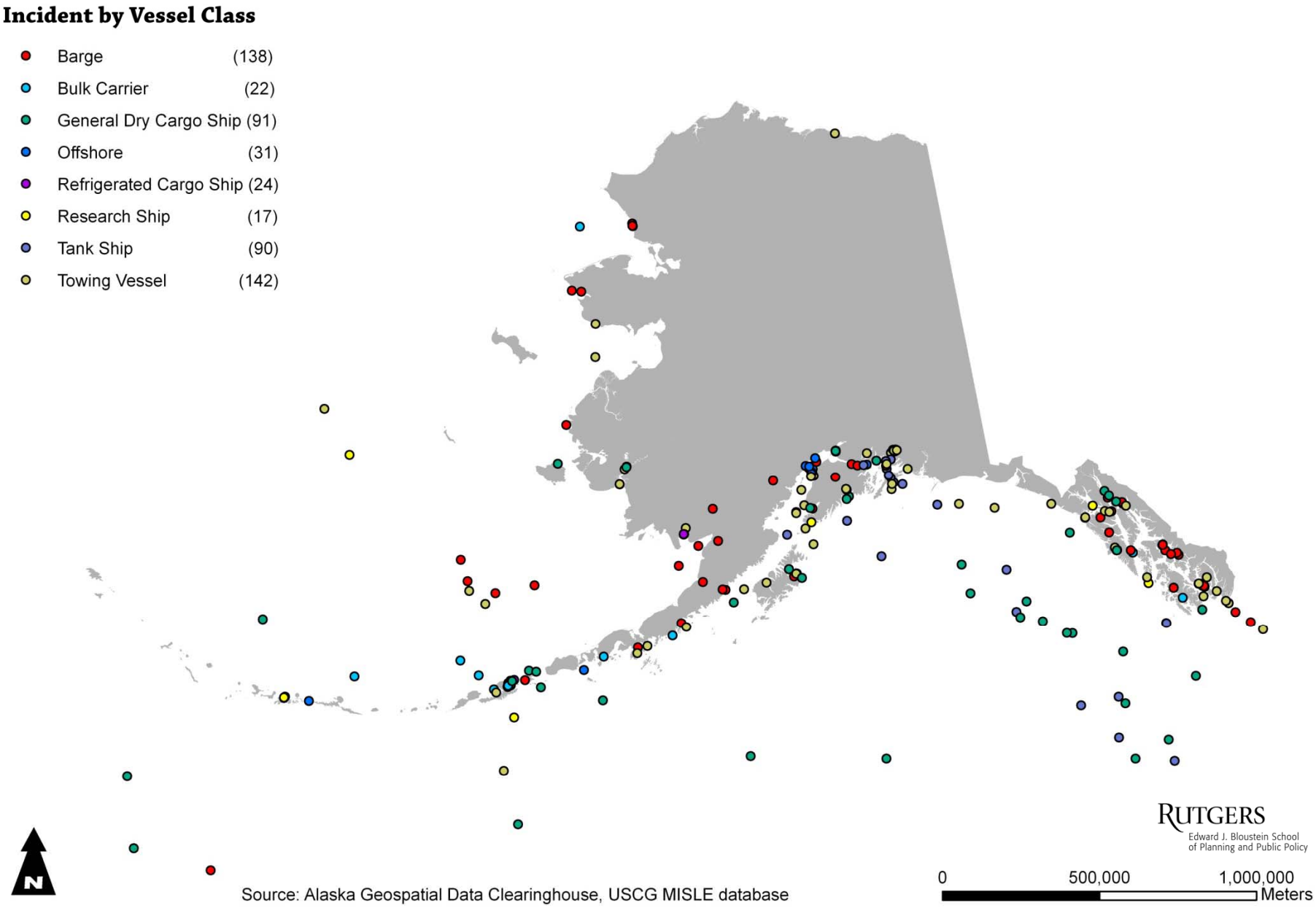
RUTGERS
Edward J. Bloustein School of Planning and Public Policy

0 500,000 1,000,000 Meters

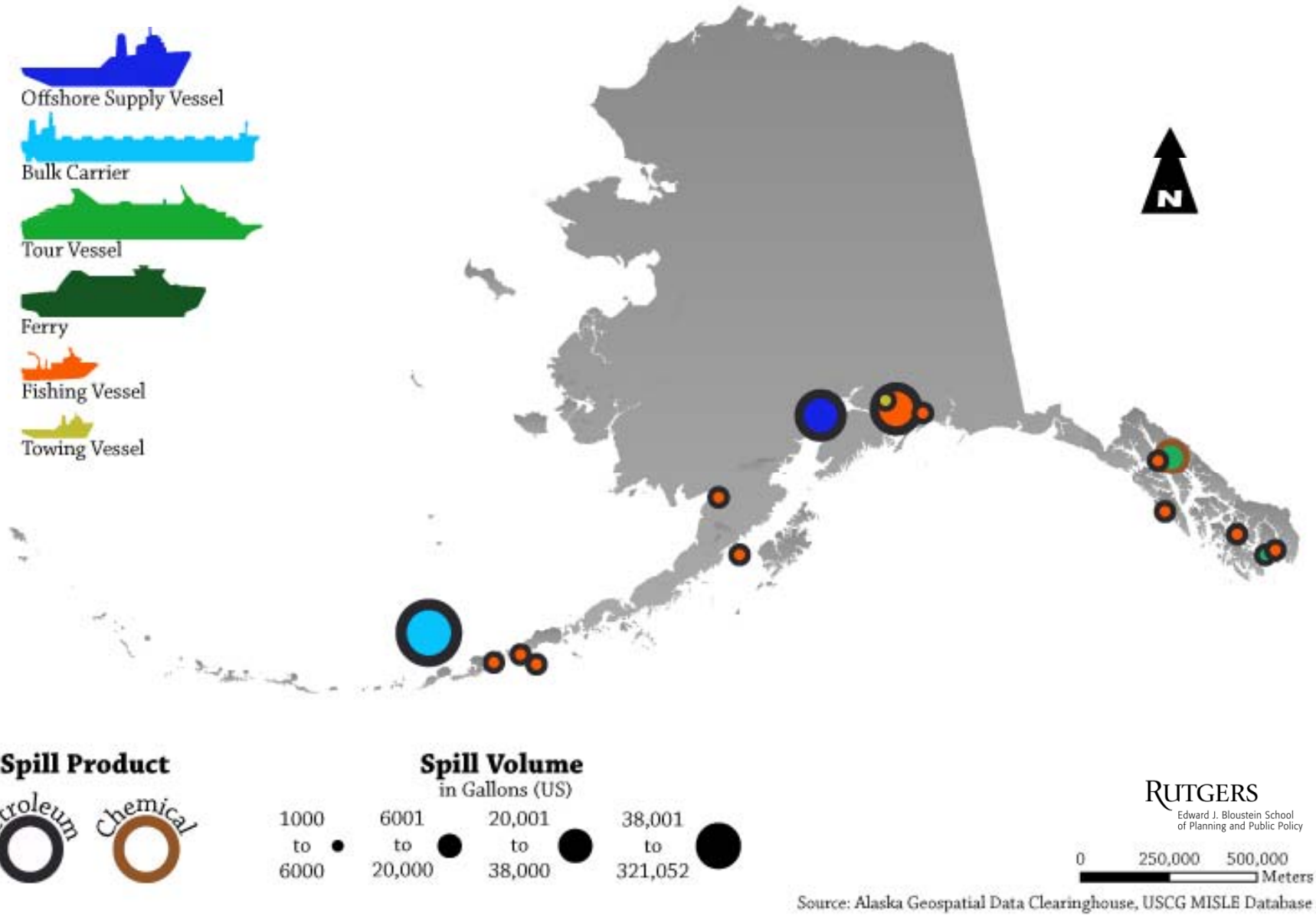
Incidents by Vessel Type: High Incidence – Fishing and Passenger Vessels



Incidents by Vessel Type: Commercial Vessel Incidents

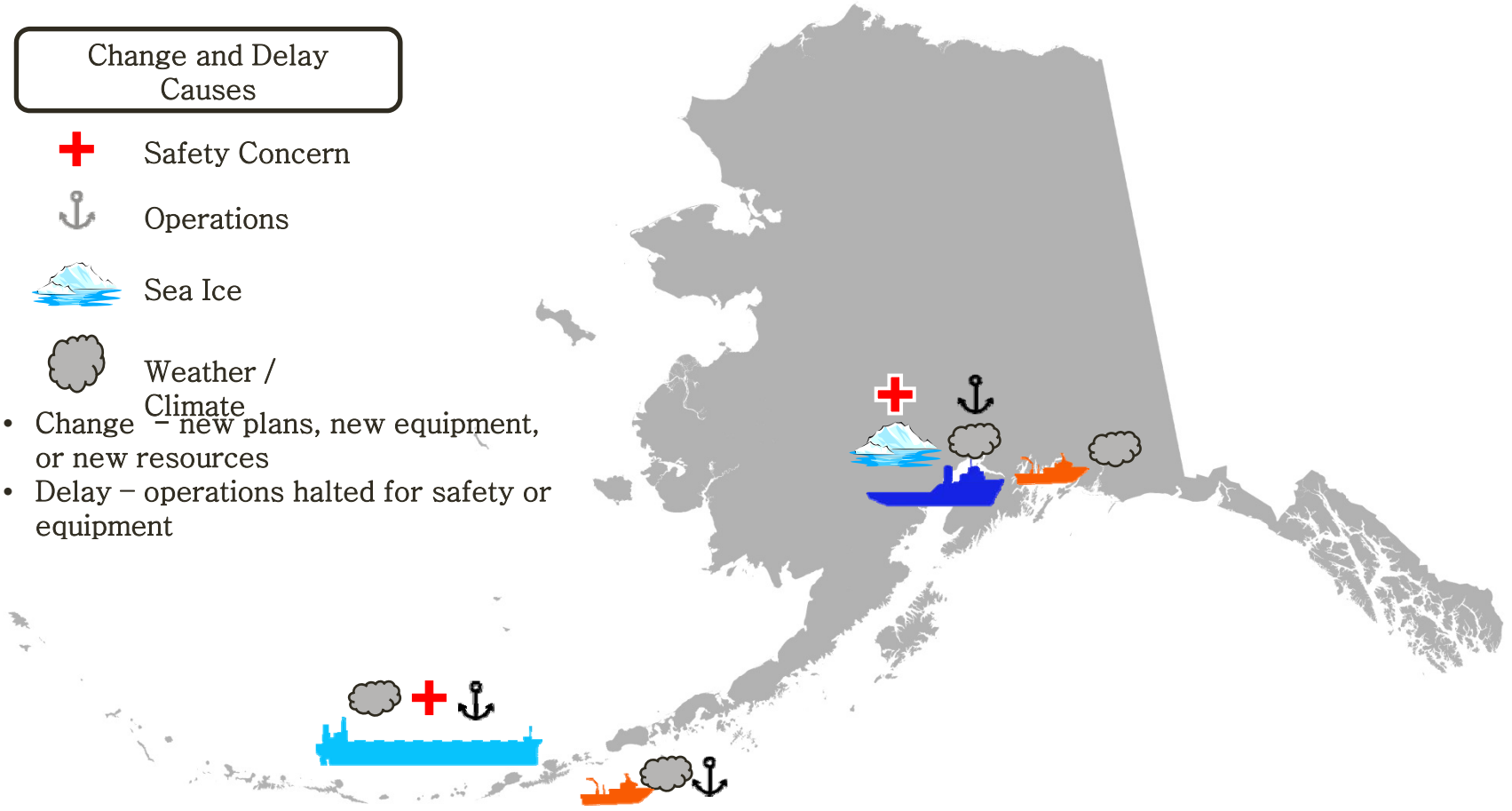


Spills by Volume and Vessel type



Source: Alaska Geospatial Data Clearinghouse, USCG MISLE Database

Response Changes and Delays Occur Often...
even when well prepared



Four incidents for us to consider:

M/V Selendang Ayu (Bulk Carrier)

M/V Monarch (Offshore Service Vessel)

F/V Icy Mist (Fishing Vessel)

F/V Nordic Viking (Fishing Vessel)

RUTGERS
Edward J. Bloustein School of Planning and Public Policy

N

Source: Alaska Geospatial Data Clearinghouse, USCG MISLE database

0 500,000 1,000,000 Meters

Incidents with Change and Delay

Icy Mist (Fishing Vessel): Remote and Inaccessible spills

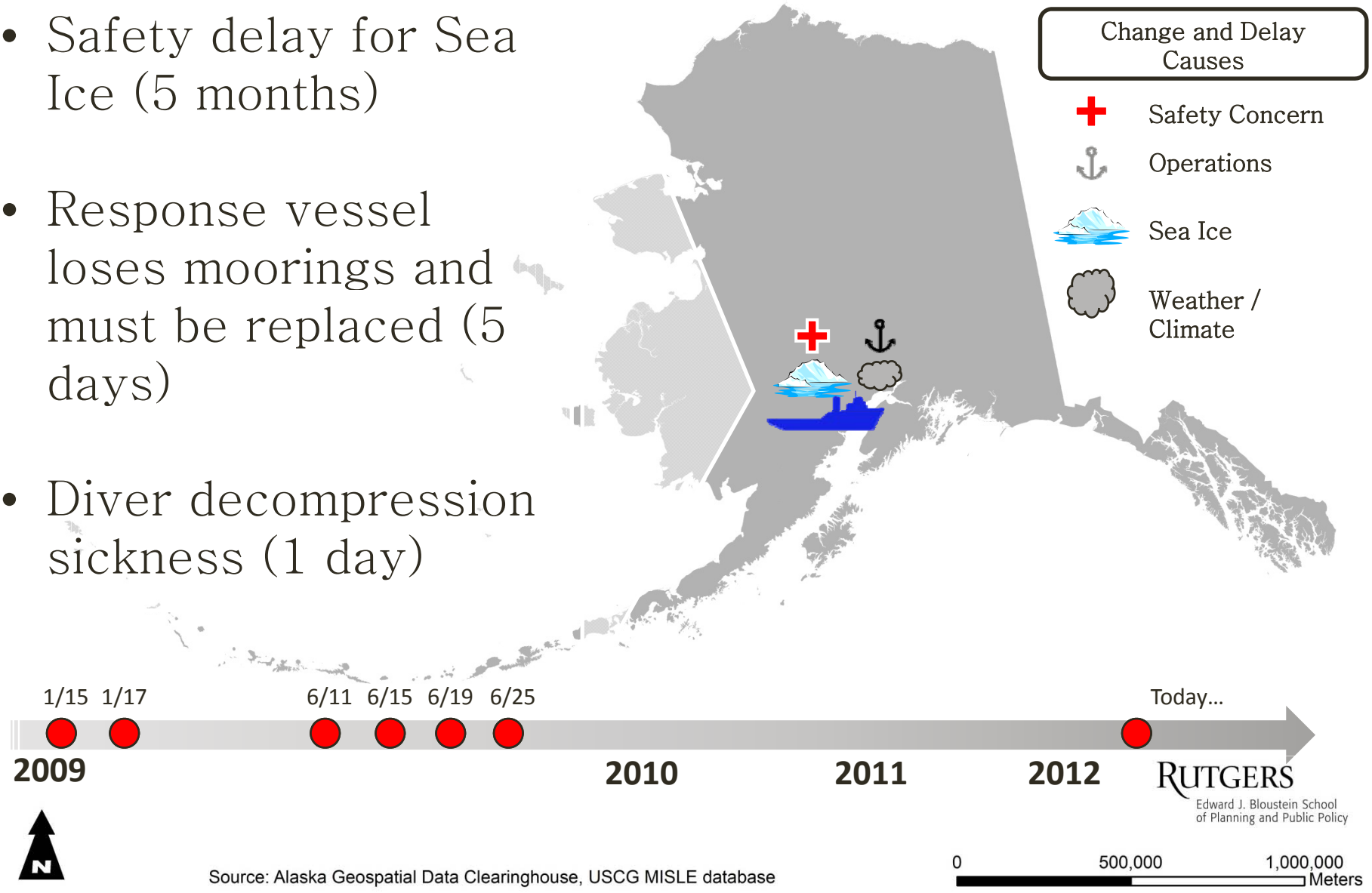
Selendang Ayu (Bulk Carrier—soybeans): Fine line between "incident" and disaster – non-hazmat cargo release

Nordic Viking (Fishing Vessel): Poor weather conditions impact on response & spill risk

Source: Alaska Department of Environmental Conservation. *Response Updates and Summaries*. (http://dec.alaska.gov/spar/perp/response/sr_active.htm)

MONARCH RESPONSE PLAN CHANGES

- Safety delay for Sea Ice (5 months)
- Response vessel loses moorings and must be replaced (5 days)
- Diver decompression sickness (1 day)

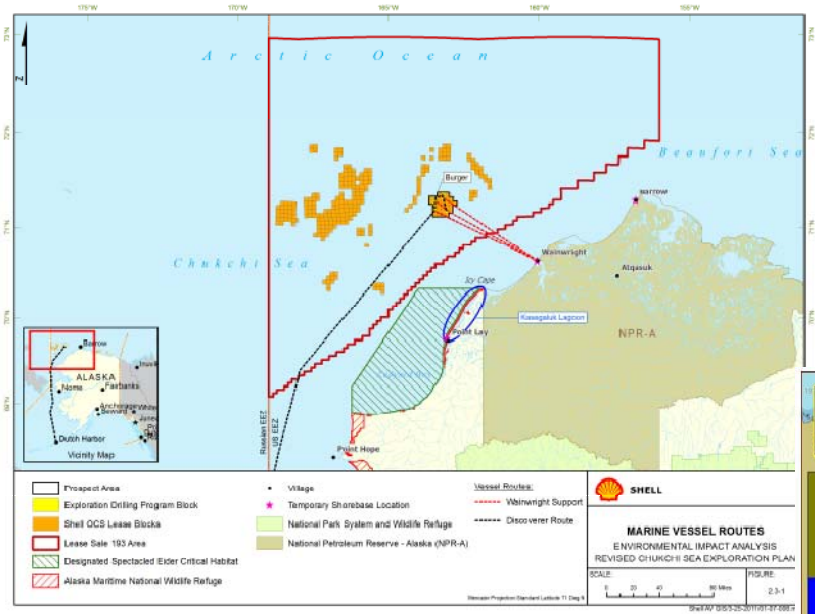


Key Takeaways

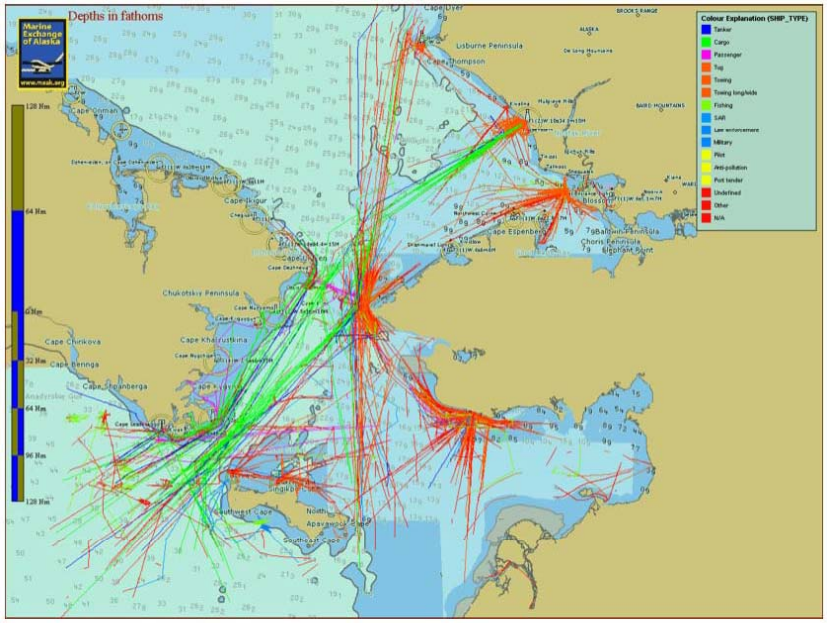
- Risk results from both production ***and*** transportation
  - Transportation — High incidence, typically low-to-moderate impact
  - Production—(historically) Low incidence, high impact
- Response plans typically go awry—Factors include:
  - Weather (temperature, waves, visibility, wind)
  - Changes in vessel condition products, and cargo
- Response focus on equipment, oil recovery

RUTGERS
Edward J. Bloustein School
of Planning and Public Policy

Increasing Complexity

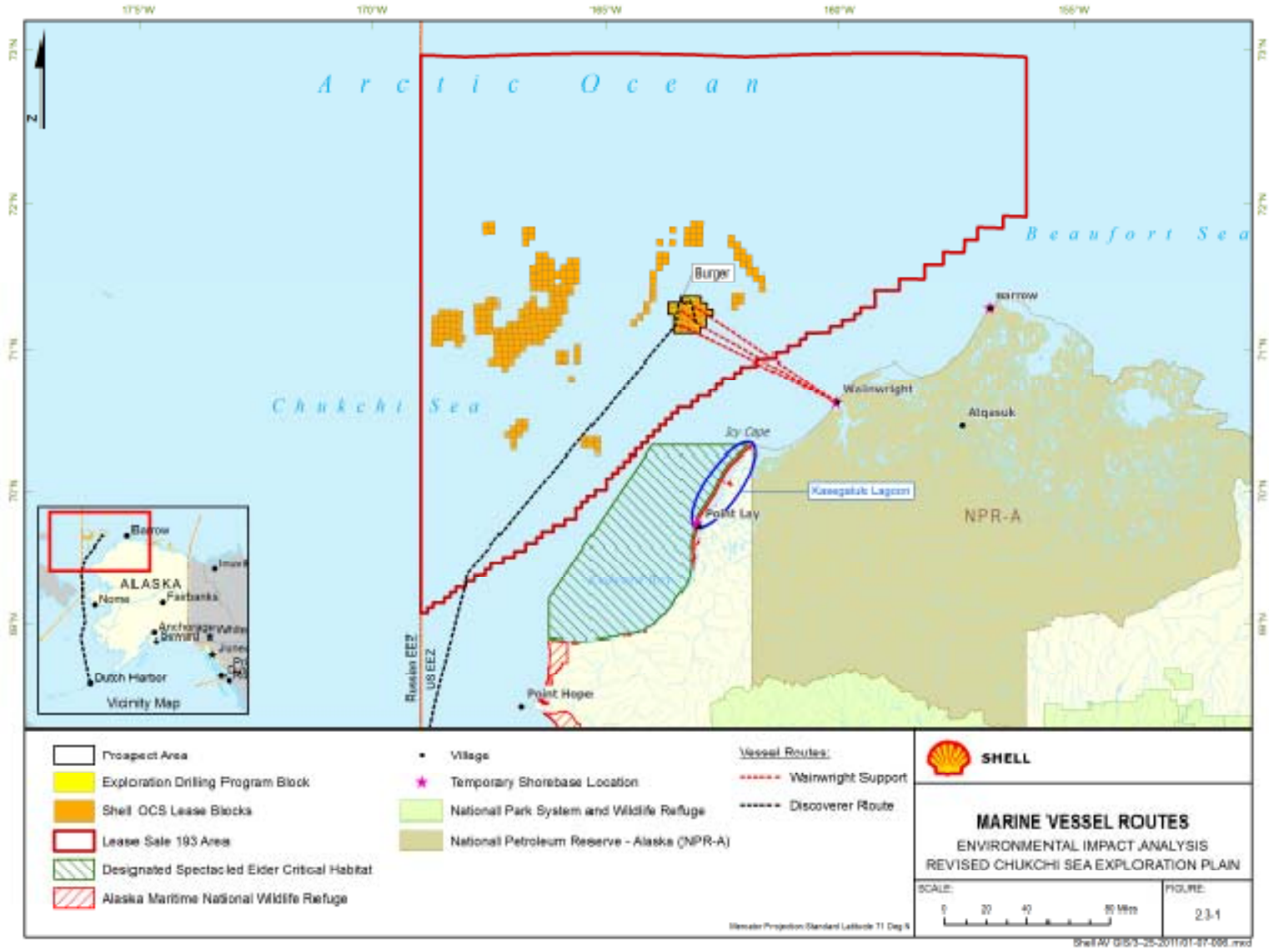


Source: Shell Gulf of Mexico Inc. "Environmental Impact Analysis, Revised Chukchi Sea Exploration Plan, OCS Lease Sale 193, Chukchi Sea, Alaska - Burger Prospect: Posey Blocks 6714, 6762, 6764, 6812, 6912, and 6915". May 2011. (http://www.boem.gov/uploadedFiles/BOEM/Oil_and_Gas_Energy_Program/Plans/Regional_Plans/Alaska_Exploration_Plans/2012_Shell_Chukchi_EP/AppendixF-EIA.pdf)

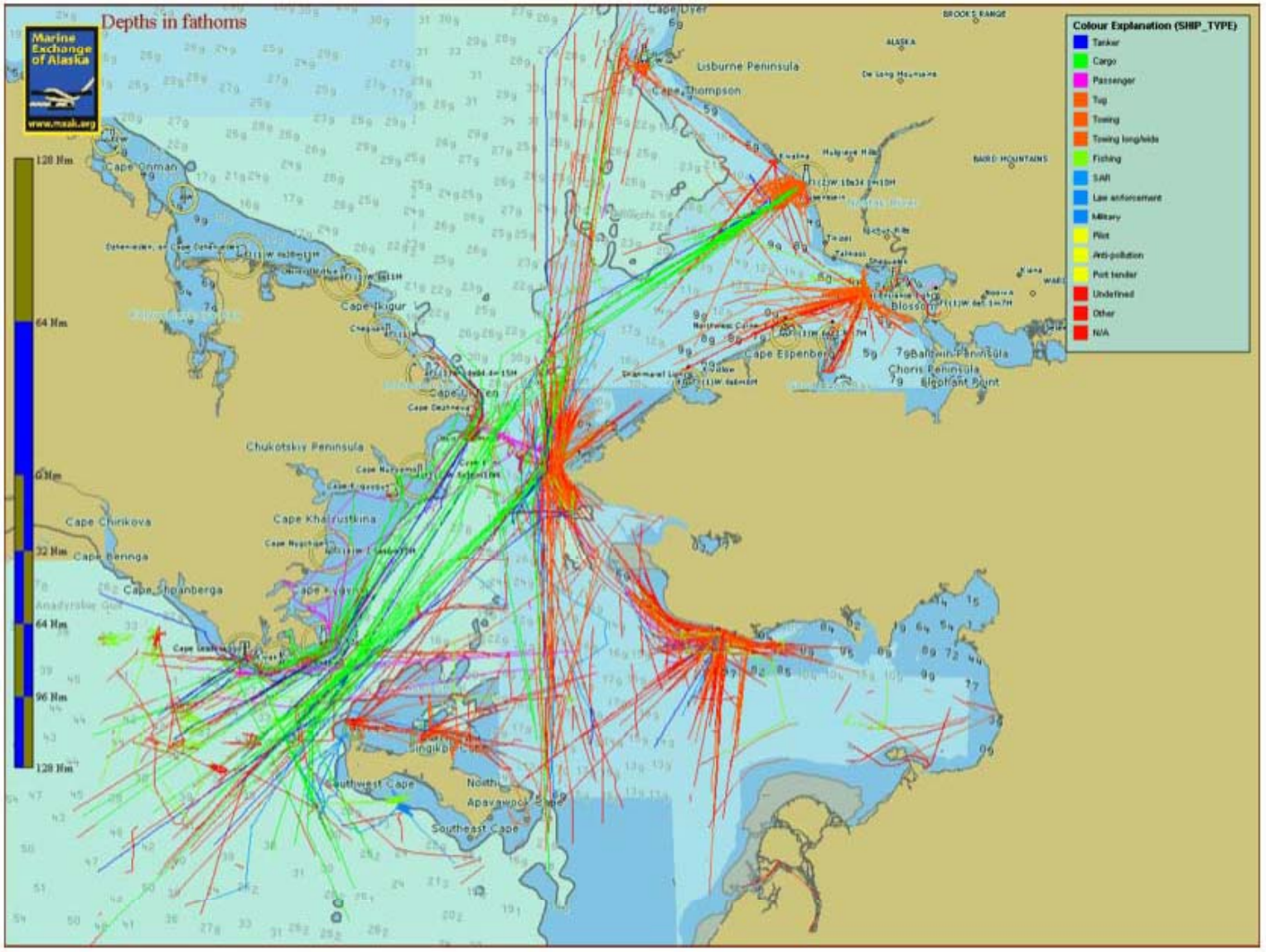


Source: Page, Edward. "Maritime Commerce in a Changing Arctic: Briefing to Transportation Research Board of the National Academy of Sciences." *Marine Board 2011 Fall Meeting - Anchorage, Alaska - September 6 - 9, 2011*: Transportation Research Board. Washington, D.C. 2011. (http://onlinepubs.trb.org/onlinepubs/mb/2011Fall/ppt/presentations.pdf)

RUTGERS
Edward J. Bloustein School of Planning and Public Policy



Source: Shell Gulf of Mexico Inc. "Environmental Impact Analysis, Revised Chukchi Sea Exploration Plan, OCS Lease Sale 193, Chukchi Sea, Alaska - Burger Prospect: Posey Blocks 6714, 6762, 6764, 6812, 6912, and 6915". May 2011.
(http://www.boem.gov/uploadedFiles/BOEM/Oil_and_Gas_Energy_Program/Plans/Regional_Plans/Alaska_Exploration_Plans/2012_Shell_Chukchi_EP/AppendixF-EIA.pdf)



Source: Page, Edward. "Maritime Commerce in a Changing Arctic: Briefing to Transportation Research Board of the National Academy of Sciences." *Marine Board 2011 Fall Meeting - Anchorage, Alaska - September 6 - 9, 2011*: Transportation Research Board. Washington, D.C. 2011. (http://onlinepubs.trb.org/onlinepubs/mb/2011Fall/ppt/presentations.pdf)

RUTGERS
Edward J. Bloustein School of Planning and Public Policy

Findings for discussion

- Flexibility or redundancy (for response plan changes)
- More focus needed on human health safety
- What's not currently covered in the data?
- Production vs. Transportation
- Immediate response vs. long-term clean-up
- Implications for the community?
  - Land based support – material, personnel, transportation

RUTGERS
Edward J. Bloustein School of Planning and Public Policy