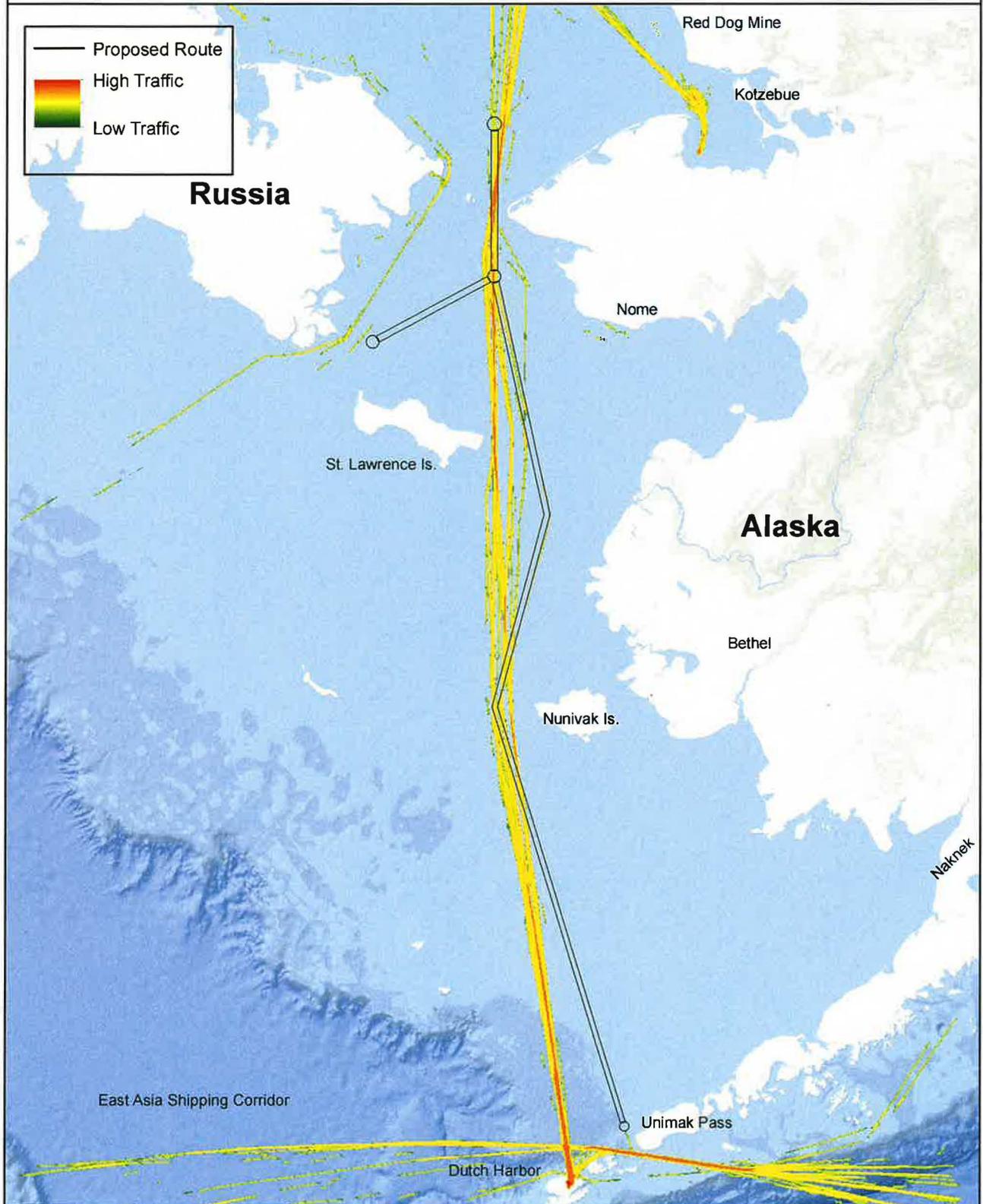
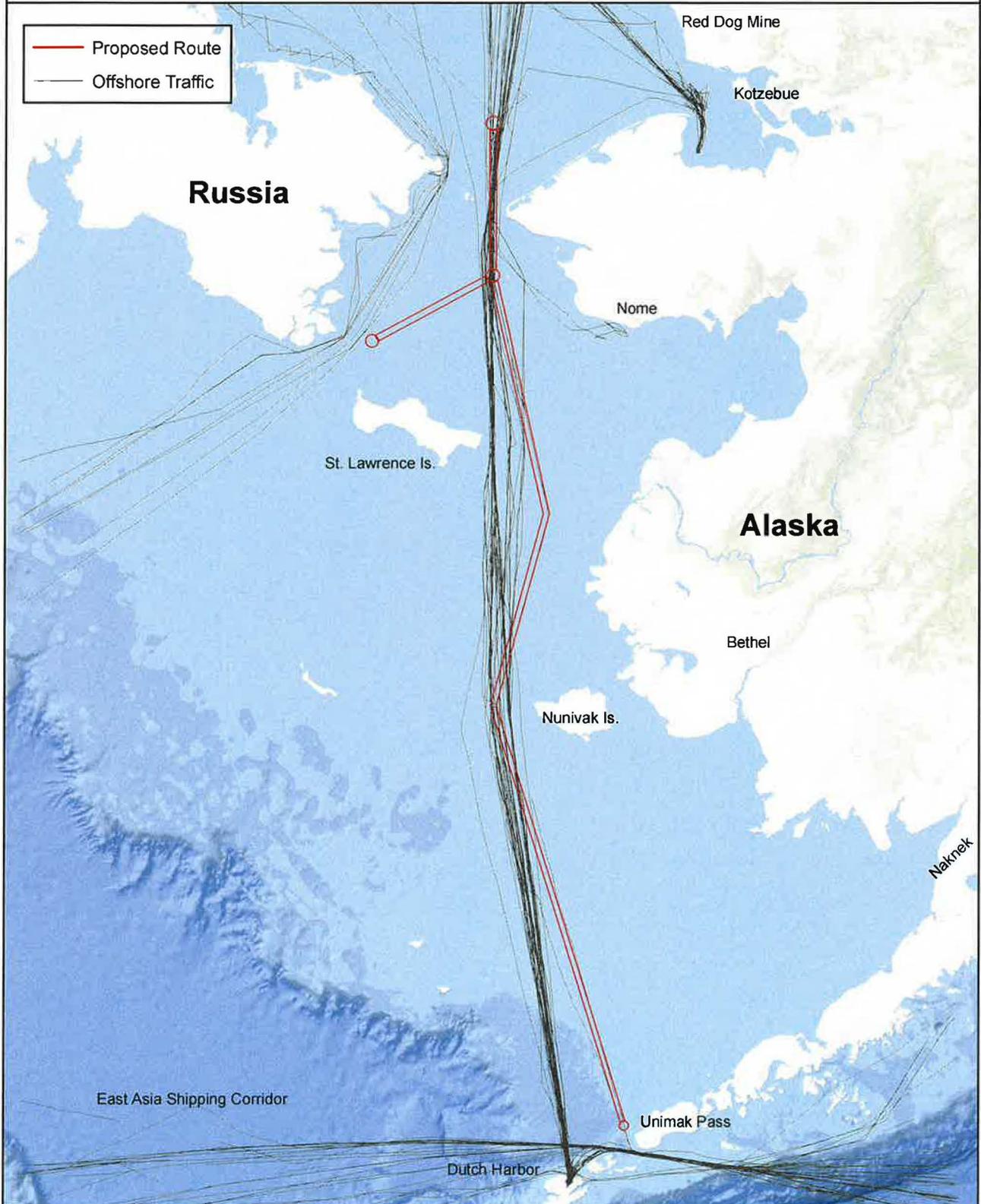


Offshore Vessels All Tonnage 2014 - 2015



Offshore Vessels All Tonnage 2014 - 2015



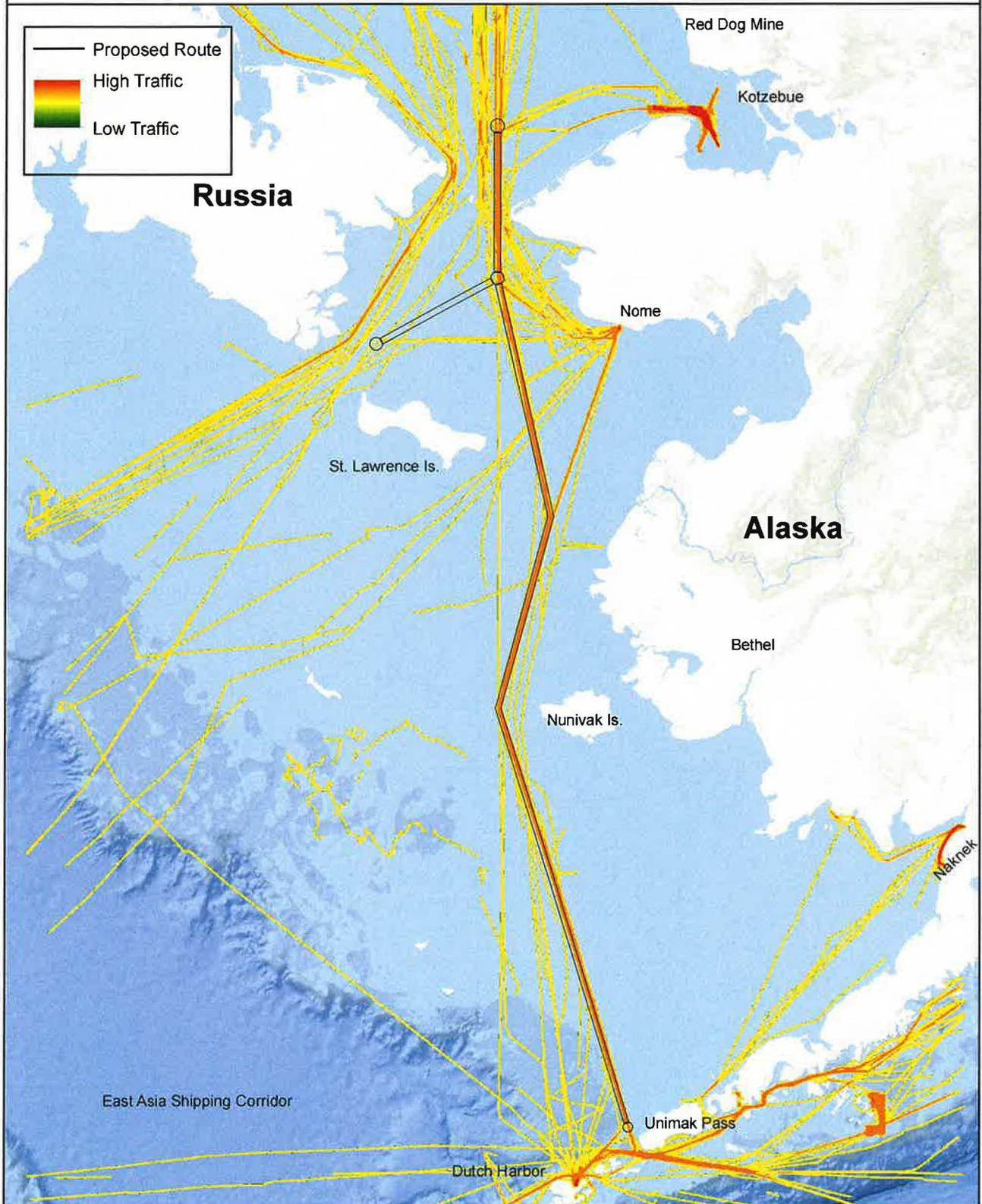
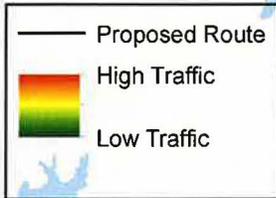
Research Vessels and Icebreaker Traffic

Research and Icebreaking vessels regularly operate in the Bering Sea and above the Bering Strait. Due to the nature of their work, these vessels have irregular traffic patterns that are highly variable. There are times however, when their transit does correlate with the proposed routing measures and they would be well suited to follow the recommended route thereby allowing them to follow a well surveyed transit route, increase their distance from shore and avoid environmentally sensitive areas.

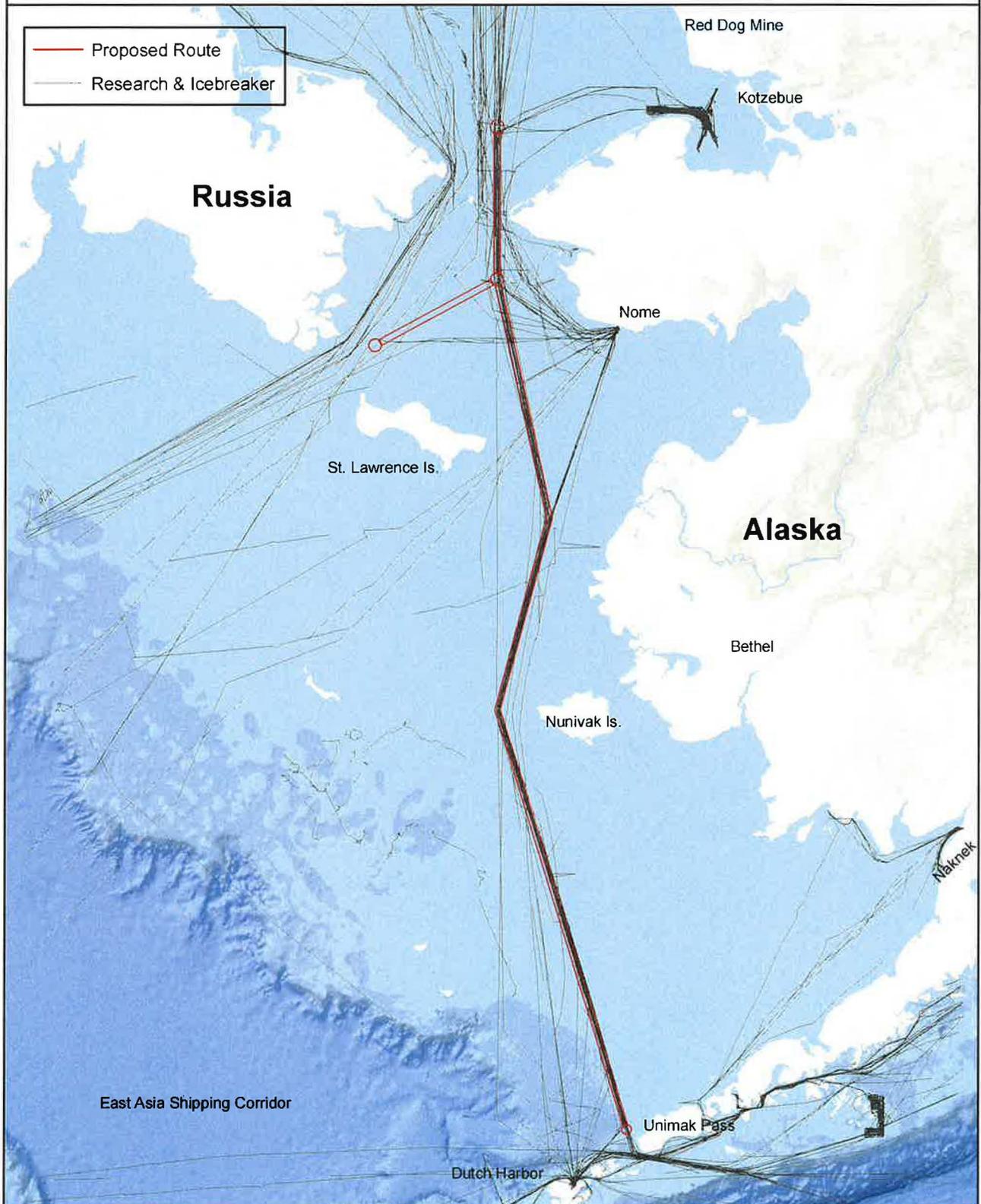
The heat track map indicates much more frequent use of the proposed two-way route by research vessels and icebreakers. This is due, in part, to vessels in this category actively gathering hydrographic survey data on the proposed route in 2014 and 2015.

<u>Vessel Type</u>	<u>Transit Segment</u>	
Research Survey Vessel	428	} Research and Icebreaking Vessel
Icebreaker	116	
Icebreaker/Research	33	
	577	

Research and Icebreaking Vessels All Tonnage 2014 - 2015



Research and Icebreaking Vessels All Tonnage 2014 - 2015

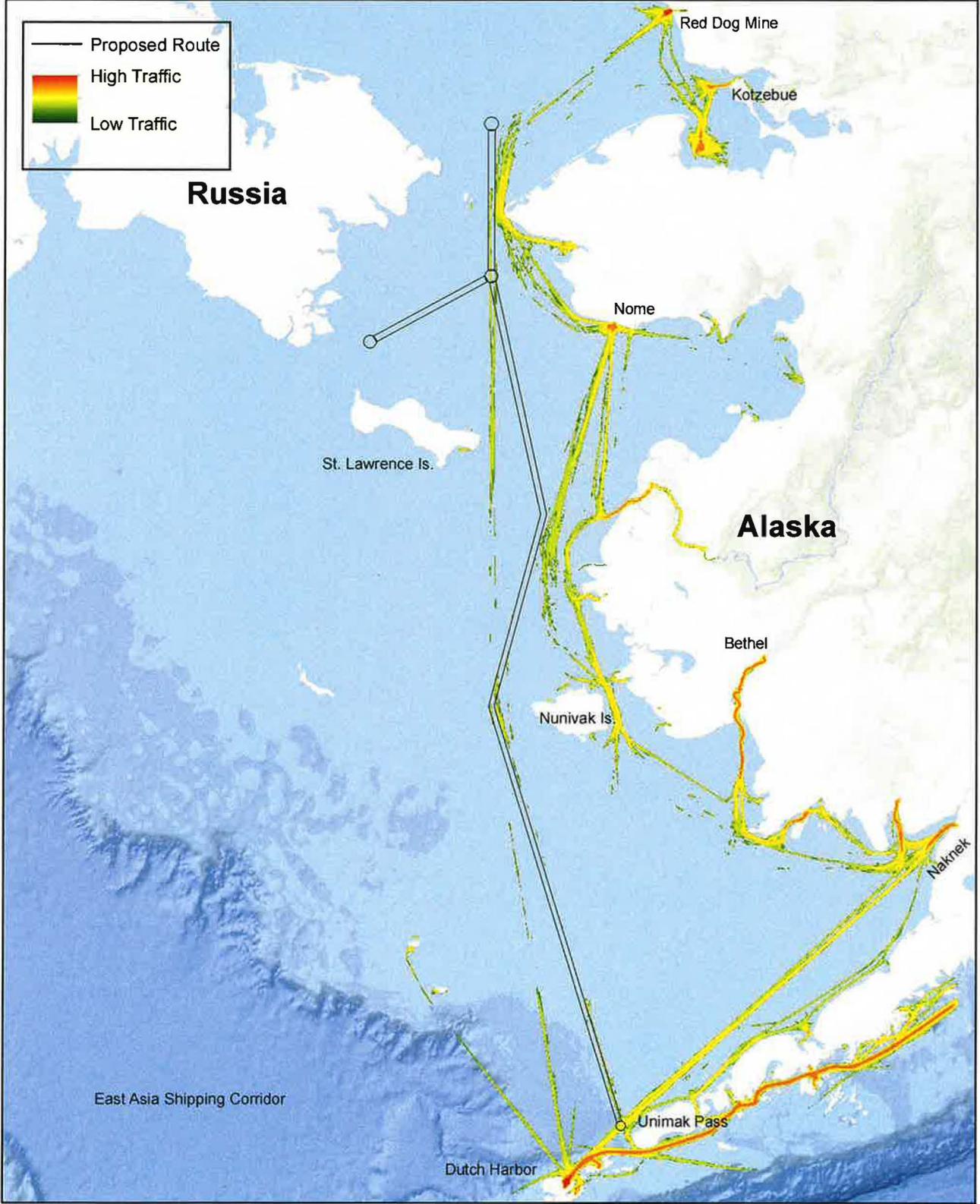
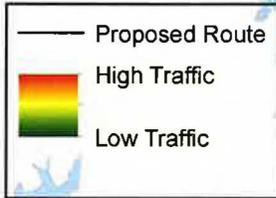


Tug and Barge Traffic

Tug vessel traffic operating in the Bering Sea region is predominately tug and barge services making cargo deliveries to coastal communities. Tank barges carrying petroleum products are captured under the tank vessel category. Consequently the typical tug vessel transit profile is involves coastal trade routes as opposed to transits through the central Bering Sea. These vessels are not expected to utilize the proposed route unless it is convenient for a tug’s particular destination. There are, however, a few tug vessels that depart Dutch Harbor and transit continuously through the Bering Strait for operations in the Beaufort and Chukchi Sea’s and Alaska’s Northern Coast. Some of this tug traffic is transporting equipment and supplies for ongoing North Slope oil and gas exploration and production which is centered near Prudhoe Bay. This segment of tug/barge traffic could increase in the near future, triggered by additional on-shore oil & gas development as well as exploration and development of new prospects in waters managed by the State of Alaska. One recent find in Smith Bay is a good example of this. Smith Bay lies well to the west of Prudhoe Bay and is most easily accessed by water as opposed to existing onshore North Slope infrastructure. This traffic would be well suited to follow the recommended route which allows tugs bound for the North Slope to follow a well surveyed transit route, increase their distance from shore and avoid environmentally sensitive areas.

Vessel Type	Transit Segment	
Tug	5,651	} Tug Vessel
Pusher Tug	240	
Articulated Pusher Tug	58	
	5,949	

Tug and Barge All Tonnage 2014 - 2015

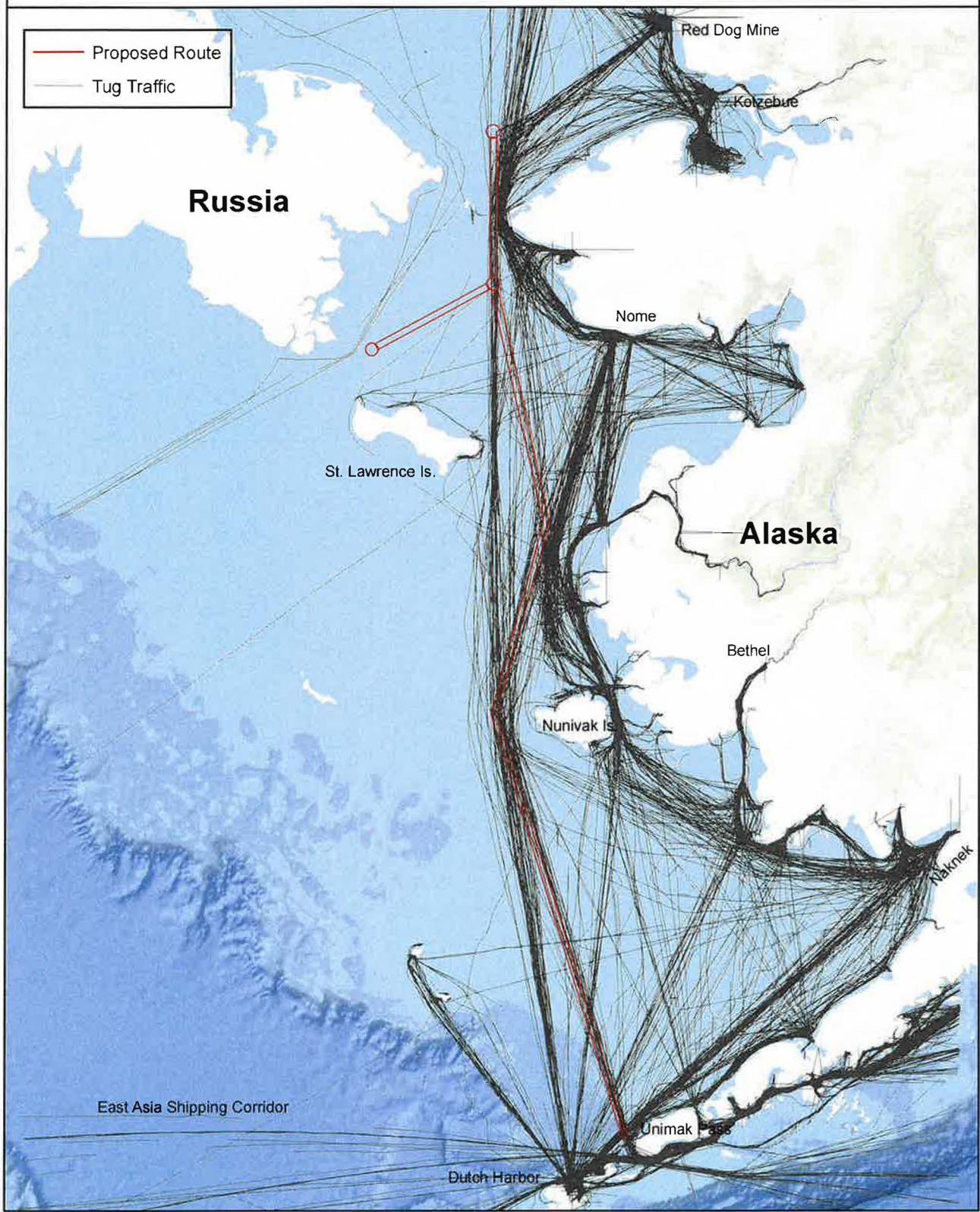


Russia

Alaska

East Asia Shipping Corridor

Tug and Barge All Tonnage 2014 - 2015

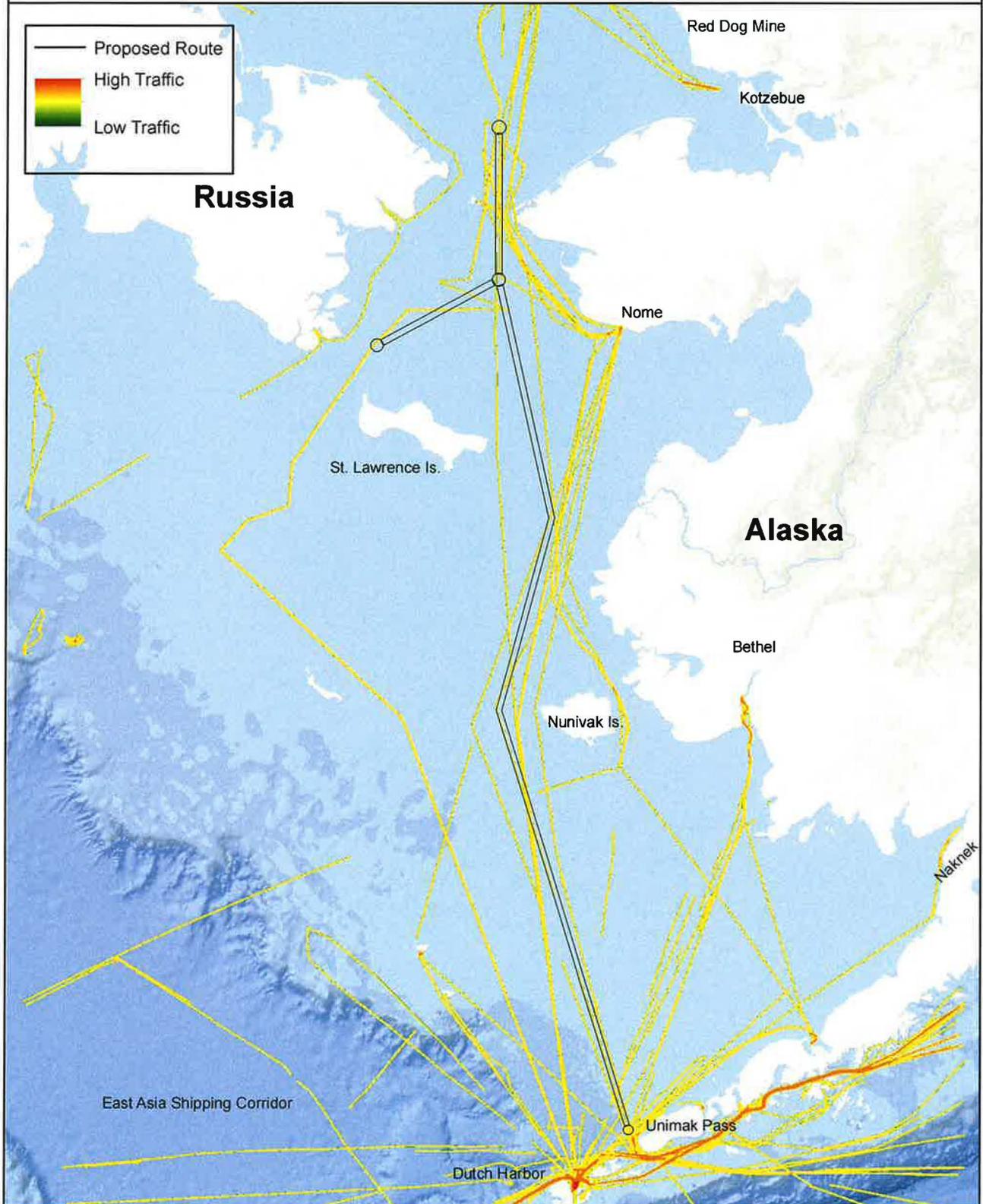
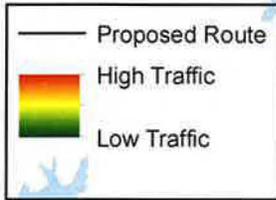


Miscellaneous Vessel Traffic

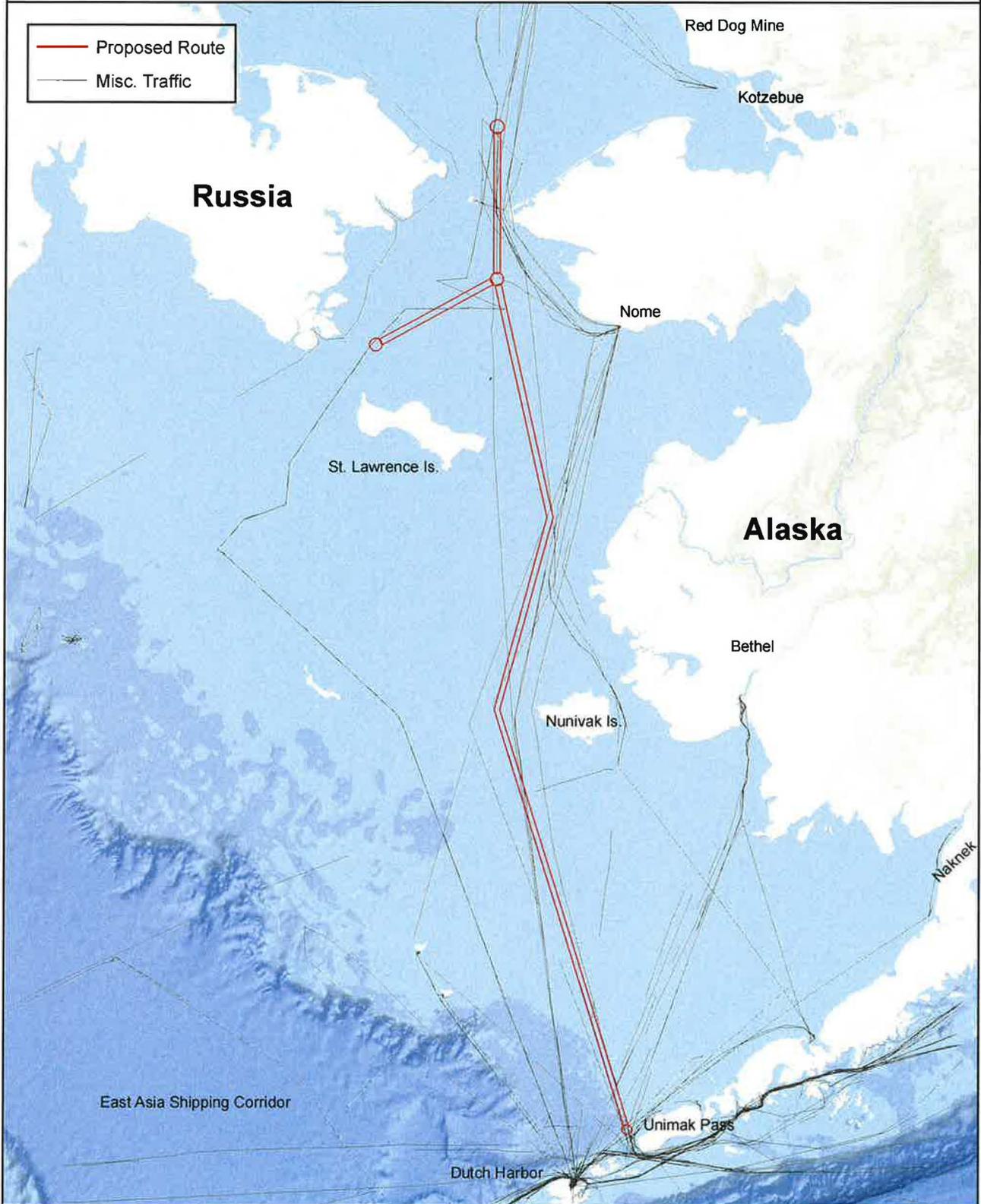
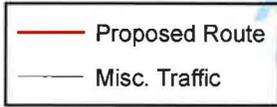
The miscellaneous vessel types that operate in the region are most heavily concentrated near the Aleutian Islands but occasionally transit across the Bering Sea and through the Bering Strait. Due to the nature of their work, these vessels have irregular traffic patterns that are highly variable. There are times however, when these transits do correlate with the proposed routing measures. In these cases, vessels would be well suited to follow the recommended two-way route which allows vessels to follow a well surveyed transit route, increase their distance from shore and avoid environmentally sensitive areas.

<u>Vessel Type</u>	<u>Transit Segment</u>	
Salvage Ship	340	} Miscellaneous Vessels
Buoy Tender	130	
Pollution Control Vessel	48	
Yacht	36	
Search & Rescue Vessel	24	
Training Ship	16	
Grab Dredger	13	
Cable Layer	4	
Logistics Vessel (Naval Ro-Ro Cargo)	4	
	615	

Miscellaneous Vessels All Tonnage 2014 - 2015



Miscellaneous Vessels All Tonnage 2014 - 2015



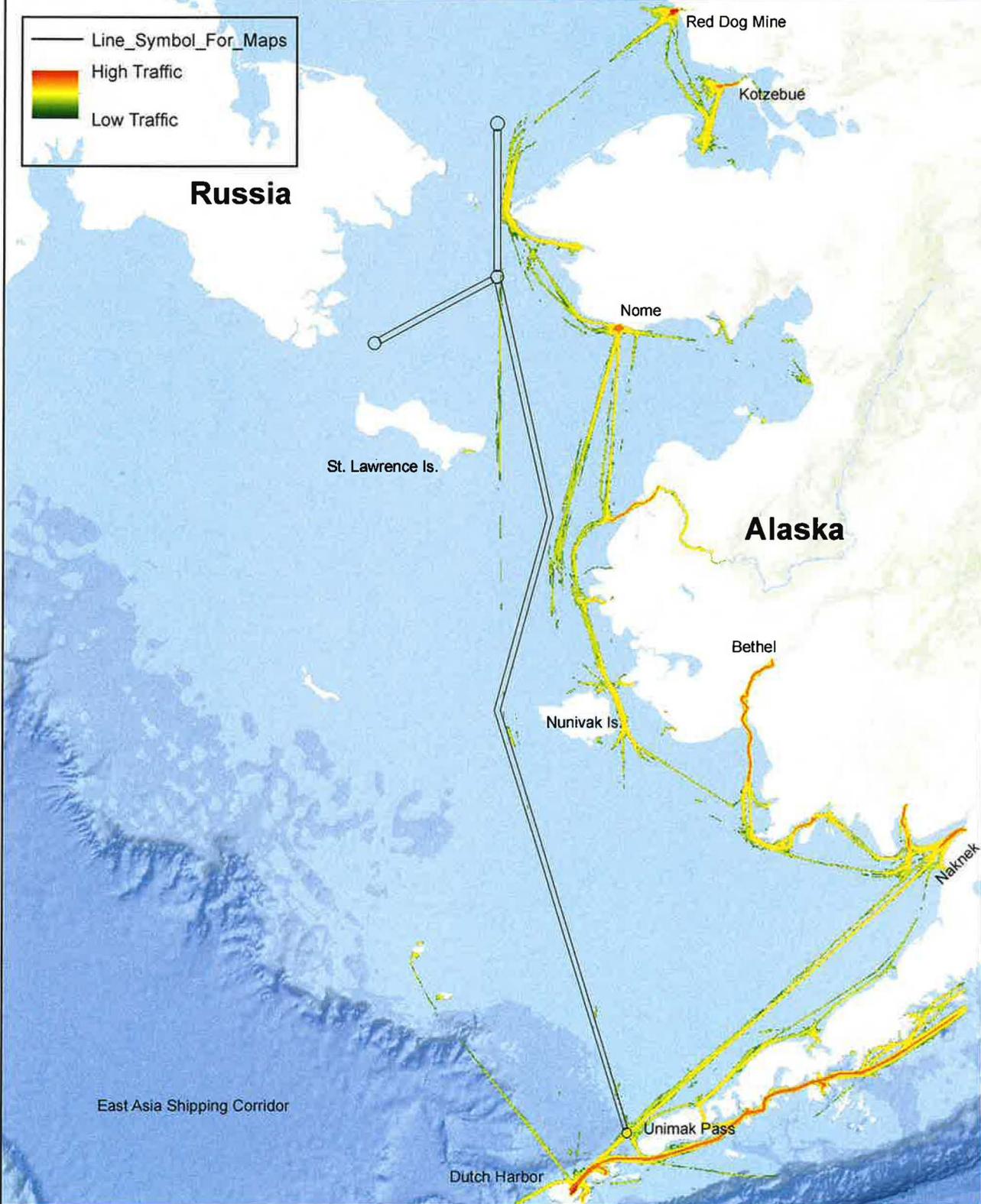
Vessel Traffic Less than 400GT (Excluding Fishing Vessels)

The next two map products are intended to illustrate the impact of applying ship routing measures to ships of a certain tonnage. A product of the recently completed Aleutian Island Risk Assessment was the installation of routing measures (Areas to be Avoided) for vessels transiting through passes in the Aleutian Island chain. These routing measures only apply to vessels greater than 400 Gross Tons (GT). As part of this study, the Coast Guard examined whether or not a similar “break point” based on vessel size would be appropriate for routing measures in other areas of the Bering Sea and Bering Strait. Investigation of AIS data validated 400GT as a reasonable “break point”. The following analysis includes all vessel types (except fishing vessels) with a regulatory weight less than 400GT. Fishing industry vessels have been excluded from the dataset for clarity reasons, as the abundance of fishing vessels masks the transit trends of other vessels. The resulting profile for ships less than 400GT shows that a majority of these smaller vessels operating in the region are following near-coastal routes and thus will not likely follow the proposed routing measures.

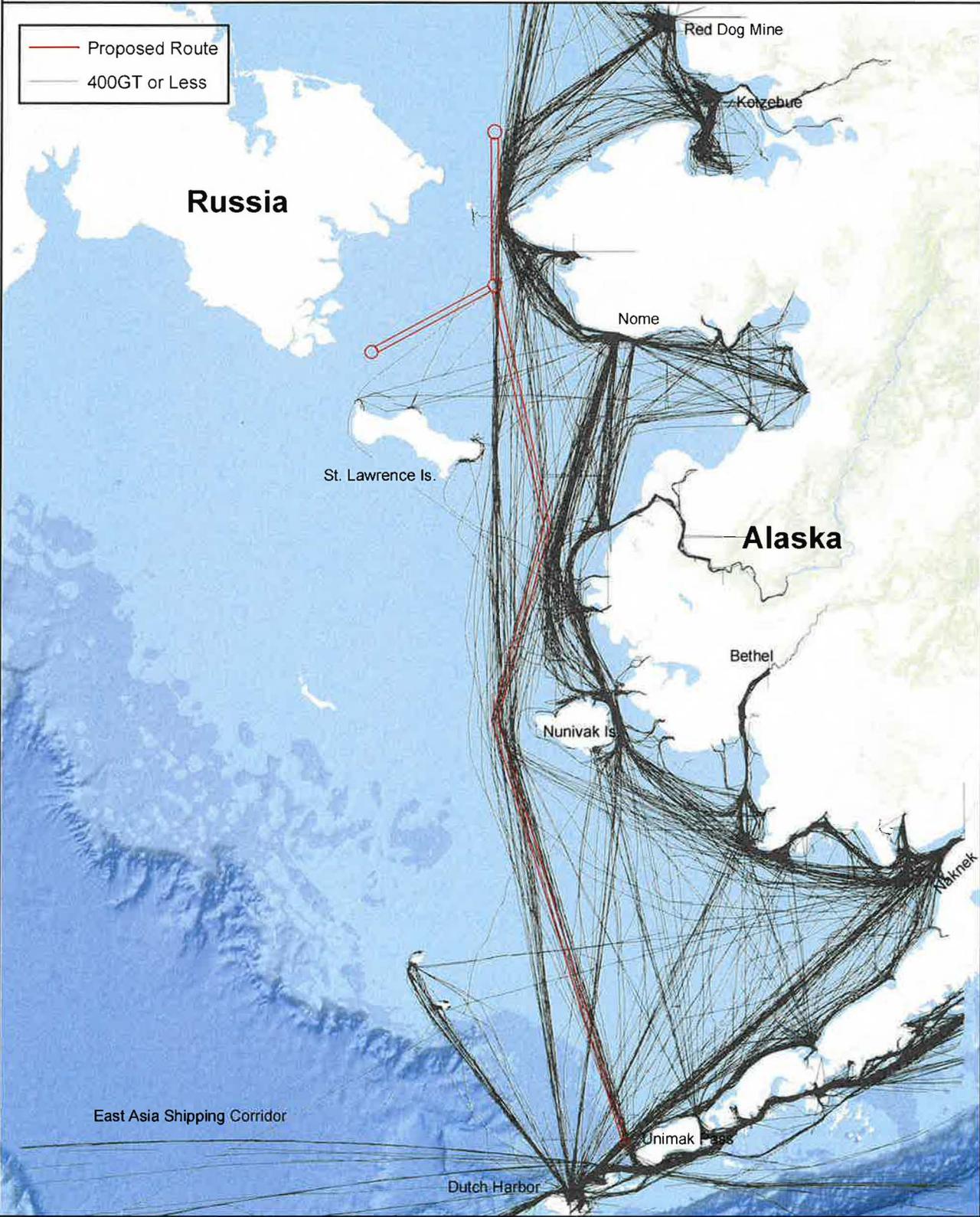
Vessel Type	Transit Segment
Tug	4648
Salvage Ship	326
Pusher Tug	240
Research Survey Vessel	170
Landing Craft	28
Articulated Pusher Tug	27
Search & Rescue Vessel	24
Air Cushion Vehicle Passenger/Ro-Ro Ship	7
Crew/Supply Vessel	6
Passenger Ship	4
	5480

Traffic Less than 400GT

Vessels Less Than 400GT Excluding Fishing Vessels 2014 - 2015



Vessels Less Than 400GT Excluding Fishing Vessels 2014 - 2015

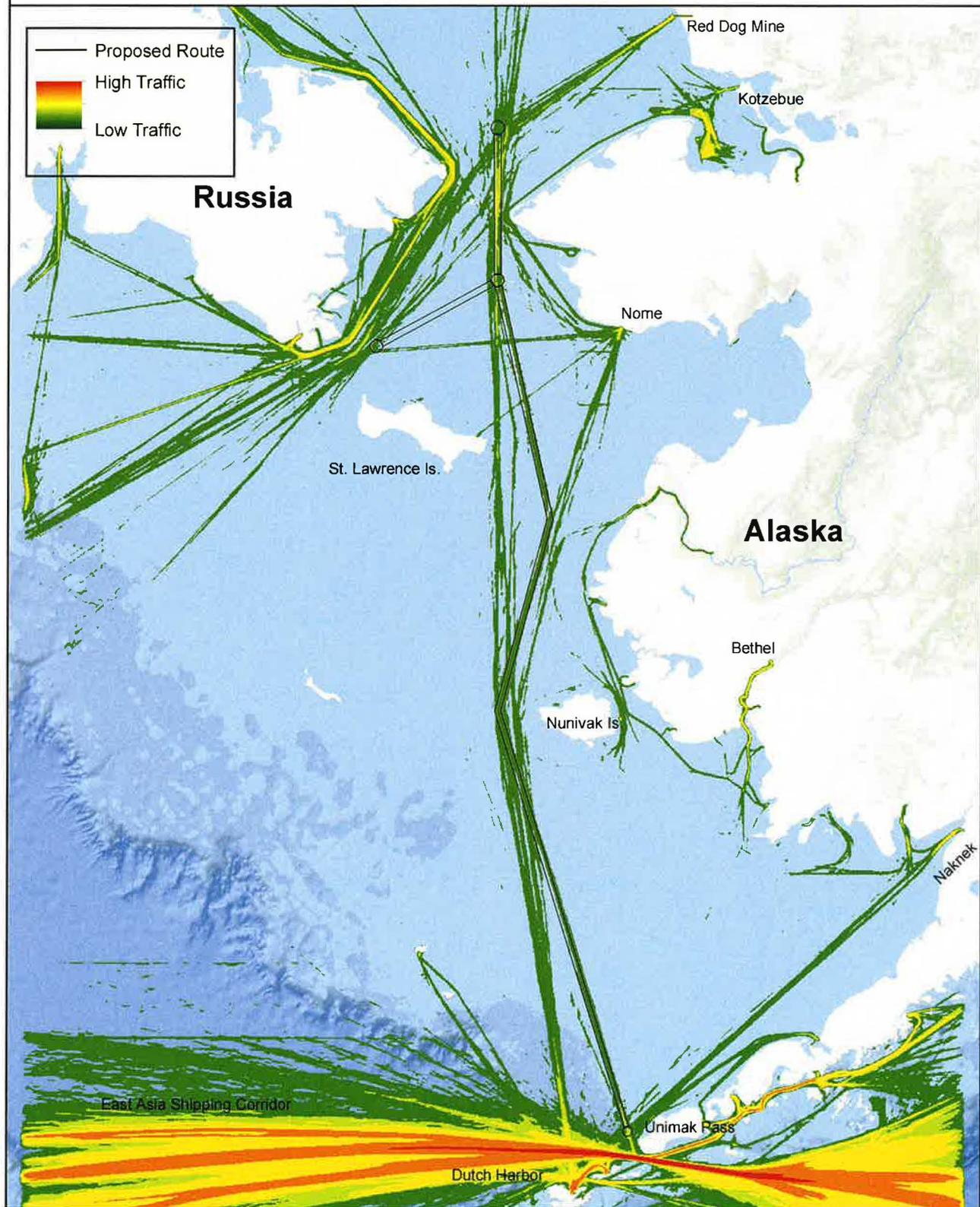
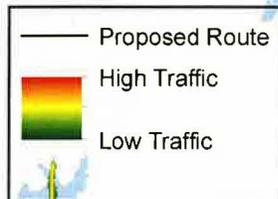


Vessel Traffic 400GT and Over (Excluding Fishing Vessels)

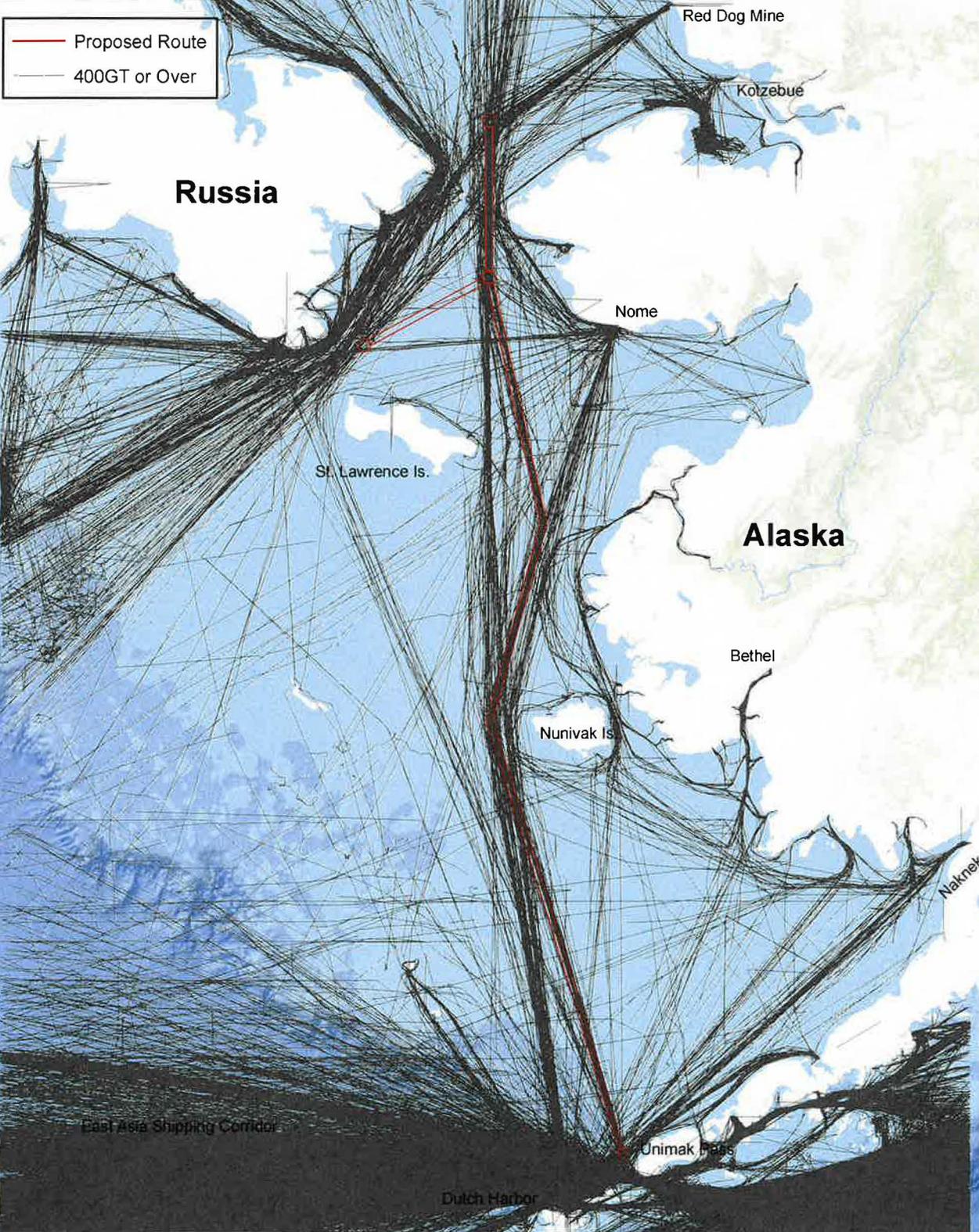
The following map product shows all vessel types with a regulatory weight of 400GT and over. As in the previous map product, fishing vessels have been excluded from the dataset for clarity reasons. The resulting profile shows that ships 400GT and greater are more likely to operate in the vicinity of the proposed routing measures, and thus more likely to follow the proposed routing measures and accrue the risk mitigation benefits of doing so.

Vessel Type	Transit Segment
Bulk Carrier	20120
Container Ship (Fully Cellular)	15228
Refrigerated Cargo Ship	4234
Vehicles Carrier	2829
General Cargo Ship	1927
Open Hatch Cargo Ship	1387
Chemical/Products Tanker	1196
Tug	1003
Products Tanker	498
Wood Chips Carrier	362
Landing Craft	271
Research Survey Vessel	258
Crude Oil Tanker	235
Anchor Handling Tug Supply	159
Passenger/Cruise	147
Buoy Tender	130
Icebreaker	116
Platform Supply Ship	116
Chemical Tanker	112
General Cargo Ship (with Ro-Ro facility)	87
Passenger/Ro-Ro Ship (Vehicles)	78
LPG Tanker	70
Crude/Oil Products Tanker	69
LNG Tanker	57
Pollution Control Vessel	48
Standby Safety Vessel	40
Asphalt/Bitumen Tanker	38
Drilling Ship	38
Yacht	36
Icebreaker/Research	33
Articulated Pusher Tug	31
Drilling Rig, semi submersible	23
Livestock Carrier	23
Bulk Carrier, Self-discharging	21
Other Vessel Types with less than 20 transit segments	122
	51142

Vessels 400GT or Greater Excluding Fishing Vessels 2014 - 2015



Vessels 400GT or Greater Excluding Fishing Vessels 2014 - 2015



Appendix I - References

Alaska Department of Labor and Workforce Development Research and Analysis Section. 2010 Census Shapefile, Accessed Online at <http://live.laborstats.alaska.gov/cen/maps.cfm>

Kawerak Inc. Bering Strait Region Local and Traditional Knowledge Pilot Project, A Comprehensive Subsistence Use Study of the Bering Strait Region, A. Ahmasuk, E. Trigg, Nome, AK

Kawerak Inc. Subsistence in Alaska Timeline, Accessed Online:
<http://www.kawerak.org/forms/nr/Subsistence%20Timeline.pdf>

National Marine Fisheries Service, Marine Mammal Species Range and Critical Habitat Interactive Map, Accessed Online at <https://alaskafisheries.noaa.gov/mapping/esa/>

NOAA. Office of Response and Restoration, Environmental Sensitivity Index (ESI) Maps, Accessed Online at <http://response.restoration.noaa.gov/maps-and-spatial-data/environmental-sensitivity-index-esi-maps.html>

NOAA. United States Coast Pilot, Volume 9, 30th edition, 2012. p 409

Oceana and Kawerak. Bering Strait Marine Life and Subsistence Use Data Synthesis, July 2014; Accessed Online at <http://oceana.org/publications/reports/the-bering-strait-marine-life-and-subsistence-data-synthesis>

Ships Routing. International Maritime Organization (IMO), London, 2015 Ed.

USFWS. Environmental Conservation Online System (ECOS), Accessed Online at <https://ecos.fws.gov/ecp0/reports/species-listed-by-state-report?state=AK&status=listed>