KAWERAK, INC. • P.O. Box 948 • Nome, AK 99762
TEL: (907) 443-5231 • FAX: (907) 443-4452

June 1, 2015

Admiral Abel, Commander Seventeenth CG District
Docket Management Facility (M-30)
U.S. Department of Transportation
West Building Ground Floor, Room W12-140
1200 New Jersey Avenue SE
Washington, DC 20590-0001

RE: Port Access Route Study: In the Chukchi Sea, Bering Strait, and Bering Sea PARS -USCG-2014-0941

Dear Admiral Abel:

Kawerak is the regional tribal consortium for the Bering Strait Region and is headquartered in Nome, Alaska (*www.kawerak.org*). Our office received the "Notice of Study; request for comments", in the Federal Register, Vol. 79, No. 234, dated December 5, 2014. We also received 4 maps of the Bering Sea and Chukchi Sea which portrayed the proposed lane, several proposed precautionary areas, and 20 points which portrayed the lane corridor boundaries as it meanders from the Alaska Peninsula to the southern Chukchi Sea.

Kawerak staff participated in PARS public meetings in Juneau and Nome. Kawerak commends the USCG for responding to public comments and implementing public meetings for this important topic.

The Chukchi Sea, Bering Strait and Bering Sea PARS is a complex issue and Kawerak appreciates USCG for incorporating local concerns and identifying safety issues prior to publishing the Federal Register notice. Kawerak also appreciates the USCG for proactively working with local communities on the issue of increased shipping. Kawerak encourages the USCG to continue its excellent working relationship with local communities and looks forward to future opportunities for collaboration.

The Bering Sea and Bering Strait are vitally important to local residents. Migratory marine species are depended on to sustain culture and livelihood. Healthy marine areas are vital to that survival and to ensure the perpetuation of our culture, traditions and way of life It is with great interest that Kawerak submits this letter to the USCG.

North – South routing through the Bering Strait

The USCG prefers the route of 000° and 180° through the Bering Strait for two reasons:

1. The heading North (000°) and South (180°) are most likely to reduce human error through the Bering Strait and confine ships to the selected route. This is based upon the expected outcome that mariners will likely more accurately enter the north or south

route into their steerage or guidance systems thus reducing the likelihood of a head-on collision or steering off course. Kawerak considered the other possibilities for alternate types of collisions as follows: head on, overtaking, crossing, merging, bend collision, and grounding collision scenarios. Based upon review of cognitive error studies we believe that course entry error is still likely to occur at the 000° or 180° course heading[1]. Therefore the issue to consider is: will altering the course through the Bering Strait increase risk for all types of collisions? Kawerak believes the answer is no. The first three legs of the PARS route are not at 000° or 180° then that argument would also apply to the first three legs of the route and would therefore increase the risk of collision during the first three legs of the route. Kawerak recommends the USCG consider alternate routes through the Bering Strait other than 000° or 180°. Kawerak proposes one alternative final leg through the Bering Strait (below) which will avoid a critically important area around King Island.

There are approximately 40 miles of ocean between King Island and Fairway Rock. We believe that distance provides enough leeway to make course corrections if errors are made. Currents and winds through the northern Bering Sea can vary and ultimately affect ocean transport and ship course through the Bering Strait[2]. The USCG proposed that the north-south course heading coincides with flow through the Bering Strait; consider that there are finer scale flows not north-south which are the influence of winds[3] that challenge the notion that a disabled ship would drift easily through the Bering Strait. At times winds can affect the larger flow regime and will affect disabled ships.

Ship course will be altered during the 4th leg of the route based upon wind load and current, automatically or may be altered manually for "course made good" by mariners in order to maintain course on the final leg, and so it seems that the course regardless of the heading will be actively monitored while under way.

2. The second reason the USCG prefers the north-south course is the idea that a disabled ship would be subject to the prevailing north current through the Bering Strait and would pass through the strait into the Chukchi Sea. However, there are significant transverse winds that could alter "dead ship" courses in the Bering Strait. Below are typical wind speeds and direction for several locations[4] within the proposed study area:
    a. Typical Average Savoonga Wind Speed and Direction June
        i. 8-21mph, Westerly

---

[1] James Reason, *Human Error,* (Cambridge University Press, October 26, 1990)

[2] Seth L. Danielson, Thomas J. Weingartner, Katherine S. Headstrom, Knut Aagard, Rebecca Woodgate, Enrique Curchitser, Phyllis J. Stabeno, *Coupled wind force controls of the Bering-Chukchi shelf circulation and the Bering Strait throughflow: Ekman Transport, continental shelf waves, and variations of the Pacific-Arctic surface height gradient* (Progress in Oceanography 125, 2014 (40-61))

[3] Rebecca A . Woodgate, Kathleen M. Stafford, Frederick G. Prahl, *A Synthesis of Year-round Interdisciplinary Mooring Measurements in the Bering Strait (1990-2014) and the RUSALCA years (2004-2011)* (Oceanography, TOS, 11th February 2015 for the RUSALCA special issue)

[4] www.wunderground.com

b. Typical Average Savoonga Wind Speed and Direction July
    i. 11-27mph, N/A
c. Typical Average Savoonga Wind Speed and Direction August
    i. 7-24mph, Westerly
d. Typical Average Savoonga Wind Speed and Direction September
    i. 11-24mph, Easterly
e. Typical Average Savoonga Wind Speed and Direction October
    i. 16-27mph, Northeasterly
f. Typical Average Nome Wind Speed and Direction June
    i. 9-20mph, Southwesterly
g. Typical Average Nome Wind Speed and Direction July
    i. 9-24mph, Southwesterly
h. Typical Average Nome Wind Speed and Direction August
    i. 7-24mph, Westerly
i. Typical Average Nome Wind Speed and Direction September
    i. 8-26mph, northwesterly
j. Typical Average Nome Wind Speed and Direction October
    i. 9-26mph, Northerly
k. Typical Average Wales Wind Speed and Direction June
    i. 14-17mph, Northwesterly
l. Typical Average Wales Wind Speed and Direction July
    i. 17-33mph, Northeasterly
m. Typical Average Wales Wind Speed and Direction August
    i. 16-27mph, Northeasterly
n. Typical Average Wales Wind Speed and Direction September
    i. 15-30mph, Southwesterly
o. Typical Average Wales Wind Speed and Direction October
    i. 18-37mph, Northeasterly

Another complicating factor of dead ship drift and the possibility for grounding catastrophes are the presence of island eddies or gyres. Woodgate[5] and others discussed the Diomede Island eddies, Kawerak believes the Diomede Island eddy and those near Fairway Rock and King Island have the likelihood to cause ships to drift east or west, thus adding complication of assumption of northward deadship drift through the Bering Strait. Additionally the near shore Saint Lawrence Island currents are not north-south and have the possibility to cause ships to drift independently of the general northward flow of ocean waters in to the Chukchi Sea.

Wind induced load calculations for various ships may show that ships could be influenced by prevailing winds and not necessarily by currents depending on their wind area.

Below are weblinks to articles relevant to the issue of ship accidents that should be considered in alternate routing analyses:

---

[5] Rebecca A . Woodgate, Kathleen M. Stafford, Frederick G. Prahl, *A Synthesis of Year-round Interdisciplinary Mooring Measurements in the Bering Strait (1990-2014) and the RUSALCA years (2004-2011)* (Oceanography, TOS, 11th February 2015 for the RUSALCA special issue)

http://www.thestar.com/news/canada/2014/10/18/coast_guard_vessel_tows_disabled_russian_cargo_ship_off_bc_coast.html

http://www.thestar.com/news/canada/2014/10/24/us_coast_guard_looking_for_canadian_barge_adrift_in_arctic.html

http://www.adn.com/article/20141210/bering-sea-trawler-deaths-highlight-arctic-fishing-shipping-issues

Wind Force Affect on Large Ships

The *Bulk Carrier Marvelous* is typical of the kind of bulk carrier that is loaded with zinc ore at the Red Dog Mine Port. Winds through the Bering Strait vary and have the potential to affect ship drift.

Figure 1, Typical Bulk Carrier transiting through the Bering Strait, Photo from bing images:
http://www.bing.com/images/search?q=bulk+carrier+red+dog+mine&id=CB6A551A8C95A891709FB65E3F199C8ED82FBD16&FORM=IQFRBA#view=detail&id=8F921E72C97E551832E719AB020E344CA1C2A87E&selectedIndex=6

In the following publication: MANOEUVRING BOOKLET V1.06, *Mathematical model of Bulk carrier 1 (Dis.33089t), Version: v39-3D, Dll Version: 2.23.235, According to: Solas II-1,regulation 28.3, St. Petersburg, 2005,* which can be found at:
http://www.studfiles.ru/preview/1665932/page:4/

The bulk carrier example in the above referenced publication drifted 0.20 knots to 1.22 knots based upon wind speeds ranging in speed of 10-60 knots. Woodgate, R. et. al., *(Interdisciplinary Mooring measurements)* estimated average currents through the strait ranged from approximately 30-50 cm/s. If we assume a homogenous northward current as the USCG proposes and a range of estimated wind drifts analogous to those of the *Maneuvering Booklet V1.06*, it is possible that a disabled ship would be influenced by winds even at modest wind speeds and at the extreme speed could become grounded on the Alaskan coast or at one of the island locations. Large ships have been influenced by winds[6]. Kawerak believes the most likely first cause of an accident will be engine trouble, ship propeller damage, poor maintenance, or weather[7].

King Island Recommendation

The PARS route should be moved further to the west of King Island but should not incorporate any additional turns. The route should be moved an additional 6 miles to the west as shown in Figure 2. Doing so increases the length of the 3rd leg by only one mile. Moving the 3rd leg of the PARS route to the west would then have the effect of shortening the Anadyr leg by a distance of approximately 4 miles. Kawerak proposed NNE route through the Bering Strait reflects moving the route further west of King Island.

If the end point of the 3rd leg of the route were moved to 12 miles from King Island such a move would deflect the 4th leg of the route approximately 14-16 degrees easterly from its present north south alignment. Therefore the final leg of the route through the Bering Strait would be at a course of approximately 014°-016° north though the Bering Strait and at a course of 194°-196° south through the Bering Strait. Of particular concern is the line between Fairway Rock and the tip of the Seward Peninsula, as it is the bottleneck. The midpoint of that bottleneck should be used as the fulcrum to adjust the final leg of the PARS route.

Water depths west of King Island are slightly greater than 30 meters[8] and should allow for movement of the leg based upon bathymetry requirements for large ships.

King Island is a vastly important ecological area, and is culturally important to the people of King Island[9,10,11,12,13]. Moving the route away from King Island should be considered in order

---

[6] MARINE OCCURRENCE REPORT, GROUNDING OF THE BULK CARRIER "VAKHTANGOV" IN THE PORT OF SOREL, QUEBEC 24 AUGUST 1995 REPORT NUMBER M95L0078, Transportation Safety Board of Canada

[7] http://www.adn.com/article/20141210/s-korea-take-over-search-sunken-fishing-ship-bering-sea

[8] George L. Hunt, Nancy M. Harrison, *Foraging habitat and prey taken by least auklets at King Island, Alaska,* Marine Ecology Press Series, Vol: 65: 141-150, 1990, Department of Ecology and Evolutionary Biology, University of California, Published August 2

[9] Munoz, Rie, *The King Island Journal, The 1951-52 Juan and Rie Munoz, Teachers on a Bering Sea Island,* Rie Munoz Ltd, 2008

[10] http://www.adn.com/article/20130529/alaska-poet-crowdsources-ancestral-visit-king-island

[11] http://www.adn.com/article/king-island-living-community-and-mystical-place

[12] http://www.nbcnews.com/id/22730025/ns/technology_and_science-science/t/ancient-mask-returned-alaska-ghost-village/

[13] Oceana and Kawerak. 2014. Bering Strait Marine Life and Subsistence Use Data Synthesis. Oceana, Inc. and Kawerak, Inc. Juneau, AK.

to provide additional protection to King Island's vast ecological and cultural significance. King Island and its people are vast treasures to the world. King Island people formed a unique society and language which persists to this day. By protecting the important waters of King Island with a larger buffer the USCG will take a giant friendly leap towards its obligations under the January 21, 2015 Presidential Executive Order[14]

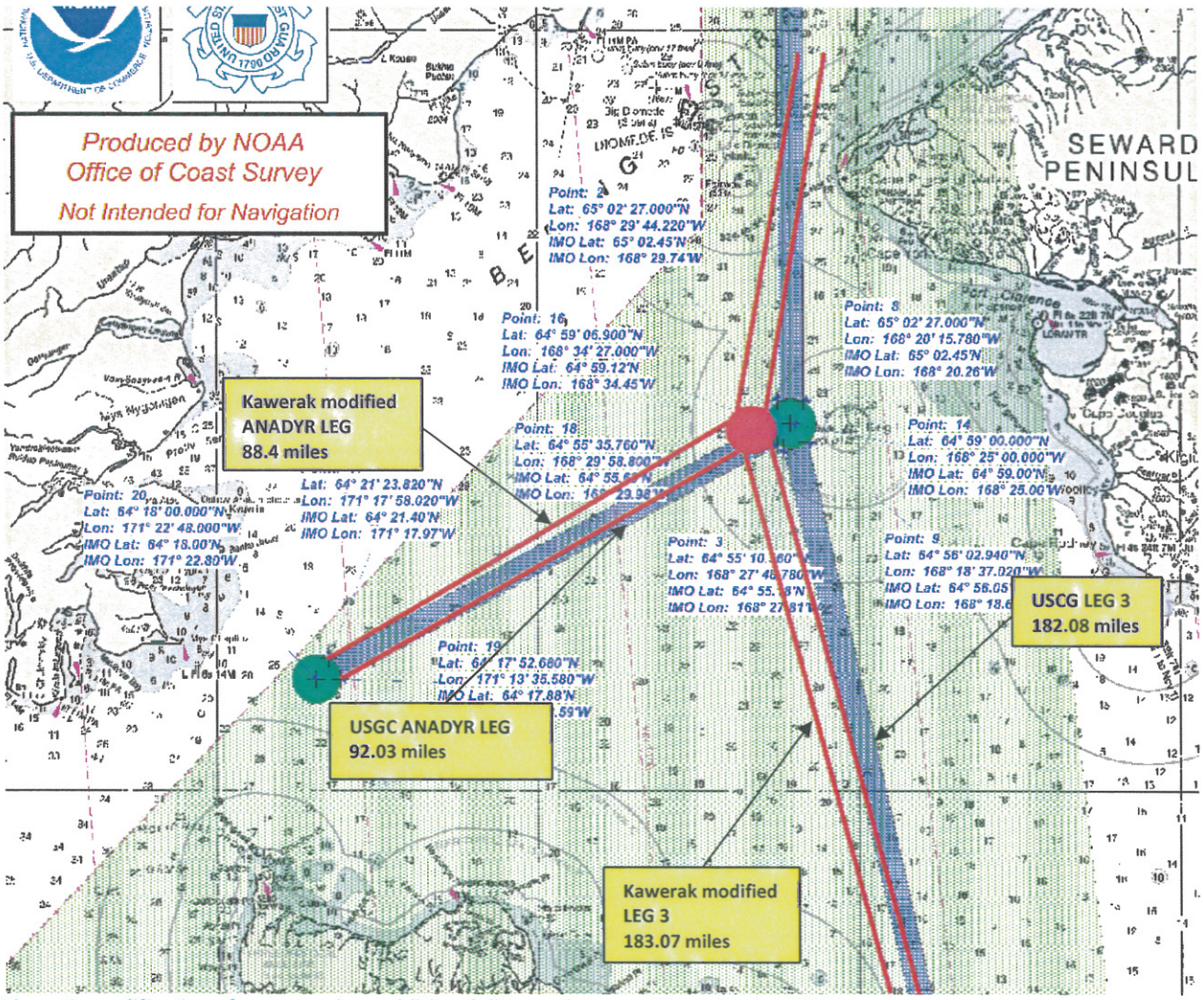

Figure 2, modification of route to place additional distance between King Island and PARS route

Northeast Cape Saint Lawrence Island

A large subsistence use area to the east and south of Saint Lawrence Island[15] is a vastly important region for subsistence users. Kawerak suggests moving the route slightly to the east of Saint Lawrence Island to avoid a larger portion of the Saint Lawrence Island subsistence use area for which bathymetry data allows for adjustment in that area.

---

[14] https://www.whitehouse.gov/the-press-office/2015/01/21/executive-order-enhancing-coordination-national-efforts-arctic

[15] Kawerak, Inc. 2013. Seal and Walrus Harvest and Habitat Areas for Nine Bering Strait Region Communities. Kawerak Social Science Program. Nome, AK.

Speed Restrictions

Impacts by ships to marine mammal calving is a significant possibility and the USCG should consider implementing speed restrictions. Whales and walruses with calves are less mobile and can be easily overtaken by large ships. In our experience whale and walrus mother/calf pairs travel about 6-10 knots. Whale strikes are considered major mortality factors for the North Atlantic Right Whale[16]. The North Pacific Right Whale population whose critical habitat coincides with PARS route may be susceptible to similar mortality. Bowhead whales are also susceptible to ship strikes[17] and the incidence of ship strikes may increase as shipping increases in the Bering Sea and Bering Strait. Kawerak recommends the USCG establish speed limits commensurate with National Marine Fisheries Service guidance on large whale interactions.

We welcome your questions and if further clarification is needed please feel free to contact Austin Ahmasuk, Marine Advocate at the above address or directly at (907) 443-4368.

Thank you for your time and consideration.

Sincerely,
KAWERAK, INC.

MBahnke

Melanie Bahnke, President

---

[16] Amy R. Knowlton and Scott D. Kraus, *Mortality and serious injury of northern right whales (Eubalaena glacialis) in the western North Atlantic Ocean, J. CETACEAN RES. MANAGE. (SPECIAL ISSUE) 2, 193–208, 2001*

[17] JOHN CRAIGHEAD GEORGE, L. MICHAEL PHILO, KATHERINE HAZARD, DAVID WITHROW,GEOFFRY M. CARROLL, AND ROBERT SUYDAM, *Frequency of Killer Whale (Orcinus orca) Attacks and Ship Collisions Based on Scarring on Bowhead Whales (Balaena mysticetus) of the Bering-Chukchi-Beaufort Seas Stock, (Received 11 October 1991; accepted in revised form 27 January 1994),* ARCTIC VOL. 47, NO. 3 (SEPTEMBER 1994) P. 247–255