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ROUTEING MEASURES AND MANDATORY SHIP REPORTING SYSTEMS

Establishment of five areas to be avoided in the region of the Aleutian Islands

Submitted by the United States

SUMMARY

Executive summary:	This document contains a proposal to establish five recommendatory areas to be avoided "In the region of the Aleutian Islands," the United States. The purpose of this proposal is to reduce the risk of marine casualty and resulting pollution, protect the fragile and unique environment of the Aleutian Islands, and facilitate the ability to respond to maritime emergencies.
Strategic direction:	5.2
High-level action:	5.2.4
Planned output:	5.2.4.1
Action to be taken:	Paragraph 51
Related documents:	SOLAS regulation V/10; resolution A.572(14), as amended; MSC/Circ.1060; MSC.1/Circ.1060/Add.1 and IMO Publication *Ships' Routeing*

Introduction

1 The United States proposes to establish five recommendatory areas to be avoided (ATBAs) in the region of the Alaska Aleutian Islands, the United States to improve the safety of navigation and protect this unique and diverse area.

2 Details of the proposed ships' routeing measures are provided as follows:

.1 a general description of the measures is provided in paragraph 3 and annex 1;

.2 the names, numbers, editions and geodetic datum of the reference charts used to delineate the ships' routeing measures are provided in annex 1; and

.3 the geographic coordinates that define the ships' routeing measures are provided in annex 1.

Summary of Proposal

3 The proposal aims to establish five recommendatory areas to be avoided (ATBAs) in the region of the Alaska Aleutian Islands for vessels making transoceanic voyages through the Bering Sea and North Pacific Ocean adjacent to the islands. In most areas, the proposed ATBAs extend no further than 50 nautical miles from the shoreline of the islands, with a few areas of greater distance. The 50 nautical mile buffer allows time for repair or time to launch an emergency response effort to a foundering vessel before it runs aground and damages sensitive resources. It will also reduce the possibility of ships grounding on the shoreline due to negligent navigation. Course alternations due to the establishment of the ATBAs will be minimal. The proposed ATBAs will allow ships to follow existing traffic patterns. (See annex 1, chartlet 2). The establishment of an ATBA will add approximately ten (10) nautical miles to an average overall transoceanic voyage.

4 The coastline's significant length coupled with meteorological conditions, isolation, and remoteness of the area pose challenges to any response in the event of an accident and possible resulting pollution incident. The combination of a projected increase in international shipping activity, high environmental sensitivity, and the economic reliance of local communities on regional fisheries, makes the Aleutian Island archipelago a high-risk region for hazards resulting from international shipping. Recognizing the ecological and socio-economic significance of the Aleutian Islands as well as the area's vulnerabilities to harm from transiting ships, namely the threat of physical damage from ship grounding and pollution, the proposed ATBAs are designed to decrease the impacts of shipping in this area.

5 The proposed recommended areas to be avoided lie wholly within the exclusive economic zone (EEZ) of the United States.

6 The proposal is consistent with resolution A.572(14), as amended, relating to the adoption of routeing measures. The actions that are being, and have been, taken to protect this area are consistent with customary international law as reflected by the United Nations Convention on the Law of the Sea.

7 The proposed routeing measures aim to:

.1 mitigate the heightened risk created from increasing traffic and shipping activity by maintaining a safe distance between ships and the shoreline;

.2 reduce the risk of shipping accidents and incidents;

.3 provide time to mount a response to a developing maritime emergency; and

.4 protect national and international recognized habitat and species from ship source pollution.

8 The proposed ATBA's will apply to ships 400 gross tonnages and above on international voyages through the Aleutian Island region using the Northern (Bering Sea) and Southern (North Pacific Ocean) Great Circle routes.

9 The proposed measures are likely to significantly reduce the risk of pollution to the Aleutian Islands. By increasing the distance to shore that traffic travels, these measures will reduce the likelihood of groundings and provide additional response time in the event of an incident.

Description of the Area

10 The United States portion of the Aleutian Island archipelago stretches more than 2,200 kilometres between Alaska and the Russian Federation and separates the Bering Sea from the North Pacific Ocean. The Aleutian Islands consist of hundreds of small volcanic islands formed by the subduction activity of the North American and Pacific tectonic plates. The openings between the islands form passes that allow exchange of water between the North Pacific Ocean, the Gulf of Alaska, and the Bering Sea. An ecological division occurs between the regions east and west of Samalga Pass, as indicated by changes in weather and species composition including various species of cold water corals, zooplankton, fish, marine mammals, and foraging seabirds (Hunt and Stabeno 2005).

Background

Traffic considerations

11 Vessels transiting the Aleutian Islands area are typically moving commercial goods and raw materials along the North Pacific Great Circle Route between western North America and East Asia (DNV and ERM, 2010a). These vessels are of particular concern in this area due to their size, numbers, potential for growth, and the fact that many are not subject to the United States or Alaska oil spill prevention and response requirements. In 2010, a semi-quantitative vessel traffic study was conducted. The study included three elements: (1) summarization of vessel traffic patterns during the base year of 2008/2009, including the types of vessels, frequency of transit, routes, and cargo; (2) prediction of anticipated changes in the vessel traffic patterns based on changes in the trade, vessel characteristics, and regulations; and (3) forecast of changes in the fleet expected over a 25-year period (2009-2034).

12 Nearly 16,000 vessel tracks were recorded in the study period. Of these, almost 70% were the result of domestic traffic (primarily fishing vessels). However, nearly 75% of the number of vessels that operated through or near the Aleutian Islands during the analyzed period consisted of deep draft vessels, the vast majority transiting via the North Pacific Great Circle Route. Over 70% of the tracks recorded by these deep draft vessels were westbound primarily from ports in Washington, United States and British Columbia, Canada to East Asia (People's Republic of China, Japan, Republic of Korea, and Democratic People's Republic of Korea). Table 1 represents the number of vessels per traffic type and number of recorded tracks for each type during the study period.

Table 1: Number of vessels per traffic type and number of tracks*(DNV and ERM, 2010a)

Category	Vessel Type	Number of Vessels	Percentage of Vessels by Type	Number of Recorded Tracks	Percentage of Recorded Tracks
1	Containerships <4,500 TEUs	155	6.99%	624	3.95%
2	Containerships >4,500 TEUs	336	15.14%	1,290	8.17%
3	Bulk Carriers < 60,000 DWT	461	20.78%	1,054	6.68%
4	Bulk Carriers >60,000 DWT	450	20.28%	845	5.35%
5	General Cargo Vessels	105	4.73%	249	1.58%
6	LNG and Gas Carriers	3	0.14%	45	0.29%
7	Ro/Ro and Car Carriers	98	4.40%	227	1.44%
8	Cruise Ships	13	0.58%	46	0.29%
9	Crude Oil Carriers	11	0.50%	13	0.08%
10	Product Tankers	33	1.49%	59	0.37%
11	Chemical Carriers	12	0.54%	27	0.17%
12	Tank Barges*	-	-	-	-
13	Cargo Barges*	-	-	-	-
14	Fishing Vessels	373	16.81%	9,424	59.69%
15	Tugs	66	2.97%	994	6.30%
16	Government vessels	19	0.86%	186	1.18%
17	Refrigerated Cargo Ships (Tramp trade)	40	1.80%	264	1.67%
18	Other Vessels	44	1.98%	441	2.79%
	Total	2,219	100%	15,788	100%

* The vessel counts do not include small commercial fishing vessels or barges (cargo and tank), as these vessels do not carry AIS.

13 Table 2 identifies the 18 vessel traffic type categories and explains the general usage of these vessels per the DNV and ERM 2010a traffic study.

Table 2 Vessel Type and General Usage

Vessel Category	Traffic Type Description
1	**Containerships of less than 4,500 20-ft equivalent units (TEUs)** Refers to vessels designed to carry their entire load in Twenty Foot Equivalent Units (TEU) intermodal containers. In this case capable of transporting less than 4,500 containers. In general, applies to Container ships of less than 60,000 DWT (~50,000 GT)
2	**Container ships of more than 4,500 TEUs** Refers to vessels designed to carry their entire load in Twenty Foot Equivalent Units (TEU) intermodal containers. For this category capable of transporting 4,500 containers or more. In general, applies to Containers ships of 60,000 DWT or more (for container ships ~50,000 GT)
3	**Bulk carriers of less than 60,000 tons deadweight tonnage (DWT)** Refers to ocean-going vessels used to transport bulk cargo items such as ore or food staples (rice, grain, etc.) and similar cargo including bulk cargos as iron ore, coal, bauxite/alumina, phosphate, steel products, cement, petcoke, forest products, fertilizers, sulphur and other dry bulk cargos. For this category bulk carriers of less than 60,000 DWT (for bulk carriers ~35,000 GT)
4	**Bulk carriers of more than 60,000 tons DWT** Refers to ocean-going vessel used to transport bulk cargo items such as ore or food staples (rice, grain, etc.) and similar cargo including bulk cargos as iron ore, coal, bauxite/alumina, phosphate, steel products, cement, petcoke, forest products, fertilizers, sulphur and other dry bulk cargos. For this category bulk carriers of more than 60,000 DWT (for bulk carriers ~35,000 GT)
5	**General cargo vessels** Refers to ocean-going multi-purpose vessels, designed to handle and stow a variety of freight. This may include forest products, manufactured goods, heavy equipment, vehicles, machinery, bagged goods, steel and food products, and containers. Some specialized vessels combine general cargo with heavy lift capabilities for transporting large, awkwardly shaped components to refinery, chemical processing and other plant construction projects, refrigerated cargo and specialized cargo
6	**Liquefied natural gas (LNG) carriers and gas carriers** Refers to vessels built for the dedicated carriage of Liquefied Natural Gas (LNG) and, other vessel dedicated to the carriage of liquefied, compressed or pressurized gases
7	**Roll-on/Roll-off vessels and pure car carriers** Refers to vessels designed to carry wheeled cargo such as automobiles, trucks, semi-trailer trucks, trailers or railroad cars that are driven on and off the vessel on their own wheels.
8	**Cruise ships** Refers to vessels designed to carry large numbers of passengers for pleasure voyages.
9	**Crude oil carriers (laden and in ballast)** Refers to vessels designed for the bulk transport of unrefined crude oil.
10	**Product Tankers (laden and in ballast)** Refers to vessels designed for the bulk transport of refined petrochemicals (Gasoline, diesel, etc.) Product tankers are generally smaller than crude oil carriers.

Vessel Category	Traffic Type Description
11	**Chemical carriers** Refers to vessels designed for the bulk transport of chemicals.
12	**Tank barges (laden and in ballast)** Refers to non-self-propelled vessels designed to transport Liquid cargo such as petrochemicals and that need be towed by tugboats or pushed by towboats
13	**Cargo barges** Refers to non-self-propelled vessels designed to transport dry cargo such as ore or food staples (rice, grain, etc.) and that need be towed by tugboats or pushed by towboats
14	**Fishing vessels** Refers to vessel used to catch fish in the sea. For the purpose of this study, fish factory vessels are included in this definition.
15	Refers to vessels designed to manoeuvre other vessels by pushing or towing them.
16	**Government vessels** Refers to governmental owned vessels not in the commercial trade
17	**Refrigerated Cargo Ships (Tramp trade)** Refers to general cargo vessels used to transport perishable commodities, which require temperature-controlled transportation such as fruits, meat, fish, vegetables, dairy products and other foodstuffs. For the purpose of this study it makes reference to refrigerated cargo ships engaged in tramp trade in the Aleutians Islands.
18	**Other vessels** Refers to other vessels not categorized above (research, drill ships, etc.)

14 In 2012, the Marine Exchange of Alaska's Automatic Identification System (AIS) recorded 1,961 large vessels making 4,615 transits through Unimak Pass, which narrows to 10 nautical miles at the southwest end of Unimak Island and Ugamak Island. Additional transits not captured via AIS skirted the island chain to the south. Most of these vessels were non-tank vessels: 60% of the individual vessels recorded were bulkers, 24% container ships, and 13% other non-tank vessels. Fifty-two vessels, or 3% of the total individual vessels recorded, were tankers (Nuka Research 2014). More vessels were recorded transiting west than east, indicating that many eastbound vessels likely stayed south of the chain or used other passes. Of the total vessel transits through Unimak Pass 53% were in innocent passage and 47% made call to the United States Ports.

15 It is expected that vessel traffic to considerably increase in the Aleutian Islands over the next 25 years (DNV and ERM 2010a). For example, chemical carriers and container ships are expected to transit the area more than twice as often due to the anticipated growth in the trade between East Asia and North America.

Impact on Shipping

16 Currently, ships on voyages from major ports in Western North America to Asia transit the Northern Great Circle route through Unimak Pass into the Bering Sea. When the weather is favorable, the transit may be south of the Aleutian Island archipelago. Most ships maintain safe distances from the archipelago coastline. Recently, however, based on AIS data, ships have been observed to be in close proximity to the coastline. The proposed ATBAs aim to keep these ships at least 50 nautical miles offshore after transiting through a

passage. In the event of a ship breakdown or other incident, the minimum 50 nautical miles offshore will allow time for repair or rescue. It will also reduce the possibility of ships grounding on the shoreline due to negligent navigation.

17 Course alternations due to the establishment of the ATBAs will be minimal. The proposed ATBAs will allow ships to follow existing traffic patterns. (See annex 1, chartlet 2). The establishment of an ATBA will add approximately ten (10) nautical miles to an average overall transoceanic voyage.

18 The proposed ATBAs will have no impact on the sea room available for navigation.

19 The Aleutian Islands region contains a National Marine Wildlife Refuge. The establishment of the proposed ATBAs aims to keep transiting ships away from this area in an effort to reduce disturbances to local wildlife from ship traffic.

20 ATBAs are the most appropriate ships routeing measure that will maintain a safe distance between ships and the ecologically sensitive coastline of the Aleutian Islands.

Position-fixing in relation to the routeing system

21 The proposed routeing measures are designed to establish a safe distance from shore and allow for additional response time in the event of an offshore incident. The lack of navigational aids and highly variable weather patterns often lead to dangerous navigating conditions in and around the Aleutian Islands. In fact, aids to navigation, specifically lights, are infrequent along much of this coastline. Navigational lights are located near Unimak Pass at Scotch Cape, Ugamak Island and Cape Sarichef. There are three National Data buoys in the region, which are equipped with radar reflectors, which greatly increase the range at which the buoys may be detected. In general, many of the aids to navigation in Alaska are seasonal.

Marine environmental considerations

22 The Aleutian Islands area contains globally unique habitat and wildlife populations that may be significantly, deleteriously impacted by ship based pollution. Passages between the islands are critical corridors for most of the world's whale and northern fur seals, which transit the passes to reach feeding and breeding grounds. The islands contain extensive breeding colonies containing millions of migratory and resident seabirds only known to live and breed in this region. The seafloor habitat of the Aleutian Islands is unique and is known to have the oldest and most diverse cold water coral in the world. Additionally, more than 40 million seabirds of 26 species breed in the Aleutian Archipelago (NPFMC 2006). The Aleutian Islands provide residence or seasonal habitat for a variety of marine mammals including Steller sea lions, northern fur seals, harbour seals, sea otters, and various cetacean species (NPFMC 2007).

23 There are many national and international protected areas within the Aleutian Islands region. These areas have been designated to protect the components of both the marine and terrestrial environment. Information on some of the key areas for this proposal is provided below.

24 The Alaska Maritime National Wildlife Refuge, established by the Alaska National Interest Lands Conservation Act of 1980 and currently managed by the United States Fish & Wildlife Service, includes most of the Aleutian Islands within its boundary and comprises a total area of 1.9 million hectares. The Refuge was established to conserve marine mammals, seabirds, and other migratory birds and the marine resources upon which they rely.

25 The Refuge was further designated as a Biosphere Reserve by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 1976. The Reserve consists of the majority of the Aleutian Islands extending from the Alaska Peninsula about 1,600 km to the west, including both terrestrial and marine environments.

26 Other formally protected areas in the region include the Steller Sea Lion Protection Area, which was designated in 1990 to protect federally designated threatened/endangered species, the Bering Sea Habitat Conservation Area, the Aleutian Island Coral Protection Area, the Gulf of Alaska Slope Habitat Conservation Areas, and protected areas for Groundfish, Pollock, and Pacific Cod.

27 Historically, anthropogenic impacts have had a large influence on the local ecosystem of the Aleutian Island area. Human factors that have shaped the Aleutian Island marine ecosystem include fishing, hunting of marine mammals and seabirds, shipping, and military activities. Changes in marine mammal populations include the extinction of the Steller's sea cow (*Hydrodamalis gigas*), near extirpation, recovery and recent declines of northern sea otters (*Enhydra lutris*) (Doroff et al. 2003), and substantial declines in the western distinct population segment of Steller sea lions (*Eumetopias jubatus*) (Braham et al. 1980, NMFS 2010). Changes in commercially fished species include the depletion of economically valuable species such as Pacific Ocean perch (*Sebastes alutus*) and red king crab (*Paralithodes camtschaticus*) (Schumacher and Kruse 2005, NPFMC 2007). Unangan (i.e. Aleut) people have inhabited the Aleutian Islands for over 9,000 years (Veltre and Smith 2010). Cultural influences on the Unangan people occurred in the mid-1700s with Russian occupation for fur trade purposes, and later with the United States military presence, beginning in World War II. Today, thirteen communities in the Aleutian Islands are inhabited, with a total population level of approximately 8,352 individuals. Communities are heavily dependent on commercial and subsistence fishing (Sepez et al. 2005).

Critical habitat

28 Steller sea lion critical habitat includes a 20-nautical-mile buffer around all major haul outs and rookeries, as well as associated terrestrial, air, and aquatic zones, and three large offshore foraging areas. There are 33 recognized rookery sites for this species across the Aleutian Islands.

29 Critical habitat for the North Pacific Right Whale has been established in the Bering Sea. The passages in the Aleutian Islands connect the critical habitat areas of the Bering Sea and Gulf of Alaska.

30 In October 2009, the United States Fish & Wildlife Service designated critical habitat for the northern sea otter, which was listed as threatened under the Endangered Species Act in 2005. The northern sea otter range is from the western end of the Aleutian Islands to lower west Cook Inlet and five discrete critical habitat units have been designated, which includes the Western Aleutian Unit and Eastern Aleutian Unit. Critical habitat occurs in the nearshore marine waters ranging from mean high tide line seaward for a distance of 100 meters, or to a water depth of 20 meters (USFWS 2014).

Productivity

31 The Aleutian Islands and Bering Sea are a biologically diverse and productive ecosystem valuable for commercial and subsistence fishing as well as for supporting large seabird and marine mammal populations. The Bering Sea shelf break is the dominant driver of primary productivity in the Bering Sea. This zone is where shallower water of the continental shelf drops off into the North Aleutian Basin. Nutrients upwelling from the cold waters of the Aleutian basin flowing up the slope and mixing with shallow waters of the

Bering Sea provide for constant production of phytoplankton. This high primary productivity forms the base of a diverse food web that sustains higher trophic levels of both commercially viable and endangered wildlife. The Aleutian Islands, combined with the Bering Sea and Gulf of Alaska, support the world's largest groundfish fisheries. Additional marine species such as salmon, halibut, scallop, king and tanner crab are important for commercial and subsistence fisheries.

Natural factors

32 The weather of the Aleutians is characterized by persistently overcast skies, strong winds, and violent storms. It is often variable and quite local near the islands. Clear weather is seldom encountered over a large area. North shores are usually better off than South shores. The relatively warm waters of the Japan Current moderate the winter temperatures, so the islands are usually free from ice, which would hamper navigation. At Adak, overcast conditions average nearly 75% of the time during June and July, dropping back to approximately 50% of the time from October through February. Winds are variable, local, and often strong. Williwaws are common in the vicinity of the islands, where the terrain and weather combine to create these intense gravity (katabatic) winds. Intense lows bring gales from October through March. Sustained winds have climbed to 50 knots at Dutch Harbour, and to 74 knots on Umnak Island. In 2009, an estimated 100+ knot gust toppled a crane in Dutch Harbour. A peak gust of 109 knots occurred at Adak in March 1954. Gales occur in all months of the year at Adak with the greatest chance from December through March. The poorest visibilities in the Alaska area occur along the Aleutians. They are best in winter, although even then they can be hampered by fog, snow, and rain. In summer when warm air from the Pacific moves over relatively cooler waters near the Aleutians, extensive fog formation takes place. Often the sun's heat has little effect in dissipating this fog, and it takes a change in airflow to clear the region. This advection or sea fog forms most often from June through September. At its peak in July and August, it can reduce visibilities to below two miles on 10 to 20 days per month throughout the chain. In winter, land fog is more local and can be expected, along with snow and rain, to drop visibilities to less than 2 miles on 1 to 4 days per month. This highly variable, often unpredictable weather can easily turn small incidents into serious operational problems for mariners. The local weather of the Aleutians was taken into account while developing this proposal in order to ensure that the distance from shore requirements are sufficient to allow a suitable amount of time for course alteration or rescue operations.

Economic benefit

33 The United States has exclusive fishery management authority over all marine fishery resources in this area, as established under the Magnuson-Stevens Fishery and Conservation Management Act. The fisheries within the Bering Sea–Aleutian Islands (BSAI) ecosystem are managed under a sophisticated multi-species framework that is based on extensive monitoring by both fishers and managers.

34 The groundfish fishery in Alaska is the largest commercial fishery in the world. In addition to groundfish, other key species harvested include but are not limited to crab, salmon, and halibut. About 80 stocks of groundfish are recognized and managed in the BSAI ecosystem (NPFMC 2006); chief among these are stocks of walleye pollock, Pacific cod, and Atka mackerel. The federal groundfish fisheries extend southward in the Aleutian Islands west of 170ºW to the border of the EEZ. In addition, herring, crab, halibut, and salmon are also fished. The Alaska Department of Fish & Game manages commercial fisheries near to shore, inside the 3-nautical mile zone. Compared to the federal fisheries, the State-managed groundfish fisheries account for a small portion of the total and, in the area, consist primarily of Pacific cod and black rockfish. Seafood processing dominates employment in the manufacturing sector of this region.

35 The BSAI crab fishery includes king (*Paralithodes* and *lithodes spp*.) and Tanner crab (*Chionoecetes spp*.). These species are most commonly found using the continental shelf and slope to depths of approximately 1,000 m (NMFS 2004). There are four species of king crab that support the BSAI fisheries including red king crab, blue king crab, golden king crab, and scarlet king crab.

36 The BSAI encompasses several commercially important fisheries that are critical for both the local economy and future food security. Additionally, there are many subsistence fishers in the area who rely on local stocks for survival. The heightened risk of marine pollution from ships in this area could have significant, wide-ranging, adverse impacts on local fisheries. A large scale pollution event would decrease the economic viability of these fisheries for possibly generations.

Cultural significance

37 The people who settled along the Aleutian archipelago are often referred to as Aleuts. Russian fur traders gave this name to them, but they prefer to call themselves Unangan, or coastal people. It is believed that the Aleuts migrated across the Bering land bridge from Asia between 12,000 and 15,000 years ago.

38 The Aleut people suffered tremendous loss during World War II when the United States Government relocated most of the Aleutian Island residents to internment camps located in Southeast Alaska. Many Aleuts died in these camps further reducing their population. Currently Aleut people still rely on the sea for their livelihood. Most live a subsistence lifestyle which includes fishing and hunting. It is believed that today the population of Aleuts is approximately 2,000.

39 People had, and have, a maritime focused culture in the Aleutian Islands for 10,000 years. During this time every habitable stretch of the coastline was occupied. Sites here can be huge, covering hundreds of acres, or they may be isolated sea caves, dwellings, camps, or burials. The deposits may extend into the littoral zone. Subtidal cultural resources of the island chain have never been adequately inventoried but there are several hundred known shipwrecks along the archipelago. More recent historic properties, from the Russian period through World War II and Cold War are also numerous but barely inventoried. There are 14 places on the National Register of Historic Places in the area, most located in upland areas.

Subsistence significance

40 Subsistence activities include harvesting, sharing, and consuming vegetative and terrestrial and aquatic animal resources. Nearly all of the residents in each of the communities take part in subsistence activities (ADCED 2010; Sepez et al. 2005). The communities in the area depend heavily on subsistence resources such as (ADCED 2010): salmon, non-salmon fish species, shellfish, marine mammals (e.g. seals), land mammals (e.g. caribou, wild cattle and reindeer), birds and bird eggs, marine invertebrates and vegetation. Designated subsistence use areas within the proposal area have been well documented (LaRoche and Associates 2005).

Research and education

41 Management of fisheries, natural and cultural resources and their associated marine and terrestrial ecosystems are important issues in this area, and relevant structures have been created in Alaska such as the Bering Sea and Aleutian Islands Integrated Ecosystem Research Program, North Pacific Research Board, and the Aleutian and Bering Sea Islands Landscape Conservation Cooperative.

Vulnerability of the area to damage by international shipping activities

42 The entire area is quite vulnerable to major damage from international shipping activities. Minor oil spills and other incidents are likely to have a major impact on the sensitive ecosystem, seabird colonies, marine mammals, and fisheries. The State of Alaska has a zero tolerance for oil pollution impacts to commercial fisheries and an incident could result in substantial economic and ecological losses.

43 Large commercial vessels currently use transportation routes through the Aleutian Island to the Bering Sea and pose a variety of significant environmental risks to resources and services including contaminant spills, disturbance of marine mammals and seabird habitat, accidental invasive species introductions, and direct mortalities resulting from ship strikes (AMSA 2009). Dating back to mid-1700 when Russian explorers transited the region to present time transhipments of cargo and oil, hundreds of known wrecks and groundings have occurred in the Aleutian Island region. Many of these wrecks were abandoned on the adjacent shorelines or sunk near shore. In the late 1970s through the 80's there were a number of vessel casualties in the Aleutians that required extreme response options due to the remote locations and potential threat of an oil spill to the environment and sensitive ecosystem. In some cases incendiary devices were used to blow fuel tanks and expose the oil for burning in-situ or within the vessel.

44 More recently, the **M/V Selendang Ayu** (2004) grounding and spill highlighted the need for routeing measures in the region. The incident occurred on Unalaska Island, near the largest community in the Aleutian Islands and largest fisheries port in the United States. The **Selendang Ayu** was laden with a full cargo of soybeans when it ran aground and ultimately split in two. Although the actual amount of fuel spilled is unknown, the total volume of fuel initially on board the vessel was approximately 446,280 gallons of intermediate fuel oil (IFO 380) and 31,573 gallons of marine diesel oil. An estimated 321,052 gallons of IFO 380 from the three centreline tanks and 14,680 gallons of marine diesel/miscellaneous oils were released to the environment. The total estimated amount of all oils released to the environment was 335,732 gallons.[1] Six crewmen of the **Selendang Ayu** perished during the rescue operation.

45 In 2006, the **M/V Cougar Ace** a 654-foot car carrier contacted the United States Coast Guard and reported that their vessel was listing at 80 degrees and taking on water. The Alaska Air National Guard and United States Coast Guard aircraft crews rescued the 23 crewmembers. The vessel remained adrift until rescue vessels were able to arrive on scene and tow the vessel to Dutch Harbour, Alaska. The estimated amount of fuel onboard the **Cougar Ace** was 142,184 gallons of intermediate fuel oil and 34,182 gallons of marine diesel. One marine engineer perished while conducting a survey of the vessel at sea.

46 In 2010, the **M/V Golden Seas** a 738-foot bulk carrier was adrift 70 nm north of Adak Island. The **Golden Seas** was carrying approximately 60,000 MT of canola oil onboard and had lost one engine. Seas were reported at 29-ft with 35-knot winds. Fuel onboard included 450,000 gallons of IFO, 11,780 gallons of diesel, and 10,000 gallons of lube oil. Ultimately an ocean-going tug, **M/V Tor Viking**, which had been temporarily stationed in Dutch Harbour, was hired to attempt a rescue of the drifting **M/V Golden Seas** and was able to attach an emergency towing harness. Three days later the **Golden Seas** was towed to and securely anchored in Captains Bay at Dutch Harbour, Unalaska Island.

[1] Alaska Department of Environmental Conservation Situation Report #76.

47 The State of Alaska, Department of Environmental Conservation analysed and summarized oil and hazardous substance spill data conducted for a 10-year period (July 1995 to June 2005) of the Aleutian Island region. Spills from vessels were the most common source of spills accounting for 47% of the total number (320), and 88% of the total volume (412,204 gallons) of spills.

48 In the North Pacific, a great circle route from the western United States to eastern Asia passes through Unimak Pass and the western Aleutian Islands (Halpren et al. 2008). It crosses the transit lanes and fishing grounds of the largest fisheries in North America, as well as the Alaska Maritime National Wildlife Refuge. As many as 12 vessels per day use this route through the Aleutian Archipelago at Unimak Pass, with many continuing on and passing west of Tanaga Island (Nuka Research 2014). A second great circle companion route passes south of the Aleutians and is generally used for voyages from East Asia to North America. Assuming trade continues to expand between Asian markets and the United States and Canada, traffic is expected to increase in coming years subjecting this area to additional impacts from international shipping.

Existing domestic routeing measures

49 In 1985, the Coast Guard conducted a Ports Access Route Study for Unimak Pass and on December 2, 1986, established a safety fairway. The Unimak Pass Safety Fairway is:

(i) *East/West Safety Fairway.* The area enclosed by rhumb lines[2] joining points at:

Latitude	Longitude
54°25′58″ N	165°42′24″ W
54°22′50″ N	165°06′54″ W
54°22′10″ N	164°59′29″ W
54°07′58″ N	162°19′25″ W
54°04′02″ N	162°20′35″ W
54°22′02″ N	165°43′36″ W

(ii) *North/South Safety Fairway.* The area enclosed by rhumb lines joining points at:

Latitude	Longitude
54°42′28″ N	165°16′19″ W
54°43′32″ N	165°09′41″ W
54°22′50″ N	165°06′54″ W
54°22′10″ N	164°59′29″ W

These positions are based on North American 1927 Datum (NAD 27).

[2] In navigation, a **rhumb line** (or **loxodrome**) is a line crossing all meridians of longitude at the same angle, i.e. a path derived from a defined *initial* bearing. That is, upon taking an initial bearing, one proceeds along the same bearing, without changing the direction as measured relative to true or magnetic north.

Proposed date of implementation

50 The United States proposes that the date of implementation be six months after adoption by the Maritime Safety Committee (MSC).

Action requested of the Sub-Committee

51 The Sub-Committee is invited to consider the proposal and recommend the proposal to the MSC for adoption.

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ANNEX

AREAS TO BE AVOIDED "IN THE REGION OF THE ALEUTIAN ISLAND ARCHIPELAGO"

Reference charts: United States 16011, 2012 edition; United States 16012, 2005 edition.

Note: These charts are based on North American 1983 Datum (NAD 83) which is equivalent to World Geodetic System 1984 Datum (WGS 84).

Description of the areas to be avoided

In order to reduce the risk of a marine casualty and resulting pollution and damage to the environment "In the Region of the Aleutian Island Archipelago", all ships 400 gross tons and above solely in transit should avoid the areas to be avoided bounded by lines connecting the following geographical positions:

East ATBA

An area to be avoided is established and bounded by a line connecting the following geographical positions:

(1)	54° 07'.94 N	162° 19'.48 W	(7)	56° 19'.83 N	161° 04'.29 W
(2)	54° 22'.14 N	164° 59'.57 W	(8)	56° 04'.91 N	160° 29'.04 W
(3)	54° 43'.51 N	165° 09'.77 W	(9)	55° 40'.94 N	159° 32'.43 W
(4)	54° 59'.45 N	165° 14'.74 W	(10)	55° 22'.58 N	158° 49'.19 W
(5)	55° 43'.20 N	163° 38'.05 W	(11)	54° 41'.38 N	158° 31'.66 W
(6)	56° 08'.30 N	162° 22'.14 W	(12)	54° 21'.99 N	159° 11'.54 W

thence back to point (1).

Unalaska ATBA

An area to be avoided is established and bounded by a line connecting the following geographical positions:

(13)	51° 41'.19 N	170° 52'.93 W	(19)	54° 21'.96 N	165° 43'.77 W
(14)	51° 53'.22 N	171° 32'.60 W	(20)	54° 11'.15 N	163° 41'.63 W
(15)	52° 41'.95 N	171° 50'.08 W	(21)	53° 40'.84 N	163° 41'.67 W
(16)	53° 17'.64 N	171° 50'.31 W	(22)	53° 24'.39 N	164° 07'.37 W
(17)	54° 09'.49 N	169° 23'.53 W	(23)	52° 46'.62 N	165° 56'.33 W
(18)	54° 17'.62 N	168° 11'.32 W	(24)	51° 57'.40 N	168° 57'.60 W

thence back to point (13).

Atka ATBA

An area to be avoided is established and bounded by a line connecting the following geographical positions:

(25)	50° 38'.55 N	180° 00'.00 W	(30)	52° 41'.07 N	171° 56.15'W
(26)	51° 11'.83 N	179° 50'.46 W	(31)	51° 37'.86 N	171° 34.53'W
(27)	52° 39'.35 N	178° 39'.78 W	(32)	51° 15'.27 N	172° 36.40'W
(28)	53° 13'.18 N	173° 49'.18 W	(33)	50° 21'.63 N	179° 24.20'W
(29)	53° 02'.71 N	172° 51'.16 W			

thence back to point (25).

Amchitka ATBA

An area to be avoided is established and bounded by a line connecting the following geographical positions:

(34)	51° 51'.50 N	174° 47'.54 E	(39)	52° 36'.31 N	179° 22.09'W
(35)	52° 15'.54 N	174° 53'.24 E	(40)	51° 32'.27 N	179° 41.19'W
(36)	52° 46'.63 N	176° 15'.15 E	(41)	50° 33'.65 N	179° 33.12'E
(37)	52° 57'.86 N	177° 37'.91 E	(42)	50° 44'.11 N	178° 10.33'E
(38)	52° 48'.39 N	180° 00'.00 W	(43)	51° 21'.00 N	175° 59.57'E

thence back to point (34).

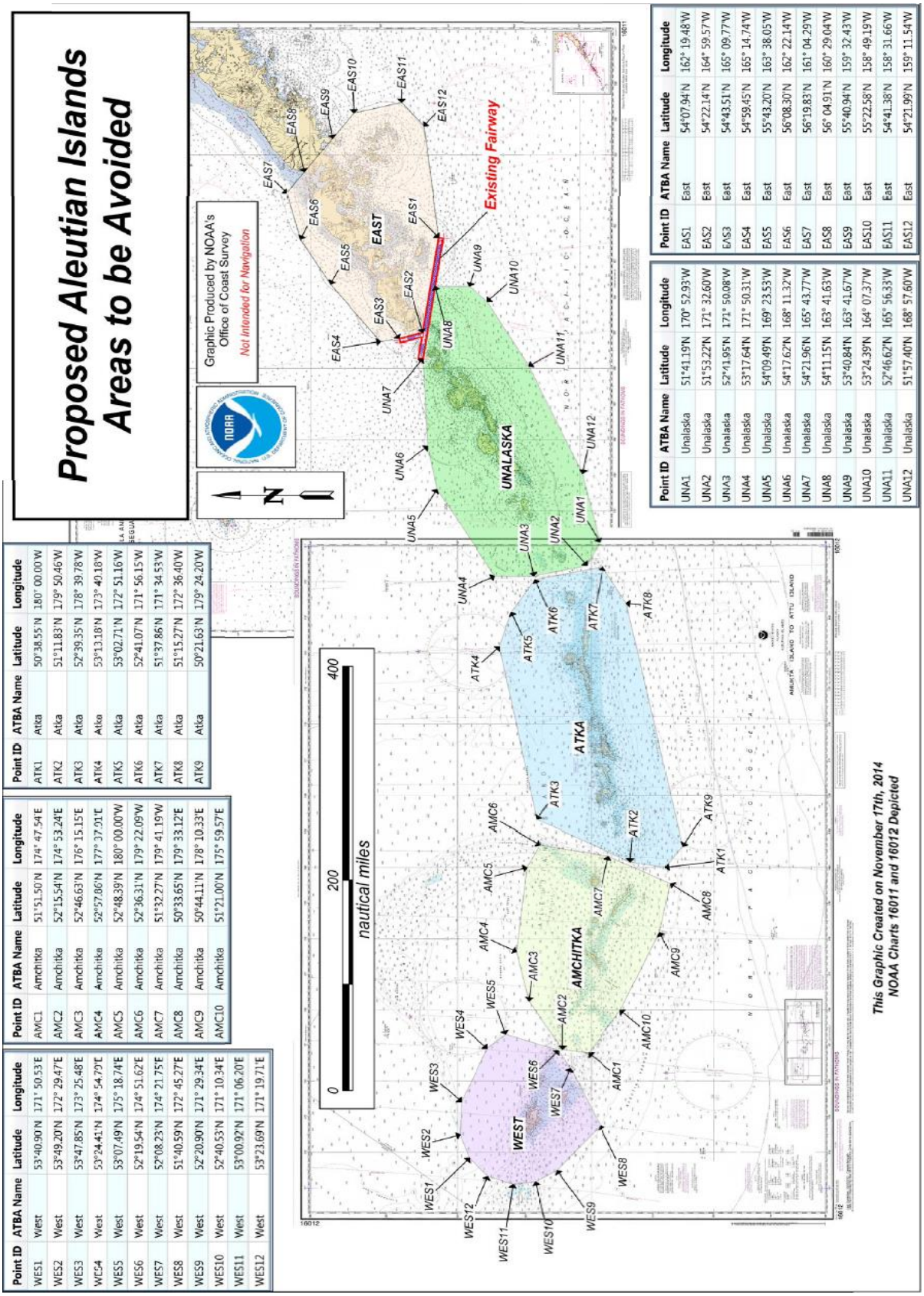
West ATBA

An area to be avoided is established and bounded by a line connecting the following geographical positions:

(44)	53° 40'.90 N	171° 50'.53 E	(50)	52° 08'.23 N	174° 21'.75 E
(45)	53° 49'.20 N	172° 29'.47 E	(51)	51° 40'.59 N	172° 45'.27 E
(46)	53° 47'.85 N	173° 25'.48 E	(52)	52° 20'.90 N	171° 29'.34 E
(47)	53° 24'.41 N	174° 54'.79 E	(53)	52° 40'.53 N	171° 10'.34 E
(48)	53° 07'.49 N'	175° 18'.74 E	(54)	53° 00'.92 N	171° 06'.20 E
(49)	52° 19'.54 N	174° 51'.62 E	(55)	53° 23'.69 N	171° 19'.71 E

thence back to point (44).

Chartlet 1



Point ID	ATBA Name	Latitude	Longitude
WES1	West	53°40.90'N	171° 50.53'E
WES2	West	53°49.20'N	172° 29.47'E
WES3	West	53°47.85'N	173° 25.48'E
WC04	West	53°24.41'N	174° 54.70'E
WES5	West	53°07.49'N	175° 18.74'E
WES6	West	52°19.54'N	174° 51.62'E
WES7	West	52°08.23'N	174° 21.75'E
WES8	West	51°40.59'N	172° 45.27'E
WES9	West	52°20.90'N	171° 29.34'E
WES10	West	52°40.53'N	171° 10.34'E
WES11	West	53°00.92'N	171° 06.20'E
WES12	West	53°23.69'N	171° 19.71'E

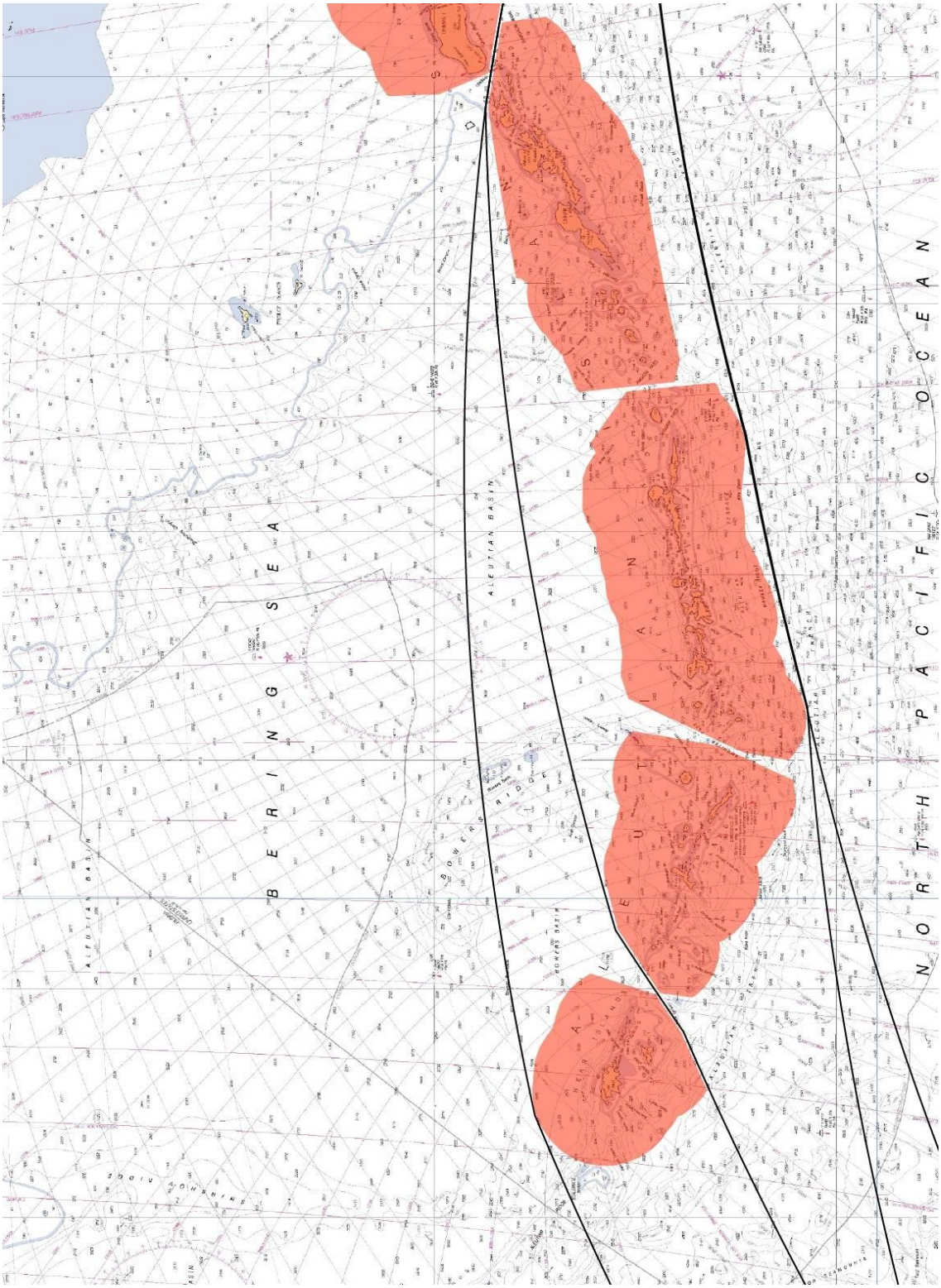
Point ID	ATBA Name	Latitude	Longitude
AMC1	Amchitka	51°51.50'N	174° 47.54'E
AMC2	Amchitka	52°15.54'N	174° 53.24'E
AMC3	Amchitka	52°46.63'N	176° 15.15'E
AMC4	Amchitka	52°57.86'N	177° 37.91'E
AMC5	Amchitka	52°48.39'N	180° 00.00'W
AMC6	Amchitka	52°36.31'N	179° 22.09'W
AMC7	Amchitka	51°32.27'N	179° 41.19'W
AMC8	Amchitka	50°33.65'N	179° 33.12'E
AMC9	Amchitka	50°44.11'N	178° 10.33'E
AMC10	Amchitka	51°21.00'N	175° 59.57'E

Point ID	ATBA Name	Latitude	Longitude
ATK1	Atka	50°38.55'N	180° 00.00'W
ATK2	Atka	51°11.83'N	179° 50.46'W
ATK3	Atka	52°39.35'N	178° 39.78'W
ATK4	Atka	53°13.18'N	173° 40.18'W
ATK5	Atka	53°02.71'N	172° 51.16'W
ATK6	Atka	52°41.07'N	171° 56.15'W
ATK7	Atka	51°37.86'N	171° 34.53'W
ATK8	Atka	51°15.27'N	172° 36.40'W
ATK9	Atka	50°21.63'N	179° 24.20'W

Point ID	ATBA Name	Latitude	Longitude
UNA1	Unalaska	51°41.19'N	170° 52.93'W
UNA2	Unalaska	51°53.22'N	171° 32.60'W
UNA3	Unalaska	52°41.95'N	171° 50.08'W
UNA4	Unalaska	53°17.64'N	171° 50.31'W
UNA5	Unalaska	54°09.49'N	169° 23.53'W
UNA6	Unalaska	54°17.62'N	168° 11.32'W
UNA7	Unalaska	54°21.96'N	165° 43.77'W
UNA8	Unalaska	54°11.15'N	163° 41.63'W
UNA9	Unalaska	53°40.84'N	163° 41.67'W
UNA10	Unalaska	53°24.39'N	164° 07.37'W
UNA11	Unalaska	52°46.62'N	165° 56.33'W
UNA12	Unalaska	51°57.40'N	168° 57.60'W

Point ID	ATBA Name	Latitude	Longitude
EAS1	East	54°07.94'N	162° 19.48'W
EAS2	East	54°22.14'N	164° 59.57'W
EAS3	East	54°43.51'N	165° 09.77'W
EAS4	East	54°59.45'N	165° 14.74'W
EAS5	East	55°43.20'N	163° 38.05'W
EAS6	East	56°08.30'N	162° 22.14'W
EAS7	East	56°19.83'N	161° 04.29'W
EAS8	East	56° 04.91'N	160° 29.04'W
EAS9	East	55°40.94'N	159° 32.43'W
EAS10	East	55°22.58'N	158° 49.19'W
EAS11	East	54°41.38'N	158° 31.66'W
EAS12	East	54°21.99'N	159° 11.54'W

Chartlet 2


BERING SEA
ALEUTIAN BASIN
ALEUTIAN RIDGE
NORTH PACIFIC OCEAN