January 21, 2013

GPT/BNSF Custer Spur EIS
c/o CH2MHill 1100 112th Avenue Northeast, Suite 400
Bellevue, WA 98004

Attn: Mr. Randel Perry, U.S. Army Corps of Engineers; Ms. Jeannie Summerhays, Washington State Department of Ecology and Mr. Tyler Schroeder, Whatcom County Planning Department

RE: Scoping Comments for GPT/BNSF Custer Spur EIS. **Topics**: Impacts on National Wildlife Refuges, marine environment, atmosphere

Dear Mr. Perry, Ms. Summerhays and Mr. Schroeder:

Thank you for this opportunity to provide scoping comments for preparation of an Environmental Impact Statement (EIS) for the Pacific International Terminals Inc.'s proposed Gateway Pacific Terminal project at Cherry Point, Washington and the Burlington Northern Santa Fe Railway's (BNSF's) Custer Spur Rail Expansion project (hereinafter collectively referred to as "GPT"). Please accept the following comments from Friends of Alaska National Wildlife Refuges and FRIENDS of the San Juans.

Friends of Alaska National Wildlife Refuges is an independent, non-profit organization dedicated to promoting the conservation of the natural resources of all the Alaska National Wildlife Refuges. The Friends promote understanding and appreciation of these refuges and assist the U.S. Fish and Wildlife Service in meeting its mandates. Our work includes educating the public and decision makers on local, national, and international levels about Alaska's National Wildlife Refuges; assisting refuges in accomplishing their missions through wildlife management and habitat improvement projects and funding refuge oriented projects through grants, memberships, donations, and other activities.

FRIENDS of the San Juans is also an independent, non-profit organization that advocates for healthy, sustainable communities and has defended natural spaces and wildlife in the San Juan Islands for over 30 years. Our scientists, educators and lawyers provide the expertise that citizens and groups need to protect and preserve the Salish Sea ecosystem. FRIENDS is concerned about the local marine impacts associated with the GPT project – many of the concerns are echoed along the entire shipping route and must be included in the EIS process.

Among other things, GPT's Project Information Document (PID) calls for 974 annual transits of Cape size and Panamax bulk carriers from and to the GPT and Asia

annually upon full operation of the terminal. Table 4-6, p. 4-61, of GPT's PID dated Feb. 28, 2011. In order for the GPT to export cargo to Asia as planned, it must use these large commercial bulk carriers. If the GPT is permitted, these vessels would transport at least 48 million metric tons of thermal coal annually from GPT to Asia for use in coal fired power plants. Although GPT would predominantly export coal, at present the PID also includes a second terminal to export an additional 6 million tons of dry bulk materials, initially calcined coke and potash. Other commodities could include wheat, wood chips, or sulfur depending on world markets. The large bulk carrier vessels GPT would use for export of its cargoes (hereinafter referred to as "GPT vessels") would be single hulled and use large amounts of fuel ("heavy residual oil") and other oil that can persist if spilled in the environment. We are requesting that the scope of the EIS for the GPT include a rigorous assessment of all potential adverse impacts on Alaska's National Wildlife Refuges if GPT is permitted. Neither NEPA nor SEPA place a time or location restraint on reasonably foreseeable adverse impacts, therefore our request is within the purview of the EIS.

ALASKA MARITIME NATIONAL WILDLIFE REFUGE AND ITS RESOURCES

The overarching goal of all national wildlife refuges, including the Alaska Maritime National Wildlife Refuge (hereinafter Alaska Maritime Refuge or the Refuge) is to conserve, sustain, restore and enhance fish, wildlife and plants in their diverse natural habitats, including for Alaska's Refuges, marine resources. The natural resources in the Alaska Maritime Refuge as in the other Alaska Refuges are held in trust for the benefit of the resources and the public, including for future generations. Alaska Maritime Refuge contains more than 2,500 islands, islets, spires, rocks, reefs, waters and headlands that extend from Forrester Island, to the north of Canada's Queen Charlotte Islands deep in the southeast tongue of the state, to the westernmost tip of the Aleutian Islands, and north to Cape Lisburne on the Arctic Ocean. The 3.4 million acres of the Refuge are spread out along most of the 47,300 miles of Alaska's coastline. There are five units within the Refuge: Aleutian Islands Unit; the Gulf of Alaska Unit, the Bering Sea Unit, the Alaska Peninsula Unit, and the Chukchi Sea Unit. The Refuge protects essential habitat for seabirds, marine mammals, fish and other wildlife and contains one of the most important marine ecosystems in the world. Its isolated islands host unique species not found anywhere else. For more than two decades, Alaska Maritime Refuge has operated the M/V Tîglâx, a research vessel used for studying the biological resources and marine food web in the Gulf of Alaska and Bering Sea.

The Alaska Maritime Refuge is home to more than 40 million seabirds (80% of all the seabirds found in Alaska) representing more than 30 species. These birds forage for fish and plankton in the seas surrounding the Refuge. Some 250 migratory bird

species, including rare species, from Asia and North America use the Refuge. Some species and subspecies of birds in the Refuge are found nowhere else. Some of the birds that nest on the refuge – including whiskered, crested and least auklets, red-legged kittiwakes, Aleutian terns and red-faced cormorants – live and breed solely in the core Bering Sea-North Pacific Ocean zone. The vast majority of fork-tailed storm-petrels and horned and tufted puffins breed in Alaska and on the Refuge. Millions of shearwaters come to the Refuge during the summer to feast on the abundant ocean resources. The Aleutian cackling goose that relies on unique nesting habitat on Buldir Island in the Refuge is one of the few species to have been removed from the Endangered Species list based upon conservation efforts in the Refuge. Thirty Refuge sites (including Unimak Pass identified as a top Important Bird Area (IBA) based upon bird abundance and diversity) have been identified by National Audubon as IBA of the Bering Sea Eco-region under an international bird conservation program spearheaded by Audubon Alaska with Russian and Asian partners. (An IBA is an international designation used in more than 150 countries to indicate that an area harbors bird species of special concern, species with restricted home ranges, and species that are vulnerable because they exist in high concentrations and therefore could suffer significant negative impact from a single event). Birds found in the Alaska Maritime Refuge, including individuals of 58 species in the Aleutian Islands Unit, 60 species in the Alaska Peninsula Unit and 64 species in the Gulf of Alaska Unit, migrate to the Salish Sea area including the San Juan Islands in Washington State during fall and winter.

The Refuge also supports endangered and threatened marine mammals (Steller sea lion and otters) and as well as Northern fur seals, walrus, harbor seals, and Northern elephant seals. These mammals breed or find refuge on remote Refuge beaches or offshore islets. Nearshore waters of the Refuge provide protected "nurseries" for endangered and declining marine mammals. Nearshore waters also contain habitat for the following Cetacea: Gray whale, Blue whale, Fin whale, Sei whale, Minke whale, humpback whale, Sperm whale, Baird's beaked whale, Cuvier's beaked whale, Killer whale, Pacific white-sided dolphin and the Dall's porpoise. For many marine mammals, Unimak Pass provides a critical migratory corridor between the North Pacific Ocean and the Bering Sea. This Pass has been called a marine mammal "superhighway," used by humpback whales, sea lions, fur seals, and many other wildlife species moving between the two water bodies.

At least 93 species of fish, skates, and sharks have been documented in the cold, turbulent nutrient-rich Alaska Maritime Refuge waters. The fish resources in waters around the Alaska Maritime Refuge are not only important to wildlife. The Aleutian Islands are home to the largest and most valuable commercial fishing grounds of the United States. Foreign and domestic fishing fleets, sport anglers and subsistence users,

not only from Alaska but also including residents of Washington State, depend on plentiful pollock, herring, sole, cod, halibut, shellfish, and salmon in waters adjacent to Refuge lands. Commercial fishing dominates the economies of the Aleutian Islands region.

The waters of the Bering Sea and Gulf of Alaska surrounding and adjacent to the Alaska Maritime Refuge provide vital habitat the five species of Pacific salmon during the ocean phase of their life histories. Each year juvenile Pacific salmon from Washington, Oregon, California and British Columbia migrate far at sea to Alaskan waters – into the Gulf of Alaska and Bristol Bay - and eventually back to their inland streams to spawn. The most commercially valuable species – sockeye, pink and salmon - spend the least amount of time in fresh water or coastal waters. Instead, these species spend the major part of their life history in open waters of the North Pacific and Bering Sea. Species of Pacific salmon from Washington State, including from the Salish Sea area, migrate thousands of miles north in nutrient-rich currents along the west coast of Canada and southeast Alaska, to reach the biologically rich waters of the Gulf of Alaska and around the arc of the Gulf into the Bering Sea. (See maps, Attachment A.) Unimak Pass in the Aleutian Islands provides a major, direct conduit for salmon to travel between the shelves of the North Pacific and eastern Bering Sea. The Pass is a significant source of nutrients to the productive “green-belt” ecosystem of the southeastern Bering Sea shelf. Chinook salmon and steelhead trout tagged in the Aleutian Islands have been recovered in rivers in Washington.

Rich eelgrass beds and kelp forests that provide substrate and shelter for invertebrates and fish and serve as an important source of nutrition for seabirds are found in the waters of the Aleutian Islands. Izembek Lagoon in the adjacent Izembek National Wildlife Refuge contains one of the world’s largest expanses of eelgrass. The Aleutian Islands are also home to coral gardens where more than 100 species of cold water corals, including some endemic to the region, also provide rich habitat for numerous fish and invertebrates, including rockfish, shrimp and golden king crab. New species are continually being discovered in the the Alaska Maritime Refuge.

Visitors to the Alaska Maritime Refuge (as well as to other Alaska National Wildlife Refuges) provide tourism dollars that help support local economies. Charters boats carry recreational fisherman from Homer, Seward, Sitka, Kodiak and Unalaska to fish the salt waters off Refuge lands. Alaska Maritime Refuge and its surrounding waters (and particularly its Aleutian Islands) have also become a coveted destination for serious birders. Despite the remoteness of some areas in the Refuge, its bird colonies are regularly visited by commercial and charter boats operating out of Seward, Sitka and Homer and coastal communities located near refuge lands, including Kodiak,

Nome, Unalaska, St. Paul and Sand Point. Because Alaska Maritime Refuge contains not only significant numbers of diverse wildlife species but also offers stunning landscapes, charter boars offer wildlife photography tours in summer that provide visitors opportunities to capture images of both birds and marine mammals in beautiful landscapes. Refuge naturalists also accompany Alaska ferries from Homer to Kodiak or Unalaska during the summer presenting wildlife programs and helping visitors identify birds and mammals seen along the way.

NORTH PACIFIC GREAT CIRCLE ROUTE AND UNIMAK PASS

A “great circle route” is the shortest distance between two places on the earth’s surface. A circle route follows a line described by the intersection of the surface with an imaginary plane passing through the earth’s center. Large commercial vessels from Pacific coast ports in the U.S., Canada and Asia traverse the North Pacific Great Circle Route (Great Circle Route) because this is the most direct transit route. (See map of Route, Attachment B.) Large and smaller vessels along the Route carry significant volumes of fuel; cargoes including hazardous materials, fossil fuels, chemicals and invasive species. A foreseeable consequence of the GPT, if approved, would be a significant increase in vessel traffic to and from Asia along the North Pacific Great Circle Route through the waters surrounding and adjacent to the Alaska Maritime Refuge, including through and/or near the Aleutian Islands and Unimak Pass. GPT vessel traffic would be in addition to all existing and foreseeable future vessel traffic using this Great Circle Route.

Because of the Aleutian Islands arc, vessels traveling to Asia using the North Pacific Great Circle Route can pass through the islands twice, once through Unimak Pass and again through the westernmost islands, near, for example, Buldir Island. Many vessels from Asia also travel through or near the Aleutian Islands. The Great Circle Route crosses the transit lanes and fishing grounds of the largest fisheries in North America, valued in excess of $1.5 billion. The majority of the vessels traversing the Great Circle Route are foreign flagged and on “innocent passage” (right of vessel passage through a state’s territorial sea when not calling at a port in that state - up to 12 nautical miles from the baseline) and so do not have to meet U.S. Coast Guard requirements for vessels calling on ports. Heavily traveled Unimak Pass is an "international strait" that foreign vessels can enter without regulatory restriction. Here, there are no shipping lanes, and no notification or pilotage requirements. In addition to large commercial vessels (classed as containerships, bulk carriers, car carriers, tanker vessels, and others) smaller vessels such as fishing vessels; ferries; cruise ships; tugs; and local supply, service and work vessels including barges operate in and around areas within the Great Circle Route including the Aleutian Islands region.

VESSEL ACCIDENTS AND CONSEQUENCES

Accidents along the Great Circle Route, particularly in Alaska Maritime Refuge's Aleutian Islands region, are not uncommon. In fact, this area is well-known not only for frequent and sudden storms, very high winds and severe sea conditions, but also its history of accidents and spills.(See map Attachment B.) Recent accidents involving the large and growing fleet of vessels traveling along the Great Circle Route from Pacific coast ports have resulted in fuel oil and cargo spills with serious consequences. In December 2004, a Malaysian-registered bulk grain carrier, *M/V Selendang Ayu*, traveling from Seattle to China went adrift just past Unimak Pass, ran aground and broke apart on Unalaska Island during a severe storm. The accident resulted in the death of six crew members when a U.S. Coast Guard (USCG) rescue helicopter crashed. The event also resulted in a spill of 340,000 gallons of heavy bunker fuel and the ship's cargo of soybeans. Due to bad weather and the near-absence of oil-spill-cleanup capability, nearly none of the oil was recovered. Oil coated twenty miles of the Alaska Maritime Refuge coastline. Some 1,700 seabird carcasses were found, but this is believed to be only a fraction of the number of birds killed. Only 29 birds were rescued. The incident also endangered commercial fisheries.

In a study referenced below, the Transportation Board of the National Academies of Sciences (NSA), (p. 21) stated that the M/V *Selendang Ayu* accident was not an isolated event: "[E]ach year, accidents and near accidents occur in the Aleutians with the potential for significant environmental and economic consequences." Many of these accidents have involved casualties as well as fuel and cargo spills. There is only very minimal capability to respond to large vessels in distress along the North Pacific Great Circle Route near and through the Aleutians, particularly in harsh weather conditions. Radio network gaps can hinder communication in the area. In many cases the nearly complete lack of response equipment and vessels coupled with unforgiving weather and sea conditions have prevented any response to these events whatsoever. As a result, nearly all efforts to recover oil from these accidents have been ineffective.

Other recent large vessel accidents in the Aleutian Islands include in December 2010, the *Golden Seas* freighter carrying canola seed, diesel and fuel oil went adrift during a massive storm just north of Adak Island; in 2006 the 14-deck car carrier *Cougar Ace* tipped over south of the Aleutian Islands while switching out water in its ballast tanks; in November 1997 the M/V *Kuroshima* frozen seafood freighter broke its anchorage during a storm and ran aground in Summer Bay, Unalaska Island, releasing approximately 40,000 gallons of heavy fuel oil that damaged fish and wildlife resources and threatened fisheries.

Accidents and spills along the North Pacific Great Circle Route are not confined to the Aleutian Islands. Most recently, on December 31, 2012, the Shell Oil-contracted drilling rig Kulluk en route from the Beaufort Sea to Seattle broke away from one of its tow lines, drifted and ran aground off Sitkalidak Island, southeast of Kodiak Island, in the Gulf of Alaska during an intense winter storm. The coastline off Sitkalidak Island traps abundant food sources upwelling from the central Gulf of Alaska that attract large numbers of seabirds and marine mammals. Waters around this island have the largest concentration of herring in the archipelago. The largest flock of common murres ever recorded by U.S. Fish and Wildlife was in Sitkalidak Strait. Accidents and spills from an increase in vessel traffic would have significant adverse impacts on the ecosystems of the Alaska Maritime Refuge and other Alaska National Wildlife Refuges, devastating wildlife, marine and coastal habitat, and economies that depend on the region's rich resources.

Based upon the volume of vessel traffic currently traversing and planned to traverse the North Pacific Great Circle Route to and from Asia, we request that the EIS for the GPT identify, quantify and evaluate the risk and consequences of accidents, spills and other discharges of fuel and cargo along this route, as well as the potential impacts on the ecosystems and resources of Alaska's National Wildlife Refuges. Please include an evaluation of worst case scenarios. The EIS must at a minimum:

- *identify with specificity the entire route or routes, including passage along the North Pacific Great Circle Route and through the Aleutian Islands, that GPT vessels would take to and from Asia during all seasons of the year;*

- *identify and evaluate operation and safety laws/regulations applicable to the GPT vessels' passage all along the route or routes from Washington State to Asia, including in international straits and waters, and identify who would bear responsibility for compliance with each law/regulation identified and liability for non-compliance;*

- *identify with specificity the likely owners and operators of GPT vessels (and flags under which they would operate) and whether/where the vessels would be sailing under the right of innocent passage;*

- *identify, quantify and evaluate the risk of GPT vessel accidents all along the Great Circle Route (including collisions, allisions, powered groundings, drift groundings, fire and explosion, structural failures and founderings);*

- *identify, quantify and evaluate the types and volumes of fuel (including fuel oil and diesel fuel) and cargo that would be carried by GPT vessels, and under what*

circumstances, including as a result of an accident or during operations, fuel and cargo could be spilled, discharged or otherwise released into the environment;

- *evaluate the types and efficacy of all safety communication systems and equipment that would be on board each GPT vessel, and who would be responsible for providing and maintaining this equipment;*

- *identify and evaluate all rescue protocols and maritime accident response infrastructure along the GPT vessels' route;*

- *identify, quantify and evaluate all potential impacts of GPT vessel accidents or operations events that may result in fuel and cargo spills and/or other materials discharges on:*
    a. *oceans and shorelines, including all marine and terrestrial habitats;*
    b. *fish, marine mammals, other marine vertebrates and invertebrates;*
    c. *seabirds and their rookeries, water fowl, and migratory birds;*
    d. *phytoplankton and zooplankton;*
    e. *aquatic and terrestrial plants*
    f. *the marine food web;*
    g. *commercial and recreational fisheries;*
    h. *tourism and local economies;*

- *identify who would pay the costs of response, assessment of damages, remediation, cleanup and restoration of natural resources and damages for all impacts that could result from a GPT vessel accident or operation.*

A reasonable review of the increased risk and consequences of accidents and spills from vessel traffic along the route from Washington State to Asia must not consider the GPT vessels in isolation. Instead, the EIS must also put GPT vessels into the context of existing and future vessel traffic. *Therefore, please identify, evaluate and quantify not only potential impacts that could result from GPT vessels, but also the cumulative risks and impacts of accidents and spills involving GPT vessels added to the following vessels: the 4,500+ large commercial vessels that currently traverse the North Pacific Great Circle Route including in waters near Alaska's National Wildlife Refuges; all other smaller vessels that currently use this area; future vessels from all other new coal export terminal projects planned for Washington, Oregon and British Columbia ("B.C." And including for B.C., planned expansions of existing coal terminals); all other planned Washington, Oregon, B.C. and Alaska fossil fuel export projects (including Enbridge Northern Gateway and Kinder Morgan tar sands export projects as well as LNG export projects); and planned new cruise ship projects.*

Please consider for mitigation of the impacts from oil and cargo GPT's participation in funding all aspects of the Aleutian Islands Risk Assessment project and providing financial and other support for the recommendations arising from this Project, including the establishment of a traffic separation scheme and/or other shipping traffic management scheme for the Aleutian Islands, including Unimak Pass and designation of parts or all of the Aleutian Islands as a "Particularly Sensitive Sea Area." Mitigation should also include an adequate and fully-funded account established by GPT for all assessment, remediation and restoration costs that may arise out of an accident involving a GPT vessel.

NON-NATIVE AND INVASIVE SPECIES

Another significant impact of increased vessel traffic from GPT is the introduction of alien species. Shipping is well known to be a vector for introducing alien species into the marine environment and it is reasonably foreseeable that the risk of introducing alien species would be amplified by increased vessel traffic. Both marine and terrestrial invasive species threaten Alaska's National Wildlife Refuges resources. Significant adverse impacts result from the introduction of invasive aquatic species into the marine environment including competition with indigenous fish, shellfish and birds for food. Some invasive marine species could irreparably and permanently alter the invaded marine ecosystem. The coastal areas of Alaska are already feeling the effects of invasions by aquatic species. These species are most commonly introduced through ballast water exchange, although ballast water can also be released during an accident or other emergency event. Alien aquatic species can also be released from fouled hulls or other vessel structure and equipment. Please include within the scope of the EIS a study of the risk to and impacts on Alaska's marine environment from the introduction of non-native and invasive aquatic species from GPT vessels and GPT vessels cumulated with the existing and future vessels identified in the previous section, "Vessel Accidents and Consequences." Please identify areas of the oceans, habitats, native species and fisheries within Great Northern Circle Route that are vulnerable to this impact and what measures GPT would take to ensure that its vessels would introduce no alien marine species into Alaska's waters, identify who would be responsible for enforcement of these measures and who would pay the costs resulting from release of these species into Alaska's waters.

The Bering Sea region has been dramatically affected by the introduction of alien terrestrial species from vessel traffic. In particular, rodents are a major threat to birds in the Aleutians because they prey on live nesting birds, their chicks and eggs and can destroy whole sea bird colonies. Rats, including those swimming to land from shipwrecks, have invaded 30 Alaskan Islands including those within the Alaska Maritime

Refuge. Although the U.S. Fish and Wildlife Service has undertaken eradication efforts, the threats from rodents persist. It is reasonably foreseeable that increased vessel traffic would bring increased rodents. Please include within the scope of the EIS a study of the risk to and potential impacts on the Alaska Maritime Refuge, including to its bird species and their habitat, from the introduction of non-native rodent species from GPT vessels and GPT vessels cumulated with the existing and future vessels identified in the previous section, "Vessel Accidents and Consequences." *Please identify areas of the Alaska Maritime Refuge and other Alaska National Wildlife Refuges vulnerable to this impact and all measures GPT would take to ensure that its vessels would introduce no alien rodent species into the Alaska Maritime Refuge, including all rodent prevention and control measures aboard GPT vessels, who would be responsible for enforcement of these measures and who would pay the costs resulting from release of these species on or near Alaska's islands and for efforts to eradicate them.*

NOISE IMPACTS ON MARINE MAMMALS

Marine mammals, especially cetaceans, have evolved to use sound to communicate, find food, reproduce, detect predators and hazards, navigate and sense their surroundings. Increasing large commercial vessel traffic is also increasing the amount of human produced sound (for marine mammals, "noise") in the oceans. Large commercial vessels, including large bulk carriers that would be used by GPT for its shipments to Asia, produce loud and predominantly low frequency sounds. Sounds can emanate from the ships' propellers, machinery, hull passage through the water, and the increasing use of sonar and depth sounders. The concentration of large commercial vessels in areas like the North Pacific Great Circle Route including Unimak Pass can amplify low-frequency ambient noise in these areas. Low-intensity sound in particular can travel over great distances and encompass a potentially large area of impact. These noises may be heard over millions of square kilometers of ocean. It is reasonably foreseeable that GPT vessels would add to the noise all along the route to and from Asia.

The reaction of marine mammal species to noise can vary depending on the species and individuals' characteristics. Some effects can include: stress; hearing damage; strandings; displacement from critical feeding and breeding grounds, avoidance and shifts in migration paths; and changes in vocalizations (including decrease), respiration, swim speed, diving, and foraging behavior. Noise may contribute to some marine species' decline or lack of recovery. Noise may also change distribution of prey species and disturb other aspects of the marine ecosystem with resulting negative impacts on marine mammals. The added noise in the marine environment from GPT vessels would have significant adverse impacts on marine mammals. Moreover,

this noise would add to the already increasing ambient noise in the Northern Hemisphere with significant damaging effects on marine mammals.

Please include within the scope of the EIS for GPT a study of the impacts on marine mammals from noise emanating from GPT vessels along the route to and from Asia. Please study the cumulative impacts of noise on marine mammals from GPT vessels added to existing and future vessels identified in the previous section, "Vessel Accidents and Consequences," and other sources of noise in the marine environment along the route of the GPT vessels including marine seismic surveys, military sonar, oil and gas exploration and production. Please determine the marine mammal species vulnerable to these noise impacts and their likely responses to noise impacts. Please also include in your study the type, volume (including decibel level) and duration (pulse and/or constant) of noise from the GPT vessels, input per unit and total input from GPT vessels. Please study how noise would be generated by GPT vessels [including from what structure(s) and equipment], operations measures that would be taken to avoid or lessen noise impacts, how and by whom such measures, if any, would be enforced.

ATMOSPHERIC CO2 AND MERCURY

The effects of atmospheric CO2 on Alaska's National Wildlife Refuges are not restricted to the Alaska Maritime Refuge, impacts are being felt in all of the Refuges. The vast, remote and undisturbed lands in these Refuges contain relatively intact and complete ecosystems that provide habitat for the species dependent upon them. Global climate change is having dramatic effects at high latitudes including on Alaska's Refuges and their trust species. Evidence of climate change in Alaska includes increasing air temperatures, changing precipitation patterns, decreasing snow and sea-ice extent, thawing permafrost, and glacial retreat. Terrestrial, marine and freshwater biological systems are all affected by climate change.

Impacts on fish and wildlife from climate change can include changes to their habitats, distributions, population sizes, physiology, migration routes and behavior. Some habitats may disappear entirely, forcing species into new areas of habitat where they may encounter increased harvest pressures, disturbance, greater incidence of disease, predation and competition. Migratory bird species in the Refuges are also fundamental components of biodiversity in more southerly latitudes. Timing of bird migration, egg hatch and insect emergence may shift because of climate change. A changing plant growing season or the disappearance of some plant species can impact wildlife species such as migrating caribou dependent on the occurrence of forage plants during peak calving season. The most vulnerable species are those particularly adapted to the specific features of the arctic or alpine environment, those that are cold-adapted, rare or endangered species and less mobile species. Climate change also impacts

fisheries and the people and economies that depend on them. Changes in water temperature can affect fish growth, egg development, transition from freshwater to saltwater, migration, spawning, and incidence of disease. Pacific salmon are particularly at risk as climate change alters temperature, water-mass distribution and food supply.

The effects of climate change on wildlife are already keenly felt in the Arctic National Wildlife Refuge (hereinafter Arctic Refuge) which stretches from interior Alaska north across the Brooks range and contains some of the most diverse wildlife in the Arctic including 42 fish species, 37 land mammals, eight marine mammals, and more than 200 migratory and resident bird species. The Arctic Refuge stretches across five different ecological regions: coastal marine areas with lagoons, beaches and saltmarshes; coastal plain tundra; alpine tundra of the Brooks Range; the forest-tundra transition south of the mountains; and spruce, birch, and aspen of the boreal forest. The Arctic Refuge has warmed more than 4° Fahrenheit over the last 50 years and is predicted to continue warming. Trust mammal species occurring in the Arctic Refuge include the iconic polar bear and muskox. The highest density of polar bear land dens along Alaska's coast is in the Refuge. It is well-known that polar bears are already profoundly impacted by changes to their sea-ice habitat, prey availability and altered denning habitat. Muskox numbers on the Arctic Refuge are also in decline. Shorebirds and waterfowl use the Arctic Refuge's river deltas, barrier islands, lagoons, and other coastal areas for nesting and staging. These habitats are vulnerable to flooding from rising sea levels and increased storm surges. Other significant climate change effects in the Arctic Refuge that impact fish, wildlife and plant species include melting glaciers, coastal erosion and warming permafrost areas.

Carbon dioxide (CO2) is the most important anthropogenic greenhouse gas driving global climate change. Global increases in CO2 concentrations are due primarily to fossil fuel use, including a majority percentage from burning coal in power plants. In addition to global climate change, ocean acidification is also a grave consequence of increases in anthropogenic CO2 in the atmosphere. Alaska's productive marine waters are becoming increasingly acidic from CO2 uptake. Colder waters, including the frigid waters off Alaska's coasts, absorb more CO2 than tropical waters. The shallow waters of Alaska's continental shelves also retain more CO2 in areas of less mixing of seawater with deeper ocean waters.

Ocean acidification hampers the ability of calcareous invertebrates such as shellfish and oysters to build shells. These animals are important food to bird and mammal species and are commercially important. Calcareous invertebrates such as pteropods (sea butterflies) and euphausiids, essential prey items of marine mammals and commercially important fish species like salmon, are also at great risk from

increasingly corrosive ocean waters. Ocean acidification can also have profound effects on Alaska's corals (used by many fish and crab species as habitat) that are dependent on the extraction of calcium carbonate from seawater for skeletal building.

Coal fired power plants also emit mercury, a potent neurotoxin, into the atmosphere. Mercury released into air from coal fired power plants in Asia travels across the Pacific Ocean by atmospheric and oceanic currents to Alaska. In the ocean or a fresh water environment, mercury converts to methylmercury and enters the food chain. Methylmercury accumulates in animal tissues and builds up through the food chain (bio-magnification) particularly in an aquatic food web. For example, plankton that take up mercury are eaten by smaller fish that are, in turn, eaten by larger fish that are consumed by marine mammals and humans. At each step of the food chain, the toxic effects of mercury are compounded.

The GPT would export predominantly coal for use in Asian coal-fired power plants: 48 million metric tons of coal annually upon full build out. GPT in addition to other coal export projects currently planned for Washington and Oregon would annually export some 140 million metric tons of thermal coal to Asia for use in coal fired power plants with the potential for an even higher ultimate planned export capacity. Canada currently exports coal to Asia and has plans to increase its coal export. Alaska also has coal export projects. It is reasonably foreseeable that burning coal exported from GPT as well as from GPT coal exports cumulated with coal exported from other planned northwest coal export terminals will contribute to atmospheric CO2 and mercury, climate change and ocean acidification resulting in significant impacts to Alaska's National Wildlife Refuges and their marine environment.

We request that you include within the scope of the EIS a study of the increased greenhouse gas and mercury emissions associated with burning coal in countries that would import coal from GPT as well as cumulative impacts from burning coal from all other coal export terminals currently existing in and planned for Washington, Oregon, Alaska and B.C. Please include a study of the cumulative in greenhouse gas and mercury emissions over the projected operational life of the GPT coal terminal singly and in combination with the other northwest coal export terminals. Please include an analysis of the climate change, ocean acidification and mercury emissions impacts (including adding to and/or accelerating existing impacts) on Alaska's National Wildlife Refuges including on oceans; shorelines; marine mammals; seabirds and their rookeries, water fowl, and migratory birds; fish; plants; phytoplankton and zooplankton; marine vertebrates and invertebrates; corals; marine and terrestrial habitats including fresh water bodies; fish and wildlife migration patterns; the marine food web; commercial and recreational fisheries; tourism and local economies.

SYNERGISTIC AND CUMULATIVE IMPACTS

Just as the vessels exporting GPT's cargo must not be considered in isolation, so too the impacts on Alaska's oceans, shorelines, marine species, bird species, fish and fisheries, tourism and local economies must not be considered singly. *Instead, we request that you study the potential impacts discussed herein acting in synergy and cumulatively with other impacts.* For example, what would be the combined impacts upon oceans, shorelines, seabirds and their rookeries, and marine species from climate change/ocean acidification and oil spills in the Aleutian Islands? How would noise from an increase in large vessel traffic impact marine mammals in combination with impacts from climate change/ocean acidification? What impacts could result if effects from vessel noise and oil spills occurred in synergy? How would release of invasive marine or terrestrial species impact marine and/or land animals and plants combined with climate change/ocean acidification impacts? How does climate change and ocean acidification act in combination with mercury exposure in fish and marine mammals?

In conclusion, the citizens of Alaska and Washington State share a common interest in the rich and diverse resources that would be adversely impacted by GPT's coal export plans. Among those resources are salmon and other fish species; bird and mammal species; the marine and shoreline environment; fisheries and economies that depend on them, and the atmosphere. NEPA and SEPA confer an affirmative obligation on you as trustees to protect these resources for the benefit of all, including for succeeding generations. The natural resources we have discussed in this EIS scoping comment belong to the public and are placed at great risk by schemes to increase global trade in fossil fuels.

Your statutory duties as trustees of the resources discussed in this comment are based on the public trust doctrine, which has long tradition in Western democracy. Environmental standards based upon this doctrine cannot be treated as only a set of minimum requirements. Instead, laws based upon the public trust doctrine should be applied rigorously to protect crucial public resources, including consideration of the full geographic extent of potential significant adverse impacts. In this case, your duty to protect trust resources dependent upon Alaska's National Wildlife Refuges is unmistakable. Friends of Alaska National Wildlife Refuges and FRIENDS of the San Juans therefore respectfully request that you fully exercise your legally conferred duties as trustees to study in detail the broader implications and impacts of the GPT proposal, including the impacts on the resources of Alaska's National Wildlife Refuges and the natural systems that sustain them, including the earth's atmosphere.

Many of the impacts we have raised in these comments cannot or would not be mitigated or mitigation would be ineffective to prevent or remediate permanent

environmental harm. Unless these impacts would be fully mitigated, we recommend the "no action" alternative.

Thank you for consideration of the issues we have raised in this EIS scoping comment. We request that all SEPA/NEPA notifications for the GPT EIS be sent to the e-mail addresses below.

Respectfully submitted by:

David C. Raskin, PhD
Past President and Advocacy Chair
Friends of Alaska National Wildlife Refuges
davidraskin@alaskarefugefriends.org

Stephanie Buffum Field
Executive Director
FRIENDS of the San Juans
Stephanie@sanjuans.org

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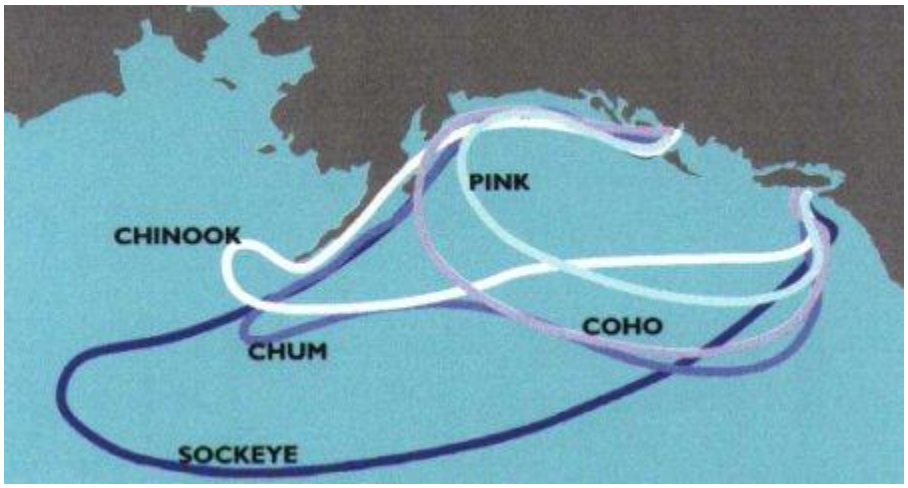
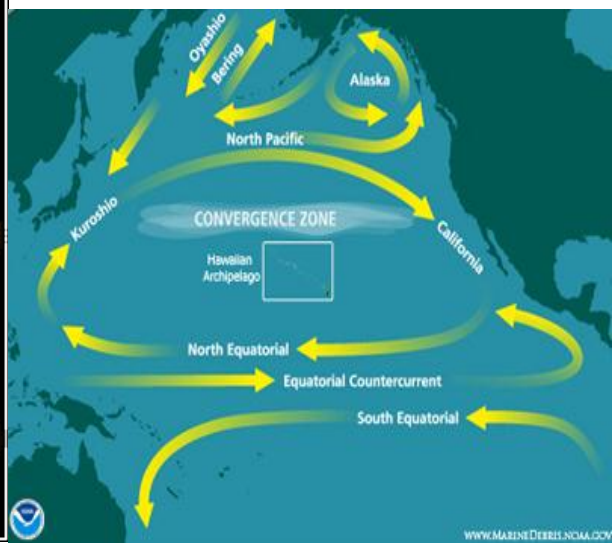
Attachment A



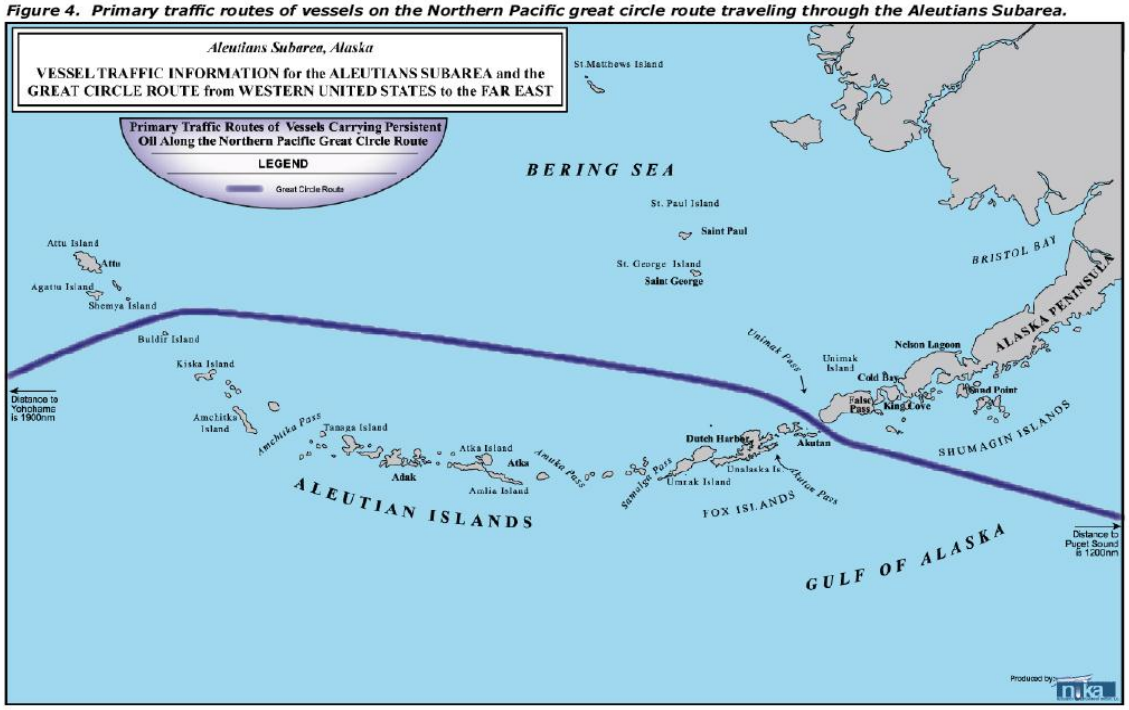
Salmon Migration Pattern. Source: Welch, D. W. and H.R. Carlson. June 1996. DFO-NMFS Research on Juvenile Salmon. Salmon on the High Seas. The Westcoast Fisherman. Available at: http://www.goldseal.ca/wildsalmon/salmon_migration.asp?pattern=research

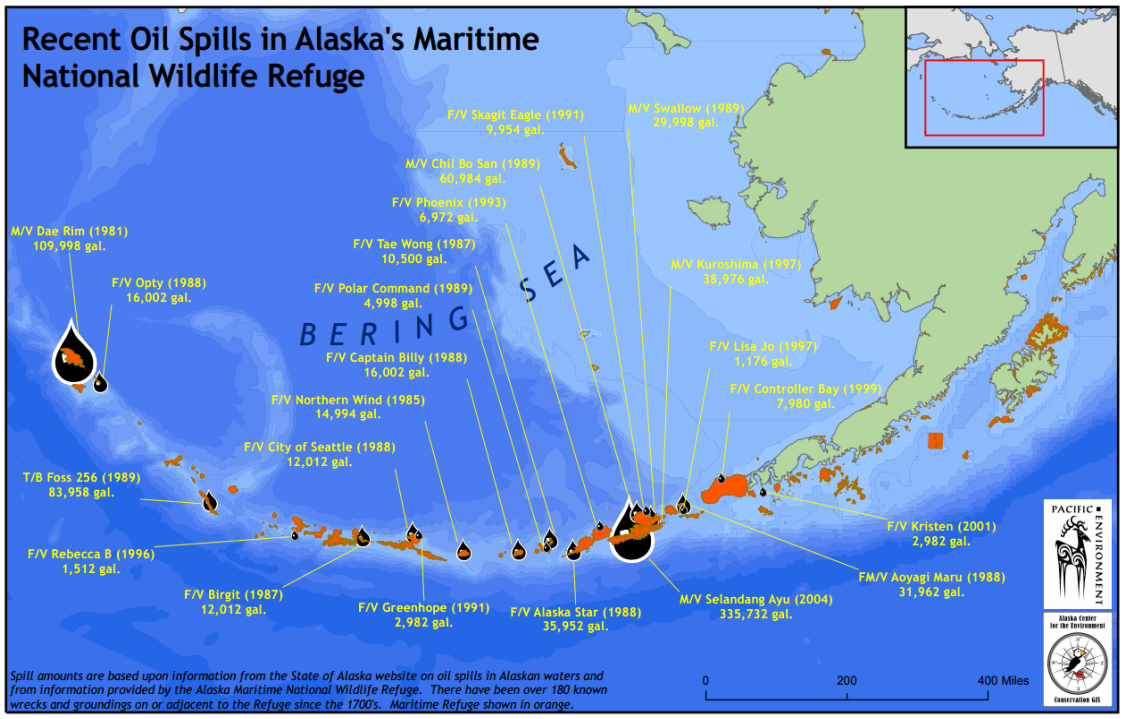


Source: Left, National Centers for Coastal Ocean Science, NOAA. U.S. Global Ocean Ecosystems Dynamics (GLOBEC) Northeast Pacific. Available at: http://www.cop.noaa.gov/stressors/climatechange/current/fact-globecpne.aspx. Right: Map from NOAA Marine Debris Information illustrating the oceanographic features in the North Pacific Ocean. Available at: http://marinedebris.noaa.gov/marinedebris101/movement.html

Attachment B

Figure 4. Primary traffic routes of vessels on the Northern Pacific great circle route traveling through the Aleutians Subarea.





Source: Aleutian Risk Assessment. Top map, http://www.aleutiansriskassessment.com/passing.htm; bottom map http://www.aleutiansriskassessment.com/documents/akmnwr_spills.pdf