North Pacific Fishery Management Council

Fishery Management Options for the Alaskan EEZ in the Chukchi and Beaufort Seas of the Arctic Ocean – A Discussion Paper

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Introduction

At its October 2006 meeting, the Council asked staff to prepare a draft discussion paper on options for management of fisheries in the U.S. Exclusive Economic Zone (EEZ) waters of the Arctic Ocean offshore Alaska. The Arctic Ocean has two regional seas that are adjacent to Alaska, the Chukchi Sea and the Beaufort Sea. With the apparent climate change trends, it is conceivable that as oceans warm the Alaska Arctic EEZ could offer commercial fishing opportunities in the future (Newton 2005). The Council is interested in exploring possible policy options, such as a Fishery Management Plan, to address management of any existing or potential future commercial fisheries in this region.

Under the Magnuson-Stevens fishery Conservation and Management Act, the Council is authorized to conserve and manage the fishery resources of the Alaskan EEZ, including the Chukchi and Beaufort Seas. To date, no large commercial fisheries have developed in the area, and thus the Council has not had a compelling reason to develop fishery management plans for these Arctic marine areas off Alaska. A brief description of current Federal management authority in the region is discussed below under "Management Issues".

But the environment for commercial fishery development in the Alaskan Arctic may be changing, with warming trends in ocean temperatures and changes in seasonal sea ice conditions potentially favoring the development of commercial fisheries. Recent popular literature has featured this issue (e.g. Hawks 2006). Recently, scientists have compiled information on changes in Arctic climate, ocean conditions, sea ice cover, and permafrost and vegetation change (Richter-Menge et al. 2006), noting that sea ice has dramatically changed. Greater ice-free seasons coupled with warming waters and fish range expansion could together create conditions that could lead to commercial fishery development. And there are species of finfish and shellfish that occur in these waters that conceivably could support commercial fisheries if exploitable biomass levels are sufficient. Although at this time there are no such fisheries in the Alaskan EEZ in the Arctic Ocean, and no routine fish surveys conducted in the region, the Council may wish to explore policy and management options to prepare for future change.

This discussion paper only briefly summarizes information on the environment and fishery resources of the Arctic Ocean offshore Alaska, and explores some of the issues associated with establishing a fishery management policy for this region. This document also outlines some possible options the Council may wish to pursue in its future discussions of fishery management in this region, and may eventually become a policy document that articulates the Council's management policies and authorities. The document could outline specific conservation and management measures that may be appropriate for emerging fisheries in the region, and the document could be amended as the environment changes and as fisheries develop.

Geography and Oceanography of the Region

The Chukchi Sea is an embayment of the Arctic Ocean bounded on the west by the east Siberian coast of the Russian Federation and on the east by the northwestern coast of Alaska. With an area of about 595,000 km², it extends roughly from Wrangel Island at the eastern side of the East Siberian Sea to Point Barrow and offshore to the 200 m isobath (Weingartner 1997). Along the Alaskan coast of the Chukchi Sea, Kotzebue

Sound is a large embayment between Bering Strait and Point Hope. Along the Alaskan Seward Peninsula coast between Point Lay and Wainwright, a chain of nearshore barrier islands form a lagoon system that becomes estuarine during summer.

Offshore, the Chukchi Sea is relatively shallow with depths generally under 60 meters. Warm, low salinity marine water seasonally freshened by outflow from the Yukon River enters the Chukchi from the south through Bering Strait. During the open water season water movement is northward through Bering Strait into the Arctic Ocean, and circulation is partly subject to wind driven currents. The Chukchi Sea is ice covered for about 8 months, with ice retreat occurring in June and July and ice returning by October.
The Beaufort Sea, covering an area of about 476,000 km², lies offshore north of the Alaskan arctic coast and extends generally from the Point Barrow area eastward to the delta of the Mackenzie River and the west coast of Banks Island in the Canadian High Arctic. The Beaufort Sea has a narrow Continental Shelf that extends offshore 50-100 km (30 to 60 miles). The Beaufort Sea is characterized by barrier island-lagoon systems extending along shore from the western Mackenzie Delta to the Colville River. Water circulation is dominated by the southern edge of the perpetual clockwise gyre of the Canadian Basin resulting in surface movement that is generally westward with a subsurface Beaufort Undercurrent flowing in the opposite direction (Aagaard 1984). Close to shore in the open water season, surface currents are primarily wind driven, with the predominant direction to the west. However, winds can be either easterly or westerly, and thus alongshore surface currents can flow either direction. Ice covers the sea for up to 9 months.

Both the Chukchi and Beaufort Seas are strongly influenced by seasonal ice cover. Ice directly affects the distribution and annual movement patterns of marine mammals. Ice freezes to the bottom in the fall in shallow nearshore areas, and exhibits a shear zone where shorefast ice interfaces with the constantly moving offshore ice pack. Ice ridges, seafloor gouging, and other ice-related phenomena influence the benthic environment. Sea ice melting in spring nourishes primary production as the ice edge melts and retreats, opening a highly productive estuarine-like nearshore corridor in which anadromous and amphidromous fish, marine fish, shorebirds and other waterfowl flourish; many marine mammals generally remain with the ice pack as it retreats offshore.

Vessel movement in the region is restricted by ice conditions, generally allowing vessel transit during a short one to two month period each summer, although in recent years the length of the vessel transit season has been longer because of warmer water.

Productivity of the Arctic Ocean is considered to be low, probably due to long winters of low light penetration and thus lower plankton production. The Chukchi is more productive, due partly to the influx of nutrients in waters from the Pacific Ocean and Bering Sea flowing northward through Bering Strait. During summer months production increases as sea ice melts, although water stratification can limit summer vertical mixing during the open water season. In the Beaufort during summer, strong west winds may induce upwelling of cold, more nutrient rich waters inshore, and with melting of bottomfast ice, benthic organisms move inshore and support a rich fauna of fish and birds. During winter, seasonal ice freezes to thickness of two or more meters, through which seals maintain breathing holes and holes that are access to birthing lairs under snow cover. Polar bears range throughout the Arctic Ocean, and are more common close to shore during winter months when prey and ice conditions are more favorable. Very little is known of marine fish distribution, abundance, diversity, or habitat use patterns in the winter. Anadromous and amphidromous fishes overwinter in unfrozen pockets of fresh or brackish water in rivers and river deltas.

Human Habitation and Land Status

Human habitation of the Arctic has been continuous since the last ice age, and some evidence supports an ancient influx of humans from the west across a land bridge in the Bering Strait area. Communities along the coast of the Chukchi and Beaufort Seas are closely tied to the fish, birds, and marine mammals of the ocean as well as terrestrial mammals, particularly caribou. In the Chukchi region, many villages dot the shoreline,

including the large community of Kotzebue and smaller villages such as Shishmaref, Point Lay, and Wainwright. In the Beaufort Sea region, Barrow dominates as the government seat of the North Slope Borough and the largest community north of the Brooks Range. Villages along or near the Beaufort coast include Kaktovik and Nuiqsut. With discovery of petroleum deposits in the Prudhoe Bay region in 1968, an industrial community of Deadhorse formed. The oil fields of the Prudhoe Bay region extend from the Colville River and Delta eastward to the Sagavanirktok River. Population of villages in the Arctic region range from several hundred to five to seven thousand residents in Barrow and Kotzebue. Approximately 7,400 people work in the Prudhoe Bay oil fields (NRC 2003).

Land status in the Arctic Region includes a mix of local governmental, refuge, and park areas that border portions of the Chukchi and Beaufort Sea coasts. The North Slope Borough extends from the Chukchi Sea coast and along the entire Alaskan Beaufort Sea coast inland to the Brooks Range and eastward to the Canadian Border, encompassing over 228,000 km² (88,000 sq mi). The Northwest Arctic Borough, formed in 1986, encompasses the villages of northwest Alaska in the Kobuk and Noatak River drainages; this borough borders the Chukchi Sea from Cape Seppings in the north to just west of Cape Espenberg in the south. In the eastern Arctic, the Arctic National Wildlife Refuge covers over 7.3 million hectares (18 million acres), about 40% of which is wilderness. This refuge borders the Beaufort Sea coast from approximately the Canning River Delta to the Canadian border and is managed by the U.S. Fish & Wildlife Service. The 9.3 million hectare (23 million acre) National Petroleum Reserve Alaska, managed by the U.S. Bureau of Land Management, extends from the Brooks Range northward to the Beaufort coast. The Reserve extends along the Beaufort coast from the Colville River westward to Point Barrow and then southward, fronting the Chukchi Sea coast from Icy Cape to Wainwright. Cape Krusenstern National Monument and Bering Land Bridge National Preserve extend along large portions of the Chukchi Sea coast and are managed by the U.S. National Park Service. The most northerly parts of the Alaska Maritime National Wildlife Refuge are at Cape Lisburne and Point Hope.

The U.S. Canadian border extends north and slightly eastward in the offshore Beaufort Sea, and the demarcation between the U.S. and the Russian Federation is the International Date Line extending through the middle of Bering Strait northward at 169 degrees West longitude.

Many of these land reserve boundaries are shown on Figure 1.

Finfish and Shellfish Species of the Arctic Ocean

Surveys of fish species present in this region have been few. Early exploration of this region by wooden sailing ships and whaling vessels included both commercial interests (whales, other marine mammals) and scientific interests and produced a few records of fish species present. In the middle of the 20th Century, exploration of the region was sponsored by the U.S. Coast Guard, National Science Foundation, and eventually by the oil and gas industry, leading to a basic understanding of marine organisms inhabiting the region. Industrial development at Prudhoe Bay and surrounding oil fields has prompted concern over effects on coastal fishes (Thorsteinson and Wilson 1995) and several decades of fish studies have been conducted in this region (Wilson and Gallaway 1997). Recently, the University of Alaska, in cooperation with other investigators, has conducted several surveys of the region, in particular a series of cruises with Russian Scientists with support from NOAA. The North Pacific Research Board recently sponsored a synthesis of information on the Chukchi and Beaufort Sea marine ecosystem and will be available in report form soon (Hopcroft et al. In Prep).

One major species of finfish in the Beaufort is the Arctic cod, a gadid that can be seasonally abundant but may not occur in commercially exploitable quantities; data are not available to assess the stock dynamics of Arctic cod in the Arctic offshore of Alaska. The Arctic cod is distributed throughout the circumpolar north. Biomass estimates are few; one estimate is a calculation by Frost and Lowry (1984) of approximately 86,000 mt. This species is a food source for marine mammals and birds of the Arctic, and as juveniles is known to

be prey for other species of fish, particularly anadromous and amphidromous fishes that occur in nearshore Beaufort and Chukchi Sea waters during the summer open water season.

Shellfish such as crab and shrimp occur in the Chukchi Sea, but commercially exploitable populations likely are rare north of Norton Sound and Bering Strait. A small fishery for red king crab occurs in the Kotzebue Sound area. Snail populations occur in the Chukchi Sea, although they have not been commercially exploited. Crab and epibenthic crustaceans occur in the Beaufort Sea. Very little is known about the shellfish fauna of the region.

Fisheries of the Chukchi and Beaufort Seas

Arctic cod have previously been harvested commercially in marine waters of the Russian Federation and some northern European countries, primarily in the northern Atlantic Ocean and the Barents and White Seas. There may be some continuing harvests of Arctic cod in the Canadian north. No commercial harvests of Arctic cod occur in U.S. waters.

Other species exploited commercially elsewhere that are present in the region include the yellowfin sole (Chukchi Sea) and in the eastern Beaufort Sea the Greenland halibut. A recent research cruise in the Chukchi Sea resulted in the capture of a few walleye pollock, representing a new range extension for this species (RUSALCA 2004 cruise, www.arctic.noaa.gov/aro/russian-american/cruise6-adult-fish.htm). Other species captured by bottom trawl in the RUSALCA 2004 cruise included saffron cod, Bering flounder, and eelpouts, sculpins, poachers, pricklebacks, and snailfish.

State of Alaska commercial fisheries in the Chukchi Sea region are centered in Kotzebue Sound where a summer and fall salmon fishery occurs annually, targeting chum salmon. A few other species of salmon are harvested incidentally as well as Dolly Varden. The Noatak and Kobuk rivers are the principal salmon habitats in this area. There is a commercial sheefish (inconnu) fishery that occurs in Hotham Inlet with a harvest quota of 25,000 pounds, but usually only a few thousand pounds are sold commercially (Jim Menard, ADF&G, pers. comm.). There is a small red king crab fishery out of Kotzebue; there were no catches this past year and minimal catches the previous year (Jim Menard, ADF&G, pers. comm.).

In the Beaufort Sea, a small commercial fishery for Arctic cisco, least cisco, and a few broad and humpback whitefish occurs annually in the delta waters of the Colville River (20,000 to 25,000 fish annually). This fishery involves gillnets placed under the river ice in brackish waters during the October and November period. These whitefish are marketed locally in the Barrow area and a few are smoked and marketed in Fairbanks. No other documented active marine or freshwater commercial fisheries occur in that area. However, there is potential for miscellaneous fisheries on a case-by-case basis through a Commissioner's permit depending on interest and size of fish stock (Fred Bue, ADF&G, pers. comm.).

Exploratory fisheries have recently been conducted in the Canadian portion of the Beaufort Sea north of the Yukon Territory. Species of interest include cod, crab, gastropods, and other fishes (Common Ground newsletter, Winter 2005, http://www.jointsecretariat.ca/JS/pdf/Winter%202005%20Vol5-2.pdf).

Little sport fishing occurs in marine waters of the region. Some sport fishing may occur in the Kotzebue Sound area, targeting Dolly Varden and salmon. Some sport fishing activity occurs in the Prudhoe Bay industrial area by oilfield workers, primarily along the Beaufort Sea coast at Prudhoe Bay; fishermen target Dolly Varden and the occasional Arctic grayling.

Subsistence fisheries occur near most coastal villages of the region or at fish camps located various distances from villages. Chum salmon and some Dolly Varden are harvested in the Kotzebue Sound region. Whitefish are more prevalent in catches in the northern area of the Chukchi Sea, and in the Beaufort subsistence fisheries focus almost exclusively on whitefish. Arctic cisco and least cisco as well as broad whitefish and a

few other species are commonly harvested along the Beaufort Sea coast; about 40,000 fish are harvested annually (Thorsteinson and Wilson 1995). Most coastal subsistence fishing occurs near villages and also in the Teshekpuk Lake region.

Subsistence harvests of marine mammals, including beluga whales, occur year round, with beluga hunting more prevalent in summer open water months. Ice seals are harvested when accessible on winter sea ice.

Bowhead whaling is an important part of the subsistence and social system in local communities in both the Chukchi and Beaufort Seas. Managed by the Alaska Eskimo Whaling Commission, bowheads are hunted by whalers from ten whaling communities: Gambell, Savoonga, Wales, Little Diomede, Kivalina, Point Hope, Wainwright, Barrow, Nuiqsut, and Kaktovik. Bowheads migrate north from the Bering Sea through the Chukchi and adjacent to the Point Barrow area in spring, generally following leads in the ice. Subsistence whalers from northern Bering Sea and Chukchi Sea communities, including Barrow, target bowheads in this spring migration. The return migration occurs along the Beaufort Coast where villages of Kaktovik, Nuiqsut, and Barrow and occasionally communities further south conduct the fall hunt. Other marine mammals harvested in the region include ringed and bearded seals.

Other Arctic Ocean Activity

Oil and gas development has occurred in the Alaskan Arctic since the 1960s, and offshore production of petroleum resources has been continuous since the late 1980s, most of which occurs in State waters. Petroleum development in the Alaskan Beaufort Sea EEZ currently is small compared with other areas in Alaska but increased seismic exploration in the Beaufort and Chukchi Seas may lead to additional production. MMS estimates of recoverable oil and gas resources suggest that continued development of offshore hydrocarbons is likely to occur in future years, both in the Chukchi and the Beaufort Seas.

Along with this development, marine transportation systems have evolved. Ice breaking vessels and tug and barge equipment have traveled along Alaska's Arctic coasts since the development of the Prudhoe Bay oil and gas deposits. Ice breaking U.S. Coast Guard (and U.S. Revenue Service) vessels have patrolled the region for over a century, and ice strengthened research vessels occasionally transit the area. Military operations under the ice cover have likely been continuous for many decades. The military has explored options for climate warming trends and increasing military activities in the region (ONR 2001). If warming trends continue, interest will increase in commercial transportation by vessels in the ice free waters of the Beaufort as this would significantly shorten transit times between the west and east coasts of Canada and the U.S.

Management Issues

Under the Magnuson-Stevens Act, the Council has the authority to develop fishery management plans for EEZ fisheries offshore of Alaska, including the Chukchi and Beaufort Seas. Some of the Council's FMPs partially cover fishing activities in the Arctic. The following summarizes the status of authorized Federal management of marine organisms harvested in commercial fisheries of Alaska's EEZ.

Current groundfish fishery regulations at CFR 679.1(b) specify that the Fishery Management Plan for the Groundfish Fishery of the Bering Sea and Aleutian Islands Management Area governs commercial fishing by U.S. vessels for groundfish in the Bering Sea and Aleutian Islands Management Area as described in Figure 1 to CFR 679.2 (see Figure 2 attached to this discussion paper). The BSAI is defined as the U.S. EEZ of the eastern Bering Sea and that portion of the North Pacific Ocean adjacent to the Aleutian Islands with a northern boundary defined as Bering Strait (defined as a straight line from Cape Prince of Whales [sic] to Cape Dezhneva, Russia). In Figure 1 to CFR 679.1(b), the Chukchi Sea is designated Statistical Reporting Area 400. Statistical Area 400 is defined as the area north of a diagonal line between 66˚ 00' N, 169˚ 42.5' W (Cape Dezhneva, Russia) and 65˚ 37.5' N, 168˚ 7.5' W (Cape Prince of Wales, Alaska) and to the limits

of the U.S. EEZ as described in the current edition of NOAA chart INT 814 Bering Sea (Northern Part)(Note: Chart numbering is uncertain; Chart 514 may be the current number for this area). Inspection of this chart suggests that only a portion of the U.S. EEZ of the Chukchi Sea is considered part of Statistical Area 400. Statistical Area 514 is the northernmost statistical area in the BSAI, but it extends as far north as "the southern boundary of the Chukchi Sea, area 400." Thus, the Chukchi Sea is not part of the BSAI management area, nor is the Beaufort Sea.

Regulations at 679.2 also define the management of king and Tanner crab under the Fishery Management Plan for Bering Sea/Aleutian Islands King and Tanner Crab as encompassing the area of the Alaskan EEZ in the Chukchi Sea south of Point Hope (68˚ 21' N. lat) through the Bering Sea and Aleutian Islands areas. Thus current Federal jurisdiction for Tanner and king crab, and regulations associated with these fisheries, extend partly into the Chukchi Sea. This includes some portions of the Chukchi Sea, but not all, and none of the Beaufort Sea.

There are no commercial halibut fisheries in this region. The International Pacific Halibut Commission (IPHC) exercises jurisdiction in all maritime waters of the U.S. and Canada wherever halibut are present (Gregg Williams, IPHC, pers. comm.). The IPHC has previously received proposals for an experimental fishery in the Chukchi Sea, but no fishery has developed. The Halibut Convention applies to halibut fisheries in "Convention Waters" which are defined to mean the "territorial waters and the high seas off the western coasts of the United States of America and of Canada, including the southern as well as the western coasts of Alaska." It is unclear whether Convention Waters include the Chukchi Sea, although the IPHC apparently does appear to include the Chukchi Sea given how the Commission has addressed experimental halibut fisheries in the past. The State Department could be contacted for additional information on how halibut fisheries might be dealt with in the Chukchi and Beaufort Seas off Alaska.

The Fishery Management Plan for the Scallop Fishery off Alaska governs commercial fishing for scallops in Federal waters off Alaska by vessels of the U.S. The description of the geographic coverage of the scallop FMP appears to exclude the Chukchi Sea. The regulations at 679.1(h) govern "commercial fishing for scallops in the Federal waters off Alaska by vessels of the United States…" There is little other information on the geographic scope of the regulations, but there may be question whether the FMP governs fishing in the EEZ north of Bering Strait (Jonathan Pollard, NOAA General Counsel Office, AKR, pers. comm.). Currently, management is deferred to the State of Alaska and those regulations could apply to an emerging fishery in the Arctic. The Northern Bering Sea Shellfish Statistical Area, which includes scallop fishing, extends into the Chukchi Sea to just north of Point Hope (68˚ 30' N).

The Fishery Management Plan for the Salmon Fisheries in the EEZ off the Coast of Alaska governs fishing by U.S. commercial fishing vessels in the Salmon Management Area. This Area is defined as the waters of the EEZ off the coast of Alaska (referencing Figure 23 of Part 679) including the Chukchi Sea and Beaufort Sea (679.2). Under 679.3(f), commercial fishing for salmon in the U.S. EEZ of the Chukchi and Beaufort Seas is prohibited.

An emerging fishery not covered by the above FMPs or regulations could be regulated by the State of Alaska as authorized by the MSA Section 306(a)(3)(A). This section provides for State authorization of a fishery outside State boundaries if the vessel is registered with the State and there is no FMP or other applicable Federal regulations for the fishery in which the vessel is operating. Presumably, NMFS could authorize such a fishery as well through the Council process or by emergency rule.

Policy Options

Given the physical conditions (ice, short seasons, distance from ports and support facilities) that could limit conventional fishing activity in Arctic waters, and the apparently low abundance of potentially-exploitable finfish or shellfish resources there, the likelihood of significant fishery development in the near future seems

low. But with climate warming trends and the possibility of reduced ice cover in future decades, these conditions may change. Thus, the Council may wish to take a proactive stance and start to consider policy options.

The Council could explore such options as prohibiting commercial fishing in the EEZ, or allowing some experimental fisheries to occur, or encouraging fishery development on a case by case basis. Each policy option could have supporting rationale. For example, a fishing prohibition might be based on concerns over habitat damage, interference with subsistence whaling activities, or disturbance of marine mammals. In general, the Council would state the fisheries it desires to conserve and manage and develop an appropriate regulatory vehicle to accomplish its objectives.

Next Steps

If the Council wishes to proceed with exploring policy options for the management of fisheries in the Chukchi/Beaufort Seas, the Council could task staff to flesh out a more detailed discussion paper. The Council may wish to include in that discussion paper one or more of the following management options.

1. Status Quo. The Council could determine that status quo is an option, at least for now. Under this option, the Council would do nothing and commercial fishing in the Alaskan Arctic EEZ would be allowed under existing FMPs or existing State or Federal regulations. This option could be described in more detail, including particularly the legal and regulatory issues associated with the current management regimes that are included in existing FMPs or outside FMPs. This would also include a more thorough description of authorities under the Halibut Act.
2. Prohibit Certain Commercial Fishing in the Arctic EEZ. The Council could develop a management policy or management plan that specifies that commercial fishing for certain marine organisms would not be allowed. The Council may determine that a conservation issue requires such a prohibition. Currently, the king and Tanner crab FMP covers part of the Chukchi Sea, and the current Salmon FMP prohibits salmon fishing in Arctic EEZ waters. The current scallop FMP covers the Arctic. Any of these Plans could be amended to include an Arctic prohibition, with supporting rationale. The Council could expressly determine that other kinds of fishing not part of existing FMPs could be prohibited, such as fishing for krill.
3. Defer management to the State of Alaska. Similar to actions the Council has taken previously with scallops and crab, the Council could defer future management of Arctic fisheries not covered under existing Federal FMPs to the State; the Council could retain responsibility for allocative decisions should such fisheries develop. Presumably, this would be similar to No. 3 above, except that instead of a prohibition, the Council would defer that decision to the State.
4. Draft a Fishery Ecosystem Plan. The Council could develop a policy document in the form of a FEP that acknowledges the unique habitat features and fishery resources of the area. The FEP would describe the area, describe current fisheries, identify known species and habitats, and identify current issues and research needs. The FEP could provide a mechanism for continued Council interactions with other stakeholders in the region. An FEP would tie together the various provisions of existing FMPs and examine the status quo in light of ongoing and new scientific research, pending resource development (e.g. oil and gas lease sales), and continued climate change, and provide options for future fishery management based on this information.
5. Draft a Fishery Management Plan. An FMP for the Arctic Ocean would likely be similar in content to other Council FMPs, but since existing FMPs already provide a vehicle for management of salmon, scallops, and partly for king and Tanner crab, a new FMP would likely focus on groundfish. An Arctic Ocean groundfish fishery FMP would likely contain sections on management policy and objectives, conservation and management measures, description of stocks and fisheries, and descriptions of how the FMP relates to other laws, treaties, fisheries, and activities, particularly oil and gas development, in the region.

6. Extend the existing FMP for the BSAI groundfish fisheries to include the Arctic. This could take the form of including Statistical Area 400 – Chukchi Sea – in the BSAI FMP, and adding a new Management Area for the Beaufort Sea and development of regulations appropriate to the fishery resources in these areas.

There is a large amount of previously-written information on this region, and recently the North Pacific Research Board commissioned a synthesis report on climate change impacts on the Chukchi and Beaufort Seas. Other information sources would be the oil and gas industry, the U.S. Coast Guard, the Office of Naval Research, the U.S. Arctic Research Commission, other Federal and State agencies, the North Slope Borough and the Northwest Arctic Borough, and several oil and gas lease sale NEPA documents prepared by the Minerals Management Service for the Chukchi and Beaufort offshore planning areas.

A draft document could include descriptions of existing fish and shellfish species, fisheries, habitat features and unique habitat types, options for management areas, descriptions of possible participants, possible vessels and gear that could be used to prosecute fisheries, current Federal and State and local governmental regulatory authorities and relationships to possible EEZ fishery management, enforcement options, and research needs.

Since little is known about the potential for commercial exploitation of finfish or shellfish in this region, staff effort would initially focus on conducting a literature review, meeting with knowledgeable scientists, contacting Borough and local community residents to obtain traditional knowledge, and developing mapping capability and a data base.

The Council should give direction on the amount of time and effort they recommend investing in the development of a draft policy document.

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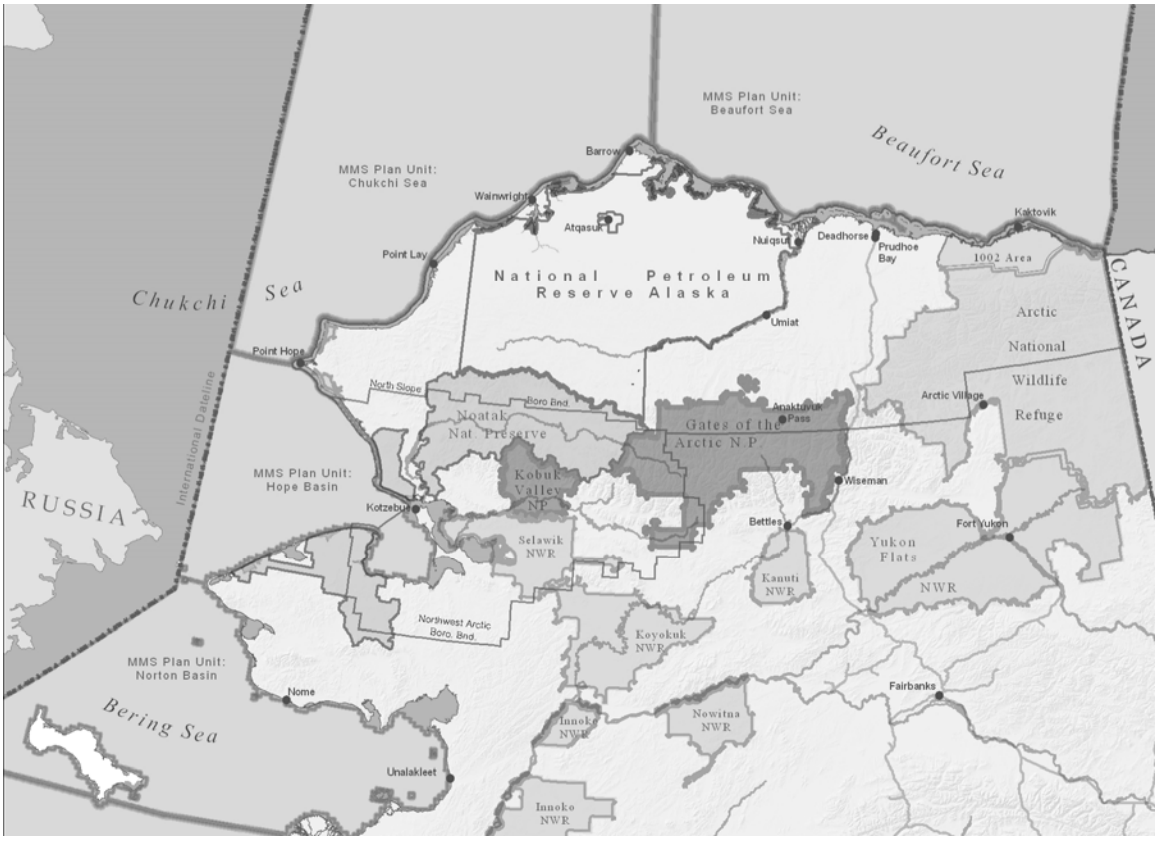
Figure 1. Some land status features of northern Alaska adjacent to the Chukchi and Beaufort Seas.



Map courtesy of Marcus Geist, The Nature Conservancy (pers. comm.).

Figure 2. Regulatory areas of the Bering Sea/Aleutian Islands area.