



June 7, 2012

Bud Cribley, State Director
Alaska State Office
Bureau of Land Management
222 West Seventh Avenue – Mailstop 13
Anchorage, Alaska 99513

SUBJ: NPR-A Integrated Activity Plan
Draft Environmental Impact Statement

Dear Director Cribley:

The purpose of this letter is to provide public comment in reference to the Federal Register Notice of March 30, 2012 regarding preparation of a new Integrated Activity Plan Draft Environmental Impact Statement (IAP/DEIS) for the National Petroleum Reserve-Alaska (NPR-A or reserve). This letter is submitted on behalf of Audubon Alaska, Pew Environment Group, and Ocean Conservancy. Our organizations appreciate that the Bureau of Land Management (BLM) is undertaking this first-ever comprehensive planning effort for the entire NPR-A.

At more than 22.5 million acres, the NPR-A is the largest public land management unit in the United States, accounting for approximately one-third of the entire North Slope. The extraordinary ecological, subsistence, scenic, and recreational values of the NPR-A have long been recognized by Congress, which enacted specific legislation to guide management of this area. The area includes the calving grounds for two of Alaska's largest caribou herds; supports a great diversity of predators including grizzly bears, wolves, arctic fox, and wolverine; is relied upon by millions of migratory birds including especially large concentrations of waterfowl; hosts internationally recognized densities of nesting raptors; and sustains various marine mammals including polar bear, beluga whale, walrus, and spotted seal. More than forty Alaska Native communities in northern and western Alaska depend upon the Reserve for irreplaceable opportunities to harvest subsistence resources.

As reflected in the following comments, Alternative B stands apart as the clear choice for the preferred alternative that will allow the Department of the Interior to meet the dual mandate under the Naval Petroleum Reserves Production Act (NPRPA) to effectively and reliably protect the area's regionally, nationally, and globally significant ecological and subsistence resources while allowing continued leasing and energy development in the NPR-A.

Sincerely,

Eric F. Myers
Policy Director
Audubon Alaska

Andrew Hartsig
Director, Arctic Program
Ocean Conservancy

Ken Rait
Director, Western Lands Initiative
Pew Environment Group

INTRODUCTION

When Congress enacted the Naval Petroleum Reserves Production Act (NPRPA) in 1976, management responsibility for the reserve was transferred from the U.S. Navy to the Department of the Interior (DOI) and a new statutory mandate was created requiring the Secretary to protect significant surface values. This unique statutory framework takes special cognizance of the area's exceptional surface values that include resources of regional, national and global significance. Teshekpuk Lake and the Utukok River areas were specifically identified by Congress as places that should be given "maximum protection" under the law.¹ NPRPA further authorizes the Secretary to identify and protect other lands with significant surface values.

- Congressional intent, as reflected in the provisions of NPRPA, clearly calls for balance in the management of the NPR-A, directing the Secretary to determine where it is appropriate to lease lands in the NPR-A for oil and gas development while also requiring "maximum protection" for areas identified by the Secretary as having "significant subsistence, recreational, fish and wildlife, or historical or scenic value." 42 USC § 6504.
- While requiring the Secretary to undertake an "expeditious program of oil and gas leasing," NPRPA provides that the Secretary "shall include or provide for such conditions, restrictions, and prohibitions as the Secretary deems necessary or appropriate to mitigate reasonably foreseeable and significantly adverse effects on the surface resources" of the NPR-A. 42 USC § 6506a.
- Federal regulations provide that significant values "may be protected by limiting, restricting or prohibiting the use of and access to appropriate lands" in the NPR-A. 43 CFR § 2361.1.²
- In 1980, Congress further emphasized the importance of safeguarding the ecological integrity of the NPR-A, calling on the Secretary of the Interior to "take every precaution to avoid unnecessary surface damage and to minimize ecological disturbance throughout the reserve" (H. Rep. 94-192, 94th Cong., 2d Sess., at 21).

Under NPRPA, Congress clearly established that while energy development was an important reason for initial establishment of the reserve in 1923, it is now a purpose that must be balanced with "conditions, restrictions, and prohibitions" to ensure protection of the NPR-A's extraordinary ecological values and subsistence resources.

The mandate for balanced management of the NPR-A to ensure protection of special areas and surface resources was stated in the very first Integrated Activity Plan (IAP) adopted for the NPR-A in 1998. The fundamental purpose of an Integrated Activity Plan "is to determine the appropriate multiple use management" of the Reserve; NPRPA "encourages oil and gas development in NPR-A while requiring protection of important surface values."³ The NPRPA's statutory directive to provide balanced management of NPR-A lands has been reflected in all previous IAPs adopted for the Northeast and Northwest planning areas that have identified certain lands as not available for leasing with recognition

¹ IAP/DEIS Vol 1, p. 434-435.

² IAP/DEIS Vol 1, p. 333.

³ 1998 NE NPRA Final IAP/EIS, Volume 1: Introduction - Purpose and Need, p. I-1.

of the importance of preventing oil and gas leasing within critical goose molting areas at Teshekpuk Lake.

On May 17, 2010, DOI issued an Instruction Memorandum for a new “Oil and Gas Leasing Reform” policy regarding on-shore land use planning and lease parcel review that further reinforces the need for balanced management of public lands. The reform policy “recognizes that, in some cases, leasing of oil and gas resources may not be consistent with protection of other important resources and values”⁴ and acknowledges the agency’s authority to protect surface values by designating lands as unavailable for future leasing and development.

The growing body of research on climate change has special relevance for this NPR-A management plan. While much uncertainty remains, it is evident that climate change will result in substantial landscape-scale impacts to Arctic ecosystems. Along with direct impacts to ecological functions, climate change can be expected to have significant impacts on the abundance and availability of subsistence resources.

“The impacts of global climate change are more acute in the western Arctic than in most regions of the world, and changes to the environment and habitats of the North Slope resulting from climate change are affecting subsistence resources and subsistence users.”⁵

The IAP/DEIS recognizes that “the most serious threats to the viability of subsistence on the North Slope include the effective removal of harvest areas due to industrial development and the impacts of climate change.”⁶ Threats to subsistence resources, and harvest, from industrial development can take various forms including direct impacts to biological resources through degradation or loss of habitat as well as loss of access to subsistence harvest areas. The IAP/DEIS cites numerous sources documenting the loss of subsistence use areas to oil development on the North Slope as industrialization has spread westward from Prudhoe Bay.⁷ The direct as well as long-term impact of new gravel (four season) road construction in the NPR-A is of special concern. As discussed below, there is abundant evidence that roads can have direct and substantial impacts on biological resources at critical life stages – especially calving caribou and molting geese – and that oil field infrastructure generally displaces subsistence use. The creation of new public roads that would introduce increased competitive harvest pressure on subsistence resources is also a special concern that threatens the food security of remote communities.

The certainty of future oil development in the NPR-A, soon to be initiated with construction of the CD-5 Alpine satellite project, combined with direct, indirect and cumulative impacts of climate change, reinforces the need for a new IAP that embraces a conservative and precautionary approach to effectively balance future energy development with reliable provisions to ensure “maximum protection” for significant biological and subsistence resources as required by the NPRPA.

A new NPR-A IAP is also needed in light of recent information documenting dramatically reduced energy development expectations for the NPR-A. Based upon the results of seismic and drilling exploration, the United States Geological Survey (USGS) has greatly revised downward estimated hydrocarbon resources in the NPR-A, which is no longer considered a major new oil province. As documented in the IAP/DEIS,

⁴ Bureau of Land Management, Instruction Memorandum No. 2010-117 dated May 17, 2010.

⁵ IAP/DEIS Vol 1, p. 402.

⁶ IAP/DEIA Vol 1, p. 406.

⁷ IAP/DEIS Vol 1, p. 400.

even assuming very high future oil prices, the entire undiscovered economically recoverable oil resource for the NPR-A amounts to less than one month consumption for the United States.

Based on documentation in the IAP/DEIS and as discussed further below, Alternative B is the only alternative presented that can reliably meet the unique statutory requirements of the NPRPA to provide a balance of future energy development opportunities in the NPR-A while also effectively assuring “maximum protection” of significant surface values (i.e., subsistence, recreational, fish/wildlife, historical, and scenic resources) as called for under the law.

DISCUSSION

The following comments focus on the following key issues, which collectively inform selection of the most appropriate management alternative in the IAP/DEIS:

- the NPR-A’s exceptional ecological and subsistence resource values;
- climate change implications for significant ecological and subsistence resources;
- the NPR-A’s known and estimated recoverable hydrocarbon resources in a national context; and
- comparative analysis of proposed alternatives.

1. Ecological and subsistence resources of regional, national, and global significance

The NPR-A supports an exceptional diversity and abundance of biological resources. The wetland complex of ponds, lakes, rivers, streams, lagoons, and barrier islands of the NPR-A provide nesting, feeding, and staging habitat for migratory bird populations of national and international significance. Marine mammals, including polar bear, walrus, beluga whale, and several species of ice seal, use its shorelines and lagoons. The area provides the concentrated calving grounds, insect relief areas, and migration corridors for the Teshekpuk Caribou Herd (TCH), which is vital for North Slope community subsistence, and the Western Arctic Caribou Herd (WAH), a vital subsistence resource for more than forty communities across western Alaska. Healthy populations of predators including grizzly bear, wolves, wolverine, and arctic fox are found throughout the region.

As reflected by Congressional recognition of the Teshekpuk and Utukok areas in NPRPA, and the subsequent identification of special areas,⁸ the NPR-A supports exceptional migratory bird, caribou, and marine mammal resources and vital subsistence services warranting “maximum protection.”

Birds

The largest sedge-wetland complex in the circumpolar Arctic is found within the NPR-A, surrounding Teshekpuk Lake.⁹ Approximately 90 bird species including seabirds, loons, waterfowl, shorebirds and passerines occur annually in the NPR-A or in adjacent ocean habitats.¹⁰ Birds that breed, forage, molt, and stage in the NPR-A use all four major North American flyways and disperse to virtually all states

⁸ Teshekpuk Lake Special Area (initially designated in 1977 with an addition in 1998), Utukok River Uplands Special Area (1977), Colville River Special Area (initially designated in 1977 with an addition in 1998), and Kasegaluk Lagoon Special Area (2004).

⁹ CAVM Team. 2003. Circumpolar Arctic Vegetation Map [Scale 1:7,500,000]. Conservation of Arctic Flora and Fauna (CAFF) Map No. 1. Anchorage, Alaska: U.S. Fish and Wildlife Service. www.geobotany.uaf.edu/cavm.

¹⁰ IAP/DEIS Vol 1, p. 222.

throughout the nation.¹¹ Some birds from the NPR-A travel much further, flying to Central and South America, Russia, China, Japan, Africa, Australia, New Zealand, and even Antarctica.

The NPR-A includes seven designated Important Bird Areas (IBAs) for various waterfowl, loons, shorebirds, and raptors, two of which are recognized as having global significance.¹² In addition to supporting migratory birds that disperse to destinations throughout the world, the NPR-A's bird resources provide a valuable subsistence resource for residents of the region. The NPR-A provides valuable nesting habitat for multiple bird species on the Audubon's 2010 *Alaska WatchList*,¹³ which identifies birds of conservation concern using factors including population size, population trend, threats, and percentage of the population that is dependent on Alaska habitats. These species include: Red-throated Loon, Yellow-billed Loon, Pacific Brant, Common Eider, King Eider, Spectacled Eider, Steller's Eider, American Golden-Plover, Bar-tailed Godwit, Whimbrel, Dunlin, and Buff-breasted Sandpiper.

At least 20 species of waterfowl (ducks, geese, and swans) breed within the NPR-A.¹⁴ The NPR-A provides vital habitat for numerous waterfowl species that are important to the region's subsistence users as well as valuable to sport hunters across the nation from coast to coast. A map showing the migration routes of several waterfowl species that breed in the NPR-A and overwinter in states across the country is shown in Attachment A.

- Up to 30 percent of the Pacific flyway population of Brant may use the Teshekpuk Lake area for breeding and molting. Brant congregate at the Teshekpuk Lake area to molt and fatten for migration, arriving from other areas of the North Slope, the Yukon-Kuskokwim Delta, the western Canadian Arctic, and Siberia. "The origin of this molt-migrant population from such distant nesting areas emphasizes the international importance of the Teshekpuk Lake area to molting brant as well as other goose species."¹⁵ Brant are valued by subsistence hunters in northern and western Alaska as well as sport hunters all along the west coast into Mexico. Fall-staging Brant concentrate in Beaufort Sea lagoons, bays, and deltas, and large numbers also stage in Kasegaluk Lagoon on the Chukchi Sea coast.¹⁶
- The Teshekpuk Lake area supports tens of thousands of Greater White-fronted Geese, a population that has grown substantially in recent times. White-fronted geese from the Arctic coastal plain migrate south to overwinter in large numbers along the coasts of Texas, Louisiana, and Mexico, providing a valuable resource for subsistence users as well as sport hunters. There are several small and one rapidly growing colony of Lesser Snow Geese along the coastline and river deltas of the NPR-A, with the largest concentration in the Ikpikpuk River delta. A growing number of molting Snow Geese have been documented in the vicinity of Teshekpuk Lake, although "it is unknown whether these large numbers of molting snow geese are associated with local breeding colonies or failed breeders, or if nonbreeding snow geese migrate into Teshekpuk Lake from colonies farther

¹¹ Audubon Alaska. 2011. http://ak.audubon.org/sites/default/files/documents/banded_in_npra_byspecies_13dec2011.pdf. The Birds of NPARA.

¹² Currently designated IBAs within the NPR-A: Teshekpuk Lake/East Dease Inlet (global), Elson Lagoon, Cooper Island, Peard Bay, Kasegaluk Lagoon (global), and the Colville River.

¹³ <http://ak.audubon.org/birds-science-education/alaska-watchlist>

¹⁴ IAP/DEIS Vol 1, p. 229.

¹⁵ IAP/DEIS Vol 1, p. 231.

¹⁶ IAP/DEIS Vol 1, p. 230.

afield (as demonstrated for brant)."¹⁷

- The NPR-A supports all four species of eider, two of which are recognized as threatened under the Endangered Species Act (Spectacled and Steller's Eider). At Prudhoe Bay, an 80 percent decline in Spectacled Eider was documented during the period 1981-1991, and the most recent population survey data (2010) indicate a slight negative growth rate.¹⁸ Within the NPR-A, the highest remaining Spectacled Eider breeding concentrations occur northeast of Teshekpuk Lake and in the coastal area between Barrow and Wainwright in the vicinity of Peard Bay. The breeding range of Steller's Eider, which once extended from Wainwright east all the way into Canada,¹⁹ is now far more restricted, concentrated primarily around Barrow, limited to less than one thousand birds and declining. Based on migration counts at Point Barrow, the western Arctic population of King Eiders appears to have declined by nearly half prior to 1996 with a possible increase since then.²⁰ Within the NPR-A, the largest concentration of King Eiders is immediately south and east of Teshekpuk Lake. Based on migration counts at Point Barrow, the Common Eider population has also declined by approximately half.²¹ Although Common Eiders do not breed extensively within the NPR-A "substantial numbers of birds stage in coastal lagoons, including Kasegaluk Lagoon in the Chukchi Sea."²²
- Three species of loon nest in the NPR-A, including a significant portion of the world's Yellow-billed Loon, a candidate species under the Endangered Species Act.²³ It is estimated that approximately one-fifth (3,300) of the worldwide population (16,000) of Yellow-billed Loons breed on the tundra of western and northern Alaska with a substantial portion of those birds (1,223) found on the Arctic coastal plain.²⁴ The largest, contiguous and high-concentration nesting area for Yellow-billed Loons in the NPR-A is located between the Meade and Ikpikpuk Rivers south of Dease Inlet. The overall Alaska population for Red-throated Loons has experienced a long-term decline of approximately half since the 1970s.²⁵ Red-throated Loons occur in especially high densities within the vicinity of Peard Bay and Kasegaluk Lagoon. Pacific Loon is the most abundant loon species in the NPR-A. The most recent population estimate for Pacific Loon is the lowest value on record although overall population trends appear stable.²⁶
- Northern Pintail is the most abundant duck species found in the NPR-A with population numbers that can fluctuate substantially from year to year (i.e., a difference of up to 62 percent between "high" and "low" population years). The population variability is believed to be in part a result of "northward displacement from southern nesting areas during drought years."²⁷ The significance of NPR-A lands as a breeding refugium for Northern Pintails in drier/low-water years is unclear. The highest-density breeding areas for Northern Pintail are north and east of Teshekpuk Lake and in the vicinity of Dease Inlet and Nelson Lagoon. Long-tailed Duck is the second-most abundant duck breeding in the planning area. During molt, especially high concentrations of Long-tailed Duck occur in Beaufort Sea lagoons to the east of the NPR-A and then, following molt, substantial numbers

¹⁷ IAP/DEIS Vol 1, p. 234.

¹⁸ IAP/DEIS Vol 1, p. 296.

¹⁹ IAP/DEIS Vol 1, p. 300.

²⁰ IAP/DEIS Vol 1, p. 237.

²¹ IAP/DEIS Vol 1, p. 238.

²² IAP/DEIS Vol 1, p.238.

²³ Earnst et al. 2005. Population size and trend of Yellow-billed Loons in northern Alaska. *Condor* 107: 289-304.

²⁴ IAP/DEIS Vol 1, p. 305.

²⁵ IAP/DEIS Vol 1, p 228.

²⁶ IAP/DEIS Vol 1, p. 229.

²⁷ IAP/DEIS Vol 1, 235.

concentrate to stage at Kasegaluk Lagoon prior to the fall migration.

- As many as 6 million shorebirds breed in the NPR-A,²⁸ with 600,000 in the Teshekpuk Lake area alone.²⁹ More than two dozen species of shorebird breed in the NPR-A.³⁰ The Teshekpuk Lake area supports significant percentages of populations of three species of shorebird: Dunlin (*Calidris alpina arcticola* subspecies.) 19%; Black-bellied Plover 10%; and Semipalmated Sandpiper (western population) 10%.³¹
- Overall nest density of breeding birds in the Teshekpuk Lake area is significantly higher than at other sites on the Arctic Alaskan Coastal Plain,³² and breeding densities of shorebirds are the highest in the circumpolar Arctic.³³
- The Alaska Shorebird Group³⁴ has identified several sites within the NPR-A as candidates for inclusion in the Western Hemisphere Shorebird Reserve Network (WHSRN), including:³⁵
 - The “Teshekpuk Lake-Dease Inlet” area as a candidate WHSRN site of possible international significance. The area is significant for Pectoral Sandpiper, Black-bellied Plover, American Golden-Plover, Long-billed Dowitcher, Dunlin, and Semipalmated Sandpiper.
 - Smaller scale sites within the Teshekpuk Lake-Dease Inlet area include:
 - “Ikpikpuk River,” important for American Golden-Plover, Black-bellied Plover, Bar-tailed Godwit, Semi-palmated Sandpiper, Dunlin, and Red Phalarope;
 - “Ikpikpuk River Delta,” important for Black-bellied Plover, Ruddy Turnstone, Semipalmated Sandpiper, Pectoral Sandpiper, Dunlin, and Red Phalarope; and
 - “Kogru River Delta,” important for Pectoral Sandpiper, Dunlin, and Red Phalarope.
 - The “Barrow and Admiralty Bay” area is another possible WHSRN site of International significance, important for Semipalmated Sandpiper, Pectoral Sandpiper, Dunlin, Long-billed Dowitcher, and Red Phalarope.

²⁸ King, R. 1979. Results of aerial survey of migratory birds on NPRA in 1977 and 1978. In Lent, PC technical ed. Studies of selected wildlife and fish and their use of habitats on and adjacent to NPRA 1978-1979, Volume 1 National Petroleum Reserve – Alaska, 105© Land Use Study. Anchorage: U.S. Department of the Interior. 187-226.

²⁹ Andres et al. *In Press*. Shorebirds breed in unusually high densities in the Teshekpuk Lake Special Area. Accepted by *Arctic*.

³⁰ IAP/DEIS Vol 1, p. 239.

³¹ Andres, B.A., J.A. Johnson, S.C. Brown, R.B. Lanctot. *In Press*. Shorebirds breeding in unusually high densities in the Teshekpuk Lake Special Area, Alaska. Accepted for publication in *Arctic* April 2012.

³² Liebezeit et al. 2011 Breeding ecology of birds at Teshekpuk Lake: a key habitat site on the Arctic Coastal Plain of Alaska. *Arctic* 64 (1): 32-44.

³³ Andres, B.A., J.A. Johnson, S.C. Brown, R.B. Lanctot. *In Press*. Shorebirds breeding in unusually high densities in the Teshekpuk Lake Special Area, Alaska. Accepted for publication in *Arctic* April 2012.

³⁴ Alaska Shorebird Group. 2008. Alaska Shorebird Conservation Plan – Version II. Alaska Shorebird Group, Anchorage, Alaska

³⁵ Recognizing that the loss of critical habitat can have hemispheric ramifications, the Western Hemisphere Shorebird Reserve Network was initiated in 1985 to identify key shorebird areas. A number of the areas identified as IBAs include or overlap with areas identified as candidate WHSRN sites.

- Waterfowl and loons on the 2010 *Alaska WatchList* that nest in the Teshekpuk Lake area include Yellow-Billed Loon, Red-Throated Loon, King Eider, Spectacled Eider, Steller's Eider³⁶ and Pacific Brant. Maps showing the highest-value breeding and molting areas in the Teshekpuk Lake area for various waterfowl and loon species are provided in Attachment B (breeding birds), Attachment C (molting birds), and Attachment D (*WatchList* species).
- The NPR-A hosts an extraordinary concentration of nesting raptors – especially Peregrine Falcon, Gyrfalcon, and Rough-legged Hawk – with high densities nesting on the cliffs and river bluffs of the Colville River (including the Kikiakrorak and Kogosukruk tributaries), and upper Ikpikpuk Rivers.

Teshekpuk Lake must be prioritized in the final IAP as an area that Congress specifically identified as deserving of “maximum protection” under the NPRPA. The wetlands area completely surrounding Teshekpuk Lake and extending to the eastern shore of Dease Inlet has been identified as an Important Bird Area of global significance.³⁷ Secretary Salazar recently highlighted this “unique, ecologically important area [as] the home of the Northern Hemisphere’s largest concentration of nesting migratory birds” and noted the importance of protecting the “unique avian and terrestrial resources in the greater Teshekpuk Lake area, including 45 species of birds that rely on one of the most ecologically important wetlands in the entire Arctic....”³⁸ For more than 40 years, the area north and east of Teshekpuk Lake has been noted for its importance to waterfowl and, especially, molting geese.³⁹ In recognition of the exceptional values in the Teshekpuk Lake area, all prior IAPs for the Teshekpuk Lake area under NPRPA have included provisions to preclude leasing on tracts identified as important for goose molting.

Up to 100,000 Pacific Brant, Canada Geese, Snow Geese, and White-fronted Geese molt their flight feathers in the vicinity of Teshekpuk Lake each summer.⁴⁰ This area is unique and there are no other known areas that support large numbers of four species of molting geese across the circumpolar Arctic.⁴¹ Recent surveys have documented significant numbers of additional molting geese north and west of Teshekpuk Lake outside of the “core” molting area, including an additional 23,200 geese (adult and young) with roughly half identified as Pacific Brant (12,100). In particular, Cape Simpson (on the northeastern shore of Dease Inlet) and the Piasuk River Delta (southwestern shore of Smith Bay) were found to host significant numbers of Pacific Brant accounting for the vast majority (88 percent) of the “incremental” Pacific Brant documented outside of the core molting area.⁴²

As observed in the 2010 survey report, the greater Teshekpuk Lake area may, in fact, be even more important for molting Brant than generally recognized because some birds use this area only once in their lifetime, others occasionally, and still others many times. “Therefore, the number or proportion of

³⁶ The USFWS aerial survey data does not specifically identify the Steller's Eider. This species, listed as threatened under the Endangered Species Act, is known to nest in the area but in such low numbers that detection by aerial survey is not feasible.

³⁷ National Audubon Society. Important Bird Area Site Description – Teshekpuk Lake-E. Dease Inlet. See <http://iba.audubon.org/iba/viewSiteProfile.do?siteId=2781&navSite=state>

³⁸ Department of the Interior, News Release: Obama Administration Announces Major Steps toward Science-Based Energy Exploration in the Arctic, February 17, 2012.

³⁹ King, J.G. 1970. The swans and geese of Alaska's Arctic slope. *Wildfowl* 21:11-17.

⁴⁰ Derksen. et al. United States Geological Survey (USGS) - Alaska Science Center. “Avian Population Response to Ecological Change Along the Arctic Coastal Plain” USGS DOI Landscape Initiative Progress Report (January 2005).

⁴¹ Flint, et al. “Changes in abundance and spatial distribution of geese molting near Teshekpuk Lake, Alaska: interspecific competition or ecological change?” *Polar Biology* (October 2007)

⁴² US Fish and Wildlife Service, Waterfowl Management (Fairbanks). Teshekpuk Lake Area Molting Goose Survey -2010. (March 2010)

the population of brant that use this area in a specific year or averaged over multiple years is probably a biased indicator (biased low) of the use of this area by the Pacific flyway population.”⁴³

Survey data over the past two decades also document marked trends in goose populations in the Teshekpuk Lake area with uncertain long-term implications. The total goose population has grown significantly over time with changes both in abundance as well as spatial distribution. The total number of molting geese ranged from 18,525 to 90,191 between 1976 and 2005.⁴⁴ Overall, the total population of geese using the “core” molting area north of Teshekpuk Lake has more than quadrupled. While Pacific Brant and Canada Goose populations have remained relatively stable, the Greater White-fronted Goose population has increased sevenfold. The Lesser Snow Goose population, while relatively small, has also increased rapidly. Research into these dynamics has identified the possibility of interspecies competition among geese. The growing White-fronted Goose population may be excluding Pacific Brant from preferred habitats. Pacific Brant have been shifting in their historic distribution from large, inland lakes to coastal salt marshes. It has been observed that Pacific Brant are moving out of the very same areas where White-fronted Geese are showing substantial increases.⁴⁵ Whether the Pacific Brant redistribution is attributable to competition from White-fronted Geese or, possibly, to climate change-driven coastline erosion that has altered the composition of vegetative forage species is a subject of ongoing investigation.

The remote, deep-water lakes in the Teshekpuk Lake area enable flightless geese to escape predators while providing sedges and grasses as high-quality forage.⁴⁶ The sensitivity of geese during their flightless, energy-demanding molt is well established.⁴⁷ Molting geese will run at the sight of a distant person, and disturbance by aircraft, to which Brant do not habituate, is a major concern.^{48,49,50} Responses to aircraft include interruption of foraging behavior, displacement, and flight. Research has documented that 75 percent of Brant flocks showed a change in activity (response) due to overflights with responses to aircraft up to 4,000 feet in altitude and a lateral distance of up to 3 miles.⁵¹ Behavioral responses to disturbance add stress to the already-taxing physiological requirements of molting geese.⁵² Reductions in feeding time or excessive energy expenditures may compromise fitness, survival or reproductive success.^{53,54}

⁴³ US Fish and Wildlife Service, Waterfowl Management (Fairbanks). Teshekpuk Lake Area Molting Goose Survey -2010. (March 2010)

⁴⁴ Flint, et. al. “Changes in abundance and spatial distribution of geese molting near Teshekpuk Lake, Alaska: interspecific competition or ecological change?” *Polar Biology* (October 2007)

⁴⁵ Flint, et. al. “Changes in abundance and spatial distribution of geese molting near Teshekpuk Lake, Alaska: interspecific competition or ecological change?” *Polar Biology* (October 2007)

⁴⁶ Derksen, D.V., W.D. Eldridge and M.W. Weller. 1982. Habitat ecology of Pacific brant and other geese molting near Teshekpuk Lake, Alaska. *Wildfowl* 33:39-57.

⁴⁷ Derksen, D.V., M.W. Weller and W.D. Eldridge. 1979. Distributional ecology of geese molting near Teshekpuk Lake, National Petroleum Reserve-Alaska. pp. 189-207 in R.L. Jarvis and J.C. Bartonek (eds.). *Management and Biology of Pacific Flyway Geese*. Oregon State University Bookstores, Corvallis, OR.

⁴⁸ Jensen, K.C. 1990. Responses of molting Pacific black brant to experimental disturbance in the Teshekpuk Lake Special Area, Alaska. Ph.D. thesis. Texas A&M University, College Station, Texas.

⁴⁹ Miller, M.W., K.C. Jensen, W.E. Grant and M.W. Weller. 1994. A simulation model of helicopter disturbance of molting Pacific black brant. *Ecological Modeling* 73:293-309.

⁵⁰ IAP/DEIS Vol 3, p. 124.

⁵¹ IAP/DEIS Vol 2, p. 159.

⁵² Taylor, E.J. 1995. Molt of black brant (*Branta bernicla nigricans*) on the Arctic Coastal Plain, Alaska. *Auk* 112:904-919.

⁵³ Taylor, E.J. 1993. Molt and bioenergetics of Pacific black brant (*Branta bernicla nigricans*) on the Arctic Coastal Plain, Alaska. Ph.D. dissertation, Texas A&M University, College Station, Texas.

⁵⁴ IAP/DEIS Vol 2, p. 168-169.

While it is not possible to project an exact number of flights required for prospective oil and gas developments, information in the IAP/DEIS provides some insight into the potential scale of development-related air traffic. Based on analysis of activity associated with projected development of Alpine satellite fields, the BLM estimated: up to 2,500 “non-operational” summer helicopter flights annually; during a six-year construction phase, up to 340 one-way “operational” flights per month in the summer (some months as high as 615 flights); during the drilling phase, approximately 70-90 one-way operational flights per month summer and winter; and during satellite field operations, up to 80 flights per month in the summer.⁵⁵

A rapidly growing population of geese that has historically been concentrated within the deferral area north and east of Teshekpuk Lake also raises the question of whether the recognized “core” molting area identified for deferral in 1998 is sufficiently large to support the growing goose population. Coastal erosion which continues to reduce the size of the molting area adds to this concern.⁵⁶ Recent surveys documenting significant numbers of Pacific Brant further west of Teshekpuk Lake toward Dease Inlet (i.e., Cape Simpson, Piasuk River Delta), supports the need for a precautionary approach to land management of the greater Teshekpuk Lake-Dease Inlet area to assure long-term goose productivity. (See Volume 5, Map 3.3.5-10: Black Brant Locations Pre-Molt and Molt.)

Caribou

The NPR-A provides essential habitat for two of Alaska’s largest caribou herds, the ~ 350,000 animal Western Arctic Caribou Herd (WAH) and the ~60,000 animal Teshekpuk Caribou Herd (TCH). The NPR-A includes the concentrated calving grounds, insect relief areas, and migration corridors for the two herds which, in turn, provide a vital subsistence harvest resource for communities throughout the region. As stated in the IAP/DEIS, caribou “is the most important overall subsistence resource in terms of numbers of animals harvested and consumed, and the greatest frequency of hunting trips taken.”⁵⁷

While exact subsistence harvest data are difficult to obtain, it is estimated that up to 14,000 WAH caribou are harvested each year for subsistence and at least 43 rural communities rely upon the herd as their primary terrestrial meat source.⁵⁸ Consequently, as stated in the IAP/DEIS, “any activity that threatens the viability of the herd has profound consequences for communities that live within or near its overall range.”⁵⁹ The TCH, which has a year-round presence on the coastal plain, is an especially critical subsistence resource for several North Slope communities (Barrow, Atqasuk, and Nuiqsut) that are almost exclusively dependent upon this herd. The TCH is unique when compared to the other three herds that calve along the North Slope as “the only herd in which over 50 percent of the population typically overwinters on the coastal plain.”⁶⁰ The annual subsistence harvest of the TCH has grown substantially over time to as high as 4,800 animals⁶¹ in a single year for an estimated annual harvest of 5-10 percent of the herd.⁶² It has been estimated that the TCH provides approximately 95 percent of the

⁵⁵ IAP/DEIS Vol 2, p. 11.

⁵⁶ Mars and Houseknecht, “Quantitative remote sensing study indicates doubling of coastal erosion rate in past 50 yr along a segment of the Arctic coast of Alaska”, *Geology*, v. 35, no. 7 (July 2007)

⁵⁷ IAP/DEIS Vol 1, p. 366.

⁵⁸ IAP/DEIS Vol 1, p. 399.

⁵⁹ IAP/DEIS Vol 1, p. 399.

⁶⁰ Person, et al., Distribution and Movement of the Teshekpuk Caribou Herd 1990-2005: Prior to Oil and Gas Development, *Arctic* Vol 60, No. 3 (September 2007).

⁶¹ IAP/DEIS Vol 1, p. 266.

⁶² Person, et al., Distribution and Movement of the Teshekpuk Caribou Herd 1990-2005: Prior to Oil and Gas Development, *Arctic* Vol 60, No. 3 (September 2007).

caribou harvested by the communities of Barrow and Atqasuk and approximately 85 percent of the caribou harvested by Nuiqsut.⁶³ The IAP/DEIS recognizes the dependence of Barrow on the TCH noting that 99 percent of the caribou harvested in Barrow during June through September (when 80 percent of the Barrow harvest occurs) comes from the TCH and only 1 percent from the WAH.⁶⁴

The lack of a completed IAP for the South planning area has precluded oil and gas leasing within the WAH habitat areas, providing *de facto* protection, while Alpine satellite development proposals have focused research attention on impacts to the TCH that would come from future development in the vicinity of Teshekpuk Lake. Fundamental conflicts between caribou and oil and gas development have been documented, particularly impacts on the use of calving areas as well as interference with migratory movements.

"Individual and groups of caribou/reindeer: 1) move away from point sources of disturbance; 2) increase activity and energy expenditure near disturbance; 3) delay crossing or fail to cross linear structures; [and] shift away from areas of extensive and intensive development...."⁶⁵

In 2003, the National Research Council (NRC)⁶⁶ published a comprehensive report on the cumulative effects of oil and gas development on the North Slope which included consideration of impacts on caribou. The NRC concluded that North Slope development has altered the distribution of female caribou and that the existence of oil industry infrastructure has interfered with caribou movements between coastal insect relief areas and inland feeding areas.

Of special concern are impacts to caribou cows and successful calving due to avoidance of oil facilities and industrial activity. Aerial survey data before and after road placement near Milne Point show that the density of females decreased close to roads. Other observations within the Kuparuk Development Area (KDA) found few females and calves seen from the road system. The NRC cited findings that the proportion of calving caribou "in the densely developed western portion of the KDA declined significantly from 1979 through 1987."⁶⁷ The IAP/DEIS acknowledges "seasonal avoidance of habitats within three miles of existing Prudhoe Bay facilities by cows and calves during calving and early post-calving periods."⁶⁸

The NRC reported that from 1980 to 1995 concentrated calving had moved from developed areas to undeveloped areas with lower green-plant biomass than the area previously used; in the eastern portion of the Central Arctic, in the absence of development, no such shift occurred. The NRC found that from 1988 to 1994, reproductive rates of caribou in regular contact with oil field infrastructure west of the Sagavanirktok River were lower than those of undisturbed female caribou to the east. Further, the reduction in parturition rates for these caribou was exacerbated by intense insect harassment during the period. The NRC concluded that it appears the "effects of oil field development accumulate with the effects of insect harassment by impairing caribou movements between coastal and inland habitats."⁶⁹

⁶³ Lincoln Parrett, Alaska Department of Fish and Game, 2010, personal communication.

⁶⁴ IAP/DEIS Vol 1, p. 266.

⁶⁵ Wolfe, et al. 2000: *Polar Research* 19(1), 63-13.

⁶⁶ National Research Council, *Cumulative Environmental Effects of Oil and Gas Activities on Alaska's North Slope*, National Academies Press (2003)

⁶⁷ National Research Council, *Cumulative Environmental Effects of Oil and Gas Activities on Alaska's North Slope*, National Academies Press (2003) p. 111.

⁶⁸ IAP/DEIS Vol 2, p. 185.

⁶⁹ National Research Council, *Cumulative Environmental Effects of Oil and Gas Activities on Alaska's North Slope*, National Academies Press (2003), p. 116.

The NRC observed that expanded loss of preferred habitat and climate change resulting in increased insect harassment are likely to depress energy and nutrient status and, therefore, summer weight gain of lactating females. The NRC noted possible consequences of these disturbances include reduced nutrient acquisition and retention throughout the calving and midsummer periods, poorer condition in autumn, and a lowered probability of producing a calf the following spring. The NRC concluded that “as a result of conflicts with industrial activity during calving and an interaction of disturbance with the stress of summer insect harassment, reproductive success of Central Arctic Herd (CAH) female caribou in contact with oil development from 1988 through 2001 was lower than for undisturbed females, contributing to an overall reduction in herd productivity.”⁷⁰

Research has documented displacement of calving caribou due to infrastructure with the finding that in the KDA, abundance of calving caribou was less than expected within 4 kilometers of roads.⁷¹ The IAP/DEIS recognizes that oil development in the Prudhoe Bay-Kuparuk River Unit area has caused displacement of CAH caribou from a portion of the calving range, with a shift away from the oil fields.⁷² Recent information on body weights of CAH cow caribou (and their calves) that calve west of the Sagavanirktok River, compared with CAH cow caribou and calves from calving grounds east of the river, also supports the concern that that disturbance displacement of cow caribou may be compromising CAH productivity.⁷³

The IAP/DEIS acknowledges the possibility that the development/disturbance effect may have already been expressed at a population-level as suggested by the higher growth rate of the TCH relative to the CAH.⁷⁴ Over the longer term, the IAP/DEIS notes:

“The reduction in calving habitat use near oil development facilities could eventually limit the growth of Arctic caribou herds within their present ranges and prevent herds from reaching the maximum population size they could achieve without the presence of development.”⁷⁵

The need to safeguard the concentrated calving, insect relief, and migration corridors of the TCH under this IAP is heightened by the fact that a substantial portion of the highest-value calving habitat (approximately 17 percent) is already under active lease. Attachment E. With recent approval of the CD-5 project, new road, pipeline and production infrastructure development is anticipated in the near future.

It has been observed that “caribou were relatively unsuccessful in crossing road/pipeline corridors in the KDA....”⁷⁶ Interference with caribou migration movements has also been cited by the Alaska Department of Fish and Game (ADFG).⁷⁷ Satellite collar data collected in 2003-2004 season shows that approximately one-third of the TCH moved east from the Teshekpuk Lake area during the fall, heading toward the

⁷⁰ National Research Council, *Cumulative Environmental Effects of Oil and Gas Activities on Alaska’s North Slope*, National Academies Press (2003), p. 116.

⁷¹ Cameron, et al., “Central Arctic Caribou and Petroleum Development: Distribution, Nutritional, and Reproductive Implications” *Arctic* Vol. 58, No. 1 (March 2005)

⁷² IAP/DEIS Vol 3, p. 144.

⁷³ IAP/DEIS Vol 3, p. 144.

⁷⁴ IAP/DEIS Vol 3, p. 245.

⁷⁵ IAP/DEIS Vol 3, p. 144.

⁷⁶ Cameron, et al., “Central Arctic Caribou and Petroleum Development: Distribution, Nutritional, and Reproductive Implications” *Arctic* Vol. 58, No. 1 (March 2005)

⁷⁷ Alaska Department of Fish and Game, *Caribou Management Report* (July 2002-June 2004), Game Management Unit 26A, Herd: Teshekpuk, Geographic Description: Western North Slope.

Arctic National Wildlife Refuge. The first major development they encountered was the Trans-Alaska Pipeline (TAP) and the Dalton Highway “which caused them to divert” north. After several days delay, the herd continued west to the Arctic Refuge. The portion of the herd that wintered in the Arctic Refuge began their westward migration back toward Teshekpuk Lake in mid-April. “[T]he satellite-collared caribou (along with thousands of other TCH animals) reached the TAP/Dalton Highway in different places on 19 April and both were stopped.” They remained to the east of the TAP/Dalton Highway corridor, moving north and south, for ten days then finally crossed and moved west. It was also reported that the rest of the TCH caribou that wintered in the Arctic Refuge began migrating back west in mid-May. The satellite data again indicates that the TAP/Dalton Highway interfered with the westward migration movement.

ADFG identified several key implications from these findings, including:⁷⁸

- the TCH is harvested at a relatively high rate and “if development or other factors reduce productivity, it is more likely to result in a decrease in herd numbers than in herds that are not hunted as heavily;”
- “the TCH has shown great fidelity to its calving area and any activity that displaces caribou from this area could have negative population effects;” and
- caribou cows “will avoid development and activity, and there has been no way found to mitigate for this impact.”

ADFG has drawn special attention to the fact that the TCH relies on narrow migration corridors on either side of Teshekpuk Lake to access insect relief areas and that most parturient TCH cows migrate through the narrow corridor between the east side of the lake and Kogru Inlet: “Development in this area could easily affect the most important segment of the population.”⁷⁹ The IAP/DEIS reinforces concern about the vulnerability of these particular areas:

“The most critical corridors for movement to the coastal insect-relief area are through the narrow areas between Teshekpuk Lake and the Kogru River to the east and between the lake and Smith Bay to the northwest. ... Caribou must pass through them to get to and from insect-relief areas. The area to the east of Teshekpuk Lake is a particular problem because nearly all of the parturient cows must pass through this area either shortly before or after calving. Any development that occurs on the limited amount of habitat that is used by caribou migrating through this corridor would likely affect caribou movements.”⁸⁰

The IAP/DEIS also acknowledges concerns about impacts to the TCH as a result of displacement and/or other impediments to herd migration:

“Studies done over the last decade have indicated that the Teshekpuk Caribou Herd caribou show high fidelity to the calving area near Teshekpuk Lake and that caribou that calve in the traditional calving area have much higher calving success than caribou found outside the area....

⁷⁸ Alaska Department of Fish and Game, *Caribou Management Report* (July 2002-June 2004), Game Management Unit 26A, Herd: Teshekpuk, Geographic Description: Western North Slope.

⁷⁹ Alaska Department of Fish and Game, *Caribou Management Report* (July 2002-June 2004), Game Management Unit 26A, Herd: Teshekpuk, Geographic Description: Western North Slope.

⁸⁰ IAP/DEIS Vol 2, p. 185.

If the Teshekpuk Caribou Herd is partially displaced from its calving area, as the Central Arctic Herd has been, or if caribou are impeded from reaching the calving area, recent surveys indicate that calving success would likely be reduced.... [T]he most recent study of Central Arctic Herd productivity in the oil fields suggests that habitat quality in the calving area in one year may affect calf size at birth in the following year. Calf size at birth, in turn, influences calf size at the end of the first summer, which has consequences for survival through the following winter.”⁸¹

The IAP/DEIS recognizes that, to take advantage of seasonally available forage, caribou must be able to migrate freely among summer and winter ranges. If movements are significantly constrained by development infrastructure, “caribou are more likely to overgraze their habitat, possibly leading to population decline.”⁸²

In addition to concerns about impacts to caribou productivity as a result of displacement from prime calving habitat and/or impediments to migration, the IAP/DEIS acknowledges that oil development would effectively remove large areas from subsistence use. Subsistence “user avoidance” of developed areas has been well documented. As reported by DOI in 1990: “Perhaps the most obvious effect of oil development in the Nuiqsut area has been that it has effectively removed certain areas from the Nuiqsut land use area.”⁸³ The IAP/DEIS reports that “Nuiqsut subsistence use areas retreated from the east as development moved westward from Prudhoe Bay to Oliktok Point, particularly in the area of the Kuparuk River Unit field.... In 1993, development activity was encroaching on valued traditional use areas and onshore subsistence harvest and uses in industrial areas north and east of Nuiqsut declined to near zero.”⁸⁴ Four percent were within 5 miles of developed areas, 17 percent were harvested from 6 to 15 miles and 79 percent were harvested more than 16 miles from development.⁸⁵

Subsistence user avoidance resulting from oil development was also extensively cited as a development impact in comments submitted to the U.S. Army Corps of Engineers during review of the CD-5 project. Based on data from the Kuparuk River Unit, “there is essentially no hunting in a 10-mile swath on either side of linear infrastructure or in a 5 mile radius all around a point structure.”⁸⁶ These comments further observed that “CD-5 and its road and pipeline would effectively remove, or substantially impair, potentially huge swaths of land from the available subsistence range, probably on the order of hundreds of square miles.... Between CD-5 and the next three projects, two of which have substantially longer roads and pipelines than CD-5, the affected acreage is dramatically large.”⁸⁷ These prospective subsistence avoidance impacts are illustrated based development of the CD-5, CD-6, and CD-7 projects from the Alpine Satellite Development Plan Final EIS as shown in Attachment F.

The Western Arctic Caribou Working Group (WACH Working Group), which represents subsistence users from throughout northwestern Alaska, has a long-standing position on the need for maximum (i.e., permanent) protection of primary caribou habitats in the NPR-A to safeguard this essential subsistence resource. As reflected in the scoping comments submitted to BLM for the current IAP/DEIS planning process:

⁸¹ IAP/DEIS Vol 2, p. 186.

⁸² IAP/DEIS Vol 1, p. 262.

⁸³ IAP/DEIS Vol. 1, p. 400.

⁸⁴ IAP/DEIS Vol 1, p. 401.

⁸⁵ IAP/DEIS Vol 1, p. 401.

⁸⁶ Kuukpik Corporation to the U.S. Army Corps of Engineers, letter dated July 21, 2009.

⁸⁷ Kuukpik Corporation to the U.S. Army Corps of Engineers, letter dated July 21, 2009.

"The Working Group recommends that BLM provide permanent protection to WAH migration corridors and all seasonal core habitats for both WAH and TCH within the NPR-A. ... No leasing or activities associated with the development of oil and gas or coal bed methane should occur within the primary calving ground, critical insect relief habitat, or migratory corridors within the planning area. These seasonal ranges should be considered exclusion areas."⁸⁸

A map showing the areas recommended by the WACH Working Group as unavailable for leasing and excluded from development (concentrated caribou calving and insect relief areas) is provided in Attachment G.

In scoping comments submitted to BLM, the North Slope Borough endorsed the position of the WACH Working Group.⁸⁹ In addition, at least 24 tribes and organizations, representing some 90 villages, have endorsed the WACH Working Group request to not allow further oil and gas leasing within the primary calving grounds, migratory routes, and insect relief areas of the WAH and TCH in the new IAP.

Marine Mammals

The NPR-A coastline and immediately adjacent ocean waters of the Chukchi and Beaufort Seas support a significant abundance and diversity of iconic arctic marine mammal species, several of which are listed under the Endangered Species Act. The Kasegaluk Lagoon Special Area was "designated primarily because of high values for marine mammals."⁹⁰ Coastal areas directly under the control of the BLM within the IAP planning area provide important habitat for polar bear (threatened), walrus (candidate species), beluga whale, and spotted seal. In addition, other marine mammal species that rely upon adjacent state and federal ocean waters potentially influenced by management decisions under this IAP include other whales, most notably bowhead whale (threatened), and three additional species of ice seal: bearded seal (proposed threatened), ribbon seal, and ringed seal (proposed threatened).⁹¹ Individually and collectively, these marine mammal species provide vital subsistence resources for the communities of the North Slope.

Polar Bear: The US Fish and Wildlife Service (USFWS) has listed the polar bear as a threatened species under the Endangered Species Act and identified critical habitat all along the coastline of the NPR-A, including barrier islands and spits (including at Dease Inlet/Nelson Lagoon, Peard Bay, and Kasegaluk Lagoon) and terrestrial denning areas along the Beaufort Sea between the Canadian border and Barrow extending inland 5 miles from the coast. There has been an apparent shift in recent years to more terrestrial denning (relative to dens on pack ice) and numbers of polar bears on land during the summer open water period are likely to increase as sea ice continues to retreat. With a small population and low reproductive rates, "any loss of large numbers of polar bears (and especially adult females) or their prey species would exacerbate their low reproductive potential."⁹² See IAP/DEIS Volume 5, Map 3.3.3-8: Polar Bear Critical Habitat & Confirmed Dens.

⁸⁸ Western Arctic Caribou Working Group to BLM Alaska State Office, "Caribou Working Group Scoping Comments on NPR-A IAP/EIS," letter dated September 30, 2010.

⁸⁹ North Slope Borough to BLM Alaska State Office, "Scoping comments, BLM's updated Integrated Activity Plan and Environmental Impact Statement," letter dated October 1, 2010.

⁹⁰ IAP/DEIS Vol 1, p. 334.

⁹¹ IAP/DEIS Vol 1, p. 286. Table 3-20.

⁹² IAP/DEIS Vol 1, p. 324.

Walrus: USFWS has identified walrus as a candidate species under the Endangered Species Act. Walrus are now hauling out on land in unprecedented numbers as sea ice is lost to climate warming. Reports indicate 10,000 to 20,000 walrus, mostly female and young, hauled out in the vicinity of Kasegaluk Lagoon in 2010. This massive move to shore was also documented in 2007 and 2009, both years when Arctic sea ice was near record low levels.⁹³ These large walrus aggregations are especially vulnerable to disturbance that can result in deadly stampedes capable of crushing and killing individual animals. As the summer pack ice retreats, large, shore-based walrus haul-outs are likely to become a regular occurrence along the NPR-A coastline, heightening the need for protected disturbance-free areas. See IAP/DEIS Volume 5, Map 338-7: Pacific Walrus Summer Range, Haulout & Carcass Locations.

Beluga whale: During spring and fall migration, beluga whales travel along the Chukchi and Beaufort coastline of the NPR-A using areas such as Kasegaluk Lagoon and the Kuk Inlet estuary. Beluga whales are a valuable subsistence resource for several communities in the NPR-A. Point Lay and Wainwright have community hunts while Kaktovik, Nuiqsut, and Barrow periodically hunt belugas.⁹⁴

Spotted seal: While all ice seals depend upon sea ice, spotted seals are most strongly associated with coastal habitats and land-based haul-outs. “Unlike other ice-seals, spotted seals often use shore-based haul-outs for summer foraging. Haul-outs appear to be selected for physiography: sand bars, spits, and shoals....”⁹⁵ Spotted seal haul-out sites are characterized as “isolated and disturbance-free locations” associated with fish spawning.⁹⁶ Documented haul-out areas within the NPR-A include Kasegaluk Lagoon, Peard Bay, Dease Inlet, and Smith Bay.⁹⁷

2. Climate change implications for significant ecological and subsistence resources

While there are many uncertainties as to how climate change impacts will manifest in the Arctic, it is accepted that warming will be accentuated at higher latitudes “where the temperatures increase may be more than double the global average.”⁹⁸ Measurements of permafrost temperatures distributed across the Arctic coastal plain show that the mean surface temperature is likely to have already warmed 2° to 4° C (4° to 8° F) over the past century.⁹⁹ Projections indicate substantial further warming with temperature increases disproportionately greater during the winter. Some of the most consequential anticipated impacts concern changes in precipitation, evapotranspiration, and associated “water budgets” that fundamentally influence ecosystem health and productivity.

Ecosystems, wildlife populations, and subsistence resources negatively impacted by climate change will be further jeopardized by future oil and gas development. Selecting a preferred alternative that provides “maximum protection” of the NPR-A’s significant surface resources, as required by NPRPA, must account for climate change–driven threats to ensure significant surface resources are not further harmed by industrial development.

⁹³ Anchorage Daily News, “Flipper to flipper: with ice gone, thousands of walrus jam together on land” September 14, 2010.

⁹⁴ IAP/DEIS Vol 1, p. 293.

⁹⁵ Smith, M.A., *Arctic Marine Synthesis: Atlas of the Chukchi and Beaufort Seas*, Audubon Alaska (January 2010, First Edition), p. 6-17.

⁹⁶ IAP/DEIS Vol 1, p. 287.

⁹⁷ Smith, M.A., *Arctic Marine Synthesis: Atlas of the Chukchi and Beaufort Seas*, Audubon Alaska (January 2010, First Edition), see map of Spotted Seal distribution.

⁹⁸ IAP/DEIS Vol 1, p. 121-125.

⁹⁹ IAP/DEIS Vol 1, p. 125.

As stated in the USGS's very recent synthesis analysis of climate change and implications for ecosystems:

“As humans respond to the impacts of climate change, a primary concern is to do no greater harm to already stressed natural systems that are also seeking to adapt to change. The potential for unintended negative impacts of human responses on biodiversity is large....”¹⁰⁰

BLM has previously recognized:

- “Change in global climate parameters is occurring at a rate and magnitude greater than any trend observed in the last 400 years.... These changes are resulting or are expected to result, in changes to the biological environment, causing shifts, expansion or retraction of home range, changes in behavior and changes in population parameters of plant and animal species.”¹⁰¹
- “Global warming would negatively affect the Arctic environment, including tundra, sea ice and changes in permafrost depth. Reduction in sea ice as a result of global warming would affect marine mammals (particularly polar bears), fish and birds with related implications for subsistence harvests. Due to loss of habitat or from competition from other species whose ranges shift northward, the population of some Arctic species may be reduced and extinction potentially accelerated.... Early thawing of rivers may impact caribou migrations to calving grounds.”¹⁰²

USFWS reports that climate change effects already being “observed in the arctic terrestrial landscapes include rapidly eroding shorelines, melting ground ice, and increased shrub growth at high latitudes” and that the Arctic “will likely experience early and disproportionately large impacts” from climate change.¹⁰³ Observed and potential effects include:

- In coastal areas, rapid shoreline erosion is occurring, associated with the retreat of summer sea ice. Rising ocean temperatures, sea level rise, permafrost degradation, increased storm surge, and changes to river discharge and sediment transport will continue to affect habitat availability and quality in the coastal zone.
- The shallow wetlands of the coastal plain are sensitive to changes in the water balance that could lead to drying. Some lakes may enlarge through melting and erosion at their edges while others may drain if surrounding ice wedges degrade, leading to the formation of new drainage networks.
- While annual precipitation is expected to increase by 20-60percent (depending upon location), increases in summer temperatures and the duration of the frost-free period are expected to result in increased evapotranspiration, with drying projected across the North Slope. Near the middle of this century (2035-2044), the landscape may be 10-16 percent drier and near the end of the century the North Slope could be 23-37 percent drier.

¹⁰⁰ U.S. Geological Survey, 2012. *Impacts of Climate Change on Biodiversity, Ecosystems, and Ecosystem Services: Technical Input to the 2013 National Climate Assessment*. [Shawn Carter, F. Stuart Chapin III, Nancy Grimm, Peter Kareiva, Mary Ruckelshaus, Michelle Staudinger, Amanda Staudt, Bruce Stein]. U.S. Geological Survey, Reston, VA. Draft dated May 23, 2012.

¹⁰¹ NE NPRA Final Supplemental IAP/EIS (2008), Chapter IV: Environmental Consequences – Cumulative Effects, Climate Change Overview, p. 4-640.

¹⁰² NE NPRA Final Supplemental IAP/EIS (2008), Chapter III; Affected Environment, Physical Environment, Climate and Meteorology, p. 3-7.

¹⁰³ USFWS, *Wildlife Response to Environmental Arctic Change: Predicting Future Habitats of Arctic Alaska*, WildREACH Workshop Report (November 2008)

- Changes in plant phenology (earlier green-up and senescence) are certain to occur as spring melt comes earlier along with possible changes in the abundance and timing of invertebrate emergence.
- Although tundra fires have historically been rare on the North Slope, fire frequency will likely increase as the climate warms, which in turn could promote shrub growth and more fire-prone landscape as well as reduce or eliminate large areas of lichen.

Increasing Arctic temperatures, loss of sea ice, melting permafrost, increased erosion, altered precipitation/hydrology, vegetation changes, and other climate change-driven dynamics could have severe implications for Arctic-adapted wildlife. The IAP/DEIS identifies a variety of ways in which climate change threatens the NPR-A's migratory birds, caribou, marine mammals and the associated subsistence harvests supported by those resources. Some of the most obvious and reasonably anticipated climate change-driven threats are highlighted below.

- Bird habitats worldwide are threatened by climate change while species "for which breeding is restricted to the Arctic regions may be the most vulnerable to climate change."¹⁰⁴ The wetland habitats provided by the NPR-A are vital to many bird species. "Increased summer temperatures could lead to a conversion of aquatic habitats resulting in a loss of not only habitat quantity but also habitat quality in terms of potential decrease in food resources (invertebrate and plant)."¹⁰⁵ Overgrown tundra would reduce shorebird breeding habitats. Changes in plant phenology due to temperature may increase plant biomass but decrease quality in relation to birds. The timing of emergence (plant and invertebrate) may change in ways that could have profound impacts on nutritional needs, nesting success, and survival. Erosion of key habitats such as barrier islands and spits could be especially significant for species that nest, forage, and stage in these particular habitats. Sea level rise, increased storm surges, changes to mud flats, encroachment of saline waters, and modification of plant communities in coastal areas could all adversely impact niche habitats important for nesting, foraging, molting, and brood-rearing.
- Climate change could reduce caribou forage habitat quality if deciduous shrubs increase and displace cotton grass (important to calving caribou). A warmer/drier climate will increase the potential for fire and loss of lichen that provides an important winter food resource for caribou. Increased precipitation and winter rain-on-snow/icing events could reduce access to winter caribou forage. Warmer temperatures could increase insect abundance and harassment of caribou and compromise herd productivity as well as accelerate green-up in a way that disrupts the current synchronous nature of caribou calving and peak green-up.
- Climate change has the potential to greatly affect arctic marine mammals with some of the potential impacts including loss of important habitat (e.g., sea ice), introduction of new competitors, and diseases. Some species, including walrus and some ice seals, will be forced to spend more time at shore-based haul-outs with more restricted foraging opportunities, where they will be more vulnerable to disturbance and predation.

¹⁰⁴ IAP/DEIS Vol 1, p. 257.

¹⁰⁵ IAP/DEIS Vol 1, p. 258.

3. The NPR-A's limited hydrocarbon potential in a national energy context

Originally designated as a Naval Petroleum Reserve in 1923, at a time when the Navy was transitioning from coal to oil, the western Arctic was long believed to contain large stores of petroleum. As a result of exploration drilling and seismic work since that time, however, this assessment has dramatically changed and the NPR-A is no longer believed to contain large oil reserves.

In satisfaction of the NPRPA requirement to “conduct an expeditious program of competitive leasing of oil and gas” (42 USC § 6506A), the DOI has been offering lease sales in the NPR-A for decades. Since 1982, the BLM has conducted 11 lease sales with a total of 36.7 million acres offered, resulting in 6.1 million acres leased. The current administration has annual lease sale offerings in the NPR-A. Exploration drilling activity, which extends back in time before the area was managed by the BLM, was initiated under a drilling program by the Navy during the mid-1940s and early 1950s. This was followed by a second wave of drilling in the 1970s resulting in 28 exploration wells. Since 2000, the oil industry has completed 29 wells in the federally-managed portion of the NPR-A.

Exploration to date has resulted in limited oil discoveries within the NPR-A. These include estimated economically recoverable oil of 150 million barrels near Umiat and an additional estimated 120 million barrels of economically recoverable oil within the Greater Moose’s Tooth and Bear Tooth Units, anticipated to be developed as satellites to the existing Alpine oil field.¹⁰⁶

In 2010, USGS updated its assessment of undiscovered energy resources in the NPR-A. Based on the drilling results and accumulated data available to USGS from various drilling and exploration activities, the USGS has identified an unanticipated and abrupt transition from oil to gas approximately 15-20 miles west of the Alpine oil field along with poor reservoir quality in key formations. As stated by the USGS:

“Recent activities in NPRA, including extensive 3-D seismic surveys, six Federal lease sales totaling more than \$250 million in bonus bids, and completion of more than 30 exploration wells on Federal and Native lands, indicate in key formations more gas than oil and poorer reservoir quality than anticipated.”¹⁰⁷

This has radically reduced energy expectations for the NPR-A. The USGS 2010 estimate of 896 million barrels (mean) in undiscovered technically recoverable reserves for the NPR-A is less than ten percent of the prior estimated quantity of oil. The USGS now estimates that the NPR-A’s remaining undiscovered oil accumulations are “small by North Slope standards”¹⁰⁸ and that these “oil deposits are not sufficiently large to drive exploration.”¹⁰⁹

The USGS finding of greatly reduced oil potential for the NPR-A is reinforced by oil industry actions on the North Slope. In the past several years, following exploration activity, the vast majority of lease holdings in the NPR-A have either been relinquished or allowed to expire. Of approximately 6 million acres leased and subject to seismic and/or drilling exploration, less than 1.5 million acres remain under active lease. The USGS has estimated the NPR-A’s undiscovered natural gas resource at 53 TCF (mean),

¹⁰⁶ IAP/DEIS Vol 2, p. 51-55.

¹⁰⁷ *2010 Updated Assessment of Undiscovered Oil and Gas Resources of the National Petroleum Reserve in Alaska (NPRA)*, United States Geological Survey (October 2010)

¹⁰⁸ IAP/DEIS Vol 2, p. 23.

¹⁰⁹ IAP/DEIS Vol 2, p. 46.

or approximately 90 percent of the natural gas volume estimated in the prior 2002 assessment. A superabundance of previously discovered natural gas on the North Slope, the glut of natural gas in lower-cost markets elsewhere, and no realistic prospect for construction of a gas pipeline, however, has rendered this resource uneconomic to develop.

Based on the USGS resource assessment, the BLM evaluated the undiscovered economically recoverable oil resource in the NPR-A (i.e., the resource that can be commercially developed). BLM chose a relatively high price of \$180 per barrel of oil for its analysis in the IAP/DEIS. The agency specifically notes that it deliberately selected a high oil price “because it does not want to underestimate the potential development that may occur”¹¹⁰ in the NPR-A. Based on \$180 per barrel, the IAP/DEIS projected discovered and undiscovered economically recoverable oil resources for each of the respective alternatives considered in the IAP/DEIS as indicated in Table 1.

**Table 1. Estimated Discovered and Undiscovered Economically Recoverable Oil
(millions of barrels)**

Alternative	A	B	C	D
Discovered:				
Umiat	150	150	150	150
Moose’s Tooth/Bear Tooth	120	120	120	120
Undiscovered:	453	235	437	491
TOTAL	723	505	707	761

Source: IAP/DEIS, Vol. 2 - Table 4-10 and Table 4-15

Within the context of national energy demand and supplies, the total estimated economically recoverable oil in the NPR-A is not significant.

- Putting the oil potential of the NPR-A into the national energy context, the United States consumes ~20 million barrels (MMBO) of liquid fuels per day or approximately 600 MMBO per month.¹¹¹
- The NPR-A’s entire projected undiscovered economically recoverable oil reserves of 491 MMBO¹¹² (under Alternative D in which 100 percent of NPR-A lands would be made available for leasing), would provide for *less than one month* of consumption for the United States.
- The *difference* between the total estimated discovered and undiscovered economically recoverable oil reserves under Alternative D (761 MMBO) and the total estimated discovered and undiscovered economically recoverable oil reserves under Alternative B (505 MMBO), is 256 MMBO, which amounts to *less than two weeks* of consumption for the United States.¹¹³

¹¹⁰ Vol. 2, p. 59. The \$180/barrel oil price used in the BLM’s IAP/DEIS analysis is the highest price considered by the USGS and approximately 50 percent higher than the reference price estimate used by the federal Energy Information Administration.

¹¹¹ Energy Information Administration, 2012. Total U.S. consumption of liquid fuels ranges from 19.2 million barrels/day (2010) to a projected 20.1 million barrels/day (2035). http://www.eia.gov/forecasts/aoe/er/early_fuel.cfm

¹¹² IAP/DEIS Vol 2, p. 63: Table 4-10.

¹¹³ IAP/DEIS Vol 2, p. 76: Table 4-15.

DRAFT ALTERNATIVES IN THE IAP/DEIS

The four alternatives presented in the IAP/EIS vary greatly in addressing the mandate of the NPRPA to provide balanced management of the NPR-A – i.e., providing “maximum protection” for areas with “significant subsistence, recreational, fish and wildlife, or historical or scenic value” while allowing for future energy development. 42 USC § 6504.

The most significant distinction among the alternatives concerns how reliably and effectively an alternative would protect significant surface values, as required by NPRPA, and how the alternatives would influence prospective energy development. The strongest (or “maximum”) protection available under the IAP planning process is designation of lands as unavailable for leasing¹¹⁴ (what the IAP/DEIS describes as a “land allocation” decision “regarding what areas of the planning area would be made available for oil and gas leasing” in the NPR-A).¹¹⁵

Only an unqualified designation as unavailable for lease or a leasing deferral for the term specified can effectively and reliably assure “maximum protection” from adverse impacts that would come from future oil and gas leasing and development.

Special Areas, Stipulations, Operating Procedures, and Best Management Practices

The NPR-A presently includes four designated “Special Areas”:

- Teshekpuk Lake Special Area because of internationally-significant nesting, staging, and molting habitat for a large number of waterfowl;
- Utukok River Uplands Special Area because of its critical importance to the WAH;
- Colville River Special Area because of the need to protect the Arctic Peregrine Falcon; and
- Kasegaluk Lagoon Special Area primarily because of high values for marine mammals.

As noted by the IAP/DEIS, however, the designation of a Special Area is only a recognition of significant resource values but “does not itself impose specific protections, but instead highlights areas and resources” that are deserving of maximum protection under the law.¹¹⁶

While more specific lease stipulations, operating procedures, and/or “best management practices” can also be employed by the BLM as land manager in the effort to mitigate impacts, the effectiveness of these provisions is not always assured. Stipulations, operating procedures, and/or best management practices almost universally include potential exemptions, limitations, and/or qualifications that result in making these protections ambiguous or uncertain.

The IAP/DEIS states that a stipulation included in an oil and gas lease “shall be subject to a waiver (permanent exemption to a stipulation on a lease), exception (a one-time exemption to a lease stipulation determined on a case-by-case basis), or modification (a change to a lease stipulation either

¹¹⁴ Designation of land as unavailable for leasing under the IAP provides the “maximum protection” for significant surface resources in the NPR-A consistent with the Congressional direction provided in the NPRPA of 1976. This designation would apply for the duration of the plan; only Congress has the authority to make permanent protection designations.

¹¹⁵ IAP/DEIS Vol 1, p. 28.

¹¹⁶ IAP/DEIS Vol 1, p. 16.

temporarily or for the life of the lease)" subject to the approval of "the authorized officer" if s/he determines that the factors leading to the stipulation's inclusion in the lease "have changed sufficiently to make the protection provided by the stipulation no longer justified and if the proposed operation would still meet the objective stated for the stipulation."¹¹⁷ The standard of review for "sufficient change," as well as what measure(s) would be used to determine that an alternative activity, project or operation would "still meet the objective," is ambiguous. The same concerns apply to required operating procedures that are subject to waivers, exceptions, and/or modifications.

"Best management practices" is the term that BLM uses in the IAP/DEIS for conditions, other than land allocations (i.e., designations as unavailable for lease or deferral), under Alternatives B, C, and D in lieu of required operating procedures. According to the IAP/DEIS:

"[B]est management practices describe the protective measures that the BLM would ***likely*** impose on applicants for authorization for use of the public lands and provide applicants with notice of some of the land management objectives that BLM will ***seek to achieve*** during the permitting process ... best management practices are ***guidance*** for future performance-based requirements to obtain BLM authorization...."¹¹⁸ (emphasis added)

Discretionary authority, lack of clarity regarding what will/will not be required to assure protection of significant resource values, and reliance on undefined standards is reflected in many of the stipulations and best management practices presented in the IAP/DEIS. For example, under Alternatives A, C, and D, leasing and development would be permitted within the Teshekpuk Lake core goose molting area. Lease stipulation K-11 provides that a workshop would be convened "to identify the best corridor for pipeline construction in efforts to **minimize** impacts to wildlife and subsistence resources" (emphasis added), providing an uncertain level of protection for this vital area. By contrast, under Alternative B, leasing would not be available in this area, assuring maximum protection.

Some other examples of potential exceptions, qualifications, ambiguity, and the use of undefined standards is reflected in various stipulations and best management practices excerpted from Table 2-23 (emphasis added):

C-1 BMP – Objective: Protect grizzly bear, polar bear, and marine mammal denning and/or birthing locations. "Cross country use of heavy equipment and seismic activity is prohibited within 0.5 mile of occupied bear dens ... **unless alternative protective measures are approved by the authorized officer....**"

E-2 BMP – Objective: Protect fish-bearing water bodies, water quality, and essential habitats. "Permanent oil and gas facilities, including roads, airstrips and pipelines are prohibited upon or within 500 feet as measured from the ordinary high watermark of fish-bearing waterbodies. **Essential pipeline and road crossings will be permitted on a case-by-case basis....**"

E-11 BMP – Objective: Protections for birds. "To reduce the possibility of birds colliding with above-ground utility lines (power and communication), such lines shall be buried in access roads or suspended on vertical support members **except in rare cases, which are to be few in number and limited in extent...** towers should be located, to the extent practicable, on existing pads....

¹¹⁷ IAP/DEIS Vol. 1, p. 28.

¹¹⁸ IAP/DEIS Vol. 1, p. 29.

Support wires associated with communications towers radio antennas, and other similar facilities **should be avoided to the extent practicable.**"

F-1 BMP – Objective: Minimize effects of low-flying aircraft on wildlife, subsistence activities, and local communities. "The number of takeoffs and landings to support oil and gas operations with necessary materials and supplies **should be limited to the maximum extent possible.** During the design of proposed oil and gas facilities, larger landing strips and storage areas **should be considered** to allow larger aircraft to be employed, resulting in fewer flights to the facility.... Use of aircraft ... near known subsistence camps and cabins or during sensitive subsistence hunting periods... **should be kept to a minimum....** Aircraft use (including fixed wing and helicopter) by oil and gas lessees in the Goose Molting Area (Maps 2-3 or 2-4) **should be minimized** from May 20 through August 20...."

G-1 Lease Stipulation – Objective: Ensure long-term reclamation of land to its previous condition and use. "The **BLM may grant exceptions** to satisfy stated environmental or public purposes."

K-2 Stipulation/BMP – Objective: Minimize the disruption of natural flow patterns and changes to water quality.... "On a case-by-case basis... **essential** pipeline(s), road crossings, and other permanent facilities may be considered ... where the lessee can demonstrate on a site-specific basis that impacts will be **minimal.**"

K-3b Lease Stipulations/BMP – Major Coastal Waterbodies (Kogru River, Dease Inlet, Admiralty Bay, Elson Lagoon, Peard Bay, Wainwright Inlet/Kuk River, and Kasegaluk Lagoon, and their associated Islands. Objective: Protect fish and wildlife habitat... preserve air and water quality, and minimize impacts to subsistence activities and historic travel routes on major coastal bodies. "Exploration activities will not **unreasonably** conflict with subsistence uses or **significantly** impact seasonally concentrated fish and wildlife resources.... [there must be] **adequate** spill response capability to **effectively** respond during periods of broken ice and/or open water, or the availability of **alternative methods** to prevent well blowouts during periods when **adequate** response capability cannot be demonstrated.... permanent facilities within the major coastal waterbodies... shall **minimize** impacts to subsistence uses... Daily operational activities, including use of support vehicles, watercraft and aircraft traffic... shall be conducted to **minimize** impacts to subsistence resources..."

K-4a Stipulation/BMP Goose Molting Area – Objective: Minimize disturbance to molting geese and loss of molting habitat in and around lakes in Goose Molting Area. "Oil and gas exploration activities will **avoid** alteration... of critical goose-feeding habitat types... from June 15 through August 20... **major** construction activities using heavy equipment... but not drilling from existing production pads... shall be suspended **unless approved** by the authorized officer... strategies to **minimize** ground traffic shall be implemented... strategies **may** include **limiting** trips, use of convoys, different vehicle types, etc. **to the extent practicable...** aircraft use... shall be restricted [and] restrictions **may** include... **limiting** flights... **including perhaps** suspension of all aircraft use... by the authorized officer if resulting disturbance is **determined to be unacceptable.**"

Only in two places throughout the various Lease Stipulations/Best Management Practices presented in Table 2-3¹¹⁹ can the explicit statement "no waiver, exception, or modification will be allowed" be found (i.e., K-3a and K-4a). Even with this statement, in the case of K-4a (concerning a 1-mile "permanent

¹¹⁹ Table 2-3. Alternative stipulations and required operating procedures/best management practices. IAP/DEIS Vol 1, p. 36.

facility” exclusion area around goose molting lakes), the language expressly: 1) excepts pipelines, and 2) also states that “in field” roads “will be authorized as part of oil and gas field development.” No definition is provided for the term “in field” and this qualification opens the door to an undefined extent of possible road building within the goose molting area.¹²⁰ The final IAP should categorically state that no oil and gas related exploration or development facilities of any kind will be allowed within the goose molting area and that “no waiver, exception, or modification will be allowed.”

The IAP/DEIS acknowledges the inherent weakness of a protection strategy (stipulations, operating procedures, and best management practices) premised upon ongoing and open-ended consultations with local residents and communities to assure effectiveness.

“The actual effectiveness of protective measures depends heavily on their ongoing implementation, on enforcement, and on the precise location of facilities and infrastructure. Effectiveness is also dependent upon the sharing of local knowledge and on informed input of residents of local communities.... [S]everal measures are designed to ensure that subsistence hunters participate in plan design. However, municipal governments and tribal governments generally have limited funding and few paid staff, and members of these organizations feel overtaxed when asked to provide meaningful input to BLM on proposed or permitted activities. This institutional overload affects subsistence users by placing increased, non-compensated demands on their time, further reducing the time available for subsistence pursuits. Many such NPR-A residents contend that the change from prescriptive lease stipulations that were put in place by the 1998 Northeast IAP/EIS to the performance-based rules put in place by subsequent IAP/EISs forces them to spend more time defending subsistence interests because compliance is now defined in terms of meeting management objectives rather than adhering to absolute standards. The contention that it now takes more time to review and to effectively respond to industry proposals was reiterated during the scoping meetings in 2010.”¹²¹

The IAP/DEIS states that “BLM has found that performance based regulations provide equal protection with greater flexibility and project relevance” but does not document or explain how “greater flexibility” or “project relevance”¹²² improve the ability to provide “maximum protection” of significant resources as required by the NRPRA. Moreover, the IAP/DEIS states that the “performance-based approach necessitates greater reliance on on-going monitoring to ensure that regulations are, in fact, achieving the desired level of protection.” As agency budget resources are already taxed and declining, greater reliance upon monitoring efforts makes effectiveness of performance-based measures uncertain while it is expressly recognized that the level of protection attained is only “equal” to prescriptive (absolute) standards. The IAP/DEIS states that the BLM “is committed” to directing resources to monitoring and support of the Subsistence Advisory Panel¹²³ although budgets are beyond the agency’s control and the Subsistence Advisory Panel can only effectively represent a small fraction of the potentially adversely impacted residents, communities, and stakeholders.

The inability to rely upon stipulations, operating procedures, and best management practices to provide predictable and effective protection is reinforced by past permitting experience. Notwithstanding a stipulated prohibition on permanent facilities within a three-mile buffer zone established to protect

¹²⁰ IAP/DEIS Vol. 1 p. 81.

¹²¹ IAP/DEIS, Vol 2, p. 290-291.

¹²² IAP/DEIS, Vol. 2, p. 290-291.

¹²³ IAP/DEIS, Vol. 2, p. 291.

wildlife habitat and subsistence hunting and fishing areas along Fish Creek, BLM subsequently approved construction of an Alpine production drill site with 30 wells, a power plant, eight miles of permanent roads, and pipelines within the buffer. When it granted the oil company's requested exception to the lease stipulation, BLM cited economic and geological limitations of directional drilling for the Alpine satellite development.¹²⁴

The environmental consequences of permanent roads are significant and require a complete direct, indirect, and cumulative impacts analysis. The negative impacts of roads are especially evident on the tundra wetlands of the Arctic slope. Many of these effects are noted throughout the IAP/DEIS, including disruption, blockage and alteration of drainage patterns, alteration of plant communities affected by dust deposition and salinity of gravel fill, the spread of thermal karst, and disruption of migratory pathways, nesting, feeding, and staging. Even the Alpine Project, often promoted as a "roadless" development, will total 7 drill sites, 33 miles of permanent gravel roads, two airstrips, two gravel mines; and 72 miles of pipelines.¹²⁵

The IAP/DEIS does not provide clarity regarding the extent of future road impacts, including in the some of the NPR-A's most sensitive habitat at Teshekpuk Lake. The "Teshkpuk Lake Caribou Habitat Area" Lease Stipulation/BMP K-5a Objective is "Minimize disturbance and hindrance of caribou, or alteration of caribou movements through portions [of] the Teshkpuk Lake Caribou Habitat Area that are essential for all season use including calving and rearing, insect-relief and migration." A future study is called for by the lessee to provide information to inform permanent facility design, location, and construction making an understanding of potentially severe impacts, at this point, impossible. Considerable discretionary authority is provided to the "authorized officer" who "may" impose meaningful operational constraints at some point in the future, or may provide for exemptions or waivers according to uncertain standards. Again, only a designation of unavailable for lease reliably and unambiguously provides "maximum protection" for significant surface resources.

In order to clearly address the role and environmental impact of permanent gravel roads, future site-specific impact analysis and NEPA compliance will be required. The final IAP should expressly acknowledge that construction of necessary onshore infrastructure, primarily pipelines and roads, to bring oil and gas resources from leases in the Chukchi Sea to the Trans-Alaska Pipeline System or a future gas pipeline from the North Slope will require a full EIS.¹²⁶

Furthermore, in recognition of the well-documented direct and indirect impacts from road development, as well as to avoid conflicts with subsistence users, the final IAP should explicitly prohibit permanent roads connecting the planning area to the major North Slope facilities or the Dalton Highway. This prohibition was originally adopted in the 1998 Northeast Record of Decision and should be reinstated given the potentially significant impacts of an east-west transportation corridor on North Slope communities and subsistence resources.

¹²⁴ BLM. November 8, 2004. *Alpine Satellite Development Plan Record of Decision*. Signed by Rebecca W. Watson, Assistant Secretary Land and Minerals Management, p. 17 as cited by The Wilderness Society, Alpine Oil: Nothing to Brag About (February 2005).

¹²⁵ BLM. September 2004. Alpine Satellite Development Plan. Final Environmental Impact Statement. Vol. 1, Sec. 2, Tables 2.4.1-6, 2.4.1-7, 2.4.1-8, pp. 69-71.

¹²⁶ IAP/DEIS Vol 1, p. 1. The IAP/DEIS presently states that a purpose of the IAP is to ensure that the BLM's land management will provide the opportunity to construct onshore infrastructure, including pipelines and roads, to bring oil/gas resources from the Chukchi Sea to the Trans-Alaska Pipeline or future gas pipeline subject to appropriate conditions "developed through a NEPA process." See: Authorization to develop such a pipeline and associated infrastructure would be an action that significantly affects the environment within the context of NEPA and thus require a full EIS.

The analysis of impacts presented in the IAP/DEIS states that oil and gas facility development would be “roadless” which is defined to mean “not connected to outside oil and gas infrastructure by gravel road”¹²⁷ (although it is anticipated that roads could be developed within fields between production and processing facilities). The provision that permanent roads would not connect outside of the NPR-A is a fundamental premise of the IAP/DEIS impact analysis and should be expressly stated as a lease stipulation that is not subject to waiver, exemption, or modification.

Major Provisions of the Four Alternatives

Major provisions of the four alternatives are described below with a focus on how the respective alternatives would balance future leasing/development in the NPR-A with effective and reliable protections against adverse impacts through designation of areas as unavailable for leasing. Also provided is information concerning how the respective alternatives would influence estimated future oil production from the NPR-A.¹²⁸

- **Alternative D:** This alternative would make the *entire* NPR-A open to oil and gas leasing. No areas with significant value for wildlife or subsistence would be protected by designation as unavailable for leasing. The current leasing deferral at Teshekpuk Lake would expire in 2018, after which this area would be available for leasing, including critical goose molting areas that have been protected from oil and gas development by prior Republican and Democratic administrations since enactment of NPRPA. The existing deferral area protecting Kasegaluk Lagoon and Peard Bay would also expire in 2014, making these important wildlife and subsistence areas available for leasing and development. Under this alternative, existing *de facto* protections afforded the Utukok River Uplands area and WAH habitat (i.e., the South planning area), which has been unavailable for oil and gas leasing, would be eliminated. Under Alternative D there is no meaningful attempt to balance future oil and gas development with “maximum protection” of significant surface resources and subsistence services as required under NPRPA. See IAP/DEIS Volume 5, Map 2-4.

Alternative D estimated discovered and undiscovered economically recoverable oil: 761 MMBO.

- **Alternative A:** This alternative, the “no action” alternative, provides that the current leasing deferral at Teshekpuk Lake would expire in 2018, after which the area would be available for leasing, including critical goose molting areas that have been protected from oil and gas development by prior Republican and Democratic administrations since enactment of NPRPA. Only the Teshekpuk Lake bed proper would remain unavailable for leasing per the current IAP for the Northeast area. The existing deferral area protecting Kasegaluk Lagoon and Peard Bay would also expire in 2014 making these important wildlife and subsistence areas available for leasing and development. Alternative A would maintain in place the existing *de facto* protection of the Utukok River Uplands area and WAH habitat (i.e., the South planning area), which have been and would remain unavailable for oil and gas leasing in the absence of this IAP. See IAP/DEIS Volume 5, Map 2-1.

Alternative A estimated discovered and undiscovered economically recoverable oil: 723 MMBO.

¹²⁷ IAP/DEIS, Vol.2, p. 283.

¹²⁸ While the IAP/DEIS will make no decision regarding a specific corridor for infrastructure associated with potential offshore development in the Chukchi Sea, it is expressly recognized by BLM that such a corridor could be accommodated under any of the four alternatives. Also, under each of the alternatives it is expressly recognized that future development of valid NPR-A oil and gas leases that may currently exist within the planning area would be accommodated.

- **Alternative C:** This alternative provides that the current leasing deferral at Teshekpuk Lake would expire in 2018, after which this area would be available for leasing including critical goose molting areas that have been protected from oil and gas development by prior Republican and Democratic administrations since enactment of NPRPA. Only the Teshekpuk Lake bed proper would remain unavailable for leasing (as provided by the current IAP for the Northeast area). The existing deferral area in the northwestern NPR-A that encompasses both Kasegaluk Lagoon and Peard Bay would expire (in 2014) and be replaced by more discretely defined designations for Kasegaluk Lagoon and Peard Bay as unavailable for leasing. Under this alternative, existing *de facto* protections afforded the Utukok River Uplands area and WAH habitat (i.e., the South planning area), which has been unavailable for oil and gas leasing, would be greatly reduced with a large portion of the WAH concentrated calving grounds available for future leasing. A new unavailable-for-leasing designation would be made in the extreme southern part of the NPR-A, primarily to safeguard wilderness recreation. This designation would encompass only a portion of the WAH concentrated calving area and insect-relief areas. The following water bodies would also be designated as unavailable for leasing: Elson Lagoon/Dease Inlet and Wainwright Inlet/Kuk River. See IAP/DEIS Volume 5, Map 2-3

Alternative C estimated discovered and undiscovered economically recoverable oil: 707 MMBO.

- **Alternative B:** This alternative would retain existing protections for migratory bird values in the Teshekpuk Lake area, currently provided by deferral of the critical goose molting area and no-lease designation for the Teshekpuk Lake bed, and expand the unavailable-for-lease designation in this area to encompass the TCH concentrated calving and insect relief areas. This alternative would also retain the existing *de facto* protections afforded the Utukok River Uplands area and WAH habitat (i.e., the South planning area), which has been and would remain unavailable for oil and gas leasing. The following water bodies would also be designated as unavailable for leasing: Elson Lagoon/Dease Inlet and Wainwright Inlet/Kuk River. See IAP/DEIS Volume 5, Map 2-2

Alternative B estimated discovered and undiscovered economically recoverable oil: 505 MMBO.

CONCLUSION

The final preferred alternative selected under the IAP should be the alternative that is most responsive to the requirement of NPRPA to provide “maximum protection” for areas identified as having “significant subsistence, recreational, fish and wildlife, or historical or scenic value” while still allowing energy development consistent with the national interest.

Alternative B stands apart as the clear choice that will best meet the dual mandate of the NPRPA, appropriately balancing future energy development in the NPR-A with *reliably* effective protections through designation of significant ecological areas as unavailable for lease.

- Alternative B is the only alternative that reliably protects both of the areas specifically identified by Congress as deserving “maximum protection” when it enacted NPRPA in 1976 (i.e. Teshekpuk Lake and the Utukok River uplands).
- Alternative B is the only alternative that reliably protects critical goose molting areas around Teshekpuk Lake that have been withheld from oil and gas development by prior Republican and Democratic administrations since enactment of NPRPA. By contrast, all other alternatives would allow leasing and development in this extremely sensitive, internationally important area.

- Alternative B is the only alternative that reliably protects the entire designated Teshekpuk Lake-East Dease Inlet IBA with its globally significant waterfowl and shorebird breeding densities.
- Alternative B is the only alternative that reliably protects the concentrated caribou calving, insect relief, and migratory areas of both the WAH and TCH as recommended by the WACH Working Group (representing Alaska Native subsistence users, Alaskan hunters, reindeer herders, hunting guides, transporters, conservationists, biologists, and natural resource managers) and as supported by tribes and organizations representing some 90 villages across the region.
- Alternative B also provides reliable protections for the great majority of USFWS-designated polar bear denning habitat (approximately 66 percent) in the NPR-A along with a large proportion of the designated barrier islands critical habitat (approximately 58 percent). Attachment H. A significant number of identified walrus and spotted seal haul-out areas and coastal habitats important to beluga whales are also protected.
- Alternative B would protect the greatest amount of land that is important for subsistence¹²⁹ and thereby provide “maximum protection” of subsistence values as called for by the NPRPA.
- Alternative B also allows for the great majority of estimated economically recoverable oil within the NPR-A to be accessed and developed. Within the context of national energy policy, the reduction in the amount of oil that could be recovered from the NPR-A under Alternative B, relative to other alternatives, would be negligible (approximately two weeks of oil).¹³⁰

By contrast, all of the other alternatives (Alternatives A, C, and D) fail to provide reliably effective protections for many of the NPR-A’s significant biological and subsistence resources, especially in the Teshekpuk Lake area. These other alternatives, in compromising the safeguards provided under Alternative B, would not provide the “maximum protection” called for under NPRPA and have the effect of increasing oil recovery from the NPR-A to a degree that is not significant as a matter of national energy demands or supplies.

cc: The Honorable Ken Salazar
 Secretary of the U.S. Department of the Interior

 Marcilynn Burke
 Assistant Secretary for Land and Minerals Management

 Mike Pool, Acting Director
 Bureau of Land Management

 Kim Elton
 Senior Advisor for Alaska Affairs

¹²⁹ IAP/DEIS, Vol 1, p. 116.

¹³⁰ The difference between the total estimated economically recoverable oil under Alternative D (761 million barrels including Umiat, Moose’s Tooth, and Bear Tooth production) and Alternative B (505 million barrels including Umiat, Moose’s Tooth, and Bear Tooth production) is 256 million barrels, the national consumption equivalent of approximately two weeks. Under Alternative B, estimated economically recoverable reserves of 505 million barrels equals 66 percent of the total estimated economically recoverable reserves of 761 million barrels under Alternative D, that would allow leasing throughout the entire NPR-A.

LIST OF ATTACHMENTS

- | | |
|--------------|---|
| Attachment A | North American Waterfowl Migration from the NPR-A |
| Attachment B | Teshekpuik Lake: High Density Breeding Areas for Waterfowl Protected by Unavailable for Lease Designation in Alternative B (Pacific Brant, Canada Goose, King Eider, Northern Pintail, Red-throated Loon, Tundra Swan, Greater White-fronted Goose, Yellow-billed Loon) |
| Attachment C | Teshekpuik Lake: High Density Goose Molting Areas Protected by Unavailable for Lease Designation in Alternative B (Pacific Brant, Greater White-Fronted Goose, Snow Goose, Canada Goose) |
| Attachment D | Teshekpuik Lake: High Density Breeding Areas for <i>Alaska WatchList</i> Waterfowl Protected by Unavailable for Lease Designation in Alternative B (King Eider, Spectacled Eider, Pacific Brant, Red-throated Loon, Yellow-billed Loon) |
| Attachment E | Teshekpuik Caribou Herd: Highest-value Habitat During Calving Season & Currently Active Leases |
| Attachment F | Estimated Subsistence Use Avoidance – Alpine Satellite Development |
| Attachment G | Western Arctic Caribou Herd Working Group – Areas Recommended as Unavailable for Leasing/Development Protected by Unavailable for Lease Designation in Alternative B |
| Attachment H | Polar Bear Denning Critical Habitat Protected by Unavailable for Lease Designation in Alternative B |

cc: NPR-A IAP/EIS Comments
AECOM Project Office
1835 South Bragaw Street – Suite 490
Anchorage, AK 99508