

HJR

7

FISCAL NOTE

STATE OF ALASKA
2001 LEGISLATIVE SESSION

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Bill Version: HJR 7
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Revision Date/Time (Note if correction): _____ Dept. Affected: _____
Title: Endorsing ANWR Leasing BRU: _____
Sponsor: Rep. Beverly Mack Component: _____
Requester: House Oil & Gas Committee Component Number: _____

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Personal Services						
Travel						
Contractual						
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0

CAPITAL EXPENDITURES						
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CHANGE IN REVENUES ()						
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FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1037 GF/Mental Health						
Other (Specify Type)						
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0

Estimate of any current year (FY2001) cost: 0.0

POSITIONS

Full-time						
Part-time						
Temporary						

ANALYSIS: (Attach a separate page if necessary)

Prepared by: Junda Hays - Comm. Aide Phone: 465-2283
Division: House Special Comm. on Oil & Gas Date/Time: 1-29-2001
Approved by: [Signature] Date: 1-29-2001
Agency: Chairman - House Oil & Gas Committee

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Representative Beverly Masek

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Sponsor Statement for HJR 7

Resolution Supporting Oil Exploration and Development in ANWR

The need for expanding Alaska's resource based industries remains imperative if we want to maintain or increase the State's economic base. Although other sectors of the economy may provide jobs, they more than likely would not be able to support the financial infrastructure of state government to the extent that natural resource development does, especially the oil and gas sectors.

Most reliable indicators show Alaska's North Slope oil production is in decline. Geologist have indicated that one of the best prospects for new discoveries lies within the 1002 section of the Arctic National Wildlife Refuge which has been left open by Congress for potential exploration and development. It seems that a prudent course of action would be to open this area of the Arctic Coastal Plain so that Alaskans can derive the economic benefits therein.

HJR 7 is not a new piece of legislation. It has been introduced on numerous occasions in the past and has always enjoyed overwhelming support from the Governor and the Legislature, as well as the general public. Alaska's chances of moving ahead on this project have been greatly increased now that George W. Bush is President. We need to take advantage of this opportunity and once again send our message to the Nation's Capitol.

**ANWR:****JOBS AND ENERGY
FOR AMERICA****ARCTIC POWER**

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A CASE FOR OIL DEVELOPMENT IN ALASKA

- * The U.S. imports over 55% of the nation's needed petroleum. These oil imports cost more than \$100 billion a year. These figures are rising and could exceed 65% imports by the year 2020.
- * Beneath a 1.5 million acre tract on the North Slope of Alaska is estimated to be between 6 and 16 billion barrels of recoverable oil (between 11.6 and 31.5 billion barrels in-place). This area is a specially designated area within the 19 million-acre Arctic National Wildlife Refuge (ANWR), known as the "Coastal Plain". This region was designated by Congress in 1981 as requiring special study to determine its oil and gas potential and the effects of development on the environment. In 1987, the Department of Interior recommended development. Congressional and presidential authorization is required for the Coastal Plain to be open.
- * ANWR production could replace imports of Saudi oil for over 30 years.
- * Prudhoe Bay, located 60 miles to the west of ANWR, has been operating for over 20 years and has produced in excess of 10 billion barrels of oil during that time. It is among the most environmentally sensitive oil operations in the world. Present output from Prudhoe Bay area fields has declined to 1.1 million barrels per day, and is continuing to decline.
- * The Coastal Plain of ANWR is America's best bet for the discovery of another giant "Prudhoe Bay-sized" oil and gas region in North America. Many economic benefits would result:
 - The Coastal Plain could produce up to 1.5 million barrels per day for at least 25 years - nearly 25% of current daily U.S. production.
 - The U.S. would save \$14 billion per year in oil imports.
 - Between 250,000 and 735,000 jobs are estimated to be created by development of the Coastal Plain.
 - Federal revenues would be enhanced by billions of dollars from bonus bids, lease rentals, royalties, and taxes.
- * Advancing technology has greatly reduced the "footprint" of Arctic oil development. If Prudhoe Bay were built today, the footprint would be 1,526 acres, 64% smaller.
- * Oil and gas development and wildlife are successfully coexisting in Alaska's Arctic. For example, the Central Arctic caribou herd at Prudhoe Bay has grown from 3,000 to as high as 27,000 during the last 20 years.
- * More than 71% of Alaskans favor exploration and production in ANWR. Polling conducted in April, 2000.
- * The Inupiat Eskimos who live in and near ANWR strongly support onshore oil development on the Coastal Plain.
- * For more information logon to www.anwr.org or call 907-274-2697.

President Bush's National Energy Policy

September 29, 2000

Governor George W. Bush:

"A Comprehensive National Energy Policy"

"America must have an energy policy that plans for the future, but meets the needs of today. I believe that we can develop our natural resources and protect our environment. We are paying a steep price for seven and a half years without an energy policy." – Governor George W. Bush

EXECUTIVE SUMMARY

The Clinton-Gore Administration has failed to develop a comprehensive energy policy. It has raised gasoline taxes, discouraged domestic production of oil and natural gas, and admitted it was "caught napping" when oil prices spiked earlier this year. It has also failed to plan for the New Economy's accelerating demand for electricity. On this Administration's watch, U.S. dependence on foreign oil has jumped to 56 percent – the highest percentage ever. In 1973, during the oil crisis, U.S. dependence on foreign oil was at only 36 percent. Over the past seven and a half years, our international credibility has been diminished, and Saddam Hussein's Iraq is now a major oil supplier to the U.S.

Governor Bush understands that ensuring U.S. energy security requires presidential leadership and a comprehensive national energy policy. His policy, which includes more than 20 initiatives, helps low-income households with their energy bills, improves air quality, encourages the development of renewable and alternative fuels, and, recognizing that alternative sources supply less than 4 percent of U.S. energy needs, promotes access to foreign oil and the development of U.S. oil, coal and natural gas resources.

To Provide Energy Assistance to Low-Income Households and Address Short-Term Supply Threats, Governor Bush will:

- Expand the Low Income Home Energy Assistance Program (LIHEAP) by seeking the release of \$155 million, and directing a portion of oil and gas royalty payments to the program, costing \$1 billion over ten years.
- Reform and increase the funding for the Weatherization Program and State Energy Program, costing \$1.4 billion over ten years.
- Establish a privately-managed Northeast Home Heating Oil Reserve and allocate \$100 million over 10 years.
- Use the Strategic Petroleum Reserve only in times of war or major disruption in supply, and propose "wake up" legislation requiring the Department of Energy to notify Congress when oil stocks are low.

To Make Energy Security a Priority of U.S. Foreign Policy, Governor Bush will:

- Promote the development of a "North American Energy Policy" with Canada and Mexico.
- Reestablish U.S. influence and credibility with oil-producing nations in the Persian Gulf.
- Promote development of energy resources in non-OPEC countries, such as the Caspian Sea Basin and Western and Southern Africa.
- Establish an annual meeting of G-8 Energy Ministers, or their equivalents, to encourage international energy cooperation.

EXECUTIVE SUMMARY**To Promote the Development of U.S. Oil and Gas Resources, and To Meet the Electricity Needs of the New Economy, Governor Bush will:**

- * > Open only 8 percent of the Arctic National Wildlife Refuge to environmentally responsible exploration, which could replace the oil that the U.S. now imports from Iraq.
- > Examine whether certain promising natural gas reserves in federal lands should be opened to environmentally responsible and regulated exploration.
- > Improve the regulatory process to encourage more refining capacity.
- > Require federal regulators to develop a comprehensive policy for approving pipelines.
- > Invest \$2 billion over ten years to fund research in "clean coal" technologies, \$1 billion over ten years to establish clear rules to help efficient utilities purchase nuclear plants, streamline the re-licensing process for hydroelectric projects, and oppose the breaching of dams.
- > Support federal legislation restructuring the electric utility industry.

To Protect the Environment and Develop Alternative Energy Sources, Governor Bush will:

- > Propose legislation *requiring* electric utilities to reduce harmful emissions; in contrast, Vice President Gore has advocated only a voluntary program.
- * > Create the "Royalties Conservation Fund" by earmarking potentially billions in royalties from new oil and gas exploration in ANWR to fund conservation efforts.
- * > Earmark an estimated \$1.2 billion of bid bonuses from opening up ANWR for funding research into alternative energy resources.
- > Support tax credits for electricity produced from renewable and alternative fuels at a cost of \$1.4 billion over ten years.

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City of Kaktovik
Office of the Mayor

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February 7, 2000

To: All residents of Kaktovik
Re: ANWR Survey

Dear Residents,

Here are the survey results that you helped us conduct. The survey was a questionnaire about what local people thought about the possible exploration and development for oil and gas in the Arctic National Wildlife Refuge. It tried to address the Kaktovik people's concerns about oil and gas development, wildlife and the environment and how each affects the other.

The survey was conducted between January 14, 2000 and January 28, 2000 in Kaktovik. There were sixty-eight (68) people who answered and returned the surveys. Thank you very much for your assistance. It's important that other people elsewhere know what the local people here think about their land. Some of the questions add up to more than 100% because some people checked more than one answer on those questions.

The results are also posted on the City's web site. Its address is: kaktovik.com. We hope that you also enjoyed the Kaktovik calendars. We plan on doing another calendar next year, so if you have some good, clear pictures that you would like to see included on the next calendar, please bring the pictures to the City Office. We'll scan them in and give them right back to you. Once again, thank you for your help on this survey.

Sincerely,



Lon Sonsalla, Mayor



*Results of the January 2000 survey of
Kaktovik residents regarding ANWR*

1. Do you participate in the harvest of whales, game and fish to sustain your diet?
 - 71% A. Yes. My family actively participates in all of the above.
 - 16% B. Yes. My family hunts game and fishes.
 - 4% C. Yes. My family participates in fishing.
 - 7% D. No. My family does not harvest whales, game or fish to sustain our diet.
2. Please estimate the percentage of your family's food that comes from the harvest of whale, game & fish.
 - 16% A. 100% — My family only consumes harvested game.
 - 34% B. 75% — My family eats mostly harvested game.
 - 24% C. 50% — My family eats some harvested game and purchases the rest.
 - 16% D. 25% — My family occasionally eats harvested game.
 - 7% E. 10% — My family eats harvested game when it is given to us.
 - 4% F. 0% — My family does not hunt or fish and we only eat food that is purchased.
3. What is the number one advantage of oil development on the North Slope?
 - 44% A. Improved schools
 - 35% B. Improved health care
 - 53% C. Improved job opportunities
 - 21% D. Improved recreation activities
 - 4% E. No advantage
 - 8% F. Other
4. The quality of life in Kaktovik will diminish if oil development ceases.
 - 31% A. Strongly agree
 - 40% B. Agree
 - 15% C. Neutral
 - 8% D. Disagree
 - 6% E. Strongly disagree
5. As government spending continues to decline, what public services do you fear most of losing?
 - 44% A. Municipal Services (running water, electrical service, sanitation, etc.)
 - 50% B. Health care
 - 16% C. Public Transportation
 - 35% D. Education
 - 7% E. Recreation activities
 - 6% F. Other
6. To what degree are you satisfied with the environmental practices of the oil industry on the North Slope?
 - 35% A. Very satisfied
 - 40% B. Somewhat satisfied
 - 18% C. Neutral
 - 4% D. Somewhat dissatisfied
 - 1% E. Very dissatisfied
7. Please mark the advantages and disadvantages you see of opening ANWR to oil and gas development.

Advantages:

 - 68% 1. More jobs for local people
 - 26% 2. Will stabilize the economy
 - 50% 3. Will help Kaktovik grow
 - 26% 4. More business opportunities
 - 13% 5. Other

Disadvantages:

 - 22% 1. Will increase population
 - 31% 2. May hurt wildlife
 - 25% 3. May hurt the environment
 - 46% 4. Increased alcohol and drug abuse
 - 5% 5. Other
8. If ANWR is not opened to oil and gas exploration, what other resources are available in Kaktovik that, if developed, will help sustain our economy?
 - 15% A. Coal
 - 35% B. Tourism
 - 38% C. Fishing
 - 44% D. Arts & Crafts
 - 15% E. Other
9. Based on your information about the Porcupine Caribou Herd, will oil development in ANWR diminish the herd's use of the core calving area?
 - 18% A. Yes. The caribou will go away.
 - 18% B. It might affect their use, but the oil companies can stop drilling during calving season.
 - 15% C. I don't know.
 - 15% D. More research is needed.
 - 41% E. No. The caribou will not be affected.
10. The coastal plain of the Arctic National Wildlife Refuge should be open to oil and gas exploration.
 - 43% A. Strongly agree
 - 35% B. Agree
 - 10% C. Neutral
 - 5% D. Disagree
 - 4% E. Strongly disagree

Handwritten annotations in a circled area:

- 10% (next to 43%)
- 9% (next to 35%)



Resource Development Council for Alaska, Inc.

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February 5, 2001

Representative Beverly Masek
State Capitol, Room 128
Juneau, AK 99801-1182

Re: HJR 7, Endorsing ANWR leasing

Dear Representative Masek:

The Resource Development Council for Alaska, Inc., (RDC) is writing to express its strong support for HJR 7.

RDC is a statewide organization made up of all resource sectors, business associations, labor unions, Native corporations, tourism providers, local governments and thousands of individuals. RDC's purpose is to expand the state's economic base through the responsible development of our natural resources.

With a new President in Washington, the time is now to press for legislation in Congress to open the Coastal Plain of the Arctic National Wildlife Refuge (ANWR) to oil and gas exploration, development and production. As President George W. Bush has stated, industry has the capability to develop potentially enormous oil prospects in ANWR while protecting the environment and wildlife. With innovative technology and advanced environmental practices, development can coexist with arctic wildlife and the subsistence lifestyles of local residents.

Only a small portion of the Coastal Plain would be directly impacted by oil and gas exploration, development and production, yet the economic benefits to Alaska and its Lower 48 neighbors would be staggering. ANWR oil production would create tens of thousands of jobs, lower the nation's reliance on foreign oil and generate revenues to the state and federal treasury.

Thank you for introducing HJR 7. You have RDC's full support.

Sincerely,

Tadd Owens
Executive Director



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P.O. Box 22151, Juneau AK 99802 / Ph. 907-463-3366 / Fax 907-463-3312 / unite@akvoice.org

HJR 7 ~ Opening the Arctic National Wildlife Refuge

TO: Senate Resource Committee

DATE: February 21, 2001

Alaska Conservation Alliance and Alaska Conservation Voters are sister nonprofit organizations dedicated to protecting Alaska's environment through public education and advocacy. Our 44 member organizations and businesses represent over 35,000 registered Alaskan voters. Like most Americans, our members are concerned about the energy distribution problems in California and the effects such problems have on the health of our national economy. We do not, however, believe that opening the Arctic National Wildlife Refuge to oil exploration and drilling is the answer to the current situation. We present the following information for your consideration and urge you to vote "NO" on HJR 7.

- **It is disingenuous to lead the American people to believe that we can drill our way to oil independence.** The amount of oil under the Refuge is, at best, a geologic guess and, at worst, the subject of much wishful overestimating. The most recent USGS assessment estimates that 3.2 to 5.7 billion barrels of economically recoverable oil may lie underneath the Arctic Refuge – less than one year's worth of U.S. supply. While oil proponents choose to use inflated "technically" recoverable reserve numbers, these numbers do not account for real-life scenarios. Residents of the United States represent less than 5% of the world's population, yet we use about 25% of the world's produced oil each year. The United States holds only 2% of the world's total oil reserves. Our voracious appetite for oil will not be satisfied by domestic supplies.
- **Images of caribou rubbing themselves on the oil pipeline do not accurately portray the environmental impacts of oil development on the North Slope.** Despite the reported increase in the Central Arctic caribou herd, ADF&G biologist Pat Valkenberg stated: "I don't think [the data] tell us anything about caribou and oil development." (ADN article 1/15/01) Studies showing displacement of calving female caribou southward away from the Prudhoe area document that oil development does impact these animals. Further, our concern should not focus just upon the caribou, but rather upon the potential disruption of the United State's only intact Arctic ecosystem that the Refuge encompasses. We currently do not know enough about oil development impacts nor how to mitigate the impacts to put this area and its wildlife resources at risk for 6 to 12 months' supply of oil.

Conserve Alaska. It's Only Natural.

- **Resources vital to the subsistence lifestyle and cultures of all residents of the North Slope should be protected, whether those resources are marine-based, such as the bowhead whale, or land-based, as the caribou. We should not consider opening the Refuge until scientific evidence, proving that oil exploration and drilling will not impact the caribou and other resources that the Gwich'in depend upon, is collected, analyzed and defended. To put the resources necessary to the Gwich'in people at risk for a short-term monetary benefit clearly makes the opening of the Refuge a human rights issue.**

ACV's Responses to specific "Whereas" clauses of CS HJR 7 (RES) am

Page 1, Line 9: WHEREAS the oil industry, the state, and the United States Department of the Interior consider the coastal plain to have the highest potential for discovery of very large oil and gas accumulations on the continent of North America, estimated to be as much as 10,000,000,000 barrels of recoverable oil; and

RESPONSE: Based upon the most recent USGS assessment, the average estimates of economically recoverable oil is 3.2 billion barrels. While oil proponents choose to use inflated "technically" recoverable reserve numbers, these numbers do not account for real-life scenarios. According to the USGS, the correct 5% probability assessment for the coastal plain is 11.8 billion barrels. A field capable of that production has been discovered only once on this continent: Prudhoe Bay. The mean estimate for technically recoverable oil is considerably lower, and the figure for oil that is economically recoverable is lower still. The USGS concluded that it would expect to find four fields scattered across the refuge capable of producing, altogether, approximately 3.2 billion barrels of oil, or less than 6 months' worth of U.S. supply.

Page 1, Line 13: WHEREAS the residents of the North Slope Borough, within which the coastal plain is located, are supportive of development in the "1002 study area";

RESPONSE: The Gwich'in of Interior Alaska and Canada are united in their opposition to oil drilling in the calving grounds of the Porcupine caribou herd from which they derive their subsistence livelihood. While many of the Inupiat residents of the North Slope, whose subsistence activities are centered around marine mammals rather than caribou, do support opening the Refuge, they are opposed to offshore exploration and drilling that puts their subsistence resources at risk. The Inupiat Community of the Arctic Slope, a federally-recognized regional tribal government, filed a petition in the Ninth Circuit Court last December, challenging the Minerals Management Service's approval of Phillips exploration plan for the offshore McCovey project. Resources vital to the subsistence lifestyle and cultures of all residents of the North Slope should be protected, whether those resources are marine-based, such as the bowhead whale, or land-based, as the caribou.

Page 2, Line 1: WHEREAS oil and gas exploration and development of the coastal plain of the refuge and adjacent land could result in major discoveries that would reduce our nation's future need for imported oil, help balance the nation's trade deficit, and significantly increase the nation's security;

RESPONSE: While the United States consumes roughly 25% (one-quarter) of the world's produced oil, we control only 2% of the world's total oil reserves within our boundaries. Our rate of consumption is so voracious (despite comprising less than 5% of the world's population, we use 25% of its oil), no domestic drilling program could ever produce energy independence.

Page 2, line 21: WHEREAS the 1,500,000-acre coastal plain of the refuge makes up only eight percent of the 19,000,000-acre refuge, and the development of the oil and gas reserves in the refuge's coastal plain would affect an area of only 2,000 to 7,000 acres, which is less than one-half of one percent of the area of the coastal plain;

RESPONSE: Biologists consider the coastal plain of the Arctic National Wildlife Refuge to be the biological heart of the United State's only complete Arctic and sub-Arctic ecosystem. Despite claims of smaller foot-prints and roadless development, drilling in the Refuge would involve full-scale industrialization, including pipelines, drill pads, waste treatment facilities, and gravel mines.

Page 2, line 27: WHEREAS the oil industry has shown at Prudhoe Bay, as well as at other locations along the Arctic coastal plain, that it can safely conduct oil and gas activity without adversely affecting the environment or wildlife populations; and

RESPONSE: Although oil development in the Refuge will not completely eliminate the Porcupine Caribou herd, based upon scientific studies at Prudhoe, it is reasonable to expect significant and detrimental effects to the caribou that use the Refuge. Most of the resident caribou herd in Prudhoe Bay has abandoned their traditional calving grounds due to oil field activity and have been pushed further south, away from drilling activities. While the coastal plain at Prudhoe Bay is over 150 miles wide, allowing caribou to move south to calve, the plain in the Refuge is only 15 to 40 miles wide. Development on the plain here would likely displace the caribou towards the foothills of the Brooks Range where there are more predators and poorer quality forage, resulting in lower calf survival.

Susan E. Schrader

Susan E. Schrader

Susan E. Schrader, Conservation Advocate

MY TURN

Don't experiment with caribou herd

By KEN WHITTEN

As a retired biologist who spent many years studying North Slope caribou, I would like to comment on what we have learned about caribou and oil in the Arctic, and how that information should affect decisions on whether to lease part of the Arctic National Wildlife Refuge.

The central Arctic caribou herd, which interacts with Prudhoe Bay and its associated oilfields, has grown about five-fold since development began. This increase has led many people to conclude that development hasn't affected caribou at all, or that mitigation measures used on the North Slope are highly effective and can be expected to work wherever else we go to extract oil in the Arctic.

Mitigation hasn't worked all that well, however. When oil development began in the mid-1970s, the central Arctic herd numbered around 5,000 animals. Almost immediately, caribou movements and distribution were altered. Calving within the Prudhoe Field had largely ceased by the time oil first flowed south. Cow caribou with young calves avoided the Trans Alaska Pipeline, and a dense network of production facilities blocked mid-summer movements along the Arctic coast. Nevertheless, disturbance was small relative to the total amount of range available, and caribou were able to thrive.

Newer oil fields at Kuparuk and Milne Point incorporated designs that allowed caribou to move more freely than at Prudhoe Bay. However, the expanding oil fields invaded more critical habitats than had been disturbed at Prudhoe Bay. Also, relatively large groups of caribou (a few hundred to a few thousand) had more difficulty negotiating oilfield structures. As even the state-of-the-art Kuparuk and Milne Point Fields became more heavily developed, caribou used them less and less freely.

When oil development began in the mid-1970s, the central Arctic herd numbered around 5,000 animals. Almost immediately, caribou movements and distribution were altered.

By the late 1980s, the central Arctic herd stabilized at about 23,000 caribou. Radio-collared cows that spent more time in or near the oil fields gained less weight and had fewer calves than other collared cows that seldom encountered development. When weather turned bad, the herd declined to about 18,000 in 1995. With mild weather since 1997, the herd has increased to 27,000.

The central Arctic herd has been resilient enough to cope with development, so long as suitable alternative range was available and other environmental factors were favorable. We can't be certain that ongoing disturbance won't exacerbate effects of bad weather when it happens again, as it surely will. Nor can we be sure the herd will fare as well if continued displacement drives calving cows into areas with more predators.

The Porcupine caribou herd differs from the central Arctic herd in several important ways. Porcupine caribou migrate over a vast range in Alaska and Canada, but most calves are born on the narrow coastal plain of the Arctic Refuge. Unlike the area around Prudhoe Bay, there is no unoccupied habitat similar to areas already being heavily used. Historically, the Porcupine herd has grown more slowly than other herds. Once numbering as high as 180,000 caribou, the porcupine herd has been declining for the past 10 years and numbers about 120,000. Displacement from its calving grounds would put Porcupine herd cows into areas with poorer forage and

more predators. Porcupine caribou regularly occur in groups numbering tens of thousands - far larger than groups that have had trouble getting through existing oilfields. All these factors indicate that the Porcupine herd may be particularly vulnerable to disturbance.

In summary, we have been fortunate to develop the vast wealth of our current North Slope oilfields with no unacceptable effects on size of the relatively small resident caribou herd, so far. From what we've seen in the Prudhoe Bay area, we can assume that development in the Arctic Refuge would alter caribou movements and distribution. We cannot be sure that impacts on the much larger and apparently less robust Porcupine herd, on its smaller calving grounds, would not have much graver effects on calf survival. Any long-term decline in calf survival of the Porcupine herd could decrease population size over time, with serious consequences for many rural residents in both the U.S. and Canada who depend on Porcupine caribou for subsistence. Should we risk the Porcupine herd to find out if oil development and caribou are truly compatible? National polls indicate that most Americans think we should not, and I agree.

♦♦♦♦

Ken Whitten of Fairbanks was the state's chief research biologist for the Porcupine herd from 1978-98 and was research coordinator for the Division of Wildlife Conservation in Region III when he retired in June 2000.

CARIBOU AND OIL DEVELOPMENT ON THE NORTH SLOPE

An Overview by Ken Whitten, retired ADF&G Research Biologist

Each caribou herd has its own, discrete calving area. Other seasonal habitats for caribou tend to be widespread, but the combined features of scarce predators and high quality forage that characterize calving areas usually occur together on only a small portion of a herd's overall range. Therefore calving grounds are considered to be critical habitats. Prudhoe Bay and other operating oilfields on the North Slope are within the calving grounds of the Central Arctic Herd. This herd was quite small (only about 5,000) when oil development first started in the mid-1970s (Cameron and Whitten 1979), but impacts from development were soon noted. Calving within the Prudhoe Field had already largely ceased by the time oil first began flowing south (Whitten and Cameron 1985). The dense network of pipelines, roads, oil wells, and production facilities at Prudhoe Bay also blocked mid-summer movements along the arctic coast (Whitten and Cameron 1983). Cow and calf caribou avoided the Trans Alaska Pipeline Corridor (Cameron et al. 1979) but continued to cross it successfully from late summer through spring, when calves were older and the herd was south of the intensely developed oilfields (Whitten and Cameron 1983).

In spite of these impacts, the Central Arctic Herd thrived during the early years of oil development and grew to about 14,000 by 1983. By the time development expanded into the Kuparuk area during the 1980s, the petroleum industry had begun to consolidate facilities so that the newer oilfields disturbed less space. Also, some pipelines were raised higher above ground and separated from roads with heavy traffic. These new designs allowed caribou to move more freely than at Prudhoe Bay, and caribou continued to use the Kuparuk and Milne Pt. Oilfields. Nevertheless, caribou with newborn calves avoided developed areas, even when there was little traffic (Dau and Cameron 1986, Cameron et al. 1992). Over time, the Kuparuk and Milne Fields became more heavily developed, and caribou used them less and less (Cameron et al. 1992; Smith et al. 1994).

By the late 1980s, growth of the Central Arctic Herd slowed, and the population stabilized at about 23,000. Harsh climatic conditions, including severe winters and dry summer growing seasons, stressed caribou throughout much of Alaska during the early 1990s. Central Arctic caribou that spent more time in or near the oilfields gained less weight during the summer growing season and had lower pregnancy rates and lower calf survival than other members of the herd that seldom encountered development (Cameron 1995). Avoidance of roads and pipelines during calving was thought to be causing abandonment of preferred habitats and overuse of undisturbed habitats (Nelleman and Cameron, 1996, 1998). Chronic disruption of summer movements also exacerbated exposure of caribou to insect pests. The Central Arctic Herd declined to 18,000 in 1993 and then grew slowly to about 20,000 in 1995.

By the late 1990s, the ever expanding oilfields were displacing even more caribou during calving. Forage quality on newly occupied calving grounds south and west of the oilfields was lower than in the former oilfield calving area (Wolfe 2000). Nevertheless,

favorable weather once again prevailed in the range of the Central Arctic Herd. Calf productivity and survival recovered and the Central Arctic Herd once again increased rapidly, reaching 27,000 in the year 2000.

The United States Congress continues to debate expansion of North Slope oil development onto the coastal plain of the Arctic National Wildlife Refuge. The potential lease area within the Arctic Refuge lies within the calving grounds of the Porcupine Caribou Herd. This large, migratory herd moves between the U.S. and Canada and is vital to the traditional subsistence cultures of numerous Native villages in both countries. Over the past 25 years, the Porcupine Herd has fluctuated between about 100,000 and 180,000 animals, with the current population about 120,000.

In determining whether to allow oil leasing within the Arctic National Wildlife Refuge, Congress should consider that Porcupine Herd caribou are much more concentrated on their calving grounds than the smaller Central Arctic Herd. Although calving has occurred historically over a fairly large area of the North Slope in Alaska and the Yukon Territory, most calves are usually born in a smaller region that includes much of the area being considered for oil development (Fancy and Whitten 1991). During late June and early July, essentially all cows and calves and many bulls of the Porcupine Herd use the potential development area every year.

Even during periods of relatively mild climatic conditions, Porcupine Herd caribou have tended to have somewhat lower calf production and adult survival rates than most other caribou herds. In contrast, calf survival in the Porcupine Herd has generally been very high when females have been able to calve on the traditional calving area that includes the potential oil lease area (Fancy and Whitten 1991, Whitten et al. 1992). As with other caribou calving areas, rapid, nutritious plant growth often occurs in this area during calving (USGS/BRD, unpubl.), and the coastal plain is also relatively free of predators. Calf survival has been lower when late snowmelt forced Porcupine Herd caribou to calve in nearby mountains and foothills where wolves, grizzly bears, and golden eagles abound (Whitten et al. 1992).

Studies in the Prudhoe Bay and Kuparuk oilfields show that larger groups (100 or more caribou) have difficulty crossing roads and pipes (Smith and Cameron 1985). Porcupine Herd caribou normally occur in much larger groups than Central Arctic Herd caribou. Groups of several thousand caribou occur throughout the summer in the Porcupine Herd, and from mid-June through July group sizes in the tens of thousands are common.

In summary, development of the Prudhoe Bay oilfield displaced caribou and disrupted their movements. Similar long-term displacement now appears to be occurring elsewhere, even in the "state-of-the-art" Kuparuk and Milne Pt. Oilfields. When climate has been generally favorable, the Central Arctic Herd has been able to hold its own and even increase, in spite of displacement from some of its favored habitats. In times of environmental stress, however, Central Arctic caribou that regularly used the oilfields fared poorly relative to other members of the herd that used areas away from development. The entire population then declined. Mitigation measures that appeared to

work fairly well in the early states of North Slope oilfield development may thus become less effective as more and more of the Central Arctic Herd's preferred habitats are developed and more caribou are concentrated on the habitats that remain accessible.

We cannot be certain that even current state-of-the-art mitigation measures will guarantee access to critical habitats for the larger, more densely aggregated Porcupine Herd. Environmental resources at risk in development the Arctic National Wildlife Refuge are considerable. The Porcupine Herd far exceeds the Central Arctic Herd in importance as a regional subsistence resource. Preferred coastal plain habitats in the Arctic Refuge are much narrower (10-40 miles wide) than in the range of the Central Arctic Herd (100-150 miles wide). Disturbance has so far only displaced Central Arctic caribou to other coastal plain habitats with few predators. If similar spatial displacement were to occur in the Arctic Refuge, however, caribou would be driven to foothills and mountains with more abundant predators and/or lower quality forage. Consequently, the Porcupine Herd might not fare as well as the Central Arctic Herd apparently did during the early years of Prudhoe Bay. The Porcupine Herd might well experience adverse population level impacts from development even during periods of mild weather. Any impacts that would cause a long-term decline in calf survival could lower average population size over time, with serious consequences for many residents in both Canada and the U.S.

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December 11, 2000

The Honorable William J. Clinton
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Dear Mr. President:

We recently joined over 200 of our colleagues in urging you to protect the coastal plain of the Arctic National Wildlife Refuge (Arctic Refuge). Our particular expertise is the ecology and conservation of Arctic caribou. Because so much of the debate over the future of the Arctic Refuge has focused on the Porcupine Caribou Herd, we wish to provide the following additional information on caribou and Arctic oil development to aid you in determining how best to protect the Refuge.

For nearly three decades, the Central Arctic Caribou Herd has been the subject of intensive research on its calving and summer ranges, which lie on the North Slope west of the Arctic Refuge, near Prudhoe Bay. Those studies clearly demonstrate adverse effects of petroleum-related disturbance.

Female caribou with newborn calves have been extremely sensitive to surface development and human activity. Their initial response was localized avoidance of roads (even with little or no traffic), pipelines, and processing/support facilities. As production proceeded, however, development became more extensive and maternal caribou faced diminishing options for finding nonstressful habitats. Over time, calving caribou gradually withdrew from the general oilfield area and sought acceptable habitats elsewhere. Calving no longer occurs in the original Prudhoe Bay complex and is now declining within the expanding Kuparuk complex to the west.

Cow caribou have been less sensitive to disturbance during midsummer when their calves are slightly older and less vulnerable to environmental hazards, but they still avoid the areas of most intensive development. Major caribou movements through the Prudhoe Bay area, a common occurrence in the early 1970's, are rare now that the oilfield is more intensively developed. Movements within and through the Kuparuk oilfield have also been altered substantially. Large aggregations of caribou, particularly when under insect harassment, tend to have difficulty crossing roads and elevated pipelines.

In spite of documented changes in caribou distribution and movements, industry advocates often claim that disturbance from petroleum development has had no overall adverse impact on caribou because the Central Arctic Herd increased after the oilfields were discovered and developed. We believe such claims are misleading. Until the early 1980s the Central Arctic Herd was at low density relative to its overall range, development occurred in only a small area, and local shifts in distribution of caribou were of little consequence. The herd increased from about 5,000 to more than 23,000 caribou by the early 1990s. By the mid-1990s, however, little calving occurred in any of the

active oilfields. Caribou still used the less developed areas at other times of year, but evidence began to accumulate suggesting that caribou in frequent contact with development were faring poorly relative to those that had little contact. Calf production and survival were occasionally very low near the oilfields, but consistently high elsewhere, and oversummer weight gain for cows was lower near the oilfields. Recent population counts and calf-productivity estimates indicate that the Central Arctic Herd has declined and may be stabilizing at about 20,000 caribou. Hence, effects on the Central Arctic Herd may have been negligible during early stages of development, which happened to occur during a period when climate and forage conditions were favorable and arctic caribou herds across North America were increasing. At the present time, though, cumulative and extensive development appears to be negatively impacting the nutrition and productivity of the Central Arctic Herd.

During development of the North Slope oilfields we learned that careful planning, timing of activities, and/or placement of facilities could effectively mitigate impacts on caribou and other wildlife. However, many of the most effective measures for mitigating disturbance have proven practical only during the exploration and construction stages of oilfield development. In producing oilfields, for example, it has not been possible to enforce limits on vehicular traffic or seasonal restrictions on activities during critical times of the year, such as calving. Oilfield development has tended to proceed incrementally, with planning and mitigation done in a piecemeal fashion with little opportunity to adjust strategies in relation to long-term or landscape-scale effects. We believe it is prudent to more fully understand long-term and cumulative effects of Arctic oil development before risking development of other, more sensitive areas than the oilfields around Prudhoe Bay. In this regard, we are encouraged to learn that, at the request of Congress, the National Research Council has established a committee of experts to evaluate "Cumulative Environmental Effects of Alaskan North Slope Oil and Gas Activities."

The Porcupine Caribou Herd, which calves on the Arctic refuge coastal plain, differs from the Central Arctic Herd in many ways. Currently at about 120,000 caribou, the Porcupine Herd has numbered between 100,000 and 180,000 over the past 30 years. The Central Arctic Herd remains on the North Slope in Alaska all year long. Only one Native community, Nuiqsut, lies in close proximity to the Central Arctic Herd's range, and its primary subsistence dependence is on fish, marine mammals, and a different caribou herd that ranges west of the community. In contrast the much larger Porcupine Herd migrates over a very large range in Alaska and northwestern Canada, and nearly a dozen villages in Alaska and Canada depend on it.

In most years, one half to three fourths of all Porcupine Herd calves are born on the Arctic Refuge coastal plain, which makes up only about 1/4 of the overall Porcupine Herd calving area. Since 1971, concentrated calving has taken place on the coastal plain in all but four years when forage was unavailable because of late snow cover. Caribou use the coastal plain even more consistently during the post-calving period. By the end of June every year, all females and calves of the Porcupine Herd are on the Arctic Refuge coastal plain. In most years, a majority of the bulls also join cows and calves on the

coastal plain to seek out highly nutritious forage and ready access to areas offering relief from harassment by abundant mosquitoes and parasitic flies.

Thus, the coastal plain of the Arctic Refuge is already fully utilized by the Porcupine Herd during the calving and post-calving seasons. This is in sharp contrast to the situation with the Central Arctic Herd during the early years of oil development. Whereas it took many years for expanding development to substantially affect regional distribution and productivity of the Central Arctic Herd, we could reasonably expect more immediate impacts in the Arctic Refuge. Development on the coastal plain would likely displace Porcupine Herd caribou toward foothills and mountains with more predators and lower quality forage, quickly resulting in lowered calf survival. Also in contrast to the Central Arctic Herd, the Porcupine Herd regularly forms aggregations of tens of thousands of caribou during the stressful insect season. Smaller aggregations of a few hundred to a few thousand caribou of the Central Arctic Herd have had difficulty moving through the Prudhoe Bay and Kuparuk oilfields. Under conditions of oilfield development, we do not believe that large aggregations of Porcupine Herd caribou could continue to move across the coastal plain to take advantage of the new growth of important forage plants and to gain access to insect-relief sites on warm, calm days when the insects are most active.

In summary, state-of-the-art technology has not prevented displacement of calving from even the newer oilfields on the North Slope, and no proven technology exists that would ensure unrestricted passage through an oilfield of the large mid-summer aggregations of Porcupine Caribou. Considering the high degree of uncertainty regarding mitigation of oilfield impacts on caribou, ensuring the integrity of the calving grounds and early summer range of the Porcupine Caribou Herd is a compelling reason for applying the most precautionary management to the Arctic Refuge coastal plain. The Porcupine Herd is an international resource too important to put at risk.

Thank you for considering our concerns and recommendations.

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November 1, 2000

The Honorable William J. Clinton
President of the United States
The White House
Washington, DC 20500

Dear Mr. President:

As scientists and natural resource managers from the United States and Canada with many years of experience in ecology, wildlife and conservation biology, resource management and cultural anthropology, we encourage you to secure permanent protection for the coastal plain of the Arctic National Wildlife Refuge.

The wildlands of the Arctic Refuge include the barrier islands and estuaries of the Beaufort Sea, the Arctic coastal plain, the Brooks Range, and the boreal forest within the upper Yukon River watershed. First set aside by President Dwight D. Eisenhower as the Arctic National Wildlife Range in 1960, this is the United State's only conservation unit that encompasses an intact arctic ecosystem. Combined with the adjacent Ivvavik and Vuntut national parks in Canada, the Arctic Refuge represents one of the largest protected landscapes in the world. Moreover, the Arctic Refuge's coastal plain is a rare example of an ecosystem where ecological and cultural processes continue to interact much as they have for thousands of years. Unlike the adjoining refuge lands, that are designated Wilderness, the coastal plain is not permanently protected from development.

When President Eisenhower established the Arctic National Wildlife Range, he had the foresight and wisdom to include the entire ecosystem both south and north of the Brooks Range, encompassing the biologically rich coastal plain considered essential to the integrity of this ecosystem. In 1980, Congress enlarged the range to encompass additional wildlife habitat and designated this unique area the Arctic National Wildlife Refuge. The refuge mission was broadened to include international research and management, as well as support for subsistence uses that form the basis of Native cultural values. Most of the original wildlife range was designated as a Wilderness. Only the 1.5 million-acre coastal plain was omitted. And today, this oversight remains a significant concern.

Five decades of biological study and scientific research have confirmed that the coastal plain of the Arctic National Wildlife Refuge forms a vital component of the biological diversity of the refuge and merits the same kind of permanent safeguards and precautionary management as the rest of this original conservation unit. In contrast to the broad (greater than 150 mi.) coastal plain to the west of the Arctic Refuge, the coastal plain within the refuge is much narrower (15-40 mi.). This unique compression of

habitats concentrates the occurrence of a wide variety of species, including polar bears, grizzly bears, wolves, wolverines, caribou, muskoxen, Dolly Varden, Arctic grayling, snow geese, and more than 130 other species of migratory birds. In fact, according to the U.S. Fish & Wildlife Service, the Arctic Refuge coastal plain contains the greatest wildlife diversity of any protected area above the Arctic Circle.

The coastal plain provides essential calving and post-calving habitat for the Porcupine Caribou Herd, the largest (at about 130,000 animals) international migratory caribou herd in the world. The United States and Canada share the immense responsibility of managing this herd and protecting the key habitats on which the herd depends. In 1987, the two nations signed an international agreement to protect the Porcupine Caribou Herd. Since then, the calving grounds on the Canadian side of the border have received full protection, while the United States has not yet taken similar steps to adequately protect this essential habitat within the coastal plain of the Arctic Refuge, where most calving occurs. The Gwich'in Nation of Alaska and Canada depends upon the sustained productivity of the Porcupine Caribou Herd and are justifiably concerned about its security. Extensive research on the Central Arctic Caribou Herd at Prudhoe Bay indicates appreciable losses of preferred calving and summer habitats in response to petroleum development and the possibility of an associated decline in reproductive success.

Biologists also have identified conservation concerns with other wildlife populations in the Arctic Refuge, including polar bears, muskoxen, and snow geese. Although many polar bears den on the pack ice, the refuge's coastal plain is the most important land denning area for Beaufort Sea bears in Alaska. Muskoxen are year-round residents of the coastal plain, and disturbance from industrial development, particularly in winter, holds the potential to increase energetic costs and result in decreased calf production. Also, snow geese might be displaced from important feeding and staging habitats prior to autumn migration, increasing energy expenditure and reducing their ability to accumulate the fat needed for migration. The coastal plain serves many biological functions, including nesting habitat for shorebirds, waterfowl, songbirds, raptors, and other migratory birds.

The Interior Department predicts that oil and gas exploration and development would have a major effect on water resources. Fresh water already is limited on the refuge's coastal plain, and direct damage to wetlands will adversely affect fish, waterfowl, and other migratory birds. These potentially disruptive effects to fish and wildlife should not be viewed in isolation, however. Arctic ecosystems are characterized by many complex interactions, and changes to one component may have secondary but significant effects on other parts of this fragile ecosystem. Based on our collective experience and understanding of the cumulative effects of oil and gas exploration and development on Alaska's North Slope, we do not believe these impacts have been adequately considered for the Arctic Refuge, and mitigation without adequate data on this complex ecosystem is unlikely.

Oil exploration and development have substantially changed environments where they have occurred in Alaska's central Arctic. Since the discovery of oil at Prudhoe Bay in

1968, the U.S. Fish & Wildlife Service estimated about 800 square miles of Arctic habitats have been transformed into one of the world's largest industrial complexes. Oil spills, contaminated waste, and other sources of pollution have had measurable impacts on this environment. Roads, pipelines, well pads, processing facilities, and other support infrastructure have incrementally altered the character of this ecosystem.

Thanks to your leadership, Mr. President, legislation that would have allowed petroleum exploration and development on the coastal plain of the Arctic Refuge was defeated in 1995 and again this year. Nonetheless, we are concerned that vigorous and persistent efforts to mandate oil development will be successful unless administrative or legislative action provides permanent protection for this national conservation unit. Your administration has the opportunity to ensure the conservation of this unique Arctic ecosystem in perpetuity.

Please understand that we are not philosophically opposed to oil and gas development in Alaska. Indeed, we all clearly recognize the need for balanced resource management. But we also recognize the importance of maintaining the biological diversity and ecosystem integrity of our nation's Arctic. Nearly the entire Arctic Coast of Alaska north of the Brooks Range is available for oil and gas exploration or development. The 110-mile-long coastal plain of the Arctic National Wildlife Refuge encompasses 1.5 million acres of key wildlife habitat vital to the integrity of the Arctic National Wildlife Refuge. Whether this unique area remains intact and protected is now in your hands. We urge you, Mr. President, to permanently protect, for future generations, the biological diversity and wilderness character of the coastal plain of the Arctic National Wildlife Refuge.

Thank you for considering our concerns and recommendations.

Sincerely,

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