Comments from Federal Governments and Agencies (F)

POSITION PAPER

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UNITED STATES DEPARTMENT OF THE INTERIOR'S DRAFT

"ARCTIC NATIONAL WILDLIFE REFUGE,

ALASKA COASTAL PLAIN RESOURCE ASSESSMENT"

OTTAWA

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TABLE OF CONTENTS

POSITION PAPER OF THE

GOVERNMENT OF CANADA

ON

THE DRAFT "ARCTIC NATIONAL WILDLIFE REFUGE, ALASKA

COASTAL PLAIN RESOURCE ASSESSMENT"

The Government of Canada has reviewed in detail the content and recommendations of the draft "Arctic National Wildlife Refuge, Alaska, Coastal Plain Resource Assessment" prepared by the U.S. Department of the Interior. Within the time constraints imposed, the draft Environmental Impact Statement (EIS) has been closely studied by Canadian territorial governments, native groups, the Canadian Porcupine Caribou Management Board and federal government agencies. On the strength of this analysis, the Government of Canada firmly believes and urges that the 1002 lands should be given wilderness designation and dedicated to those primary values for which the Alaska National Interest Lands Conservation Act (1980) (ANILCA) was passed: "to preserve for the benefit, use, education, and inspiration of present and future generations certain lands and waters in the State of Alaska that contain nationally significant natural, scenic, historic, archeological, geological, scientific, wilderness, cultural, recreational, and wildlife values ...." The measures which the U.S. has taken to protect complete arctic ecosystems have helped convince Canadians to proceed with complementary protection mechanisms including the three million acre North Yukon National Park. It would indeed be regrettable if these advances were lost, based upon an incomplete understanding of the total spectrum of the values of the region. Accordingly, in addition to urging that the lands in question be given wilderness designation, Canada proposes that both governments

F-2

mark the international and regional significance of the area by undertaking to twin the protected areas on both sides of the border.

The following analysis which underpins Canada's views addresses these major themes: the nature of the wildlife resources which will be affected and their importance for Canadians; the hydrocarbon potential; and identified and unidentified risks. It is the conclusion of the Government of Canada that in this case the risks associated with opening the coastal plain to development far outweigh the potential benefits. The core of the Canadian position is the international significance of developments on shared transboundary wildlife resources. A separate technical appendix on this subject is attached. This Canadian position paper concludes with some notes on the consultative process.

Transboundary Resources: The wildlife species along the Alaska/Yukon border and the fragile ecosystem upon which these resources depend are important resources which are shared by Canada and the United States. The draft EIS, however, does not address the fact that the most heavily affected species are shared resources. A significant reduction in shared wildlife migratory resources such as caribou, Lesser Snow Geese, Polar Bears, fish or marine mammals, occasioned by developments envisaged in the 1002 area, would entail unacceptable damage to Canada. The attached technical appendix on wildlife resources addresses in detail the Canadian concerns.

Subsistence needs: The shared resources in question are critical to the well-being of certain Canadians in the communities of Dawson City, Mayo, and Old Crow in the Yukon, and Fort McPherson, Arctic Red River, Alkavik, Inuvik, and Tuktoyatuk in the Northwest Territories, and their ability to maintain a traditional way of life. Caribou, waterfowl and other transboundary wildlife species are essential to the subsistence economies of certain groups of native Canadians.

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The principal concern here is for the caribou. For instance, the 1002 area contains some 78% of the core calving grounds of the Porcupine Caribou Herd (PCH). The draft EIS predicts that full leasing "could result in a major population decline and a change in distribution of 20-40 percent" of the PCH. A population decline of this magnitude and the likely prospect of a disruption of traditional migratory patterns would mean the principal source of the subsistence enonomy would be unavailable. Subsistence users of caribou are principally located in Canada. The estimated annual harvest of the PCH is approximately 5,000 which varies with the movement of the herd. In some years 80 percent of the harvest is in Canada. Canadian caribou-using communities depend heavily on these animals. The draft EIS largely underestimates the significance of development to Canadian subsistence users. The EIS does not mention the possible impact from the loss of caribou to the Mackenzie Delta communities such as Fort MacPherson, Arctic Red River and Aklavik which are now the largest users of the herd. In addition, the Alaskan community of Kaktovik may have access to the Central Arctic herd, but the residents of Old Crow have no alternative and they and the communities in the Northwest Territories may not be able to harvest enough to meet their needs if the predicted impacts on population and distribution occur.

F.3

Cumulative effects: Canada notes that the draft EIS does not provide for an assessment of the cumulative effects of development on 1002 lands with other regional developments. Any decision to proceed with 1002 development, through the availability of infrastructure and services, will make development on the Outer Continental Shelf more likely. Equally true is that offshore development will render 1002 development more probable. Until the cumulative impacts of various development proposals have been fully studied and understood great caution must be exercised if major and perhaps irreversible damage is to be avoided. Site-specific mitigative

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measures are without any lasting results when negated by detrimental activities elsewhere in the region.

Oil and gas estimates: Since the full technical data set is not available to Canadian geoscientists, it has not been possible to undertake a comprehensive hydrocarbon assessment for the area. Canada questions some of the assumptions upon which the assessment is based. These assumptions have lead to an optimistic view of the resource potential of the area, which has directly influenced the recommendations.

The 1002 area is largely undrilled and should be regarded as rank wildcat territory. As a consequence, the assessment is based on the extension of geological trends from outcrop and well control located to the west and south. Fundamental to the assessment is the comparison with the geology and discovered pools in the Prudhoe Bay area. In Canada's view, the critical assumptions are as follows.

The primary reservoir unit at Prudhoe Bay has been assumed to underlie a portion of the area. Since a significant fraction of the oil potential is ascribed to this reservoir section, the risk of its absence is critical. Further, most of the potential in the unit is assumed to be contained in a few very large structures. However, the seismic data indicate that these features are internally structured, leading to a greater uncertainty in the identification of the key seismic reflectors and the possibility that each feature could consist in fact of smaller pools rather than one large feature. This observation of complex structuring also applies to other plays in the assessment. Finally, the pool size distribution predicts four large pools, each roughly one-third of the size of Prudhoe Bay. While the possibility of large pools in the range exist, the likelihood of several in this size range is remote.

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In summary, each of these assumptions has led to an optimistic assessment of the oil and gas potential of the area, which has directly influenced the overall recommendation.

The Prudhoe Bay comparison: Canada notes that while the draft EIS attempts to extrapolate the experience acquired in Prudhoe Bay to the 1002 areas, there are serious inconsistencies between the Recommendations (p. 169-170) and the content of the preceeding parts of the document. These contradictions are outlined in greater detail in the attached technical appendix. The Recommendation puts great emphasis on the situation at Prudhoe Bay noting that despite petroleum development "the fish and wildlife resources of the Prudhoe Bay area remain extremely healthy" and that "the Central Arctic caribou herd (CAH) has increased substantially during the period that development has occurred within the heart of its range" (p. 169). In contrast, the preceeding sections of the assessment stress that the CAH has increased because of lighter hunting and greater calf survival. In addition, "movements, density, and traditions of the PCH differ from those of the CAH" (p. 106).

F-4

Nothing in the Prudhoe Bay experience provides a basis for evaluating or mitigating the effects of oil and gas activities on staging Snow Geese. Clearly, the Prudhoe Bay experience should not diminish Canadian or U.S. concern for the wildlife resources of the 1002 area.

Water and Gravel: The report acknowledges that specific locations and sources of water and gravel for exploration and development activities have not been identified (p. 75). It further states that these resources are not readily available on the 1002 area. It should be expected that the acquisition and transport of adequate water and gravel supplies and their subsequent storage will further exacerbate

problems associated with degradation of habitat and disturbance to wildlife.

Consultations: Section 1005 of ANILCA directs the Secretary of the Interior to work with various U.S. interests in preparation of the EIS. The same section continues "In addition the Secretary shall consult with the appropriate agencies of the Government of Canada in evaluating such impacts particularly with respect to the Porcupine Caribou Herd". There was no consultation with the Government of Canada prior to the release of the draft EIS. Neither the ongoing negotiations with respect to the Agreement on the Conservation of the Porcupine Caribou Herd which predate ANILCA, nor the opportunity afforded Canadian territorial governments and agencies to comment on the draft EIS, can be construed as responding to the U.S. legislative requirement for consultation with a sovereign neighbour and friend. Had consultation taken place prior to the release of the draft EIS it is to be hoped that the document would have dealt with the serious Canadian concerns identified in this paper.

Canada welcomes the establishment of this dialogue and looks forward to its continuation. In particular, Canada would seek further consultations with the United States before the EIS is finalized particularly if the Secretary of the Interior's final recommendation to Congress is to propose any of those options which will have negative impact on Canada and Canadians.

Conclusion: Mr. Justice Thomas R. Berger, former Judge of the Supreme Court of British Columbia, in submitting his Report on the Mackenzie Valley Pipeline Inquiry to the Canadian Government made the following point:

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his Report on the Mackenzie Valley Pipeline Inquiry to the Canadian Government made the following point:

> "There is a myth that terms and conditions that will protect the environment can be imposed, no matter how large a project is proposed. There is a feeling that, with enough studies and reports, and once enough evidence is accumulated, somehow all will be well. It is an assumption that implies the choice we intend to make. It is an assumption that does not hold in the North ...
>
> We should recognize that in the North, land use regulations, based on the concept of multiple use, will not always protect environmental values, and they will never fully protect wilderness values. Withdrawal of land from any industrial use will be necessary in some instances to preserve wilderness, wildlife species and critical habitat." (pp. xi-xii)

F-5

Canada commends to the attention of the United States Government the impressive body of evidence collected by the U.S. Fish and Wildlife Service which demonstrates serious deleterious effects on the quality of the habitat of the area and on shared transboundary wildlife resources. Canada urges that the United States recall that the Arctic National Wildlife Range was established "for the purpose of preserving unique wildlife, wilderness, and recreational values" and that ANILCA established the Arctic National Wildlife Refuge primarily "to conserve fish and wildlife populations in their natural diversity ..." Canada has set aside lands for conservation to meet the same goals. Specifically, the Yukon North Slope (the Arctic watershed) falls under a special conservation regime whose dominant purpose is the conservation of wildlife, habitat and traditional native use. Within that regime, the Northern Yukon National Park has been established to include the

Canadian calving grounds of the PCH. Similar conservation measures are being negotiated for lands south of the Yukon North Slope.

"Long-term losses in fish and wildlife resources, subsistence uses, and wilderness values would be the inevitable consequence of a long-term commitment to oil and gas development in the area" (p. 143). A decision to develop commits the 1002 area to petroleum operations for a period of 30-90 years, to pressure to use this area as a base to service exploration and development of the Beaufort Sea, and to pressure to open adjacent areas designated as wilderness to oil and gas exploration.

The Government of Canada, following careful analysis of the EIS, has concluded that the risks of oil and gas development far outweigh the benefits. Canadian native people are working to develop local economies sustained by renewable resources. Canada regrets the general lack of appreciation of the immense value of Porcupine Caribou to northern native cultures.

Canada urges the United States Government to recognize the serious implications for Canada of development of the 1002 lands, and to adopt Option E - Wilderness Designation. Canada further proposes that both our governments mark the regional and international importance of this area by considering a twinning of protected areas on both sides of our border.

Canadian Government Review of the Wildlife Aspects of the November 1986 Draft "Arctic National Wildlife Refuge, Alaska, Coastal Plain Resource Assessment"

Technical Appendix

Canadian Government Review of the Wildlife Aspects
of the November 1986 Draft
"Arctic National Wildlife Refuge, Alaska,
Coastal Plain Resource Assessment"

"The wildlife resources of the Arctic symbolize our common heritage. Their preservation, being a matter of deep concern to both nations, provides a challenge and hopefully an opportunity for co-operation"... James Smith, Commissioner of Yukon, 1970.

Introduction

Northeastern Alaska and the adjacent northern Yukon are unique in North America in the high diversity of fauna and flora that they support in relatively undisturbed ecosystems. The close proximity of mountains to ocean with an intervening coastal plain produces an impressive variety of habitats on both unglaciated and glaciated terrain. The flora and fauna of the area are an unique mixture of species which survived the last glaciation essentially *in situ* and those that have invaded from the south and east since deglaciation. Many of the resultant ecosystems are truly unique and irreplaceable. The value of the area has long been recognized and led to the establishment of the Arctic National Wildlife Range in 1960 and to the recommendation of Justice Thomas Berger in his 1977 Report of the Mackenzie Valley Pipeline Inquiry that all of northern Yukon be set aside as a wilderness park.

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Justice Berger also urged that the Governments of Canada and the United States of America establish an International Wilderness Park in recognition of the international importance of those lands in northern Yukon and northeastern Alaska. Many of the species of wildlife using the area are shared populations that depend on habitats in both countries.

Since the U.S. creation of the Arctic National Wildlife Range and Justice Thomas Berger's Report, Canada has put in place the following measures in order to better protect the northern renewable resources shared with the United States:

All lands in the Yukon Territory north of the Porcupine and Bell Rivers were withdrawn from development in 1978 by the Government of Canada;

F-7

a) The 3,000,000 acre Northern Yukon National Park (Zone 1 in attached Figure) was established by the "Western Arctic (Inuvialuit) Final Agreement and Claims Settlement Act" of 1984 with preservation of the wildlife and wilderness character of the park for present and future its primary goal.

b) East of Northern Yukon National Park on the north slope are lands included in the Inuvialuit Final Agreement (Zone 2). The lands all fall under a "special conservation regime whose dominant purpose is the conservation of wildlife, habitat and traditional native use".

c) Zone 3a is proposed for addition to the existing National Park.

Although all of the Northeastern Alaska and adjacent northern Yukon areas are important for wildlife, some are more critical than others. One of these areas lies, in part, within the lands designated under Section 1002 of the Alaska National

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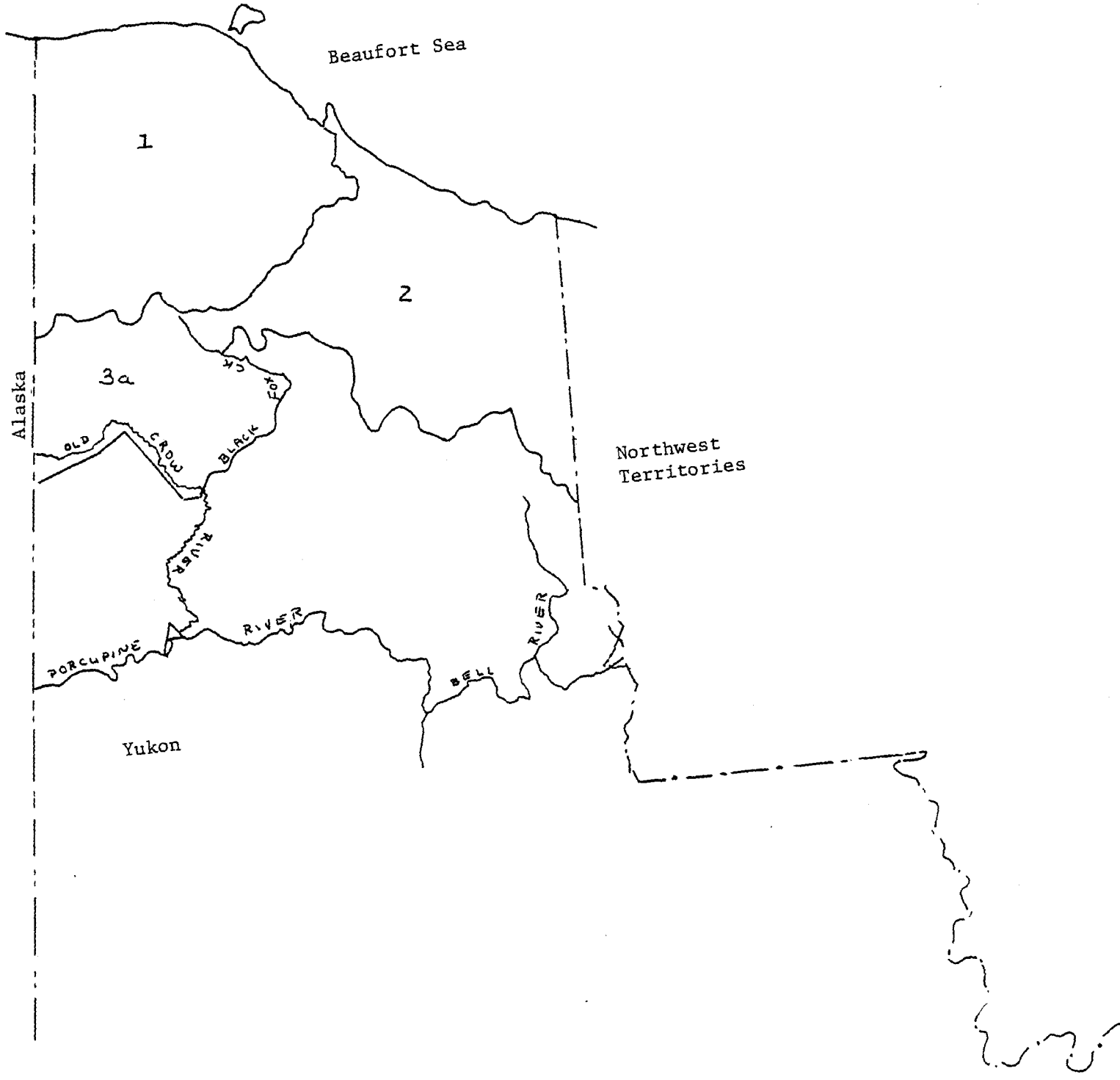
Beaufort Sea
1
2
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Alaska
Northwest
Territories
Yukon
OLD CROW
BLACK
FORK
PORCUPINE
RIVER
BELL
RIVER

Interest Lands Conservation Act.

The southeastern portion of the area, Block D and parts of Blocks B and C, which is about 19% of the 1002 area, contains the core calving area of the Porcupine Caribou Herd and much of the critical feeding area for Lesser Snow Geese. As noted in the draft Arctic National Wildlife Refuge, Alaska, Coastal Plain Resource Assessment (hereinafter referred to as the EIS or 1002 Assessment): "The Porcupine Caribou Herd (PCH) core calving area is considered unique and irreplaceable. Habitat in this area has been designated Resource Category 1 because of its high fish and wildlife values, particularly for PCH caribou. The U.S. Fish and Wildlife Service normally recommends that all losses of Resource Category 1 habitat be prevented, as these one-of-a-kind areas cannot be replaced" (p 98).

FI-8 Knowledge of wildlife in northeastern Alaska and northern Yukon may be the most comprehensive of any equivalent size area in the North. In the 1970s, extensive studies were conducted in relation to a proposed gas pipeline across the area. Studies conducted since 1981 to assess the impact of petroleum activities on the wildlife resources of the 1002 area are thorough and add substantially to the body of knowledge. In addition, studies on Lesser Snow Geese, Polar Bears and the Porcupine Caribou Herd have been conducted since the early 1970s cooperatively between Canada and the United States. Knowledge of the impact of petroleum activities on wildlife is adequate due to work done in the Mackenzie Delta area and to the extensive studies done at Prudhoe Bay. Possible mitigative measures are known and their efficacies have been evaluated. We now know that the degree of impact of an activity and the efficacy of a mitigative measure are time and area dependent; they vary throughout the annual cycle of a species and among populations of the same species.

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The majority of wildlife species using the 1002 area also depend on Canadian habitats to some degree, but this review will concentrate on three shared key species of particular importance to Canada: the Porcupine Caribou Herd, Western Arctic Lesser Snow Geese and Beaufort Sea Polar Bears. These would suffer major or moderate effects should oil and gas activity proceed as proposed. Throughout these comments reference is made to the pages of the EIS. In preparing the report, the U.S. Fish and Wildlife Service has done an excellent job of reviewing the information available and in estimating the potential effects of petroleum development.

Caribou

> "Caribou are the deer of the North. Shaped by the snows of millennia, they are completely at home in the country of winter. Theirs are the lands so recently emerged from beneath the snow and glaciers of the great ice age: the windswept tundra, the "land of little sticks" where the stunted trees of the boreal forest cease their northward march, the ice-hung cordilleras. Over these meagre lands they travel, obeying the commands of the seasons: the melting of snow, the budding of plants, the hatching of mosquitos, the freeze-up of lakes and rivers. Like the wind that passes over the tundra wilderness and is gone, caribou are forever on the move. They appear on one distant horizon and vanish on the other. And it is their comings and goings that set the cadence of life on the barren-lands."... George Calef 1981.

The Porcupine Caribou Herd (PCH) is one of the largest caribou populations in the world and it is critical to the well-being of a number of communities in Alaska, Yukon and the Northwest Territories.

The 1002 area is critical to the long-term well-being of the PCH as it contains 78% of the core calving area, is used for calving by up to 82% of the cows and supports 80,000 or more caribou in postcalving aggregations (p 28-29). Full leasing of the 1002 area could result in a major effect on the PCH even with the mitigation measures proposed (p 112). Loss of habitat values on 32% of the core calving area and reduced use or avoidance of 29% of the insect-relief habitat are considered to be unavoidable impacts (p 105-112, 131-132). "These changes ... could result in a major population decline and change in distribution of 20-40 percent"of the PCH (p 112, 132).

The estimates of impact on the PCH given in the EIS are conservative because the effects of reduced use of aggregation and insect-relief habitats were evaluated only from a short-term energetic point of view (p 109-110). Postcalving aggregations of the PCH form even in the absence of insects, although less dramatically, and likely also serve a social function. Disruption of this linking of the nursery bands with the other segments of the herd could conceivably fracture the herd. In addition, the strategies employed by the post-calving aggregations to avoid insects are important. Bands of caribou usually either travel north to the coastal insect-relief areas or south to insect relief areas in the foothills of the Brooks Range. Caribou that move south usually remain in the southern Brooks Range throughout the period of severe insect harassment (July and early August) whereas the majority of the PCH moves to the coast and then moves rapidly east to the Richardson Mountains for the period of severe insect harassment.

F-9

The Richardson Mountains provide the best insect-relief habitat within the entire range of the PCH. It is possible that if caribou were prevented from reaching coastal insect-relief habitat in the 1002 area the majority of the PCH would seek the less favourable insect-relief habitat of the Brooks Range. The

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overall movement patterns of the PCH would, therefore, be affected such that, at a minimum, the majority of the PCH would not return to Canada until late August or September, and, possibly, such that overall migration patterns of the PCH are altered, thereby reducing or eliminating its availability for harvest to some of the communities that depend on the PCH.

Lesser Snow Geese

The Western Arctic population of Lesser Snow Geese consists of over half a million individuals that nest primarily in Canada on Banks Island and in the Mackenzie Delta region and winter primarily in central California and New Mexico. The commitment of both countries to this shared resource was made through the Migratory Birds Convention in 1916,and reiterated in 1986 in the signing of the North American Waterfowl Management Plan. Work on this population by both countries is presently the focus of the Arctic Goose Joint Venture being carried out under the Plan.

Four large Canadian Arctic Migratory Bird Sanctuaries demonstrate Canada's concern and commitment to this shared resource. Ninety-nine percent of the 1002 area is classified as wetlands, a habitat type considered critical for breeding, staging and migrating waterfowl such as the Snow Geese and other shared migratory birds. A major goal of the North American Waterfowl Management Plan is wetland conservation, and protection of the 1002 area would contribute a valuable addition to that goal.

Major economic and cultural benefits of these Snow Geese flow to a large number of residents of both Canada and the United States. The 1002 area is critical to the long-term wellbeing of Snow Geese as it contains preferred staging habitat used by an

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average of 105,000 birds per year, approximately 15-20% of the Western Arctic population (p 35). "Staging Lesser Snow Geese congregate on the Arctic Refuge coastal plain in mid-August and may remain through late September. Staging geese move up to 225 miles west of their southward migration corridor on the Mackenzie River in order to take advantage of the food resources on the Yukon and coastal plain of the Arctic Refuge. The geese feed heavily to accumulate fat reserves for the fall migration flight" (p 35). When fall staging grounds are unavailable on account of snow cover, the coastal plain of the Arctic Refuge can be vital to the welfare of these geese. In some years, Lesser Snow Geese stay on the coastal plain as late as mid-October feeding and ridding themselves of internal parasites before making the migration south to the United States.

F-10

The distribution of staging Lesser Snow Geese is highly variable and the geese shift preferred areas annually, likely in response to overgrazed vegetation caused by heavy feeding in previous years. Over half of the Western Arctic Lesser Snow Goose population have used the 1002 area in a single year (p 121). Full leasing of the 1002 area could result in a major effect on Lesser Snow Geese (p 122). Loss of habitat values on up to 45% of the preferred staging area that is used by approximately 75% of the Lesser Snow Geese using the 1002 area in any given year is considered to be an unavoidable impact of petroleum development (p 121,132). That could result in a reduction or change in distribution of an average of 5-10% of the Western Arctic Lesser Snow Goose population, although the effect could be much greater in some years (p 122). In addition, Lesser Snow Geese are extremely sensitive to aircraft sound disturbance when on the tundra feeding grounds in the fall. A major decline in the Western Arctic Lesser Snow Goose population would have a direct, widespread economic and cultural impact on both the U.S. and Canada.

Polar Bears

The Beaufort Sea population of Polar Bears is estimated to be 2,000 individuals and, while harvest of bears may be small in the U.S., the combined Canada/U.S. harvest and mortality may be at the sustainable limit now. Harvest of Beaufort Sea Polar Bears is important to the wellbeing of a number of coastal communities in both Canada and Alaska. Both countries have shown their commitment to the conservation of this population through participation in the International Agreement for the Conservation of Polar Bears (1976) and cooperation in research and management.

It is projected that 12-13% of the adult females in this population den on land and Polar Bears are known to be particularly sensitive to human activities during the denning period (p 33, 117-118). Disturbance can cause premature abandonment leading to the death of the cubs.

The Beaufort Sea Polar Bears are the only population of bears in which the majority of the females appear to have their maternity dens on sea ice rather than on land. It may be that this behavior developed on the northern Alaskan coast because the females that showed fidelity to denning areas on land in earlier years were shot. Since then, females in dens have been protected for part of the time and, since the enactment of the U.S. Marine Mammals Protection Act of 1972, have been hunted less (though not protected) because there was no market for the hides. It could be that the female bears whose dens have been located on land along the coast recently are, in effect, recolonizing that habitat. If so, it could be important and steps should most certainly be taken to minimize disturbance. The only significant onshore denning area is on, and adjacent to, 1002 land, and both proposed marine ports sites (Camden and Pokok) are confirmed denning areas, especially Pokok on the east side of 1002 lands.

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Leasing of 1002 land for petroleum development could result in a moderate effect on the Beaufort Sea population (p 118, 136). Probable loss of the eastern portion of the 1002 area as denning habitat is considered to be an unavoidable impact under either development alternative (p 118, 131, 136, 139). Because of the importance of the area for denning, the adverse effects are mainly associated with the proposed port facilities (p 118, 136). The most prudent course of action for the conservation of Beaufort Sea Polar Bears would be the designation of the 1002 area as wilderness.

F-11

Fish and Marine Mammals

Should development on the coastal plain proceed, it is likely that associated marine transportation and coastal development will impact the marine resources. Any future offshore development will compound these effects. Development of port facilities and near shore artificial islands would affect inshore migratory patterns of fishes and could change salinity patterns. Additionally, the 15 million gallons of fresh water required for development of each well will have some effect on the marine resources, both inshore and offshore. The effects upon shared fishery resources have not been assessed. However, it is known that five species of white-fish such as the Arctic Cisco migrate along the Alaska/Canada coast seasonally and are important subsistence food resources in both countries.

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Coastal waters of the Beaufort Sea in Alaska are reported to contain sixty-two marine and anadromous fish species, including Arctic Charr and Arctic Cisco. Near shore waters and the brackish lagoon systems which provide migration corridors and feeding areas and are important spawning, rearing and over-wintering areas for some fish, are vulnerable to degradation resulting from coastal plain development. The effect upon the fisheries resources which are shared by Alaska and Canada have not been determined.

Thirteen species of marine mammals may occur off the coast of the Arctic Refuge. The four species of significance to Canada are Ringed Seal, Bearded Seal, Beluga Whale and Bowhead Whale. Most, if not all, constitute shared resources which are important in the subsistence economies of both countries.

The EIS concludes that marine mammals are not unduly affected by high levels of marine traffic and disturbance from oil and gas activity. However, the studies which relate are from site-specific research conducted at exploratory sites and may not be representative of the effects of full-scale development and exploitation. If such development occurs, this may become one of the most congested sea coasts in the Arctic with year-round open water transportation corridors. Beluga and Bowhead Whales migrate through these areas. Any impact and consequential reduction in the availability of Bowhead in Alaska would result in a compensatory increase in Beluga take which would adversely affect the Canadian harvest.

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Contradictions in the Report

In reading the 1002 Assessment, the Canadian government is struck by the contradictions and inconsistencies between the Secretary's Recommendation (p 169-170) and the content of the preceeding parts of the document.

The Secretary's Recommendation	Impact as Forecast in the EIS
The CAH Comparison	
The Recommendation puts great emphasis on the situation at Prudhoe Bay noting that despite petroleum development "the fish and wildlife resources of the Prudhoe Bay area remain extremely healthy" and that "the Central Arctic caribou herd has increased substantially during the period that development has occurred within the heart of its range" (p 169).	In contrast, the preceeding sections of the EIS stress: "Analogies comparing the effects of current oil development on the CAH [Central Arctic Herd] and effects of potential 1002 area development on the PCH must be drawn with caution. Movements, density, and traditions of the PCH differ from those of the CAH. Because of the greater density of PCH on their calving grounds, the PCH would interact with oil development much more extensively and intensively than the CAH has interacted with oil development in the Prudhoe Bay area" (p 106).
The Recommendation concludes that "Although circumstances within the 1002 area may be somewhat different, the evidence derived from the Prudhoe Bay experience leads one to be quite optimistic about the ability to explore	"Displacement of the CAH from historic calving grounds in response to oil development at Prudhoe Bay

F-12

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for and develop the hydrocarbon potential of the 1002 area without significant deleterious effects on the unit's wildlife resources" (p 170).

has been documented" (p 107) and

"The apparent herd increase has been attributed to high calf production and survival as well as relatively light hunting pressure" (p 106).

The EIS continues:

"Because some habituation would presumably have occurred, animals in the CAH may be more likely to cross an oil-field development than the PCH which would encounter such developments for only 2 or 3 months each year" (p 109).

Mitigation

The Recommendation states that "most adverse environmental effects would be minimized or eliminated through mitigation" (p 170).

This is clearly not the case for the three key international species using the 1002 area. The EIS notes that "Mitigation of the loss of caribou habitat in Resource Category 1 (242,000 acres of core calving area) is not possible" (p 111) and that "even with effective mitigation, herd displacement or reduction could be as great as 20-40 percent" (p 144).

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No specific mitigation measures are suggested for staging Snow Geese despite a predicted major impact for that species. Nothing in the Prudhoe Bay experience provides any basis for evaluating or mitigating the effects of the proposed activities on staging Snow Geese.

The single most important mitigation measure for Polar Bears, withdrawal of the Pokok port site, is not proposed.

F-13

Habitat Quality

The Recommendation states that: "Development would proceed with the goal of no net loss of habitat quality, and unnecessary adverse effects would not be allowed to occur" (p 170).

This statement is clearly at odds with the list on p 131, 132 of "Unavoidable Impacts" which includes:

"Loss of habitat values on approximately 78,000 acres of caribou core calving habitat....";

"Reduced use or avoidance of approximately 72,000 acres of insect relief habitat for caribou.";

"Probable loss of the eastern part of the 1002 area as denning habitat for polar bears."; and,

"Loss of habitat values from between 162,000 and 236,000 acres of snow goose preferred staging habitat within the 1002 area.".

Compensation

It is further noted in the Recommendation that the leasing program

"must ensure that any unavoidable habitat losses are fully compensated" (p 170).

Given the previous list of "unavoidable" losses of habitat quality, it is difficult to see how one could fully compensate for the long-term loss of up to 72,000 Porcupine Caribou and 60,000 Snow Geese. It is even more difficult to see how one could fully compensate for the loss of almost one third of the core calving area since the E.I.S. earlier notes that: "The Porcupine Caribou Herd (PCH) core calving area is considered unique and irreplaceable" (p 98).

"The FWS normally recommends that all losses of Resource Category 1 habitat be prevented, as these one-of-a-kind areas cannot be replaced". Since the goal of "no net loss of habitat quality" cannot be met, the "unnecessary adverse effects" should "not be allowed to occur". The recommendation for full leasing of the 1002 area appears to be based on several false assumptions of its likely impact on wildlife resources. From the EIS's own observations, it appears impossible to achieve the goal of no net loss of habitat.

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Conclusion

The migratory wildlife populations that range between Canada and the United States are a special category of resource. They are not owned exclusively by either country; they are held in common by both. Each country, therefore, has obligations to conserve these stocks and their habitats so that the value of the wildlife to the other country is not unacceptably reduced.

This principle has guided cooperation in migratory bird management by Canada and the United States for 70 years, resulting in great economic and cultural benefits to both countries. The same principle applies to migratory caribou and shared stocks of Polar Bears, and fish.

On the evidence produced by the U.S. in the 1002 Assessment, petroleum development in that area of northeastern Alaska will cause major damage to migratory wildlife that range over that area and northwestern Canada. This damage could continue for 90 years. Canadian citizens have major and continuing subsistence, cultural and economic interests in these wildlife.

F-14

Petroleum development of the 1002 area will cause significant damage to major wildlife resources that Canada shares with the United States with unavoidable repercussions for subsistence users in Canada. These are the primary considerations which lead the Government of Canada to urge the Government of the United States to protect the 1002 area by establishing it as wilderness.

Canada-U.S. Consultations on the
U.S. Department of the Interior's Draft
"Arctic National Wildlife Refuge, Alaska
Coastal Plain Resources Assessment"
Ottawa
February 3, 1987

U.S. Delegation

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F-15

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. . . 2

Mr. Graham Campbell, Director General, Resource Evaluation, Canada Oil and Gas Lands Administration

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Northwest Territories Renewable Resources

30 January 1987

U.S. Fish and Wildlife Service,
Division of Refuges,
Department of Interior,
Room 2343,
Main Interior Building,
Washington, D.C.,
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Arctic National Wildlife Refuge, Alaska
Coastal Plain Resource Assessment

F-16

Our government appreciates the opportunity to comment on the environmental impact assessment report on proposed hydrocarbon developments affecting the Arctic National Wildlife Refuge. We have several concerns and suggestions which are described in the enclosed "Statement by the Government of the Northwest Territories on the Arctic National Wildlife Refuge, Alaska Coastal Plain, Resource Assessment".

We acknowledge the importance of Arctic oil development in contributing to the safeguarding of national interests for future energy supplies. However, we believe that the scenario put forward for full scale hydrocarbon development within the national wildlife refuge poses serious international risks which have not been adequately addressed in the assessment report.

Our greatest concern relates to the predicted major impact on the Porcupine Caribou Herd due to disruption of key calving and insect-relief habitats. This is intolerable given the importance of this herd for domestic use by residents of the western Northwest Territories. Proposed development in the 1002 area would, therefore, seriously prejudice our government's management responsibilities as outlined in the U.S./Canada Porcupine Caribou Management Agreement initialled in December 1986.

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The polar bears inhabiting the Arctic National Wildlife Refuge and adjacent waters represent another significant resource shared by our countries and the need for cooperative management is recognized in the International Agreement for the Conservation of Polar Bears. We believe that the report does not fully explore the possible impacts on polar bear denning habitat due to oil spills, port and harbour development or related offshore developments.

Finally, the report overlooks the importance of the coastal plain area as a primary fall staging area for one-fifth of the total snow goose population which breeds on Banks Island, Northwest Territories. Given our shared management obligations for waterfowl, as defined in the Migratory Birds Convention and the North American Waterfowl Management Plan, we believe this constitutes a serious oversight in the assessment process.

Recognizing the Beaufort coastal zone as a common ecological unit, we welcome further opportunities to communicate our concerns and work together towards the long term protection of our shared wildlife resources.

J. W. Bourque,
Deputy Minister

Enclosure.

Statement by the

GOVERNMENT OF THE NORTHWEST TERRITORIES

on the

ARCTIC NATIONAL WILDLIFE REFUGE, ALASKA COASTAL PLAIN RESOURCE ASSESSMENT AND DRAFT LEGISLATIVE ENVIRONMENTAL IMPACT STATEMENT

submitted to

U.S. Fish and Wildlife Service, Division of Refuges,

DEPARTMENT OF THE INTERIOR
GOVERNMENT OF THE UNITED STATES OF AMERICA

Yellowknife, N.W.T.
January 1987

G.N.W.T. STATEMENT IN RESPONSE TO THE ARCTIC NATIONAL WILDLIFE REFUGE, ALASKA COASTAL PLAIN RESOURCE ASSESSMENT

1. INTRODUCTION

The Department of Renewable Resources, Government of the Northwest Territories has responsibility for the management of wildlife under the authority of the N.W.T. Wildlife Act and pollution control under authority of the N.W.T. Environmental Protection Act. Actions by this department directly influence, and are influenced, by a large number of northern communities which are striving to maintain a viable renewable resource based economy. Maintenance of renewable resources is vital to the welfare of Dene, Inuit, Inuvialuit, Metis and non-native people throughout the north.

Departmental staff are charged with the responsibility of enforcing the Environmental Protection Act and managing wildlife populations and habitat, including caribou, muskoxen, and polar bear. In addition, government staff have played a major role in the development of the North American Waterfowl Management Plan, and have contributed to the management and research of geese.

The native peoples maintain special bonds to the land, and to the wildlife which derive their existence from the land. People who pursue traditional life-styles place high value on the opportunity utilize indigenous animal and plant life, life-styles which allow the reaffirmation of personal and community identity. Such opportunity allows the maintenance of traditional skills, provides for an important social and educational exchange between young and old, and perpetuates a sense of self reliance.

Everything in this world is connected to everything else, and the action taken by one party can affect many other parties. Wildlife are distributed over the land in response to their biological needs; they pay little attention to political boundaries. The wildlife resources of the North Slope are a shared resource. The management actions implemented by one country will unquestionably affect the other country.

The Arctic National Wildlife Refuge represents a significant part of the arctic ecosystem and currently supports major wildlife resources shared by the United States and Canada. The alteration

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of this area, whether abrupt or incremental, could adversely affect the peoples of Alaska, the Yukon, and the Northwest Territories. Clearly, the issue at hand is a transboundary one. The transboundary issues have not been adequately addressed by the Environmental Impact Statement.

2. CONCERNS

2.1 Agreement with YTG Submission

We have noted the issues raised by the Yukon Territorial Government in their presentation at the Public Hearings held in Kaktovik, Anchorage, and Washington, D.C. We share their main concerns, namely:

a) The insufficient attention paid to section 1005 of the Alaska National interest Lands Conservation Act (1980) that calls for official consultation about the 1002(h) Report. The G.N.W.T. was never consulted, nor were its agencies, native citizens or interest groups (such as the Beaufort/Mackenzie Delta Development Impact Zone Group);

b) The inadequate reference given by the Report to the potential cumulative impacts of the possible development in the whole Beaufort area.

c) The lack of acknowledgment by the report of the ecological responsibilities shared by both the U.S. and Canada to ensure that the coastal plain on both sides of the border is managed to meet conservation oriented objectives.

Moreover, the Government of the Northwest Territories has the following additional points to raise:

2.2 PLANNING AND COORDINATION MECHANISMS

The 1002(h) Report does not adequately address the mechanisms that would ensure the proper coordination needed between the development of nearshore and onshore environments. As the Department of Commerce has still not formally approved the North Slope Borough's Coastal Management plan under the Coastal Zone Management Act, the strategic framework to affect this coordination is absent.

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2.3 WILDLIFE CONCERNS

We are distressed to read the statement on page 112 of the report concerning the Porcupine Caribou Herd stating that changes in habitat availability and value, combined with increased harvest could result in a major population decline and change in distribution of 20 to 40 percent, based on the amount of calving and insect-relief habitats to be adversely affected. This is an intolerable figure based on the International Porcupine Caribou Management Agreement initialled in December 1986 by both the Government of the Northwest Territories and federal government of Canada, as well as your Department.

While the Report acknowledges the potential impacts on the Porcupine Caribou herd, there is no mention of the importance of this herd for domestic use by the people of the western Northwest Territories. This is a particularly glaring omission in light of the above mentioned agreement to protect the herd and its habitat and its recognition of native use by Government of the Northwest Territories. As signatories to that Agreement, we are concerned to note the apparent lack of contact between the Secretaries of Department of Interior and State Department on this matter, not to mention contact with the signatories to the Porcupine Caribou Herd Management Agreement itself.

The Government of the Northwest Territories has offshore responsibilities in the Canadian Beaufort for wildlife management, particularly polar bear. The Beaufort population extends from Tukoyaktuk, Northwest Territories to at least as far west as Point Barrow, Alaska. While the oil companies are justifiably proud of their safety record (at least no major Arctic spills), the potential mortality from even a localized spill in a denning area could be serious. As well, port and harbor development to support coastal plain and related offshore development could lead to abandonment of denning areas.

Approximately 1/5 of the total snow goose population of Banks Island, Northwest Territories use the coastal plain as a staging site in the fall. This is not mentioned in the Report, nor is the obligation both nations share under the Migratory Birds Convention and North American Waterfowl Management Plan for the protection of the species and its habitat.

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3. CONCLUSION

The 1002(h) Report admits the importance of the coastal plain area to the entire national wildlife refuge. While it is only a small portion (5 percent), this area is critical as a calving ground and insect-relief habitat for the Porcupine Caribou Herd, as migratory wildfowl and as denning grounds for polar bear. The full leasing alternative is unacceptable to our government.

The report includes optimistic projections about the potential for oil discovery (a 95 percent chance of the 1002 area containing 4.8 billion barrels in-place) and much is made of the need to safeguard the national interest for future oil supply. We agree that these are important considerations, but the transboundary risks inherent in proceeding with the full leasing alternative constitute unwarranted trade-offs.

The need for improved consultation between Canadian and U.S. interests in this area is apparent, particularly in ensuring that mutual obligations for wildlife and related habitat protection are met. The Government of the Northwest Territories must be involved in any cooperative natural resource management agreements that are struck, and policies and guidelines for development affecting shared resources should be agreed to jointly.

This 1002(h) area is arguably the most important part of the refuge from an ecological viewpoint. The extent of development proposed for this area and its potential impacts must be more carefully weighed before an irrevocable decision is made. We urge the acceptance of Alternative 5, wilderness designation.

DO YOU WANT TO MAKE PUBLIC COMMENTS?

If you would like to speak at the hearing today, please fill in the blanks below and turn it in to one of the Fish and Wildlife Staff members present. You need not complete this sheet to submit written comments. Thank you.

Please print

Name Stephan Fuller

Mailing Address Dept of Renewable Resources

10 Burn Road, Whitehorse YT

Check appropriate box below:

☐ I am here to offer my own views.

--or--

☒ I am speaking for Gov of the Yukon

(please enter name of organization you represent)

F-20

STATEMENT BY THE

GOVERNMENT OF THE YUKON

IN RESPONSE TO
DEPARTMENT OF INTERIOR
DRAFT ARCTIC NATIONAL WILDLIFE REFUGE, ALASKA
COASTAL PLAIN RESOURCE ASSESSMENT

ANCHORAGE, ALASKA
JANUARY 5, 1987

Presented by:
S.P. Fuller, Policy Advisor
Department of Renewable Resources

GOVERNMENT OF THE YUKON PRESENTATION TO
THE DEPARTMENT OF INTERIOR DRAFT ANWR EIS HEARINGS
(Anchorage, Alaska, January 5, 1987)

Mr. Chairman, Panel Members, Ladies and Gentlemen.

Allow me to begin these remarks by sincerely thanking you for the opportunity to appear before you today. The Government of the Yukon appreciates the privilege you have provided in allowing us to make this presentation and we value greatly the growing spirit of cooperation that has developed between our two great regions. We trust that you will carefully consider both the general and specific concerns that we have identified during our review of the draft EIS. unbal and written

In the time available today, I will briefly outline the highlights of our general concerns with the EIS, and I will be tabl ing a written text of my remarks as well as a more detailed written "interrogatory", containing specific technical observations and questions concerning a number of specific aspects of the EIS. We understand that the detailed materials will also form a part of the record of these proceedings, and that we can anticipate a written response to our questions in due course.

F-21

To begin, we would like to complement the authors of the report, for providing a succinct, well written exposition of the baseline environmental and socioeconomic data, including the impact significance criteria and the summary comparisons of environmental effects and consequences. Although we are critical of some aspects of the EIS, we believe that the public review process and the nature of the discussion and inevitable debate is substantively aided, when options and opportunities are clearly evaluated in this matter. It certainly makes the job of external analysts such as ourselves far far easier and we sincerely appreciate that fact.

Our first major criticism of the EIS as it is now structured however, deals not with the present contents, but rather with several significant omissions.

In particular, although the EIS fairly identifies major or moderate impacts on the populations of caribou, snow geese ~~and other waterfowl~~, polar bears and musk oxen, there is no adequate treatment of the transboundary consequences of ~~those~~ these direct impacts. In each case the populations in question are shared

with Canada either as a result of migration (in the case of caribou and waterfowl) or as an important constituent of a larger regional population (in the case of musk oxen and polar bear).

In both countries, these four species are valued for their subsistence use and for their intrinsic value as part of the diminishing wilderness resource of our continent. Yet the EIS establishes the significance of the impact solely on the basis of the effects of a population decrease in Alaska.

The best example of this deficiency is provided by the EIS discussion of the Porcupine Caribou Herd. The potential decrease in herd size of 20 - 40% due to impacts in the heart of the calving area, is very correctly described as a major impact, however, the effects in Old Crow and other largely subsistence-based communities in northern Canada are only given passing attention in an entirely separate portion of the report. Fully four-fifths of the subsistence use of the herd is estimated to occur in Canada and there is no treatment of the consequence of a major decline in herd size on such use.

Mr. Chairman, there are similar omissions in the treatment of snow geese, polar bear, and musk oxen, which we have elaborated in our background submission and I will not discuss further at this time. Rather, I want to emphasize with you that the EIS appears to nearly completely ignore transboundary effects and it cannot be considered complete until this omission is corrected. In particular the effects on northern native peoples and their hopes for the sustainable development of the renewable resource economies must be acknowledged.

In some ways, Mr. Chairman, we would be happy if this message was the only one we delivered to you today. In light of the principles and optimism that lead to the development of our domestic Porcupine Caribou Herd Management Agreement, and have formed the basis for our negotiations towards an international agreement with your country, we believe that transboundary cooperation on resource management problems and issues is fundamentally important. The present omissions from the EIS do not well serve our mutual interests and concerns.

The second fundamental deficiency in the EIS is the lack of acknowledgement of the cumulative effects of 1002 oil and gas development proposals with those of the various offshore OCS lease sales. Surely the consideration of the effects of the developments on several significant species cannot be considered to be adequately assessed unless these various proposals are

considered together. Incremental direct effects and the cumulative effects of habitat loss or modification should be evaluated, at least additively, before any judgements are made about the significance of impacts and the ultimate acceptability of those impacts.

In addition it is important that with respect to migratory waterfowl, snow geese in particular, it should be acknowledged that the 1002 lands are a critically important staging area, but are only one part of the habitat of the species. Consideration of the significance of cumulative effects should therefore acknowledge the potential for habitat loss in other portions of the habitat away from the north slope region. Most migratory waterfowl species are under considerable stress in the southern portions of their habitat and that habitat is increasingly reduced or circumscribed by human users. The potential for negative synergistic effects if such stress and habitat reduction is replicated in the north is considerable and must be considered in your analysis and decision making. We were quite encouraged to note that last year in the March 1986 issue of Ducks Unlimited's journal Assistant Secretary Horn acknowledged that it would be necessary to stop the continued loss of some 458,000 acres of habitat each year in the United States. In response to a question about the feasibility of the North American Waterfowl Management Plan's ambitious goal of an additional 5 million acres of protected habitat by the year 2000 he states that he was well aware that there was a need to "arrest the alarming loss of wetlands" and "to get the finger in the dike and stop the leaking". We suggest that full protection for the ANWR north slope would be a very fine way to achieve this.

The third major theme which we would like to stress with you today Mr. Chairman is primarily a procedural matter. Although there are several references to what apparently were informal consultations with various Canadian interests, there in fact, was no direct consultation with any community, interest group, or government agency. Such consultation was mandated in Section 1005 of the Alaska National Interest Lands Conservation Act, but even if it had not been prescribed in this manner the benefits of mutual cooperation on transboundary resource management questions are such that consultation should have occurred without recourse to legislation.

This point has been raised with your government on several recent occasions Mr. Chairman and a formal meeting between the Government of Canada and the Government of the United States will occur in the near future. While this will no doubt be a

productive and meaningful session, which will meet the "letter of the law" in question, we would like to emphasize our interest in establishing early and continuing formal liaison on such questions in the future. The traditional knowledge of our native population and the scientific knowledge of our professional biologists should be shared on questions of this magnitude.

Mr. Chairman, in addition to our three basic concerns about transboundary effects, cumulative effects and the need for consultation, we would also like to report to you, a set of historical occurences that are both mildly ironic and disturbing in light of the recommendations in the draft EIS.

About the time of the passage of the ANILCA legislation, various international bodies, the United Nations included, were finalizing The World Conservation Strategy. The WCS is a development strategy with the complementary aims of encouraging sustainable development of resources, ensuring the protection of ecosystem integrity and maintaining species-specific genetic diversity. The WCS has been adopted by some 40 countries, including Canada, and at the time of the initiation of the WCS, the ANILCA legislation was considered a landmark, a significant tool that would substantively aid implementation of the WCS goals by protecting arctic ecosystems. In June of 1986 a major international conference on updating the WCS in Ottawa, recommended that the WCS would be improved if a circumpolar folio was added to the WCS, outlining the relative importance and necessity of viewing northern regions in an integrated and holistic manner, leading eventually to international agreements on the management of the very species in question here today. Unfortunately, oil and gas developments in the ANWR at the scale proposed in the draft EIS would be a significant step backwards in any effort to achieve such an objective.

At the present time in the Yukon we are working quite diligently, with other government agencies, both territorial and federal, towards the implementation of the WCS. This includes coordinating initial work on a northern circumpolar conservation strategy; working towards a Yukon Conservation Strategy; and initiating a local conservation strategy for Old Crow which covers much of the Canadian portion of the Porcupine River Basin.

Development of a conservation strategy in the Yukon and around Old Crow will do much to complement the substantive aspects of formal land use designations that have been achieved in recent years, to truly secure the future for internationally significant resources like the Porcupine Caribou herd. The new North Yukon

National Park, and environmental screening and review processes established as a result of our Inuvialuit Settlement Agreement have resulted in significant protection for the Canadian north slope. Such protection was sorely lacking until 1984; we lagged behind the progressive steps taken by your government when you established ANWR. It will indeed be ironic if the historical circumstances are reversed as a result of this draft EIS, leaving Canada with a more complete system of protection for the international north slope resources.

Finally, Mr. Chairman, we would like to restate that the draft EIS does not adequately report the international significance of the ANWR lands and resources. ANWR is nearly unique in the world, intended to protect a complete spectrum of undisturbed arctic ecosystems in North America; and the 1002 area is the heart of the most biologically productive part of ANWR. Given the biological richness of the area and the proposed scale of development under the proposed leasing scenario the potential adverse environmental effects are unprecedented and, with all due respect, unacceptable.

Although the draft EIS suggests that experience from the Prudhoe developments can be used to mitigate the effects of new developments, this suggestion is not correct. Such experience does not answer any questions about what will happen if the Porcupine Caribou herd is substantially displaced from the calving grounds and no alternative habitat of similar quality exists.

Mr. Chairman, it is the opinion of the Government of the Yukon that it is unacceptable for you to allow the proposed developments in the heart of the Porcupine Caribou herd's calving grounds, and that the draft EIS is deficient in asserting that such a displacement, which would lead to a decrease in herd size of 20 - 40% is in any respect acceptable.

Mr. Chairman, the writers of the Executive Summary of the EIS assert , (quotes) "development on the 1002 lands would proceed with the goal of no net loss of habitat quality and that unnecessary adverse effects would not be allowed to occur" (close quotes). We do not believe, given the exposition of facts in the main body of the EIS, and our own observations, that such a goal is even remotely achievable and the statement stands as a poor representation of the reality of the situation.

Mr. Chairman, there is a continuing need for more research, more examination of data, and hard decisions about the future of the

1002 lands. We believe that, at this time, you should decide in favour of increased and enhanced protection of 1002 lands. Cooperatively the governments of the United States of America, Canada, Alaska and the Yukon can protect one of the world's remaining truly wild places in perpetuity.

Thank you very much for this opportunity.

STATEMENT BY THE

GOVERNMENT OF THE YUKON TERRITORY

IN RESPONSE TO THE
DEPARTMENT OF THE INTERIOR
DRAFT ARCTIC NATIONAL WILDLIFE REFUGE, ALASKA,
COASTAL PLAIN RESOURCE ASSESSMENT

WASHINGTON, D.C.
JANUARY 9, 1987

F-24

PRESENTED BY:

W.J. KLASSEN, DEPUTY MINISTER,
DEPARTMENT OF RENEWABLE RESOURCES
W. OPPEN, DIRECTOR, INTERGOVERNMENTAL RELATIONS BRANCH
EXECUTIVE COUNCIL OFFICE

Government of the Yukon Presentation To the Department of Interior Draft ANWR EIS Hearings
(Washington, January 9, 1987)

Mr. Chairman, Panel Members, Distinguished Observers, Ladies and Gentlemen:

My name is William J. Klassen. I am the Deputy Minister of the Department of Renewable Resources for the Government of the Yukon. Our Department has the primary responsibility for management of the Porcupine Caribou herd when it is present on the Canadian side of the Alaska/Yukon border.

With me today is Mr. William Oppen, the Director of the Intergovernmental Relations Branch of the Yukon government's Executive Council Office. Mr. Oppen has the primary responsibility for liaison between our government and others.

We would like to begin our remarks today by thanking you for the opportunity to make this presentation. The resources our two countries share along the Alaska/Yukon border are critically important to the peoples of the Yukon so we are truly thankful for the privilege of representing our interests in these matters.

In the two previous hearings this week in Kaktovik and Anchorage, the Department of the Interior has heard presentations by professional staff of our department, from the people and elders of the community of Old Crow, from our Porcupine Caribou Management Board, and from the Council for Yukon Indians. As well, today, we are tabling a technical analysis of the draft EIS.

We are here today to repeat and reinforce the complementary messages in these different presentations - and to urge you to reconsider the recommendations for full development contained in the draft EIS. We sincerely believe that critical wildlife habitats and resources on the Alaskan and Canadian North Slope should be strongly protected, and that the North Slope itself should be managed according to conservation-oriented objectives. Any development in this region should be permitted only if it would not conflict with the conservation of the wildlife resources.

We further believe that reasons for protecting the 1002 lands are far more compelling than the often limited technical reasons

FORWARDED IN THE REPORT. ALTHOUGH THE DRAFT EIS DOES IDENTIFY THE TRADEOFFS WHICH WOULD BE REQUIRED TO ALLOW FULL DEVELOPMENT IN THE 1002 LANDS, IT DOES NOT ADEQUATELY ADDRESS THE TANGIBLE REALITY THAT THE MOST HEAVILY IMPACTED SPECIES ARE TRANSBOUNDARY RESOURCES OF CONSIDERABLE INTERNATIONAL SIGNIFICANCE.

WITH RESPECT TO THE PORCUPINE CARIBOU HERD, FOR EXAMPLE, A MAJOR IMPACT IS IDENTIFIED DUE TO THE ENCROACHMENT OF DEVELOPMENT INTO THE HEART OF THE CALVING GROUNDS. THE EIS SUGGESTS THAT SUCH AN ENCROACHMENT COULD LEAD TO A 20-40% REDUCTION IN THE SIZE OF THE CARIBOU HERD. FOR THAT REASON ALONE, WE BELIEVE THAT ANY SUCH IMPACT SHOULD BE CONSIDERED ENTIRELY UNACCEPTABLE. HOWEVER, WE FURTHER BELIEVE THAT THE DRAFT EIS CONSIDERABLY UNDERESTIMATES THE SIGNIFICANCE OF A REDUCTION OF THAT MAGNITUDE TO THE SUBSISTENCE USERS OF THE HERD, WHO ARE PRIMARILY LOCATED IN COMMUNITIES IN CANADA INCLUDING OLD CROW IN THE YUKON AND FORT MCPHERSON, ARCTIC RED RIVER, AKLAVIK, INUVIK AND TUKTOYAKTUK IN THE NORTHWEST TERRITORIES. BY IGNORING SUCH TRANSBOUNDARY EFFECTS THE DRAFT EIS IS FUNDAMENTALLY FLAWED.

F-25

WE ALSO MUST VOICE OUR CONSIDERABLE DISAGREEMENT WITH THE WRITERS OF THE EXECUTIVE SUMMARY WHO SUGGEST THAT DEVELOPMENTS ON THE CARIBOU CALVING GROUNDS CAN BE UNDERTAKEN WITH NO NET LOSS OF HABITAT QUALITY. SUCH A STATEMENT CONTRADICTS THE MAIN BODY OF THE DRAFT EIS AND WE BELIEVE SUCH AN ACHIEVEMENT IS LIKELY IMPOSSIBLE.

WE HAVE SIMILAR CONCERNS ABOUT THE OTHER SIGNIFICANT TRANSBOUNDARY SPECIES.

THE MUSKOXEN PRESENT IN ALASKA ARE SLOWLY REPOPULATING THE ARCTIC NATIONAL WILDLIFE REFUGE AREA AS WELL AS THE NORTHERN YUKON, WHERE THEY WERE EXTIRPATED DURING THE LAST CENTURY. THIS IS A VALUABLE AND IMPORTANT OCCURENCE WHICH SHOULD BE PERMITTED TO CONTINUE.

THE MIGRATORY SNOW GEESE POPULATIONS, WHICH USE THE 1002 LANDS AS AN IMPORTANT STAGING AREA, ARE ALSO UNDER CONSIDERABLE THREAT FROM THE PROPOSED DEVELOPMENTS, AND THERE IS VERY LITTLE ACKNOWLEDGEMENT OF THE INTERNATIONAL IMPORTANCE OF THE SPECIES.

HOWEVER, WE DO NOTE THAT THE DEPARTMENT OF THE INTERIOR RECOGNIZES THE IMPORTANCE OF WATERFOWL HABITATS. WE WERE VERY ENCOURAGED TO READ IN A RECENT ISSUE OF THE DUCKS UNLIMITED JOURNAL THAT ASSISTANT SECRETARY HORN IS WELL APPRISED OF THE

INTERNATIONAL SIGNIFICANCE OF WATERFOWL HABITATS SUCH AS THE ARCTIC NATIONAL WILDLIFE REFUGE NORTH SLOPE. WITH REFERENCE TO THE NORTH AMERICAN WATERFOWL MANAGEMENT PLAN, WHICH HAS THE GOAL OF PROTECTING AN ADDITIONAL FIVE MILLION ACRES OF HABITAT BY THE YEAR 2000, ASSISTANT SECRETARY HORN STATED THAT "THE PLAN GOES AFTER HABITAT ACQUISITION SO THAT WE CAN START TO BUILD HABITAT BACK UP, ONE OF THE CRITICAL ELEMENTS IN HELPING PUT OUR WATERFOWL POPULATIONS BACK TOWARD THE 100 MILLION LEVEL. THE OBJECTIVE NOW IS TO GET THE FINGER IN THE DIKE AND STOP THE LEAKING". IN OUR OPINION, PROTECTING THE ARCTIC NATIONAL WILDLIFE REFUGE COASTAL PLAIN WOULD DO MUCH TO ACHIEVE THIS.

SIMILARLY, POLAR BEARS PRESENT IN THE AREA ARE PART OF A LARGER REGIONAL POPULATION THAT SHOULD BE ASSESSED IN A MORE COMPREHENSIVE MANNER THAN THAT PROVIDED IN THE DRAFT EIS.

CARIBOU, POLAR BEAR, WATERFOWL AND OTHER MIGRATORY SPECIES PLAY A CRUCIAL ROLE IN THE SUBSISTENCE ECONOMIES OF THE LARGELY NATIVE COMMUNITIES IN THE YUKON AND IN THE NORTHWESTERN CORNER OF THE NORTHWEST TERRITORIES. IN RECENT YEARS WE HAVE BEGUN TO BETTER MANAGE THESE SPECIES, BOTH FOR THEIR OWN SAKE AND TO ENSURE THAT THE SUBSISTENCE ECONOMY IS SUPPORTED IN A MANNER WHICH CAN BE SUSTAINABLE INTO THE FUTURE. THESE MEASURES HAVE INCLUDED THE ESTABLISHMENT OF THE NORTH YUKON NATIONAL PARK AND HERSCHEL ISLAND TERRITORIAL PARK AND THE SETTLEMENT OF THE INUVIALUIT LAND CLAIM, WHICH ESTABLISHES A CONSERVATION-ORIENTED REGIME FOR MANAGEMENT OF THE YUKON'S NORTH SLOPE. IN ADDITION, THE GOVERNMENTS OF CANADA, THE NORTHWEST TERRITORIES AND THE YUKON GOT TOGETHER WITH NATIVE INTERESTS TO CREATE AN IN-CANADA AGREEMENT ON MANAGEMENT OF THE PORCUPINE CARIBOU HERD. THIS AGREEMENT HAS BEEN IMPLEMENTED THROUGH THE PORCUPINE CARIBOU MANAGEMENT BOARD. IT IS WORTH POINTING OUT THAT THE STIMULUS FOR MANY OF THESE MEASURES WAS THE CREATION OF THE ARCTIC NATIONAL WILDLIFE REFUGE IN 1980, AND OTHER CONSERVATION MEASURES ENACTED IN ALASKA.

THESE LAND ALLOCATIONS AND MANAGEMENT STRUCTURES HAVE BEEN PUT IN PLACE TO PROTECT HABITAT FOR PORCUPINE CARIBOU AND OTHER SPECIES, AND TO ENSURE AN APPROPRIATE, SUSTAINABLE ALLOCATION OF THE HARVEST IN THE REGION. THEY ARE AN ACKNOWLEDGEMENT OF THE DEPENDENCE OF THE PEOPLE OF OLD CROW ON THE HARVEST OF THE PORCUPINE CARIBOU HERD AND AN ACKNOWLEDGEMENT OF THE CONSIDERABLE IMPORTANCE OF THE HERD, GENERALLY, TO THE PEOPLE OF THE YUKON, THE NORTHWEST TERRITORIES AND CANADA. IN ADDITION, THEY ARE AN

INDICATION OF OUR GOVERNMENT'S STRONG COMMITMENT TO THE IMPLEMENTATION OF THE WORLD CONSERVATION STRATEGY.

MR. CHAIRMAN, NONE OF THESE VERY SIGNIFICANT FACTORS ARE IDENTIFIED IN A MEANINGFUL WAY IN THE DRAFT EIS, WHICH NONETHELESS PROPOSES TO IMPOSE A DRASTIC REDUCTION IN THE SIZE OF THE HERD THAT WILL POTENTIALLY HAVE A HUGE EFFECT ON OUR PEOPLE AS WELL AS YOURS.

MR. CHAIRMAN, ALL OF THE SPECIES AT RISK FROM THE PROPOSED DEVELOPMENT HAVE BOTH UTILITARIAN AND INTRINSIC VALUE AS PART OF THE ARCTIC ECOSYSTEM. THEY ARE INTERNATIONALLY SIGNIFICANT AND FIGURE HIGHLY IN THE NORTH AMERICAN UNDERSTANDING OF THE IMPORTANCE OF ARCTIC REGIONS. PROTECTING COMPLETE ARCTIC ECOSYSTEMS WAS THE PRIMARY VISION OF THOSE WHO DEVELOPED THE ARCTIC NATIONAL WILDLIFE REFUGE AND WHO LATER HELPED TO CONVINCE THE GOVERNMENT OF CANADA TO PROCEED WITH COMPLEMENTARY PROTECTION MEASURES. IT WOULD INDEED BE EXCEPTIONALLY UNFORTUNATE IF THIS VISION WERE FORSAKEN, BASED ON AN INCOMPLETE ASSESSMENT OF THE VALUES OF THE REGION.

F-26

MR. CHAIRMAN, IN OUR VARIOUS PRESENTATIONS THIS WEEK WE HAVE POINTED OUT A RANGE OF PROBLEMS WITH THE DRAFT EIS: WE HAVE TECHNICAL CONCERNS ABOUT ASPECTS OF THE INTERPRETATION OF BIOLOGICAL DATA; WE HAVE DISAGREEMENTS WITH THE RATING OF THE SIGNIFICANCE OF SOME IMPACTS; AND WE ARE DISTURBED BY THE TRADEOFF THAT HAS BEEN CHOSEN BY THE AUTHORS OF THE DRAFT EIS. PARTICULARLY IN THE LATTER CASE THERE IS A FAILURE TO ACKNOWLEDGE THE TRANSBOUNDARY EFFECTS OF DEVELOPMENT. WHEN ONE CONSIDERS FURTHER THAT THERE IS NO ASSESSMENT OF THE CUMULATIVE EFFECTS OF DEVELOPMENTS ON 1002 LANDS WITH THE PROPOSED DEVELOPMENTS ON THE OUTER CONTINENTAL SHELF LEASE SALES OR OTHER POTENTIAL DEVELOPMENTS OR ACTIVITIES IN ALASKA AND THE IMMEDIATELY ADJACENT AREAS OF CANADA, ONE CAN ONLY CONCLUDE THAT THE DRAFT EIS DOES NOT PROVIDE AN ADEQUATE ASSESSMENT OF THE NEGATIVE CONSEQUENCES OF DEVELOPMENT.

WE WOULD ALSO ADD THAT IF WE CONSIDER THIS UNDERESTIMATE OF ENVIRONMENTAL EFFECTS IN LIGHT OF THE EXTREMELY PROBLEMATIC NATURE OF THE ENERGY RESOURCE ESTIMATES, WE ARE NOT CONVINCED THAT THE TRADEOFF PROPOSED IN THE DRAFT EIS IS EITHER A REALISTIC OR A COMPLETELY FAIR EXPOSITION OF ALL THE FACTORS AT RISK IN THE SITUATION.

THE CUMULATIVE EFFECTS OF SEVERAL DEVELOPMENTS COULD ONLY BE DEALT WITH THROUGH JOINT PLANNING WITH ALL RESOURCE USERS ON BOTH SIDES OF THE BORDER. THIS RAISES THE ISSUE OF CONSULTATION WITH OUR GOVERNMENT AND OTHER CANADIAN JURISDICTIONS. ALTHOUGH REQUIRED UNDER SECTION 1005 OF THE ALASKA NATIONAL INTEREST LANDS CONSERVATION ACT, NO CONSULTATIONS WITH OUR GOVERNMENT OR OTHER CANADIAN AGENCIES, INTEREST GROUPS OR NATIVE ORGANIZATIONS OCCURRED. IN THE HEARINGS IN ANCHORAGE ON THE OFFSHORE LEASE SALES, WE MADE AN INTERVENTION IN WHICH WE EXPRESSED OUR CONCERNS ABOUT THE LACK OF CONSULTATION WITH AGENCIES IN CANADA. WE WOULD LIKE TO EMPHASIZE THAT SAME CONTINUING CONCERN HERE TODAY. ONLY BY ACTIVE AND ONGOING CONSULTATIONS BETWEEN OUR JURISDICTIONS CAN WE ENSURE COORDINATED AND CONSISTENT MANAGEMENT OF THE TRANSBOUNDARY RESOURCES THAT WE SHARE. THE GOVERNMENT OF CANADA, THROUGH THE FEDERAL DEPARTMENT OF EXTERNAL AFFAIRS, HAS FORMALLY REQUESTED A MEETING OF UNITED STATES, ALASKAN, YUKON AND FEDERAL CANADIAN OFFICIALS TO FULFILL THE REQUIREMENTS OF SECTION 1005. ALTHOUGH IT HAS NOT BEEN CONFIRMED, IT IS OUR UNDERSTANDING AT THIS TIME THAT THE MEETING MAY BE HELD LATER THIS MONTH IN OTTAWA.

TO SUM UP, MR. CHAIRMAN, WE HAVE THREE MAIN CONCERNS WITH THIS EIS. FIRST, WE WOULD NOTE THAT, DESPITE THE REQUIREMENTS OF SECTION 1005 OF ANILCA, NO CANADIAN GOVERNMENTS, AGENCIES, NATIVE GROUPS, ENVIRONMENTAL GROUPS OR OTHER INTEREST GROUPS WERE OFFICIALLY CONSULTED ABOUT THE 1002 REPORT. SECOND, THE EIS DOES NOT ADEQUATELY CONSIDER THE POTENTIAL CUMULATIVE EFFECTS OF THE VARIOUS DEVELOPMENT POSSIBILITIES IN THE ALASKAN NORTH SLOPE AND THE ADJOINING CANADIAN LANDS AND WATERS. THIRD, THE RECOMMENDATIONS IN THE EIS DO NOT REFLECT THE BROADER ECOLOGICAL RESPONSIBILITIES THAT OUR GOVERNMENTS SHARE TO ENSURE THAT THIS GLOBALLY-SIGNIFICANT WILDLIFE RESOURCE IS MANAGED TO MEET CONSERVATION-ORIENTED OBJECTIVES.

IN VIEW OF THESE AND OTHER CONCERNS WE HAVE RAISED, MR. CHAIRMAN, WE WOULD STRONGLY URGE THE DEPARTMENT OF THE INTERIOR TO RECONSIDER THE SUBSTANCE AND THE CONCLUSIONS OF THIS DRAFT EIS. THE RESOURCES AT RISK ON THE 1002 LANDS ARE NOT SIGNIFICANT SOLELY FROM AN ALASKAN PERSPECTIVE. THEY ARE ALSO OF CONSIDERABLE SIGNIFICANCE TO CANADA AND HAVE WELL-ACKNOWLEDGED INTRINSIC INTERNATIONAL SIGNIFICANCE, AND SHOULD BE MANAGED ACCORDINGLY. IN THE LAST 15 YEARS, BOTH IN ALASKA AND IN CANADA SIGNIFICANT STEPS HAVE BEEN TAKEN TO PROTECT THESE RESOURCES. IN OUR OPINION, HOWEVER, THE FULL-LEASING ALTERNATIVE RECOMMENDED IN THE DRAFT EIS WOULD BE A STEP IN THE WRONG DIRECTION.

THANK YOU VERY MUCH FOR THIS OPPORTUNITY.

F-27

Not Man Apart

Superfund comes through

After years of wrangling over where the taxes for toxic waste cleanup would come from, both Houses of Congress in early October passed, by overwhelming margins, a joint conference bill creating an $8.5 billion "Superfund" program for cleaning up abandoned hazardous waste dumps.

This year's Superfund bill, which is supported by environmentalists as well as chemical companies and chemical cleanup firms, provides five times as much money as the original Superfund created in 1980, which raised $1.6 billion. Environmental lobbyist Dan Becker of Environmental Action called it "a great improvement" over the previous program because it carries stricter standards for cleanup, including a requirement that all contaminants at the sites be rendered harmless, among other strengthening provisions.

The compromise bill is many months in the making, having passed the Senate on Sept. 26, 1985 and the House Dec. 10, 1985. The primary difference between the two versions was who would pay for the $8.5 billion, 5-year program. The House bill put much of the burden on the petrochemical industry, the Senate bill on all industry. The final conference agreement calls for getting $2.75 billion from a tax on petroleum, $1.4 billion from a tax on chemical feedstocks, $2.5 billion from a broad-based industrial tax, $1.25 billion from general revenues, and $600 million from interest and from companies responsible for toxic dumps.

Environmentalists consider it a victory because it strengthens the cleanup program in various ways. The bill prohibits transferring of wastes from one site to another and improves liability provisions for polluters by extending responsibility for cleanup (to haulers, producers and others liable) for as long as the wastes remain toxic. There are also statutes to allow citizens to sue polluters in federal court (instead of just state courts), as well as strong "right to know" provisions requiring companies to disclose what chemicals are at their sites. In a provision that industry fought hard against, the bill also specifies that cleanup sites cannot violate any *other* environmental laws.

Despite the broad support of Senate and House Republicans for "Superfund," President Reagan is threatening to veto the bill. Because the bill was approved by the Senate just before the end of the session, there exists the possibility that Reagan might use a "pocket veto" against Superfund. By the Constitution, the President has 10 days to either sign or veto a bill sent to him by Congress. But if Congress is not in session when the ten days are up, the bill fails to become a law.

Republicans are especially worried that the President's veto would be perceived as Republican opposition to what is generally a very popular bill—and therefore hurt their chances for re-election. Some house members have asked their leadership to delay adjournment to stop such a move. This would be unusual in general, and especially unlikely in an election year with Congressmen anxious to return home and campaign.

—Mark Nelson and Mary Melchior

Hazardous waste cleanup can't go forward without Superfund.

Landmark Hydroelectric Bill Protects Fish and Wildlife

For the first time, the government is mandated to give "equal consideration" to such concerns as fish and wildlife, energy conservation and recreation in licensing hydroelectric power plants. At the close of the 99th Congress, both houses forwarded to the President a bill (S.426) making these and other major environmental reforms in the hydroelectric power program administered by the Federal Energy Regulatory Commission (FERC).

For 66 years the FERC and its predecessor, the Federal Power Commission, have conducted hydro dam licensing with a power first and an environment last approach. Environmentalists have regarded the agency's actions as contributing significantly to large-scale declines in the once great fisheries of the Pacific Northwest and New England. Too often, for questionable power benefits, it has allowed the destruction of recreational and scenic river areas and sometimes major adverse impacts on wildlife.

This legislation now makes environmental protection an explicit statutory responsibility of FERC's licensing program. Also, the bill greatly enhances the stature of state and federal fish and wildlife, natural resource and regional planning agencies in setting the terms under which hydroelectric dams and water diversions are built and operated.

For non-utility type projects at proposed new dams where power is sold to utilities under special marketing incentives of the 1978 Public Utility Regulatory Policies Act (PURPA), projects must meet a series of new environmental tests, including mandatory conditions set by fish and wildlife agencies, a finding that they are not located on state scenic rivers or protected areas, and that projects must not have "substantial" environmental impacts. PURPA Projects with already filed license applications are exempt from new tests but they, like all others, must meet a new more stringent round of fish and wildlife reviews.

At this writing, it is expected that President Reagan will sign the bill into law. Strong credit goes to Reps. John Dingell (D-MI) and Edward Markey (D-MA), leaders of the House Energy and Commerce Committee, and to Sen. Dan Evans (R-WA) of the Senate Energy and Natural Resources Committee for the roles they played in securing these environmental provisions in the bill.

—David Conrad

F-28

CONTENTS

Special Election Issue

Cover Photo: "A Western Slope Farmer" By Andrew Gulliford

From the editor

Political Purity

In a Doonesbury cartoon last month, political candidate Clyde challenged Lacey Davenport to a drug test, swearing to fight a "clean campaign." "Friends, I have come to give a specimen!" he shouted to cheering crowds.

Life imitated the Cartoon in election campaigns this fall, as candidates crusaded against cocaine kingpins and Crack users and extolled the massive drug bill that rolled up and down Capitol Hill like a ball of snow—no pun intended—reaching $1.8 billion in a matter of weeks.

Drugs, to be sure, are a terrible menace and the number of victims is growing at a runaway rate. But why should this election-eve bill, the effectiveness of which many question, be the crowning achievement of the session? Plus, as bad as the drug problem is, it's certainly not the only life-and-death issue facing voters.

Drugs might be the "destroyers of Youth," but then what are the countless chemicals that the government admits are leaking from hazardous waste dumps into drinking water supplies, or the thousands of pesticides that go untested by the government but which find their way into our fruits and vegetables? Just because the results of Crack are more visible and instantaneous doesn't mean that environmental carcinogens—the effects of which take 20 or 30 years to show up—aren't every bit as deadly. Yet as David Baker points out in this issue, key environmental laws have failed to make headway in this Congress.

Why don't politicians go after the current "decadence" toward environmental protection with the fervor Congress went after drugs or the fury that Ed Meese went after pornography? What do environmentalists have to do to give a high profile to their issues? One couldn't ask for more wholesome, All-American campaign material: The right to breathe clean air and drink clean water, to protect the health of the children and the unborn. Yet despite the conservative climate, wholesomeness doesn't sell these days. The drug bill called for the death penalty for drug dealers, and, though liberals predicted this clause would kill it, that didn't seem to.

If legislation has to have a Rambo rhythm to move, why don't environmentalists call for hanging corporate polluters by their thumbs, public flaying for midnight dumpers? Why not adapt the Supreme court ruling on sodomy to prosecute polluters for "crimes against nature?"

Environmentalists, in all seriousness, ought to adopt some of the same moral outrage that conservatives have applied to campaigns against smut. They ought to be waging war against the "perversion" of pollution laws, to strengthen the fiber of the laws already on the books, and to strictly punish offenders. One encouraging sign is EPA's crackdown on toxic crime (see the story in this issue), with its new swat teams to put corporate polluters behind bars. Amen. Let's send the perverts to prison!
—F.L.

FOE Hires New Executive Director

We're pleased to announce the hiring of Cynthia E. Wilson as the new Executive Director of Friends of the Earth. She becomes the first woman to head FOE and will be the only woman member of the so-called "Group of Ten" environmental leaders.

Ms. Wilson, who began work on October 1, has been involved with environmental issues since 1965 and has worked for citizens' groups and the government. "I'm looking forward to helping FOE become the best, most hard-hitting environmental group in the country," she said. "I've worked with FOE's staff over the years and know what a great organization this is. The task before me is straightforward: to get us back on sound financial footing so that FOE's staff can concentrate 100 percent on conservation issues."

As head of the Washington, D.C. office of the National Audubon Society from 1969 to 1977, Cynthia worked extensively on pesticides, predator control (the Compound 1080 case), the passage of the Endangered Species Act, and the Federal Lands Management Policy Act (FLMPA).

She also served as Assistant to Secretary of the Interior Cecil D. Andrus from 1977 to 1981. While at Interior, Wilson coordinated the Department's role in the successful Alaska Lands campaign. Over 100 million


Cynthia Wilson

acres of federal land were ultimately designated as new national parks and wilderness.

Since leaving the federal government in 1981, she has worked as an environmental consultant, opposing efforts to weaken the Endangered Species Act and the Alaska Lands Act. Most recently, Wilson completed work for the American Society of Landscape Architects.

Cynthia takes over the reins from Acting Director Geoff Webb, who returns to his former position as Conservation Director. "I'm very glad to have Cynthia on board," said Webb. "FOE needs someone with her experience, talent, and energy." Webb will oversee international campaigns on acid rain, nuclear power and tropical deforestation.

Not Man Apart

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. . . the greatest beauty is organic wholeness,
the wholeness of life and things,
the divine beauty of the universe. Love that,
not man apart from that . . .
—Robinson Jeffers

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NEWS BRIEFS

Nuclear Liability Bill Stalls

For years Anti-nuclear activists have argued that the present $665 million cap on liability for nuclear power facilities is a gross underestimate of the potential costs of a serious nuclear accident. The Chernobyl accident, for example, has resulted in an estimated $2.5 billion in property damages alone. Legislation to amend the Price- Anderson Act, which sets the cap on liability, failed to win approval in this Congress.

A House bill would have raised the liability cap to $6.5 billion, but some congresspersons wanted to try and increase the utilities' liability every five years to account for inflation. The proposed amendments would have required too much time on the floor of the House, and, with Congress trying to adjourn for the year, the Rules Committee decided to postpone the issue until next year. Environmentalists have been pushing for unlimited liability, with each utility, in the event of an accident, putting up $5 million a year until all damages are paid.

Lost Worlds

Despite the popularity of Banana Republic clothing stores and Harrison Ford movies, students' understanding of geography seems to be appalling. That's why the National Geographic Society is budgeting $4 million to improve geographic education; they are giving geographic methods workshops to high-school instructors and school- year pilot programs in Washington, D.C. and Los Angeles, according to *Newsweek*. Two years ago, college students surveyed in various states displayed their dismal geographical knowledge by locating Africa in North America, put the "state" of Atlanta next to North Carolina, and the U.S.S.R. on the border of Panama.

Robots to the Rescue

Recognizing the limits of their own intelligence, the Tennessee Valley Authority (TVA) regards "artificial intelligence" as the way to save nuclear power. The publicly owned utility invested heavily in nuclear power, but its seven nuclear plants have been shut down due to safety problems.

In the fall issue of TVA's journal, Robert E. Uhrig a scientist at Oak Ridge National Laboratory, argues that an "expert" computer system could have saved Three Mile Island because it could "diagnose the unexpected and perplexing behavior of the plant." Uhrig goes one to say that "artificial intelligence" can "give operators [of nuclear plants] the assistance they need to handle any unforeseen difficulties."

NMA wonders if "any unforeseen difficulties" includes earthquakes, consumer rate shock, or the political fallout from Chernobyl.

Wind Energy Gusts to New High

Between January and May of 1986, windfarms in California produced 381 million kilowatt-hours of electricity, enough to supply 60,000 California homes with electricity for a year, according to Tom Gray, Executive Director of the American Wind Energy Association (AWEA). It would require 600,000 barrels of oil to produce the same amount of electricity, which would release an estimated 3.8 million pounds of pollutants into the atmosphere.

According to AWEA, windpower output in this period more than doubled the amount produced last year during this same time. Mr. Gray estimates that windpower could eventually supply more than a trillion kilowatt-hours, the equivalent of 40 percent of current U.S. demand.

Dupont Favors Controls on CFCs

Recognizing the adverse effect of chlorofluorocarbons (CFCs) on the atmospheric ozone layer, the Dupont Company in October came out in favor of worldwide limits on production of the chemicals. Dupont claims that there is no immediate threat to the ozone layer from current use of CFCs, but acknowledged that science had not defined a safe level of production of CFCs. Scientific consensus is that CFCs, used as refrigerants, do deplete the ozone layer, and furthermore, contribute heavily to the "greenhouse effect" that is causing global warming. The Company, which invented the chemicals produces 20 to 25 percent of the world's CFCs.

FWS Proposes Reserve Sea Otter Breeding Colony

The California sea otter, a threatened species making a slow recovery from gill net fishing and oil spills in their limited range may soon get a boost. The U.S. Fish and Wildlife Service (FWS) has proposed, to the applause of environmentalists, to relocate a limited number of sea otters to remote San Nicolas Island to establish a protected reserve breeding colony. Explains Martha Naley of FWS's California Otter office, "there is a significant possibility of a major kill from an oil spill at any time." Conservationists are urging FWS to move quickly. The measure is opposed by some shellfishing industry representatives because otters eat shellfish.

***WHAT YOU CAN DO:** Send your comments by November 17 to Sea Otter Comments, U.S. Fish and Wildlife Service, Suite 1692, 500 N.E. Multnomah Street, Portland OR 97232.

—John Moore

Guest Editorial

Coming of age In Bio-topia

By Peter Berg

What's "bioregionalism?" A new movement that originated in California about 10 years ago, its overarching goal is to rekindle a sense of place and an awareness of human communities operating within natural systems, regardless of the political boundaries within which they lie. Peter Berg, one of the founders, sees this utopian philosophy as the most practical basis for ecological activism, in an essay composed upon returning from last summer's North American Bioregional Congress.

Around a decade ago, the environmental movement began to succeed at establishing legal credibility for basic issues like clear air and clean water. But then the question became: Would that credibility actually lead to building an ecologically based society?

Some activists didn't think so; it seemed to them that the future of that kind of environmentalism would find its limit in litigating court cases. Rather than forging new social habits, one-time volunteers settled into writing checks to support lawyers pursuing suits against polluters. There needed to be, instead, a "pro-active" path for eventually putting ecological considerations at the center of social, economic and cultural decisions.

Ten years ago, roughly, also marked the birth of the concept of "bioregions" and "re-inhabiting" one's chosen home. A "bioregion" was defined in terms of an area's watersheds, native plants and animals, soils, climate and other natural features. Bioregionalists sought to relate these to basic human needs such as food, water, energy and shelter in locally self-reliant and sustainable ways.

The idea was: If we can recognize and adapt to the natural systems of bioregions, we can "re-inhabit" them in a similar spirit to the continent's original natives. We can then sustain ourselves without destroying the life-places that ultimately support us. Failing to do this, as industrial society has done, will eventually lead to destroying the entire planetary biosphere.

Working on local issues close to home, bioregionalists are addressing, in a different way, issues tackled by national conservation groups. Take just one: extinction of the prairie.

Within a 500-mile radius of Kansas, amid the vast stretches of land devoted to corn and soybean agribusiness, there might only be several acres of wilderness prairie left. Most visitors to the Midwest don't even know the difference between the real prairie with its wild grasses and flowers and a sorghum field.

While groups like the Audubon Society have pushed for legislation to protect the Tallgrass Prairie, the Kansas Area Watershed Council (KAW) in the Prairies bioregion has focused on putting residents in touch with the native prairie through nature and cultural awareness programs. KAW teaches participants about the early settlers, various indigenous tribes (Hidatsa, Pawnee and others) that first farmed the area, and native plants and animals like the Prairie Chicken and the turkeyfoot bluestem that makes up most of prairie vegetation. "By realizing that people are only a part rather than the center of the ecosystem," wrote one member, "we gain a better understanding of our life on the prairie."

This "bio-centric" approach, based on a vision of bringing human beings into harmony with the overall web of life, made without reference to existing political institutions, made sense to people who sought a framework for long-term commitments. It was taken up by self- reliant homesteaders working on restoration of agricultural lands, activists working on renewable energy, watershed groups doing water testing and streamside erosion control. By the time the first North American Bioregional Congress was convened in 1984, such goals were directing an authentic grassroots movement. Today there are about 75 bioregional groups.

The most distinctive characteristic of bioregional groups is their identification with a natural place. Their names often speak it out: Great Lakes Bioregional Council, Katuah (Cherokee for southern Appalachia) Ohio River Basin Information Service, Driftless Bioregional Network (the unglaciated area of the northern plains) and so on. The place may be as small as a single 60-mile long valley (Mattole Restoration Council in northern California) or as big as Ish River Bioregion (all the drainages into Puget Sound).

There's a strong contrast between this approach and other groups' concern with some of the same issues. The Siskiyou Regional-Education Project, representing the California-Oregon border mountains area, for example, sees itself as part of a "new movement reaching beyond the piecemeal approach frequently taken by government, the private sector and special interest groups."

The group's members, for example, actively work to restore the salmon run and do their own water testing; but they don't view a project to restore salmon in the native river as a single act of conservation. Rather, their work is part of the overall long-term restoration of a whole valley that also includes erosion control, reforestation, habitat repair, and many other activities.

This holistic rather than issue-to-issue view is reflected in a wide range of ways. Many bioregional groups, for example, create maps of their area along truly natural boundaries, hold equinox and solstice gatherings, promote cooperatives and land trusts and start barter networks to trade skills and wares.

Not surprisingly, even though the bioregional movement is growing, bioregionalists insist on keeping a loose, decentralized structure rather than creating a central organization. At the second North American Bioregional Congress held during the last week of August near Traverse City, Mich., participants divided, among several groups, tasks like keeping an information clearing house, preparing a directory of local groups and developing a skills exchange. It also created a new Green Cities committee, which is strategizing how to join urban areas with their bioregions.

Regardless of whether governments have recognized them, bioregions are the natural "countries" of the planetary biosphere and will remain so. They each provide unique models of ecological self-governance that human activities should follow.

(A full report on the latest bioregions congress will be available for $10—write "Alexandra Hart/NABC II Proceedings, P.O. Box 1010, Forestville, Calif. 95436.)

F-29

Plastic Clogs The Oceans

Sea life is drowning under waves of plastic refuse. As many as 100,000 marine mammals die each year as a result of ingesting plastic, and members of over 50 species of seabird, many already endangered, have died after ingesting plastic pellets.

In addition, entanglement in plastic gill and driftnets (see *NMA*, May-June 1986), lost or abandoned traps, and a variety of plastic binding materials represents a persistent threat to a multitude of aquatic or ocean-feeding species.

100 million pounds of plastic trash enter the world's oceans each year, not including lost fishing gear. Although the majority of plastic pollutants are introduced from land-based sources (industrial and municipal wastes, unprocessed plastic resin pellets, etc., which enter the sea after "escaping" into adjacent streams, rivers, and estuaries), 10 percent is due to direct dumping from ships.

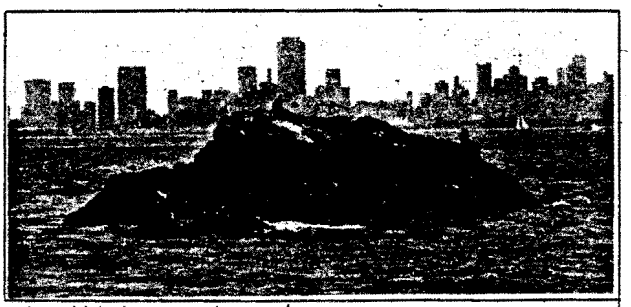
Reports from the Environmental Defense Fund (EDF) indicate that the 70,000 ships in the world fleet dump up to 640,000 plastic containers daily, as part of the six million tons of solid waste attributable to ships each year.

Environmentalists are attacking the problem in a number of different ways. One important tool is Annex V to the 1973 International Conference on Marine Pollution (MARPOL Convention). MARPOL is the primary international treaty for preventing and controlling the discharge of pollutants from ships. Annex V would establish a 25-mile boundary from shorelines for the discharging of plastic and related pollutants, and establish more stringent and enforceable discharge guidelines.

At an August 12 Congressional hearing on "Plastic in the Marine Environment," held by the House Subcommittee on Coast Guard and Navigation, testimony by representatives from a diverse assortment of organizations—from the National Oceanic and Atmospheric Administration (NOAA), Marine Mammal Commission, U.S. Coast Guard, and the Environmental Defense Fund—stressed the need for the United States to immediately ratify Annex V of the MARPOL Convention.

The requirements of Annex V are not binding until the treaty is ratified by countries representing at least 50 percent of the world's gross shipping tonnage. At present, 26 countries, representing 44.5 percent of gross tonnage, have ratified Annex V. The United States has delayed signing onto the convention due to concerns over MARPOL's effectiveness. Ratification by the United States would bring the total tonnage of signees to 49 percent, which could induce other countries to sign, thus topping the 50 percent mark.

While they support ratification of MARPOL, environmentalists point out that discharging wastes further out at sea will only delay the arrival of plastic refuse to wildlife feeding areas and beaches. They argue that the best answer is requiring that all ship-generated refuse be kept on board until reaching a dockside waste facility. A prototype system is currently being developed by NOAA in cooperation with the Port of Newport, Oregon. Advocates point out that the Soviet Union has for the last decade required Soviet ships to separate and compact various waste materials pending dockside recycling, and all Soviet ships are equipped with on-board incinerators for the disposal of non- recyclable refuse.



Plastic debris threatens marine mamals.

Another potential solution to the problem of plastic pollution is photodegradability of plastic products. Over ten states require photodegradable plastic six-pack holders and other connecting devices. On June 25, Senator John Chafee (R-RI) introduced the "Plastic Waste Reduction Act of 1986" (S.2596), calling for similar regulations nationwide, and further requiring the Environmental Protection Agency to launch an intensive study on the environmental impact of plastic pollution.

Critics of photodegradability note that little is known about the toxicity of the by-products, or about their effect on the environment. Also, prior to disintegration, nets and other materials will still pose threats to wildlife.

Most environmentalists agree that any solution to marine plastic pollution must integrate a variety of approaches, supplementing the requirements of MARPOL Annex V with land-based policies and technologies (such as recycling), bans on plastic packaging and bio- and photodegradation.

***What You Can Do:** Urge your elected representatives to support the ratification of MARPOL Annex V; support passage of the Plastic Waste Reduction Act (S.2596).

—Joe Keyser

False Fronts

"The Clean Air Act is working!," proclaimed the letter in the Congressman's mail, with the implied message that we don't need any more acid rain legislation. In July members of the House Energy and Commerce Committee received standardized letters like this from constituents opposing the pending acid rain bill, HR 4567. FOE's Political Director David Baker has since discovered the cause: "Citizens for Sensible Control of Acid Rain," a new lobbying group that has no telephone number and gives as its address a Washington public relations firm.

"Citizens" is actually an industry front, receiving the bulk of its funding from several utility companies, including Southern Power Company and American Electric Power Company. It is spending $3 million to lobby citizens in key Congressional districts with mailers and telegrams which state that HR 4567, a compromise bill praised by environmentalists (see May-June *NMA*), is overly expensive and needless. "This is a slick, well-put together campaign by a group who has seen how successful citizens groups have been. They attempt to wield power by manipulating constituents," explains Baker.

Such grassroots lobbying by phony eco-groups appears to be on the rise, reports Debbie Baldwin of Common Cause. "It's a new wrinkle on the lobbying scene which is hard to defend against," she adds. When industry lobbies the populus, it causes real citizens to carry that message to Congress. "And you can't call those citizens fake."

Eco-friendly names have been used to mask natural resource exploitation. FOE water lobbyist David Conrad has discovered that many recent proposals for new dam constructions were made by investor groups associated with Louis Rosenman, formerly a key employee at the Federal Energy Regulatory Commission, which grants such hydro permits. Despite the menace that new dams pose to river ecosystems, Mr. Rosenman's ventures adopted such names as "St. Vrain Environmentalists," "Auburn Naturalists," and "Henry's Fork Conservationists I and II." The latter proposal involves building two new dams in the Targhee National Forest on one of the most world renowned trout streams, the Snake River.

Today's false fronts are particularly troublesome in the area of deposit legislation for recycling beverage containers. According to Jonathan Puth, recycling lobbyist for Environmental Action, opponents of bottle bills (which call for mandatory recycling) use such names as "Coloradoans for Voluntary Recycling," "National Center for Resource Recovery," "Consumer Alert," and "Washington" Committee to Stop Litter." Even the well- known "Keep America Beautiful" is an industry group opposed to bottle bills. The latter's familiar slogan, "People Start Pollution, People Can Stop It," advocates voluntary litter control, and obscures the main point of bottle bills, which is resource recovery and reuse, not disposal. Puth adds that after so much bogus eco-lobbying citizens are easily fooled when voting on state and local iniatives.

Perhaps today's worst threat lies in the health sphere. America is flooded by a steady stream of pro-industry reports and studies churned out by academic or scientific foundations fronting for big business, charges Janet Hathaway of the National Wildlife Federation. "It amounts to laundering money for industry," says Hathaway.

Particularly villainous is the "American Council on Science and Health," (ACSH) which reports favorably on saccharin, the pesticide EDB, cholesterol, and formaldehide building materials. While calling itself an "independent, pro-consumer health organization," ACSH receives major funding from more than 100 corporations and company-controlled foundations who stand to gain from the Council's reports. Jay Feldman of the National Coalition Against the Misuse of Pesticides finds that "real citizens groups must spend time refuting ACSH's disinformation."

***WHAT YOU CAN DO:** To avoid questionable groups, contact them and ask, "Who started the group? Who's on the board and what are their business ties? Ask where the organization gets its funding. If they won't tell you the law requires incorporated groups to place on public file in the state of incorporation lists of board members and sources of major funding.

—John Moore

Thais Protest Radioactive Dump

In the wake of the Bhopal disaster in India, some Third World citizens are questioning the benefits of modern industrial manufacturing plants. Last summer a $44 million metal refinery was set ablaze by the citizens of Phuket Island, one of Thailand's most popular tourist resorts. The citizens feared that the highly toxic chemicals used to extract tantalum from tin wastes might poison the population, pollute the environment and harm the island's thriving tourist industry.

Tantalum is a heat resistant metal used in computers, nuclear reactors and warheads. It is found abundantly in the kind of tin slag produced in Thailand, consisting of around 15 percent of the slag. The Phuket plant would have processed 76 tons of tantalum per year, which would mean almost 500 tons of wastes.

The tantalum ore contains uranium, and the waste emits radon and thoron gases, both of which can cause lung cancer. Levels of radiation at a similar tin slag dump in Penang, Malaysia had radiation levels between 1,600 and 2,200 millirads per year, according to the Consumers Association of Penang. Such levels are four times higher than what the U.S. Environmental Protection Agency considers safe. Residents feared that the wastes would be dumped around the refinery to be washed by rain into Phuket's water sources.

Besides the radiation, residents were worried that the highly corrosive hydrofluoric acid used to separate the tantalum from the tin slag would also pollute the island's water supply. The acid is cancerous and can cause bones to become brittle.

The citizens' actions did not come unexpectedly. The government of Thailand had plenty of warning that the people of Phuket meant business and did not want their land and livelihoods threatened by radioactive and toxic wastes. In the spring, some 70,000 people gathered to protest against the plant outside the town hall where a high-level committee, set up by Thailand's Prime Minister Prem Tinsulanonda, met to discuss the proposed plant. On June 2, another 50,000 residents of Phuket demonstrated against the plant.

—Sahabat Alam Malaysia (FOE-Malaysia)

Polluters to Prison

With the aid of an insider's tip and special night-vision devices, federal Environmental Protection Agency officials caught red-handed the manager of a food plant who was dumping wastes into a river. William Kaser, the manager of a Nabisco plant in Sumner, Wash. was later sent "up the river"—sentenced in September to a year and a day in federal prison. He was also fined $5,000 after he pleaded guilty to conspiracy to violate the federal Clean Water Act and to mail fraud in submitting false reports to the state Department of Ecology.

This case is typical of a national move to prosecute violators of pollution statutes for criminal, as opposed to civil, laws. Criminal cases carry jail terms, civil cases only fines. According to Randy Lutz, EPA's Director of Criminal Enforcement in Washington, D.C., "prosecutions for environmental crimes began on a significant scale three to five years ago, growing every year." It began with New Jersey hiring toxic "strike forces" in 1981. EPA followed New Jersey's lead and by 1984 had acquired 20 investigators with full powers of U.S. Deputy Marshalls.

Jail time is what's needed to send the message to other companies and executives who are polluting the environment "that they should not continue their illegal activities," says Assistant U.S. Attorney David Marshall, who handled the Kaser case in Washington state. Marshall had sought a tougher sentence: 18 months in jail and a $25,000 fine.

Attorneys says there are many advantages to criminal prosecutions. "In criminal trials," stresses Illinois State's Attorney Jay Magnuson, "the state carries a bigger stick. There's a faster trial with more public attention and therefore a greater deterrence factor." In criminal trials the defendant has fewer grounds for delay and dismissal on technical grounds than in civil proceedings. In civil trials a small corporation can escape by claiming bankruptcy, which reduces the government to ordinary creditor status, and allows a polluter to even avoid paying pollution fines. The bankruptcy alternative is not available to criminal defendants.

Nationally, over the past year, of the 66 defendants in federal environmental prosecutions, 14 have been sentenced to a total of over 31 years of jail terms. However, 26 of those years are accounted for by two terms of 13 years each, so the remaining 12 will average less than 6 months apiece in jail. An additional nine people have received probation.

Although the jail terms to date are not impressive, prosecutors feel that they have a high deterrent effect. "A good criminal case is worth 10 administrative fine cases for its deterrence value," says Lutz. Corporations tend to look at monetary penalties as just part of the cost of doing business.

In Chicago, Ill. three top officials of Film Recovery Systems, Inc. were found guilty of murder in June of 1985 in the deaths of immigrant workers (*NMA*, Oct. 1985). The employees had not been warned of the hazards of handling cyanide used in the company's silver recovery processes.

In a similar Illinois case, an officer of Allied Plating Corp. was recently sentenced to three years in prison for ordering a laborer to dispose of hazardous wastes down the drain of a local car wash. Allied had previously utilized toilets and garage drains to dispose of their wastes. The corporation was also convicted on criminal charges and fined $600,000, in addition to the jail term.

Lutz predicts that the number of criminal convictions will continue to grow. "Almost all clandestine dumping and abandonment of drums involves criminal intent. It's just a matter of finding out who did it, which is getting easier as we gain experience investigating environmental crimes."

—Mark Nelson and John Moore

When chemicals are dumped illegally, toxic "strike forces" now aim to jail polluters, not just fine them.

F-30

New York Passes Environmental Bond Issue

This November New York voters have the opportunity to pass the largest environmental bond offering specifically for cleaning up hazardous wastes ever issued in the United States. A total of $1.2 billion out of $1.45 billion will be used to clean up the estimated 500 hazardous waste sites in the state and to help close municipal landfills. The remaining $250 million will be used for preserving forest lands, acquiring environmentally important lands, and aiding historic preservation.

Introduced at the request of Governor Mario Cuomo, the bill was passed by both state houses earlier this year and will be on the November 4 ballot for ratification by the voters. Environmentalist support the bill and expect it to pass.

Besides the size of New York's bond issue, what makes it important is that industry will be responsible for financing 50 percent of the debt service on the bonds. The industry money will come from an increase in the state tax on petroleum and petroleum products and an increase in chemical industry fees.

"Bonds allow you to raise a lot of money fairly quickly," said Elizabeth Lyons of the Environmental Planning Lobby, a New York environmental group. Lyons said that raising the equivalent amount through existing taxes would take between 30 and 40 years. "But these sites need to be cleaned up as soon as possible," she added. "Agencies will be able to count on receiving a specific amount of money each year and they can plan for an orderly cleanup."

Toxic waste drums are piling up faster than states can clean them up.

Although California and New Jersey issued bonds a few years ago to specifically clean up hazardous waste sites, New York's proposal dwarfs the approximately $100 million programs that these states have. In fact, the New Jersey Assembly recognized the limits to the present program and passed an additional $200 million toxic waste bond offering bill which will also be on the November ballot.

Many other states have tried to finance hazardous waste cleanup programs by instituting "waste-end" taxes on materials being deposited at dumps. "Usually these fees are very inadequate for raising the amount of money states will need," said Will Collette of the Citizens Clearing House for Hazardous Wastes, a group which represents communities living around chemical waste dumps. Sue Moreland, of the Association for State and Territorial Solid Waste Managers, believes that bond offerings are probably the wave of the future. "The waste-end taxes have shown that they can't raise the necessary money, and more states will probably move in the direction of New York, California and New Jersey."

The bond issue is part of the state's 13 year, $4 billion clean- up program for hazardous waste sites. In addition to the $1.45 billion raised by the bonds, the state expects to recover $2 billion directly from those responsible for creating the hazardous waste dumps, and approximately $800 million from the federal government's Superfund program.

—Mark Silberman

EPA Bans Pesticide Dinoseb

Dinoseb was used as an herbicide, fungicide, or insecticide on such major crops as soybeans, potatoes, cotton, and peanuts no more.

Responding to studies showing that the pesticide dinoseb causes birth defects in lab animals at low levels of exposure, the Environmental Protection Agency (EPA) on October 7 issued an emergency suspension, putting an immediate halt to the chemical's sale, distribution and use.

The toxicity studies, done by industry, show that dinoseb can cause neurological damage and skeletal malformations. Furthermore, EPA documents show that dinoseb or its metabolites can cause both reversible and irreversible sterility in male rats and mice, as well as cancer, immunotoxicity, and eye damage (cataracts). It has been found in the ground water of California, Wisconsin, Maine, Massachusetts, and New York.

This is only the third time that EPA has issued an emergency suspension for a pesticide (2,4,5-T in 1979 and EDB in 1984). The EPA action is important in light of the fact that most reported "bans" of pesticides (through the "cancellation" process) actually allow the product to remain on the market and in use for years if industry challenges EPA's action.

Under an emergency suspension, however, the use, sale, and distribution of the pesticide are immediately prohibited and remain so while industry challenges are adjudicated.

In reponse to an August EPA warning that it was considering taking strong action on dinoseb, Rhode Island on September 18 banned dinoseb and California prohibited women of childbearing age to mix, load or apply the chemical.

Numerous groups, including The National Coalition Against the Misuse of Pesticides and the United Farm Workers have called for an international ban on dinoseb and the other dinitrophenyl compounds.

—Sandra Marquardt
National Coalition Against the Misuse of Pesticides

The Mississippi:
That Old Dammed River

By Don Pierce

As Mark Twain surveyed the "improvements" to the Mississippi River carried out by the Army Corps of Engineers after the Civil War, he commented: "The military engineers . . . have taken upon their shoulders the job of making the river over again—a job transcended in size only by the original job of creating it."

Since the mid-Nineteenth Century the Corps has transformed the Upper Mississippi (the stretch of the river north from the mouth of the Ohio River) into a "staircase" of lakes impounded between 26 dams and locks. The engineers have lined the banks with levees and built over 800 wing dikes designed to narrow and deepen the navigation channel by trapping sediment. With missionary zeal the Corps has destroyed critical fish and wildlife habitat and reduced the river to a narrow sluiceway whose sole function is to facilitate the safe passage of barges.

Paradoxically, however, now that the river has been "tamed," the Twain quote is applicable again; but this time for the opposite reason. Now, if environmentalists have their way, the Army Corps of Engineers will be forced to restore the wildlife habitat that its activities destroyed.

According to the U.S. Fish and Wildlife Service (FWS), the Upper Mississippi River is one of four major flyways for migratory birds, and provides important habitat for over 300 species. It is home to over 150 species of fish and 50 species of mussels, plus muskrat, beaver and other animals. A number of endangered or threatened species, such as bald eagles, rely on the river for feeding and breeding habitat.

Environmentalists are worried that the whole ecosystem of the river may be at a critical juncture, where the effects of past changes to the river environment are beginning to be felt, with drastic consequences for animal and fish populations.

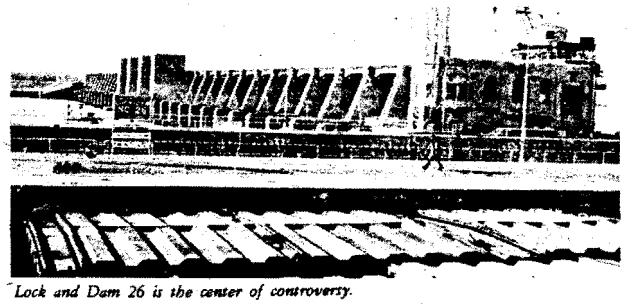
One example of the impact of the Corps' activities on wildlife populations is the canvasback duck. In 1969 a million canvasback ducks were counted in one day on a stretch of the river near La Crosse, Wis. Now you can count only half as many. Environmentalists point to other rivers where Corps' management has decimated commercial fish populations. According to the FWS, the commercial fish catch on the nearby Illinois River, which has more barge traffic than the Upper Mississippi, has plummeted from 42.7 kilograms per hectare to only 4.1 kilograms per hectare. The FWS blames barge traffic for the decline.

This year was the first year in a ten year effort to restore wildlife and fish habitat along the Upper Mississippi River. The Upper Mississippi River System Environmental Management Program (EMP) was part of the 1985 Supplemental Appropriations Bill which provided funds for the Corps of Engineers to construct a 600 foot lock adjacent to the 1200 foot lock at Alton, Illinois. According to the legislation, these two projects are to be given equal funding.

The EMP is implemented by the Corps of Engineers and the U.S. Fish and Wildlife Service and has five components: habitat rehabilitation, long-term resource monitoring, recreation projects and navigation traffic monitoring. Most of the money, $177 out of $180 million, will be spent on habitat restoration projects and resource monitoring.

Discouraged by the slow pace in the first year of the program, environmentalists are worried that the Corps is backtracking on its commitment to the EMP, and, they are dismayed by the fact that the FWS only recently hired the person who will oversee the project. The Corps has initiated only two restoration projects—although it spent around $900,000 in 1986. "As far as I can see, they haven't done a whole lot," said Paul Hansen of the Izaak Walton League. According to Al Behm of the Corps, the program is "just in the start up stage. How many projects are we planning on doing? It all depends on how much money we want to spend on each one."

The EMP is designed to preserve and enhance backwater areas. The goal of rehabilitation projects would be to increase the depth of backwater areas, some of which are presently around one foot deep, to between four and six feet. In some areas dikes and levees would be built to keep silt laden water out of important backwater habitat areas. Such levees would also provide protection from waves and turbulence created by wind and towboat wash. Islands would be constructed to decrease wind and wave erosion, and to give large open water a more calm, backwater state.



Lock and Dam 26 is the center of controversy.

Although for most species the data base is thin, scientists do know that Corps' projects can create conditions harmful to fish and wildlife. Backwater habitat areas, the areas to the side of the main navigation channel, are being filled in by sediment—most of which results from erosion-prone upland farming practices—at a rate of one-half to over two inches a year. Unless changes are made in the way the river is managed and the land is farmed, much of this important habitat will become marsh in the next 50 to 100 years. Sedimentation creates a soft bottom substrate that is unsuitable for root emergent and submergent plants. Such plants are one of the foundations of the riverine ecosystem.

Important shoreline habitat is destroyed by levees designed to prevent flooding, fluctuating river levels due to dam releases, and by wave action from heavy barge traffic. Increased turbidity levels—caused by dredging, the passage of towboats, and increased erosion upriver—block out light and lower the level of dissolved oxygen, both of which are detrimental to fish and plants. Shoreline animals such as muskrat and beaver suffer from flooding of denning habitat and reduced water quality.

Scientists have a very poor understanding of the fish and wildlife populations dependent on the Upper Mississippi. The Long-Term Resource Monitoring Program is a vital component of the EMP. The two main research areas to be addressed by the monitoring program will be the environmental impacts caused by sedimentation and the increased levels of navigation.

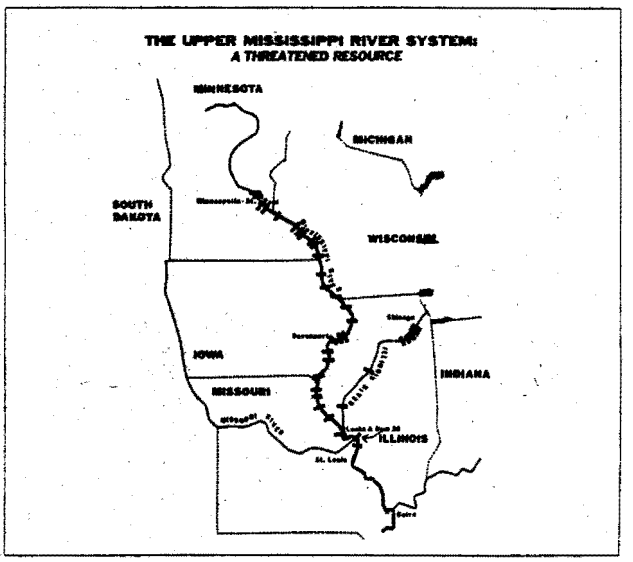
The EMP was the product of years of negotiation and lawsuits around the conflicts between increased navigation and the need to protect the fish and wildlife of the river. In 1974 the Corps planned to quadruple the capacity of Lock and Dam 26 at Alton, Ill., but the Izaak Walton League sued and won, arguing that the Corps had not considered the environmental impacts of lock expansion. Because Alton is just below the point where the Mississippi and Illinois rivers come together, it is a strategic point for those who would increase or decrease barge traffic on the river.

With the Inlands Waterway Act of 1978, a congressional compromise was reached allowing the Corps to build one 1,200 foot lock at Alton, but required that a comprehensive master plan for the Upper Mississippi River system would have to be approved before a second lock could be built. The master plan was completed in 1981 but has never been authorized by Congress. Authorization for the master plan is in the Omnibus Rivers Resources Bill, which has passed both houses of Congress and is in a conference committee.

In 1985 the Congress did an end run around the 1978 law and authorized the second lock along with the environmental management plan taken from the recommendations in the unpassed master plan. Stipulations were included requiring that the EMP and the second lock receive equal funding.

But, for 1987, the Corps has budgeted around $4 million for construction of the second lock and only $2 million for the EMP. The master plan, as authorized in the Omibus Bill recommends $4 million for the EMP in 1987.

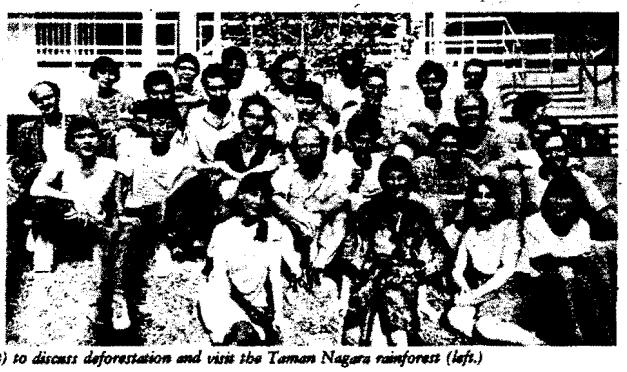
Construction on the second lock should not be allowed to continue on the Upper Mississippi until the Corps has aggressively implemented, and Congress has equally funded, a comprehensive EMP. Unless such a plan is implemented fish and wildlife populations will probably be decimated. The FWS has estimated that the costs of mitigating the probable environmental consequences of building the second lock at Alton could be "$29-75 million or more annually." The FWS states in their "Draft Fish and Wildlife Coordination Act Report" on the second lock at Alton (released in June), that without a "strong commitment" from the Corps "we can only conclude that the impacts of any increases in navigation traffic will not be adequately mitigated and balanced use of this nationally significant multipurpose resource will not be achieved."



WHAT YOU CAN DO: Write to your Senators and Representatives and urge their support for the Upper Mississippi River System Environmental Management Program in the Omnibus Rivers Resources Bill. Remind them that both the EMP and the second lock should be equally funded.

Don Pierce is FOE's Midwest Representative

FOE International Meets in Malaysia



Delegates came from around the world (right) to discuss deforestation and visit the Taman Nagara rainforest (left.)

Brower Bids Adieu

David Brower has resigned from both the FOE and FEF boards. One of the founders of Friends of the Earth, and its first chief executive, Brower announced last March his intention to resign if he lost the recall vote in the April FOE elections. He submitted his letters of resignation in September.

"I'm sorry that Dave feels he cannot work with the board," said FOE Chair Daniel Luten. "FOE has entered a new and exciting phase, and Dave's energy and ideas would have been valued. I think I can speak for all members of both the FOE and FEF boards in wishing him well."

Delegates from Friends of the Earth groups around the world met this fall in Penang, Malaysia to discuss environmental issues and compare notes from the various FOE countries. In addition to the hosts, Sahabat Alam Malaysia (FOE-Malaysia), other countries represented included Belgium, Australia, Japan, Holland, Spain, Canada, Brazil, Hong Kong, Portugal, England, Sweden, Italy, France, Scotland, and the United States.

The conference followed a three day meeting on the crisis of tropical deforestation. Malaysia and other parts of southeast Asia are home to some of the oldest (100 million years), densest, and tallest tropical rainforest in the world. Several FOE leaders stayed after the conference to visit the jungle on a four-day exploratory trip to Taman Nagara, a Malaysian national park.

International timber trade in tropical woods, short-term agricultural ventures (including cattle ranching for beef exports), large dambuilding and massive population resettlement projects cumulatively pose a massive assualt upon the world's remaining rainforests.

Other topics of high priority to FOE groups were an international acid rain campaign and discussion of the year's biggest environmental event, the Soviet nuclear reactor accident at Chernobyl.

Because acid rain, air pollution and the carbon dioxide buildup problem are truly international issues, Friends of the Earth International has made acid rain a top campaign priority. Several European groups reported success in organizing Acid Rain Week activities last spring, but since they appeared to be limited to Europe and Hong Kong, with no major actions in the U.S. or Canada, the campaign has not yet been able to claim global publicity.

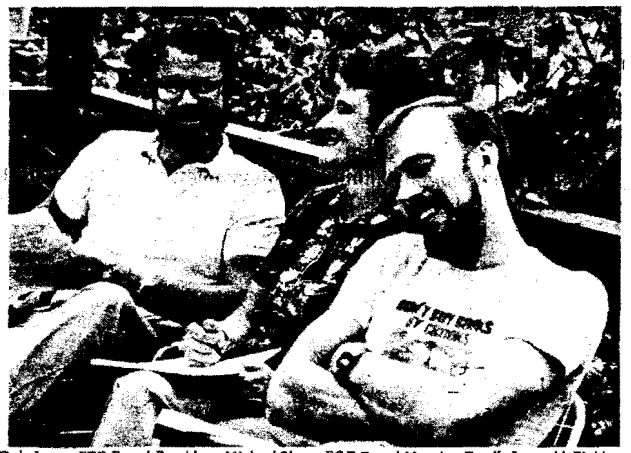
Chernobyl, on the other hand, produced an avalanche of press attention and public outcry. The European groups in particular have benefited from an outpouring of public outrage and concern. Since Friends of the Earth has been warning of the dangers of nuclear power for years, it has been well-positioned to take a high profile on the issue.

With these and other environmental dangers escalating worldwide, the FOE delegates agreed on the imperative to improve joint communication and to work together in campaigns. In the coming year, FOEI will attempt to expand its campaigns on acid rain and tropical rainforests and bring member groups together for a special memorial observance on the anniversary of the Chernobyl catastrophe.

FOE-US Conservation Director Geoff Webb joined five others in being elected to the FOEI Executive Committee. On behalf of FOE-US he pledged to increase cooperation and activity with the international network, including FOE-US involvement with the international acid rain campaign, joint planning for a Chernobyl commemoration, publicity for the tropical rainforest issue and coverage of the activities of FOE groups around the world in the pages of *Not Man Apart*.

F-31

In the Shadow of the Shenandoahs



Clockwise from top left: Senior staffer Dale Jones, FEF Board President Michael Slater, FOE Board Member Estella Leopold, Field Representative David Ortman and Political Director David Baker. Photographs by Geoff Webb.

"This is not a retreat, it's an advance," bugled FOE Chairman Dan Luten. In the shadow of the Shenadoah Mountains staff and board members gathered in an old Virginia farmhouse to help launch a new beginning for FOE. They came from all across the country—California, Washington, Kansas, Massachusetts, New York, Lousiana, and Washington, D.C.—to welcome new Executive Director Cynthia Wilson to the helm of Friends of the Earth.

Conservation staff reported on recent events as well as accomplishments of the past year. In 1986 FOE played a vital role in trying to prevent weakening of the new pesticide control bill, and rewriting the Federal Power Act with drastically improved protections for fish and wildlife habitat, which had finally passed. FOE staff had played pivotal roles in battles to abolish the Synthetic Fuels Corporation and protect U.S. coastlines from wholesale oil leasing. Our clean water lawsuits against polluters were proving very successful, as was our involvement in the passage of the Safe Drinking Water Act. In these and other efforts, FOE's field staff and lobbyists worked together to achieve results.

The administrative and financial situation, always a staple of such meetings, was reviewed. FOE has overhauled its administrative department, bringing on Wilson as Executive Director and Pat Antonisse, formerly of the Youth Project, as Controller. Both spoke of the need to save money and to fundraise, in order to bring FOE into a new era of financial accountability.

Just back from Malaysia, Geoff Webb reported on the FOE International meeting and his trip to the Taman Nagara rainforest. He said that FOE International campaigns would be given a considerable boost if FOE-US decides to get involved. The group agreed to give priority to developing joint actions with FOEI on issues such as acid rain and nuclear power (see accompanying article).

Building on FOE's history of leadership in water policy and rivers protection, Michael Rosotto of the Northwest Office and David Conrad from Washington, DC reported on ways they are working to help revolutionize traditional methods of river protection.

According to Rossotto, 1987 promises to be a big year for the Northwest Rivers Project. Their approach is beginning to generate grassroots excitement in Washington, Oregon, Idaho, and Montana, where river-by-river protection could be accelerated through a pioneering regional review and broad scale protection process.

Spirits were high and a feeling of optimism pervaded the weekend. Cynthia Wilson epitomized this attitude. Around her neck she wore a necklace that said, "Coyotes Can Win." "Despite all that humans have done, the coyote has survived and, in fact, is increasing its range," she remarked. "With hard work and dedication, I'm convinced that FOE's future is also very bright."

—Mark Silberman

U.S. Stalls International Treaty

Locking Horns Over Caribou

By Margie Gibson and Mike Holloway

At the peak of the last Ice Age, some 18,000 years ago, much of interior and northern Alaska and a small part of the adjacent Canadian interior were not covered by ice, although a huge ice sheet lay to the east. During this time large mammals flourished in northern Alaska, which was connected to what is now Asia by a land "bridge." Rangifer tarandus, known as caribou on this continent and reindeer in Europe, were well suited to the conditions that existed.

Today the 180,000 caribou of the Porcupine herd, named for a tributary of the Yukon River within their range, continue to thrive as they have for thousands of years. But the survival of these caribou—and the culture of the indigenous peoples that depend on this herd—is threatened by mounting pressures to extract oil that may lie under the herd's calving grounds.

At the same time, Native peoples in northeastern Alaska have helped convince the State of Alaska to support an international agreement with Canada for protecting caribou habitat. But while that agreement is now under consideration by the U.S. State Department, the State of Alaska and the U.S. Fish and Wildlife Service in Washington, D.C. now are actively negotiating whether or not to retain strong provisions for habitat protection.

On another front, 15 million acres of the Arctic National Refuge, which includes parts of the caribou's coastal calving grounds, would be protected in a wilderness bill that has recently been introduced in Congress.

The Native peoples of northeastern Alaska have long been politically active in trying to protect the habitat of the Porcupine caribou herd in Canada and Alaska. These efforts have also involved wildlife biologists, governments, and environmentalists on both sides of the border.

During the debate over the Alaska National Interest Lands Conservation Act (ANILCA), passed in 1980, expanding and protecting the wilderness of the entire Arctic National Wildlife Refuge (ANWR) became a hotly contested issue. That refuge contains the calving grounds for the migrating caribou herd (see map). But issues raised in that debate remain unresolved today.

Back in 1980, Native leaders in northeastern Alaska were satisfied with extension of the refuge but weren't very involved in the politics until a House committee passed their version of the bill in March 1978. Suddenly the coastal plain of the Arctic Refuge was opened to oil and gas exploration and development. The area of the coastal plain within the refuge is part of the calving grounds of the Porcupine caribou herd.

Local Native people unanimously felt that oil development in the calving grounds, because of the complicated and fragile life cycle of the herd (see sidebar) would likely lead to the demise of a healthy Porcupine caribou herd. Although caribou will practically walk through villages and camps while migrating, cows and calves are easily disturbed by activity during the calves' first months of life.

Although villagers and environmentalists opposed it, and the Canadian Cabinet withdrew Canadian lands lying adjacent to the refuge in 1978, ANILCA (section 1002) mandated oil exploration in the coastal plain of ANWR, subject to a report made to Congress. That report, due in September 1986, was postponed until the spring of 1987 after a successful lawsuit brought by Defenders of Wildlife and others charged that the Fish and Wildlife Service didn't allow public participation in the writing of the report. When the long-awaited report is released, Congress will make the decision for protection or development.

At the same time that Native peoples became involved in the politics of ANILCA in the spring of 1978, the Gwichen and Inuit peoples began renewing old efforts for international protection. Family and political ties were renewed and strengthened across the border. Important relationships with national, Alaskan, and Canadian environmental groups were begun.

Discussions of an "International Convention for the Conservation of Migratory Caribou" reached top levels of governments in the United States and Canada in short order. By 1981, however, the political climate had changed, and then-Secretary of the Interior James Watt brought an end to the process.

Village interest, however, continued on both sides of the border. In December 1982 Inuit and Athabaskan representatives from both countries formally created the International Porcupine Caribou Commission (IPCC). The IPCC gradually helped build support in Alaska for a caribou treaty, and in June 1984 Alaska Governor Bill Sheffield announced formation of a State Working Group on the Porcupine Caribou Herd. Representing local Native peoples, recreational hunters, and environmentalists, the group worked with representatives from the Alaska Department of Fish and Game to arrive at a consensus position.

After many meetings, the State of Alaska came out in favor of international protection of the Porcupine herd. In March 1986 the Governor approved the "State Negotiating Position for a United States-Canada Porcupine Caribou Herd Agreement."

Alaska's position included strong support for habitat protection and subsistence use, along with future bilateral discussions on designation of an international arctic wildlife range. The habitat protection provisions would ensure the best possible protection for Porcupine caribou and their habitat if any development activities are ever permitted. It would require the best available technology, mitigating measures, and methods of operation, along with rehabilitation of disturbed areas. Activities would be scheduled so the seasonal patterns of the Porcupine Herd would not be interrupted.

Alaska fears that federal officials won't push for strong protection of caribou.

Since the spring, however, the State of Alaska's position has been under review by the U.S. Fish and Wildlife Service (USF&WS). The USF&WS has in turn produced its own "Proposed Principles to Serve as a U.S. Negotiating Position for the U.S.-Canada Porcupine Caribou Herd Agreement." The draft principles produced by the USF&WS Alaska Region included much of the state's position as a result of joint efforts to resolve major differences. But much substance has been lost following revisions by the Department of the Interior in Washington, D.C.

In the new federal position, the Interior Department eliminates a provision agreeing to "avoid where possible, activities which may significantly impede, delay, or disrupt the migration or other essential behavior patterns of the PCH [Porcupine Caribou Herd]."

Other references to habitat protection, or even identification of sensitive habitat, have been removed, including requiring the use of the best available technology, mitigating measures, and methods of operation during development activities. A priority for subsistence use and bilateral discussions on designation of an international arctic range are also missing. The resulting position has few protections left for preserving Porcupine caribou or the people dependent on them.

At press time, the state was very concerned that the U.S. Fish and Wildlife Service would not back off on its intention to remove habitat protections. A letter from Bill Horn, the Assistant Secretary of the Interior, to the governor delivered a veiled bureaucratic threat: "Any insistence that our negotiating position contain items inconsistent with established laws or policies . . . will only prevent the initiation of talks and, in turn, place at risk the dependency of rural Alaskan residents of the herd." Yet the state hasn't proposed anything inconsistent with established law. It's ironic that the USF&WS would suggest that habitat protection is not within their policy.

In an informal meeting last December, Canadian officials expressed their willing-

drawings by margie ann gibson

My Gwichen grandmother

The caribou and the indigenous peoples of Alaska and Canada have an ancient relationship. Archeological finds in the Old Crow Flats in the Yukon Territory have pushed back the date of the earliest known human presence. Among the articles recovered from the permafrost were tools made from the leg bones of caribou. One of these is fashioned to scrape flesh from animal skins. It is dated at between 25,000 and 29,000 years old.

This skin scraper is almost identical to that used by my Alaska Gwichen vitsuu (grandmother), Sarah Frank. Last summer, between 103 and 109 years old and unable to continue tanning moose and caribou skins, she gave me this prized tool. If this skin scraper was perfected 25,000 years ago, how long had it been used before that? How long had the interaction between Gwichen and caribou existed?

—*M.H.*

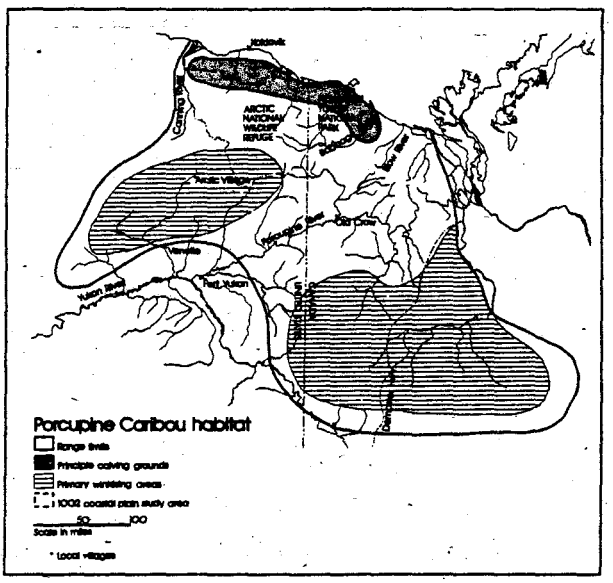
ness to negotiate immediately with representatives from the Alaska State Porcupine Caribou Herd Working Group, the Alaska Department of Fish and Game, and the U.S. Fish and Wildlife Service Alaska Region. Although additional informal technical meetings have occurred since then, Canada is waiting for the U.S. position to be finalized so formal negotiations can begin. So far, the position of the U.S. Fish and Wildlife Service in Washington remains the largest obstacle to establishing strong protections for caribou.

In Canada, there has been steady progress for wilderness protection. A proposed oil port at Stokes Point in the Yukon Territory was defeated, partially through efforts by Friends of the Earth. And in the summer of 1985, after the Canadian government concluded a long sought settlement with the Inuvialuit Committee for Original Peoples Entitlement (COPE), a Wilderness Park was created in the coastal plain of the north-

The Cycle of the Caribou

The Porcupine Caribou Herd is the symbol—and essence—of Arctic wilderness. It is one of the largest and healthiest of the remaining great animal herds on the North American continent. Land that is the home of these caribou represents some of the finest wilderness in the world. This is also the home of polar and grizzly bears, musk ox, Dall sheep, wolves, and moose. Thousands of ducks, swans, and loons seasonally share the coastal plain with the caribou herd. This burst of summer life has been decribed as the "Arctic Serengeti." In the fall, migrations of hundreds of thousands of snow geese are as vivid as the first sprinkle of snow on the Arctic tundra.

The Porcupine caribou (named for the Porcupine River) [illegible] onstantly in [illegible]erd occupies [illegible]quare miles [illegible]rent areas in [illegible]ar. In winter [illegible]—high in [illegible]ind summer [illegible]ows, sedges, [illegible]Large hoofs [illegible] and snow. [illegible]red hollow [illegible]vere cold. [illegible]the move- [illegible]t thousands [illegible] collected at [illegible] Mountains, [illegible]n of Canada [illegible]arly migra- [illegible]i the Porcu- [illegible]reas to the [illegible]grounds on [illegible]undreds of [illegible] the caribou [illegible]edge of the [illegible]nd to avoid [illegible]recede the [illegible] the Yukon [illegible]rd Alaska,



joined by other bands along the way—many of which winter in Alaska.

In May the caribou begin to give birth. The calving grounds along the coastal plain are among the first snow-free areas, providing the caribou with new plant growth as well as escape from predators, which come large and small. By the time they get to the plain, usually the wolves have stopped following the caribou in the hills. The winds on the coastal plain provide relief from millions of smaller predators—mosquitoes and flies, which are capable of killing young calves.

After calving, and resting along the coast and storing fat, the caribou again flow together in large post-calving groups or "aggregates," as biologists refer to them, and begin their migrations southward.

By early August large groups begin breaking up and dispersing. In fall they continue south, with major migrations crossing the Porcupine, Driftwood, and Blow rivers. In March the cycle begins anew, as females begin the 400 mile journey to the coast.

—*M.G.*

F-32

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• Groundwater—
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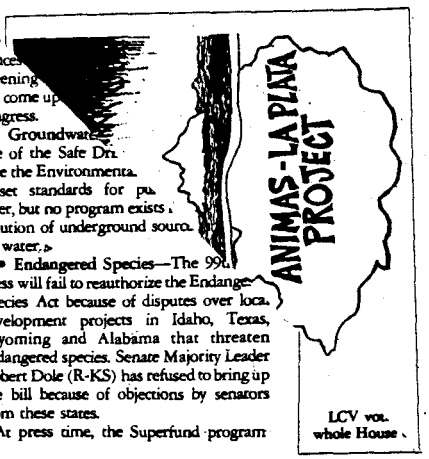
• Endangered Species—The 99t
gress will fail to reauthorize the Endange
Species Act because of disputes over loca
development projects in Idaho, Texas,
Wyoming and Alabama that threaten
endangered species. Senate Majority Leader
Robert Dole (R-KS) has refused to bring up
the bill because of objections by senators
from these states.

At press time, the Superfund program



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Sundown for Western Water

Is the end in sight for large dam projects?

by Jennifer Price

Daniel Webster once asked, "What do we want with this vast worthless area—this region of savages and wild beasts, of deserts of shifting sands and whirlwinds of dust, of cactus and prairie dogs?" He was speaking of the great desolate frontier that Congress opened up to pioneers in the latter 19th century, with laws to promote settlement of the West.

In 1902 the U.S. Reclamation Service (now known as the Bureau of Reclamation) was created to make available and manage the most scarce, critical resource—water—and to "make the desert bloom." First it built small dams, to divert water for irrigation. Then, under the New Deal, it built the largest dams ever— first Hoover, then Grand Coulee, Shasta, and Bonneville, across the "untamable" rivers of the Colorado and Columbia—later thousands more, five dozen on the Missouri River system alone. The West as we know it grew by wrapping itself around these huge water faucets.

Since the 1960s, however, the Bureau has faced criticism by environmentalists and economists alike, who argue that its initial mission of developing the West has been largely fulfilled and question whether many new agricultural projects are justified. President Jimmy Carter's "hit list" of western water projects began the trend toward fiscal conservatism. The Reagan administration has affirmed that policy. Yet the story of water projects is a story of entrenched interests—and one project, the controversial Animas-La Plata project in southwestern Colorado, is managing to stay afloat despite the sinking fortunes of most other federal water projects.

Up a gravel road, through a dry brushy canyon a few miles south of Durango, Colorado, lies a broad valley banked by a high long ridge. The Bureau of Reclamation wants to flood this valley for the proposed Animas-La Plata reservoir and irrigation system, which would criss- cross more than 67,000 acres of land with hundreds of miles of irrigation channels, across Colorado and New Mexico, serving an area 50 miles square.

Mention the Animas-La Plata around Durango and you may uncover emotions as intense as those roiled by Glen Canyon Dam in the 1950s, a project larger and more destructive. Those who want the dam say it would stimulate the farm economy and the business of the region. Critics, however, claim that the Animas-La Plata project would bankrupt farmers, saddle the town with huge costs for water they don't need and generate environmental problems in the process. The project, which still awaits Congressional approval and funding has divided farmers and businesspeople, Native American tribes and environmentalists.

First conceived in 1904, the Animas-La Plata was one of the very first Bureau of Reclamation projects. If it does succeed in getting funding, it may also be one of the last. No major funding for federal water projects passed through Congress between the years 1972 and 1982. Most recently the Reagan Administration has cut budgets further and required cost-sharing by state and local recipients. And now, during the last year, many farmers—the original beneficiaries of the projects—have begun to complain that they cannot afford Reclamation water.

Whether or not Animas-La Plata succeeds or fails will measure the strength of the Bureau's rationales for their whale-sized projects versus the new economic critique water projects face. This valley offers a close-up look at how the Bureau, known not so affectionately as "Bu Rec," builds water projects people love and hate, why it is faltering, and whether it will manage to keep damming.

One Wet, One Dry

The Animas and La Plata rivers, tributaries of the Colorado, rush south into the high mesa country around Durango and Cortez, then meander south into the New Mexico shrub desert. The rivers run roughly parallel, about 15 miles apart. The Animas runs abundantly all the way, but the La Plata, which begins much farther south, dries up in midsummer, unable to meet the demand for water from nearby towns. That is the problem.

The U.S. Reclamation Service first noticed this problem in 1904, when it began drafting a plan to route Animas River water into the La Plata channel. Although the project was originally slated to provide water for irrigation, today, 80 years later, it is planned to supply water for recreation, to provide city and industry water supplies, and, (perhaps most important for its approval), to satisfy claims for water rights by Native American tribes.

Bu Rec proposes diverting the water in two, large stages. In the first, a 13-pump pumping plant, just south of Durango, would lift Animas water up 525 feet through a 2-mile conduit to create a 2270-acre lake—Ridges Basin Reservoir—plugged by a dam 313 feet high. In the second stage, a second pumping plant at the reservoir would lift the water another 330 feet, straight through a ridge three miles by tunnel and out into a 20-mile canal that crosses the La Plata. Five more pumping plants, a second reservoir, two more dams, two 3-mile canals, and 200 miles of lateral ditches would provide irrigation water. Because of concerns about its cost, the project was split in two, but Phase 2, which is not federally funded, may never be built. The $516 million project would send two pipelines to Durango, one directly to the town and the other to the reservoir, as well as pipelines to the downstream New Mexico towns of Farmington, Aztec, and Bloomfield.

But the most crucial component of the project is that it would settle claims for water rights by two Native American tribes—the Ute Mountain Utes and the Southern Utes—by providing them with irrigation, municipal, and industrial water. Yet, as critics point out, if Phase 2 is never built, the water will remain stored 30 miles away from their reservations—usable only for sale, to coal companies, for example.

The Animas-La Plata project is likely to come up for funding next year now that the states and federal government have come up with a cost-sharing plan. The issue now is over Indian water rights and whether or not the states will agree to let the Indian tribes export the water out of state. The Indian tribes would like to use the water to develop their coal reserves.

But the project could still fail if it loses its local support. Even after other agreements are reached, voters in the district will have to decide whether or not to agree to the contract which sets the terms for repaying construction and operations for the project—the cost of each acre/foot of water. And farmers are beginning to balk at its costs.

The economics of irrigation today is "kind of scary," says dryland farmer Bob Taylor.

The Animas La Plata stays afloat while most other projects sink.

The Water Barons

Local boosters of the dam think it is worth the expense. For Frank "Sam" Maynes, a lawyer in Durango and perhaps the most outspoken local proponent, money is no object. "Cost is a relative term," says Maynes. "Compared to what? Compared to foreign aid? To Star Wars? ... I like water projects, some big city legislators like welfare programs ... everybody's got that type of thing."

pporters believe that the region faces us water supply problems and that the ct would solve them in one, neat pack- Maynes feels the Indian settlement is nost crucial component. "If the Indians gone to court," he says, "they may well ended up with a water right which d have taken away the water from peo- who had used the water for over 80 ." Maynes' interest in the Indians is not rising. His firm specializes in Indian water law and represents both the nas-La Plata Water Conservancy Dis- and the Southern Utes.

nother supporter is John Murphy, pres- of the water district, who grew up on "Dryside," the dry plateau land along a Plata River. When Murphy returned the Army in the 1940s, he decided he not want to "gamble with the uncer- y of the water supply." Rather than ning to the farm, he went to work for Plata Electric, where he became man- Now retired, he refers to project oppo- s as "negative thinkers."

urphy defends the enormous size of the ct for one reason— storage, a concept h serves as a kind of refrain when he about Animas-La Plata. "You'd have big storage project out there you can call or water. You can't beat it."

ther proponents support the project more skepticism. Bob Taylor, a La a farmer, says that the project "isn't the solution. But it's the only one. If the tion becomes, why don't they go to an native, they'd have to go back to ground They would've lost millions of dollars. I'm afraid if they started over, we'd not anything."

et a growing number of critics say there easible alternatives, such as expanding ing supplies and relying on dryland ing and conservation. The Taxpayers the Animas-La Plata Referendum R), a group with about 15 active bers which claims hundreds of suppor- charges that the costly federal water prove unnecessary and unaffordable, that inevitable inflation will drive costs higher than projected. TAR agrees Durango will require more water in the e than its existing facilities can provide, not nearly the quantity that Bu Rec ns it will need. TAR believes that ango will incur huge costs for electricity ump water uphill, where much of it will nused.

The Bureau totally blew it on the popula- estimates [for water demand]," says Matis, local chair of TAR. An ex- olteacher and now a cabinetmaker, is first joined TAR in 1979 because of ironmental concerns—principally the ity and heavy metals contamination would be increased because of the pro- He says, however, that as he learned e, the larger issue became the poor eco- ics of the project. TAR argues that it is ppropriate for the water district, which ot elected by taxpayers but is staffed by ointed officials, to ask citizens to foot the for a project they planned (see story page).

wo independent engineering studies, missioned by the city, concluded that ango could gradually expand its facili- to meet future needs, far more cheaply n participation in the project. Further, s TAR, water conservation has been

Continued on page 12

Courtesy of Durango Herald

TAR: A Tempest and a Tea Party

By Connie Albrecht

One stormy, snowy evening in January 1979 a group of residents gathered in Durango, Colo., a small city at the foot of the San Juan Mountains.

A local water conservancy district was about to be formed, which would have, among other powers, the power to levy property taxes to build the Animas-La Plata irrigation project. The fledgling group thought they would nip this plan in the bud by spending a few days circulating counter-petitions in the community.

"We were so naive," recalls Jean McCulloch, one of the original members and its present coordinator, whose home resembles a regional switchboard, political boarding house and activist library all rolled into one. "And here we are seven years later still fighting this dam! And we've met every Tuesday evening all these years except when we were in Washington, D.C. lobbying against it."

They call themselves TAR and it's an appropriate name, since no citizens' group has stuck to their task more persistently than the collection of folks in southwest Colorado that make up "Taxpayers for the Animas-La Plata Referendum." No other group in history has attempted a frontal assault on the cornerstone of the state's water establishment—the undemocratic formation and operations of non- elected water districts. In their quest to defeat the powerful water development interests, they've used the organizing tactics best formulated by famed community organizer Saul Alinsky.

Carrying out Alinsky's dictum that "Ridicule is man's most potent weapon," TAR staged a Boston tea party in December 1985 to protest the water district's "taxation without representation." Dropping boxes of tea into the Animas River, they decried the appointed boards and their lack of "accountability." And they raised the hackles of the opposition in the process. "That's part of their ongoing cheap propaganda," the director of the water district was reputed to say. "I bet it wasn't even tea."

Nothing is more galling to TAR members than that they are being taxed by non-elected districts, which, in turn, hire a legion of water attorneys, engineers, and developers to promote projects of questionable value. "These water districts have taxation and condemnation powers," says Jean McCulloch, "but their boards of directors are appointed by local judges and county officials. Of course they appoint more good ol' boys who persist in lobbying the federal government to build more dams to supposedly keep California from taking our water."

When TAR lost their try at forcing a referendum vote to prevent the Animas-LaPlata water district from being formed, they decided to go to court. They believed the state law in question was so biased in favor of water development interests that they had a good case in challenging its constitutionality. However, although their suit went all the way to an appeal in federal court, it was mooted because the Colorado State legislature passed a bill re-establishing all water districts in the state in one fell swoop.

TAR's current efforts are directed at gaining grassroots support for state legislation to require elections for water districts, as well as to oppose the district's ability to levy new taxes for construction of water projects. The group is also lobbying the federal government to prevent further funding for Animas-La Plata.

But the water district has tried to thwart their efforts at every turn, using tactics some TAR members consider illegal. TAR alleges that the district has denied information to them under the state public records act and violated the state's "open meetings" act. In just one case, member Preston Ellsworth, tells how he was locked out of an Animas-LaPlata water district meeting—"executive session" they claimed. Not being one to give up, Ellsworth got down on the floor and eavesdropped on the meeting from a crack under the door. One of the more interesting tidbits he said he heard was the district's board members discussing "how they were going to get" TAR members Jean and Tom McCulloch.

Like many citizens' groups, TAR is loosely structured with a small hard-core group—about 15—that does most of the strategizing, but the group's growing supporters in the southwest region number in the hundreds. Some, however, do no more than send anonymous donations, because, for political and financial reasons, they can't afford to be associated with TAR in a community controlled by pro-water project politicians.

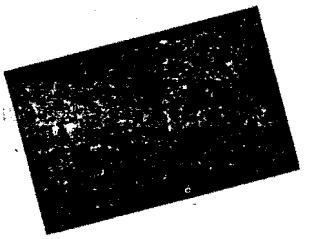
As a response to concerns about public association with their "radical" group, TAR developed a unique form of activist gamesmanship—a "non-membership" card, by which people who are attacked can whip out and show the accuser the "card-bearer has never been a member of TAR." In no way, though, is the bearer restricted from "opposing the Animas-LaPlata water project or similar boondoggles."

Official membership in TAR continues to be uncertain; supporters come and go in the region. Despite the group's "collective anarchy," as one supporter describes it, TAR seems united behind a crucial Alinsky directive: "the price of a successful attack is a constructive alternative." It has developed a set of recommendations that would eliminate the major dam and canals in the Animas-LaPlata project, yet still deliver water to towns and reservations and fill the Indian claims to reserved water rights. (See related story).

TAR has carried on its long struggle in an isolated corner of the West, but its platform—seeking the democratic elections of board members for the water conservancy districts—has touched a chord throughout the region. In Garfield County, 150 miles away, for example, county commissioners last August passed a resolution recommending that water district boards be elected. So the issue is catching fire across sagebrush country.

***WHAT TO DO:** For more information on how you can help defeat dam building in the West, contact: Jean McCulloch, Taxpayers for the Animas-LaPlata Referendum, 2914 Aspen Dr., Durango, CO 81301.

"Ridicule is man's most potent weapon."
—Saul Alinksy



Connie Albrecht is the Western Water Representative for Friends of the Earth. She has been an adopted member of TAR for some time and recently moved to Durango, Colo.

F-33

ignored as a strategy to increase water supply, even though Durango presently loses over one half of its water through its municipal system.

TAR contends that the original purpose of the project, irrigation, makes the least sense of all. "The Dryside," is a dry plateau at 7500 feet, hemmed in by mesa, where sage and some juniper grows wild. "Nice to look at, hard to farm," says Jean McCulloch of TAR. Limited by a 100-day growing season and frequent cold nights in summer, crop yields, even with irrigation, are inherently low. Opponents feel that having more water wouldn't make it substantially more productive.

Bob Taylor, a "Dryside" farmer who supports the project primarily because the Indian settlement would secure La Plata water rights, is just as glad his dry farm got booted into Phase 2, which is not federally funded. "Right now," he says, "the economics of putting water on is kind of scary." In 1977, when Bu Rec drew up its plans for the Dryside, the farm economy was in a healthy bloom. Now it is not.

Farmers staving off bankruptcy—and there are plenty in the area—will be hard pressed to buy new sprinkler systems and to pay for water pumped uphill from an adjacent river valley. Furthermore, the few crops that grow well on the Dryside, particularly alfalfa, are now in surplus on the national market. Other federal agencies are paying farmers to take land out of production, in the same set of counties where Bu Rec proposes to increase productivity with irrigation.

But while other water projects are stalled in part because of the uncertain economics for farmers, the Animas-La Plata dam has made it this far, proponents and opponents agree, "because of the Indians." "We've got the state of Colorado, the governor, the state legislature, the Attorney General, all saying that they're willing to spend $60 million in cost-sharing to build this Animas-La Plata project. And why? Because it's going to solve the Indian water rights issue," says Maynes. "You know, without the Indians involved in this thing, hey, this would be just another garden-variety type water project that hasn't been and isn't going anywhere over the last few years."

In 1908, the Supreme Court handed down the Winters Doctrine, which implied that many Indian tribes hold earliest water rights on some rivers. In 1976, the U.S. Attorney's office filed claims on behalf of tribes on virtually every river in southwestern Colorado. If the Utes should press their claims, they could substantially dry up Anglo rights on the Animas and La Plata rivers. In return for the Animas-La Plata project, the tribes would sign off on their Winters claims.

Yet opponents question first, whether supplying water to the tribes warrants a project of this size, if other reasons aren't justified, and second, whether the Indians are really gaining that much from it.

Ironically, the Indian tribes are not actually getting Animas-La Plata water delivered to their reservations. The delivery systems were kicked into Phase 2 of the project and are thus, as opponents charge, "paper water." Under the plan, water is being stored for them, which they plan on selling to coal companies in or out of state (depending on how the dispute over exporting water is settled). Additionally, the tribes receive several provisions in the dam agreement—$60.5 million in development funds, and a domestic-water pipeline for the Ute Mountain Utes from the Dolores Project, a newly-completed Bu Rec project on the nearby Dolores River.

A sky high storage vat

The cost-sharing agreement between the states and the federal government reached this summer divided the project into Phase 1, creating the 2270-lake Ridges Basin, all built with federal aid; and Phase 2, lifting water to a second pumping plant, to be built at some unspecified later date, without federal funds. Of the Phase 1 water— 22 percent is being stored for the tribes to use at some future date, and much of the water for the towns is being stored to meet needs of future growth that may never occur.

Only 16 percent of the total in Ridges Basin is definitely scheduled to be used for irrigation. Yet this water Bu Rec plans to pump uphill an extra 330 feet. As much as 75 percent of the water may never be used for a least 20 years.

All told, Ridges Basin Reservoir stands to be an enormous storage vat, a pretty lake tucked under a conifer-velveted, dark-green ridge and holding a lot of water slated for Southwestern Colorado that may very well never be tapped. Fifty four percent of the water is "dead storage," used to achieve a certain lake level, pumped in once and never pumped out. Twenty six percent of the "active storage" water for Phase 2 irrigation will be stored idle, to wait for future construction that would depend on the health of the state's economy. "Maybe Phase 2 will never be built," admits Sam Maynes. "I don't know."

Sentiment for storing as much water as possible echoes up and down the Western Slope. That mindset has existed for decades. A local farmer says, "More people'll fight you more than anything else over water. We've been programmed since we was that high: [to want] water." Coloradoans for the last century have been sensitive about the water that flows fresh out of their high country, across state lines, and into the fields and sewage systems downstream. And down below, California and Arizona have always itched to get that water. You can mark historical time in the West by several compacts made to divide the Colorado River between the Upper Basin and Lower Basin states.

Having a ready supply of water was a major rationale for Bu Rec projects. After the 1930s, when Bu Rec proved it could work wonders for Western growth and subsidize it, with Hoover Dam and others, water projects, writes Mark Reisner in his book *Cadillac Desert*, became "a kind of currency, like wampum." What had begun as an emergency program to put the country back to work," writes Reisner, ". . . grew into a nature-wrecking, money-eating monster . . . " Donald Worster, in *Rivers of Empire*, tracks the fate of the small farmer, who, he says, got drowned in the expense of Bu Rec water and was increasingly replaced by the corporate farmer that could afford the water, and the migrant worker.

Desert Revolution

Yet a change in thinking may be overtaking small farmers. Anxious to keep their farms, they're beginning to reject expensive water. That, at least, seems to be the way the issue is being resolved in a similar situation in neighboring Montezuma and Dolores counties. Those counties are dry places, like La Plata County. Sagebrush lines the dirt county roads and pinto bean fields, settled against the mesas, turn yellow under a late August sky, nearly ready for harvest. Bu Rec, just built the multi-purpose Dolores irrigation project for $461 million. And over there, the farmers are in revolt.

The Dolores project, similar in size and intent to Animas-La Plata was built in large part to irrigate dry-farm land similar to the Dryside. It was also built for municipal water supplies and to settle Ute Mountain Ute water claims. Costs escalated from a projected $186 million to $446 million. Cortez, the major municipal recipient, claimed it could not afford the water, and since population growth estimates had not materialized, did not need much of it anyway. Two-thirds of the farmers asked for relief from their repayment contracts.

One year away from the first delivery of water, a group of recipient farmers plans to sue the local water conservancy district and Bu Rec to be released from its repayment contracts. In 1977, the farmers were nearly all for it—19 out of every 20 farmers signed contracts, with no cost ceiling on repayment. Bu Rec told them that increased yields, plus a more diverse crop set would make for hefty profits—and that water would cost only $19 per acre-foot. In Spring 1986, water costs reached $40 to $45 per acre-foot; and with their crops in surplus, two thirds of the 158 farmers petitioned for relief; and one-third do not want the water at all. Due to insufficient funds, the pipeline to the Ute Mountain Ute Reservation was never built—the same pipeline now tacked on to the Animas-La Plata project.

Farmers there consider dryland farming to be more economical in the short run. They are bolstered by a 1986 study done by Colorado State University, which concluded that irrigation farming won't yield a profit, given crop prices, productivity constraints and the terms of the repayment contracts.

Ringleader R.R. "Junior" Hollen, who farms 1000 acres of pinto beans and dryland wheat, believes that farmers who are forced to buy the water, and the necessary state-of-the-art sprinkler system, the same systems slated for Animas-La Plata, will face bankruptcy. The local banks have already made it known that they will not make loans for the system. "They made it sound so good," says Hollen, "that personally, I was greedy. Now I'm like the mouse that gets caught in at trap with cheese, says to hell with the cheese, get me outta this trap."

"They made it sound so good that I was greedy. Now I'm like a mouse in a trap."

To explain the plight of the farmers, Bu Rec and the Dolores Water Conservancy District blame the irrational farm economy. "The problems with the Dolores," says Rege Leach, Planning Team Leader at Bu Rec, "have more to do with the farm economy than the cost of water." Hollen disagrees. Bu Rec, he contends, did an extraordinarily shabby job on the feasibility studies. The studies mention neither the growing season nor the altitude, and overestimate the crop yields, he maintains. "They have things in there, like sorghum, that take a 160-day season," says Bessie White, Hollen's sister who farms down the road. "They say, well, they project long term. I say, well, maybe they'll change the growing season."

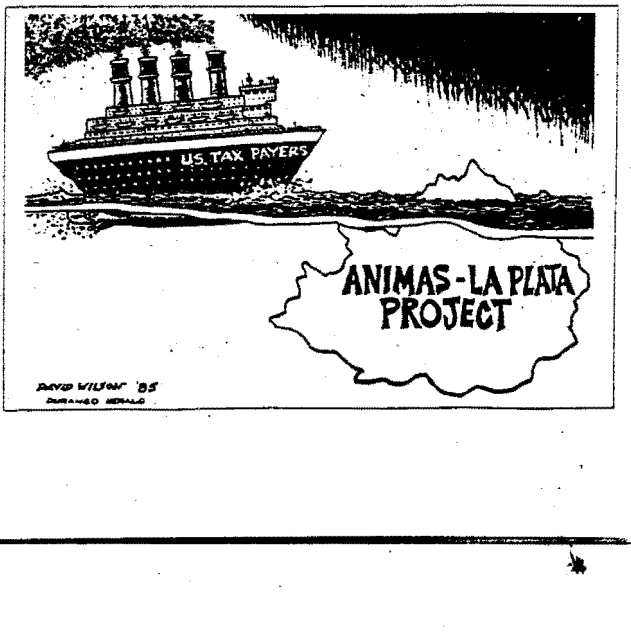
These farmers present a major threat to Bu Rec's rationale. After all, Bu Rec, imbued with a strong Jeffersonian spirit, meant to open up the West for the independent farmer. Even with the advent of the multi-purpose project, irrigation remained the backbone purpose and it has accounted for the lion's share of the ideology, if not the cost.

Dolores farmers say the Bu Rec project is sending them into debt. "They didn't build it for the farmers. They built it as a monument to the Bureau of Reclamation," says Hollen. "As long as they've got a working project in here," says White, "they don't care who owns the farms, or how many times they change hands . . . The Bureau of Reclamation needs [the farms] so they can build these projects . . . They destroy the farmers in the process, and then they move on."

The coming election over Animas-La Plata will be telling. Some Animas-La Plata farmers are listening to the Dolores farmers complaints. They're wondering if they could have some of the same problems 12 years from now. The irrigation systems of both are nearly identical. There's no guarantee that Bu Rec's feasibility studies are any better. .

It's questionable whether settling Indian claims will compensate for the disintegration of the right-sounding purpose of irrigation for the family farmer. Many feel that it is unlikely that the Animas-La Plata could go through without the support of the Dryside farmers. Even if farmers stick with it, despite the general rise in discontent with the costs and practicality of Reclamation water, and if the Animas-La Plata floods a river valley, the project—one of the first on Bu Rec's drawing boards—may be one of the last.

Jennifer Price, is a free-lance writer living in New Mexico.



ELECTION SPECIAL

The Unfinished Agenda

By David Baker

In a report on the upcoming elections, a newscaster quipped, "What would happen if you held an election, and nobody showed up?" Voter turnout in a non-presidential election year is usually light, but in primaries across America this year the turnout has been even more dismal than usual.

Pundits give many explanations for this voter apathy: The continued entrenchment of the "me generation;" the selling of a "feel good about America" strategy by the President; and, as many observers have noted, the lack of any theme to describe these elections. Others are ignoring this year's elections and are focusing on the 1988 Presidential race.

It's easy for environmentalists to fall into this trap of looking to 1988, in our eagerness to see the end of the Reagan "reign of error" on environmental issues. However, ignoring the 1986 elections would be a disastrous mistake for environmentalists. The last few years have seen some major pollution control laws passed, such as reauthorizations of the Safe Drinking Water Act (SDWA) and the Resource Conservation and Recovery Act (RCRA), but the stakes for the ecosphere are still high. Many pieces of important legislation will be left for action by the 100th Congress. These include:

- Pesticides—The House and Senate have both passed compromise versions of the Federal Insecticide, Fungicide and Rodenticide Act. It is unclear at press time whether Congress will be able to iron out differences between the two bills before they adjourn.
- Clean Air—A compromise acid rain control bill garnered over 175 cosponsors in the House but has been successfully stalled by opponents in committee. But the issue is sure to be revived in 1988 as presidential candidates give their support to controls to be competitive in the first primary in New Hampshire.
- Toxic Chemicals—The Toxic Substances Control Act, the primary law for screening and regulating these materials, will come up for reauthorization in the next Congress.
- Groundwater Protection—The passage of the Safe Drinking Water Act will force the Environmental Protection Agency to set standards for purifying drinking water, but no program exists for preventing pollution of underground sources of drinking water.
- Endangered Species—The 99th congress will fail to reauthorize the Endangered Species Act because of disputes over local development projects in Idaho, Texas, Wyoming and Alabama that threaten endangered species. Senate Majority Leader Robert Dole (R-KS) has refused to bring up the bill because of objections by senators from these states.

At press time, the Superfund program for cleaning up abandoned hazardous waste dumps had passed the Senate (88-8) in a stunning victory for environmentalists (see news story, page 1). But President Reagan threatened to veto the bill. Likewise, Congress finally reauthorized the Clean Water Act, calling for $18 billion in sewage treatment over the next eight years, but it too could be vetoed by the President.

This staggering agenda suggests what is at stake for environmentalists in the 1986 election. The winners will determine how this legislation is designed and how much money EPA and other federal agencies will have for implementing and enforcing environmental programs. Numerous votes on weapons systems and the Reagan "Star Wars" could determine nothing less than the fate of the earth. These laws hang in the balance because of many close votes in this sharply divided Congress. The prospects for passage of strong versions of these laws rests heavily on the outcome of this November's elections.

Looming over this undone environmental agenda are several potential changes in the next Congress. These changes have created such uncertainty that it is impossible to predict what will occur next year. If the Senate changes from Republican to Democratic control it could completely overturn the current political coalitions now blocking the passage of environmental legislation like the new acid rain bill. However, Democratic leadership would displace the chairs of key committees like the Environment Committee, which has been led by pro-environment Sen. Robert Stafford (R-Vt.) since 1980. Important changes will occur in the leadership of the House of Representatives. Speaker of the House Tip O'Neill is retiring and probably will be replaced by conservative Majority Leader Rep. Jim Wright of Texas, a longtime friend of oil interests.

The convergence of legislative flux, and voter apathy are a potential sign of troubled times, but it also presents many opportunities for environmental activists to get the most out of our issues. By electing more environmentalists to Congress we can take advantage of the political vacuum created by changes in leadership. We need to win only a few key House races and one or two Senate seats to make the difference.

Although much attention has been given to the battle between Democrats and Republicans for control of the Senate, environmentalists are fighting their own battle to establish a bipartisan majority for the environment, regardless of which party is in control. Local action can influence national politics as never before. The lack of a national theme means that local and regional issues, and thus local groups and individuals, can have a larger impact on Congressional races.

During the early 1970's the environmental movement changed the way Congress looked at issues involving the environment. Votes on water projects changed from debates on transportation and irrigation to debates on damage to watersheds. Votes on toxics changed from debates on jobs to debates on health. Votes on nuclear weapons changed from debates on national defense to debates on survival.

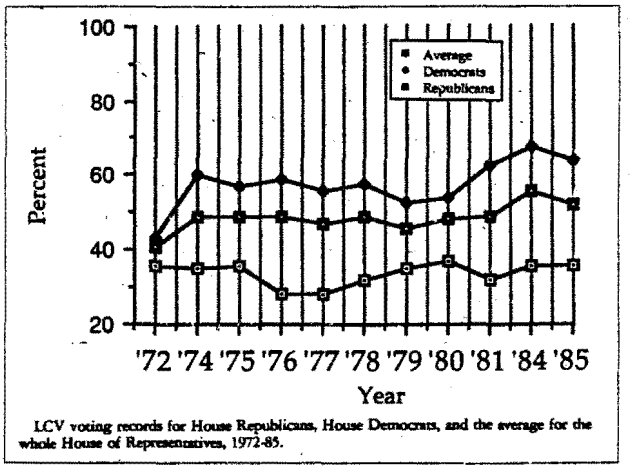
This change occured for two reasons. First, events like Earth Day fostered the rise of an organized environmental movement that changed how people viewed issues involving the planet as a whole. Second, the oil crisis and world economic depression created an awareness of the financial need to protect our resources.

Industry can no longer afford waste. Recycling and reduction of waste streams will become not only environmentally and aesthetically desirable, but economically essential for many businesses.

Ronald Reagan attempted to restore the old order in 1980. Although he has set the debate on nuclear weapons issues, he has been repelled on most other environmental fronts. Former EPA administrator Anne Gorsuch-Burford tried to eviscerate the Clean Air Act, while former Interior Secretary James Watt attempted to sell off huge chunks of the public estate for energy development. Their efforts were defeated, and ultimately both were forced by public pressure and scandal to resign.

With their resignations, the first great battle of the Reagan anti-environmental era was won. However, the war continues. We have made some progress and passed a few laws, but each day the Reagan EPA and other agencies either refuse or are fiscally unable to enforce the laws they are charged with administering. We stand on the verge of getting tougher Congressional requirements for environmental protection, but our success could hinge on who wins and loses in this fall's elections.

In any election where voter turnout is low, the side that wins is the one most able to mobilize its people. If we can energize those who are concerned about environmental protection and get them out to vote, we can make the 1 or 2 percent difference that could swing a close election. Your vote counts like never before. On the following pages are the 1986 FOE endorsements for elected office. Please vote for these candidates. Lend them your volunteer support during the final days of the campaign when get-out-the-vote efforts will be critical. Please support these candidates and FOEPAC in our struggles to preserve and protect the ecosphere.



LCV voting records for House Republicans, House Democrats, and the average for the whole House of Representatives, 1972-85.

David Baker is Friends of the Earth's political director.

F-34

PAC PIC

HOUSE INCUMBENTS

Morris Udall (AZ)
Jim Bates (CA)
Anthony Beilenson (CA)
Barbara Boxer (CA)
George Brown (CA)
Ronald Dellums (CA)
Mel Levine (CA)
George Miller (CA)
Leon Panetta (CA)
Henry Waxman (CA)
Patricia Schroeder (CO)
Stewart McKinney (CT)
Bruce Morrison (CT)
Jim Leach (IA)
Richard Stallings (ID)
Cardiss Collins (IL)
Cooper Evans (IL)
Sidney Yates (IL)
Silvio Conte (MA)
Barney Frank (MA)
Edward Markey (MA)
Gerry Studds (MA)
James Oberstar (MN)
Gerry Sikorski (MN)
Bruce Vento (MN)
Bill Clay (MO)
Alan Wheat (MO)
Pat Williams (MT)
Stephen Neal (NC)
James Florio (NJ)
Sherwood Boehlert (NY)
Tom Downey (NY)
Bob Mrazek (NY)
Ted Weiss (NY)
Mike Synar (OK)
Les AuCoin (OR)
Peter Kostmayer (PA)
Doug Walgren (PA)
Claudine Schneider (RI)
John Bryant (TX)
Rick Boucher (VA)
Jim Jeffords (VT)
Mike Lowry (WA)
Bob Kastenmeier (WI)
Jim Moody (WI)
David Obey (WI)

HOUSE CHALLENGERS

David Skaggs (CO)
Jim Jontz (IN)
Collin Peterson (MN)
Mike Espy (MS)
Bill Clarke (NC)
David Price (NC)
Louise Slaughter (NY)
Rosemary Pooler (NY)
David Jackson (OH)
Tom Sawyer (OH)
Peter DeFazio (OR)
Bill Wachob (PA)
Tim Johnson (SD)
Wayne Owens (UT)

Brock Adams
Washington

A former Cabinet [illegible] ... Brock Adams has [illegible] ... nuclear waste to Hanford, Wash.

Kent Conrad
North Dakota

[illegible] Kent Conrad [illegible] of our own, having been an organizer of the original Earth Day celebrations. On environmental issues, Conrad is far superior to Sen. Mark Andrews, who had an LCV rating of 34 in 1983-4.

Peter DeFazio
Oregon

Peter DeFazio will follow in the footsteps of retiring Rep. Jim Weaver and fight to save Oregon's wilderness [illegible] the timber industry.

Gov. John Evans
Idaho

Gov. John Evans worked to control development in a state with powerful strip-mining and timber interests. Sen. Steve Symms has a zero *LCV* rating.

Rep. Harry Reid
Nevada

Rep. Harry Reid has led a major petition drive against the designation of a site in Nevada as a nuclear waste dump. He has also worked in the State House for the creation of Nevada's first national park.

Rep. Tim Wirth
Colorado

Rep. Tim Wirth has worked to moderate unchecked energy development in the *Rockies*. He is largely responsible for passage of the 1985 Colorado Wilderness Bill.

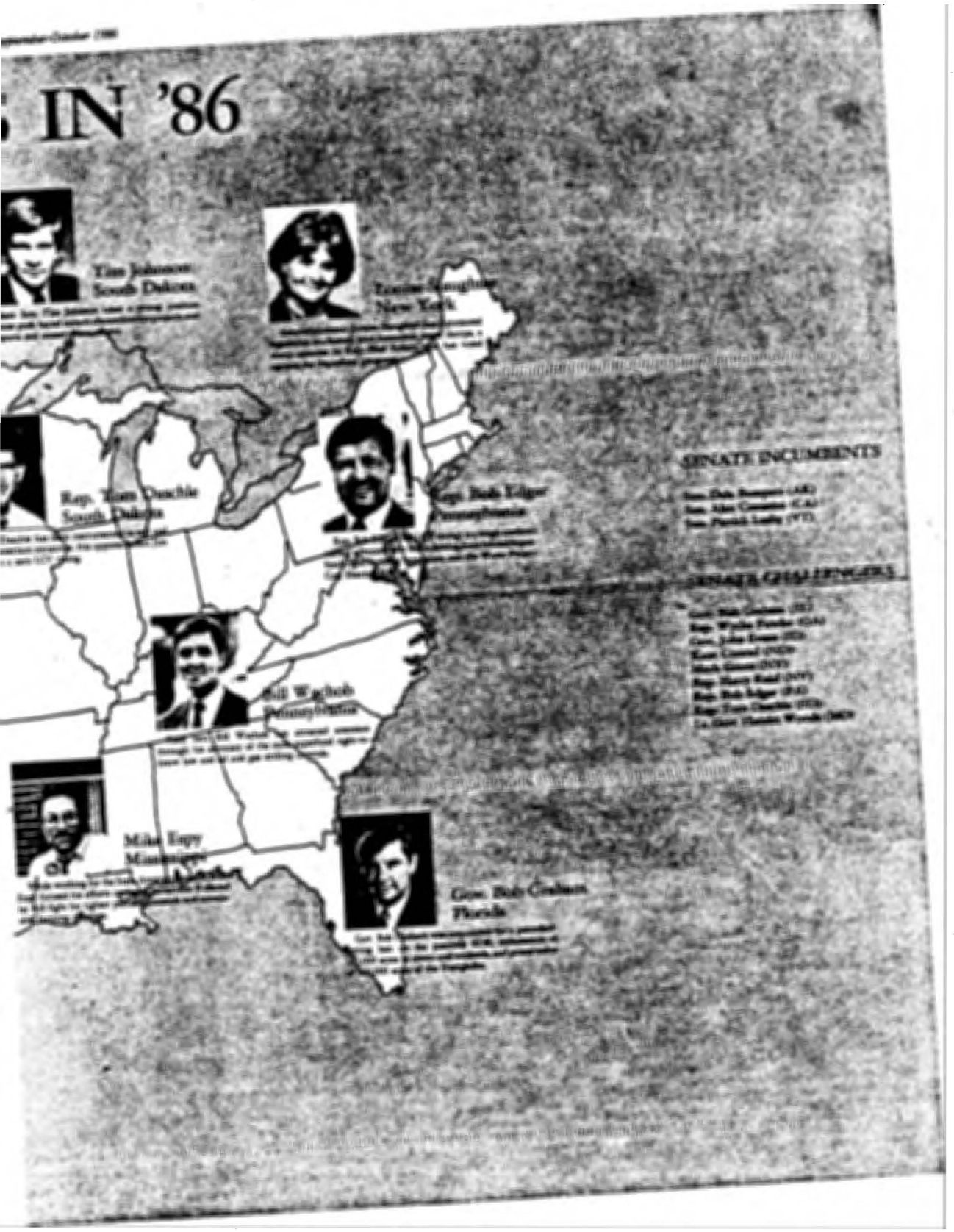
Sen. Alan Cranston
California

Sen. Alan Cranston has long been a leader on [illegible]

STATE RACES

Brant Calkin (NM-Land Commissioner)
Ray Powell (NM-Governor)

F-35


IN '86
Tim Johnson
South Dakota
Rep. Tom Daschle
South Dakota
Bill Wachob
Mike Espy
Mississippi
Gov. Bob Graham
Florida
SENATE INCUMBENTS

Election '86

Fear of Losing on the Campaign Trail

In Republican and Democratic areas alike, where polluted ground water and hazardous waste dumps are increasingly visible, voters want action, not grandstanding and posturing. These FOE-endorsed candidates for the House of Representatives fit that bill.

House Challenges

Professor David Price of North Carolina's Fourth District has been riding a wave of opposition to DOE's proposed siting of a nuclear waste dump in local crystalline rock formations. Price has attracted the support of environmentalists with his advocacy of tougher Clean Air and Clean Water Acts; he is also a believer in a strong Superfund. Incumbent Rep. Bill Cobey is out of step with the electorate on this issue. His LCV rating ranges from 20 to 50. He has voted consistently against toxic waste cleanup appropriations.

The 11th district of North Carolina is home to some of the state's most spectacular wilderness areas, and former Rep. James Clarke has worked effectively in the past to preserve them. From 1982 to 1984, Clarke sat on the House Interior Committee, where he led the North Carolina Wilderness Act to passage. He also earned the committed support of environmental activists by blocking construction of the ecologically damaging Horsepasture River Dam. Rep. Bill Hendon's reputation as a "Reagan robot" should garner him fewer votes this year than it did in '84. Clarke has an excellent chance to regain his position as the leading environmentalist of the North Carolina delegation.

Over strenuous local objections, the 7th district of Minnesota has been targeted by DOE as a possible nuclear waste site. This has met with considerable antinuclear political posturing by both candidates, but only Collin Peterson's protests have credibility. Peterson built up an outstanding record in the Minnesota State Senate as an environmental leader: he helped draft the state's "Superfund" bill, wetlands protection laws, prairie protection laws, and legislation aimed at protecting local wildlife. Rep. Stangeland has voted with the Reagan Administration against pesticide controls, clean water legislation, toxic waste controls, and has voted for all major nuclear weapons programs. An agent of Ronald Reagan's environmental policy, Stangeland has not acted in the interests of his consituents.

Rosemary Pooler of Syracuse could bring environmentalists an important victory in New York's 27th district. As a utility commissioner in this factory town, Pooler developed a popular reputation for standing up to local industry in support of consumers' rights. Republican incumbent Fred Wortley has no such grassroots support. Low environmental ratings include votes against the toxic waste "right to know" bill and legislation enabling victims of chemical poisoning to press their claims in federal court.

The 5th District of Indiana is no hotbed of environmental activism, but Democratic State Sen. Jim Jontz could shake things up. His approach to campaigning is as energetic as his approach to environmental legislation, and both have caught voters' imaginations. In the Indiana State Senate, Jontz has sponsored or authored the solar energy tax credit, improved toxic waste laws, the Indiana Youth Conservation Corps, the Wildlife Habitat Act, and hazardous waste manifest tracking and tax legislation. The incumbent Congressman is retiring, and Jontz's election would be a major improvement for the district.

Akron Mayor Tom Sawyer has been endorsed by retiring Ohio Congressman John Sieberling in his bid for the House. Sawyer shares his predecessor's commitment to a strong Superfund program and public lands protection.

House Incumbents

In addition to supporting challengers who, we hope, can bring valuable pro-environmental voices to the House; FOE endorses 50 incumbent Representatives seeking reelection. Here is a sampling:

Les Aucoin of the Oregon's First District, is a key environmental advocate on the Interior Appropriations Subcommittee. He has worked to protect America's shorelines from wholesale oil leasing plans pushed by the Reagan Administration. The Columbia Gorge Protection Bill and the Oregon Wilderness Bill are among his recent accomplishments. This year, as always, Aucoin is under fire from powerful Oregon timber interests.

Howard Wolpe of Michigan is the only member of Congress to retain a 100 percent LCV rating over four consecutive years. Wolpe led the fight to cut funding from the dangerous Clinch River Breeder Reactor and succeeded in replicating that coalition in the long battle to deauthorize the U.S. Synthetic Fuels Corporation. With Rep. Dan Glickman of Kansas, he authored and engineered the successful passage of the Soil Conservation Bill. Wolpe has a perfect SANE rating and has been a leader in the international effort to halt nuclear proliferation. He is simply among the very best in the U.S. Congress. Rightwing PACs have tried unsuccessfully to knock Wolpe out of his seat for years, and they are trying again in 1986.

Peter Kostmayer's informed approach to river and wetlands preservation has earned him the support of environmentally concerned citizens in the Republican 8th District of Pennsylvania. He has been campaigning hard against the Point Pleasant Diversion Project, designed to pump 95 million gallons of the Delaware River through the proposed Limerick nuclear power plant. That project, now coming before public hearings, is opposed by local residents and environmentalists. Kostmayer has also been a motivating force behind the Delaware River Wilderness Protection Bill which gives the Upper and Middle portions of the Delaware River status as a wild and scenic waterway. The Kostmayer-sponsored Pennsylvania Wilderness Bill set aside some 70,000 acres of national park and was the first of its kind in the state. Kostmayer, like Edgar in the neighboring 7th district, has a permanent position on anti-environmental hit lists.

Richard Stallings is a voice of moderation in an Idaho district which has in the past been held by rabid anti-environmentalists. Stallings beat convicted felon George Hansen by just over 100 votes in 1984. It is important to the environmental community that he retain his seat in 1986. If Governor John Evans can win the Senate Seat and Stallings returns to the House, an effective Idaho Wilderness bill might be passed in the 100th Congress.

Environmental Action's Dirty Dozen: The Top 12 Contributing Petrochemical and Nuclear PACs of the 86 Campaign

PETROCHEMICAL PACS		NUCLEAR INDUSTRY PACS	
1. Tenneco	$91,500	7. General Electric	$74,650
2. Amoco	$76,000	8. So Cal Edison	$41,750
3. Shell Oil	$56,250	9. Westinghouse	$38,125
4. U.S. Steel	$53,300	10. Southern Company	$28,250
5. Dow Chemical	$45,000	11. Florida Power	$21,250
6. Chevron	$40,265	12. Texas Utilities	$21,250

Senate Incumbents

Among Senate incumbents, Patrick Leahy and Alan Cranston need no introduction. They have been valuable allies in nuclear and environmental issues for years, and they will no doubt continue supporting our causes in the Senate. Dale Bumpers also receives our endorsement. In addition to accumulating an excellent LCV record (94 percent in 1984), Bumpers has played a key role on the Energy Committee, challenging Ronald Reagan's energy and public land policies. Wyche Fowler of Georgia is challenging Star Wars advocate incumbent Sen. Matt Mattingly. Fowler has worked on the House Ways and Means Committee and pushed for energy conservation tax credits and solar power subsidies.

A final expression of support goes out to Mark Green, Democratic Senate candidate from New York. He is faced with a formidable Republican war chest, but his credentials as an environmental candidate are truly impressive. Green worked for 16 years as the organizer of Ralph Nader's Congress Watch. He has been a leader in the fight for Superfund, against nuclear power, and against acid rain. Green's expertise is matched only by his determination. He won the Democratic nomination against a man who spent $6 million compared to Green's $500,000. With his grassroots approach Green could surprise incumbent Sen. Alfonse D'Amato in November.

DIRTY DOZEN TAKERS

Top Twelve Senators Accepting Campaign Contributions from Nuclear Industry and Petrochemical PACs

1. James Broyhill (R-NC)	$84,325
2. Steve Symms (R-ID)	$78,735
3. Bob Dole (R-KS)	$76,900
4. Don Nickles (R-OK)	$64,569
5. Frank Murkowski (R-AK)	$64,141
6. Jim Abdnor (R-SD)	$57,550
7. Arlen Spector (R-PA)	$50,775
8. Rep. Henson Moore (R-LA)	$48,116
9. Alphonse D'Amato (R-NY)	$47,550
10. Dan Quayle (R-IN)	$45,335
11. Bob Kasten (R-WI)	$44,008
12. Slade Gorton (R-WA)	$42,169

Contributions examined from Jan. 1, 1983 through June 30, 1986 for Senate incumbents and candidates other than those who presently hold House seats. Contributions to candidates now in the House of Representatives were reviewed from Jan. 1, 1985 through June 30, 1986.

by Ernest Callenbach

A Green City Sermonette

We could have green cities, it seems to me: cities habitable for the human species. My particular fantasies along this line are cities filled with trees that comfort us by reminding us of our origins in the forest. Protecting us from wind and smog and the dullness of our rectangular architecture. I would like to see green cities with creeks running through them— not put into pipes—so that the water would remind us of our eternal dependence on the great cycle of evaporation and rain and all the rivers returning to the sea.

The private automobile is the dragon we must slay.

I want green cities with piazzas, plazas, spacious and protected from cars—lively with the natural sociability of our species, giving centers to our neighborhoods. Places where we can meet each other at cafes and restaurants so we can eat together, break bread together. Places to have the spontaneous cultural and business conversations that lead to the kind of particular liveliness that cities contribute to our civilization.

I want green cities with markets with fresh fruit. Foods grown in the neighborhood, or grown near the city, fresh and uncontaminated. I would like to see cities with transportation systems that move goods in and out underground, out of sight, invisibly. And move people quickly around the surface in mini- buses, cable cars, streetcars and buses. Maybe even free bicycles on the "Amsterdam Plan"—bikes that you would pick up when you need them and lay them down when you're finished so somebody else can use them.

We need cities that encourage walking. Streets that are safe for loitering, as the great film director Jean Renoir said. Cities, in short, that offer the privileges that are taken for granted by village dwellers in any healthy peasant society.

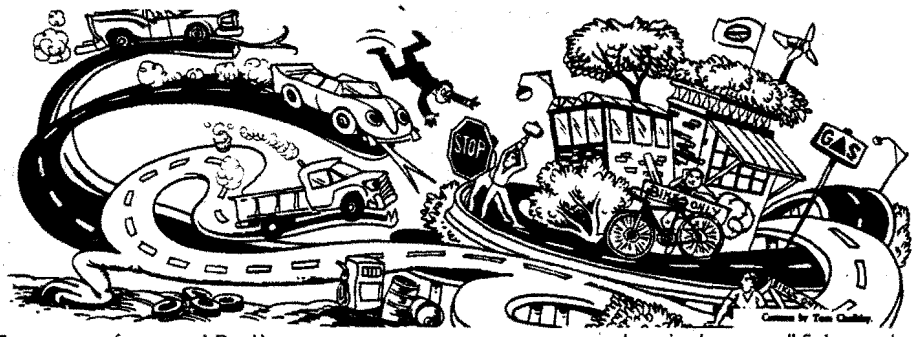
We need cities with residential structures that are integrated with commercial, amusement, and light industrial uses on the well-tried European model—not zoned into great ghettos far apart, with car travel required to get from home to job to shopping.

We need cities with a decent density to make all these things possible, to be energy-efficient and people-efficient. We need many wild places in our cities, shorelines, parks, ravines and creek-canyons where we can share parts of our cities with wild creatures so that we're constantly reminded that we are not the only species to live here.

If we have too much concrete, break it up and make a rock garden. Wherever possible plant native plants that don't need irrigation. As Gary Snyder says, learning the plants that naturally grow in our area is the first step toward getting to know where you really live. Plant edible plants: artichokes and asparagus for shrubbery; kiwis and grapes for vines; strawberries for ground cover; nut and fruit trees for shade. If your street lacks trees, get into your city tree-planting program. Turn out to help do gardening in the parks which are starved for money almost everywhere. Help start a community vegetable garden.

And acting as citizens there's lots more that we can do. We can put pressure on our planning department and plannning commissions. Help get them off the steel-and-concrete kick. We can form neighborhood associations to increase our political leverage on city hall. We can get active in park and recreation departments. There's a whole lot of greening of our cities that we can accomplish through this kind of work.

But in any sermon about a green paradise, we also have to deal with the devil, right? And one happens to be ready at hand— the private car. The main enemy of green cities is, in fact, the private car. The car is everywhere triumphant. Indeed cities everywhere on earth, not just in America, are being overrun by cars. The greatest cities that humans have contrived in the whole history of our species are in danger. Cars are multiplying faster than people. They're outbreathing us, too. They're using up our land area. They're using up our economic strength.



There was a professor named Donald Appleyard who studied in great, careful, objective and even mathematical detail exactly how increasing traffic ruins a street and destroys streetlife and neighborhood vitality. He did his work in San Francisco, and he published these studies in a book called *Liveable Streets*, ending the book with some wonderful examples from Dutch cities of cul-de-sacs called "woonerfs" where traffic can only come in slowly, is on an even footing with pedestrians, including children, and generally doesn't wreck the neighborhood. Appleyard knew there was a crucial difference in citizenship between drivers and walkers. Driving, even the best of us are just passing through. We don't live there. We can't care for the place we are driving through as home.

In sober literal fact, it is them or us: cars or people. But of course it's also true, as Pogo likes to say, that "We are them." Probably most of us here tonight who have come to celebrate this great astronomical turning point came by car—a mighty collective self-contradiction.

Let me remind you what our cars are doing to us and to the prospects of green, inhabitable cities. For one thing, if you do much driving, you know they're ruining our civility, our feeling of shared civilized territory. Behind the wheel we all have a terrible tendency to become signal-jumpers and pedestrian- clippers.

Cars wreck our balance of trade as a nation. We are selling our topsoil—turned into corn and soybeans—to pay for the forty billion dollars a year of imported oil that we need to support our car habit. Cars consume an eighth or more of all our national wealth, our national income. For many individuals it is even more in the cost of insurance, repairs, courts, and police. Like our military outlays, cars impoverish our national economy.

Cars are, at least in the vision of this Ecotopian Preacher, mobile eyesores. They are shiny, ungainly, smelly, and dangerous —killing more than 50,000 of us each year and injuring almost two million more—a toll enormously greater than that of any military war in our history. That is, as Hobbes said about human beings at their nastiest, "a war of all against all."

There is no escaping the terrible indictment of the automobile—our joy and our destroyer. We love the thing that will destroy us, it has been said, and this is indeed the case here. Very likely our society will go down if we do not somehow confront the car and control it. The car is the dragon we have to slay if we are going to achieve green cities.

We can seek ways to make life more difficult for cars and easier for people, plants and animals. I like particularly the "slow streets" idea that has been proposed by the Urban Ecology organization in Berkeley. This is not to barricade a street the way we have tried in Berkeley and some other cities. But simply to make a street difficult for cars to pass through quickly, so no driver in his or her right mind would try to go that way in order to get somewhere. They would only go in if they lived there.

This means speed bumps. It means chokers that make the area for a car narrower, planters and barriers that drivers have to go around. And potholes. If the traffic seems too fast on your street you might want to go out and help some of those cracks turn into real potholes. That will persuade people to drive somewhere else, or even not to drive at all.

But most of all, we have to try and kick the car habit in our own daily lives as far as we can. Nobody's going to be perfect in this. I'm not asking superhuman dedication and abnegation, but we can all find ways to be less dependent on cars. We can try to live near our work. We can relearn how to walk, as even New Yorkers do. We can explore and experiment with the nearby resources of our neighborhoods—the shopping, and recreation, and friendships, and community activities that are close at hand with people whom we might learn to rely on and have them rely on us—in preference to things that are happening across town.

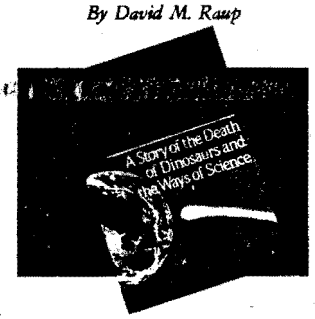
We can have green cities. We must have green cities if we want them once more to feel livable, secure, familiar—cities that will feel like home.

Ernest Callenbach is author of Ecotopia *and* Ecotopia Emerging. *This article was given as a speech at a winter solstice celebration for the Planet Drum Foundation, and is excerpted with permission from Raise the Stakes.*

BOOK REVIEWS

The Nemesis Affair

By David M. Raup



W. W. Norton, New York
1986, $14.95, 220 pages
Reviewed by Peter Wild

Here it comes, folks. Nemesis, "The Death Star." It's rocketing toward the Oort Cloud, a cluster of comets parked near our sun. The speeding star will arrive like a runaway eighteen-wheeler smashing into a lot full of cars. Comets will fly off everywhere. Inevitably, at least one will plow into our earth.

At that, life on this planet, as they say, will never be the same again. In fact, there may not be much of it left.

The whim-wham of a sci-fi writer? The hoped-for disaster of the gloom-and-doom set?

No, but a scenario espoused by some of the most careful authorities in the field. Scientists at Berkeley, Harvard, and the University of Chicago are backing the astral script; they claim it's happened before. Every 26 million years or so an errant billiard ball from outer space slams into our soft, vulnerable globe. Hence, the periodic demise of dinosaurs and other creatures that had scientists scratching their chins until this recent theory offered an explanation.

Why read about it? Raub goes beyond his admirable building of a solid case for Nemesis, and, as a participant in the theory's birth, gives us the repercussions of its development. Early computer modeling on Nemesis led Carl Sagan and others into further studies of the environmental impacts of atomic warfare. From that grew the recent debates on nuclear winter. And that in turn led to fresh looks at the ongoing ravishment of the earth's rain forests.

Much to our further instruction, and sometimes delight, Raub sets himself the accompanying task of showing how science works in accepting or rejecting new ideas. At times, it works in the same Machiavellian atmosphere that poisons other human endeavors: back stabbing, smear tactics, downright egomania. Still, he concludes, it does work, bumping and lurching, but finally, belaboredly, grinding out the truth.

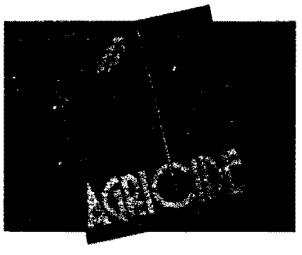
The media's strange combination of hunger for sensationalism and yawning nonchalance doesn't help the process. On the one hand, television wants experiments with "flashing lights that make loud noises." On the other, sighs Raub, a major newspaper ran its report of the Nemesis theory next to "a picture of an unidentified hockey fan in the act of baring her breast to distract the Edmonton Oilers."

With Raub as our guide through science's hair-tearing labyrinths, we come away from this book not only with a better appreciation of how astrophysicists and microbiologists labor, but determined to have a kindly word for the next scientist we meet.

Peter Wild is a frequent contributor to Not Man Apart.

Agricide: The Hidden Crisis That Affects Us All

By Michael W. Fox



Schocken Books, New York, 1986
194 pages; $7.95
Reviewed by Michael Cavigelli

The current crisis in agriculture is more than a temporary lapse in an industry whose history is plagued by cyclical highs and lows. As Wes Jackson has said, it is a failure of culture, especially that aspect which reflects our relationship with nature.

To Michael Fox, veterinarian, Scientific Director of the Humane Society of the United States, the root of this problem is our desire to dominate nature. Fox's purpose in writing this book is to "convince all sectors of agribusiness, as well as consumers, that a system of agriculture has evolved over the past twenty years which is so flawed as to be ultimately self-destructive." In our quest to be in control he says, we have been blind to the laws of nature and have accepted, often at the expense of all other values, the industrial concept that ever greater economic efficiency will solve all our problems.

Applying this tenet to our food production has given us a myriad of technologies which have overemphasized efficiency, reduced the human element in farming, destroyed rural communities, increased socio-economic safety, and further separated us from the land that sustains us. The result is an agriculture that is not sustainable over the long term.

Fox bombards the reader with statistics about the environmental, political, social, economic, and spiritual ills of our current agricultural system, most of which readers will be familiar with. He discusses, for example, agrichemical contamination of water, soil, and food; the internationalization of chemical- and capital-intensive agriculture; and the increasing number of pests which are developing resistance to pesticides. Fox also touches on less familiar topics: The inadequate nutrition of commercial pet foods; the gross inadequacy of the federal meat inspection program; and the connections between the arms race, the federal deficit, and the declining number of farms and farmers.

These topics are all important and relevant, but Fox attempts to cover too much ground in only 176 pages. As a result he's forced to jump from topic to topic, often without the benefit of introductory or transitional sentences, and he spends too much time on some topics, especially the more familiar ones, while he does not cover others in sufficient depth.

Most regrettably, even Fox's unique message—that the mistreatment of animals in agriculture is one of the more significant, disturbing abuses resulting from our deification of efficiency— becomes buried beneath this barrage of statistics and unclear connections. Even the chapter devoted to the ethics of our traditional exploitative relationship with animals fails to make a strong case for this position. This is unfortunate because animal welfare is usually Fox's forte, and it is a topic which needs further attention in the growing literature on alternative agriculture.

Fox concludes by listing a number of actions that consumers and producers can take in creating a more sustainable food production system. He advocates vegetarianism, buying locally grown food and organic food, and educating yourself about the true nature of our agricultural system. Regrettably, although the issues are important and are gaining popularity, the preceding chapters do not form a compelling argument for his viewpoint.

Michael Cavigelli is a free-lance writer living in Whiting, Kansas.

New & Noteworthy

Bankrolling Disasters
By Steve Schwartzman
Sierra Club, San Francisco
1986, $3, 32 pages

Much attention has been focused on the role of international lending institutions, like the World Bank, in the destruction of tropical rainforests. This Sierra Club booklet explains how the various development banks work and shows how concerned citizens can influence their lending decisions. Includes a partial list of groups and individuals in other countries working on development issues, and selected readings.

Proven Profits From Pollution Prevention
Institute For Local Self-Reliance
Washington, DC
1986, 316 pages, $26.50

The Environmental Protection Agency will soon issue stricter regulations for disposing of toxic wastes, which will make it more expensive for companies to dispose of their refuse. *Proven Profits* is a compilation of case studies of how different companies have reduced waste in their production processes and increased profits at the same time.

Where There's a Will

If you don't write a will, the state you live in has already written one for you. A brochure called "Another Way of Giving," produced by Friends of the Earth Foundation, describes the advantages of writing a will and describes various techniques for those considering leaving part of their estate to Friends of the Earth or its foundation.

There are many techniques available for writing your will— bequests of various types, testamentary trusts, and pooled income funds. The field of "planned giving" is a complicated but probably necessary one, and we think you should be aware of the choices available. For a copy of "Another Way of Giving," contact Deborah Ogden, Development Department, FOE, 530 7th Street, Washington, DC 20003, (202)543-4312.

LETTERS

To the editor:

I wasn't planning on contributing any more, because I was so pissed off about how you kept members in the dark while you wasted our contributions on an internal power struggle.

But I've relented—your intelligent coverage of the ozone depletion in the latest *Not Man Apart* convinced me. I think global warming ranks with overpopulation as one of the two most important ecological problems of this century (I list overpopulation because of habitat destruction in the Third World.) I hope NMA runs more articles on this issue. Keep up the good work!

—Dr. Frances Verter
Goddard Space Flight Center
National Aeronautics and Space Administration

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Dear Editor:

As usual, your most recent edition, July-August, was helpful and informative, but I found it ironic that you failed to highlight or even mention the connection between two of the major issues dealt with in the issue. That is, the climatic change resulting from the "greenhouse effect" and the role of tropical rainforests in mitigating this effect.

While Francesca Lyman does mention the "scientific uncertainties . . . at what rate the oceans and forests will stop absorbing emissions of carbon dioxide," never is it clearly stated that tropical rainforests fix carbon dioxide, thus functioning to lower atmospheric CO2. The continued destruction of the rainforests, therefore, succeeds in hastening the greenhouse effect. For lack of a better term, I have come to call this the "backend" of the greenhouse effect.

As the nations of the world eventually realize the disastrous results of global warming, this connection should help to serve as a major argument for rainforest protection.

—Joel Kaufman

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Dear Editor:

The July/August issue had considerable coverage of one of my main areas of concern: the weather. I found three interesting articles on the weather, but all with the same theory: the earth is warming. I think that if you are going to really cover a subject, you should investigate other points of view. Such an opposing theory is that of John Hamaker and Don Weaver in the book *The Survival of Civilization*, published in 1982.

The news reports from radio and TV seem to be reporting one disaster after another. Hamaker asks, "What does snow on the Riveria have to do with the drought in Ethopia? What does a recent forest fire in Borneo, the largest forest fire in recorded history, have to do with the dying of the Black Forest in Germany? As you read Hamaker and Weaver the reasons become clear.

Hamaker says an interglacial period normally lasts from 10,000 to 11,000 years, and we are 10,800 years into the present one. He adds that during an Ice Age, the glaciers crush rock onto the earth's surface and this blows to all parts of the globe, providing the fertile soil needed during interglacial periods. At the end of an interglacial period a critical stage is reached in which the available minerals become so scarce that most of the minerals in the soil are used up. Don Weaver, co-author with Hamaker, explains: "This gradual process over 10,000 years leaves a shrinking, sickening, very fragile worldwide plant/forest cover which grows increasingly susceptible to . . . insects, disease, acid rain, climatic extremes and fires, and loses its capacity to utilize carbon dioxide as it could earlier in the interglacial period."

Could the odd weather conditions of the last two decades—the droughts in Africa, the severe winters in New England, and the recent excessive rains in California—be harbingers of another period of glaciation? Some thirty times already glaciers have come down from the North."

—Vivian Menaker
Haines, Alaska

The author responds: There's no question that tropical deforestation has greatly added to atmospheric 'carbon dioxide. That's why the editor's note (p. 2) stated that the "greenhouse effect" issue is "a natural companion to the prevention of tropical deforestation, a vital campaign issue for many FOE International groups, since cutting these forests is a prime contributor to the greenhouse effect problem . . . trees absorb carbon dioxide, yet they release it when they're cut down."

If my feature on the politics of the debate slighted the forest issue it's because the news now is that policymakers are finally looking seriously at emissions, particularly chlorofluorocarbons and other gases, which account for again as much as all CO2 emission put together. Deforestation is thought to be a source of only 15 percent of the CO2. One scientist, George Woodwell of Woods Hole Oceanographic Institute, however, claims the figure's more like 50 percent. But it's agreed that it will be less of a culprit in the future for the sad reason that "we'll run out of forests before we run out of coal," as one EPA official put it.

In any case, there are no easy answers. It's clear that a solution will have to come from various strategies—yes, halting deforestation and conducting reforestation, but primarily changing society to reduce emissions and generally conserve. Otherwise, the forests we worry about in the future will not be those someone had the choice of cutting down but those that die out, blighted by strange climate shifts.

On the second point: the scientific establishment has only recently embraced the theory that we are undergoing a severe warming trend. From the 1940s to the 1960s, the scientific establishment thought the climate was cooling. But the Ice Age theories of John Hamaker described in the above letter do not have any credibility in today's National Academy of Sciences, according to Steve Seidel of EPA. I myself have not investigated the plausibility of these theories.

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Dear Editor:

I grimaced when I saw the flip headline on your lead story in the July-August issue. "World Population Hits High Five" had the mark of an article gleaned from the daily press and fleshed out with information from the World Almanac. While the population explosion is certainly a problem that we all need to know more about and subsequently address, this article pretends to explain in six short paragraphs one of the most complicated global problems we face.

I lived in Bangladesh, the epicenter of the population explosion, for two years, and have spent lesser amounts of time in India, Haiti, and other areas of the Third World where I witnessed the effects of First World solutions on the lives of very real Third World people.

Family planning in those countries does not mean making a visit to your friendly Planned Parenthood counselor for some compassionate planning advice. It is more likely to mean an unexpected, and unwelcomed, visit to your village from a member of the elite class, a person so separated from you by caste and culture that normal social interaction is unheard of. Family planning in this situation becomes more a case of the landowner class telling the peasant class what to do with their lives, again. And since pills certainly won't be effective (how can you be sure the women will take them day after day without your presence?), it falls to either of two methods to get the job done: sterilization or injectable contraceptives. Sterilization too often becomes a tool of coercion, with monetary rewards or punitive laws serving as the carrot and the stick.

The second "choice" is a long-term contraceptive that is injected once every two or three months. The problem here is that too often these contraceptives are still being tested on lab animals in the U.S. while they are being administered en masse in Third World countries.

In How the Other Half Dies, author Susan George explains the situation very succinctly. "If we stopped looking just for a moment at what we consider to be the problems of the poorest people ("too many children") and tried to look at life from their point of view ("my children are my only wealth"), then we might realize that [family planning] without social changes making children less necessary cannot possibly have any effect." In short, we would be far better advised to learn why poor people want and need children than to worry about alarming population figures. I applaud the decision to cover global population in the pages of *NMA*, but please, treat the topic with at least as much research as you would an environmental threat closer to home.

—David Purviance
Missoula, Montana

Classifieds

Include for the record

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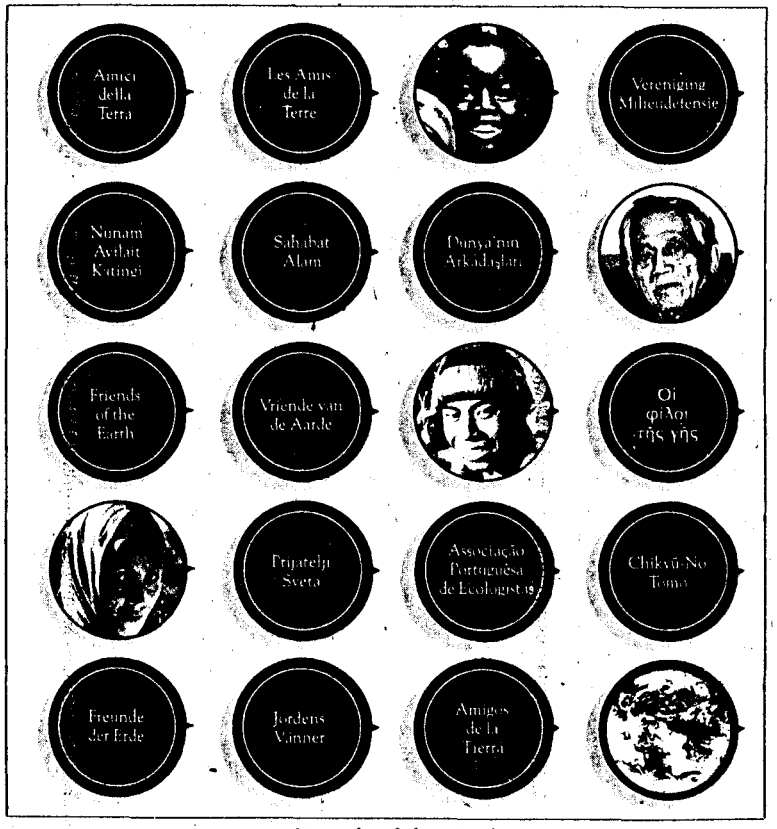

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ELECTION SPECIAL

Not Man Apart

VOLUME 16 NUMBER 5 SEPTEMBER-OCTOBER 1986 $2

The Newsmagazine of
Friends of the Earth

FACING THE FUTURE:
CAN FARMERS AFFORD FEDERAL WATER?

GREEN CITIES • CARIBOU • TOXIC CRIMINALS

Yukon Government

News Release

FOR RELEASE
January 6, 1987 #005

CONCERNS RAISED ABOUT PROPOSED ALASKAN OIL AND GAS EXPLORATION

WHITEHORSE - Renewable Resources Minister Dave Porter announced today that the Yukon government is increasing its efforts to persuade the United States Department of the Interior to not allow oil and gas exploration and development in the Artic National Wildlife Refuge in Alaska.

Porter told the Yukon Legislative Assembly today that presentations are being made to implement a unanimous motion of the legislature that was passed in December in opposition to the U.S. proposals.

Concern has been expressed on both sides of the Yukon/Alaska border that the proposal will have serious consequences on the future of the Porcupine caribou herd which uses the proposed region as its calving grounds.

The renewable resources minister told the legislature that an official from his department had made a presentation yesterday to a hearing in Anchorage, Alaska and had pointed out a number of serious omissions in the draft environmental impact statement.

" A presentation was also made by the Council for Yukon Indians and additional interventions are being made tonight in the village of Kaktovik, Alaska by the Porcupine Caribou Management Board and the band council of Old Crow," Porter said.

"On Friday of this week my deputy minister and a representative from the Executive Council Office will make a further intervention in Washington, D.C.

...../2

"Further to these initiatives, the federal government hopes to present its position on the issue to the U.S. Department of the Interior at a meeting in Ottawa on January 23. The Yukon government will also be represented at that meeting," the minister said.

Porter told the legislature that it was ironic and disturbing that the U.S. government was proposing to reduce protection for the wildlife in the Arctic coastal plain after years of urging Canada to do a better job of protecting resources on its side of the border.

"It is even more disturbing that they would write an impact statement which only makes passing reference to the effects in Canada, when, in fact, several important subsistence species are involved and most of the negative socio-economics effects would be experienced in Canada generally and by Old Crow in particular.

"The Yukon government is deeply concerned about moves toward oil and gas drilling in Alaska that could have unfortunate and unnecessary long term effects on the ability of the Old Crow people to harvest the Porcupine caribou herd as they have traditionally harvested the herd for generations," the minister said.

- 30 -

Dennis Senger
Public Affairs Bureau
(403) 667-5431

Government of Yukon
Box 2703
Whitehorse, Yukon, Y1A 2C6

MINISTERIAL STATEMENT

DATE: 06 JANUARY 1987

BY: HONOURABLE DAVID P. PORTER

RE: YUKON GOVERNMENT PRESENTATIONS TO U.S. DEPARTMENT OF INTERIOR HEARINGS ON THE FUTURE OF THE ARCTIC NATIONAL WILDLIFE REFUGE, COASTAL PLAIN

F-40

MR. SPEAKER, I AM PLEASED TO ANNOUNCE TODAY THAT I HAVE TAKEN STEPS TO ENSURE THAT THE YUKON GOVERNMENT, AS WELL AS SEVERAL MAJOR INTEREST GROUPS, ARE MAKING COMPREHENSIVE PRESENTATIONS TO THE UNITED STATES GOVERNMENT, OPPOSING THEIR PROPOSAL TO OPEN UP THE HEART OF THE PORCUPINE CARIBOU HERD CALVING GROUNDS TO OIL AND GAS DEVELOPMENT IN ALASKA. THESE PRESENTATIONS REPRESENT THE ACTIONS WE ARE TAKING TO IMPLEMENT THE UNANIMOUS MOTION OF THIS HOUSE SEVERAL WEEKS AGO.

YESTERDAY IN ANCHORAGE, OFFICIALS OF THE DEPARTMENT OF RENEWABLE RESOURCES SPOKE TO A NUMBER OF VERY SERIOUS OMISSIONS IN THE DRAFT ENVIRONMENTAL IMPACT STATEMENT. THE DEPARTMENT OF INTERIOR IS PROPOSING TO OPEN UP A VAST AREA ON THE NORTHERN SIDE OF THE ARCTIC NATIONAL WILDLIFE REFUGE TO OIL AND GAS LEASES: WITHOUT FIRST CONSULTING CANADA; WITHOUT CONSIDERING THE TRANSBOUNDARY EFFECTS ON CANADA; AND WITHOUT LOOKING AT THE TOTAL CUMULATIVE EFFECTS OF ALL THE DEVELOPMENTS ON THE CARIBOU, POLAR BEARS, SNOW GEESE AND MUSK OXEN.

A PRESENTATION WAS ALSO MADE BY THE COUNCIL FOR YUKON INDIANS AND ADDITIONAL INTERVENTIONS ARE BEING MADE TONIGHT IN THE VILLAGE OF KATOVIK, ALASKA BY THE PORCUPINE CARIBOU MANAGEMENT BOARD AND THE BAND COUNCIL OF OLD CROW. ON FRIDAY OF THIS WEEK MY DEPUTY MINISTER AND A REPRESENTATIVE FROM THE EXECUTIVE COUNCIL OFFICE WILL MAKE A FURTHER INTERVENTION IN WASHINGTON, D.C. FURTHER TO THESE INTIATIVES, THE FEDERAL GOVERNMENT HOPES TO PRESENT ITS POSITION ON THE ISSUE TO THE U.S. DEPARTMENT OF INTERIOR AT A MEETING IN OTTAWA ON JANUARY 23. THE YUKON GOVERNMENT WILL ALSO BE REPRESENTED AT THAT MEETING.

MR. SPEAKER, IT IS A LITTLE IRONIC AND VERY DISTURBING THAT THE U.S. GOVERNMENT IS PROPOSING TO REDUCE PROTECTION FOR THE WILDLIFE OF THE ARCTIC COASTAL PLAIN, AFTER YEARS OF URGING CANADA TO DO A BETTER JOB OF PROTECTING RESOURCES ON OUR SIDE OF THE BORDER. NOW WE HAVE A NATIONAL PARK AND SPECIAL MANAGEMENT MECHANISMS IN PLACE AND HAVE IN EFFECT CAUGHT UP WITH THE U.S.; THEY SEEM TO BE HEADED IN THE OPPOSITE DIRECTION.

IT IS EVEN MORE DISTURBING THAT THEY WOULD WRITE AN IMPACT STATEMENT WHICH ONLY MAKES PASSING REFERENCE TO THE EFFECTS IN CANADA, WHEN, IN FACT, SEVERAL IMPORTANT SUBSISTENCE SPECIES ARE INVOLVED AND MOST OF THE NEGATIVE SOCIO-ECONOMIC EFFECTS WOULD BE EXPERIENCED IN CANADA GENERALLY, AND BY OLD CROW IN PARTICULAR. THE YUKON GOVERNMENT IS DEEPLY CONCERNED ABOUT MOVES TOWARD OIL AND GAS DRILLING IN ALASKA THAT COULD HAVE UNFORTUNATE AND UNNECESSARY LONG TERM EFFECTS ON THE ABILITY OF THE OLD CROW PEOPLE TO HARVEST THE PORCUPINE CARIBOU HERD AS THEY HAVE TRADITIONALLY HARVESTED THE HERD FOR GENERATIONS.

IN LIGHT OF THESE CIRCUMSTANCES WE HAVE INSTRUCTED OUR OFFICIALS TO MAKE VERY STRONG STATEMENTS ON BEHALF OF OUR GOVERNMENT AND IN THE INTERESTS OF THE PEOPLE OF OLD CROW AND THE PEOPLE OF THE YUKON AND THE NORTH. COPIES OF THE STATEMENT MADE IN ANCHORAGE ARE AVAILABLE FOR YOUR REVIEW.

STATEMENT BY THE

GOVERNMENT OF THE YUKON TERRITORY

IN RESPONSE TO THE
DEPARTMENT OF THE INTERIOR
DRAFT ARCTIC NATIONAL WILDLIFE REFUGE, ALASKA,
COASTAL PLAIN RESOURCE ASSESSMENT

WASHINGTON, D.C.
JANUARY 9, 1987

F-41

PRESENTED BY:

W.J. KLASSEN, DEPUTY MINISTER,
DEPARTMENT OF RENEWABLE RESOURCES
W. OPPEN, DIRECTOR, INTERGOVERNMENTAL RELATIONS BRANCH
EXECUTIVE COUNCIL OFFICE

GOVERNMENT OF THE YUKON PRESENTATION TO
THE DEPARTMENT OF INTERIOR DRAFT ANWR EIS HEARINGS
(WASHINGTON, JANUARY 9, 1987)

MR. CHAIRMAN, PANEL MEMBERS, DISTINGUISHED OBSERVERS, LADIES AND GENTLEMEN:

MY NAME IS WILLIAM J. KLASSEN. I AM THE DEPUTY MINISTER OF THE DEPARTMENT OF RENEWABLE RESOURCES FOR THE GOVERNMENT OF THE YUKON. OUR DEPARTMENT HAS THE PRIMARY RESPONSIBILITY FOR MANAGEMENT OF THE PORCUPINE CARIBOU HERD WHEN IT IS PRESENT ON THE CANADIAN SIDE OF THE ALASKA/YUKON BORDER.

WITH ME TODAY IS MR. WILLIAM OPPEN, THE DIRECTOR OF THE INTERGOVERNMENTAL RELATIONS BRANCH OF THE YUKON GOVERNMENT'S EXECUTIVE COUNCIL OFFICE. MR. OPPEN HAS THE PRIMARY RESPONSIBILITY FOR LIAISON BETWEEN OUR GOVERNMENT AND OTHERS.

WE WOULD LIKE TO BEGIN OUR REMARKS TODAY BY THANKING YOU FOR THE OPPORTUNITY TO MAKE THIS PRESENTATION. THE RESOURCES OUR TWO COUNTRIES SHARE ALONG THE ALASKA/YUKON BORDER ARE CRITICALLY IMPORTANT TO THE PEOPLES OF THE YUKON SO WE ARE TRULY THANKFUL FOR THE PRIVILEGE OF REPRESENTING OUR INTERESTS IN THESE MATTERS.

IN THE TWO PREVIOUS HEARINGS THIS WEEK IN KAKTOVIK AND ANCHORAGE, THE DEPARTMENT OF THE INTERIOR HAS HEARD PRESENTATIONS BY PROFESSIONAL STAFF OF OUR DEPARTMENT, FROM THE PEOPLE AND ELDERS OF THE COMMUNITY OF OLD CROW, FROM OUR PORCUPINE CARIBOU MANAGEMENT BOARD, AND FROM THE COUNCIL FOR YUKON INDIANS. AS WELL, TODAY, WE ARE TABLING A TECHNICAL ANALYSIS OF THE DRAFT EIS.

WE ARE HERE TODAY TO REPEAT AND REINFORCE THE COMPLEMENTARY MESSAGES IN THESE DIFFERENT PRESENTATIONS - AND TO URGE YOU TO RECONSIDER THE RECOMMENDATIONS FOR FULL DEVELOPMENT CONTAINED IN THE DRAFT EIS. WE SINCERELY BELIEVE THAT CRITICAL WILDLIFE HABITATS AND RESOURCES ON THE ALASKAN AND CANADIAN NORTH SLOPE SHOULD BE STRONGLY PROTECTED, AND THAT THE NORTH SLOPE ITSELF SHOULD BE MANAGED ACCORDING TO CONSERVATION-ORIENTED OBJECTIVES. ANY DEVELOPMENT IN THIS REGION SHOULD BE PERMITTED ONLY IF IT WOULD NOT CONFLICT WITH THE CONSERVATION OF THE WILDLIFE RESOURCES.

WE FURTHER BELIEVE THAT REASONS FOR PROTECTING THE 1002 LANDS ARE FAR MORE COMPELLING THAN THE OFTEN LIMITED TECHNICAL REASONS

FORWARDED IN THE REPORT. ALTHOUGH THE DRAFT EIS DOES IDENTIFY THE TRADEOFFS WHICH WOULD BE REQUIRED TO ALLOW FULL DEVELOPMENT IN THE 1002 LANDS, IT DOES NOT ADEQUATELY ADDRESS THE TANGIBLE REALITY THAT THE MOST HEAVILY IMPACTED SPECIES ARE TRANSBOUNDARY RESOURCES OF CONSIDERABLE INTERNATIONAL SIGNIFICANCE.

WITH RESPECT TO THE PORCUPINE CARIBOU HERD, FOR EXAMPLE, A MAJOR IMPACT IS IDENTIFIED DUE TO THE ENCROACHMENT OF DEVELOPMENT INTO THE HEART OF THE CALVING GROUNDS. THE EIS SUGGESTS THAT SUCH AN ENCROACHMENT COULD LEAD TO A 20-40% REDUCTION IN THE SIZE OF THE CARIBOU HERD. FOR THAT REASON ALONE, WE BELIEVE THAT ANY SUCH IMPACT SHOULD BE CONSIDERED ENTIRELY UNACCEPTABLE. HOWEVER, WE FURTHER BELIEVE THAT THE DRAFT EIS CONSIDERABLY UNDERESTIMATES THE SIGNIFICANCE OF A REDUCTION OF THAT MAGNITUDE TO THE SUBSISTENCE USERS OF THE HERD, WHO ARE PRIMARILY LOCATED IN COMMUNITIES IN CANADA INCLUDING OLD CROW IN THE YUKON AND FORT MCPHERSON, ARCTIC RED RIVER, AKLAVIK, INUVIK AND TUKTOYAKTUK IN THE NORTHWEST TERRITORIES. BY IGNORING SUCH TRANSBOUNDARY EFFECTS THE DRAFT EIS IS FUNDAMENTALLY FLAWED.

F-42

WE ALSO MUST VOICE OUR CONSIDERABLE DISAGREEMENT WITH THE WRITERS OF THE EXECUTIVE SUMMARY WHO SUGGEST THAT DEVELOPMENTS ON THE CARIBOU CALVING GROUNDS CAN BE UNDERTAKEN WITH NO NET LOSS OF HABITAT QUALITY. SUCH A STATEMENT CONTRADICTS THE MAIN BODY OF THE DRAFT EIS AND WE BELIEVE SUCH AN ACHIEVEMENT IS LIKELY IMPOSSIBLE.

WE HAVE SIMILAR CONCERNS ABOUT THE OTHER SIGNIFICANT TRANSBOUNDARY SPECIES.

THE MUSKOXEN PRESENT IN ALASKA ARE SLOWLY REPOPULATING THE ARCTIC NATIONAL WILDLIFE REFUGE AREA AS WELL AS THE NORTHERN YUKON, WHERE THEY WERE EXTIRPATED DURING THE LAST CENTURY. THIS IS A VALUABLE AND IMPORTANT OCCURENCE WHICH SHOULD BE PERMITTED TO CONTINUE.

THE MIGRATORY SNOW GEESE POPULATIONS, WHICH USE THE 1002 LANDS AS AN IMPORTANT STAGING AREA, ARE ALSO UNDER CONSIDERABLE THREAT FROM THE PROPOSED DEVELOPMENTS, AND THERE IS VERY LITTLE ACKNOWLEDGEMENT OF THE INTERNATIONAL IMPORTANCE OF THE SPECIES.

HOWEVER, WE DO NOTE THAT THE DEPARTMENT OF THE INTERIOR RECOGNIZES THE IMPORTANCE OF WATERFOWL HABITATS. WE WERE VERY ENCOURAGED TO READ IN A RECENT ISSUE OF THE DUCKS UNLIMITED JOURNAL THAT ASSISTANT SECRETARY HORN IS WELL APPRISED OF THE

INTERNATIONAL SIGNIFICANCE OF WATERFOWL HABITATS SUCH AS THE ARCTIC NATIONAL WILDLIFE REFUGE NORTH SLOPE. WITH REFERENCE TO THE NORTH AMERICAN WATERFOWL MANAGEMENT PLAN, WHICH HAS THE GOAL OF PROTECTING AN ADDITIONAL FIVE MILLION ACRES OF HABITAT BY THE YEAR 2000, ASSISTANT SECRETARY HORN STATED THAT "THE PLAN GOES AFTER HABITAT ACQUISITION SO THAT WE CAN START TO BUILD HABITAT BACK UP, ONE OF THE CRITICAL ELEMENTS IN HELPING PUT OUR WATERFOWL POPULATIONS BACK TOWARD THE 100 MILLION LEVEL. THE OBJECTIVE NOW IS TO GET THE FINGER IN THE DIKE AND STOP THE LEAKING". IN OUR OPINION, PROTECTING THE ARCTIC NATIONAL WILDLIFE REFUGE COASTAL PLAIN WOULD DO MUCH TO ACHIEVE THIS.

SIMILARLY, POLAR BEARS PRESENT IN THE AREA ARE PART OF A LARGER REGIONAL POPULATION THAT SHOULD BE ASSESSED IN A MORE COMPREHENSIVE MANNER THAN THAT PROVIDED IN THE DRAFT EIS.

CARIBOU, POLAR BEAR, WATERFOWL AND OTHER MIGRATORY SPECIES PLAY A CRUCIAL ROLE IN THE SUBSISTENCE ECONOMIES OF THE LARGELY NATIVE COMMUNITIES IN THE YUKON AND IN THE NORTHWESTERN CORNER OF THE NORTHWEST TERRITORIES. IN RECENT YEARS WE HAVE BEGUN TO BETTER MANAGE THESE SPECIES, BOTH FOR THEIR OWN SAKE AND TO ENSURE THAT THE SUBSISTENCE ECONOMY IS SUPPORTED IN A MANNER WHICH CAN BE SUSTAINABLE INTO THE FUTURE. THESE MEASURES HAVE INCLUDED THE ESTABLISHMENT OF THE NORTH YUKON NATIONAL PARK AND HERSCHEL ISLAND TERRITORIAL PARK AND THE SETTLEMENT OF THE INUVIALUIT LAND CLAIM, WHICH ESTABLISHES A CONSERVATION-ORIENTED REGIME FOR MANAGEMENT OF THE YUKON'S NORTH SLOPE. IN ADDITION, THE GOVERNMENTS OF CANADA, THE NORTHWEST TERRITORIES AND THE YUKON GOT TOGETHER WITH NATIVE INTERESTS TO CREATE AN IN-CANADA AGREEMENT ON MANAGEMENT OF THE PORCUPINE CARIBOU HERD. THIS AGREEMENT HAS BEEN IMPLEMENTED THROUGH THE PORCUPINE CARIBOU MANAGEMENT BOARD. IT IS WORTH POINTING OUT THAT THE STIMULUS FOR MANY OF THESE MEASURES WAS THE CREATION OF THE ARCTIC NATIONAL WILDLIFE REFUGE IN 1980, AND OTHER CONSERVATION MEASURES ENACTED IN ALASKA.

THESE LAND ALLOCATIONS AND MANAGEMENT STRUCTURES HAVE BEEN PUT IN PLACE TO PROTECT HABITAT FOR PORCUPINE CARIBOU AND OTHER SPECIES, AND TO ENSURE AN APPROPRIATE, SUSTAINABLE ALLOCATION OF THE HARVEST IN THE REGION. THEY ARE AN ACKNOWLEDGEMENT OF THE DEPENDENCE OF THE PEOPLE OF OLD CROW ON THE HARVEST OF THE PORCUPINE CARIBOU HERD AND AN ACKNOWLEDGEMENT OF THE CONSIDERABLE IMPORTANCE OF THE HERD, GENERALLY, TO THE PEOPLE OF THE YUKON, THE NORTHWEST TERRITORIES AND CANADA. IN ADDITION, THEY ARE AN

INDICATION OF OUR GOVERNMENT'S STRONG COMMITMENT TO THE IMPLEMENTATION OF THE WORLD CONSERVATION STRATEGY.

MR. CHAIRMAN, NONE OF THESE VERY SIGNIFICANT FACTORS ARE IDENTIFIED IN A MEANINGFUL WAY IN THE DRAFT EIS, WHICH NONETHELESS PROPOSES TO IMPOSE A DRASTIC REDUCTION IN THE SIZE OF THE HERD THAT WILL POTENTIALLY HAVE A HUGE EFFECT ON OUR PEOPLE AS WELL AS YOURS.

MR. CHAIRMAN, ALL OF THE SPECIES AT RISK FROM THE PROPOSED DEVELOPMENT HAVE BOTH UTILITARIAN AND INTRINSIC VALUE AS PART OF THE ARCTIC ECOSYSTEM. THEY ARE INTERNATIONALLY SIGNIFICANT AND FIGURE HIGHLY IN THE NORTH AMERICAN UNDERSTANDING OF THE IMPORTANCE OF ARCTIC REGIONS. PROTECTING COMPLETE ARCTIC ECOSYSTEMS WAS THE PRIMARY VISION OF THOSE WHO DEVELOPED THE ARCTIC NATIONAL WILDLIFE REFUGE AND WHO LATER HELPED TO CONVINCE THE GOVERNMENT OF CANADA TO PROCEED WITH COMPLEMENTARY PROTECTION MEASURES. IT WOULD INDEED BE EXCEPTIONALLY UNFORTUNATE IF THIS VISION WERE FORSAKEN, BASED ON AN INCOMPLETE ASSESSMENT OF THE VALUES OF THE REGION.

F-43

MR. CHAIRMAN, IN OUR VARIOUS PRESENTATIONS THIS WEEK WE HAVE POINTED OUT A RANGE OF PROBLEMS WITH THE DRAFT EIS: WE HAVE TECHNICAL CONCERNS ABOUT ASPECTS OF THE INTERPRETATION OF BIOLOGICAL DATA; WE HAVE DISAGREEMENTS WITH THE RATING OF THE SIGNIFICANCE OF SOME IMPACTS; AND WE ARE DISTURBED BY THE TRADEOFF THAT HAS BEEN CHOSEN BY THE AUTHORS OF THE DRAFT EIS. PARTICULARLY IN THE LATTER CASE THERE IS A FAILURE TO ACKNOWLEDGE THE TRANSBOUNDARY EFFECTS OF DEVELOPMENT. WHEN ONE CONSIDERS FURTHER THAT THERE IS NO ASSESSMENT OF THE CUMULATIVE EFFECTS OF DEVELOPMENTS ON 1002 LANDS WITH THE PROPOSED DEVELOPMENTS ON THE OUTER CONTINENTAL SHELF LEASE SALES OR OTHER POTENTIAL DEVELOPMENTS OR ACTIVITIES IN ALASKA AND THE IMMEDIATELY ADJACENT AREAS OF CANADA, ONE CAN ONLY CONCLUDE THAT THE DRAFT EIS DOES NOT PROVIDE AN ADEQUATE ASSESSMENT OF THE NEGATIVE CONSEQUENCES OF DEVELOPMENT.

WE WOULD ALSO ADD THAT IF WE CONSIDER THIS UNDERESTIMATE OF ENVIRONMENTAL EFFECTS IN LIGHT OF THE EXTREMELY PROBLEMATIC NATURE OF THE ENERGY RESOURCE ESTIMATES, WE ARE NOT CONVINCED THAT THE TRADEOFF PROPOSED IN THE DRAFT EIS IS EITHER A REALISTIC OR A COMPLETELY FAIR EXPOSITION OF ALL THE FACTORS AT RISK IN THE SITUATION.

THE CUMULATIVE EFFECTS OF SEVERAL DEVELOPMENTS COULD ONLY BE DEALT WITH THROUGH JOINT PLANNING WITH ALL RESOURCE USERS ON BOTH SIDES OF THE BORDER. THIS RAISES THE ISSUE OF CONSULTATION WITH OUR GOVERNMENT AND OTHER CANADIAN JURISDICTIONS. ALTHOUGH REQUIRED UNDER SECTION 1005 OF THE ALASKA NATIONAL INTEREST LANDS CONSERVATION ACT, NO CONSULTATIONS WITH OUR GOVERNMENT OR OTHER CANADIAN AGENCIES, INTEREST GROUPS OR NATIVE ORGANIZATIONS OCCURRED. IN THE HEARINGS IN ANCHORAGE ON THE OFFSHORE LEASE SALES, WE MADE AN INTERVENTION IN WHICH WE EXPRESSED OUR CONCERNS ABOUT THE LACK OF CONSULTATION WITH AGENCIES IN CANADA. WE WOULD LIKE TO EMPHASIZE THAT SAME CONTINUING CONCERN HERE TODAY. ONLY BY ACTIVE AND ONGOING CONSULTATIONS BETWEEN OUR JURISDICTIONS CAN WE ENSURE COORDINATED AND CONSISTENT MANAGEMENT OF THE TRANSBOUNDARY RESOURCES THAT WE SHARE. THE GOVERNMENT OF CANADA, THROUGH THE FEDERAL DEPARTMENT OF EXTERNAL AFFAIRS, HAS FORMALLY REQUESTED A MEETING OF UNITED STATES, ALASKAN, YUKON AND FEDERAL CANADIAN OFFICIALS TO FULFILL THE REQUIREMENTS OF SECTION 1005. ALTHOUGH IT HAS NOT BEEN CONFIRMED, IT IS OUR UNDERSTANDING AT THIS TIME THAT THE MEETING MAY BE HELD LATER THIS MONTH IN OTTAWA.

TO SUM UP, MR. CHAIRMAN, WE HAVE THREE MAIN CONCERNS WITH THIS EIS. FIRST, WE WOULD NOTE THAT, DESPITE THE REQUIREMENTS OF SECTION 1005 OF ANILCA, NO CANADIAN GOVERNMENTS, AGENCIES, NATIVE GROUPS, ENVIRONMENTAL GROUPS OR OTHER INTEREST GROUPS WERE OFFICIALLY CONSULTED ABOUT THE 1002 REPORT. SECOND, THE EIS DOES NOT ADEQUATELY CONSIDER THE POTENTIAL CUMULATIVE EFFECTS OF THE VARIOUS DEVELOPMENT POSSIBILITIES IN THE ALASKAN NORTH SLOPE AND THE ADJOINING CANADIAN LANDS AND WATERS. THIRD, THE RECOMMENDATIONS IN THE EIS DO NOT REFLECT THE BROADER ECOLOGICAL RESPONSIBILITIES THAT OUR GOVERNMENTS SHARE TO ENSURE THAT THIS GLOBALLY-SIGNIFICANT WILDLIFE RESOURCE IS MANAGED TO MEET CONSERVATION-ORIENTED OBJECTIVES.

IN VIEW OF THESE AND OTHER CONCERNS WE HAVE RAISED, MR. CHAIRMAN, WE WOULD STRONGLY URGE THE DEPARTMENT OF THE INTERIOR TO RECONSIDER THE SUBSTANCE AND THE CONCLUSIONS OF THIS DRAFT EIS. THE RESOURCES AT RISK ON THE 1002 LANDS ARE NOT SIGNIFICANT SOLELY FROM AN ALASKAN PERSPECTIVE. THEY ARE ALSO OF CONSIDERABLE SIGNIFICANCE TO CANADA AND HAVE WELL-ACKNOWLEDGED INTRINSIC INTERNATIONAL SIGNIFICANCE, AND SHOULD BE MANAGED ACCORDINGLY. IN THE LAST 15 YEARS, BOTH IN ALASKA AND IN CANADA SIGNIFICANT STEPS HAVE BEEN TAKEN TO PROTECT THESE RESOURCES. IN OUR OPINION, HOWEVER, THE FULL-LEASING ALTERNATIVE RECOMMENDED IN THE DRAFT EIS WOULD BE A STEP IN THE WRONG DIRECTION.

THANK YOU VERY MUCH FOR THIS OPPORTUNITY.

F-44

GOVERNMENT OF THE YUKON

SUMMARY OF TECHNICAL ISSUES AND CONCERNS WITH THE U.S. DEPARTMENT OF INTERIOR DRAFT ARCTIC NATIONAL WILFLIFE REFUGE, ALASKA COASTAL PLAIN RESOURCE ASSESSMENT

PRESENTED IN WASHINGTON, D.C.
JANUARY 9, 1987

SUMMARY OF TECHNICAL ISSUES AND CONCERNS

Following a technical review of the draft EIS by the professional staff of the Department of Renewable Resources and the Intergovernmental Relations Office, the Government of the Yukon offers the following comments and concerns which should be addressed in the final EIS.

A. GENERAL

The Arctic National Wildlife Refuge (ANWR) is nearly unique as a conservation system that is intended to protect a complete spectrum of various undisturbed arctic ecosystems in North America; the 1002 area is biologically the most productive part of ANWR. Given the biological richness of the area and the proposed scale of development under the full leasing scenario, the potential adverse environmental effects are unprecedented and not at all analogous to the Prudhoe Bay (PB) Development.

The pro-development nature of the Executive Summary is in direct contrast to the rather well balanced section on Environmental Consequences prepared by the USFWS. DOI proposes full leasing of 1002 lands and to control development by "imposing appropriate mitigative measures". DOI will do this by ensuring that "unnecessary adverse effects on the environment are avoided and that compensation for unavoidable loss of habitat occurs". These are reassuring words but fundamentally impossible to implement.

There is a lack of strategic land use planning on the Alaska North Slope that confounds the ability to predict effects of development. There appears to be no coordination between landowners or proposed oil/gas leasing schemes (OCS sale'97, sales on private or State lands/waters, etc.). The cumulative impacts, and their effects on Yukon North Slope development, must be considered before one can realistically evaluate environmental impacts. Site-specific mitigative measures are rendered useless when regional development as on 1002 lands, is uncontrolled.

As with the OCS sale '97, no Canadian agencies, governments, native or environmental groups were officially consulted on the 1002 report.

F-45

B. ENVIRONMENTAL ISSUES

Caribou

Seventy-eight percent of the core calving area for the Porcupine Caribou Herd lies within 1002 lands; the proposed east-west running pipeline/haul road could affect access to 80% of coastal insect-relief habitat. Displacement from the calving area represents a complete loss of habitat that cannot be mitigated; the magnitude of adverse effects is speculative but suitable alternative calving areas for the Porcupine Caribou Herd are not apparent.

Loss of calving habitat and barriers to free movement would reduce access to insect relief and feeding areas and result in increased levels of stress and disturbance. Cumulatively, these effects would reduce both available habitat and habitat values on remaining areas, resulting in population declines.

Repeated references in the Executive Summary to the Prudhoe Bay Oil Field (PBOF) and its "minimal" impact on the wildlife resource, are misleading and not applicable to the 1002 lands for the following reasons:

1. The Central Arctic Herd (CAH) has not increased because of oil development; its growth is due to high calf production/survival and relatively light hunting; the PBOF has displaced CAH calving without apparent adverse effects because only a small part of calving grounds are affected and suitable alternative high quality habitat is available. There are a lot fewer caribou in the CAH (13,000) than the PCH (180,000) and the CAH is not yet using the available habitat to capacity.

2. The partial habituation to oil development apparent in CAH (particularly among bulls) that may spend most of the summer, and some all year, near PBOF or the pipeline is not necessarily evidence that is transferable to PCH. PCH spend only 1 - 2 months on 1002 lands in much higher densities and in much larger groups (linear developments are more likely to become barriers to large groups of caribou); thus habituation to oil development is less likely for the PCH particularly since it consists mainly of pregnant cows or cows with calves.

3. The TAPS corridor runs north-south along the migration route of CAH. The proposed road and pipeline on 1002 lands runs

east-west and separates calving area from coastal insect relief, habitat and is therefore more likely to become a barrier.

4. Experiences with PBOF and CAH do not answer questions of what happens when caribou are displaced from their calving ground; concerns over similar developments on other herds are still valid.

The stated intent, under the full leasing scenario, is to leave the PCH calving area until last to allow experiences from the rest of 1002 to be used in developing mitigation for the calving area; this would protect calving area but still inhibit access to coastal insect relief habitat.

The importance of the PCH for subsistance use in Yukon and western N.W.T. must be stressed; in some years up to 80% of the harvest occurs in Canada; thus adverse effects on the PCH will be magnified in Canada.

Muskox

Impacts on muskoxen are considered major as they will be exposed to year-round activity throughout most of their existing habitat. There is no information available on the response of muskoxen to sustained oil development activities but given their non-migratory, localized feeding behavior and conservative winter energy budgets, one could expect a major change in distribution and population growth. The herd on the coastal plain is the only population on the Alaskan North Slope and groups or individuals have moved across to the Yukon where a subpopulation may now be established. The continued expansion of this muskox population is unlikely given full scale development.

Protection of the PCH calving area would only protect a small portion of muskox population.

Polar Bear

The Beaufort Sea population of polar bear ranges from Barrow to Tuktoyuktuk and numbers about 2000 bears. The population is currently stable and cannot withstand further mortality without resulting population decline. We have concerns over direct

mortality from oil spills and we can foresee abandonment of maternal denning areas. The only significant onshore denning area is on, and adjacent to, 1002 lands and both proposed marine port sites are confirmed denning areas, especially Pokok on the east side of 1002 lands.

Most denning occurs offshore and sites have been confirmed throughout the OCS Sale '97 area; a good example where the cumulative impact of two developments (1002 plus Sale '97) has the potential for major adverse impacts on an important subsistence species shared internationally. This is not addressed in the EIS.

Waterfowl

Ninety-nine percent of 1002 area is considered wetland which is often considered critical habitat for breeding, moulting, staging and migrating birds. A major impact is expected on snow geese that breed on Banks Island and use 1002 area as staging site in the fall; between 100-300,000 snow geese or 15 - 20% of the Banks Island population use the area. These birds are a shared resource with considerable subsistence value. The subsistence issue is not addressed in the EIS, nor is the international significance adequately covered.

Further it is not apparent that the EIS adequately considers the potential volumetric demand for drilling water nor the spatial extent of the impacts of stream diversion and potential damming. Seasonal flow patterns of coastal streams are quite likely to be modified and the effects of this are as yet unassessed.

C. CONCLUSION

The draft EIS confirms the considerable biological signficance of the ANWR lands, and the fact that most of the Porcupine Caribou Herd (PCH) calving area and insect-relief habitat is located in the 1002 lands (78%). However, based on the initial winter seismic exploration of the region, the DOI computer models predict that there is a 19% change of economically recoverable oil reserve (at $33.00/bbl). Assuming Oil is discovered the computer model predicts there is a 95 percent chance that 0.6 billion barrels of recoverable oil is available and there is a five percent chance of 9.2 billion barrels available. Given the shape of the probability distribution, the most likely discovery

will be 3.2 billion barrels of oil under the plain. U.S. demand for oil is estimated at 16 milli on barrels per day by the year 2000. If the ANWR area were developed and the oil discoveries were indeed achieved, the total U.S. demand would be met for 200 days.

The Department of Interior takes the position that the likelihood of discovery of oil, outweighs the acknowledged negative environmental impacts, including a 20 - 40% decrease in the size of the PCH.

We do not agree that the very uncertain potential for recovering 3.2BB is balanced by the loss of

1. a significant portion of the PCH calving area
2. the continued expansion of the only North Slope muskox population
3. an unknown but potentially important segment of the Beaufort Sea polar bear population
4. wetland habitat for internationally important migratory snow geese
5. wilderness values in an ecologically unique area
6. subsistence lifestyle not only in Kaktovik but also in Old Crow that have few alternatives to the PCH.

F-47

To suggest, as is done in the Executive Summary, that "development on 1002 lands would proceed with the goal of no net loss of habitat quality and that unnecessary adverse effects would not be allowed to occur" is an unfortunate misrepresentation and will not be achievable.

We believe the draft EIS should be amended to account for the various technical points raised above. If the Department of Interior disagrees with any of the technical points we have raised we would appreciate receiving a written explanation of the reasons for the disagreement.

Thank you.

The Yukon Legislative Assembly

Number 43 | 3rd Session | 26th Legislature

HANSARD

Wednesday, December 3, 1986 — 1:30 p.m.

Speaker: The Honourable Sam Johnston

and graduated as a lawyer. Now, to sit there as a Member of the Yukon Legislature would give me great pride and great pleasure.

We hope that the costs involved will not be prohibitive, and I have no hesitation in directing the House Leaders to make every possible effort to reach an agreement by which a sitting could be arranged to take place in Dawson in 1987. Thank you.

Applause

Hon. Mr. Kimmerly: I am glad the previous speaker mentioned costs, because that is part of the subject of my addition to this debate. When we get to it in the Capital Supplementaries, Members will discover that there is money allocated in Justice for this building. What we are going to do is reconstruct the old desks, which existed there in the Chambers' heyday. This will be, of course, a little more expense than buying modern furniture, however it will enable local economic stimulation in that the cabinet work can be done in Yukon and we can copy the old desks. I am told that two of them exist, which are in poor shape, but it is possible to reconstruct that old furniture.

» **Hon. Mr. Kimmerly:** This will, of course, add to the tourism potential of that room, especially in that building, as it can be a room that can be displayed to tourists. It will also be used for the circuit court when it sits in Dawson if the court consents to sit in a room that displays a crest, which exists in the building as well.

Hon. Mr. Penikett: I would like to join this debate briefly. Unlike the fortunate Member for Porter Creek West, my education is not complete and in some way one might argue that daily attendance in this House contributes to that process, but I must say that it is a toss-up some days as to which was the more pleasant of the two experiences, school or this institution to which I now attend.

Let me say quite simply that having moved the motion referred to by the Members here and having been joined in debate on that occasion by the then Minister responsible, the Member for Riverdale South, and seeing the readiness to respond to this initiative, I am, as the Minister of Renewable Resources said, extraordinarily pleased to have been blessed with the opportunity in my present role to see it through to completion.

Let me say without hesitation, in my view, that this is the most beautiful building in the Yukon Territory. Architecturally I think it is the most appealing. I also think the use of fir and native woods throughout is a wonderful example of what can be done, or what was done, by our forefathers with local materials and the building materials of the day.

On the last occasion that I was in that building, which, as the Member for Porter Creek East said, the locals refer to as the Museum Building, I wandered up into the Legislative Chamber. It was, as I said in 1983, a very sad occasion for me. As someone who is perverse enough to actually like legislators and is monomaniacal on the subject not to have visited every single one in this country at one point or another, and is even soft-hearted enough to feel quite sentimental about such facilities and their importance to our culture and civilization, and not just our political life, I was disturbed by the condition of the Chamber as it was then. There was furniture on its side with cobwebs and dust. It was in a general state of disrepair.

» Even though the Chamber is not yet furnished, even naked like it is, it is a beautiful sight. It is wonderful to see what has been done in the restoration of that building. I, for one, will look forward with great anticipation to the opportunity of holding a sitting, even a brief one, even a ceremonial one, at some occasion next year in that place.

I think it is important that, as a Legislature, we do that, not just as a gesture, as the Member for Faro suggested, towards a rural visibility. I think it is also important for us to do to maintain a sense, as few Members — save and except the Leader of the Official Opposition — will have, of the continuity and the longevity of this institution. I think you can make a convincing argument, for example, that this Legislature, as an institution, is older than Saskatchewan's. That is something that I think few Canadians would appreciate.

Because we are in a new building, in a new facility, in a new capital, I think we lose the sense of that. We lose touch with the past. I think it is as dangerous to neglect one's history as it is to be absentminded about one's future. I think it is very important that we celebrate the past — the roots, if you like — of this institution by having at least a ceremonial sitting in that place.

I would like to join the observation of the Member for Porter Creek West, with respect to the building not being just a building that has been restored and sitting there. It is not a dead artifact. It is a living, breathing building. Not only are museum people there, but offices of several government departments are there. I think it will be a building that is used and enjoyed and treasured by not only the people of Dawson and the people of the Yukon Territory, but by many visitors, as well, for years to come.

I think it ought to be a source of pride to the people of this territory that the territorial government did this restoration, rather than Parks Canada. The work we did in this case is commendable. It is something that is laudable, something about which we should feel very proud.

I would want to pay tribute to the architects, the Iredale partnership of Vancouver, BC and the general contractors, Klondike Enterprises, and the workers who performed so marvelously in the job. As we comment on the facility today, and the prospect of having this House sit there, I can only resume my place with much appreciation of the fact that the desire to go there is shared on all sides of this House, and I welcome the day when we arrive and relive, in some sense, the experience of our predecessors in this institution.

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Speaker: The honourable Member will close debate if he now speaks. Does any other Member wish to be heard?

Mr. Webster: Judging from the remarks during debate, it appears that this motion has been received favourably, and I welcome all of you to the special sitting in the old council chambers in the OTAB, hopefully some time next year.

One of the difficulties or hardships facing a representative of the Klondike riding is the fact that the workplace, the Yukon Legislative Assembly, is 330 miles from home. For once, it will be interesting that Members of the House will themselves experience commuting to and from work. For this reason, among others, I am very much looking forward to this special occasion.

Motion agreed to

Motion No. 65

Mr. Clerk: Item No. 3, standing in the name of Ms. Kassi.

Speaker: Is the honourable Member prepared to proceed with Item No. 3?

Ms. Kassi: Yes.

Speaker: It has been moved by the honourable Member for Old Crow:

THAT this House requests that the Government of Yukon seek immediate communication by the Government of Canada to the Government of the United States expressing the deep concern of this House and of Yukon people over activity in Alaska which may harm the Porcupine Caribou Herd, a resource that people of both countries depend upon; and

THAT the Government of Canada be specifically requested to emphasize the importance of concluding an international agreement on caribou prior to the United States making any decisions on activity in the Arctic National Wildlife Refuge which may harm the herd.

Ms. Kassi: This motion is before the House today because of events in the United States, which may take place in Alaska in the near future. These events concern the Porcupine caribou herd, which many people rely on. I think all honourable Members are aware of the importance of this herd to my people as well as to the people nearby in the Northwest Territories and Alaska.

We are talking about the proposal by the Department of the Interior of the United States government. This proposal suggests that the United States government allow oil and gas exploration on

the Alaska North Slope in the calving grounds of the Porcupine caribou herd. Most honourable Members are aware that the calving grounds of this herd are limited a great deal by geography.

» There is a fairly narrow strip of coastal plain between the British Mountains and the Beaufort Sea that are used for calving grounds. Simply put, if the caribou lose the use of these grounds for whatever reasons, then the population of the herd will be reduced, perhaps drastically. That means that a lot of northern people will suffer as a result. This exploration will take place between Prudhoe Bay, the Yukon border, and the Arctic National Wildlife Refuge, an area that the US federal government has control over.

The report resulted from the Alaska *National Interest Lands Act* of 1980, which required detailed assessment of the impact of oil and gas potential in the area involved. This report has been released. It states that full-scale petroleum exploration should proceed. They say that in doing this the impact on the caribou herd would be to reduce its population, and they seem to think that this is fine.

Obviously, the US Department of Interior did not consider the costs to my people or to other Yukoners, perhaps not even to Alaskans. As well, the people of Old Crow will not benefit from this petroleum exploration in Alaska. I doubt if Alaskans will in the long run, as well. The point is that the actions of this government could well hurt my people by hurting the caribou herd. Right now we have achieved a management agreement for users of the herd in Canada. This is a great accomplishment, and, once again, I commend all concerned, including our Yukon and federal governments.

At the moment, negotiations are underway between Canada and the United States for an agreement between these two countries on the international management question. This is because both countries recognize how important this herd, this great natural resource, really is, and because international management is what we must achieve to protect the herd for our children and our children's children.

However, now we find a US government department deciding that the herd is not worth saving or, at least, that jeopardizing its future is an acceptable risk for a few barrels of oil. From my point of view, and from the point of view of my people, the natural environment, which has meant a continued survival for so many years, is too often threatened by industrial development. Pollution, over-population, and all these sorts of problems around the world mean more and more natural wildlife habitats disappear each and every year. We see that every day when we look to the south; it goes on here in the north, as well.

My people, the Gwich'in, have cherished and protected our lands as long as we have been here, and we will continue to do so. We will work to ensure the preservation of a natural habitat for the wildlife forever. The land and the natural habitat it provides is our spirit, our culture, and our way of life. We hold a moral obligation to respect and preserve this natural environment, which we are a part of. The circumpolar north is the only vast wilderness left, and we must fight together to preserve it as long as we can.

» The caribou are our main livelihood. The caribou are our life. It has never been otherwise in my village of Old Crow. Caribou have migrated near our village for many thousands of years, and this is why the village is located where it is today. Our people have hunted this herd and depended on it for many thousands of years. We have conserved that herd. We have our ways to do so, and it remains the main source of food and clothing for my people.

The coastal plain is critical to the life cycle of the caribou herd. Calving time in that part of the year when the young caribou are on the calving ground is very critical to the health of that herd. The caribou are extremely sensitive to intrusions at this time. Exploration in this area would cause disturbance and harm to the herd. Their food base would be diminished, diseases will set in and, as a result, the population will become more vulnerable to predators, and the population would decline. The Porcupine caribou still range freely, but they are being attacked from all sides, from Prudhoe Bay, from the Beaufort, from the Dempster, and from the Northwest Territories. The herd are under pressure now; they should not be squeezed anymore. The caribou have roamed freely for centuries in northern Yukon and Alaska. We should leave them free and healthy.

The intent of my motion is to express, through the proper channels of the Department of External Affairs, to the United States government the importance of this herd to all Yukoners and the importance of achieving an international agreement on the Porcupine caribou before decisions can be taken on the petroleum exploration on the Alaska north coast and in the Arctic National Wildlife Refuge. With that, I will end my opening remarks and ask all hon. Members for their support to this motion.

Applause

Mr. Phelps: I would like to begin by thanking the Member for Old Crow for bringing this motion forward. It concerns a very important subject matter not only to the people of Old Crow, whom she represents, but, of course, to all Yukoners, all northerners. It really deals with a significant and unique world resource.

We have, and I have, a special interest in the Porcupine Caribou Herd because of the time that I spent, along with many other people, working to try to bring together a management agreement on the Canada side. That agreement was finally achieved and signed in Old Crow just a little over a year ago — time flies by.

» All the community user groups had representatives from the Canadian side, and some from the Alaskan side, present at that very important signing. I want to express my appreciation for having been invited by the Minister of Renewable Resources. I accept that as a very gracious gesture.

I was pleased, at that time, to meet with many of the Elders of Old Crow whom we have had negotiations with; they have been at the table on numerous occasions, many of the Elders from the other communities, such as Fort McPherson and Aklavik and Inuvik, who have partaken of the strenuous ongoing negotiations, and to meet with some of the other negotiators, such as Bob Deleury from the COPE people, Grafton Njootli had carried the ball for a considerable period of time, as well as then Chief Johnny Able, later Stanley Njootli. There was a tremendous number of people from Renewable Resources, from this government, who were involved and very dedicated in attempting to find a solution, which was very difficult to achieve, given the conflicting problems that all parties had.

There were so many user groups, each trying to get a fair share of the resource. There were territorial rights to sort out. There were the differing interests sometimes between the governments because of their special concerns.

All involved realized that these kinds of competing interests had to be put aside for the betterment of the herd.

What was achieved, as the Member for Old Crow has ably expressed this afternoon, was a partial solution, because it dealt only with the Canadian side. As most people know, the herd ranges across the international border into Alaska. A significant area for its calving grounds are in Alaska. The next step is to try to achieve agreement internationally with the State of Alaska and the user groups and then the federal governments, as well, bringing everything together into an international treaty.

It is a huge undertaking. We have come part of the way, but it is almost overwhelming when one really sits down and considers all the various parties that attend and have significant interests in arriving at a solution to try to ensure that this herd is and will be, in perpetuity, protected as well as it can be within the competency of mankind.

» I am pleased to see that there are some people from Old Crow in the audience today. It is a significant fact that Old Crow's dependency on the herd is unique, unique in that, of the community user groups, it is the community that relies on the the herd.

The communities in the NWT have other herds that they do hunt that they can turn to. It is that unique dependency that made us extra careful in negotiating the agreement to ensure that that was recognized and that, if there were hard times during any period of years, Old Crow's interests would be protected in a very, very careful fashion.

I am convinced that, because of the work done by all of the people who were in attendance at the meetings, we did accomplish

that very important goal. What has happened now has to be of tremendous concern to us all. It has to be partiicularly alarming to the Old Crow people whose very lifestyles are dependent on the health of the herd. Again, I thank the Member Member for Old Crow for pointing out some facts that I will repeat, in part at least, because they are significant ones and they have been very correctly stated.

The first point that people have to be aware of is that this large herd calves in a very restricted physical area, restricted because it is a narrow coastal plain, the Beaufort Sea on one side and the mountains on the other. When activity does take place, it certainly does not leave much room for that herd to get out of the way of mankind's development. That has to be of tremendous concern, not only to us, but especially to the Old Crow people.

The Member for Old Crow has spoken about the possible reduction of the herd, and that is certainly one consequence. Yet another consequence, and one about which we must really be alarmed about, is the potential for the herd to change its migratory patterns.

» This has happened already, from time to time, often for reasons that the biologists do not know. There is a large degree of unpredictability. It is a difficult situation to manage for that reason. If the migratory patterns change, they could bypass Old Crow at such a distance that it would have the same effect as a disaster to the herd itself, so that has to be a sincere concern shared by all of us.

I take a great deal of pleasure in standing up to support the motion. I am sure that it will be passed unanimously in the House. I am sure that that very fact will have some significance on the political process whereby the Government of the United States will be making its determinations regarding the possibility of allowing oil production on the north coast.

Once again, we will be fully in support of this important motion.

Applause

Hon. Mr. Porter: Like the previous speaker, I, too, would like to acknowledge the presence in the gallery of the representatives from the community of Old Crow and would like to welcome those individuals to these Chambers. I think their being here today makes a statement as to the degree of concern that they have on this issue and, more specifically, on the future of the Porcupine caribou herd. Maybe their presence here today might mean that there will be some dry meat on my desk when I get back. I will have to wait until the break.

With respect to this particular question, I was contemplating an announcement earlier on with respect to the initiatives that this government is undertaking regarding the international talks. It was during the discussions with the department concerning the drafting of that announcement that we learned of the most recent events. In the last two weeks we have become aware that a new draft report from the US Department of the Interior recommends a major expansion of oil and gas leasing and exploration of some critical portions of the Porcupine caribou herd's range, particularly the calving grounds.

Needless to say, it is a disturbing development that, potentially, runs counter to many of the incremental habitat protection improvements that have been achieved on both sides of the border in recent years.

»The US report acknowledges that there will be negative effects on the Porcupine herd and thereby there are potential negative consequences for the people who use that herd. I think we have heard in earlier debates the importance of the Porcupine caribou herd to all of the people who live in the area of the caribou habitat, and I think that we are very well apprised of what that particular resource means to those people.

For me, as the Minister of Renewable Resources, there are at least two necessary reactions to the announcement made by the US Department of the Interior.

First, I think we have to redouble our efforts to negotiate an effective international agreement, and, secondly, I believe that this House should make its immediate concerns about the proposed oil and gas leasing clearly known to our US friends. We have an ideal opportunity to do so because public hearings are to be held in Kaktovik, Anchorage and Washington, DC before January 23, 1987.

I have outlined before that in our International Management Agreement we need the strongest possible assurances of the strongest possible habitat protection measures. We need an equitable management and allocation system, and we need to ensure that the use of the herd can be sustained in perpetuity. These messages must also be taken as directly as possible to the United States bureaucratic decision-makers and the politicians. We need to ensure that the decision-making that is now taking place truly reflects the needs of Alaskan and Canadian users of the Porcupine herd and to ensure that the precedent that could be established, if the Department of Interior report is accepted, does not destroy our ability to jointly manage the herd before the agreement to do so is even negotiated and signed.

Almost seven years ago, the United States government passed the *Alaskan National Interest Lands Conservation Act* after years of effort to protect the incredible wilderness resources of Alaska. Traditional subsistence activities were designed into the management of the Arctic National Wildlife Refuge, but the fact that the area became a wildlife refuge with only 50 percent zoned wilderness was the result of a major political compromise. The coastal plain remained in limbo, and the Department of Interior was asked to study the oil and gas issue in more detail before any decisions were made.

Now, after seven years of wrangling and negotiating, their report basically states the well-known fact that heavy development will have negative effects on the Porcupine herd and obviously negate the wilderness characteristics of the coastal plain, but it is a value judgment.

Hard evidence of oil and gas is not available. The preliminary results of seismic work and drilling on private land near Kaktovik were inconclusive, and the report says there is 95 percent chance of a relatively small oil field and a five percent chance of a large oil and gas field. I basically think that the value judgment that we are discussing here, which is being made in other parts of the world, is a very critical one, and I think that when we do make that judgment, we have to balance the interests of the people of that area, the caribou and, as well, the wilderness values of that particular region.

» It is ironic that for many years the Americans, specifically the Alaskans, have asked us to do something about joint protection. The Arctic International Wildlife Range idea was hashed over many years ago, and the US made most of the early tangible strides to gain real protection for the Arctic landscapes. Now we are potentially faced with a real decrease in the level of US protection while we, in Canada, at this time have quite good and improving measures that are being incorporated onto our books on laws and regulations.

I have often mentioned that we need to speak about environment and development rather than always thinking in terms of environment against development. As Donald McDonald stated in the recent Commission on the Canadian Economy, "Although the Government of Canada has talked about balanced development, not enough has been done to protect areas of outstanding natural significance. We must recognize the intrinsic values of the northern ecosystem. We must all learn to value the wilderness and the unspoiled aesthetic virtues of the north. The environment is the very ground of our existence and intrinsicly wanting of our respect and even of our awe".

I want to express the theme once again and argue to all Members of this House to consider this motion and to give it unanimous consent. In conclusion, I think that what the Leader of the Official Opposition has said about the intentions of his party to support this measure is welcomed by this side, particularly myself.

I would also like to convey a statement of congratulations to the Leader of the Official Opposition for the way in which he approached, and spoke to, this measure. I believe the Leader of the Official Opposition when he says that he has the best interests of those people at heart. I believe the Member has some very real honest concerns with respect to the whole question of the North

Slope and its development. I think it is an important statement today that over the last couple of days we may have been wrangling about what some may deem as to be petty and inconsequential adminsitrative issues that we can come together on a substantive issue of policy and philosophy and make a joint statement. I think that demonstrates to the people, whom we represent, that the system does work.

With respect to the motion before us, I would thank the Member for Old Crow for doing the work to bring this motion to the attention of the House. I would like to thank all Members for giving their support to this issue.

Thank you.

» *Motion No. 65 agreed to*

Motion No. 62

Clerk: Item number 7, standing in the name of Mr. Brewster.

Speaker: Is the hon. Member prepared to deal with item number 7?

Mr. Brewster: Yes, Mr. Speaker.

Speaker: It has been moved by the hon. Member for Kluane

THAT this House urges the Canada Mortgage and Housing Corporation and the Yukon Housing Corporation to amend the current Rural and Native Demonstration Program to provide a thirty-year, no interest loan rather than an outright grant for building materials.

Mr. Brewster: I presented this motion to help straighten out the important housing situation that exists in Carmacks as a result of the Rural and Native Demonstration Program provided jointly by CMHC and YHC.

If Members have been reading the local newspapers, I am sure they have noticed a whole series of letters to the editor explaining both sides of this issue. A major controversy about the program is currently raging in Carmacks. I had a talk with many people about the program, and most people agree that there is considerable merit to it; however, where the problem comes in is how the program is implemented.

The major objections to the program concerns its giveaway nature. There is no return to the taxpayers. How can the program be perceived as being fair when outright grants are being given that enable the recipient to have title within five years. The average homeowners are locked into a 25 to 30 year mortgage and have to pay a substantial amount of interest before they receive title to their house.

It should be remembered, as well, that it is the average homeowner who is paying for this program through their taxes. The current program, besides being unfair, is seriously flawed. Theoretically, a person who receives one of these houses could sell it after five years and make a substantial profit, courtesy of the taxpayers. This just should not be.

I have also heard that the people who will receive these houses effectively pay for them through their labour, something called sweat equity. Well, I just do not buy that argument. I know of very few homeowners with mortgages who have not done a great deal of work on their own home, and they are not getting any credit for their labour.

The program is well-intentioned, but it is flawed. The motion I have presented to you for your consideration would correct the situation and make the program more acceptable to everyone. The support of this House would certainly help the proposal being adopted, and I call upon you all for your unanimous support.

Hon. Mr. McDonald: As the Member for Kluane pointed out, the Rural and Native Demonstration Program has been the matter of some controversy in Carmacks and on the front pages of the paper and in the media generally over the past few weeks, largely because there has been some concern expressed by the criteria supporting the program, a program which is sponsored by CMHC.

» The program, in its original incarnation, which was not particularly long ago, and is a pilot project after all, was sponsored primarily to encourage a self-help home ownership program in the interests of social housing. Clearly, many of the programs across the country have not encouraged the home-ownership aspect in social housing and have not done enough to encourage the self-help approach to housing development. This program was meant to be modelled after a similar program currently existing in the Northwest Territories to encourage both those components: self-help and home ownership.

As the media has pointed out, and as the Concerned Residents of Carmacks Committee has pointed out in the media, there are some legitimate concerns with respect to the criteria associated with the program. In order to ascertain what the concerns are in some detail, officials of the Yukon Housing Corporation have travelled to Carmacks to speak personally with the Concerned Residents of Carmacks Committee and also to speak to others in the territory who have expressed a desire to make improvements to the program.

The motion before us today calls on the Canada Mortgage and Housing Corporation and on the Yukon Housing Corporation to amend the program to provide specifically for a 30-year, no-interest loan rather than an outright grant for building materials.

The wording is very, very tight and very, very specific and clearly, as the Member for Kluane pointed out, there are a number of concerns with respect to the criteria upon which this program is based. I have not heard any criticism with respect to the general principles supporting the program, but primarily the criteria.

The pointed points from the Member are well taken in that respect. I would recognize, however, that in the motion itself the recognition of the desireability of a no-interest loan is, in fact, a grant of a kind, but it certainly is something that is worth pursuing and doing some number crunching on to determine whether or not it is the best approach to take.

» As the Member has pointed out, there are other criteria changes that may be worth altering in the interests of making this pilot project a worthwhile program for the territory. The Yukon Housing Corporation has already cleared with CMHC the necessary steps to make sure that criteria can be changed and can make this program a true Yukon program.

The Housing Corporation Board of Directors has taken it upon themselves as well to review the program. They have been making some suggestions for improvements to the program, recognizing that a financial analysis of the various options should be undertaken prior to any representation being made to CMHC. I understand that they are currently reviewing a number of the criteria in order that the program can be made better. Those include the payback provisions that the Member mentions, the eligibility requirements and the method of selection, which has also been expressed as a concern, as well as the flipover provision.

There has to be some obligation on the part of the Housing Corporation, and housing programs generally, to review, develop and implement programs with a mind to local market conditions in any community.

In response to the motion, we, as a government, have asked the Housing Corporation to ensure that consultation done for this program, and other programs in the future, be done thoroughly, and they have taken it upon themselves to do just that. The Housing Corporation is currently in consultation with the concerned residents of Carmacks, and there will be other meetings that will be addressing this and other issues. I would, therefore, think it to be somewhat inappropriate to simply design amemdments to the program without completing the consultation with people who brought many of the problems to our attention.

For that reason, I would be premature to impose a provision, whether it be the issue of payback, the issue of eligibility requirement, or the issue of method selection, on CMHC or the Yukon Housing Corporation, until such time as consultation has been conducted.

» I do not think that there is any doubt in our minds that improvement can and should be made to this program. I think that the general principles of self-help and home ownership are valuable principles to promote. For that reason, I would hate to see a good program go down because the criteria had not been altered to speak to the problems.

In the interests of ensuring that consultation does take place and so that people do not feel that we are simply imposing a solution or

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
P.O. BOX 898
ANCHORAGE, ALASKA 99506-0898

REPLY TO ATTENTION OF:
Regulatory Branch
Special Actions Section

23 JAN 1987

Director, U.S. Fish and Wildlife Service
Division of Refuges
Room 2343 Main Interior Building
18th and C Street Northwest
Washington, D.C. 20240

Dear Sir or Madam:

This letter is in response to the Draft Arctic National Wildlife Refuge (ANWR), Alaska, Coastal Plain Resource Assessment, Report and Recommendation to the Congress of the United States and Legislative Environmental Impact Statement, published in November 1986 (1002 H Report) and to your notice in the Federal Register on November 24, 1986.

The 1002 H Report is well written and overall is a good source of reference for the ANWR area. There are some points of uncertainty that need clarification. Enclosed are detailed comments on various aspects of the report.

F-50

In addition to the enclosed, I want to highlight several of the comments:

a. I support most of the expected impact conclusions (although in some respects they are overly pessimistic) as being a worst case scenario for the on-shore development. However, the potential for substantial impacts due to marine development has been understated or avoided. Additional discussion of potential causeway related impacts should be included in the final report.

b. I recommend you avoid extensive monitoring programs to determine mitigation by assessing expected impacts and required mitigation up-front before allowing development, if possible.

c. Needed mitigation should be part of specific U.S. Fish and Wildlife Service (USFWS) authorizations to the maximum extent possible and not rely solely on our permitting process to determine and require mitigation as a permit condition.

d. We request to be a cooperating agency for any future Environmental Impact Statement that may be prepared. This is due to our expected regulatory role for most of the projected development proposals. As the 1002 H Report has correctly stated, a major portion of the 1002 H area is under Department of the Army (DA), Clean Water Act Jurisdiction and DA permits will likely be required for most development activities.

e. I want to point out the existing regulatory mechanisms (tools) available to us to tailor our Regulatory role to that needed to serve the public interest. Our options, which we would coordinate closely with you covers the full range of programmatic general permits, an Abbreviated Processing Procedure (APP), advanced identification of generally suitable and unsuitable disposal sites with the Environmental Protection Agency, and a Special Area Management Plan (SAMP) option. All of these or any one of them can be applied as appropriate to protect the public's interest in these areas.

Your 1002 H Report, with few exceptions, has presented a clear and reasonable picture of potential environmental consequences for Congressional consideration. If Congress decides it is in the public interest that the ANWR 1002 H area be developed for oil and gas production, we agree it can be accomplished satisfactorily in a carefully planned and regulated manner. Together we have sufficient regulatory tools and restraints in place to minimize potential impacts and to ensure the public interest will be protected.

We look forward to working with the USFWS to ensure our respective interests and authorities are well coordinated and to ensure concurrent and timely development decision if Congress gives the "go ahead" to development.

I am forwarding a copy of this correspondence to the agencies on the enclosed list.

If I may be of further assistance please contact me directly. If your staff has questions concerning the comments or Regulatory process they should contact Larry L. Reeder, Chief, Special Actions Section, Regulatory Branch, at the address above or by telephone at (907) 753-2712.

Sincerely,

Wilbur T. Gregory, Jr.
Colonel, Corps of Engineers
District Engineer

Enclosures

Commander
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Alaska District U.S. Army Corps of Engineers
Comments on ANWR 1002 H Report

EXECUTIVE SUMMARY

1. Page 1, 2d column, 3d paragraph: "...developing mitigation for activities in the calving area..." and "...require compensation in the event of significant unavoidable losses of habitat quality."

   These statements imply a monitoring program would be established to determine mitigation needed at a later date. I recommend and urge that expected impacts be determined up-front and that appropriate mitigation be determined in advance of work authorizations being granted. Monitoring programs, in our experience, can be as costly as the mitigation itself and indicate that you may not have enough information available to make the development decision. Avoid monitoring programs, for the purpose of determining mitigation, if possible. I agree that monitoring should be done to ensure that development is being accomplished as authorized and that required mitigation has been accomplished (and to see if more may be needed), but it is preferable that mitigation decisions be made in advance, not after the development has occurred.

   I also note on page 111, 1st column, 2d full paragraph, that "Mitigation of the loss of caribou habitat in Resource Category 1...is not possible." This statement (which is likely correct) contradicts the inference made in the Executive Summary. A statement should be made that expected losses will be mitigated to the maximum extent practicable (obtainable?), however, some losses will occur that cannot be compensated.

2. Page 1, 2d column, 5th paragraph: "...some long-term effects on the area's water resources..." (emphasis added)

   This statement should be clarified to include loss of resources due to both direct and indirect impacts of fill placement and dust and disturbance impacts. The 1002 H Report adequately covers these impacts in its discussions, but the ambiguous "some" needs to be expanded in the Executive Summary.

3. Page 2, 1st column, first full sentence: "Most adverse effects would be minimized or eliminated through carefully applied mitigation using the lessons learned and technology acquired from development at Prudhoe Bay..." (emphasis added)

   While I agree that impacts can be minimized or avoided through carefully applied onsite mitigation measures, this statement implies that we already have "mitigation" techniques developed that will

compensate (eliminate?) unavoidable impacts; this is not the case. In fact, in light of industries' reluctance to develop and use compensatory mitigation/restoration techniques, none has been applied on the North Slope of Alaska, except to a very limited experimental extent. The technology has not been developed at present. Other than onsite, project specific design mitigation, what "carefully applied mitigation" is hinted at to compensate for unavoidable losses that will occur? Also see comment 1.

4. Page 2, 1st column, 1st paragraph: "Hence, it is reasonable to assume that development can proceed on the coastal plain and generate similar minimal effects." (emphasis added)

   While it can be supported that minimal effects should occur on-shore, there is no mention here that the likely required near-shore marine structures (causeways) to support the on-shore development has potential for more than minor impacts. This is based on our experience with the existing causeways, particularily West Dock, and the monitoring program which has not yet concluded that minimal impacts have occurred. Depending on the location and extent of needed docking facilities, impacts could be substantial. This should not be overlooked in the impact analysis for the final 1002 H Report.

5. Page 3, 1st column, 1st two full sentences: "Only a few large lakes..." and "A few shallow thaw lakes are found..." (emphasis added)

   While the meaning of a lake may be semantical and rests with the definition used for "lakes", "a few" is a relative term and not very descriptive of the area. The coastal plain has numerous open water bodies used as habitat by various species of wildlife. This is discussed in some detail on pages 34 and 35 under sections on BIRDS; SWANS, GEESE, AND DUCKS; AND SEABIRDS AND SHOREBIRDS where tundra wetlands and their value are described. The discussion on use of these areas infers that there is open water or emergent marsh type wetlands present. Whether they are lakes or not is moot--they are important aquatic resources (see page 36, 1st column, first full paragraph). Using the word "few" tends to either under emphasize the importance of their occurrence or to over emphasize them because they are scarce, depending on the perspective of the reader. I recommend "a few" be deleted from the second quotation and a sentence added that points to their significant resource value that should be protected, consistent with reasonable development, if allowed to occur.

6. Page 4, 2d column, FISH:

   No mention is made of the important year-round fishery that exists at the Sadlerochit Spring area. Although it is discussed on page 26, a sentence stating its existence should be added to the Executive Summary.

F-52

7. Page 6, ENVIRONMENTAL CONSEQUENCES OF OIL DEVELOPMENT ON THE 1002 AREA:

No mention is made of the potential substantial effects of any needed causeway at the docking facilities. Even with substantial breaching, adverse effects are expected. The magnitude will depend on specific siting and extent of extrusion into the marine system. Also see comment 4.

COMMENTS ON THE REPORT

8. Page 9, Chapter 1, INTRODUCTION:

It appears that leasing the 1002 area would not be contrary to any of the stated purposes of ANWR per ANILCA. None of these purposes would prevent reasonable development for oil and gas if Congress chooses to allow development. If so, the regulatory framework and tools already exist to allow reasonable development to occur in a timely manner under the Clean Water Act.

9. Page 11, 2d column, 1st partial paragraph: "The FWS carefully monitored all activities and no adverse effects to fish and wildlife were observed." (emphasis added)

Although this statement may be correct in the context of the paragraph, it could be easily misread as applying to all exploration activities or to other times of the year. Suggest you add to the sentence, "... from helicopter supported surface exploration during the summer months." The need for this is supported by the statement on page 118, 1st column, first partial paragraph, which indicates that a female polar bear may have been disturbed from denning in the area by winter time activity. Although it is not conclusive that winter exploration activity was the disruptive influence, the discussion in this section should mention the possible disturbance to denning polar bears from even a carefully controlled exploration activity.

10. Page 12, 2d column. STANDARD FOR ENVIRONMENTAL PROTECTION:

This section discusses the implementation of the FWS mitigation policy. The FWS is encouraged to fully implement needed mitigation into their respective development decisions. If the determination for needed mitigation is to be deferred until site specific development is proposed, then the FWS special use permit should include all needed mitigation measures. Per 33 CFR 325.4(a)(2), the stipulations on the FWS authorization would be conditional on our permits in that "material changes in, or failure to implement and enforce such program or agreement will be grounds for modifying, suspending, or revoking the permit." The FWS should seek needed mitigation through their own specific authority for refuge management rather than rely on the Department of the Army (DA) permitting process under the Clean Water Act. This point is not made clear in the referenced discussions.

11. Page 12, 2d column, last paragraph: "Leasing and operations would be subject to all appropriate Federal and State Regulations..."

I agree with this statement that proposed development would be subject to Federal regulations under DA control. We have in place the necessary regulatory framework and "tools" we need to ensure reasonable and timely development.

12. Page 13, 1st column, second sentence: "...and a development/production proposal will require a site-specific EIS."

Due to the Corps' expected regulatory role with DA permits being required for most future development, the Alaska District should be included as a cooperating agency in future EISs. As mentioned on page 25, WETLANDS, a major portion of the 1002 H area is wetlands and is thus under Corps jurisdiction.

13. Page 13, 1st column, 2d paragraph: "...all applicable Federal and State regulations would apply...unless they were superceded by the legislation enacted by Congress...".

While Congress does have the discretion to "supercede" application of the Clean Water Act regulations, and others, to the proposed 1002 H development area, the DA already has in place the necessary regulatory framework and mechanisms (tools) to fine tune or tailor our regulatory role to allow timely development to occur. Through appropriate use of programmatic general permits, an Advanced Identification of Generally Suitable and Unsuitable Disposal Sites process, an Abbreviated Processing Procedure, and/or a Special Area Management Plan (SAMP) process, important natural resources can be protected while allowing reasonable environmentally sound development to proceed on a timely basis. As experienced in the Prudhoe Bay and Kuparuk developments, appropriate authorizations can be expedited if site conditions allow and the process will aid orderly, well planned development with full public participation.

F-53

14. Pages 34 and 35, discussions on avifauna:

As previously mentioned in comment 5 above, the discussions on "Tundra wetlands" infers the inclusion of tundra ponds and other open waterbodies. This should be clarified and expanded upon in appropriate paragraphs. In particular, page 34, 2d column, 3d paragraph presents a fair description of the value of the lagoon system, but it fails to mention the value of the tundra ponds and drained lake basins. Although probably not as important as the lagoon system, they should at least be mentioned.

15. Page 76, 1st column, last sentence: "Because of uneven ground, the pad-cover thickness may range from 6" at one edge to 3'-5' at the opposite edge."

If this gravel covering is not removed before breakup, there is a potential for permafrost degradation to occur. The discussion does not mention restoration of the exploratory pad. If you are to allow a persistent, multi-year pad to remain in place, then a minimum of 5' of gravel or equivalent insulation will be needed to minimize permafrost degradation. The section should include a discussion of restoration for both single-year and multi-year pads.

16. Page 81, 2d column, MARINE FACILITY:

This section does not include any discussion of the expected need for causeways to be constructed in order to allow movement of heavy modules from the dock to shore. Access to a sufficient water depth will be required and it is likely that a gravel causeway will be industries' choice. The need for beaches in these facilities has been established. This is mentioned on page 101 under conseqences. However, this has been a controversial issue with past developments and should be discussed in this section. Also see comments 4 and 7.

17. Page 85, 1st column, SUBSEA MARINE ROUTES, 2d paragraph: "A marine pipeline presents significantly higher environmental risks than does an onshore pipeline."

This statement as written implies that in all circumstances an onshore pipeline is to be preferred over a subsea pipeline. Although this statement can be supported for the ANWR situation where a pipeline of approximately 150 miles is involved and would cross many unknown or uncertain areas within the ocean, it is not necessarily true for shorter routes in areas where shore fast ice exist and the likelihood of deep ice gouge is remote. With the current level of state-of-the-art technology, the potential for a significant leak of oil (oil spill) or failure of a properly bedded, deeply buried subsea pipeline is almost nil, especially one where proper leak detection monitors are used and automatic shut off valves are employed. If these conditions are present it is unlikely that even a small leak of oil would occur for a long enough period of time to allow a significant amount of oil to escape. Although it is correct there are presently no subsea pipelines in the Alaskan Arctic, there are in fact the equivalent of subsea pipelines presently in use in the Canadian Arctic in the Mackenzie River oil and gas fields. It appears to be just a matter of time before industry will choose the subsea pipeline as their preferred means of transportation from off-shore oil prospects. It is premature to suggest these proposals would in fact present "significantly higher" environmental risks than present on-shore pipelines until we have an opportunity to analyze proposed design criteria. It is also worthy of note that the subsea pipeline alternative was the environmentally preferred alternative" in the EIS for the Endicott proposal in 1984. It was the unanimous choice of Federal resource agencies over a quasi (or at least similar to) on-shore buried pipeline within a proposed gravel causeway. The

causeway is a manmade peninsula of land that provides access and the pipeline would be buried in it. This discrepancy should be clarified for the record in the final report and not left as an emphatic statement that cannot be supported by rigorous analysis at this time.

The remainder of the discussion does accurately reflect the unique engineering challenges industry will need to meet to successfully design a subsea pipeline. However, indications are that with favorable economics, the technology exists today.

18. Page 95, Chapter VI, ENVIRONMENTAL CONSEQUENCES:

This chapter is well written and presents a supportable scenario of developmental consequences. In some respects, with the projected development given, expected impacts are over estimated to some degree. However, the consequences described are usuable as a worst case scenario and is therefore appropriate for Congressional consideration.

Conclusions drawn are supported by past experience with similar development in other areas.

IAWG-2

IN REPLY REFER TO

United States Department of the Interior

BUREAU OF LAND MANAGEMENT

FWS/RF (918)

Alaska State Office
701 C Street, Box 13
Anchorage, Alaska 99513

February 6, 1987

MEMORANDUM

To: Director, United States Fish and Wildlife Service

From: State Director, Alaska

Subject: Arctic National Wildlife Refuge, Alaska; Coastal Plain Resource Assessment and Draft Legislative Environmental Impact Statement

Thank you for the opportunity to comment on the draft of the Arctic National Wildlife Refuge, Alaska, Coastal Plain Resource Assessment. Our general comments are listed first, followed by page specific comments.

F-55

In Chapter Three there are very few references in the bibliography that support the discussions on geology, geophysics, and geochemistry. Most of the references listed are related to the quantitative resource assessment and the economic analysis. This is a problem because the text introduces new or uncommon stratigraphic nomenclature (such as the Canning formation and Hue Shale) for the Brookian rocks with nothing relating them to previous terminology.

Chapter Three also suffers from the lack of geologic and geochemical data. One plate shows interpreted seismic lines with minimal annotation. The well cross section (plate 4) shows none of the structural deformation. We suggest inclusion of a plate showing a composite of geological and geochemical data (attached) to compare and contrast the petroleum potential of each rock unit in relation to the other information.

Chapter Four contains a formal determination for Alternative A with respect to ANILCA, Section 810. We are not familiar with the USF&WS format for Section 810 compliance, but from our review the determinations are unclear for two of the alternatives, B and C, and missing for Alternatives D and E. We recommend that specific findings be made for each alternative.

Max Brewer of the US Geological Survey should be added as an author of Chapter IV.

Two critical points have been missed or under emphasized in the draft that should be expanded in the final report. These points are 1) the timing of ANWR oil production in relation to TAPS through put and 2) the most likely exploration scenario for ANWR, which is that there is an 80 percent probability that no development and production will occur from the coastal plain. The case in point 1 is that if production does not occur soon after the year 2000, TAPS oil through put will rapidly decrease causing transportation tariffs per unit to increase. This increase would reduce the probability of economic oil development in ANWR.

A fold out plate or full page size map of the topography and physiography of the 1002 area is recommended. It should have more detail than the map on p. 15 of the report. It would be helpful when the text describes locations of gravel sources or deep lakes. We also recommend showing the location of the KIC well on the map on page 52 of the report, even if no geological/geophysical information is available.

Our specific comments are as follows.

Page	Paragraph	
49	Paragraph 1	Delete "for the Department" in the 3rd sentence. In the same sentence, substitute "of that information" for "of that work".
49	Paragraph 4	Change the second sentence to read "These 26 prospects were subjected to petroleum engineering and economic considerations resulting in estimates of conditional recoverable resources."
50	Paragraph 2	We recommend restating the time period considered in the second sentence.
50	Paragraph 2	Delete the word "economically" in line 4 of the first sentence.
50	Figure III-2	The shading in this diagram is misleading. The black shaded areas on the left and right hand sets are not equivalent as the shading suggests because the histograms are not dealing with the same kind of information. Only the histograms on the right are from McCasin, 1986; the histograms on the left are PRESTO outputs from BLM, Anchorage. The word "recoverable" should appear under the left side of the figure and in the statement after "Figure III-2".
51	Paragraph 1	Delete the word "extensive" in line 4 of the first sentence.
51	Paragraph 6	In the last sentence, insert the word "reservoir" after "Furthermore,".
51	Paragraph 8	This paragraph is unclear and appears internally inconsistent. It states that "these rocks are not considered prospective for oil and gas." Yet the paragraph goes on to point out that there are oil and gas reservoirs northwest of ANWR in similarly described basement rocks which implies that they are or should be prospective for oil and gas.

51 Paragraph 9 "At least 6,500 ft. of carbonate rocks . . . . . " Is or could tectonic thickening involved?

51 Figure III-4 The figure does not show the Sabbath Creek conglomerate (over 10,000 feet thick) and does not show the Pt. Thomson sands, a major play. Also, we question whether the basement rocks are shown properly as the Ellesmerian overlays both the Katakturuk Dolostone and Argillite on the North Slope near the ANWR 1002 area.

54 Paragraph 3 Change the penultimate line, "If most of the . . . ", to read "If the prime reservoir Ellesmerian rocks are largely missing from the eastern 1002 area, both the in place and recoverable hydrocarbon reserve estimates will decline significantly.

54 Figure III-5 Well data show truncation of Ellesmerian west of ANWR, however, outcrops south of ANWR show no truncation. Both are from allocthonous blocks.

55 Figures III-6 The truncations may be incorrectly shown. Seismic data and III-7 show the strike of truncation to be more north-south trending, and there is only one outcrop of the Sadlerochit Mountains which may be truncated. Truncations should not extend much further east of Marsh Creek.

58 Paragraph 3 Change "the sea oscillated back and forth" to "the sea level fluctuated" or "the depositional centers moved across the area".

58 Paragraph 4 In the second line substitute the word "extensively" for the word "complexly". In the third line delete the word "complexity." Also, the Brookian rocks may be more complexly folded and faulted because of multiple phases of faulting rather than because they are largely incompetent. The older rocks have undergone fewer phases of deformation and are less deformed. (See also paragraph 7)

58 Paragraph 5 The reference, Plate 5, depicts seismic sections. A structure map would be a better reference. Also, "what is called a fold-and-fault belt" we suggest be "called a foreland fold-and-fault belt". Finally, the sentence beginning "The thrust faults originate . . . . " should be changed to read "The north verging thrust faults originate at depth, tend to cross shales at low angles and cut up-section more abruptly in overlying sandstone and siltstone layers."

58 Paragraph 6 As noted for paragraph 5, a structure map would make a better reference than the seismic map used.

58 Paragraph 7 Change the first sentence to read "Seismic reflections as well as outcrops indicate that Cretaceous and Paleocene rocks are generally much more deformed than either the underlying pre-Kingak or overlying post-Paleocene section."

58 Paragraph 8 The Eocene rocks are "only moderately deformed" in the beginning part of the paragraph, but are dipping 60° at the end of the paragraph. This does not clearly state that the structural deformation was episodic and not the same across the ANWR area.

62 Paragraph 1 The text in the geochemistry discussion makes no attempt to relate thermal maturity to structural domain; i.e., nothing is said to the fact that the outcrop samples from allocthonous rocks are all overmature, and cuttings samples from autothonous blocks are mostly immature or mature.

64 Paragraph 5 The text implies that oils with 21° to 27° API gravity and one oil with 44° API gravity have the same source. Without other data, this information would indicate two distinct oil types and possibly oil from two sources.

65 Paragraph 1 Oil in the Pt. Thomson-Kemik should have oil with a 35° to 45° API gravity, or as low as 18° API gravity and is supposed to have the same source rock as oil in the turbidites which was described as 21° to 27° API gravity. It does not follow that the source rocks are similar as the two API ranges do not overlap.

63-69 This section describes the seven plays, based on stratigraphy, and six prospects, "potential" objectives, but does not explain why or why not the terms sometimes overlap or are entirely different.

70 Paragraph 6 The terms "probability of occurrence" and "geologic risk factor" should be more clearly defined.

76 Paragraph 4 The estimate of 10 acres of ground covered by the pad may be overestimated. The Brontosaurus well on NPRA was drilled from an icepad with ancillary structures which encompassed 3.5 acres.

76 Paragraph 6 The material excavated from the reserve and flare pits is not necessarily ice-rich. The phrase "ice-rich" should be deleted.

76 Paragraph 7 The water shortage situation may be overstated, especially where drilling operations are concerned. This scenario does not account for possible high tech drilling fluids or the use of sea water for drilling versus fresh water. Since the large quantities of water may be required, low water availability exploration scenario could be presented.

76 Paragraph 8 Drilling from shorefast sea ice implies that the drilling is done offshore. Are offshore sites included in the area considered in the report?

77 Paragraph 5 This discussion on multi-winter drilling methods should include the method used by Chevron for drilling the KIC well near Kaktovik. This well was drilled from a wood and timber platform, which provided a thaw-stable base during the summer months without using gravel.

78 Paragraph 8 Drilling technology has continued to advance on the North Slope. The angle of deviation has probably increased from 0 to 45 degrees to 0 to 60 degrees, and the maximum practical angle for drilling is 90 degrees or horizontal drilling. The horizontal drilling technique is used for improved oil production and recovery and would surely be used in the 1002 area if production occurs.

99 Paragraph 9 The reader may benefit from a brief but more specific discussion of the nature of the adverse effects of a significant water loss in the area.

100 Paragraph 3 The "button up" method of abandoning a wellsite is incomplete and does not consider newer methods. Five feet of fill is required in order to insulate the pit contents sufficiently to guarantee freezeback. However, if revegetation can be accomplished over the reserve pit, less fill is required for insulating the pit contents, due to the insulating properties of vegetation. Reclamation of the Brontosaurus wellsite included filling in the reserve pit with excavated material, making sure that the original top organic layer was put on last, thereby facilitating revegetation efforts. Revegetation of the pit has been successful in the sort term, and it appears that freezeback of the pit contents has been achieved. In any event, even if freezeback is not accomplished for a reserve pit, filling it with overburden will prevent the formation of a long term pond with subsequent breaching of the berms and loss of fluids to the tundra. The experience on NPRA with the Button up technique may be limited because it was not common practice at that time. The pit at the east Teshekpuk site was covered, and, although some settling occurred, the site is the only one recently tested that has little to no contamination locally. Other open reserve pits had local contamination that do not meet EPA water quality criteria.

101 Paragraph 3 Part 2 should be expanded to include the potential for gravel mining adjacent to river beds affecting water recharge to the river bed. This would effect any fish eggs or overwintering fish that may be found at these sites.

F-57

102 Paragraph 7 Foam insulation can break down and erode to smaller pieces that can be very difficult to effectively remove from the tundra.

145 Stipulation 3 We believe ice pads should be considered preferable to gravel, foam and timber pads.

Arthur Hosterman
Chief, Office of Management,
Planning and Budget
Acting

1 Attachment:
1 - Composite Geochemical Profile for ANWR (1 p)

COMPOSITE GEOCHEMICAL PROFILE

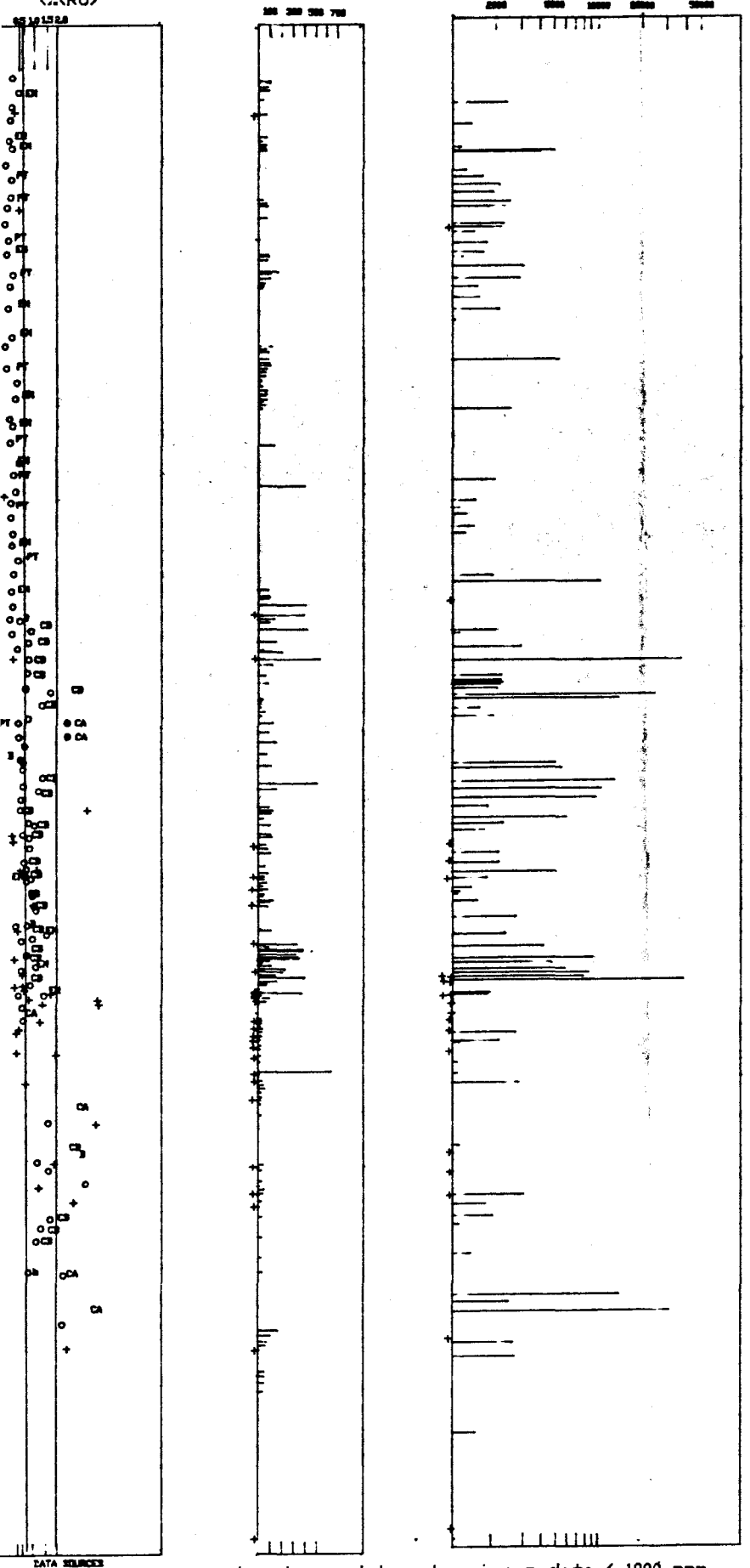
F-58

PLATE COMPOSITE GE

RINITE REFLECTANCE (%(Ro)

HYDROGEN INDEX

GENETIC POTENTIAL



DATA SOURCES

+ outcrop data + outcrop data < 1000 ppm

PLEISTOCENE-PLEISTOCENE GRAVELS CONSISTING OF UNCONSOLIDATED COARSE SANDS AND AND THUMBNAIL TO HEAD SIZED COBBLES OF CHERT AND METAMORPHIC ROCKS. THIS UNIT COVERS MOST OF THE COASTAL PLAIN

EOCENE AND YOUNGER CLASTICS CONSISTING OF UNCONSOLIDATED SANDSTONES,

SILTSTONES AND CLAYSTONES. SANDS ARE MEDIUM TO VERY COARSE ,MOSTLY TAN TO BROWN AND SORTED.SILTS AND CLAYS ARE GRAY TO BROWN MOSTLY THIN TO MEDIUM TO INTERBEDDED OR VARYCOLOR, PARTIALLY FOSSILIZED WOOD , CHERT PEBBLES AND SHELL FRAGMENTS ARE COMMON. BEST EXPOSURES IN WEST PART OF REFUGE

THIS UNIT IS NONMARINE TO SHALLOW MARINE AND THICKENS NORTH AND EASTWARD THICKNESS GREATER THAN 7000' IN NW ANWR

SHALE, MOSTLY GRAY, SOFT AND BENTONITIC

UPPER PALEOCENE SANDSTONES SILTSTONES WITH MINOR COALS AND CONGLOMERATE

THIS UNIT THINS NORTHWARD AND INTERFINGERS WITH DEEP WATER FACIES

SHALE , GRAY TO BLACK AND SANDSTONES , TAN TO GRAY VERY FINE TO FINE GRAINED

TURBIDITE SEQUENCE GENERALLY THINS NORTHWARD (EXCEPT IN NW ANWR THINS TO SOUTH)

SHALE , MOSTLY BLACK, FISSILE TO PAPERY/CARDBOARD VERY BENTONIC
VERY RICH IN ORGANIC CARBON
THICKNESS 0 TO 450'
SHALE, BLACK , FISSILE , BENTONITIC/PYRITIC/VERY RICH IN ORGANIC CARBON
FLOATING CHERT PEBBLES AND BIOTURBANITE COMMON
SANDSTONE,VERY FINE TO FINE GRAINED LAMINAR AND RIPPLE Y-BEDS AND PCS
TOTAL PEBBLE SHALE THICKNESS ESTIMATED 400' TO 600'(RANGES 20' TO 850'

SHALE , GRAY TO BLACK ,SILTY TO VERY SILTY WITH QUARTZOSE SANDSTONES IN SECTION
THICKNESS RANGES FROM 0 AT TRUNCATION TO AS MUCH AS 4000'

SANDSTONE , VERY FINE GRAINED , QUARTZOSE , GRAY TO WHITE
THICKNESS RANGES FROM 70 TO 200'
LIMESTONE,GRAY TO BLACK,PHOSPHATIC , HIGH ORGANIC CONTENT ,TO 500'
SANDSTONE,VFS TO PEBBLE CONGLOMERATE VERY WELL SORTED ,QUARTZOSE
SHALE, GRAY SILTY THICKNESS TO 500'
SANDSTONE ,VFS TO MED QUARTZOSE,WELL SORTED,INTERBEDDED WITH GRAY SHALE
TOTAL THICKNESS OF SABLERICHET APPROXIMATELY 1800' EXCEPT AT TRUNCATION
IVISHAK SAND THICKNESS INCREASES IN EAST PART OF ANWR
LIMESTONE,LIGHT GRAY TO CREAM WITH BLACK AND WHITE CHERT NODULES COMMONLY FOSSILIFEROUS ,OOLITIC AND/OR DOLOMITIC

DOLOSTONE,DARK GRAY MASSIVE
COMMON CARBONATE THICKNESS 0000' TO 3000'

SHALE, BLACK HIGHLY
SANDSTONE,MIC TO CONGLOMERATIC ,FLUVIAL-DELTAIC WITH CHANNELS AND COAL
THICKNESS ESTIMATED TO BE 400' TO 600'

DOLOSTONE, LIGHT GRAY HIGHLY FRACTURED
LIMESTONE,LIGHT GRAY TO LIGHT LOCALLY STROMATOLITIC
COMBINED CARBONATE THICKNESS MAY EXCEED 5000'

"ARGILLITE" NON TO SLIGHTLY OR MODERATELY METAMORPHOSED SEDIMENTS WHICH INCLUDES CARBONATES AND CLASTICS
THICKNESS UNDETERMINED

TOTALGC

OCHEMICAL PROFILE FOR ANWR

U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION X

1200 SIXTH AVENUE

SEATTLE, WASHINGTON 98101

February 6, 1987

REPLY TO
ATTN OF: M/S 635

Honorable William P. Horn
Assistant Secretary for Fish and Wildlife and Parks
United States Department of the Interior
18th & C Streets, NW
Washington, D.C. 20240

Re: Arctic National Wildlife Refuge, Alaska,
Coastal Plain Resource Assessment

Dear Mr. Secretary:

This letter and the accompanying enclosure provide the U.S. Environmental Protection Agency's comments on the draft Legislative Environmental Impact Statement concerning the proposal to allow oil exploration, development and production within the Arctic National Wildlife Refuge.

F-59

EPA believes the Department of Interior needs to revise the Legislative EIS so that our agency would have a better understanding of the environmental impacts. A number of impacts are not discussed fully, and some foreseeable impacts are not discussed at all.

There is no discussion in the Legislative EIS of air quality deterioration, the effects of noise upon wildlife in the refuge, or of the consequences of marine transportation facilities on fish populations. The Legislative EIS acknowledges that water supplies may be inadequate to support all the activities associated with oil development within the refuge, but does not discuss how overcoming these shortfalls will affect the available fresh water resources.

EPA also believes more discussion is needed about impacts on the refuge's core caribou calving area. The core calving area may be of concern to Congress when it considers the development proposal because the area has been designated by the U.S. Fish and Wildlife Service (USFWS) as a unique and irreplaceable wildlife habitat. Since it is clear from the LEIS that the proposal, if adopted, will result in loss of habitat, we believe that Congress needs a more thorough discussion of the consequences of full leasing compared with leasing on a smaller geographical scale, and how the proposal relates to the USFWS Mitigation Policy, particularly concerning Category 1 and Category 2 habitat.

In reviewing the Legislative EIS, EPA did not expect the document to contain the level of detail normally found in project-specific impact statements. That level of detail would be provided later in subsequent impact statements if Congress were to approve, as a matter of policy, that the leasing should proceed. However, for Congress to make its policy decision, more information and discussion are necessary now. Congress, EPA, and other regulatory agencies need to be fully aware of the environmental implications of oil development in the refuge.

Because of the incomplete discussions in the Legislative EIS, EPA is rating the document in the following manner:

- Alternative A (full leasing): EO-2 (Environmental Objections-Insufficient Information)

- Alternative B (limited leasing): EC-2 (Environmental Concerns-Insufficient Information)

- Alternative C (further exploration): LO (Lack of Objection)

If the Department of Interior has questions about EPA's comments, please feel free to direct members of your staff to contact me or Alvin L. Ewing, EPA's assistant regional administrator in Anchorage. We look forward to answering your questions and helping you prepare a final Legislative EIS that will enable Congress to make a reasoned decision.

Sincerely,

Robie G. Russell
Regional Administrator

Enclosure

Our review has identified the following general informational needs which we believe are necessary for informed decision making.

1. Analysis/Assessment: Clarification is needed in the assessment of the effects of the alternatives addressed in this document. Some examples of areas that need further analysis are:

- The draft LEIS acknowledges (p. 6, Executive Summary) that there will be indirect effects from the proposal. Either of the leasing alternatives could cause increased pressure to develop the Canadian Arctic, state lands to the west of the Arctic National Wildlife Refuge (ANWR), and portions of the Beaufort Sea outer continental shelf (OCS). The potential development infrastructure in the 1002 area could provide the major impetus for development in these adjacent areas. These indirect effects are not truly discussed in the environmental consequences section.

- Cumulative effects should be more clearly defined and included as a separate section with the report. For example, the report should address the cumulative effects of existing North Slope facilities combined with those being assumed for ANWR.

- Clarification is needed about the relationship between displacement or distribution change of caribou versus population changes of caribou.

- The analysis of subsistence impacts is focused primarily on Kaktovik with only general and brief mention of other native settlements. The draft LEIS indicates that the primary reason for focusing on Kaktovik is its proximity to the 1002 area. Settlements located further away (Arctic Village, Venetie, Fort Yukon, and Old Crow in Yukon Territory, Canada) are also be dependent upon the caribou herds. According to the draft LEIS, residents from these settlements harvest the caribou when they have migrated out of 1002. However, the draft LEIS does not examine the dependence of these inland settlements on caribou. Because of their inland location, the residents of these settlements could be more dependent on the caribou since they do not have easy access to coastal fishery resources. Thus, the final LEIS should fully examine the effects on the inland settlements of a decline or change in distribution of caribou.

- In many instances, the draft LEIS uses the phrases "unnecessary adverse effects" and "significant unavoidable losses" or "significant adverse impacts." The final LEIS should provide some

framework for the assessment of the terms "unnecessary" and "significant." What criteria are used to determine if impacts are unnecessary or significant? A discussion of the criteria used to establish either condition or a definition of each term, if possible, would facilitate the review of this draft LEIS and support the rationale for selecting a preferred alternative.

- The final LEIS needs an air quality discussion. It should include present estimates of the maximum mass emission rates for oxides of nitrogen, total suspended particulates, carbon monoxide, non-methane hydrocarbons, sulfur dioxide, and lead, as well as any potentially hazardous pollutants listed in EPA's Prevention of Significant Deterioration (PSD) regulation [40 CFR51.24(b)(23)(1)] or covered by the National Emission Standards for Hazardous Air Pollutants (40†CFR†Part 61).

  In addition, any existing ambient air quality data for the 1002 area should be presented and compared to the Alaska ambient air quality standards (AAAQS). Worst case ambient air quality modeling results, using a suitable EPA approved model, should also be presented and discussed in the final LEIS. Modeling results should be compared to the AAAQS and available PSD increments. Mitigation measures sufficient to show attainment of all standards should be presented. Any pollutant emitting activity would need to comply with requirements of the Alaska State Implementation Plan.

- The draft LEIS does not provide any discussion of the potential noise levels associated with exploration, development, and production. Noise can cause adverse impacts to many of the biological populations. Although disturbance is incorporated into the environmental consequences discussion, the final LEIS should provide a general discussion of present noise levels and the potential noise levels associated with the oil and gas exploration, development, and production.

- A more detailed analysis of water supply is needed. Under the proposed development alternative, substantial quantities of fresh water may be required for construction of ancillary support facilities, transportation systems, exploration drilling, and field production facilities, including ice roads, ice airstrips and drilling pads. The draft LEIS notes that water sources in the 1002 area include surface resources and ephemeral lake sources.

  While the draft LEIS clearly states the potential for a major shortfall of natural water sources necessary for the construction of ancillary features and drilling needs, the document does not

adequately discuss the potential impacts of the schemes proposed to supplement those resources. A generic discussion of the options for useable water collection or production should be included in the final recommendation document. In addition, an assessment of the effects on habitat of using the available water is needed. How might the surface hydrology be changed, and how will that change affect waterfowl, shorebird and other habitats?

- The potential effects of marine transportation facilities such as docks, causeways, and staging areas on the near shore and on shore environments need to be identified and assessed. Such analysis should address individual impacts, as well as cumulative effects, with existing North Slope facilities, such as the causeways built into the Beaufort Sea. There should also be a discussion of whether the deletion or change of a suggested marine scenario may alter the viability of any of the alternatives.

2. Mitigation: Clarification is needed to identify the net effect of proposed mitigation. Each alternative component should be outlined without mitigation, with mitigation, and the two compared.

- Any proposed mitigation that is being considered in the assessment of impacts, to offset negative effects, should a) be clearly identified, b) have effectiveness studies referenced, and c) identify regulatory responsibility (strategy) for implementation.

- Interrelationships between mitigation measures and subsistence uses should be identified and assessed.

F-61

3. Wetlands: Virtually the entire 1002 area can be classified as wetlands. It appears the Legislative EIS only considered direct impacts from construction and other development activities. Secondary and cumulative impacts such as those associated with road and pad construction should be discussed in general terms to identify their impact on the larger scale hydrologic functions of wetlands in the 1002 area.

4. Regulatory Processes: The discussion of the regulatory process and its relationships to the alternatives needs to be expanded. As charged in Section 1002 of ANILCA (p. 12, Executive Summary), the LEIS should provide an assessment that supports the Secretary's recommendations and "...what additional legal authority is necessary to ensure that adverse effects...are avoided or minimized." The discussion on this point is unclear, vis-a-vis, the need for additional legal authority. Further clarification is needed through discussion and assessment of:

- The existing regulatory process including examples of how existing regulations are applied on the North Slope for oil and gas development.

- The Section 404 program, in particular the success of the Abbreviated Permit Process. This procedure was specifically designed to expedite oil and gas development on the North Slope.

- The potential applicability and use of the advanced identification process (40 CFR 230.80) for advanced planning.

- The draft LEIS mentions that "deferred leasing" will be used to delay leasing in more sensitive habitat areas, the idea being that delaying leasing will allow more time for advancements in either mitigation technology or oil and gas exploration, development, and production technology. The final LEIS should provide a more detailed discussion about what it means, how it will work, and what parts in the 1002 area may be subject to this leasing approach.

- We believe that the LEIS will be the first in a number of environmental documents that will examine the impacts and consequences of the proposed oil resource recovery activities in the 1002 area of the Arctic National Wildlife Refuge. It is our recommendation that specific EIS documentation for exploration, leasing, and production from oil reserves in the area, and construction of pipelines or marine docking facilities be performed. To effectively address and protect the natural resource value in the 1002 area, the USFWS should approach evaluation of these activities in a coordinated manner. Such an approach would more clearly delineate the cumulative impacts of the various interrelated aspects of oil exploration and development in ANWR.

MARINE MAMMAL COMMISSION
1625 EYE STREET, N.W.
WASHINGTON, DC 20006

6 February 1987

The Honorable William P. Horn
Assistant Secretary for
Fish and Wildlife and Parks
Department of the Interior
18th and C Streets, NW
Washington, DC 20240

Attention: Division of Refuge Management

Dear Mr. Horn:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the Arctic National Wildlife Refuge Coastal Plain Resource Assessment. This report was prepared under section 1002(h) of the Alaska National Interest Lands Conservation Act (hereinafter referred to as "ANILCA"). 16 U.S.C. §3142(h). It assesses the fish and wildlife resources and oil and gas potential of the Arctic Refuge coastal plain (hereinafter referred to as the "1002 area") and sets forth recommendations to Congress for future management of the area. A legislative environmental impact statement has been integrated into the Assessment. The Assessment recommends that Congress open the entire 1002 area to oil and gas leasing, subject to environmentally protective restrictions.

F-62

The Assessment indicates, among other things, that:

-- fourteen species of marine mammals, including walrus, beluga whales, polar bears, and the endangered bowhead whale occur in or near the 1002 area and could be affected by oil and gas exploration and development in that area;

-- many of the potentially affected marine mammal and other wildlife species are hunted by Alaskan Natives for subsistence purposes and the availability of these animals could be affected by the proposed action;

-- activities associated with exploration and development could cause female bears to avoid or abandon important denning areas;

-- those activities also could attract polar bears and jeopardize the welfare of both oilfield workers and bears;

-- it apparently is not known how many polar bears den in or near the 1002 area or how disturbance and habitat alteration in the 1002 area, combined with subsistence hunting, disturbance and

habitat alteration in the Canadian Arctic and other parts of Alaska, might affect the size, age/sex structure, and productivity of the Beaufort Sea polar bear population;

-- it is not known whether frequent or continuous vessel operations would cause bowhead whales or other marine mammal species to abandon important habitat areas or lower their reproductive fitness;

-- because the 1002 area has not been fully explored by means such as exploratory drilling, reliable estimates cannot be made of the nature and extent of the recoverable oil and gas resources located there;

-- because the nature and extent of the resources are not known, it cannot be precisely determined where or how much development is likely to occur in the area;

-- an annual sea lift would be the most economical means of transporting supplies, production/support modules, and other cargo. It therefore would be necessary to construct one or more port facilities. At present, however, it is not possible to determine precisely what or where port facilities would be required; and

-- development of port and other support facilities likely would encourage other activities and additional exploration and development activities in adjacent offshore and onshore areas.

In consideration of these and other uncertainties concerning the nature, extent, and effects of exploration and development activities in the 1002 area, the Marine Mammal Commission believes that additional studies and assessments should be conducted before the 1002 area is made available for oil and gas recovery and utilization. As discussed in greater detail below, we consider it necessary to conduct further analyses of the potential impacts, including cumulative and indirect effects, of exploration and development on marine mammal populations, especially polar bears, located in and near the 1002 area. Similarly, additional assessment of the impacts of the development scenarios on subsistence uses of the affected marine mammal populations appears necessary. If exploratory drilling is to be conducted as part of the further assessment, we believe that it should be undertaken in a manner that would not interfere with these studies or compromise the wildlife and other resource values that are subject to the ongoing impact assessment.

Section 1002 provides for a cautious, step-by-step analysis of the fish and wildlife resources of the coastal plain of the Arctic Refuge. Consistent with that approach, the Commission believes that further studies are necessary to determine the numbers of polar bears, bowhead whales, and other species that could be affected by exploration and development, identify the nature of those impacts, establish protective restrictions and

mitigating actions (if exploration or development is to occur), and develop monitoring programs to detect possible unforeseen effects before they reach unacceptable levels. In addition, if exploratory activities can be authorized consistent with the resource protection guidelines described in this letter, more reliable estimates of the quantities and locations of recoverable oil and gas resoruces would be acquired. As a result, it would be possible to better determine how the resources of the coastal plain of the Arctic Refuge can best be utilized in fulfillment of the objectives specified in section 1002 of ANILCA, whether that be through wilderness designation, full leasing and development, or some other alternative. In our opinion, there is insufficient information to make that judgment at this time.

GENERAL COMMENTS

In both ANILCA and the Assessment, it is pointed out that marine mammals are resources of special concern in the 1002 area. As a general matter, and with respect to marine mammals and subsistence uses of marine mammals in particular, the Assessment does not adequately analyze the possible cumulative impacts of oil and gas exploration, development and transportation along the coast of the Beaufort Sea. In addition to the activities that may occur in the 1002 area, a comprehensive assessment of the environmental consequences of the Recommended Action must take into account existing and reasonably foreseeable oil and gas activities in the region. This kind of analysis is required by the Council on Environmental Quality National Environmental Policy Act regulations and case law. See, e.g., 40 C.F.R. §§1502.9, 1502.16, 1508.7, 1508.25; Kleppe v. Sierra Club, 427 U.S. 390 (1976); North Slope Borough v. Andrus, 642 F.2d 549 (D.C. Cir. 1980).

F-63

To satisfy this requirement, the Assessment should address the environmental impacts of industrial activities that presently are occurring and are reasonably foreseeable in the National Petroleum Reserve - Alaska, Prudhoe Bay, state lands subject to leasing and development along the Beaufort Sea, and areas in the Canadian Beaufort that have oil and gas potential. If the resource assessments necessary to analyze these cumulative impacts have not been conducted, this information should be required to be obtained as part of the additional studies that we have recommended.

The Assessment's discussion of the impacts of the Recommended Action on polar bears provides an example of why analysis of cumulative effects is necessary. Page 118 of the Assessment states that, "[b]iologists believe that the Beaufort Sea population can sustain little, if any, increase in mortality of females because population surveys and calculations show that the number of animals dying each year is approximately equal to the population increase from reproduction." Even though the Beaufort Sea polar bear population is found throughout areas of existing and potential oil and gas activities that could result in

increased female mortality, the Assessment only addresses the prospect for such a problem developing within the 1002 area. As a result, no information is provided on whether or not female polar bears will experience population pressures and mortality as a result of industrial activity in other areas. Moreover, although the Assessment notes on page 118 that a decline in polar bear natality is not likely to affect the species' overall survival "so long as similar intensive developments did not occur along the entire northern coast of Alaska and Canada," no information is provided on the amount of development that could occur outside of the 1002 area.

The Commission considers this information essential for an adequate review of the environmental consequences and subsistence impacts of the alternatives presented in the Assessment. In addition, this information should be available to Congress when it considers what action to take with respect to the future of the 1002 area. If the analysis of cumulative impacts demonstrates that the Beaufort Sea region will be subject to intensive oil and gas activity, it may be necessary to postpone or prohibit exploration and development in the 1002 area to provide a protected area for wildlife resources.

In addition, consideration should be given to reasonably foreseeable indirect effects. For example, no consideration is given to the effect that disturbances and oil spills could have on the food web that is relied on by polar bears and other marine mammals. Other indirect effects that should be evaluated include possible changes in the behavior of seals and bowhead whales caused by industrial activity and marine traffic and the manner in which these changes would effect the availability of the affected populations for subsistence uses. Such an analysis is required by 40 C.F.R. §1502.16, and we recommend that the required information be obtained and analyzed.

Finally, if additional seismic or other exploration is undertaken, it should be designed and carried out in a manner that would not interfere with the additional wildlife assessments being conducted by the Fish and Wildlife Service and other parties. In this regard, if it has not already been done, the Commission believes that it would be desirable to authorize a single exploratory survey of this area, rather than allowing each interested entity to conduct separate surveys. In addition, we believe that the data obtained from this survey should be made available to and analyzed by the Department of the Interior. The resulting estimates of possible resource levels should be made available to Congress and the general public. Furthermore, any exploratory work should be regulated and monitored by the Department so as to minimize environmental impacts.

SPECIFIC COMMENTS

Page 1, column 1, 4th complete paragraph -- For purposes of calculating the "Net National Economic Benefits" of the projected

recoverable resources in the 1002 area, the Assessment uses values of $33 and $40 per barrel as the price of oil. The present price of oil is substantially below these estimates. As a result, it appears that the benefits of developing the 1002 area have been overestimated.

Pages 12 - 13, column 1, carryover paragraph -- This paragraph states that this legislative environmental impact statement will suffice for initial leasing and that future development will be tiered on the present document. As noted in the general comments, this document does not address the possible cumulative effects and some of the important indirect effects of oil and gas activity in the Beaufort Sea area. Until the information is incorporated into the document, it should not be used for lease issuance or other decision-making actions. In addition, it should specify the actions that will be taken at the leasing, exploration and development stages to ensure compliance with the requirements of section 7 of the Endangered Species Act.

Page 13, column 1, 1st complete paragraph -- The Endangered Species Act and the Marine Mammal Protection Act should be added to the list of statutes that apply to Federal oil and gas activities in Alaska.

Page 27, column 1, 1st complete paragraph -- The Convention on International Trade in Endangered Species of Wild Fauna and Flora should be added to this discussion.

F-64

Page 33, column 1, 3rd complete paragraph -- This paragraph indicates that 87% of the polar bear dens located in 1983-85 were offshore and that the most consistently used land denning areas were on and adjacent to the 1002 area. It does not indicate: what onshore and offshore areas were surveyed; how dens were located; whether dens that were located represent all, a known proportion, or an unknown proportion of the dens in the area surveyed; whether the proportion of bears denning onshore and offshore is affected by ice and weather conditions or other variables; whether exploration and development activities in Prudhoe Bay and other areas in the Alaskan and Canadian Arctic may have resulted in more offshore denning; and how reproductive success might be affected by den location.

Without this information, it is not possible to make a meaningful assessment of the possible effects of the alternative development and exploration scenarios on polar bears. Thus, a more complete description and evaluation of the existing information and uncertainties concerning denning locations and requirements should be provided. If information essential to such an assessment is not available, the necessary research and data gathering should be conducted.

Page 33, column 2, 3rd complete paragraph -- This paragraph states that the Beaufort Sea is ice covered year round. This is not accurate. During the summer, the southern edge of the ice can

be 100 or more miles offshore. The resulting expanse of water cannot be correctly termed a shore lead.

Page 33, column 2, 4th complete paragraph -- This discussion should be expanded to indicate how polar bears are "protected" under the Marine Mammal Protection Act. Such a discussion should emphasize the prohibition on taking (including harassment), the goal of the Act to restore and maintain marine mammal populations at their optimum sustainable population levels, and the subsistence opportunities that are provided to Alaskan Natives. Because these requirements apply to all marine mammals, it may be useful to insert this discussion at the beginning of the Marine Mammal section on this page.

Page 34, column 1, 1st complete paragraph -- This paragraph states that bearded seals are chiefly associated with the pack ice edge throughout the year. This statement is not accurate. Bearded seals are widely distributed over the shallow continental shelves of the Bering, Chukchi and Beaufort Seas.

Page 34, column 1, 4th complete paragraph -- This paragraph refers only to subsistence whaling activities at Kaktovik. Discussion should be added concerning subsistence activities at other locations that could be affected if whales are adversely affected by activities in the 1002 area. The same applies to the analysis of subsistence impacts of other migratory wildlife populations that move outside of the Arctic Refuge. This approach has been followed for analyzing the effects on caribou (see, e.g., page 39, column 1, 2nd complete paragraph), but not for bowhead whales, seals and polar bears.

Page 39, column 1, 1st complete paragraph -- The subsistence provisions of the Endangered Species Act and the Marine Mammal Protection Act should be included in this discussion.

Pages 81 - 82, carryover paragraph -- This paragraph indicates that two marine facilities may be necessary under the full leasing and development scenario. The two sites identified -- Camden Bay and Pokok Lagoon -- also are known polar bear denning sites and may be important bowhead feeding areas. The likelihood that these two sites would be developed highlights the need for more detailed assessment of both polar bear and bowhead behavior and habitat requirements. In addition, it suggests the need to consider alternative locations for these activities. This is especially important with regard to the requirements of the Agreement for the Conservation of Polar Bears, which directs member nations to take special steps to protect polar bear denning locations. As noted on page 27 of the Assessment, section 303 of ANILCA requires that the Arctic Refuge be managed to fulfill international treaty obligations. The Assessment should discuss, either here or in the Environmental Consequences section, how this Treaty obligation and the concomitant duty imposed under ANILCA would be satisifed with regard to the polar bear dens at Camden Bay, Pokok Lagoon and elsewhere in the 1002 area.

Page 96, Table VI-1 -- This table defines long- and short-term effects as impacts that last more than 20 years and less than 20 years, respectively. We believe that an effect that lasts up to 20 years cannot be considered short-term. A more appropriate approach would be to define short-term effects as those that last for up to two years, intermediate-term effects as those that last up to 10 years, and long-term effects as those that last more than 10 years.

In addition, neither the text of the Assessment nor the Table indicate what is meant by the terms "widespread," "local," and "considerable severity." To provide a more meaningful basis for judging what the Department of the Interior considers to be major, moderate, minor, and negligible effects, these terms should be defined.

Page 118, column 2, Mitigation -- This section should be expanded to include the following mitigating actions:

1) Workers in the area should be instructed on polar bear behavior and habitat concerns and the procedures to use when bears are encountered.

2) Bears that come into contact with camps and development sites should not be allowed to become habituated and lose their fear of humans. When possible, they should be frightened and driven several miles away by use of a snow machine or helicopter. In addition, encounters should be discouraged by use of trip-wire alarm systems and other polar bear deterrents.

3) Seismic and exploratory surveys should be coordinated and limited to the number necessary. Repetitive surveys by independent companies should be avoided.

The final sentence in this section, which states that only Natives may kill polar bears, is not accurate. There is limited authority under the Marine Mammal Protection Act for the lethal taking of bears by government officials when necessary for the welfare of the animal or for public health and welfare. 16 U.S.C. §1379(h). In addition, bears may be taken for scientific research and public display purposes. 16 U.S.C. §1371(a)(3). This sentence should be revised to read: "Except for purposes of scientific research or other authorized takings under the Marine Mammal Protection Act, nuisance bears would have to be trapped and relocated, except in extreme situations where other methods of humane taking are necessary for either the welfare of the animal or the protection of the public health and welfare."

Page 118, column 2, Conclusion -- This paragraph states that the "exclusion of only one or two bears from areas consistently used for denning would be a moderate impact on that segment of the Beaufort Sea population . . . ." Lacking is a discussion of what the impact would be if more bears were excluded. In addition, due

to some of the information gaps and concerns identified elsewhere in this letter, the Commission regards the conclusion that "only one or two bears" would be excluded to be speculative.

On 25 April 1986, the Council on Environmental Quality published a revised regulation to govern the consideration of issues for which there is incomplete or unavailable information. 51 Fed. Reg. 15,618 - 15,626. That revision to 40 C.F.R. §1502.22 requires that impacts that have a low probability of occurrence but catastrophic consequences if they do occur should be evaluated if the analysis is supported by credible scientific evidence. 51 Fed. Reg. 15,625. The Commission believes that the exclusion of additional polar bears has a sufficient degree of probability and adverse environmental consequences to require analysis in the Assessment and recommends that appropriate steps be taken to address this possibility, through additional research (if necessary) and revisions to the document.

Page 119, column 2, Conclusion -- This paragraph states that the behavior of "dolphins, porpoises and seals in coastal marine habitats with high levels of industrial activity and marine traffic" suggests that behavioral changes by marine mammals using the Arctic coast would be minor as a result of development in the 1002 area. Although it is true that some dolphins, porpoises and seals are able to live in areas with relatively high levels of human activity, it does not necessarily follow that Arctic seals and whales, which have had relatively little exposure to such activities, also would be unaffected.

Page 127, column 1, Subsistence Use -- As noted above in our comment on Page 34, column 1, 4th complete paragraph, the Assessment should be revised to address the impacts on subsistence uses of marine mammals in villages outside of the Refuge. This would include, but is not necessarily limited to, Barrow and Nuiqsut.

I hope that these comments are useful. If you have any questions, please contact me. The Commission looks forward to working closely with the Service in addressing these concerns and other marine mammal issues associated with the 1002 program.

Sincerely,

Robert J. Hofman, Ph.D.
Scientific Program Director

United States Department of the Interior

MINERALS MANAGEMENT SERVICE
WASHINGTON, DC 20240

FEB - 6 1987

Memorandum

To: Director, U.S. Fish and Wildlife Service
Attention: Noreen Clough, Division of Refuges

From: Director, Minerals Management Service

Subject: Arctic National Wildlife Refuge, Alaska; Coastal Plain Resource Assessment and Draft Legislative Environmental Impact Statement

The Minerals Management Service (MMS) has reviewed the above document, and our comments are attached.

The MMS fully supports the Department of the Interior's (DOI's) recommendation to Congress for pursuing energy resources development in the coastal plain of the Arctic National Wildlife Refuge (ANWR). This document has demonstrated that development of the ANWR's oil resources is vital to our national interest and that mitigation measures are available to ensure minimal adverse effects on the environment.

F-66

In the attached comments, we have identified several sections of the document that can be enhanced with additional discussions and/or clarifications. In particular, we have concerns on two major topics discussed in the document. First, the various sets of figures used for resource estimates and economic benefits, as discussed in Chapter III, should be more clearly explained to indicate how these figures, which appear confusing and occasionally are inconsistent, were developed. Second, the method for impacts assessment and discussions of potential environmental effects in Chapter VI should be clarified to show how the conclusions are related to development scenarios and assumptions. We have provided in the attached comments specific references to those chapters, pages, and paragraphs where we have questions, concerns, and suggestions.

As a result of our responsibilities for overseeing energy resources development on the Outer Continental Shelf, the MMS has considerable experience in oil and gas leasing and environmental effects monitoring offshore Alaska. To the extent that any of our program activities or expertise may be of assistance to you in the furtherance of the DOI's efforts for potential energy development in the ANWR, please feel free to call on us. If you have questions concerning our comments, please direct them to John Goll, Chief, Offshore Environmental Assessment Division (Room 2042, Main Interior, 343-2097).

Attachment

COMMENTS BY THE MINERALS MANAGEMENT SERVICE ON
DRAFT COASTAL PLAIN RESOURCE ASSESSMENT,
ARCTIC NATIONAL WILDLIFE REFUGE, ALASKA

General Comments

We note that the draft document has been prepared to fulfill the requirements of section 1002(h) of the Alaska National Interest Lands Conservation Act (ANILCA) calling for a recommendation by the Secretary of the Interior to the Congress on whether the coastal plain of the Arctic National Wildlife Refuge (ANWR) in Alaska should be opened for oil and gas development. The geographical area addressed by the document is referred to as the "1002 area."

The Minerals Management Service (MMS) recently gained much relevant experience with the preparation of ANILCA section 810 subsistence analyses. Accordingly, we have focused our review on the suitability of the socioeconomic information needed for such analyses. The information in this document is comprehensive; it properly includes the required analyses of the abundance and availability of, and access to, subsistence resources. The document references much original literature regarding the North Slope Borough (NSB), but we note that it unfortunately references only one study from the MMS Social and Economic Studies Program.

In our specific comments that follow, we have noted, where appropriate, that additional information is available. To assist in making the information base for this document more comprehensive, we have attached a current MMS studies list for the Beaufort Sea Planning Area.

As implied in this document, an ANILCA section 810 analysis will be conducted prior to a lease sale. Although the applicability of ANILCA to Federal offshore oil and gas lease sales in Alaska is still to be clarified by a pending decision by the Supreme Court, the MMS has, under the advice of the Office of the Solicitor, prepared ANILCA section 810 analyses for several lease sales. Our most recent analysis is found in the Beaufort Sea Sale 97 draft environmental impact statement (EIS) published on November 7, 1986.

Chapter IV

A discussion of "Development and Transportation Infrastructure" should consider other oil development projects adjacent to the 1002 area that could affect caribou and other wildlife on the refuge. Federal and State offshore oil and gas activities as well as Canadian oil and gas activities should be considered.

Chapter VI

The analysis of environmental consequences, as a whole, contains one major methodological deficiency that should be corrected. The potential impacts of the proposed action are analyzed assuming mitigating measures are in effect. The proposed action should be analyzed two ways, first without any mitigating measures in place and then with mitigating measures because the inclusion of mitigating measures in a lease is a discretionary action of the leasing official.

If the 1002 area is opened to hydrocarbon exploration, development, and production at sometime in the future, it is very possible that the final leasing decision may not include all of the 32 potential stipulations noted on pages 145-147. If this happens, the subject resource assessment would not present a true analysis of the potential impacts of the proposed action since all the 32 potential stipulations are assumed to be in place for the purposes of the analysis.

Another reason for analyzing the proposal with and without mitigating measures is to facilitate evaluation of the effectiveness of each potential mitigating measure. At the present time, there is no analysis of effectiveness in the resource assessment. If a mitigating measure is not effective in reducing potential environmental impacts or facilitating lease administration, it is doubtful that it should be included in a lease.

The discussion of effects does not adequately address oil spills, nor is oil spillage estimated. Pipeline spillage could be estimated from the trans-Alaska pipeline system (TAPS) data held by the Bureau of Land Management.

There are major analytical problems throughout Chapter VI. The first is in the last paragraph of page 95 which outlines the assumptions that guide the analysis of environmental consequences. The paragraph states that the scenarios for development in Alternatives A and B are treated as if all three portions--western, eastern, and southern--of the 1002 area would be developed concurrently. The analysis then acknowledges that,

> . . . In fact, however, development would likely occur sequentially. [Emphasis added.] Therefore, the analysis and consequences may represent a higher level of development than may actually occur at any specific time if the area were opened to leasing. This factor was recognized, and because any prediction as to the various stages of development at any given time on the 1002 area would be highly speculative and perhaps misleading, the FWS chose to perform the analysis as if concurrent development were to take place.

We recognize the very real difficulty that the authors undoubtedly have in trying to second-guess the prospective development of the 1002 area, but we are concerned that the "concurrent development" assumption would simply overstate the extent of environmental consequences far beyond reason.

There is a nearly 20-year history of exploratory drilling and developmental operations in the nearby Prudhoe Bay oil fields. We believe that an examination of the Prudhoe Bay development history should provide some indications of how the 26 seismically mapped prospects in the 1002 area might be developed under a reasonable sequential development scenario. We acknowledge that the existence of the TAPS would likely help to speed sequential development of the 1002 area.

The analysis of environmental factors affecting the behavior patterns of the caribou and muskoxen herds in the 1002 area is well-documented, and the discussions of how prospective exploration and development operations might affect these herds are complete. Also, the discussions on page 111 of possible mitigating measures for reducing disturbance to caribou herds and for enhancing their migrations across roads and pipelines seem reasonable and well-supported by the analyses contained on pages 105 through 111. These discussions provide invaluable information on how to manage oil and gas development activities to minimize disturbance to the species under consideration.

We are concerned, however, that the conclusions about impacts to caribou and muskoxen contained on pages 112, 113, 132, and 144 do not seem to be substantiated by the analyses contained in the draft document. What are presented on these pages amount to "worst case" or catastrophic conclusions arrived at without the support of sufficient information. We suggest that the authors reexamine these conclusions in light of the revised Council on Environmental Quality and National Environmental Policy Act regulations on "Incomplete or Unavailable Information" (40 CFR 1502.22) that became effective on May 27, 1986 (51 FR 15618-15626).

Our specific concerns are as follows:

Page 112, left column, 3rd and 4th paragraphs--These paragraphs refer to the presence of up to 6,000 people, use of up to 25 percent of the Porcupine caribou herd (PCH) core calving area, and reduction or elimination of 29 percent of the coastal insect-relief habitat for the PCH. These factors are based on an assumed scenario of concurrent development throughout the area, a scenario that the FWS has stated is unlikely. The fourth paragraph concludes that these and other factors "could result in a major population decline and change in distribution of 20-40 percent, based on the amount of calving and insect-relief habitat to be adversely affected." There is no analysis in the report to support this conclusion, and it is, therefore, conjectural. We note that on page 106 the draft report cites a growth in the central Arctic caribou herd (CAH) population from 6,000 to between 12,000 to 14,000 individuals during the period 1978-1985--in spite of the range of CAH calving and insect-relief areas westward toward the vicinity of the TAPS and developed oil fields at Prudhoe Bay. We recognize the draft report assertion on page 106 (left column, 1st paragraph) that "Analogies comparing the effects of current oil development on the CAH and the PCH must be drawn with caution." However, no clear reasons were given on how the proposed development would result in seemingly dire consequences to the caribou in opposition to what is encouraging and objective evidence. Dire predictions also were made for the caribou prior to construction of the TAPS, but the population of these animals has increased rather than declined.

Page 113, right column, first paragraph--This paragraph again uses the concurrent development scenario to argue that "muskoxen would be displaced from approximately 53 percent" of their year-round habitat and up to 75 percent of their "high use habitats in which calving occurs." Again, the analysis contained in the report does not fully support such negative

conclusions. In fact, page 112 of the draft report indicates that from 1969 to 1985, the muskoxen population of the ANWR grew from 69 to 476 individuals--representing a nearly sevenfold increase--in spite of the development at Prudhoe Bay and construction of the TAPS.

These unsupported conclusions are evident as well in the executive summary of the draft report (page 6, right column, 4th paragraph) where it is stated:

> Long-term losses in fish and wildlife resources, subsistence uses, and wilderness values would be the inevitable consequences of long-term commitment to oil and gas development, production, and transportation.

We do not see any convincing analysis in the draft report to indicate the long-term losses in or consequences to these resources and uses would be "inevitable" as a result of oil and gas development in the 1002 area. We suggest that the experience of the past 20 years indicates otherwise.

Chapter VII

In view of the fall in oil prices in 1986 and the unpromising view for increases in the near future, the resource and economic benefit methodology and assumptions should be reviewed and perhaps redone to reflect more realistic numbers. Also, some of the tables need to be updated and care taken concerning the fact that Prudhoe Bay was a major discovery; other areas may not be, i.e., Mukluk.

F-68

This chapter should include a discussion of the enormous investments--billions of dollars in private investment and millions of dollars in Federal administrative costs--that truly make the TAPS a national resource of tremendous value. Although the report correctly notes that the productivity of Prudhoe Bay oil fields will begin to decline in a few years, it fails to consider the ramifications of this fact.

Letting the TAPS lie idle for even a few months would inevitably result in physical deterioration of the system under harsh Arctic conditions. Reconditioning the system to transport production from the 1002 area after only a short period could require expenditures of millions of dollars. Idling the TAPS during a year or more of public debate until a decision is made to produce the oil could result in scrapping sections of the TAPS and spending billions of dollars to build new sections. Congress should be made aware of this through an analysis in the final report that describes the ramifications of idling the TAPS prior to development of 1002 area oil fields. If a decision were made now to proceed with leasing and development of the 1002 area, the hydrocarbon resources from that area could begin to flow into the TAPS at a time when production activities at Prudhoe Bay would be down significantly.

We note that Table III-1 on page 50 compares the estimated mean economically recoverable oil resources of the 1002 area with planning areas of the Outer

Continental Shelf. The estimate of 3.2 billion barrels of economically producible oil for the 1002 area is significantly larger than the 2.66 billion barrels estimated for the central Gulf of Mexico, where about 90 percent of all oil and gas production has occurred. This comparison provides strong encouragement to begin exploratory drilling in the 1002 area.

Specific Comments

Executive Summary

Page 1, 4th paragraph--This paragraph should be revised to indicate the marginal probability and amounts of both in-place and economically recoverable oil and gas. This paragraph could be misleading to the reader. There is not merely a 5-percent chance of finding 29.4 billion barrels of oil and 64.5 trillion cubic feet of gas. There is a 19-percent chance that hydrocarbons will be found. If hydrocarbons are found, there is a 5-percent chance that the estimated resources will be found.

The "3.2 BB of recoverable oil resources" in the 12th line should be "3.2 BB conditional mean of recoverable oil resources." The net national economic benefits resulting from development of these recoverable resources are estimated to be from $79.4 billion, based on an oil price of $33 per barrel. In light of the recent decline in per-barrel prices, the net national economic benefits would be about half of $79.4 billion.

Page 1, 6th paragraph--"Exploratory wells" should be "stratigraphic test wells".

Page 4, 2nd paragraph--" . . . . their cubs probably spend more time . . . ." How much more?

Page 4, 6th paragraph--" . . . . are of lesser importance . . . .", to the ecosystem or to humans?

Page 5, 6th paragraph--It is incorrect to say "Federal Lease Sale 71 in 1980 resulted in two discoveries." Sandpiper was the only discovery from this sale. The authors may be referring to the Seal Island discovery which is on Sale BF leases.

Page 8, last paragraph--The "$15 billion" in line 6 is different from that discussed on page 1. An explanation should be provided concerning the method of deriving these estimates.

Chapter II

Page 33, 2nd paragraph--Under "Marine Mammals," humpback whale, fin whale, and hooded seal should be deleted from the sentence that states they are only rarely seen. It is doubtful that they are seen at all in the region.

Page 34, 2nd paragraph--Stoker (1983, cited in Braund et al., 1984) shows seals comprising 11.5 percent of the Kaktovik subsistence diet. This conflicts with information stated in this paragraph.

Page 38--Decreases in NSB revenues, decreases in capital-improvement-projects employment, lack of diversification in community economics, and other factors will probably cause an outmigration as families leave to seek employment. The rate of outmigration will probably be higher than the rate of natural population growth. Many communities will experience net population losses. This analysis should be incorporated under the discussion on population.

Page 39--Under "Subsistence Use," it should be noted that the residents of Nuiqsut also harvest caribou of the central Arctic herd for subsistence uses.

There appear to be omissions in the sociocultural information. The Inupiat culture should be discussed to include such things as social organization, cultural values, and political systems. A discussion of the current sociocultural system is necessary in order to assess changes caused by oil- and gas-related activities within the 1002 area. Because subsistence is the central core of the Inupiat way of life, major effects on subsistence would cause effects on the sociocultural system.

Chapter III

Page 49, 1st paragraph--The marginal probability (MP_{hc}) for these estimates should be given in the text.

Page 49, 4th paragraph--The chance that economically recoverable oil is present is stated as 19 percent, on page 68, while the probability given on this page is 20 percent.

Page 50, Figure III-2--The caption should read "Conditional oil resources of the eight largest prospects in the 1002 area assuming commercial resources exist in each prospect . . . ." Also, the end of the caption has "M, mean." It appears that something is missing. This figure could be misleading to the reader. Marginal probabilities should be provided for individual prospects in the 1002 area.

Page 50, 3rd paragraph--Obviously, these comparsons are valid only if each prospect has commercial resources; therefore, some mention should be made of prospect risk. There is a remote chance of the 5-percent case occurring. The second sentence should read "If oil resources are present in the prospects, there is about a 5-percent chance . . . ." Also, according to Figure III-2, the largest prospect, if productive, has greater than a 5-percent chance of having more resources than Prudhoe Bay, and the second largest prospect has less than a 5-percent chance of having more resources than Prudhoe Bay.

Page 50, Table III-1--The first part of the caption should end with " . . . and elsewhere (unleased lands)." The last sentence in the second part of the caption should read "Data for Outer Continental Shelf resources from Cooke,

1985." Also, there should be a column for the corresponding MP_{hc}; otherwise, the table is somewhat misleading since the planning areas estimates do not compare directly.

Page 51, 2nd paragraph--Should state minimum accumulation size assessed.

Page 52, Figure III-3. Should plot location of the Japo River well drilled by Chevron on Native lands (KIC lands) east of Kaktovik and about 14 miles east of Barter Island. Chevron spudded the well in mid-February 1985 and drilled to below 11,000 feet before suspending operations due to spring ice breakup. Chevron has not released any drilling and testing results, because the well is a "tight hole."

Page 60, Figure III-9--Should plot location of the Jago River well.

Page 61, Table III-2--For prospect 3, it appears that the lowest closing contour should be 14,000 instead of 14.

Page 62, 8th paragraph--It would be extremely useful if the "information on the size, distribution, and numbers of petroleum accumulations" was provided. This information is critical and would be invaluable in making judgments concerning the in-place resource potential.

Page 68, 2nd paragraph--Should read "no current economic interest" instead of "not current economic interest".

Page 68, 3rd paragraph--The chance that economically recoverable oil is present is given as 19 percent while the same probability is shown as "about 20 percent" on page 49.

Page 69, Figures III-17 and III-18--Regarding the mean estimates and pie diagrams for plays 1-7, this is only justified for the risked estimates, but we assume $MP_{hc}=1$ has been used for each play in the calculations.

Page 70, 8th paragraph--Regarding the last two sentences, prospect risk, that is, the probability that the prospect does not contain hydrocarbons as modeled, should be assessed at the threshold. For additional discussion, see R.A. Baker, H.M. Gehman, W.R. James, and D.A. White, "Geologic Field Number and Size Assessments of Oil and Gas Plays," AAPG Bulletin, volume 68, no. 4, pp. 426-437.

Page 70, last paragraph--Area geologic risk should be based solely on the probability of at least one accumulation, as modeled, existing in the area under consideration. Economic risk is handled by the model based on tests of minimum economic field size and presented as a model output.

Page 72, Table III-4--We have compared the constant oil prices generated with those forecasted by the Department of Energy (DOE) for the Annual Energy Outlook 1986 and by Data Resources, Inc. (DRI), in the Autumn Energy Review (1986). All figures are in 1986 dollars. If they were in 1984 dollars, the numbers would be even smaller.

	Oil Prices (1986 dollars)	
	DRI	DOE
1990	17.61	17.84
1995	22.37	26.61
2000	32.73	32.87

Thus, $33 and $40 per barrel are much too high. Also, the inflation figures do not make sense. Generally, the higher the inflation, the higher the oil price; the lower the inflation, the lower the oil price. This document shows a higher inflation rate for the lower oil price and vice versa. As for the discount rate, somewhere in between 0 and 8 percent is more realistic than 10 percent. The use of 10 percent should be justified. Also, the marginal probability of 19 percent differs from 20 percent on page 49.

Chapter IV

Page 84, 2nd paragraph--The discussion under "Oil Spill Contingency, Including Leak Detection" should state the minimum daily leak rate that would not be detected under the automated system.

Chapter V

Page 91, 1st paragraph--The specific boundaries of Alternative B (Limited Leasing) are not adequately presented. Plate 2A is not specific enough. We recommend adding a half-page-size map showing the boundaries of Alternative B at the beginning of the discussion of Alternative B here and on page 132.

Page 91, 1st paragraph--How were these estimates derived? If they were developed by PRESTO, they should have a different MP_{hc} from those on page 49.

Chapter VI

Page 119, 2nd paragraph--Finley and Davis (1984) reports a strong avoidance by beluga whales to icebreaker noise at 35 to 50 kilometers. This is in conflict with the information reported in this paragraph.

Page 119, 3rd and 4th paragraphs--The reports by Fraker and others (1981, 1982) are somewhat outdated. Bowhead whale reaction to closely approaching vessels appears greater than their reaction to any other industrial activities except marine-seismic surveys. Based on sound measurements in the Alaskan Beaufort Sea, Miles et al. (1986) estimate that about 50 percent of bowheads exposed to tug noise would react to the noise at a distance of 2.5-13 kilometers (1.6-8.1 miles) from the source. In the Canadian Beaufort Sea, some bowheads observed in vessel-disturbance experiments began to orient away from an oncoming vessel at a range up to 4 kilometers (2.5 miles) and to move away at increased speeds when approached closer than 2 kilometers (1.2 miles). Closely approaching vessels temporarily disturbed activities and sometimes disrupted

F-70

social groups, as groups of whales sometimes scattered when a vessel approached. Generally, bowheads stopped swimming away from a vessel within minutes after the vessel had passed, but scattering persisted for a longer period. Based on these observations, bowheads appeared to be more sensitive to vessel traffic than some other whale species and could be displaced by repeated vessel disturbance (Richardson et al., 1985). Occasional vessel disturbance would not be expected to seriously disrupt or displace the bowhead-migration corridor or cause significant adverse effects on the bowhead population.

Page 125, 2nd paragraph--Arctic char should be analyzed more similarly to grayling, since new U.S. Fish and Wildlife Service research (funded by the MMS) indicates that individual river stocks occur. This finding suggests the separate stock is more vulnerable to local disturbance.

Page 125, 7th paragraph--Docks and causeways are mentioned as potential parts of the scenario at Camden Bay and Pokok port sites; however, only docks are mentioned in Chapter IV. Since the potential effects of causeways on anadromous fishes are not clear--and this is a major issue in the Beaufort Sea--the discussion should be clarified with supporting analysis regarding causeways that may be built. In the last sentence, location should be added to the dependent variables of time, amount, and type of material spilled.

Page 126, last paragraph--Decreases in NSB revenues, decreases in capital improvement-projects employment, lack of diversification in community economics, and other factors will probably cause an outmigration as families leave to seek employment. The rate of outmigration will probably be higher than the rate of natural population growth. Many communities will experience net population losses. This analysis should be incorporated under the discussion on population.

Page 127--There is no analysis of sociocultural effects under "Subsistence Use." If moderate to major effects are anticipated on the CAH, it is unclear how Nuiqsut (not mentioned) would be affected.

Page 129, 3rd paragraph--As stated in the first sentence, development activities could substantially increase employment and cash flow in Kaktovik. It would be useful if a description of these employment opportunities were included. This document states that effects (from employment and cash flow) would be unevenly distributed within the community. However, because of the cultural value of sharing (subsistence food, etc.), these effects would probably be experienced to some degree throughout the community.

Page 130--Reference is made to State and local economic benefits. Depending on what system is used for leasing (i.e., Mineral Leasing Act or separate legislation), the economic benefits would be quite different. Under the Mineral Leasing Act, the State of Alaska currently receives 90 percent of rents, bonuses, and royalties from Federal leases. Under a separate congressional act, leasing of the National Petroleum Reserve-Alaska provides 50 percent of rents, bonuses, or royalties to the State of Alaska.

Page 132, 2nd paragraph--This paragraph repeats the unsubstantiated conclusion of a 20-40 percent reduction in caribou population and distribution cited in our general comment for page 112.

Page 132, 4th and 5th paragraphs--These paragraphs basically repeat the unsubstantiated conclusions on impacts to muskoxen that are described in our general comment for page 113.

Page 138--This document would be strengthened in its analysis under "Effects on Socioeconomic Environment" if specific numbers for population increases and employment estimates were provided. A sociocultural analysis should be included in this section.

Page 142--Under "Biological Resources," effects (due to causeway construction) on planktonic and benthic organisms are discussed. Fish should also be discussed, and a sentence regarding the migration of anadromous fish (i.e., Arctic cisco) should be included.

Page 144, right column, 2nd paragraph--This paragraph basically repeats the erroneous conclusions concerning caribou and muskoxen described previously.

Page 145--There is a summary of recommended mitigation for the 1002 area that includes safety and environmental stipulations applicable to oil and gas exploration, development, production, and transportation on the 1002 area. A stipulation concerning oil spills should be added. On page 84 of this document, there is a discussion on the requirement that oil spill contingency plans include provisions for oil spill control. A stipulation to address concerns of oil spills would enhance a positive leasing program.

Chapter VII

Page 162, Table VII-2--The numbers should be updated.

Page 163, Table VII-3--The finding rates should be updated if available. Additional source information, if available, should be provided.

Page 164, last paragraph--The Federal deficit and import numbers should be updated.

Chapter VIII

Page 169, 6th paragraph.--How were the figures of economic benefits at $8.1 and $14.6 billion developed? There is no explanation of the methodology used for economic benefits. Also, it should be stated that 3.2 BBO are conditional mean estimates.

Beaufort Sea Environmental Studies List

Identification, Documentation and Delineation of Coastal Migratory Bird Habitats in Alaska, Alaska Department of Fish and Game, NOAA/OCSEAP Research Unit Nos. 3/4, September 1980.

Distribution, Abundance, Community Structure and Trophic Relationships of the Nearshore Benthos, University of Alaska, NOAA/OCSEAP Research Unit No. 5, December 1981.

Distribution, Composition, and Variability of Western Beaufort and Northern Chukchi Sea Benthos, Oregon State University, NOAA/OCSEAP Research Unit No. 6, June 1984.

Summarization of Existing Literature and Unpublished Data on Distribution, Abundance, and Life Histories of Benthic Organisms of the Beaufort Sea, Oregon State University, NOAA/OCSEAP Research Unit No. 7, January 1977.

Assessment of Potential Interactions of Micro-organisms and Pollutants Resulting from Petroleum Development on the OCS in the Beaufort Sea, University of Louisville, NOAA/OCSEAP Research Unit No. 29, December 1982.

Analysis of Marine Mammal Remote Sensing Data, Johns Hopkins University, NOAA/OCSEAP Research Unit No. 34, April 1977.

Trace Hydrocarbon Analysis in Previously Studied Matrices and Methods Development for (a) Trace HC Analysis in Sea Ice and at the Sea Ice/Water Interface and (b) Analysis of Individual High Molecular Weight Aromatic HC, National Bureau of Standards, NOAA/OCSEAP Research Unit No. 43, January 1980.

Environmental Assessment of Alaskan Waters - Trace Element Methodology - Inorganic Elements, National Bureau of Standards, NOAA/OCSEAP Research Unit No. 47, May 1977.

Coastal Morphology, Sedimentation, and Oil Spill Vulnerability, RPI, Inc., NOAA/OCSEAP Research Unit No. 59, April 1980.

Migration, Distribution, and Abundance of Bowhead and Beluga Whales in the Arctic Oceans, National Marine Fisheries Service, NOAA/OCSEAP Research Unit Nos. 69/70, October 1981.

Lethal and Sublethal Effects On Selected Alaskan Marine Species After Acute and Long-Term Exposure to Oil, National Marine Fisheries Service, NOAA/OCSEAP Research Unit No. 72, April 1983.

Sublethal Effects of Petroleum as Reflected By Morphological, Chemical, Physiological, Pathological and Behavioral Indices, National Marine Fisheries Service, NOAA/OCSEAP Research Unit No. 73, June 1982.

Identification of Major Processes in Biotransformations of Petroleum HC and Trace Metals, National Marine Fisheries Service, NOAA/OCSEAP Research Unit No. 74, June 1982.

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Ocean Wave Simulation Model, University of Wyoming, TA&RP No. 103.

F-79

United States Department of the Interior

NATIONAL PARK SERVICE
AIR QUALITY DIVISION
P. O. BOX 25287
DENVER, CO 80225

IN REPLY REFER TO:

January 20, 1987

N3615(475)

Memorandum

To: Division of Refuge Management, Fish and Wildlife Service

From: Chief, Air Quality Division

Subject: Draft Arctic National Wildlife Refuge, Alaska, Coastal Plain Resource Assessment and Legislative Environmental Impact Statement

The Air Quality Division has reviewed the draft Arctic National Wildlife Refuge, Alaska, Coastal Plain Resource Assessment and Legislative Environmental Impact Statement (LEIS). We offer the following comments.

F-80

The discussion of air quality impacts of the proposal is inadequate. Air quality effects are dismissed as minor -- gaseous and particulate emissions which will "temporarily degrade local air quality". No data are included in the LEIS regarding emissions of specific pollutants such as sulfur dioxide, hydrogen sulfide, particulate matter, nitrogen oxides, and volatile organic compounds (the latter two being precursors of ozone). The proposal includes several sources of such pollutants -- either six or seven large central processing facilities, two small central processing facilities, between 30 and 60 permanent drilling pads, diesel engines, motor vehicles, and between 35 and 50 million cubic yards of gravel for construction, operation, and maintenance. There is also no discussion of any mitigating measures to be applied in order to reduce the air pollution from those sources.

The Arctic National Wildlife Refuge is a class II clean air area. The Clean Air Act has established increments for sulfur dioxide and particulate matter which cannot be exceeded once baselines have been established for those pollutants. Those baselines may have been established through monitoring data obtained from the energy related activities at Prudhoe Bay.

The final LEIS should be revised to include a more detailed air quality analysis. Monitoring and modeling data should be used to calculate existing background air pollutant concentrations and to determine the potential additional impacts of emissions resulting from the proposal and all alternatives. The analysis should also include a discussion of the possible impacts of the air pollution on the physical environment, including in particular, impacts on sensitive plant and animal species. In addition, the analysis should include a discussion of the mitigating measures to be applied to reduce or eliminate air pollution.

We hope these comments will be helpful to you in preparing the final document. If you have any questions regarding our comments, or would like additional information, please contact me at FTS 776-8765.

John P. Christiano

United States Department of the Interior

NATIONAL PARK SERVICE
P.O. BOX 37127
WASHINGTON, D.C. 20013-7127

IN REPLY REFER TO:
L7617(762)

FEB 4 1987

Memorandum

To: Director, U. S. Fish and Wildlife Service
Attention: Noreen Clough

From: Associate Director, Planning and Development

Subject: Arctic National Wildlife Refuge, Alaska Coastal Plain Resource Assessment (DES 86/0045)

In response to your November 24, 1986, memorandum, we have reviewed the subject assessment and have the following comments.

We recommend the following changes and additions to subject assessment. Our recommended changes to the draft text are underlined.

F-81

1. Executive Summary, Vegetation and Terrain Types, p. 3; change second sentence of last paragraph to:

> located in the foothills in the southern part of the 1002 area, the spring and its surrounding area of approximately 640 acres have been identified as a potential National Natural Landmark.

2. Chapter II ("Existing Environment"), Biological Environment, Sadlerochit Spring Special Area, p. 25; change the first three sentences of the first paragraph to:

> Sadlerochit Spring and its surrounding area (approximately 640 acres), in the southern part of the 1002 area, west of the Sadlerochit River pl. 1A) have been identified as a potential National Natural Landmark (Detterman, 1974; see also Bliss and Gustafson, 1981). The National Natural Landmarks Program was established to encourage the preservation of natural areas illustrating the diverse geological and ecological character of the United States. Areas qualifying as National Natural Landmarks must constitute best examples of natural communities or geologic features characterizing one of the 33 physiographic provinces composing the Nation, and should be relatively free of human disturbance; designation of a site as a National Natural Landmark does not affect its ownership, management, or use, however.

3. Chapter II ("Existing Environment"), Biological Environment, Coastal and Marine Environment, p. 27; add the following new paragraph at the end of the Section:

> In the northeasternmost corner of the 1002 section, the 133,729-acre Kongakut River-Beaufort Lagoon area was identified as a potential National Natural Landmark, because it contains: (1) a unique offshore bar and lagoon ecosystem which supports a relatively diverse marine biota and terrestrial biota using the area for nesting and migration rests; and (2) an arctic river which flows from the mountain front and enters the lagoon ecosystem, perpetuating the unique marine conditions of freshwater throughout most of the summer, and the presence of spruce trees in the upper course of the river, accompanied by elements of the boreal flora (Koranda and Evans, 1975). In addition, nearby Angun Plains was identified as a potential National Natural Landmark, as a good example of glacial gravel outwash plains found near the areas of maximum Pleistocene glaciation (Detterman, 1974).

4. Chapter VI ("Environment Consequences"), References Cited for Biological Environment (Chapters II and VI), pp. 152 and 155; add:

> Detterman, R. L., 1974, The Arctic Lowland Region: Potential lifeform and lifeform natural landmarks: report prepared for the National Park Service by the U.S. Geological Survey, 418 p.
>
> Koranda, J. J., and Evans, C. D., 1975, A discussion of sites recommended as potential natural landmarks in the Arctic Lowland Natural Region, northern Alaska: report prepared for the National Park Service by the Tundra Biome Center, University of Alaska, Fairbanks, Alaska, 189 p.

In addition, we have attached a list of all potential National Natural Landmarks located in the entire Arctic National Wildlife Refuge. No sites have yet been designated within the refuge.

Attachment

Potential National Natural Landmarks in Arctic National Wildlife Refuge, Alaska

Site Name	Acres	USGS Quadrangle	Theme Study	Evaluation Rept.	Other Eval.
*Angun Plains	23,040	Demarcation Pt.	Detterman (3C)	Murray, 1979 (+)	HCRS, 1979 (-)
*Beaufort Lagoon - Clarence Fan	337,560	Demarcation Pt.	Composite	Murray, 1979 (+)	
*Beaufort Lagoon - Demarcation Bay	171,800	Demarcation Pt.	Composite		HCRS, 1979 (+)
Black Island	520	Canning River/ Mt. Michelson	Detterman (2B)		
Clarence Fan Plain	33,750	Demarcation Pt.	Detterman (1B)		
	42,000	Demarcation Pt.	Enlargement		HCRS, 1979 (+)
Demarcation Bay	18,140	Demarcation Pt.	Detterman (3B)		
Fire Creek	520	Mt. Michelson	Detterman (1C)		
	550	Mt. Michelson	Enlargement	Murray, 1979 (+)	
*Icy Reef - Beaufort L.	11,220	Demarcation Pt.	Detterman (1B)		
Ignek Creek	400	Mt. Michelson	Detterman (1C)	Murray, 1979 (-)	HCRS, 1979 (-)
Ignek Mesa	1,600	Mt. Michelson	Detterman (1C)	Murray, 1979 (+)	
Jago Valley	23,200	Demarcation Bay	Detterman (1C)	Murray, 1979 (+)	HCRS, 1979 (-)
Katakturuk Fold	6,820	Mt. Michelson	Detterman (4)		
Katakturuk Plateau	32,000	Mt. Michelson	Detterman (2C)		
Katakturuk Plateau and Canyon	41,000	Mt. Michelson	Enlargement	Murray, 1979 (+)	
*Kongakut River - Beaufort Lagoon	133,729	Demarcation Pt.	Koranda/Evans (1A)		

*Located in the Arctic Refuge coastal plain, as defined by Section 1002 of ANILCA.

Potential National Natural Landmarks located in the Arctic Refuge coastal plain of Arctic National Wildlife Refuge, as defined by Section 1002 of ANILCA.

Site Name	Acres	USGS Quadrangle	Theme Study	Evaluation Rept.	Other Eval.
Angun Plains	23,040	Demarcation Pt.	Detterman (3C)	Murray, 1979 (+)	HCRS, 1979 (-)
Beaufort Lagoon - Clarence Fan	337,560	Demarcation Pt.	Composite	Murray, 1979 (+)	
Beaufort Lagoon - Demarcation Bay	171,800	Demarcation Pt.	Composite		HCRS, 1979 (+)
?Icy Reef - Beaufort L.	11,220	Demarcation Pt.	Detterman (1B)		
Kongakut River - Beaufort Lagoon	133,729	Demarcation Pt.	Koranda/Evans (1A)		
Sadlerochit Mountains and Warm Springs	230,400	Mt. Michelson	Bliss/Gustaf. (1C)		
Sadlerochit Springs	640	Mt. Michelson	Detterman (2C)	Murray, 1979 (+)	HCRS, 1979 (+)

Key

Bliss/Gustaf. - Lawrence C. Bliss and Karen M. Gustafson, "Proposed Ecological Natural Landmarks in the Brooks Range, Alaska," National Park Service, March 1981.

Canning River - U. S. Geological Survey topographic quadrangle, 1:250,000 series.

Dean - Dr. Frederick C. Dean, University of Alaska

Demarcation Bay - U. S. Geological Survey topographic quadrangle, 1:250,000 series.

Demarcation Pt. - U. S. Geological Survey topographic quadrangle, 1:250,000 series.

Detterman - Robert L. Detterman , "The Arctic Lowland Region: Potential Landform and Lifeform Natural Landmarks," U. S. Geological Survey, November 1974.

HCRS, 1979 - Backlog review of potential natural landmarks by the Heritage Conservation and Recreation Service staff in the spring of 1979.

Koranda/Evans - John J. Koranda and Charles D. Evans, "A Discussion of Sites Recommended as Potential Natural Landmarks in the Arctic Lowland, Natural Region, Northern Alaska, Tundra Biome Center, University of Alaska, Fairbanks, Alaska, April 1975.

Lent - Dr. Peter C. Lent, Assistant Leader, Alaska Cooperative Wildlife Research Unit.

Mt. Michelson - U. S. Geological Survey topographic quadrangle, 1:250,000 series.

Murray - Dr. David F. Murray, Professor of Botany, Institute of Arctic Biology, University of Alaska, Fairbanks, Alaska.

(+) indicates positive recommendation
(-) indicates negative recommendation

The significance and protection status of theme study sites are rated according to the following scheme:

Priority 1 - High degree of national significance; recommended without reservation.
Priority 2 - Definitely eligible and recommended, but not quite as good as Priority 1.
Priority 3 - A good site, but not quite nationally significant.
Priority 4 - Not recommended.

Priority A - Site in serious impending danger.
Priority B - Site in some jeopardy.
Priority C - Site in no apparent danger.
Priority D - Relative jeopardy unknown.