ALASKA LEGISLATURE COMMITTEE FILES 1995-1996 8672

9019 SENATE RESOURCES

MOST SUPPORTERS OF OPENING THE ARCTIC WILDLIFE CLAIM THAT IT IS IN THE INTEREST OF NATIONAL SECURITY.....THE RESOLUTION ITSELF ASSERTS IT "WOULD REDUCE OUR NATION'S FUTURE NEED FOR IMPORTED OIL".....AND "SIGNIFICANTLY INCREASE THE NATION'S SECURITY"

THESE SAME VOICES OFTEN SING A DIFFERENT TUNE WHILE ADVOCATING STATES RIGHTS AND FREE MARKET ECONOMICS - CLAMBERING THAT THE BAN ON EXPORTING ALASKAN CRUDE OIL FOR SALE SHOULD BE LIFTED!

EVEN IF THE MOST OPTIMISTIC PREDICTIONS OF 3.2 BILLION BARRELS OF OIL IS RECOVERABLE IN THE ARCTIC REFUGE, THAT AMOUNTS TO LESS THEN A THIRD OF OUR ENERGY NEEDS.

MEMBERS OF OUR COALITION ARE OPPOSED TO OPENING THE ARCTIC WILDLIFE REFUGE TO DEVELOPMENT UNTIL A NATIONAL ENERGY POLICY REQUIRES IMPROVED FUEL EFFICIENCY IN AUTOMOBILES, AND WE ARE ACTIVELY WORKING ON DECREASING OUR DEPENDENCE ON A FUEL OUR GRANDCHILDREN WILL PROBABLY LIVE TO SEE COMPLETELY CONSUMED.

ALASKA'S ROLLER COASTER ECONOMIC PATTERN WON'T BE STABILIZED BY THE SHORT SPAN OF EXTRACTION OF OIL FROM THE ARCTIC REFUGE. SURE, SOME INDIVIDUALS WILL GET GOOD PAYING JOBS; SOME CORPORATIONS WILL INVEST, AND MIGHT PROFIT; AND IF THERE IS CORPORATE PROFIT, ALASKA WILL GET SOME ROYALTY MONEYS. THE PUBLIC PROFIT FROM DEVELOPING THE ARCTIC NATIONAL WILDLIFE REFUGE WILL BE SHARED WITH THE REST AMERICA. ALASKA'S PORTION MAY ONLY BE 10% OF THE ROYALTY .

CURRENTLY 90% OF ALASKA'S ARCTIC COASTAL PLAIN IS OPEN TO OIL AND GAS DEVELOPMENT. THE PORTION OF THE COASTAL PLAIN RESTRICTED FROM DEVELOPMENT IN THE ARCTIC WILDLIFE REFUGE ARE PROTECTED BECAUSE OF THEIR UNIQUE BIOLOGICAL PRODUCTIVITY.

WE OPPOSE PASSAGE OF THE OIL AND GAS COMMITTEES SUBSTITUTE FOR HJR 13, AND URGE YOU TO SUPPORT STRICT ENVIRONMENTAL STANDARDS THAT WILL PROTECT THE LAND, WATER AND WILDLIFE RESOURCES OF THE ARCTIC REFUGE.

Senate Resources Committee
Sara Hannan
2/6/95

Senate Resources Committee
CS HJR 13

Testimony of Beverly Ward,
Government Relations, ARCO Alaska, Inc.
February 6, 1995

MR. CHAIRMAN, members of the Senate Resources Committee. My name is Beverly Ward. I represent ARCO Alaska, Inc. It is my pleasure to come before you today to speak in support of CS HJR 13, a resolution to open the Coastal Plain of the Arctic National Wildlife Refuge to oil and gas exploration and development. As you know ARCO has been an operator of the Prudhoe Bay and Kuparuk oil fields since their initiation. Our experience in operating Arctic oil fields has given us a thorough understanding of the local environmental requirements and convinces us that the Coastal Plain can be explored and developed without causing harm to the health and viability of the Refuge ecosystem.

As you know our technologies have advanced significantly since we pioneered the design and operation of oil development in the Arctic. Using today's technology, our presence is compatible with local fish, wildlife, and their habitats. The existence of productive and abundant populations of birds, caribou, and fish throughout all North Slope oil fields is evidence of our ability to be good neighbors with all current land users.

We envision technologies of the future being even more advanced, further reducing our "footprint," while maximizing the benefits of continued resource development to our State, our citizens, and to our Nation. These benefits range from the creation of exploration and development jobs for Alaskans, to additional State tax revenues, to manufacturing jobs in other states and National Security issues. The opening of ANWR will benefit not only Alaska but the entire United States. We believe it is time to move forward with exploring the most potentially productive area in Alaska.

ARCO Alaska, Inc. supports and encourages you to pass CS HJR 13.

Alaska Oil and Gas Association

AOGA

121 W. Fireweed Lane, Suite 207
Anchorage, Alaska 99503-2035
Phone: (907)272-1481 Fax: (907)278-8114
Judith M. Brady, Executive Director

February 6, 1995

The Honorable Loren Leman, Chairman
Resources Committee
Alaska State Senate
State Capitol
Juneau, Alaska 99801-1182

AOGA Position on CSHJR 13

Dear Senator Leman:

The Alaska Oil and Gas Association (AOGA) is a trade association whose 18 member companies account for the majority of oil and gas exploration, production and transportation activities in Alaska.

AOGA supports the Oil and Gas Committee Substitute for House Joint Resolution 13, urging the United States Congress to pass legislation to open the coastal plain of the Arctic National Wildlife Refuge, Alaska, to oil and gas exploration, development and production.

Economic benefits of further North Slope development could be significant to the state and nation. Facilities built to transport petroleum resources from the ANWR Coastal Plain could provide the infrastructure to allow development of marginal fields on state and federal lands in the vicinity of the Coastal Plain. Development of the ANWR Coastal Plain and other state and federal lands in the area also could help insure the long term operation of the trans Alaska Pipeline.

We support the Alaska Legislative leadership's commitment to pass a resolution urging Congressional action to allow oil and gas exploration, development and production in the ANWR Coastal Plain. Such developments would enhance national energy security, provide income to both the federal and state governments and would generate jobs and business opportunities for Alaskans as well as for residents in all 50 states.

If I can be of additional assistance on this issue, please contact me at your convenience.

Sincerely,

JUDITH M. BRADY
Executive Director

ANWR:
JOBS AND ENERGY
FOR AMERICA

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ARCTIC POWER

Arctic Power is a grassroots, non-profit organization of Alaska citizens organized to promote oil exploration and production within the Coastal Plain of ANWR. Arctic Power opposes a wilderness designation of this region.

Arctic Power has secured more than 10,000 members since its inception in mid-1992 and is enrolling new members daily.

Arctic Power membership spans the economic spectrum - including miners, fishermen, loggers, tourism operators, transportation businesses, labor unions, banks, teachers, the legal community, retail firms, service industries, non-profit organizations, Alaska Native corporations, local elected officials, and many others. Interest groups represented on the Arctic Powe board and through its membership are The Alaska Support Industry Alliance, the Alaska State Chamber of Commerce, the Resource Development Council, the Alaska Trucking Association, the Alaska Oil & Gas Association, the Anchorage Chamber of Commerce, the Alaska Miner's Association, and the Alaska Forest Association.

A statewide board oversees the activities of Arctic Power and includes representatives from Barrow to Ketchikan - all regions of the state are represented. The board of Arctic Power includes businesses from a variety of industry sectors, including but not limited to, law firms, trucking businesses, the visitor industry, media firms, Native corporations, oilfield service companies and pubic relations agencies.

The Alaska congressional delegation has endorsed Arctic Power and works closely with the board and staff of the organization. Arctic Power and the state of Alaska work together in their congressional outreach efforts in Washington, D.C.

The organization is committed to securing congressional and presidential approval of legislation opening the Coastal Plain of ANWR to responsible oil development.

Oil overall importance -- ANWR outlook

Oil development fuels not only Alaska's public sector through state royalties and taxes, but provides an important private sector job base throughout the state. Despite the downturn in Prudhoe Bay production and downsizing of major companies, oil-related jobs continue to be an important element in Alaska's economy.

Since Prudhoe Bay construction began in 1975, more than $50 billion has been spent across the United States to develop North America's largest oilfield. The TransAlaska Pipeline alone employed 22,000 people during a four-year period.

As oil production declines, companies are looking for others areas to explore in the United States -- and abroad. Although low oil prices have played a factor in recent months, long-term analysts point to an upcoming five-year trend of rising oil prices. When coupled with disappointing exploration projects scattered across the globe, the case for ANWR becomes more convincing.

ANWR is the only known prospect that can be produced with the highest amount of American jobs, the smallest footprint on the environment, and the most stringent regulation and oversight in the world. Estimates of the amount of producable oil in the Coastal Plain range from 3 billion barrels to 12 billion barrels. With its proximity to Prudhoe Bay, which lies 65 miles to the west, Coastal Plain development would require minimal infrastructure, thus reducing the impact on the region.

In addition, the residents of the area -- who reside in the North Slope Borough -- are on record in favor of Coastal Plain development. Villagers in Nuiqsut and Kaktovik have overseen Prudhoe Bay development and are confident of their ability to regulate oil production, both on federal lands and on their own Native land in the 1002 study area.

Government estimates show that a minimum of 250,000 jobs would be created as a result of Coastal Plain development. These jobs are scattered throughout the United States. Private sector studies place the number of jobs as high as 735,000. These jobs range from electrical to construction workers -- from computer operators to transportation workers.

Alaskans overwhelmingly support ANWR development -- statewide polls conducted annually for the past six years show that support ranges between 78 and 82 percent of the residents supporting Coastal Plain development.

ANWR STATUS
11/8/94

Pro-ANWR Efforts

Working with sympathetic Democratic leaders and pro-business Republican leaders, Arctic Power has been educating new members of Congress and attempting to gain allies for pro-ANWR legislation. Earlier concerns that the Clinton administration would work to place the Coastal Plain of ANWR in wilderness have subsided and in fact, have been replaced by assurances from appointees that the ANWR issue will be revisited in a more positive fashion.

Legislative Action

There are two bills, S. 39 and H.R. 39, that would designate the Coastal Plain of ANWR as permanent wilderness. Both bills have a number of co-sponsors, and the environmental lobby is working them to continue to sign up supporters. A national group, the Alaska Wilderness League, was formed one year ago in Washington, D.C. to push wilderness legislation. Former congressman, Bob Mrazek, and Idaho Governor Cecil Andrus were designated as the leaders of this group, which has not gained much momentum in the ensuing year.

At this point, based on research and interviews by Arctic Power consultants and the Alaska governor's office, it appears that a House vote would result in passage of wilderness legislation, but there is not currently enough support in the Senate. Alaskans are focusing much of their effort on the Senate to maintain that margin. House leaders such as Congressman George Miller, currently have no intention of pushing wilderness legislation during this congressional session. ANWR development supporters are continuing to present the economic arguments regarding jobs that would be generated by development as a *counter* to locking up the region under S. 39 and H.R. 39.

In the meantime, Arctic Power is working on creative pro-ANWR legislation and will work with key Democrats and Republicans to push a development bill. There is support from several Democratic factions and national labor leaders for an ANWR jobs bill.

State/Private Sector Efforts

Arctic Power is continually briefing the new congressional members on the downside of closing the Coastal Plain, and the economic benefits of ANWR oil development. The organization works closely with the state of Alaska on these briefings. In addition, there continues to be emphasis placed on countering the non-development movement to find sponsors for wilderness legislation.

The jobs issue will continue to be the number one focus of state and private sector efforts to open the Coastal Plain in the short-term.

Order Code IB91011

CRS Issue Brief

Arctic Resources: Over a Barrel?

Updated January 22, 1992

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Environment and Natural Resources Policy Division

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CRS

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Arctic Resources: Over a Barrel?

SUMMARY

On Nov. 1, 1991, the Senate rejected an attempt to consider S. 1220, a bill which contains a title that would open the Arctic National Wildlife Refuge (ANWR) to development. The Senate sponsor of that bill stated that he now sees ANWR development legislation as unlikely for the remainder of the 102d Congress. Because of the Senate vote, it seems unlikely that the House will take up ANWR legislation.

ANWR is an area rich in fauna, flora, and oil potential. Current law forbids energy leasing. Development proponents argue that any ANWR oil would help to insulate our energy markets from the recurring crises of the Middle East, and could be developed safely. Opponents argue that ANWR's balanced ecosystem is more valuable intact, provides no lasting energy security, can be replaced by a variety of cost-effective alternatives, and should be legally designated as wilderness, or at least remain as an area in which energy development is forbidden. The Bush Administration supports ANWR development. In January 1991, the Department of the Interior increased its estimate of "the marginal probability of economic success (i.e., the potential for oil recovery)" from 19% (a high figure by industry standards) to 46%.

Efforts in the 100th and 101st Congresses to allow development of the coastal plain of the ANWR in northeastern Alaska terminated with the *Exxon Valdez* oil spill. However, the crisis in the Persian Gulf gave a major boost to development proponents, though the failure of the market to sustain the higher prices of late 1990 has diminished their arguments somewhat. In addition, President Bush made increased drilling in frontier areas, including ANWR, a centerpiece of his proposed national energy policy. Proponents argue that, while an ANWR discovery would not eliminate dependence on foreign oil, it could alleviate the problem to some degree. As before, the current legislative options include designating the area as wilderness, thereby ending the potential for development. Congress could also allow exploration, with or without development, to proceed. Another option is to take no action. This choice, the one made by the last two Congresses, also prevents development, since the relevant statute requires congressional action for oil development to occur.

Many complex and difficult issues would be involved with a decision to proceed. Though seismic studies and drilling outside the ANWR coastal plain strongly suggest there is or was a significant quantity of oil, whether and how exploratory drilling might proceed, who would pay the costs, and how the leasing options would be awarded are some of the many questions involved. How would the small Native population (around 200 people) living on the Refuge fare, and how would Native groups dependent on caribou calving in the area be affected? What environmental protection measures would be appropriate, and how would change of habitat affect the great wealth of plant and animal populations? Assuming there are development revenues from bonuses, rents, and royalties, how would these monies be divided among the Federal Government, the State of Alaska, and others?

ISSUE DEFINITION

The coastal plain of the Arctic National Wildlife Refuge (ANWR) is currently the most promising U.S. onshore oil and gas prospect. It could even contain as much oil as the giant field at Prudhoe Bay, which is on State land west of ANWR. On the other hand, the Refuge is home to a spectacular variety of plants and animals in a nearly undisturbed state. The conflict between oil potential and pristine nature creates a dilemma: should Congress open the area for oil and gas development or should the area's ecosystem be given permanent protection? What factors should determine whether to open the area? If the area is opened, how can damage be minimized? To what extent should Congress involve itself in the management of the area (if it is developed) and to what extent should Federal agencies be left to manage the area under existing law?

BACKGROUND AND ANALYSIS

History and Congressional Actions

Much of what is now the Arctic National Wildlife Refuge was set aside in December 1960 by Public Land Order 2214. Section 1003 of the Alaska National Interest Lands Conservation Act (ANILCA, P.L. 96-487) of 1980 prohibited oil and gas development in the 19-million-acre Arctic National Wildlife Refuge (ANWR) unless authorized by Congress. Under Section 1002 of ANILCA, Congress required the Department of the Interior (DOI) to report on the plant and animal resources and the oil and gas potential in 1.5 million acres of the coastal plain of ANWR, now generally called the "1002 area." This report, the Final Legislative Environmental Impact Statement (FLEIS), was submitted to Congress in April 1987. DOI described leasing alternatives and recommended that the area be fully leased. (For a history of the FLEIS, see CRS Archived Issue Brief 87026.)

In the 100th Congress, four Committees held extensive hearings on ANWR development: House Merchant Marine and Fisheries, House Interior and Insular Affairs, Senate Energy and Natural Resources, and Senate Environment and Public Works. The hearings emphasized the FLEIS, the environmental effects of oil development in ANWR or at Prudhoe Bay, assessments of the need for additional sources of oil, the biological resources of the coastal plain, and a proposed exchange of lands with Native corporations. (For a description of the bills considered in the 100th Congress, see CRS Archived Issue Brief 87223; and CRS Report 88-380 ENR.)

In the 101st Congress, several ANWR bills were introduced, but none received floor consideration. (See CRS Archived Issue Brief 89068 for information on the 101st Congress.) On Mar. 24, 1989, the *Exxon Valdez* ran aground in Prince William Sound near Valdez, Alaska, the site of the southern terminus of the TransAlaska Pipeline System (TAPS). As a result, no action was taken on ANWR development bills in the 101st Congress. Congress passed oil spill legislation in the aftermath of the *Exxon Valdez* spill. (See CRS Archived Issue Brief 89082, and CRS Report 89-266 ENR.) In addition, in response to the Persian Gulf crisis, Senator Murkowski amended the Senate version (S. 2884) of the Defense Authorization (P.L. 101-510) to allow much more ready

access under certain circumstances for energy development in ANWR and on other Federal lands (except national parks). This amendment was dropped in conference. (See CRS Issue Brief 90116 regarding oil and the Persian Gulf crisis.) Hearings have begun in four congressional committees in the 102d Congress. (For a full list of congressional actions on ANWR since the 99th Congress, see CRS Report 91-325.)

In the 102d Congress, the Senate Energy and Natural Resources Committee reported S. 1220 (in lieu of S. 341), which contains a title that would open the 1002 area to development. An amendment to strike the title was defeated in Committee by a vote of 8 to 11. On Nov. 1, 1991, after several days of debate on a motion to proceed to consideration of the bill, a cloture vote occurred on a filibuster organized by various opponents of the bill (including especially those opposed to ANWR development). The cloture motion failed, 50-44. (Sixty votes were needed to invoke cloture.) Sen. Johnston, the sponsor of S. 1220, has stated that he believes that ANWR legislation is dead for the 102nd Congress. Whether that belief is shared by Members of the House remains to be seen.

Legislative Choices

Congress has three basic choices for ANWR legislation. One option is designating the area as wilderness, thereby preventing energy development. This choice, like the failure to find oil, would add to pressures for alternative energy supplies and strategies. Supporters of this option argue that the entire, balanced ecosystem is most valuable in the aggregate and worth preserving intact. (See H.J.Res. 239, H.R. 39, and S. 39.)

A second option is passing legislation permitting energy leasing in the 1002 area. Supporters of development argue that the ANWR area is the best U.S. onshore prospect remaining and that its development is necessary for long-term national security and for improving the balance of trade. They also argue that effects on animals, especially caribou, would not be serious, but concede that wilderness values would be lost. Many observers feel that no ANWR development bill can pass unless it is linked to a broader energy policy which encourages conservation and alternative energy sources. If the development option is chosen, Congress could also decide the pace and conditions for any oil development, and whether to adopt a preliminary exploration program. (See S. 109, S. 341, S. 570, S. 1220, H.R. 759, H.R. 1301, and H.R. 1320.)

The third option, and the one actually chosen by the previous two Congresses (and apparently by the Senate in the 102d), is taking no action, thereby preventing onshore energy development at this time. Those supporting delay often argue that not enough is known about either the probability of discoveries or about the environmental impact if development is permitted. Others argue that oil deposits should be saved for an unspecified "right time." Some will argue that the recent volatile oil market demonstrates that now is just such a time.

A central question is whether the petroleum is needed at the possible expense of other values in ANWR. If oil is found in ANWR, it would not contribute to national security or the trade balance until 10 or 15 years from now -- when any oil would first appear in quantity. But 10 to 15 years may be enough time to pursue other energy alternatives. Opponents of development point out that the oil estimate from even a large field is equivalent to one year or less of current national consumption.

Proponents contend that because the TransAlaska Pipeline now delivers over one-fifth of U.S. oil production and because the 1002 area is the best prospect for keeping the pipeline flowing after 2000, ANWR must be developed. Proponents usually encourage pursuing energy alternatives (nuclear, renewable and solar power, and conservation) under any circumstances, believing that other options cannot be prudently ignored. Opponents counter that the national record at pursuing energy alternatives other than fossil fuels has been dismal, except in the face of high fuel prices.

For some issues (e.g., timing and pace of leasing), the debate in the 102d Congress may be whether Congress should legislate at all, or should instead leave those issues to executive agencies.

Finally, an issue has developed in the 102d Congress that is, if not to crucial to the substance of the ANWR debate, then at least central to its politics. S. 341 would have set aside some of the revenues that might arise from ANWR development for direct spending on various conservation purposes, and for payments to Alaska. The Congressional Budget Office (CBO) says that, because the 1985 Balanced Budget Act (BBA) requires that asset sales cannot count toward deficit reduction, and because CBO scores ANWR leasing as an asset sale, revenues from any leasing cannot count toward deficit reduction.

On the other hand, since the bill directs spending for other programs without further appropriation (for conservation programs and payments to Alaska), CBO has determined that these outlays would *increase* the deficit, and must be counted under BBA in calculating the deficit. Thus, CBO has determined that this bill does not count as deficit neutral, as envisioned by the sponsors. Any bill that increases direct spending is subject to a point of order. To avoid the point of order, supporters of the bill would either have to (1) make the spending subject to appropriation; (2) cut direct spending elsewhere to offset the new direct spending; or (3) increase revenues elsewhere in the budget to offset the new direct spending. (As a practical matter, it is likely that the offset would occur in the same bill, though the rules do not require this.) Potentially, the necessary offsets could be substantial. Consequently, committees wishing to pass these conservation programs must make them deficit neutral or face a very stiff procedural hurdle. In the end, the Committee on Energy and Natural Resources avoided the conflict by making ANWR revenues go to the Treasury and by requiring that expenditures from the fund be subject to appropriations in S. 1220. However, the Senate Budget Committee agreed not to count the bill's payments to Alaska as increasing the deficit.

If any bill with direct spending of ANWR revenues were to pass Congress, notwithstanding the effects on the deficit and CBO's determination (and the resulting point of order), then CBO's position would no longer matter with respect to whether sequestration would result. The reason is that the Office of Management and Budget (OMB) disagrees with CBO and counts these revenues as income, rather than as asset sales. Under OMB's scoring, the revenues could therefore offset the outlays. Even so, the Administration's own proposal would put all revenues in the General Fund (with none going to Alaska), and it contains no provisions for direct spending. At minimum, this budget scorekeeping controversy substantially complicates the drafting of any compromise legislation.

Geological Variables And Development Options

The fundamental conflict of energy development versus wilderness protection is exacerbated by uncertainty over how much oil is present in the 1002 area. This uncertainty prompted some Members of Congress to consider proposals to clarify how much petroleum is at stake in ANWR. The oil industry was encouraged by the discovery in 1989 of an apparently new field only 2 miles from Prudhoe Bay. An initial test well produced 2,500 barrels per day; years ago, discovery wells at Prudhoe produced 10,000 barrels per day. The field has not yet been developed due to low energy prices and the high cost of infrastructure development.

Potential Energy Resources

Few have challenged the DOI interpretation of the 1002 area geological data. Seismic studies and drilling outside the 1002 area strongly suggest a relatively high probability for significant recoverable oil. Estimates of undiscovered economically recoverable reserves range from less than 1 billion barrels to more than 9 billion barrels of petroleum. ANWR by itself would do little to reduce U.S. dependence on foreign oil, but it could reduce the trade imbalance due to importing oil over an extended period.

If the low range of DOI's estimate (one field of less than one billion barrels) is correct, then 30 years of production could begin in about 10 years. More likely are several fields of varying sizes producing sequentially over 50 years or more. Any associated natural gas would not be immediately economic, but its later production could extend beyond 50 years. (Current prices for natural gas are too low make any gas pipeline parallel to TAPS cost-effective.)

While the actual amount of recoverable crude oil in ANWR cannot be known without exploratory drilling, DOI now estimates that if economically recoverable oil is found, the mean resource estimate is about 3.57 billion barrels. This estimate would translate to a production plateau of about 600,000 barrels per day. The plateau would probably spread over 15 years, with lower production before and after that period.

Estimates of Probability of Economic Success

Additional fuel was added to the debate on Feb. 6, 1991, when BLM announced that it had revised its estimate of the marginal probability of economic success (i.e., finding economically recoverable quantities of oil) from 19% to 46%. The latter figure is almost unprecedentedly high by industry standards. In addition, the minimum economic field size was newly estimated at 400 million barrels, down from 440 million barrels. The revision was due to new information concerning "four wells drilled near the coastal plain, 800 line miles of reprocessed geophysical data ..., and additional seismic data from offshore areas near the coastal plain." Further explanation came in a BLM report of Apr. 8, 1991. Among other reasons provided for the large change were the fact that a small decrease in the minimum field size can have a substantial effect on the likelihood of finding such a minimum field; and that new data suggests more strongly than before that the fields inside the 1002 area are continuations of the oil-rich geological strata to the east and west, and not entirely different layers. The Natural Resources Defense Council sued DOI claiming that the new estimate requires a new supplemental LEIS. The case is continuing in Federal court in the District of Columbia.

The 1987 FLEIS estimate of 19% was based on a price of $33/barrel in 1984 dollars. Yet most observers now predict prices far below that figure for a number of years. Consequently, if prices remain low for a decade or so, the industry may face the situation that it now has at the West Sak oil field near Prudhoe Bay: a marginal location and/or quality of the oil could require more money per barrel to produce than it could be sold for, given the competition from cheaper foreign oil. (In the case of the West Sak field, there has been no production, even though the field is estimated to be quite large.) Congress may wish to consider the prospects in the world oil markets as it debates the fate of ANWR.

ANWR, Energy Security, and Economics

In 1990, U.S. net imports of petroleum averaged 7.1 million barrels per day (mbd) or 41.9% of total petroleum products supplied. Thus, an ANWR production of 0.6 mbd represents less than 10% of present U.S. petroleum imports. According to projections of increased oil imports in 2000 by the Department of Energy, 0.6 mbd would be 5-6% of total imports.

From an economic standpoint, however, ANWR could contribute somewhat to the balance of trade. Replacing 600,000 barrels of oil imports per day at $20 (an early March 1991 price) per barrel would reduce the trade deficit by about $4.4 billion per year. (The projected trade deficit due only to imported oil in 2010 is about $95 billion.) In addition, as other Alaskan resources decline from the current 2 mbd production, ANWR could help keep the Alaska Pipeline at capacity operation, thereby reducing the per-barrel cost of transporting Alaskan oil to market.

These factors raise questions about ANWR development as an energy security issue:

1. To what extent would any added domestic production from ANWR increase U.S. energy security, and help avoid oil price shocks? (In the fall of 1990, U.S. prices were heavily dependent on world oil prices, rather than on purely domestic factors.)

2. Can alternative measures, such as energy conservation and development of other energy sources, meet national energy and economic goals better than ANWR development?

Exploration and Leasing Options

Conventional Federal leases permit exploration and, after discovery, usually extend until production ceases entirely. However, to reduce uncertainty, Congress could permit industry to begin exploration without proceeding automatically to development. Such a strategy is widely opposed by both industry and environmental groups.

DOI and industry prefer that ANWR leasing follow the customary procedures. DOI accordingly wants the discretion to offer for sale any or all of the area. Industry could bid on all or part, and DOI could accept all to none of the bids. However, many prime prospects could go in one sale in a relatively small area.

The 102d Congress may wish to consider several of these issues in any ANWR development legislation:

1. Should some limit be set on the size of DOI's initial lease offerings in the 1002 area, to reduce the chance of selling all of the best prospects in the first sale?

2. Should tract size be limited in order to spur competition and maximize bonus revenues? Or should tract size be larger than usual for onshore leasing in order to encourage development coordination, facilitate wildlife protection, and improve coordination of rehabilitation after industry activity ends?

3. Should a particular leasing period be mandated for the area, and if so, how long should the period be?

Environmental Quality Management

If ANWR is developed, Congress would face three kinds of environmental quality management issues: resource management, pollution, and waste disposal. Congress could choose to leave these matters to administrative agencies under authorities of existing laws. Alternatively, Congress could impose a higher standard of environmental protection because the area is in a wildlife refuge or because of the fragility of the Arctic environment.

Gravel and water resources are essential for oil exploration and development in an arctic setting. Potential legislative issues include protection of water resources necessary for animals, especially fish; regulation of water use and gravel extraction; and setting fees for and allocating any revenues from exploiting these resources. An issue not addressed in the FLEIS is the possibility of a rise in sea level during the active phase of production. In the flat coastal plain, the coast line could change substantially, even with only a moderate rise in sea level; over the course of 50 years of production, developments once on land might need protection from shallow salt water or pack ice. Air and water pollution primarily raise questions of subtle, long-term ecological effects. Potential legislative issues include the adequacy of existing standards, research needs, monitoring, and assurance that the standards are met. Waste disposal includes three major waste streams: drilling fluids, toxic wastes, and nontoxic bulk wastes. Legislative issues include the adequacy of current waste disposal requirements, the development of alternatives to landfills, and also liability concerns that can make consolidation of disposal facilities unattractive to oil companies. (See Archived Issue Brief 89068 for a history of the debate on this issue. For a presentation of a range of specific environmental quality issues, see CRS Videotape *Arctic Oil, Arctic Refuge*.)

General Land Management

The main Federal law governing leasing and production of petroleum on Federal land is the 1920 Mineral Leasing Act. Congress has debated whether this law and its regulations and procedures, other Federal environmental laws, and applicable Alaskan law are adequate for 1002 development. The hearing records of some congressional committees demonstrated a willingness of many Members, in various ways, to deviate from standard practices.

The Refuge has a small human population whose needs may be addressed specifically in ANWR legislation. The village of Kaktovik (over 200 people) and the lands of the Kaktovik Inupiat Corporation (KIC) lie along the coast within the Refuge and mostly adjacent to the 1002 area. There is also a U.S. military Distant Early Warning (DEW) station near Kaktovik, with dozens of employees. The DEW network also has several unoccupied sites of former or uncompleted developments scattered near the 1002 area. Together with Kaktovik, the DEW site operates a garbage dump and a runway.

Animals and Plants: a Purpose of the Refuge

Under ANILCA, one of the purposes of ANWR is to "conserve fish and wildlife populations and habitats in their natural diversity." Opponents of development argue that the entire, balanced complex of caribou, polar and grizzly bears, wolves, falcons, wildflowers, and so on, is worth preserving intact, especially since it represents the least disturbed arctic coastal area under U.S. ownership. Moreover, it is one of the "wildest" habitats of any type left in the United States. Resource development, in their view, would preclude conservation of the ecosystem's diversity generally, of certain species, and most particularly, of its wildness. Scientists and sport hunters both stress the importance of the habitats for migratory game birds taken in both Canada and the United States. Issues before Congress may include:

1. Should the entire area be designated wilderness to protect "populations and habitats in their natural diversity"?

2. If development is permitted, should special protection be given to certain species such as caribou, bears, wolves, musk oxen, snow geese, etc.? If so, should protection take the form of habitat protection and/or management restrictions?

3. Should some species (e.g., wolves) be reduced to enhance populations of other species (e.g., caribou, musk oxen) if the latter are reduced by development? Or should special measures be taken to prevent reduction of predators?

4. Should special efforts be made to prevent the intentional and/or accidental feeding of such species as bears, wolves, foxes, and gulls (in order to prevent the need to kill problem wolves or bears, or to prevent excess populations of predators of nesting birds)?

5. Should the location of major support facilities (e.g., service centers and ports) be restricted to reduce the impact on sensitive species (e.g., polar bears, snow geese)?

Port and Offshore Activity

Section 1003 of ANILCA does not cover the role the 1002 area might play as a land base for State or Federal offshore activity. Both the United States and Alaska are proceeding with offshore leasing adjacent to the 1002 area. Even if the 102d Congress does not open ANWR (thus preventing development), it may wish to consider controlling the use of the 1002 area as a support center, port, or pipeline corridor for offshore development. (See CRS Issue Brief 89028 for background on OCS energy programs.)

Management of Support Services: Avoiding Past Mistakes

Activities of the independent support service industry in the Prudhoe Bay area, particularly at Deadhorse, have been widely criticized. (Firms in this industry are generally employed by, rather than part of, major oil companies.) At Deadhorse, the State leases land for these independent services (repair, cleaning, laundry, aircraft supply, etc.). Issues include:

1. If development is permitted, should Congress specify the location of support facilities within the Refuge or require them to be located outside the Refuge?

2. Should Congress set financial standards or require bonds for participation in ANWR services to minimize abandoned service sites?

3. Should Congress require a unified service center such as the one at Kuparuk field (west of Prudhoe Bay) for ANWR?

4. Should Congress mandate that garbage be hauled out of ANWR?

Access: Roads and Legal Conflicts

For Congress, a key access issue could be the logistical conflict between the area's management as an industrial site versus management as a refuge devoted not only to wildlife conservation but also to recreation (including sport fishing and hunting), and subsistence uses, among other functions. This conflict would become more intense with added human populations and road networks resulting from development. In contrast to the current free but difficult access at ANWR, access to the State-owned Prudhoe Bay complex is strictly (if not always effectively) controlled. Visitors' and workers' belongings are searched for firearms, alcohol, and drugs. None of these requirements now applies to the 1002 area. Moreover, hunting, even for subsistence, is forbidden at Prudhoe and limited in other developed areas. Similar restrictions are not found in the 1002 area, and may conflict with the Refuge's purposes as currently interpreted. The State of Alaska is debating the opening of the TAPS haul road (which is now closed to private vehicles north of the Brooks Range). Private vehicles could drive as far as Deadhorse. Such an opening could pose new risks of poaching or wildlife disturbance.

as well as risks of wider access -- perhaps eventually to any 1002 road network. Specific access issues which Congress may address include:

1. If development is permitted, should firearms be prohibited in the 1002 area for workers? For recreational visitors?

2. If firearms are allowed, should no-shooting buffer zones be required around facilities and structures? If so, how much of the area would remain open to subsistence and recreational hunting?

3. Should developed areas be closed to recreational visitors? If not, should such visitors be allowed to use industry roads? To cross them?

4. Will the increased accessibility of the area lead to excessive hunting pressure? Should the public have access (via the haul road) to the 1002 area? Should public access be restricted?

5. What additional personnel would be needed to enforce these prohibitions? Whose employees would they be?

Areas of Special Environmental Significance

The wildlife debate has focused mainly on the migratory Porcupine Caribou Herd (PCH). However, other species, such as polar and grizzly bears and wolves, may be at greater risk, in the view of some. Congress may consider special protection (e.g., wilderness designation, delayed exploration, or a special regulatory regime) of the most important habitats. The areas most often mentioned for some special status include:

1. the major calving area of the PCH;

2. the area around Sadlerochit Spring (a warm spring which flows all year);

3. the areas near the coast where substantial bird populations occur, and where many female polar bears make their dens; and

4. the area south and west of Angun Point that includes a portion of the snow geese's fall feeding area.

Subsistence Use and Access

Natives of Kaktovik, on the north coast above the 1002 area, are the major users of the resources in the coastal plain, although they depend primarily on marine resources. Kaktovik Natives support leasing generally but oppose both leasing in the primary caribou calving area in the east-central 1002 area and a restriction on discharging firearms. Subsistence hunters (including especially the Gwich'in people who hunt the herd in its winter range in Alaska and Canada) and the Canadian government oppose leasing in the calving area of the herd and support wilderness designation. Congress may consider the following issues regarding subsistence use:

1. If development is permitted, should the current access or hunting rights of Native users be restricted? Should sport hunting be restricted to maintain subsistence opportunities if game populations diminish?

2. Are polar bears, which are currently legally taken only by Natives, at special risk from a potentially increasing Native population and improved Native mobility? If so, should the largely unrestricted Native take be examined by Congress?

3. What voice will subsistence users have in new regulations as 1002 development (if any) evolves?

4. What provision, if any, should be made to minimize impacts of development on Native culture among both north slope and interior groups?

Revenue Allocation

If oil is present, ANWR development revenues from bonuses, rents, and royalties, as well as from sales of gravel and water, could generate billions of dollars for the landowners. Peak annual royalties alone might range from $200 million to $2.5 billion, followed by declining revenues for 30-50 years. If Alaska owns submerged lands in the Refuge, it could receive substantial revenues directly . (See Legal Issues, below.) Whatever the Federal fraction of the income, Congress must decide:

1. If development is permitted, should Alaska receive its current 90% statutory share of certain revenues from Federal mineral leases on federally owned lands; and considering the terms of the Alaska Statehood Act, could Congress change Alaska's share? (See CRS report 87-63A.)

2. Should any Federal revenues from ANWR be used for land acquisition in Alaska or elsewhere as part of the mitigation for reduced habitat values in a developed 1002 area? If so, how should the revenues be allocated?

Legal Issues

Certain issues are being addressed not only in legislation, but also in various courts.

During the 100th Congress, DOI preliminarily negotiated land exchanges with some Alaskan Native groups, trading oil and gas rights in the 1002 area for land or surface rights belonging to the Natives within seven other refuges in Alaska. Controversy over whether DOI could proceed with the exchanges without congressional approval was resolved by P.L. 100-395. This act expressly requires congressional approval for exchanges or other conveyances involving lands in ANWR's coastal plain. Exchanges could be a part of the development alternatives considered by Congress.

The United States and Alaska dispute the ownership of submerged lands beneath navigable waters within and offshore of ANWR. Depending on how the legal issues are decided, Alaska may own significant inholdings within ANWR. If these inholdings are opened to leasing, not only would management of the remaining Refuge lands be complicated, but substantial revenues from any oil on those inholdings would accrue to Alaska, rather than the United States. P.L. 100-395 addressed these issues in part, but significant issues remain. (For further information, see CRS Report 87-673A.)

Long-Term Cleanup

If no commercial quantity of oil is found in the 1002 area, substantial recovery of the ecosystem from exploratory activities should take only a few years. If major quantities are found, development including natural gas extraction would probably last for decades or even a century. Substantial recovery might then take further centuries in the harsh Arctic environment. Thus, Congress may be debating rehabilitation that might not begin until 2060 or 2090. Furthermore, some types of cleanup might not even be desirable or practical: deep gravel roads and drilling pads, for example, might be impossible to remove without creating further damage, and thus might necessarily become a permanent feature of the landscape. Few existing laws contemplate such long-term planning for a cleanup whose cause may never occur. The 102d Congress may consider various proposals on the long-term fate of the area:

1. If development is permitted, should industry pay a tax or fee to create a trust fund for long-term cleanup, in addition to one for such short-term problems as oil spills and hazardous waste spills? (CRS was unable to find a precedent for such a long-term clean-up program.)

2. Alternatively, should industry be required to pay for performance bonds to ensure cleanup? How would such a long-term bond work?

3. What ultimate rehabilitation goal(s) should apply? Should the area be returned insofar as possible to the pristine pre-development state after oil is extracted? After gas extraction? After offshore energy extraction?

4. What additional information is needed to plan for so distant an event?

LEGISLATION

H.R. 39 (Udall)

Designates the Arctic Coastal Plain (1002 area) as wilderness. Introduced Jan. 3, 1991; referred to Committee on Interior and Insular Affairs.

H.R. 769 (D. Young)

Authorizes the Secretary of the Interior to lease, in an expeditious and environmentally sound manner, lands in the Coastal Plain Study Area of the Arctic National Wildlife Refuge for oil and gas exploration, development, and production. Introduced Jan. 30, 1991; referred to Committees on Interior and Insular Affairs, and on Merchant Marine and Fisheries.

H.R. 1199 (Owens)

Amends the Internal Revenue Code of 1986 to deny the option to expense intangible drilling and development costs for any well drilled within ANWR, to provide incentives for the removal of crude oil and natural gas through enhanced oil recovery techniques, and for other purposes.

H.R. 1301 (Dingell, by req.)

One title of a bill to develop a national energy strategy provides for energy leasing on the Arctic Coastal Plain. Introduced Mar. 6, 1991; referred to Committees on Energy and Commerce; Interior and Insular Affairs; Armed Services; Merchant Marine and Fisheries; Science, Space, and Technology; Government Operations; Judiciary; Public Works and Transportation; and Ways and Means.

H.R. 1320 (W. Jones)

Authorizes exploration, leasing, development, and production in ANWR; distribution of any revenues; creates a new National Wildlife Refuge; and for other purposes. Introduced Mar. 7, 1991; referred to Committees on Merchant Marine and Fisheries, and on Interior and Insular Affairs.

H.J.Res. 239 (Mrazek)

A bill to honor former Rep. Morris K. Udall by designating the Arctic Coastal Plain of ANWR as wilderness. Introduced April 30, 1991; Referred to Committee on Interior and Insular Affairs.

S. 39 (Roth)

Amends the National Wildlife Refuge Administration Act to designate the Arctic Coastal Plain of ANWR as wilderness. Introduced Jan. 14, 1991; referred to Committee on Environment and Public Works. Hearing held Apr. 19, 1991 (S.Hrng. 102-88). Reported Nov. 25, 1991 (S.Rept. 102-241).

S. 109 (Murkowski)

Authorizes DOI to lease lands in the coastal plain of ANWR for oil and gas exploration, development and production. Introduced Jan. 14, 1991; referred to Committee on Energy and Natural Resources.

S. 341 (Johnston)

A comprehensive national energy policy bill. Title VII deals with ANWR. Introduced Feb. 5, 1991; referred to Committee on Energy and Natural Resources. Hearings held various dates (S.Hrng. 102-5). S. 1220 reported in lieu -- see below.

S. 570 (Johnston, by req.)

One title of this bill to implement the Administration's national energy strategy authorizes energy leasing on the coastal plain; sets up leasing program, environmental requirements; and provides for disposition of revenues. Introduced Mar. 6, 1991; referred to Committee on Energy and Natural Resources.

S. 1220 (Johnston)

Comprehensive national energy policy bill. One title opens ANWR to development. Introduced June 5, 1991; reported by Committee on Energy and Natural Resources

June 5, 1991 (S.Rept. 102-72). Cloture vote on motion to proceed to consideration failed (50-44), Nov. 1, 1991 (Roll call #242).

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U.S. Department of the Interior. Bureau of Land Management. Overview of the 1991 Arctic National Wildlife Refuge Recoverable Petroleum Resource Update. Washington, April 8, 1991. 8 p., 2 maps.

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---- *Arctic oil, arctic refuge*. Videotape by Lynne Corn, Bob Nickel, et al. 53 minutes. [Washington] 1991.

---- Arctic National Wildlife Refuge: Congressional consideration since the 99th Congress, by M. Lynne Corn and Ted L. Burch. [Washington] 1991. 21 p.
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---- Legal issues related to the ownership of the submerged lands within and off the coast of the Arctic National Wildlife Refuge, by Pamela Baldwin. [Washington] 1987. 36 p.
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94-263 SPR

CRS Report for Congress

Domestic Oil: Past, Present, and Future

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Science Policy Research Division

March 14, 1994

CRS

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DOMESTIC OIL: PAST, PRESENT, AND FUTURE

SUMMARY

Annual domestic crude oil[1] production peaked in 1970 at about 3.33 billion barrels and then begun a slow decline that continued for the next seven years. Then, between 1977 and 1986, production leveled off, with yearly oil output fluctuating around three billion barrels. The long production decline was arrested by a significant increase in domestic oil drilling, especially of development wells within known fields. During the drilling boom of the early 1980s, only one percent of the successful oil wells were wildcats that discovered new fields, and these new fields provided only about seven percent of proved reserve additions. The drilling boom was a domestic response to rising world oil prices, but in 1986 world oil prices fell sharply and domestic oil well drilling again responded in kind. Since 1987 fewer than 20,000 oil wells have been drilled yearly (compared to a peak of over 61,000 in 1984) and the number of producing oil wells has declined by more than 55,000 in the past three years. The dramatic decrease in domestic drilling was mirrored in reduced oil production, by 1992 down about 20 percent from 1985. Domestic crude oil demand in 1992 was about 4.7 billion barrels, some 2.2 billion barrels of which was supplied by imports. This amount of imported oil is equal to an average of 15 supertankers entering U.S. ports each day. OPEC countries contributed about 54 percent of these 1992 oil imports. Domestic crude oil production is estimated to continue to decline, by four percent in 1993 to 20 percent by the decade's end (compared to the 1992 level). Future declines in domestic oil production will lead to increasing imports, most of which will likely have to come from the Middle East. The future output from the mature oil producing regions of the United States will depend on an even more intensive exploitation of known fields through massive infill drilling and enhanced oil recovery operations and the search for ever smaller undiscovered oil accumulations. Such activities require extensive development activity, with even marginal production gains dependent upon significant increases in drilling effort. Since a return of the drilling boom is unlikely, as it is primarily dependent on world oil price, the extent of the projected domestic oil production decline will depend mostly on future exploration and development success in the key frontier regions of Alaska's North Slope and the outer continental shelves (especially offshore California), where there are still prospects for the discovery of giant fields. Since exploration and development activities in frontier regions have long lead times, near-term Federal leasing decisions will greatly affect end of century production and, therefore, imports and balance of payments.

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[1]Excludes natural gas liquids.

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INTRODUCTION

The United States today is powered by oil. It provides 41 percent of total domestic energy requirements, a far larger portion than any other single energy source. Nearly half of this oil is imported, while over 80 percent of the total oil consumed is for transportation, asphalt, and petrochemical feedstocks, where a substantial substitution of economic non-oil based substances is not expected soon. Thus, domestic oil production and oil imports will remain a very important component of domestic energy demand into the foreseeable future. Because of the energy security and balance of payments problems associated with importing very large amounts foreign oil, projections of future domestic oil production are important in energy, economic, and foreign policy considerations.

DOMESTIC OIL PRODUCTION HISTORY

The Drilling Boom

When crude oil output in a mature oil producing region peaks and begins to decline, past experience has been that the decline is irreversible. Thus, when domestic crude oil production peaked in 1970 at about 3.33 billion barrels per year and began a slow decline, there was a general expectation that the decline would continue. This judgement was based upon the knowledge that proved reserves were decreasing and that even optimistic estimates of undiscovered resources indicated that some two-thirds of the Nation's original recoverable oil resource base had already been discovered. However, it was also assumed that field growth would persist at historic rates. Oil fields often appear to grow over time as continuous development proves additional reserves by infill drilling on closer spacing, field extension, exploitation of new producing zones, or enhanced oil recovery operations. About a decade after the production peak, domestic drilling increased to unprecedented levels in response to world oil price increases (see table 3). In the early 1980s, about 99 percent of the successful oil wells were development wells associated with known fields. About 95 percent of the development drilling was of infill wells, drilled on closer spacing within the boundaries of known fields. The remaining successful development wells either found new reservoirs in producing fields or extended their boundaries. Of the total successful domestic oil wells drilled, only one percent were wildcats that discovered new fields, and these new discoveries provided only about seven percent of proved reserve additions. In spite of the poor exploration results, domestic production did not continue its decline; rather it was sustained at

The average per well oil reserve additions since 1930 and the number of wells estimated to have been drilled for oil in 1993 are shown in table 1 for each region. The two values are multiplied to estimate yearly regional reserve additions to be used in the 13-year projection (to 2005) shown in table 2.

TABLE 1. Regional Reserve Additions and Estimated Oil Wells Drilled in 1993
(in million barrels)

Region	Reserve Additions Per Oil Well 1980-1992 Average	Estimated Oil Wells Drilled	Regional Reserve Additions
Alaska	4.369	130	568
California	.144	1735	250
Rocky Mts./N. Gt. Plains	.117	648	76
W. Texas/E. New Mexico	.074	4452	329
Gulf Coast	.121	2173	263
Midcontinent	.024	2813	68
Eastern Interior	.010	1085	11
Michigan Basin	.083	31	3
Appalachians	.006	467	3

SOURCE: Derived from: U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves. 1980 to 1992 Annual Reports. DOE/EIA-0216 (80-92), and Quarterly Completion Reports, American Petroleum Institute, 1980-1993.

It can be seen from table 1 that Alaska and California have been the best regions of the United States in which to drill an oil well, with average per well reserve additions substantially higher than those in the other domestic regions. During the 1980s, more than half of the oil reserve additions in California came from enhanced recovery operations in the large heavy oil fields of the San Joaquin basin. About one-third of California oil reserve additions came from large fields discovered offshore. New offshore fields accounted for most of the oil reserve additions in 1981 and 1982. In the early 1980s, drilling was resumed in the Santa Barbara Channel and several offshore fields were discovered and developed in the region, which includes the Santa Maria basin. Enhanced heavy oil recovery operations accounted for most reserve additions in 1984 through 1989. For California to continue to record average per well reserve additions that are considerably higher than the national average, both enhanced oil recovery projects and offshore exploration and development must be successfully continued.

CORRECTION

THE FOLLOWING DOCUMENT(S)
HAVE BEEN REFILMED TO
ASSURE LEGIBILITY OR PAGINATION

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around three billion barrels per year. The proved reserve additions needed to sustain domestic oil output mostly came from the greater than historic field growth that resulted from the more intensive development drilling. Waterflooding and enhanced oil recovery projects also helped stabilize domestic production. The rise in world oil prices that caused the drilling boom greatly increased the number of stripper wells (those producing ten or fewer barrels of oil per day) that remained economical, and therefore were not abandoned, making additional reserves available for production. In 1981 fewer than 7,000 stripper wells were abandoned, less than half the number abandoned yearly in the early 1970s.

The Drilling Slump

In 1986, Saudi Arabia increased oil production to protect its share of a declining world oil export market. This action caused a sharp decline in world crude oil prices. In the United States, rapidly falling oil prices resulted in a dramatic drop in domestic oil well drilling (which fell by two-thirds from a record number of 61,339 in 1984), and an equally dramatic increase in stripper well abandonment (to about 19,000). The drilling slump had a pronounced impact on domestic crude oil production, which, to date, has decreased by about 20 percent. It is possible that domestic oil production would have been sustained at early 1980s levels for at least several more years had the drilling boom continued.

It is more difficult to raise oil production than to sustain it. Even the drilling boom did not return domestic output to the 1970 peak. Production is now falling due to the drilling slump and stripper well abandonment in excess of 16,000 wells per year. Fewer than 20,000 wells per year have been drilled for oil since 1987. Domestic oil output is derived from about 594,000 wells, about three-quarters of which are strippers. Average per-well production has declined from 17.2 barrels per day in 1970 to a current 11.2 barrels per day. The number of producing wells has decreased by more than 55,000 in the past three years.

Projected Domestic Oil Production

Because of considerations of energy security and the balance of payments problems associated with substantial oil imports, it is useful to estimate future domestic oil production. A method to make such a projection entails the disaggregation of the United States into nine oil producing regions on the basis of geologic and geographic homogeneity. A production and reserve projection is then made for each region on the basis of average reserve additions per oil well drilled during the past 13 years (1980s and 1990s). This per well average is multiplied by the total number of wells (exploratory, development, and dry holes) estimated to be drilled for oil in the region during 1993 to calculate total yearly oil reserve additions. The additions are then added to the region's proved reserves and an estimate of oil production derived by the use of expected reserve/production ratios. The regional projections are then added to give an oil production and reserve estimate for the entire United States. In the same manner, oil production estimates can be projected year by year into the future.

The average per well oil reserve additions since 1980 and the number of wells estimated to have been drilled for oil in 1993 are shown in table 1 for each region. The two values are multiplied to estimate yearly regional reserve additions to be used in the 13-year projection (to 2005) shown in table 2.

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TABLE 2. Past and Projected Regional Oil Production
(in million barrels)

Region	1970	1975	1980	1981	1982	1983	1984	1985	1986
Alaska	83	70	501	592	527	606	638	667	670
California	372	322	360	363	394	400	416	417	378
Rocky Mts./N. Gt. Plains	281	259	258	257	249	252	264	256	247
W. Texas/E. New Mexico	792	809	670	646	626	620	608	620	598
Gulf Coast	1,381	1,118	812	774	766	773	803	796	778
Midcontinent	324	231	200	218	234	221	233	229	228
Eastern Interior	63	36	27	27	30	30	32	34	33
Michigan Basin	13	24	37	34	29	31	27	30	24
Appalachians	18	17	16	15	19	24	25	20	19
Totals	**3,336**	**2,886**	**2,971**	**2,945**	**2,903**	**3,010**	**3,006**	**3,083**	**2,978**

Region	1987	1988	1989	1990	1991	1992	1993*	1994*	2000*	2005*
Alaska	718	749	683	652	656	626	578	576	575	570
California	397	382	365	344	348	344	341	340	330	330
Rocky Mts./N. Gt. Plains	222	227	208	206	194	188	173	170	135	100
W. Texas/E. New Mexico	555	537	517	493	487	471	458	450	445	435
Gulf Coast	711	668	577	536	614	618	598	580	350	300
Midcontinent	203	191	177	166	160	162	145	140	95	85
Eastern Interior	29	22	26	24	23	23	22	21	16	14
Michigan Basin	21	19	18	16	17	14	13	12	7	5
Appalachians	17	16	15	16	15	13	12	11	7	5
Totals	**2,873**	**2,811**	**2,606**	**2,503**	**2,513**	**2,444**	**2,339**	**2,279**	**1,950**	**1,834**

*Estimate.

The super-giant Prudhoe Bay field on the North Slope of Alaska still accounts for nearly three-quarters of the State's oil production and one-fifth of total U.S. oil production. The daily output from an average Prudhoe Bay production well is about 1,200 barrels, compared to nine barrels for the rest of the United States. An average Prudhoe Bay well is worth more than 133 average domestic wells. However, the field began to decline in 1988 at a rate that is projected to average between eight and ten percent per year through the year 2000. Year to year decline rates may be above or below this amount because projects such as the recent infill drilling and gas injection program will partially offset the field's natural decline. All of Alaska's oil fields are expected to be in decline by 1995. If the oil deficit is to be made up, the additional output will have to come from new discoveries. However, exploration efforts in the Gulf of Alaska, the Bering Sea basins, the Chukchi Sea, and the Beaufort Sea, with a very few exceptions, have been unsuccessful.

A major prospective region that remains undrilled lies between Prudhoe Bay and the Canadian border. This is the Arctic National Wildlife Refuge. The region contains the largest undrilled onshore geologic structures known in the United States and has been assessed by the Department of the Interior to contain an economically recoverable oil resource ranging to over nine billion barrels. The actual amount of recoverable oil in the refuge can not be known without exploration drilling and could be more, or less, than estimated. Because of the lack of exploration success in other regions of Alaska, sustaining its recent per well reserve additions of 60 times the Lower-48 State average very likely will depend upon a successful exploration and development program in the Arctic National Wildlife Refuge.

Such development is currently the subject of great controversy, with the final decision to be made by Congress. The refuge, one of the premier wildlife reserves in the United States, does, however, hold the prospect of a giant oil discovery. Giant oil fields in the United States (those that originally contained at least 100 million barrels of recoverable oil) are relatively scarce. Of the 33,909 domestic oil fields that have been discovered to date, only 288 are giants (0.8 percent).[3] Yet, these few fields have contributed nearly 60 percent of total domestic oil production and still contain just over 61 percent of proved domestic oil reserves. Because of their large size and anomalous geology, they are usually found early in the exploration cycle. About half of the known giant oil fields were discovered before World War II. Recently few giant fields have been found, because almost all of the remaining undiscovered domestic giant oil fields are likely to be site-specific to a relatively few areas in Alaska and on the outer continental shelves. New giant fields, from which large amounts of oil can be produced from relatively few wells, are needed to shore up declining domestic oil production, thus helping to keep energy affordable. Civilizations are built and maintained with energy. While conservation holds great promise and energy R&D may contribute substantially, for the foreseeable future the economic prosperity of the United States, as well as the rest of the industrial

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[3]U.S. Fields With Ultimate Oil Recovery Exceeding 100 Million BBL. Oil and Gas Journal, Jan. 31, 1994. p. 82-83.

world, is dependent upon adequate supplies of petroleum. There is a price for not exploring for oil giants, and that price could be very high.

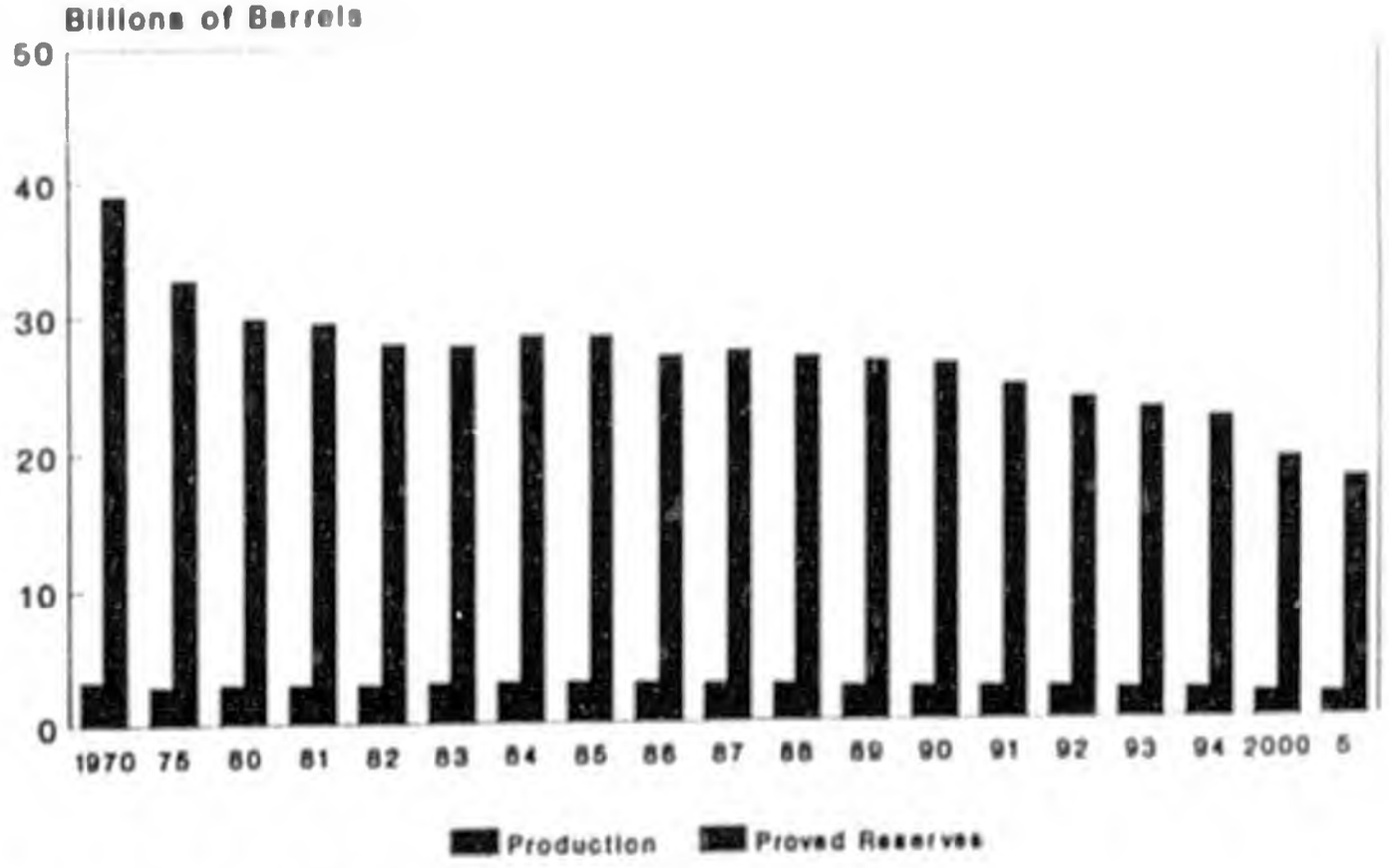
The regional oil production projections derived from the yearly reserve additions computed in table 1 are shown in table 2, beginning in 1970 for historical comparison. With a diminishing contribution from Alaska and significant production declines in the Rocky Mountains/Northern Great Plains, Gulf Coast, Midcontinent and Eastern regions, total domestic oil production is projected to fall by 25 percent by 2005. Further Alaskan drilling could moderate or perhaps even reverse this decline, but a successful exploration for and development of the oil potential of the Artic National Wildlife Refuge would be needed.

Table 3 and figure 1 shows the past and projected oil status of the United States for the next 13 years (to 2005), with average regional per well reserve additions remaining about the same as those achieved in the past 13 years. Reserve additions per oil well drilled in 1970 were much higher than in any of the following years because the reserves of Alaska's super-giant Prudhoe Bay field were booked in that year. Also, domestic oil production peaked in 1970. Table 3 shows that domestic proved crude oil reserves are expected to decline by 25 percent by 2005, if the current low level of drilling activity continues. Average reserve additions per oil well drilled in the 1980s decreased as more wells were drilled, indicating that the quality of the prospects declined as the quantity tested increased. As drilling decreased toward the end of the 1980s, per well average reserve additions increased since only the better prospects were being tested with the drill. However, thus far in the 1990s, even though drilling continues to be depressed, average per well reserve additions have again fallen. Since the best prospects usually are drilled first, this reduction in average reserve additions is a reflection of the general scarcity of good drilling prospects and of the very limited access to the remaining unexplored domestic oil regions that geologists believe to be the most promising.

New giant fields are unlikely to be found in the mature oil producing provinces where several million wells already have been drilled. In these intensively explored regions, usually only the smaller fields remain undiscovered. Future production in mature regions will depend on even more intensive exploitation of existing fields through massive infill drilling based on detailed reservoir geology. Additional oil can be recovered from complex reservoirs if reservoir stratigraphy and geometry are identified by the application of advanced geophysical technology. Then infill wells can be located to intercept oil that may not have been in communication with the original production wells. Such enhanced recovery from existing fields will require the additional expense of the necessary geophysical surveys as well as of the infill drilling. The process will not be as effective in the many homogeneous domestic reservoirs in which there is widespread communication of the reservoir fluids that resulted in efficient oil

Figure 1.

Past and Projected United States Oil Status



The years of 1993, 1994, 2000 and 2005 are estimates.

TABLE 3. Past and Projected United States Oil Status
(in million barrels

Year	Production	Proved Reserves	R/P	Total Wells Drilled for Oil	Reserve Additions Per-Well
1970	3,326	39,001	12/1	21,522	.590
1975	2,888	32,682	11/1	26,253	.051
1980	2,971	29,805	10/1	45,316	.066
1981	2,946	29,426	10/1	60,940	.042
1982	2,962	27,858	9/1	55,600	.025
1983	3,016	27,736	9/1	52,577	.055
1984	3,035	28,446	9/1	61,339	.061
1985	3,052	28,416	9/1	48,489	.062
1986	2,973	26,889	9/1	26,523	.055
1987	2,873	27,256	9/1	23,870	.136
1988	2,811	26,825	10/1	18,130	.131
1989	2,586	26,501	10/1	13,896	.163
1990	2,506	26,264	10/1	16,008	.141
1991	2,512	24,682	10/1	17,393	.054
1992	2,446	23,745	10/1	12,389	.122
1993*	2,339	22,977	10/1	13,534	.116
1994*	2,279	22,299	10/1		
2000*	1,960	19,262	10/1		
2005*	1,834	17,765	10/1		

*Estimates

recovery from production wells that were normally spaced. Future output in the mature oil provinces in the Lower-48 States also will depend upon the meticulous search for the numerous, but generally very small, fields thought to remain undiscovered. Thus, reserve additions in such mature areas mostly will be a function of the number of holes drilled. Since a very high level of drilling activity, which does not appear to be forthcoming, will be necessary to sustain production, domestic oil output is projected to decline.

The Status of the Domestic Petroleum Industry

The prospects of a return to a drilling boom are not favorable. Currently less than 20,000 wells (exploratory, development, and dry holes) are drilled for oil per year and the number of producing wells has declined by more than 55,000 in the past three years (to about 584,000). It is estimated that only 13,534 wells were drilled for oil in 1993, an increase over the 12,389 wells drilled in 1992, but a decline from the 17,393 wells drilled in 1991. The domestic fleet of drilling rigs has been declining since 1982, from 5,644 to 2,043, and less than half of the remaining rigs are normally drilling at any one time. In June 1992, the active rig count fell below 600 for the first time since record-keeping began in 1940. The average for 1992 was 718.2 active rigs, a new low. The decreasing rig count put an estimated 45,000 oil workers out of work in 1991 and 1992, part of 450,000 oil workers who have lost their jobs in the past decade.[3]

Another indication of the depressed nature of domestic oil exploration is the small number of seismic crews prospecting for oil, the fewest since the count has been recorded (74 percent less than in 1974). Laws and regulations that limit access to the high potential areas in the United States, coupled with crude oil prices below $20 per barrel, have resulted in very low rates of return on domestic investments, causing exploration and development activities by U.S. petroleum companies to be focused internationally where, because of larger prospects, the potential return on investment is much higher. U.S. oil companies spent only 74 percent as much on domestic oil exploration in 1992 as in 1991. Since 1988, domestic exploration and development spending by the 30 largest oil companies has decreased by 30 percent (to $10.5 billion). Domestic spending accounted for only 35 percent of the companies' exploration and development budgets in 1992. The U.S. oil industry, in the past five years, has spent some $30 billion more finding and developing foreign oil resources than developing domestic oil fields.[4]

As a result, domestic crude oil production in May 1992 fell to its lowest monthly level (7.05 million barrels per day) in 30 years, while in July crude oil

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[3]Oil Rig Count Drops to Record Low. The Energy Daily, June 18, 1992. p. 3.

[4]Anderson: Oil and Gas Firms Continue Foreign Flight. The Energy Daily, June 1, 1992. p. 3; Foreign Exodus of Oil Firms Continuing, Anderson Finds. The Energy Daily, July 1, 1992. p. 1-2; Domestic Oil Exploration Off Sharply - Anderson. The Energy Daily, May 27, 1993. p. 4; and Oil Exodus Slowed in '92, But Trend to Continue. Salomon. The Energy Daily, Sep. 8, 1993. p. 4.

imports exceeded 50 percent of demand. Domestic proved crude oil reserves declined by four percent in 1992, to 23.745 billion barrels. California had the largest percentage drop, double the U.S. average. Low oil prices and numerous local and State environmental regulations contributed to California's steep reserve decline. Total discoveries of crude oil in 1992 decreased to 484 million barrels from 554 million barrels the previous year. In 1985, crude oil discoveries totaled 1.144 billion barrels. An even greater drop occurred in new oil field discoveries which, at eight million barrels, were exceptionally low in 1992. This can be compared to the 6.7 million barrels that is produced in the U.S. daily and to the 97 million barrels discovered in new fields in 1991. The prior 10-year average for new field discoveries was 15 times higher than the 1992 amount. The ten largest producing companies held 66 percent of proved U.S. oil reserves in 1992. These companies concentrated their domestic operations on fewer fields and expended more of their resources on foreign operations. As a consequence, collectively they experienced a six percent decline in their domestic proved oil reserves. The rest of the producers averaged a two percent increase.[6]

Last year, comprehensive Federal energy legislation was enacted that included a provision to reform the alternative minimum tax applied to independent oil and natural gas producers. The tax reform allowed independents (who, together, drill about 85 percent of U.S. wells and produce about 31 percent of domestic oil) to claim more of their drilling costs as tax-exempt business expenses. Included were the costs of drilling development wells, injection wells for enhanced oil recovery operations, and horizontal wells. Although an additional 1,145 wells were drilled for oil in 1993 compared to 1992, a total of only 13,534 wells were drilled, the second lowest number in a decade.

The Oil Pollution Act of 1990 is in the implementation process. The Minerals Management Service has proposed a $150 million financial responsibility requirement for offshore oil facilities, more than four times higher than the current amount ($35 million). Even a narrow interpretation of the Act's requirements would place significant new cost burdens on offshore operators. The cost would fall most heavily on relatively small to mid-sized companies, who are now the most active in offshore exploration in the Gulf of Mexico and are becoming more important offshore producers. The added costs may result in the loss of oil production and reserves due to early well abandonment and could create an additional barrier for potential bidders on offshore leases.

Enhanced Oil Recovery

Oil wells are removed from production long before all of the in-place oil has been recovered from the reservoir. The amount of in-place oil that will flow unaided or can be pumped from the reservoir rock matrix to the surface varies considerably from as much as 80 percent to as little as five percent. The factors that determine the efficiency of such primary recovery are the energy (pressure)

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[6]U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves. 1992 Annual Report. U.S. Dept. of Energy, Energy Information Administration, DOE/EIA-2016(92), Oct. 1993. p. 27-33.

of the reservoir fluids, the viscosity (resistance to flow) of the oil, and the permeability (ease of flow permitted) of the reservoir rock.[6]

In general, world primary recovery averages 20 percent of the in-place oil. In the United States, however, average primary recovery has been about 30 percent, due to the large highly permeable reservoirs of East Texas and southern Louisiana, that have strong water drives, and to the super-giant Prudhoe Bay oil field on the North Slope of Alaska. Such reservoirs allow a more efficient primary production than others with less porosity, permeability, and reservoir energy that are common in some oil producing regions.

Recently, primary recovery has been enhanced by horizontal drilling. Usually horizontal wells are drilled with a top-drive rotary system, starting with a long vertical section drilled to a point where the well is deviated and then further deviated at a greater depth to a high angle approach (about 70 degrees from the vertical) to a target where horizontal drilling begins. The main objective in the horizontal phase of drilling is keeping the hole within the reservoir. The horizontal lateral hole is usually longer than 1,000 feet, while the longest laterals are in excess of 10,000 feet. The longer the horizontal lateral (as long as it remains within the reservoir) the better. The reason for drilling a horizontal well involves increasing reservoir contact area to the wellbore. A higher reservoir contact area allows a horizontal well to increase productivity in many reservoirs and in most stages of recovery. The largest contributing factor to improved recovery may be the crossing of untapped complex stratigraphic oil saturated zones within heterogenous reservoirs. There are many reservoirs which exhibit a low continuity of producing zones. These would be prime candidates for horizontal development. One such reservoir is the Austin Chalk of Texas. More than three-quarters of the horizontal wells drilled in the United States have been into this reservoir. Although many other domestic reservoirs have been horizontally drilled or are candidates for horizontal drilling, an economic utilization of the method is site specific to certain heterogenous reservoirs and, thus will not be universally applied to raise production in all reservoirs.

Secondary recovery methods can be used to increase the percentage of in-place oil recovered by attempting to maintain or restore reservoir pressure by the injection of gas or water. Waterflooding has become so commonplace that the domestic oil industry produces seven barrels of water for each barrel of oil. Waterflooding results, on average, in about a 40 percent recovery of in-place oil. As oil companies increase their oil recovery efficiencies, they are reporting much lower residual oil saturations in watered-out portions of their reservoirs. Using this new information, the remaining volume of domestic in-place oil could be reduced from the 300 billion barrels commonly reported, to 210 billion barrels.[7]

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[6]Riva, Joseph P., Jr. Exploration Opportunities in Latin America. PennWell Books, Tulsa, Oklahoma, 1992. p. 242-244.

[7]Elkins, L. F. The Uncertainties of Remaining Oil In-Place as a Target of Tertiary Oil Recovery. The Interstate Oil Compact Commission Committee Bulletin, v. xxvii, no. 2, Dec. 1985. 16 p.

The volume is not only smaller, the oil left in the fields will be more difficult to extract.

After secondary recovery methods have been used, the extraction of additional oil requires more sophisticated and expensive techniques. These enhanced oil recovery techniques usually attempt to reduce oil viscosity by the introduction of heat (steam) or of other injected substances such as carbon dioxide, polymers, solvents, surfactants, micellar fluids, or even microorganisms in various combinations depending upon reservoir conditions and crude oil properties. These processes (sometimes termed tertiary recovery techniques) can further increase recovery to 40 to 80 percent of the in-place oil depending upon the process employed and the physical properties of the reservoir and of the oil.[8]

In 1980, some 333,000 barrels of oil per day were lifted by enhanced oil recovery operations. By 1992, domestic enhanced oil recovery had more than doubled to about 761,000 barrels per day (11 percent of total production). In the future, the achievement of such significant increases in enhanced oil recovery production will present substantial problems. About 61 percent of current enhanced oil recovery production is derived from thermal (steam) treatment of heavy oil fields, but such production is lower than in 1986, being inhibited by the low price of heavy oil and the environmental laws in California. Thermal recovery has been most successful in California-type reservoirs that are over 50 feet thick and contain high saturations of heavy oil. Increased heavy oil production has been constrained in California because of the air pollution associated with the burning of the oil to produce steam. However, natural gas is increasingly being used to fuel thermal projects, helping to ease environmental impacts and restrictions, and allowing a small (1.4 percent) increase in thermal recovery in the past two years.

Gas injection recovery increased by 36 percent since 1990 due to additional carbon dioxide injection projects in West Texas and hydrocarbon gas injection at Prudhoe Bay. Carbon dioxide flooding has been relatively successful in West Texas carbonate reservoirs, principally because of high residual oil saturation and the proximity of large natural sources of carbon dioxide in Colorado and New Mexico. The oil development infrastructure in West Texas is in place, making the expansion of carbon dioxide injection into other nearby oil fields economical. Prudhoe Bay contains a huge natural gas cap that can be used for pressure maintenance to recover additional oil in the field since it cannot be otherwise commercially produced. Thermal recovery plus gas recovery accounts for about 99 percent of domestic enhanced oil recovery. These are relatively site-specific processes, as described above.[9]

Chemical recovery has more general application, but has declined by 90 percent since 1988 and accounts for only about one percent of domestic

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[8]Ibid.

[9]Moritis, Guntis. EOR Increases 24% Worldwide; Claims 10% of U.S. Production. Oil and Gas Journal, Apr. 20, 1992. p. 51-79.

enhanced oil production. The decline was partially a result of low oil prices (injected chemicals are expensive) and partly due to technical problems. In chemical recovery projects, the reservoir sometimes appears to inhibit the chemical processes and the desired oil recoveries are not achieved. Since each reservoir has unique properties, specific chemical systems must be designed for each application. Chemical recovery projects, as well as thermal and gas injection projects, will have to be increased to offset declining primary and secondary production. However, no enhanced recovery technology will be able to provide production rates comparable to those achieved in the exploitation of new oil discoveries.[10]

Oil Imports

It appears that the Earth originally contained around 2,332 billion barrels of recoverable oil, of which some 31 percent already has been produced and consumed. If the remaining oil were evenly distributed and exploration and development everywhere proceeded at the average pace achieved in the United States, world oil production could be sustained at about its current level (22 billion barrels per year) for around 75 years. Then, toward the end of the next century, a declining resource base would force down yearly world oil production.[11] However, since the world's remaining oil is very unevenly distributed (see table 4), future oil production must be projected on a country-by-country basis. This can be illustrated by calculating the number of years into the future a country may be able to sustain current production by using the U.S. experience as a model of exploration and development.

The results of such projections are shown in table 5, with the countries listed downward in order of increasing time of sustainable production. It is interesting to note that the United States is the leading member in the short-term sustained production category. The next two members, Canada and the United Kingdom, export large amounts of oil to the United States. Due to projected future production declines, however, they can not be expected to be long-term suppliers. Likewise, Trinidad ships substantial amounts of crude oil to the United States, and may experience increasing difficulties in doing so in the future. Norway and Colombia, both important exporters of crude oil to the United States, are estimated to be unable to sustain current production levels past the end of the century.

The countries with the long-term production potential and the potential to significantly increase current crude oil production are, with the exception of a few former Soviet republics, grouped in the Persian Gulf. It is to this region that the United States, and the rest of the world, must turn for future major oil supplies. As a representative of most of these countries, OPEC is reacting to

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[10]Doscher, T.M. and J. A. Kostura. Enhanced Oil Recovery and Domestic Oil Reserves 10 Years Later. SPE/DOE Fifth Symposium on Enhanced Oil Recovery, Tulsa, Oklahoma, Apr. 20-23, 1986. p. 7.

[11]Riva, Joseph P., Jr. Dominant Middle East Oil Reserves Critically Important to World Supply. Oil and Gas Journal, Sep. 23, 1991. p. 62-68.

TABLE 4. World Oil Distribution
(in billion barrels)

	Cumulative Production	Current Production	Proved Reserv.	R/P Ratio	Probable Additions	Total Oil
Saudi Arabia*	71 5	2 98	261 2	88/1	41	374
United States	165 8	2 45	23 7	10/1	76	266
Russia	92 6	2 55	49 0	19/1	119	261
Iraq*	22 8	0 16	100 0	625/1	45	168
Iran*	42 9	1 33	63 0	47/1	52	158
Venezuela*	47 3	0 85	63 3	74/1	37	148
Kuwait*	27 6	0 68	96 5	142/1	4	128
U A E.*	15 1	0 80	56 2	70/1	49	120
Mexico	20 5	0 97	27 4	28/1	60	108
China	18 8	1 06	24 0	23/1	48	91
Canada	16 1	0 61	5.1	8/1	33	54
Libya*	19 0	0 60	22.8	46/1	8	50
Kazakhstan	3.2	0.18	3.3	18/1	40	46
Nigeria*	15 5	0.69	17.9	26/1	9	42
Indonesia*	15 2	0.48	5.8	12/1	10	31
Norway	6 3	0 82	9 3	11/1	15	31
United Kingdom	12 3	0 68	4.6	7/1	11	28
Algeria*	9 1	0.27	9.2	34/1	2	20
Egypt	6 2	0.33	6.3	19/1	6	18
Brazil	3 6	0.23	3 6	16/1	9	16
Azerbaijan	7 4	0.08	1.3	16/1	5	14
Turkmenistan	5.1	0 04	1.5	38/1	6	13
India	3 6	0.19	5.9	31/1	3	12
Oman	4 1	0.28	4.7	17/1	2	11
Malaysia	2 9	0.23	4.3	19/1	4	11
Qatar*	4 8	0.16	3.8	24/1	2	11
Australia	3 9	0.19	1.6	8/1	5	10
Colombia	3 6	0.16	1.9	12/1	3	9
Romania	4 8	0 05	1.6	32/1	1	7
Tunisia	0 9	0 04	1.7	43/1	4	7
Yemen	0 4	0 08	4.0	50/1	2	6
Ecuador	2 0	0.12	2 0	17/1	2	6
Angola	2 3	0.18	1.5	8/1	2	6
Brunei	2 2	0.06	1.4	23/1	2	6
Trinidad	2 7	0 04	0 5	12/1	2	6
Uzbekistan	0 4	0 02	0 3	15/1	4	5

**OPEC Members*

Modified from: U.S. Geological Survey and Oil and Gas Journal

consumer nation efforts to decrease the use of oil in the long-term by such environmental/economic means as a carbon tax. OPEC states that it would be a mistake to overlook the second half of the 1990s, during which the anticipated growth in world oil demand will require the producer nations to consent to a massive expansion of their productive capacities, at great expense. It would be

TABLE 5. Time to Which Current Oil Production Can Be Sustained

Mid 1990's	End of 20th Century
United States	Indonesia*
Canada	Colombia
United Kingdom	Egypt
Australia	Argentian
Trinidad & Tobago	Norway
Angola	Ecuador
	Oman
Early 21st Century	**Mid 21st Century**
Brazil	India
Russia	China
Malaysia	Ukraine
Qatar*	Libya*
Algeria*	Brunei
Nigeria*	Romania
Late 21st Century	**22d Century**
Azerbaijan	Turkmenistan
Yemen	Uzbekistan
Mexico	Kazakhstan
Iran*	Venezuela*
	Saudi Arabia*
	UAE*
	Iraq*
	Tunisia
	Kuwait*

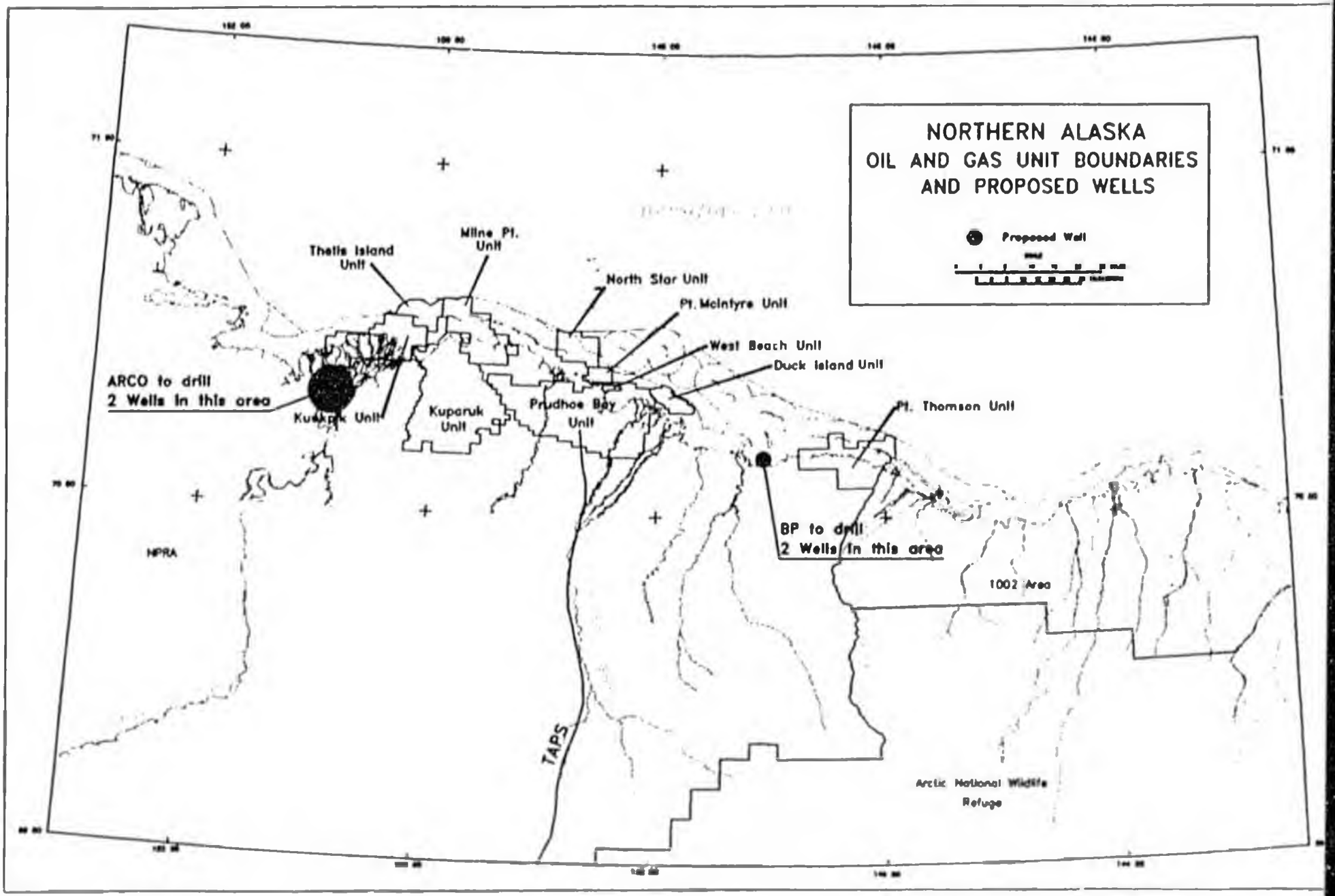
*OPEC Countries

self-defeating, according to OPEC, to thus create short-term security of supply without first obtaining long-term security of demand at the higher levels. However, with increasing oil demand and the declining productive capacity in the rest of the world, the longer term economic prospects of OPEC appear quite favorable.

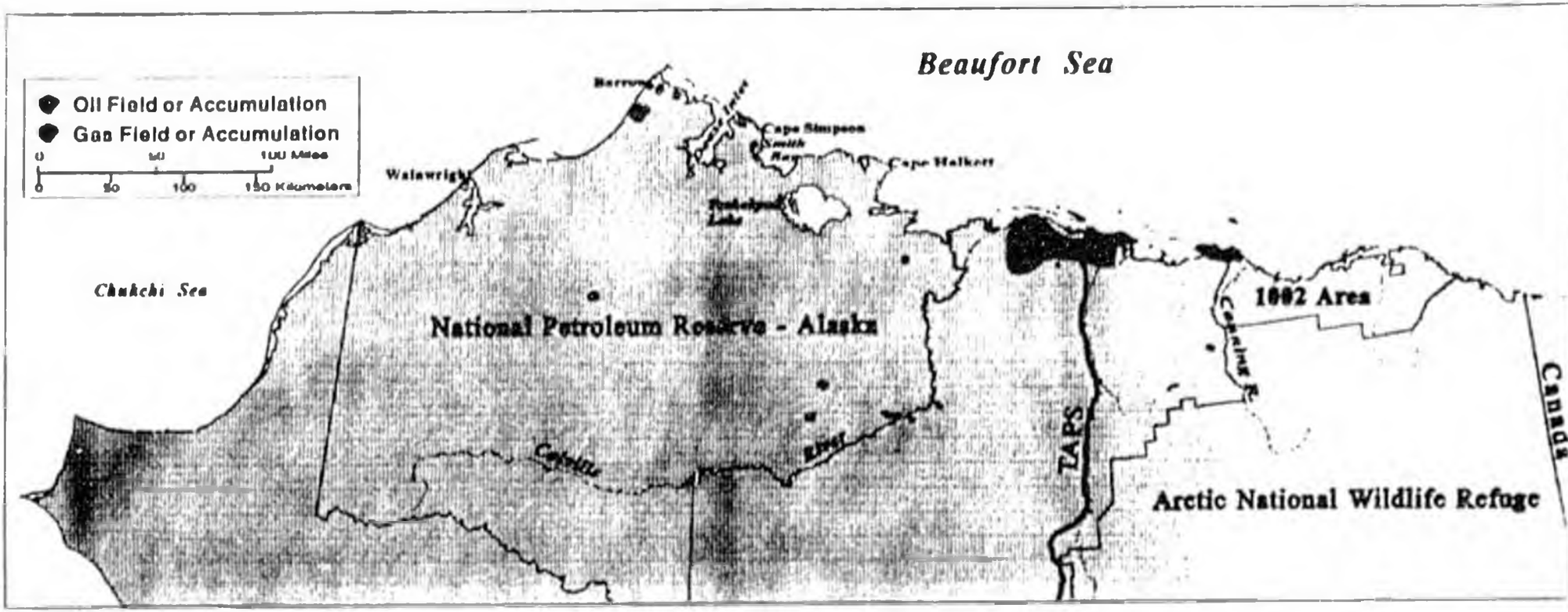
Some 2.223 billion barrels of crude oil was imported into the United States in 1992, about 48 percent of supply. This amount of imported oil would require an average of 16 supertankers entering U.S. ports each day. OPEC contributed about 54 percent of 1992 oil imports. Since most of OPEC's long-term production capacity is centered in the Middle East (a region in which tensions have reached the explosion point on numerous occasions, triggering wars, illegal occupations, coups, revolutions, sabotage, terrorism, and oil embargoes), the security of the U.S. energy supply remains a concern.

CONCLUSIONS

Modern civilization is powered by oil. In the United States, oil and oil products provide by far the largest portion (41 percent) of total energy requirements. Since over 80 percent of U.S. oil is used for transportation, asphalt, and petrochemical feedstocks, where widespread substitution of economic non-oil based substances is not expected soon, domestic oil production and foreign oil imports can be expected to remain a very important component of the total domestic economy into the foreseeable future. Domestic crude oil production is projected to decline, by four percent in 1993 and by 20 percent at the end of the century. New giant fields, from which large amounts of oil can be produced from relatively few wells, are needed if declining domestic production is to be shored up, thus helping to keep energy affordable. However, almost all of the remaining undiscovered domestic giant size oil fields are likely to be site-specific to a relatively few areas in Alaska and on the outer continental shelves. Although great controversy, reflecting differing societal values, surrounds the search for and development of oil in these areas, successful oil exploitation there likely would help to ameliorate both balance of payments and energy security concerns, although would not break OPEC's control of the world oil market.


NORTHERN ALASKA
OIL AND GAS UNIT BOUNDARIES
AND PROPOSED WELLS
Proposed Well
Thetis Island Unit
Milne Pt. Unit
North Star Unit
Pt. McIntyre Unit
West Beach Unit
Duck Island Unit
Pt. Thomson Unit
ARCO to drill
2 Wells in this area
Kuparuk Unit
Prudhoe Bay Unit
BP to drill
2 Wells in this area
NPRA
1002 Area
TAPS
Arctic National Wildlife Refuge

Northern Alaska Oil & Gas Fields



Statistics may add pressure to open ANWR

Oil imports account for half of U.S. use for the first time

By H. JOSEF HEBERT
Associated Press Writer

WASHINGTON — Oil imports reached nearly 8.9 million barrels a day in 1994, for the first time accounting for more than half of U.S. petroleum use, an industry group said Wednesday.

Imports last year reached 50.4 percent of domestic demand, largely because of continued decline in U.S. oil production, which fell to a 40-year low, the American Petroleum Institute said in its annual supply and demand review.

"Overall, U.S. (domestic) crude oil production fell to 6.6 million barrels a day, its lowest annual level since 1954," said the API report. It said imports climbed 3.4 percent compared to 1993, when foreign oil accounted for 49.9 percent of all petroleum used in the United States.

The statistics were expected to add support in Congress for expansion of domestic oil drilling, including pressure to open the Arctic National Wildlife Refuge in Alaska to drilling. It also could support demand for tax benefits for U.S. independent oil companies that have had hard economic times for years.

Sen. Frank Murkowski, R-Alaska, chairman of the Senate Energy and Natural Resources Committee, already has promised a broad review of U.S. energy policies, including a hard look at the growing imports and what should be done to boost domestic production.

Murkowski has been a strong advocate of drilling along the coastal strip of the Arctic refuge. Environmentalists have fiercely opposed it, arguing it would lead to ecological damage in a pristine region that should be preserved in its natural state.

The API said the nearly 8.9 million barrels of oil imported daily in 1994 eclipsed the previous high for imports recorded in 1977 by 109,000 barrels a day. This occurred even though Americans used 800,000 fewer barrels a day last year than in 1977.

The annual review also found:

■ Petroleum's share of the total energy supply continued to decline to just over 40 percent. It had been 48.7 percent in 1977. Demand for natural gas continued to grow faster than oil demand, largely because of wider gas availability and more electric utilities turning to natural gas.

■ Gasoline deliveries totaled 7.6 million barrels a day in 1994, about the same as in 1978, as greater highway travel and the growth in the number of vehicles offset improved fuel efficiency. Gasoline demand increased 1.7 percent between 1993 and 1994.

■ Demand for home heating oil continued a four-year decline, reflecting the continuing shift from oil to natural gas and relatively warm weather in parts of the country that use oil for heating. Since 1990, the demand has dropped nearly 20 percent.

■ Overall demand for distillate fuel overall rose 4.6 percent as increased demand for diesel offset the decline in demand for heating oil.

■ Demand for kerosene jet fuel jumped 9.4 percent from 1993, reflecting greater demand from airlines and conversion of some military aircraft to the fuel.

Meanwhile, refineries operated at 92.7 percent of capacity last year, up from 91.5 percent in 1993. At year's end, total inventories of crude oil and refined products stood at 1.064 billion barrels, 0.4 percent more than at the end of 1993.

1-19-95 CLARION

Anchorage Daily News

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Young enters new Congress swingin

Alaska representative targets environmentalists, land-use policies

By DAVID WHITNEY
Daily News reporter

WASHINGTON — When the 104th session of Congress opens today under Republican control, it will be Day One of an expected two-year battle between the Alaska congressional delegation and environmentalists over federal land-use policy.

Rep. Don Young, the new chairmao of the House Resources Committee, is itching for the fight.

In an interview, Young called national environmental groups "despicable" promoters of the lock-up of federal lands from public use. He vowed to reverse years of land-use policy that he said puts environmental protection ahead of jobs.

"People will see I'm a good steward," Young said. "I'll prove to the American people that I'm correct."

In the Senate, land-use policy will be in the hands of Sen. Frank Murkowski, who takes over as chairman of the Senate Energy and Natural Resources Committee. While Murkowski spoke more cautiously than Young in a recent meeting with reporters, he is at least as passionate about environmental organizations.

National environmental leaders so far have been reluctant to say much about the delegation's new powers, fearing that they will prematurely ignite a confrontation with the Alaskans.

At a recent press conference, National Wildlife Federation chief Jay Hair said environmentalists will work with Young and Murkowski where they can, and oppose them where they must.

Murkowski has yet to say in detail what his agenda will be.

Please see Back Page, YOUNG

■ OPENING DAY: Eager Republicans plan an ambitious start A-3

Rep. Don Young

Continued from Page A-1

The first order of business will be hearings on U.S. assistance in constructing nuclear power plants in North Korea under an agreement to keep the communist nation from building nuclear weapons, Murkowski said.

After that, he said, the panel will hold hearings on domestic energy production and oil imports, which could become the background for a push to open the Arctic National Wildlife Refuge to drilling.

Legislation to turn the refuge's coastal plain into wilderness off limits to drilling is a top item on environmentalists' agenda. The area, prized for its unspoiled wildlife habitat, is also regarded as the most promising site for a giant oil discovery in North America.

"One of the priorities we are going to address is the energy review coming out in April by the Department of Energy," Murkowski said. "We feel that ANWR is going to be a part of that, relative to how we decrease our dependence on imported oil. Half our trade deficit is the price of imported oil."

In the House, where Speaker Newt Gingrich has outlined an aggressive schedule in the opening months of the Congress, Young predicted quick action on a slate of bills.

Sweeping revisions to the Endangered Species Act that are certain to weaken it, laws to pay private property owners for federal actions that regulate use of their land, and a wetlands protection bill that will ease development restrictions in Alaska will pass the House by July, Young pledged.

After that, Young said, he will turn his attention to Alaska issues. Among these are attacks on Forest Service policies that he said are hampering timber production in the Tongass National Forest and lifting the ban on the export of North Slope crude oil.

Young also predicted that legislation allowing oil drilling in the Arctic refuge will be enacted before the 1996 presidential elections, although he declined to say how he intends to pull that off.

Young concedes that his agenda amounts to frontal assault on environmentalists who lobby on Capitol Hill. He said he intends to limit their influence by not inviting them to testify at committee hearings and conducting most of those hearings outside Washington and in the local communities around the country that will be most affected by the panel's decisions.

"Our major goal is to solve some of these environmental issues that have swung so far to the left," he said.

"What I'm going to do in my reign as chair is to show people who environmentalists are, who the people who drive around in their limousines and live in their big mansions and say 'I'm an environmentalist' and how elitist they really, truly are," he said.

"There's 57 different organizations that live around this hill that make a living telling the farmer he's wrong, that make a living telling the guy who's cutting a tree down that he's wrong, that make a living telling everyone that man's occupation on the earth is a cancer on the Earth," Young said.

"That's why I get so frustrated with them because they are the most despicable group I've ever dealt with," he said.

Scott Kearin, executive director of the Alaska Wilderness League, a group set up by former New York Rep. Bob Mrazek to fight oil development in the Arctic refuge and protect the Tongass from over cutting, was incensed by Young's attack.

"To insult environmentalists like this is very unfair," he said. "I don't even own a car and know a single rich environmentalist. We are this for the money certainly don't m much money as c men."

Still, Kearin sa new power of the delegation is troub

The result, he pr will be the reinvig of the national e mental movemen turned lethargic aft ident Clinton's elec 1992.

"There's been son plecency in the mo for the last couple c but this will certain pel that," Kearir "Alaska is special I of Americans, and th situation has them worried."

Most oil used in U.S. in 1994 was imported

The Associated Press

WASHINGTON—For the first year ever, more than half of the oil used in the United States in 1994 came from foreign sources, with total imports for the year setting a record, a trade association reported today.

Nearly 8.9 million barrels of oil a day were imported last year, or 50.4 percent of total domestic demand, while U.S. oil production fell to a 40-year low, the American Petroleum Institute said.

The statistics were expected to [illegible] ammunition for those in Congress favoring tax breaks for domestic oil producers and for new oil and gas development in the United States, including in controversial areas such as the Arctic National Wildlife Refuge in northern Alaska.

Sen. Frank Murkowski, R-Alaska, chairman of the Senate Energy and Natural Resources Committee, already has promised a broad review of U.S. energy policies, including a hard look at the growing imports and what should be done to boost domestic production.

Why is opening the ANWR Coastal Plain such a hot issue?

Today, the United States imports over half its oil from unstable foreign countries that don't care for their environment like Americans do. We spend over one billion dollars a week on imported oil. This means we lose American jobs and add to our deficit woes. And when we have to defend our access to foreign oil, we lose American lives, as in the Persian Gulf confrontation.

But the Coastal Plain of the Arctic National Wildlife Refuge (ANWR) may hold billions of barrels of recoverable oil. In fact, its neighbors to the west at Prudhoe Bay, North America's largest oil field development, currently supply 25% of our domestic oil.

Relying on Alaska to provide energy to heat your home each winter is a lot more sensible than looking to Middle Eastern despots for stable energy supplies.

North Slope temperatures are at their lowest in February, averaging -30 degrees.

But won't development hurt Alaska's beautiful scenery?

The Alaska that most people are shown is full of bold mountaintops, lush vegetation and spectacular glaciers. However, the Coastal Plain area proposed for development (also known as the 1002 study area of ANWR) is flat, windswept and treeless. With a maximum of five inches of snow per year, it is virtually an arctic desert. Very few outside visitors venture into this region. Plus, very little of ANWR's Coastal Plain would be affected by development — about 12,000 acres, or an area about the size of Dulles airport. Of that 12,000 acres, only 2,000 acres would actually be covered by facilities.

Don't let opponents of American jobs and American oil fool you. If you ever see a picture of ANWR with mountains in the background, you are seeing the protected area to the south — not the 1002 study area.

A small portion in northern ANWR, known as the 1002 study area or the Coastal Plain, is the focus of much national debate.

What about Wildlife?

ANWR is used by a large caribou herd about two to three weeks per year. At Prudhoe Bay the caribou population has increased six-fold since development began. Geese and many other migratory birds continue to thrive as well.

An interesting fact about Prudhoe Bay is that all facilities, roads and support structures must be removed when the field closes. Yet, there is one species of previously threatened bird that now nests on a man-made gravel causeway leading to a drill site. That species is increasing in size, and authorities are talking about keeping this one gravel road in place to provide continued nesting habitat. Just another example of development and the environment co-existing and in fact, providing opportunities for wildlife growth.


DOMESTICALLY PRODUCED (51%) 8.8 million barrels/day
How much oil does the U.S. import?
The United States uses about 17.4 million barrels of oil and natural gas each day. Of that, we import 8.6 million barrels.
ALASKA PRODUCED (25%) 2.2 million barrels/day
LOWER 48 PRODUCTION (75%) 6.6 million barrels/day
How much of our domestic oil comes from Alaska?
Of the 8.8 million barrels of oil and natural gas produced each day in the U.S., 2.2 million, or about 25 percent, are produced in Alaska.

Is it just the oil companies that want to open the 1002 study area?

Definitely not! More than 70% of Alaskans favor oil exploration and production in the Coastal Plain of ANWR. We have seen the benefits of Prudhoe Bay — both for this state and for the country. We know that oil exploration and recovery in ANWR can be clean and safe and that it's in the best interest of America. The strongest arguments come from the Inupiat Eskimos of Kaktovik, who live right in the area. They are firm supporters of onshore oil development.

What Is Arctic Power?

We are a group of Alaskans from all walks of life who realize that the Coastal Plain can be an invaluable source of energy and jobs for our country. We want to help lessen America's dependence on foreign oil. We want to slow the tide of American dollars going overseas and keep that money here — to save and create jobs in the United States. Already, more than 450,000 American oil industry jobs in the last decade have disappeared.

We believe it's important to keep the door to ANWR's Coastal Plain open. The best hope for America's energy independence lies on a tiny, barren sliver of land on our northernmost shore.

02/06/95 LEGISLATIVE TELECONFERENCE NETWORK SYSTEM LTN1150

15:50:54 PARTICIPANT LIST (ALL PARTICIPANTS) BY:FBX

TCN:50179 SCHEDULED FOR:02/06/95 15:30 TO 17:00 FOR:FBX

LATEST UPDATE

PUBLIC HEARING SENATE RESOURCES

LOCATION:FAIRBANKS

√ HJR 13	SEN.	GEORGIANNA	LINCOLN		TESTIFY	—
√ HJR 13		MARY	SOLOMON		TESTIFY	
√ HJR 13		ISAAC	TRITT	Ft Yukon COUNCIL MEMBER	TESTIFY	—
√ HJR 13		SARAH	JAMES		TESTIFY	—
√ HJR 13		DAVID	VAN DEN BERG	N. AK Envir Center	TESTIFY	—
√ HJR 13		ORVILLE	HUNTINGTON	Huslia	TESTIFY	—
√ HJR 13		ERNEST	ERICK	Veretic	TESTIFY	—
X HJR 13		VIRGINIA	HERBERT		TESTIFY	
√ HJR 13		PATRICIA	SALMON	Chalkyitsik	TESTIFY	—

02/06/95 LEGISLATIVE TELECONFERENCE NETWORK SYSTEM LTN1150

15:36:47 PARTICIPANT LIST (ALL PARTICIPANTS) BY:ANC

TCN:50179 SCHEDULED FOR:02/06/95 15:30 TO 17:00 FOR:ANC

PUBLIC HEARING SENATE RESOURCES

LOCATION:ANCHORAGE

√ HJR 13	KEITH	BURKE	THE ALLIANCE	TESTIFY	
√ HJR 13	MARILYN	CROCKETT	AOGA	TESTIFY	

3 min
time 10 a.

02/06/95 LEGISLATIVE TELECONFERENCE NETWORK SYSTEM LTN1150

15:56:09 PARTICIPANT LIST (ALL PARTICIPANTS) BY:VAL

TCN:50179 SCHEDULED FOR:02/06/95 15:30 TO 17:00 FOR:VAL

PUBLIC HEARING SENATE RESOURCES

LOCATION:VALDEZ

√ HJR 13	SEN.	TERRY	HERMACH	TESTIFY	—

02/06/95 LEGISLATIVE TELECONFERENCE NETWORK SYSTEM LTN1150

15:29:29 PARTICIPANT LIST (ALL PARTICIPANTS) BY:FBX

TCN:50179 SCHEDULED FOR:02/06/95 15:30 TO 17:00 FOR:FBX

PUBLIC HEARING SENATE RESOURCES

LOCATION:FAIRBANKS

HJR 13	SEN.	GEORGIANNA	LINCOLN	TESTIFY	
HJR 13		MARY	SOLOMON	TESTIFY	

The Seal of the State of Alaska
Official Business

COMMITTEE: SENATE RESOURCES

DATE: 2/6/95

Subject of meeting: HJR13 Endorsing ANWR Leasing

SIGN-IN

PLEASE PRINT!

NAME	ADDRESS (MAILING) & (ZIP)	PHONE	REPRESENTING	DO YOU WANT TO TESTIFY?
Sara Hannan	PO Box 22151 Juneau AK 99801	463-3366	AK Environmental Lobby	Yes
[illegible]	1341 N. Franklin Juneau 99801	586-5680	Arco	Yes

HJR

23

FISCAL NOTE

STATE OF ALASKA
1995 LEGISLATIVE SESSION

BILL NO. HJR 23

Revision Date:
Title: Community Development Fishing Quotas
Sponsor: Rep. Austerman
Requester: House Fisheries

Dept. Affected: Fish and Game
BRU: Commercial Fishing Management and De
Component: Fisheries Management
COMPONENT SERIAL NO. 1941

Expenditures/Revenues (Thousands of Dollars)

OPERATING EXPENDITURES	FY 96	FY 97	FY 98	FY 99	FY 00	FY 01
PERSONAL SERVICES	0.0	0.0	0.0	0.0	0.0	0.0
TRAVEL	0.0	0.0	0.0	0.0	0.0	0.0
CONTRACTUAL	0.0	0.0	0.0	0.0	0.0	0.0
SUPPLIES	0.0	0.0	0.0	0.0	0.0	0.0
EQUIPMENT	0.0	0.0	0.0	0.0	0.0	0.0
LAND & STRUCTURES	0.0	0.0	0.0	0.0	0.0	0.0
GRANTS, CLAIMS	0.0	0.0	0.0	0.0	0.0	0.0
MISCELLANEOUS	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0

CAPITAL EXPENDITURES						
CHANGE IN REVENUES ( )						

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1006 GF/MHTIA						
Other						
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0

Estimate of any current year (FY95) cost: $ 0.0

POSITIONS

FULL-TIME						
PART-TIME						
TEMPORARY						

ANALYSIS: (Attach a separate page if necessary)

Prepared by: Geron Bruce GB
Division: Commissioner's Office
Approved by Commissioner: [signature]
Agency: Fish and Game

Phone: 465-6143
Date: 2/5/95
Date: 2-6-95

PREPARER TO PROVIDE AL ... ATIVE OFFICE
For further distribu

Fiscal Note

(Rev 10/94) 95fisno.xls/OBR

STATE OF ALASKA
DEPARTMENT OF FISH AND GAME
OFFICE OF THE COMMISSIONER

TONY KNOWLES, GOVERNOR

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Comments of the Alaska Department of Fish and Game on HJR 23

The CDQ allocation was instituted when the North Pacific Fishery Management Council (NPFMC) approved a four-year Inshore/offshore allocation of pollock. Pollock CDQ fishing began in December 1992, but is scheduled to sunset at the end of 1995, unless the NPFMC rolls the program over for a three-year extension while they complete work on a groundfish and crab limited entry program.

A smaller, permanent CDQ program for Bering Sea halibut and sablefish was also passed by NPFMC as part of an IFQ program for those two species. Most of the CDQ halibut will be caught by local skiff fishermen beginning April 1. The halibut program also provides an example of the non-economic benefits that may be associated with CDQ programs when the resource involved is of cultural significance.

The State of Alaska is the main monitoring agency for the CDQ programs. Three departments share responsibility of ensuring the groups follow state and federal regulations. The state also is responsible for allocating portions of the CDQ quota between the established CDQ groups which represent 56 western Alaska communities historically reliant on the Bering Sea resources.

The Bering Sea groundfish and crab fisheries are extremely capital intensive-industrial fisheries. The Council has began a program of Comprehensive Rationalization to end the open access nature of these fisheries. The main qualifying criteria being considered by the council relies on previous catch history or participation in the Bering Sea fisheries.

This criterion eliminates Western Alaskans, who have not had the opportunity to participate. CDQ communities have historically not had access to the capital necessary to participate in these industrial fisheries in their own back yard. Additionally, the quantities of fish caught and processed are immense, and the price paid per pound only becomes profitable when huge volumes are landed. Thus making it impossible for local small boat owners to have participated and gained catch history.

The inclusion of a CDQ allocation under the council's comprehensive rationalization program will (1) allow the council to move forward with limitation and reduction of the industrial sectors; and (2) provide opportunities to residents who are proximate to, and historically reliant upon the Bering Sea resources, but have been

TONY KNOWLES, GOVERNOR

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DIVISION OF ECONOMIC DEVELOPMENT

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DCED COMMENTS ON HJR 23

BACKGROUND

The pollock Community Development Quota (CDQ) program is a federal allocation of approximately 100,000 metric tons of pollock annually to 56 Alaska communities that border the Bering Sea. It was implemented in December of 1992 and is scheduled to sunset in December of 1995 unless extended by the North Pacific Fishery Management Council (Council) and approved by the Secretary of Commerce. It is worth approximately $20 million annually in revenues generated by lease of those harvesting rights to seafood industry partners. By the time the program sunsets later this year, it will have generated more than $80 million in payments to the region and created more than 600 jobs.

The halibut and sablefish CDQ program is also a federal allocation of fishery resource to eligible communities. That allocation was made as part of the halibut and sablefish IFQ program and will **not** sunset. It is a much smaller allocation, worth approximately $3 million annually.

The 56 eligible communities have grouped themselves into six organizations that vary in size from one to 17 villages.

The intent of the CDQ program is to provide these remote Alaskan villages, which have historically been reliant on the fishery resources of the Bering Sea, an "entry ticket" into the capital intensive fisheries of the North Pacific. For that reason, the goal of the CDQ program is to attain economic self-sufficiency for these regions through successful investment in fishing industry businesses and infrastructure in the North Pacific seafood industry.

One of the most unique features of the CDQ program is that it fosters accomplishments of ambitious Community Development Plans (CDP) because of the competitive nature of the allocation process. These plans, which include employment, training and investment milestones are actively monitored by the state. If a group fails to meet scheduled milestones, it could hurt their ability to secure desired allocation levels during the next allocation cycle. While CDPs can be amended, good cause must be demonstrated to win approval from the state and federal government.

While this is a federal program, it is the state's responsibility to oversee its implementation and assure compliance with state and federal regulations. The state also provides assistance to CDQ participants to help facilitate the success of their projects and programs. The three agencies which share equally in the management of the CDQ program are the Department of Community and Regional Affairs (DCRA), Alaska Department of Fish & Game (ADF&G), and Department of Commerce and Economic Development (DCED). The National Marine Fisheries Service (NMFS) provides federal oversight.

DEPARTMENT POSITIONS

Since the CDQ program was implemented, two pollock allocations and one halibut and sablefish allocation have been made. To date, all recommendations made by the state have been approved at the federal level.

PROGRAM EFFECTS

The most important work ahead of us is to extend the pollock CDQ program beyond 1995 and expand it to additional species. It has been the policy of the state that it will seek a CDQ allocation whenever a limited access scheme is proposed for any species under federal jurisdiction. That policy has been implemented as part of efforts by the state to roll-over separate onshore and offshore allocations of groundfish and to develop a Comprehensive Rationalization Plan (CRP) to change federal fishery management in the North Pacific.

Currently, extension of the CDQ program is being moved forward for consideration in four separate platforms:

1. extension of the onshore/offshore allocation program
2. the state's proposed license limitation program
3. the state's proposed phased-in quota program
4. reauthorization of the Magnuson Act

Extension of the CDQ program, as proposed in this resolution, should continue to receive high priority by the state for several reasons:

1. It uses private sector money to spur significant economic development and jobs in Western Alaska and has decreased reliance on state and federal programs.
2. All CDQ programs are developed at the local level and reflect the unique needs of these diverse communities.
3. The partnership formed between the CDQ groups and their harvesting partners has forged a transference of knowledge and expertise that is unequaled in the public sector.
4. It has provided a strong incentive for joint venture seafood investments by the CDQ groups and their partners that will increase the likelihood of successful investment participation by CDQ groups in the North Pacific seafood industry.
5. It has benefited the entire fishing industry by providing venture capital to the CDQ groups to complete port infrastructure development in the region and to help finance development of new salmon products.
6. It is the most effective way to significantly increase Alaskan ownership in the North Pacific fishing industry.

SENATE COMMITTEE REPORT

DATE: 4/7/95 FURTHER:

DATE TURNED INTO OFFICE: 4-24-95

Resources Committee considered CS FOR HOUSE JOINT RESOLUTION NO. 23(FSH)

North Pacific Fishery Management Council's inshore/offshore allocations and the Western Alaska Community Development Quota Program.

and recommends:

| | be replaced with _____ CS _____(_____)
| | adopt previous _____ CS _____(_____)
| | attached amendment(s)
| | adopt Letter of Intent by _____ Committee
| | further referral to the _____ Committee

Senate Bill:
| | same title
| | new title

House Bill:
| | same title
| | technical change
| | new: SCR*_____

SIGNING DO PASS	DP	OTHER RECOMMENDATIONS	NR	DNP	AM
Kim Halford	✓				
	✓				
	✓				
CHAIR: Loren D. Leman	✓				

NEW FISCAL NOTE(S):

Department	Date	Zero	Fiscal

PREVIOUS FISCAL NOTE(S):*

Department	Date	Zero	Fiscal
F&G	3/9	✓	

| | APPROPRIATION -- no fiscal note

*Include fiscal notes accompanying Governor's bill

Revised Draft Report

Economic Impacts of the Pollock Community Development Quota Program

Prepared by

STATE OF ALASKA
Anchorage, Alaska

APRIL 1995

Acknowledgments:

The compilation and writing of this report was done by the Department of Community and Regional Affairs (DCRA), CDQ Manager, Julie Anderson, with the assistance of Karen Lang, a graduate student of Public Administration at the University of Alaska Anchorage.

The State of Alaska would like to thank Gunnar Knapp and Lee Huskey of the Institute for Social and Economic Research (ISER) for their assistance in designing this report. ISER also provided the 1990 U.S. Census data and the information for chapter five, economic impacts of the CDQ program, and the definition of economic development located in chapter six.

Information on the CDQ projects and their economic impacts is based primarily on material provided by the six CDQ groups. All of the groups were helpful in providing information for this report.

The editorial review and input by the staff of the Alaska Department of Fish and Game and the Department of Commerce and Economic Development contributed greatly as well.

A report prepared for the State of Alaska, "Economic Impacts of the 1992/93 Pollock Community Development Quotas" in June of 1994, by E3 Consulting, was the basis for much of the geographical and historical data.

Table of Contents

Executive Summary

This report examines the economic development impacts of the first twenty-five months of the Bering Sea pollock Community Development Quota (CDQ) program on the western Alaska region.

The CDQ program was designed by the North Pacific Fishery Management Council (Council) to allow residents of the economically depressed region of western Alaska access to the Bering Sea fisheries. The Bering Sea pollock fishery is one of the largest fisheries in the world with an annual harvest of approximately 2.9 billion pounds with an annual ex-vessel value in excess of $200 million. Because this is an extremely capital intensive fishery, the ability of western Alaskans to participate in the harvest of the resource at their doorstep has been severely limited.

Prior to implementation of the CDQ program, approximately 94% of the value of this fishery was accrued by non-Alaskans, virtually none of the value was captured by western Alaskans. By setting aside the 7.5% of the quota for harvest by those regions bordering the Bering Sea, the CDQ program has permitted participation of the utilization of this resource as a mechanism to spur economic development in this economically depressed region.

The economic development impacts of the CDQ program must be assessed in the context of life in western Alaska. There are 56 communities that meet the criteria for participation in the CDQ Program, representing a total population of 21,037. According to 1990 Census data, 77% are Alaska Natives. Poverty and unemployment are chronic, in 1990, more than 25% of the people in CDQ communities lived below the poverty level, twice the state rate. Unemployment rates ranged as high as 31%. In many of the CDQ communities, the average income is nearly half the median state level. Non-economic standards also portray the region's underdevelopment. Much of the housing available is substandard and utilities that most U.S. citizens take for granted such as water, sewer, and telephones are in short supply. In over half of the communities, five gallon buckets or outhouses remain the primary means of sewage disposal. Three quarters of the communities do not have piped water and sewer available to at least half the homes in the community. The result of these characteristics is poor health conditions, high rates of infectious diseases, and low living standards. It is this profound state of underdevelopment against which this report examines the economic development impacts of the CDQ program.

The best data available for describing the population and economy of western Alaska prior to implementation of the CDQ program including income, employment and other demographic information is contained in the 1990 US Census Report. For purposes of this report, those figures are used as a basis for comparison with quarterly and annual

audited reports to the State in helping to assess the economic impact of the CDQ program from the date of its implementation on November 18, 1992, through December 31, 1994. Comparison of this data demonstrates important impacts on employment, income, infrastructure development, investment, training and educational opportunities in the region.

By the simple measure of jobs and income, the CDQ program is contributing to the economic development of the region, providing private sector employment opportunities where few existed.

- In the first two years, the CDQ program's contribution to local jobs *doubled*
- Jobs created by the CDQ program represent 57% of all non-government related, "basic employment" job in the region
- During this time, CDQ wages and benefits represented a 2.4% increase in income for the region

A major goal of many of the CDQ groups was to develop infrastructure within the regional fisheries that would make possible greater participation in the fishery. Each of the infrastructure developments provide benefits to the region as a whole as well as the entire fishing industry. Major infrastructure projects which have been complete or are underway include:

- Dock facilities in Atka, Nelson Lagoon, False Pass and Nome
- Harbor improvements in St. George and St. Paul
- Ice delivery systems in Savoonga and Koyuk
- Gear storage facility in False Pass
- Processing facility improvements in Shaktoolik, Unalakleet, Nome, Atka, Bethel and Emmonak

Equally important as physical infrastructure is the developme · of human resource infrastructure which provides the skills and expertise necessary for the long-term sustainability of economic development in the region. Progress toward that end includes:

A total of 1141 training, internship and educational opportunities were made available by the CDQ program including 176 higher education scholarships, 38 vocational education programs and 927 technician training programs.

Another major goal of the CDQ program was to provide for increased participation by western Alaska residents in the fisheries of the Bering Sea. In the first two years of the program, five of the six CDQ groups have participated in fishery investments including:

- Joint venture investments in a factory trawler, a factory longliner/crabber, two shore-based facilities and one catcher vessel
- Wholly-owned investments in one shore-based facility and approximately thirteen small catcher vessels
- Three CDQ groups and their harvesting partners have invested considerable resources in the development of new salmon products and markets

Because economic development is a complex process, it is difficult to measure. Generally, economic development must add jobs and income to the region, provide for local control and human resource development and generate benefits that are sustainable over the long term.

In sum, by all of these measures, the CDQ program is contributing towards the process of economic development within the western Alaska region. It is bringing about economic development a measured by jobs, local control and long term sustainability. This infusion of capital has not only created private sector jobs in the region where few existed, it has provided hope and opportunity which are integral components to building self-esteem and self-reliance in the region.

Despite these remarkable advances, the economic activity generated to date has not transformed the region economically -- nor is there any reason to expect that it should have in just two years. The CDQ program will require continued sustenance to survive its infancy.

I. INTRODUCTION

The Bering Sea pollock fishery is one of the largest fisheries in the world, with an annual harvest of about 2.9 billion pounds (1.3 million metric tons). Beginning in 1992, the Community Development Quota (CDQ) program set aside 7.5% of the Bering Sea pollock harvest (about 215 million pounds annually) for direct allocation to disadvantaged coastal communities in Western Alaska.

The 56 communities bordering the Bering Sea that received the quotas are in one of the most economically depressed regions of the United States. A major goal of the program is to allow these communities to accumulate sufficient capital so they can invest in the fishery, thus bringing sustainable economic development to the region.

This report examines the economic impacts of the first twenty five months of the Bering Sea pollock Community Development Quota (CDQ) program on the western Alaska region. The CDQ program regulations became effective on November 18, 1992 and CDQ fishing was permitted to begin on December 5, 1992. Therefore, most of the impacts of the first three years of the program actually occurred over a twenty-five month period.

Organization of this Report

Chapter II of the report describes the western Alaska region. Chapter III describes the history and implementation of the CDQ program, and provides an overview of the program during the first twenty-five months. Chapter IV describes the types of projects proposed by the CDQ organizations and the activities undertaken during this period. Chapter V describes the broader development impacts of the program, including impacts on future employment and income. Finally, Chapter VI addresses the other impacts of the CDQ program on the region and the potential effects if the program were discontinued.

Information Sources

The economic description of the western Alaska region in this report is based primarily on the 1990 U.S. Census. Information on the CDQ projects and their economic impacts is based primarily on material provided by the six CDQ groups. These include CDQ applications, quarterly reports and audited annual reports.

II. THE WESTERN ALASKA REGION

The Physical Setting

The Bering Sea is renowned for its marine productivity and fierce weather. The open ocean waters of the Bering Sea are home to some of the greatest fishery resources on earth. They contain vast schools of fish such as pollock and herring. The bottom is home to numerous commercially caught species of fish and crustaceans including Pacific cod and the famous, and large, king crab. The rivers emptying into the Bering Sea are visited yearly by millions of salmon migrating upstream to spawn. Feeding on all of this natural bounty are numerous species of marine mammals and sea birds.

The open waters of the Bering Sea annually freeze as far south as the Pribilof Islands and Bristol Bay, and even further south along the coast. Natural deep draft harbors are non-existent north of the Alaska Peninsula due to extreme tides, low terrain and silty bottom. The weather has been described as among the worst on earth, with hurricane force winds, mountainous waves, freezing spray, and a winter season of short days and long nights.

The Alaskan coast which borders the Bering Sea is barren and entirely treeless. It includes several thousand miles of coast from the uninhabited tip of the Aleutian Islands to the tiny community of Wales astride the Bering Straits. The landmass varies from volcanic along the Aleutian Islands to marshy delta at the mouth of the Yukon and Kuskokwim Rivers. Where the ground is not solid rock, it is often underlain by permanently frozen ground tens or even hundreds of feet deep.

Natural Resources

There are limited mineral resources along the coast including deposits of gold, platinum, and tin. Due to the high expense of operating in the harsh environment, very little actual mining occurs. There is also the possibility of major petroleum reserves offshore from the region. Due to the engineering challenges, changing regulations, and high exploration and production costs these reserves have not been developed, although some exploration wells have been drilled.

The Bering Sea arc is barren in winter but lush in summer. At that time it possibly contains more mass of mosquitoes than all other species combined. Vast flocks of waterfowl migrate north to nest in the marshes and along the rivers and lakes. Seabirds nest in the millions in densely packed rookeries. Animals that have hibernated for much of the year take advantage of the few summer months to eat a years worth of food. Large animals such as caribou and whales migrate back and forth to the rich, productive summer grazing grounds. Also during the brief summer, millions of salmon return to their natal streams and herring to the coastline. These are followed by the numerous fish, mammals and birds that feed on them.

The Western Alaska Economy

There are four main regional centers of commerce and population in the region: Dutch Harbor, King Salmon, Dillingham, and Nome. (Dutch Harbor is not one of the CDQ communities due to its pre-existing involvement in the Bering Sea fisheries.) Much of the economy in King Salmon and Dillingham is based on seasonal salmon fishing, whereas Nome was originally based on gold mining. All three function as commercial and transportation hubs. Residents from outlying communities visit to purchase goods and services not available locally and pass through on their way to Anchorage and beyond.

While several roads exist in the region, they link only a few of the communities. None of the roads that exist are connected to any outside of the region. Almost all of the towns and villages are totally isolated from each other. Access between them is limited to boats in the summer, snowmachines in the winter, and planes. The closest CDQ community to a continuous road system is about 300 air miles from Anchorage and the farthest over 1,200 miles.

The reliance on air transportation means that the price of many goods is greatly increased over other areas of the country. In addition, it is very expensive to travel to Anchorage or even between communities. Wages are commensurate with these higher costs and therefore costs of production with local labor are higher than elsewhere.

The remoteness and isolation of the western Alaska region limits employment opportunities for most residents to those which can be found within their communities. Commuting out of the region or even from smaller communities to regional centers on a regular basis is prohibitively expensive.

The wage economy of western Alaska is concentrated in only a few sectors. Relatively few locally consumed goods and services are provided in the region, most goods and services are imported. There is a high dependence on income from transfer programs such as the Alaska Permanent Fund Dividend Program and the Alaska Longevity Bonus Program, and Aid for Families with Dependent Children.

The majority of regional employment is with federal, state and local governments. Federal employees consist primarily of those managing federal lands, providing health care, airport operations, and military personnel. State personnel are employed primarily in schools, various state agencies, health care centers, and airport operations. Local governments employ administrators, school workers, utility operators and local public safety officers.

A typical small community has limited employment opportunities. These might include a school, post office, local utilities, retail store(s), local government, health aide, public safety officer, airport agent, National Guard, and local road and airport maintenance. Others employed locally such as school teachers and clerics are most often from outside the region. Larger communities have more services, retail centers, and government services and therefore more employment opportunities.

Jobs related to education account for 26% of all regional employment. Each community has its own school and often it is the main employer in the community. Many times this is accomplished by sharing one full time position between several households to ensure the maximum employment opportunities.

U.S. Census Data for the Western Alaska Region

The best available data for describing the population and economy of western Alaska are from the 1990 U.S. Census, which occurred prior to the start of the CDQ program in 1992. As will be discussed in Chapter V, the CDQ program has provided significant new employment and income in some CDQ communities. In addition, economic changes not related to the CDQ program have occurred in the fishing industry as well as other parts of the economy. The 1990 census data are therefore somewhat out-of-date. However, they still provide a reasonable picture of general economic conditions in the region. No other detailed up-to-date data exist on the economy and population of western Alaska in 1995.

Population

There are 56 communities in the CDQ region of western Alaska. As shown in Table II-1, these communities had a total population of 21,037 in 1990. The combined populations of the villages represented by individual CDQ groups ranged from as low as 397 for the Aleutian Pribilof Island Community Development Association to as high as 7621 for the Norton Sound Economic Development Corporation.

Seventy-seven percent of the residents of the CDQ area were Alaska Natives. All of the groups have a majority Alaska Native population. For three of the groups (APICDA, CVFC, and YDFDA) the Alaska Native population was over ninety percent of the total.

All of the CDQ groups have a relatively large share of their population under the age of sixteen; in the YDFDA more than 40% of the population is under sixteen. This indicates both a growing labor force which will require jobs in the future and the relatively larger magnitude of any employment increase relative to the working age population.

Labor Force and Employment

Table II-2 shows labor force and employment characteristics of the CDQ group villages. The civilian labor force is only 59% of the population aged 16-65. Civilian labor force participation is limited by membership in the military and choice not to participate in the labor force.

The unemployment rate is defined as the number of persons working divided by the civilian labor force. At the time of the census all CDQ groups were experiencing relatively high levels of unemployment, ranging from 9% (BBEDC) to 31% (YDFDA). While these high unemployment rates partly reflect the seasonality of employment opportunities and the timing of the census in April, they also may show the effects of limited employment opportunities. Unemployment rates may significantly underestimate true unemployment if workers drop out of the labor force due to lack of employment opportunities: When people know there are no jobs available, they stop looking and are not counted as unemployed.

Table II-2 also shows the types of jobs held by the residents of the CDQ areas in 1989. What is most interesting about this table is the relatively low share of the resident population working in the industries and occupations associated with fishing. While almost fifteen percent of the employment in the Aleutian Pribilof and Central Bering Sea regions was in the fisheries industry, no other region had over five percent in this industry. Only the Central Bering Sea had a significant share of employment in manufacturing, which is almost entirely fish processing. While work in the transportation industry may also be fisheries-related, fishing industry employment was not significant in most of the CDQ group areas in 1990. In five of the groups Educational Services and Public Administration were the most important industries, indicating the importance of public sector/government jobs to these regions.

Income

Table II-3 describes the income characteristics of the CDQ group communities in 1989. All of these regions had median incomes which were lower than the state median income of $41,408 in 1989. The median income in the Central Bering Sea area and the Bristol Bay area was less than ten percent below the state level, but in the Yukon Delta area and the Aleutian Pribilof area the median income was only slightly greater than half the state level. The relatively high cost of living in rural Alaska suggests that in real terms, comparing the median incomes may actually underestimate the economic well being of residents in these regions.

In 1989 the poverty rate for the state was almost seven percent. The poverty rates in all the CDQ areas except the Central Bering Sea area were at least twice the state rate.

Social Conditions

In 1990, more than 25% of the people in the 56 CDQ communities lived below the poverty level. Most residents of western Alaska are Alaska Natives. Many older people speak English as a second language or not at all. Much of the housing available in the communities is substandard and utilities that most U.S. citizens take for granted such as water and phones are in short supply. In over half of the communities, five gallon buckets or outhouses remain the primary means of sewage disposal. In 1990, only thirteen communities (24%) had piped water and sewer available to at least half of the homes. The result is poor health conditions, high rates of infectious diseases, and low living standards.

Characteristics of the 56 CDQ Communities in 1989	
Total population	21,429
Average community population	390
Native Americans as % of the population	78%
Houses with no plumbing	37%
Houses with no phone	29%
Persons below poverty level	25%

Source: 1990 U.S. Census

Western Alaskan communities in general have many of the social ills associated with poverty and isolation. Many of these communities experience considerable problems with drug and alcohol abuse. Young people suffer from high rates of teen pregnancy and suicide. Prevalent throughout many communities is a feeling of despair and hopelessness.

Subsistence

Western Alaska residents derive a large part of their food from subsistence hunting, fishing, and gathering. Based on a subsample from the CDQ communities, the average subsistence harvest is 437 pounds per person. The majority of this harvest is fish. Per-capita subsistence harvests tend to be largest for residents of smaller communities which have fewer employment opportunities, very limited access to retail stores, and the highest percentage of Native inhabitants.

Subsistence harvests provide a large portion of the nutritional needs of western Alaska residents. At least as important is the cultural and emotional satisfaction that subsistence activities provide. It is not uncommon for western Alaskans to value subsistence harvest participation as a priority over wage labor. The result is often confusing to persons who do not understand this trade-off, as employees may take time off from wage employment to hunt and fish with their families whether or not such time is provided.

Salmon and Herring Fisheries

Salmon and herring fishing occurs in many parts of western Alaska. However, with the notable exception of the Bristol Bay salmon fishery, most local fisheries have a very low average catch and provide relatively low income to fishermen. Local participation in the larger regional fisheries has decreased over time and the necessity of a limited entry fishing permit--prohibitively expense in the more lucrative fisheries--has discouraged further entry. Over the past two decades about 25% of the most valuable salmon fishing permits have migrated out of the region.

In 1992 about 20% of the regional population owned fishing permits or were licensed crewmen while just over 2% of the people were employed in fish processing. Most fishermen and the vast majority of processors working in the region reside outside western Alaska. Many local fishermen have other jobs, often only part-time. Since most local residents have few assets, they lack the means of acquiring salmon fishing permits. Many locals rely on subsistence hunting and gathering. They must choose between a short intense working season, often at relatively low wages, or harvesting salmon for winter food.

Some western Alaska salmon fisheries have declined in recent years and some have not opened. In 1993 even subsistence salmon fishing was closed in some areas.

Table II-1: Selected 1990 U.S. Census Data for CDQ Communities: Population

	Aleutian Pribilof Island Community Development Association	Bristol Bay Economic Development Corporation	Central Bering Sea Fishermen's Association	Coastal Villages Fishing Cooperative	Norton Sound Economic Development Corporation	Yukon Delta Fisheries Development Association	Total, All CDQ Groups
Total Population	397	4719	763	5781	7621	1756	21037
Male	201	2525	489	3051	4104	879	11249
Female	196	2194	274	2730	3517	877	9788
Native	364	2641	531	5521	5617	1603	16277
Under 16 years	120	1463	176	2256	2659	704	7378
Ages 16-64	243	3061	562	3203	4568	971	12608
65 years and over	34	195	25	322	394	81	1051
Percentage of Population							
Male	51%	54%	64%	53%	54%	50%	53%
Female	49%	46%	36%	47%	46%	50%	47%
Native	92%	56%	70%	96%	74%	91%	77%
Under 16 years	30%	31%	23%	39%	35%	40%	35%
Ages 16-64	61%	65%	74%	55%	60%	55%	60%
65 years and over	9%	4%	3%	6%	5%	5%	5%

Source: 1990 U.S. Census. Data provided by Institute of Social and Economic Research.

Table II-2: Selected 1990 U.S. Census Data for CDQ Communities: Employment

	Aleutian Pribilof Island Community Development Association	Bristol Bay Economic Development Corporation	Central Bering Sea Fishermen's Association	Coastal Villages Fishing Cooperative	Norton Sound Economic Development Corporation	Yukon Delta Fisheries Development Association	Total, All CDQ Groups
Civilian labor force	133	1786	370	1612	3048	549	7498
As % of population 16-64	55%	58%	66%	50%	67%	57%	59%
Number of people employed	117	1620	330	1296	2540	378	6281
Number of people unemployed	16	166	40	316	508	171	1217
Unemployment rate	12%	9%	11%	20%	17%	31%	16%
Employment by Occupation							
Executive, Administrative, and managerial occupations	9%	16%	9%	8%	14%	10%	12%
Professional specialty occupations	10%	21%	11%	25%	20%	24%	20%
Technicians and related support occupations	0%	5%	4%	1%	5%	3%	4%
Sales Occupations	8%	6%	1%	8%	7%	10%	7%
Administrative support occupations including clerical	7%	16%	12%	16%	18%	19%	16%
Private household occupations	0%	0%	0%	1%	0%	0%	0%
Protective service occupations	2%	2%	6%	3%	2%	3%	2%
Service occupations, except protective and household	22%	11%	10%	18%	16%	16%	14%
Farming, forestry, and fishing occupations	13%	2%	10%	1%	1%	0%	1%
Precision production, craft, and repair occupations	7%	11%	17%	8%	9%	7%	9%
Machine operators, assemblers and inspectors	3%	1%	6%	2%	3%	1%	2%
Transportation and material moving occupations	14%	4%	5%	2%	1%	1%	2%
Handlers, equipment cleaners, helpers, and laborers	7%	4%	11%	7%	5%	5%	5%
Employment by Industry							
Agriculture, forestry and fisheries	15%	3%	13%	1%	1%	1%	2%
Mining	0%	0%	0%	0%	4%	0%	2%
Construction	14%	4%	10%	2%	3%	2%	3%
Manufacturing, nondurable goods	0%	2%	22%	2%	1%	0%	2%
Manufacturing, durable goods	0%	1%	0%	0%	0%	0%	0%
Transportation	10%	11%	4%	5%	8%	7%	8%
Communications and other public utilities	2%	5%	5%	5%	3%	6%	0% 4%
Wholesale trade	0%	1%	2%	2%	0%	3%	1%
Retail trade	15%	12%	4%	15%	16%	18%	14%
Finance, insurance and real estate	0%	2%	0%	0%	3%	1%	2%
Business and repair service	2%	3%	1%	2%	2%	1%	2%
Personal services	0%	2%	4%	2%	2%	1%	2%
Entertainment and recreation servi	0%	0%	1%	0%	2%	1%	1%
Health services	7%	10%	6%	4%	9%	5%	8%
Educational services	16%	22%	10%	41%	22%	38%	25%
Other professional and related services	0%	0%	0%	0%	0%	0%	0%
Public administration	7%	6%	8%	4%	7%	3%	5%
	7%	16%	12%	15%	16%	14%	15%

Source: 1990 U.S. Census. Data provided by Institute of Social and Economic Research.

Table II-3: Selected 1990 U.S. Census Data for CDQ Communities: Income

	Aleutian Pribilof Island Community Development Association	Bristol Bay Economic Development Corporation	Central Bering Sea Fishermen's Association	Coastal Villages Fishing Cooperative	Norton Sound Economic Development Corporation	Yukon Delta Fisheries Development Association	Total, All CDQ Groups
Total income	$4,583,225	$77,039,021	$11,532,745	$30,048,288	$84,455,823	$12,049,776	$219,708,878
Per capita income	$11,545	$16,325	$15,115	$5,198	$11,082	$6,862	$10,444
Total household income	$4,526,806	$72,849,438	$7,926,874	$29,831,135	$84,064,434	$11,868,549	$211,067,236
Number of households	135	1480	161	1361	2238	411	5786
Average income per household	$33,532	$49,223	$49,235	$21,919	$37,562	$28,877	$36,479
Household income distribution							
Less than $5,000	5.9%	6.4%	5.6%	15.1%	9.6%	5.1%	9.6%
$5,000 to $9,999	13.3%	7.8%	0.0%	16.7%	7.7%	12.2%	10.1%
$10,000 to $14,999	17.8%	8.2%	5.0%	14.1%	10.5%	14.6%	11.1%
$15,000 to $24,999	14.1%	11.9%	14.3%	21.0%	14.1%	25.3%	16.0%
$25,000 to $34,999	8.1%	11.8%	7.5%	15.0%	13.2%	12.9%	13.0%
$35,000 to $49,999	14.8%	15.3%	26.7%	9.8%	16.0%	14.8%	14.6%
$50,000 to $74,999	16.3%	20.1%	23.0%	6.0%	15.8%	10.2%	14.4%
$75,000 to $99,999	5.2%	10.6%	11.8%	1.5%	8.7%	1.7%	7.0%
$100,000 to $149,000	4.4%	6.5%	5.0%	0.7%	4.3%	3.2%	4.0%
$150,000 or more	0.0%	1.4%	1.2%	0.0%	0.0%	0.0%	0.4%
Median household income (dollars)	$23,750	$38,437	$39,922	$16,691	$31,145	$21,193	
Poverty Status in 1989							
Number of families	99	1063	132	1091	1641	327	4353
Families in poverty	14	148	5	418	305	79	969
Percent of families in poverty	14.1%	13.9%	3.8%	38.3%	18.6%	24.2%	22.3%

Source: 1990 U.S. Census. Data provided by Institute of Social and Economic Research.

III. THE COMMUNITY DEVELOPMENT QUOTA PROGRAM

People have harvested the resources of the Bering Sea since it was formed, sometime after the last ice age and after immigration to the Americas had begun. Until recently, this harvest occurred almost exclusively along the shores and on rivers. Native people ventured only a short distance from shore to fish and hunt marine mammals. During the late 1800s whalers plied the waters and some fishing vessels began making annual trips north shortly thereafter. It was not until the middle of this century that large boats, all foreign, began fishing far offshore.

With the passage of the Magnuson Act in 1976 the groundwork was laid for domestic participation in the fisheries. The Act prioritized access to the resource. Fully domestic harvesting and processing operations were given first priority, followed by joint ventures (American vessels fishing for foreign floating processors), and finally foreign vessels. It took a decade for the domestic fleet to develop to the point that it could play a significant part in the fishery.

Until the late 1970s, little of the harvest from the Bering Sea itself was by Americans. Instead, foreign fleets from Europe and Asia harvested the fish and processed it aboard large floating processors. In 1979, only 615 metric tons or .05% of the 1.2 million mt Bering Sea harvest was domestically caught and processed. By 1988, all of the harvest (2.0 million mt) was by domestic vessels and 34% of the processing was conducted domestically. Finally, beginning in 1991, all of the harvest from U.S. waters of the Bering Sea was also processed domestically. However, most of the fleet is from ports thousands of miles to the south.

The swift transition from foreign to domestic fisheries resulted in an overcapitalized fleet. By the early 1990's, fishing seasons that had previously lasted all year were measured in weeks or days. Vessels traveled north to the fishing grounds fully crewed and processing workers were typically imported from areas outside Alaska where wage rates are lower. The result was that most of the people living in the western Alaska communities on the shores of the Bering Sea had no viable means of participating in these fisheries.

CDQ Program Development

The concept of CDQ's for western Alaskan communities began to be discussed in the mid-1980s. An unsuccessful attempt was made to inject a generic CDQ concept into federal fishery regulations in 1989. Prior to that, beginning in 1988, the North Pacific Fishery Management Council, established by Congress to develop management plans, considered CDQ's for sablefish longline fisheries. As part of that plan, an idea of allocating part of the total allowable catch directly to communities was developed. This would allow the community members access to the

resource at their doorstep. It would also remove them from any race for fish and allow them to participate in the fishery at their own pace.

By 1989, it was apparent that there were too many vessels harvesting pollock. Therefore, responding to a need to better manage the fishery, the Council began investigations into allocating pollock harvests between vessels delivering to shorebased processors and those processing at-sea.

Finally, the Council decided that CDQ's could be a viable means of spurring economic development in nearby economically depressed coastal communities without greatly impacting the existing fishing industry. Pollock CDQ's were added to the pollock allocation process. Large shorebased and offshore trawl vessels, capable of fishing far from land, are needed to harvest pollock. None of the people along the Bering Sea coast owned such vessels and only a few communities had port facilities sufficient to handle them. Taken together with the generally poor economic conditions found throughout the region, the likelihood of local residents being able to participate in the pollock fishery without assistance seemed negligible. The opportunity to provide a diversified and stabilizing source of income to local residents and communities was appealing to many, including the State of Alaska. The debates and decisions necessary to reach a viable pollock allocation were intense. The CDQ program became an integral component of a compromise management strategy.

The Secretary of Commerce approved the pollock allocations in early 1992 but the final regulations implementing CDQ's were not published until late that year. The allocation to CDQ groups was set at 7.5% of the overall pollock total allowable catch for the Bering Sea and Aleutian Islands management areas. This would allow the groups the privilege of harvesting a specific tonnage of fish annually, at any time of their choosing.

The allocations were for two years, 1992 and 1993, with reallocations made for the 1994 and 1995 seasons. The regulations became effective on November 18, 1992 and were published in final form on November 3, 1992, at 50 CFR part 675. Corresponding State of Alaska emergency regulations were also published in late 1992.

One of the valuable attributes of CDQ's is the ability to fish for pollock when the open fisheries are closed allowing fishing to occur at virtually anytime during the year. Vessels used to harvest the CDQ allocations may continue to operate when they otherwise would be unable to earn income from the pollock fishery. It also allows the Alaska fishing industry the ability to provide pollock to the marketplace throughout the year which has a positive affect on marketshare especially in the domestic marketplace.

Implementation of the CDQ Program

The Secretary of Commerce delegated much of the implementation of the CDQ program to the Governor of Alaska using a frameworked application and review process. The State was charged with full review of CDQ proposals and making allocation recommendations to the

Secretary. The Secretary retained overall allocation decision authority, including the authority to modify an allocation at any time.

As part of the Community Development Quota program application process the Governor's designees as identified in AS §6 AAC 93.915 establish a schedule for the receipt of the applications, initial application evaluation, public hearings and final application review. Within a reasonable time before the beginning of the application period, the designees also publish a notice of the CDP application schedule in at least one newspaper of general circulation in Western Alaska and one newspaper of general circulation in the state. The state also mails a copy of the notice to eligible communities. The application period will be a minimum of 14 days except as provided for in AS §6 AAC 93.075 which states the governor can, at his discretion, relax or reduce the notice requirements if the governor determines that a shortened or less expensive method of public notice is reasonably designed to reach all interested persons.

The CDQ application is required to contain a description of the goals and objectives of the Community Development Plan (CDP), the allocation requested, the length of time necessary to achieve these goals as well as the number of individuals expected to be employed and a description of vocational and educational training programs the CDP will generate. The CDP should also include a description of the existing fishery related infrastructure and how the CDP would use or enhance existing harvesting or processing capabilities, support facilities and human resources. The CDP is also required to include a description of how new capital or equity will be generated for the applicants fishing or processing operations; a plan and schedule for transition from reliance on the CDQ to self-sufficiency in fisheries; and a description of the short and long-term benefits to the applicant from the allocation.

Upon receipt of the CDP applications the governor's designees perform an initial evaluation of the CDP to determine if it is complete and has the necessary information required under §6AAC 93.025. The designees, staff members of the Departments of Community and Regional Affairs, Fish and Game, and Commerce and Economic Development, schedule a public hearing in accordance with federal regulations. The governor's designees then take into consideration the CDP application and public testimony and select those applications that they believe best satisfy the objectives, requirements, and criteria of the CDQ program and recommend those applications to the governor, who in turn evaluates and makes the final recommendation to the Secretary of Commerce for approval.

The initial application process in 1992 occurred during an extremely short time frame. The ability of the eligible villages to organize into CDQ groups, develop a Community Development Plan and form industry partnerships is a testimony to the determination the people of western Alaska to gain the greatest possible benefit from the CDQ program.

During the last half of 1992, communities and fishermen's groups along the Bering Sea coast began to organize in response to the pending CDQ regulations. In order to qualify for a

CDQ allocation, an organization and its member communities had to meet several criteria. The major criteria for community qualification consisted of:

Location within 50 nautical miles of the Bering Sea
Native village as defined by the Alaska Native Land Claims Settlement Act
Residents conduct over 50% of their current subsistence and commercial fishing effort in the waters of the Bering Sea
No previously developed harvesting or processing capacity sufficient to support substantial groundfish fisheries participation

A total of 56 communities were eligible and all held meetings to select fishermen representatives. As the summer drew to a close, the communities coalesced into six different applicant organizations. The groupings were self-determined and were based primarily on geographical proximity and cultural boundaries.

Community Development Quota Groups	
Aleutian Pribilof Island Community Development Association (APICDA)	5 communities
Bristol Bay Economic Development Corporation (BBEDC)	13 communities
Central Bering Sea Fishermen's Association (CBSFA)	1 community
Coastal Villages Fishing Cooperative (CVFC)	17 communities
Norton Sound Economic Development Corporation (NSEDC)	15 communities
Yukon Delta Fisheries Development Association (YDFDA)	4 communities

List of CDQ Communities by Group

APICDA	Atka, False Pass, Nelson Lagoon, Nikolski, St. George
BBEDC	Aleknagik, Clark's Point, Dillingham, Egegik, Ekuk, Manokotak, Naknek, King Salmon/Savonoski, Pilot Point/Ugashik, Port Heiden, South Naknek, Togiak, Twin Hills
CBSFA	St. Paul
CVFC	Cherfornak, Chevak, Eek, Goodnews Bay, Hooper Bay, Kipnuk, Konigianak, Kwigillingok, Mekoryuk, Newtok, Nightmute, Platinum, Quinhagak, Scammon Bay, Tooksok Bay, Tuntutuliak, Tununak
NSEDC	Brevig Mission, Diomede/Inalik, Elim, Gambell, Golovin, Koyuk, Nome, Savoonga, Shaktoolik, St. Michael, Stebbins, Teller, Unalakleet, Wales, White Mountain
YDFDA	Alakanuk, Emmonak, Kotlik, Sheldon Point

Membership of each CDQ group is composed of a representative of each member community. An appropriate governing body from each community joining a CDQ group had to elect a representative from the community to the CDQ organization's Board of Directors. Three-quarters of the members of each Board were required to be either commercial or subsistence fishermen.

In order to qualify for a pollock allotment, each CDQ group had to prepare a comprehensive Community Development Plan (CDP) application for presentation to the Governor of Alaska and the Secretary of Commerce. The application had to describe the communities and their economies and lay out the group's specific goals and objectives. The plans had to request specific amounts of pollock, and to describe specifically how the pollock proceeds would be utilized, including describing specific fishery development projects that would be pursued along with measurable milestones. Finally, the plans had to demonstrate that the CDQ group itself would be able to continue as a viable business entity after the CDQ program had ended.

Application Requirements
The CDQ group's goals and objectives
Employment to be created
Existing fishing related infrastructure
Business plans
Business and loan relationships
Presentation of a budget
Sufficient management and technical experience

Industry Partners

A large part of the 1992/93 application process for CDQ groups involved locating and contracting with an industry partner and developing programs to utilize anticipated CDQ revenues. Each CDQ group found it necessary to contract with an established seafood company to make sure that the pollock would be harvested and processed in an economically efficient manner. The concept of partnerships with industry participants was perceived as an excellent vehicle for joint venture investments. It also would facilitate an important transfer of skills and expertise in the seafood industry to the CDQ groups. It was hoped that the industry partners would contribute greatly to the entry of CDQ communities as successful participants in the Bering Sea fishing industry.

When pollock CDQs were imminent, a number of major pollock harvesters and processors investigated partnerships with potential CDQ recipients. A request for proposals process ensued in which each CDQ group chose from a variety of offers. Each industry proposal contained a different mix of payments, training, employment opportunities, and assistance with other regional fishing business ventures. Existing pollock harvesters and processors were interested in the CDQ program because it gave them an opportunity to continue to operate their vessels at a time when they might otherwise be idle.

The industry partners were chosen by the CDQ groups based on the mix of which most closely fit the development goals of that group. Each of the six groups agreed to a specific price per metric ton for the use of CDQ pollock or a base price plus some form of profit sharing.

By the time the 1994/95 application process occurred, a steep decline in pollock prices had demonstrated the volatility of the pollock market. Several of the groups switched from a fixed fee to a base price and profit sharing. This was done both to provide a higher potential price to the CDQ groups and to protect the industry partners in the event of a continued pollock market collapse.

CDQ organizations and their industry partners (1992 - 1995):

Aleutian Pribilof Community Development Association	Trident Seafoods, Inc.
Bristol Bay Economic Development Corporation	Oceantrawl, Inc.
Central Bering Sea Fishermen's Association	American Seafoods Company, Inc.
Coastal Villages Fishing Cooperative	Golden Age Fisheries
Norton Sound Economic Development Corporation	Glacier Fish Company
Yukon Delta Fisheries Development Association	Golden Alaska Seafoods, Inc.

CDQ Allocations

The pollock allocations for 1992 and 1993 were made in late 1992. Different amounts were given to each group based on the number of communities they represented, their expressed needs, and the soundness of their plans.

Approved CDQ Allocations	1992/93	1994/95
APICDA	18%	18%
BBEDC	20%	20%
CBSFA	10%	8%
CVFC	27%	27%
NSEDC	20%	20%
YDFDA	5%	7%

The 1994 and 1995 allocation process began in early 1993 and the Secretary made final allocations late in the year. As indicated in the above chart, changes were made to the 1994 and 1995 allocations.

As stated earlier, the allocation decisions are based on the CDQ organization's Community Development Plan(CDP) and their ability to implement and fulfill their goals. The allocation process is of a competitive nature with each group preparing a CDP that would provide substantial gain to their communities. This was done to ensure the greatest benefit to the residents of the region.

CDQ Groups' Goals & Objectives

Each CDQ group proposed to use its funds to create more local development opportunities. To this end, all are using funds for training and education, jobs, and infrastructure development. Because of their different geographical locations, existing economic conditions, and other local employment opportunities, each group developed a different program philosophy. The result has been a blend of investing, training, and infrastructure development all aimed at developing and improving the regional fisheries and overall economies.

All but one of the groups declared itself a non-profit corporation. The one group which formed a for-profit company entered into a partnership in a factory-trawler. Most of the groups have since formed auxiliary for-profit corporations to participate in business projects and activities. These include YDFDA's small boat fleet, APICDA's Management Company, NSEDC's Norton Sound Fish Co., and CVFC's salmon processor. More for-profit ventures such as these are being developed as more development plans are implemented.