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PLANET

MONTHLY



Paul Watson
Activist or terrorist?
See page 3

—Acid Rain in the Northwest —

by *Laurent Notarianni*

Acid rain severely damages forests and lakes. Estimates made by the U.S. Office of Technology Assessment in 1984 show catastrophic effects: "More than 3,000 lakes and 23,000 miles of streams across the country are already acidified or have so little acid neutralizing ability left that more acid rain will inflict tremendous damage to aquatic life." Also, acid rain and other air pollutants are beginning to kill off the nation's forests, causing \$8 billion in damage.

Physicist Michael Oppenheimer of the Environmental Defense Fund said, "You have sulfur-emitting smoke stacks at one end of the chain and dead fish at the other."

Although the existence of acid rain has been known as a problem on the East Coast, the World Resources Institute found recently that acid rain is affecting some West Coast wilderness areas. Mountains affected include: the Cascades, the Colorado Rockies, and the Sierra Nevada in California. National parks affected include: Yosemite, Sequoia, North Cascades, Mt. Rainier and Rocky Mountain.

According to Greenpeace, "Lakes in the Washington Cascades already have acid levels comparable to those found where damage is occurring in the eastern states and Scandinavia." and "In Washington, Douglas Fir, western larch, ground and sub-alpine fir all display visible needle damage as a result of contact with sulfur dioxide at levels currently allowed by national air standards."

The last American budget does not propose any new investments in the struggle to eliminate acid rain. The \$287 million granted to research

this year is inadequate. The recommendation of a special Canadian-American committee to invest \$5 billion over 5 years to clean the air of acid rain in the two countries was rejected.

Acid rain is defined as rain whose acidity is lower than pH 5.6. Ph is the chemists' system for expressing the acidity of water solutions in terms of the concentration of hydrogen ions. On a scale that goes from extremely alkaline pH 14 to extremely acidic pH 0, the neutral point is pH 7.0. All values lower than pH 7.0 are acidic: all above pH 7.0 are alkaline or basic. The lower the pH the greater the acidity.

It is formed when industrial plants, power plants, and automobile exhaust emit sulfur dioxide, nitric oxides, and other pollutants. Prevailing winds carry the pollutants several hundreds of miles as they react chemically with oxygen and moisture in the atmosphere, forming sulfuric and nitric acid. The acids eventually precipitate as acid rain or fall as dry acidic particles.

Why is the Pacific NorthWest particularly vulnerable to the effects of acid rain? The soils in high western elevations cannot neutralize the acids like other soils can. Smaller amounts of acidic deposition can cause damage in the West than are needed to cause damage in the East. Also, mountain cloud chemistry and lack of alkaline dusts cause greater acid deposition.

Canada, where forests and water are the main source of energy, is very involved in the struggle against air pollution. The government has mandated to industry to cut emissions of sulfur dioxide by 50 percent within the decade.



Cover design and photographs by N.S. Nokkentved

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Planet folks: Amy Morrison, Editor; Denise Ackert, Ken Bennett, Judy Hockett, Amy Morrison, N.S. Nokkentved, Laurent Notarianni, Kim Washburn, Jim Wiggins, Writers; N.S. Nokkentved, Photographer and Student Adviser; Lynn Robbins, Faculty Adviser. The Monthly Planet staff would like to thank our contributors and our advertisers. The Monthly Planet is published bi-quarterly by the Associated Students Environmental Center at Western Washington University. We, the Planet staff recognize that environmental issues concern everyone on this planet. By keeping the focus of the Planet broad we hope to broaden our readership and appeal to a more diverse audience. Let us know what you like or would like to see in the Monthly Planet; reader participation is invited in all aspects of the publication.



Laura

Laura Bitzes

"A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise."

- Aldo Leopold

Paul Watson: Fighting to Save the Environment

by N.S. Nokkentved

Standing in an inflatable rubber dinghy face to face with the harpoon guns of Soviet whalers, Paul Watson and his fellow Greenpeace members brought the issue of whaling to the attention of the world in the early 70s.

Although he led many Greenpeace expeditions against the Soviet Whalers and Canadian fur-seal hunters, Watson split with Greenpeace in 1977 over his "aggressive non-violence" tactics. Watson defines "aggressive non-violence" as destroying implements of destruction or the tools used to kill while maintaining strict non-violence toward living things.

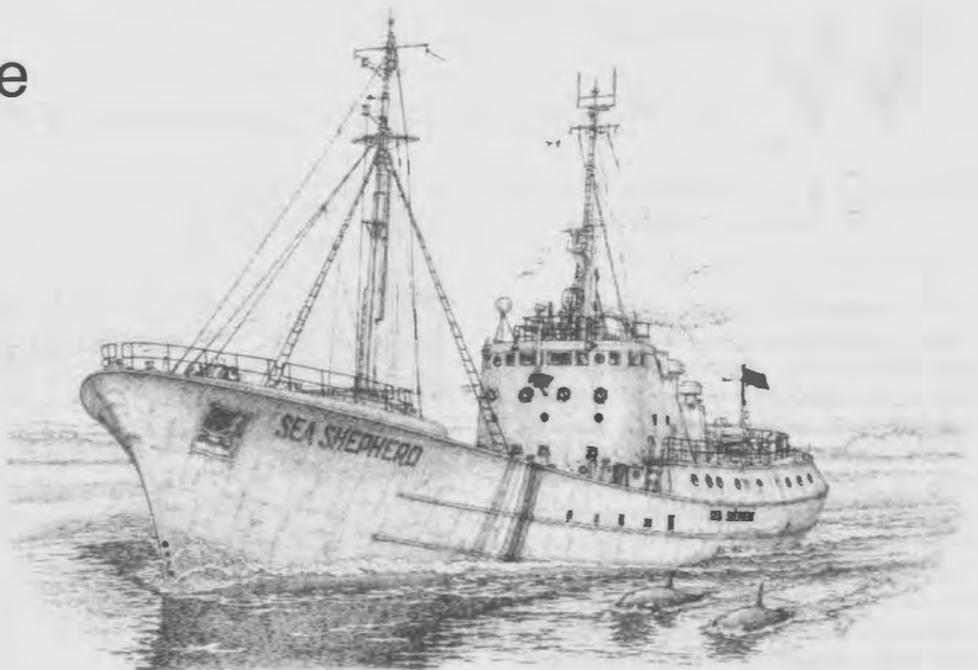
During an operation to stop Canada's harp seal hunt, Watson grabbed a club from the hands of one of the hunters and threw it in the sea. This action was contrary to the Greenpeace philosophy of strict non-violence.

Watson broke with the group to form the Sea Shepherd Conservation Society, a group that has grown to include 10,000 members. Watson heads the group which has no other leadership structure. He also serves as the skipper of the group's ship - the *Sea Shepherd* - a 200-foot converted North Sea trawler.

In a recent action, two members of the Sea Shepherds sabotaged Iceland's whaling industry. They broke into a whale-processing plant near Reykjavik, smashed equipment, destroyed refrigeration units and opened a freezer containing several tons of whale meat destined for sale to Japan.

Then, after making sure no one was on board, they scuttled two whaling ships in the harbor. Two other ships in the harbor were not sunk, Watson said, because people were aboard. Watson estimated the damages to the plant to be about \$1.8 million and the sinking of the ships about \$2.8 million.

But worse, Watson said, was the 2,000 tons of whale meat exposed to 50 degree temperatures for five days while the freezer was repaired. Iceland refroze the meat, however, and continued with the sale of the meat to Japan, Watson said. The Shepherds informed the Japanese embassy of the incident and the sale was cancelled, costing the Iceland whaling



industry another \$4 million.

His organization is careful not to harm other people. In 1979 the *Sea Shepherd* rammed the whaler *Sierra* off Portugal. The ship was able to limp into port for repairs. While in port, however, at a time when no one was aboard, a Shepherd demolition team blew the bottom out of the *Sierra*, and it sank within ten minutes. No one was injured in the incident.

A Canadian from the village of Passamaquoddy Bay, New Brunswick, where the predominant lifestyle includes hunting, fishing and trapping, Watson joined three Vancouver Quakers in starting the organization that would become Greenpeace. He stayed with the group until the split in 1977. Many former Greenpeace members now are active in the Sea Shepherds.

A *Los Angeles Weekly* article likened Watson and his group to the vigilantes of the Old West "enforcing the law in a lawless world."

Watson says his "vigilante" tactics are justified by the fact that he is trying to save the lives of whales, some species nearing extinction.

"(I) f you go and damage property in order to save life, as long as that is motivated out of good intent, it's justified. For instance, when we go to Iceland and sink whaling ships and destroy a whaling factory, that's not because we have any ill feelings toward the Icelandic people, it was because we wanted to save lives and that was a way of saving lives," Watson said recently at his home in Vancouver, B.C.

Iceland has been whaling in spite of

International Whaling Commission regulations, Watson said, claiming it kills whales only for scientific purposes. The International Whaling Commission imposed a moratorium on killing whales which took effect in 1986. That moratorium allows the killing of whales for scientific purposes only, and specifies the whale meat harvested must be for local consumption, not to be exported for profit.

Iceland used permits for scientific study as an excuse to continue commercial whaling, Watson said. In fact it had been denied an IWC permit to kill 200 whales for the purpose of determining the cause of the decline in whale populations, he said. The IWC has no method to enforce its moratorium or its permits.

Watson has no more respect for the law than the Icelandic whalers appear to have for the IWC. "The law is designed to protect vested interests. The only laws anyone should have any respect for are the natural laws - the laws of nature or the laws of God, or whatever...I have absolutely no respect for human law," he said.

But respect for the law or no, Watson and his "friends" tactics have aroused public awareness about environmental issues. He is quick to acknowledge that his main weapon is the media.

One of the most effective functions of Sea Shepherds actions is to bring public attention to issues by staging dramatic events that will bring media coverage.

The primary goal of the organization, Watson said, is to educate people about environmental issues.



Waldorf Schools:

A holistic, alternative approach to education

by Denise Ackert

A question often comes to mind for many environmentally conscientious people: how can today's children and future generations be educated in a way that will instill in them an appreciation for and stewardship toward the environment? Two themes repeatedly appear: first, children need an understanding of how they are connected to all things, and second, they must love themselves and all life. These two ideas are intimately woven into the Waldorf school curriculum, an alternative to the mainstream educational system.

This alternative method of education, through its gentle approach, is a system that strives to educate the whole person, reaching his heart and his will, as well as his mind. Developing a strong sense of intuition, balanced with well developed logical knowledge, frees the person to enter the world and make choices grounded in a conviction for the truth rather than blindly conforming to ineffective and inhumane political, social, and environmental practices.

'Whether the subject is math, science, history, or music, the presentation must live, speaking to the wholeness of the child.'

The Waldorf method was developed from Rudolph Steiner's work on Anthroposophy, "a way of knowledge which would lead the spiritual in the human being to the spiritual in the universe." He described it as a path of self-development which used clear thinking, acute observation, refinement of feeling and transformation of the will.

In 1919 Steiner opened his first school in Stuttgart, Germany for the children of workers at the Waldorf Astoria cigarette factory. Since then the number of Waldorf schools has grown to over 350 around the world. And the popularity of these schools continues to grow with the increasing realization of the value of this holistic approach to education. In Germany and Holland, parents now have the choice of



Music is an important part of education at Waldorf Schools.

sending their children to Waldorf schools or to public schools. The system has proven its worth there and entered the mainstream. In America, the schools are still considered "alternative" but continue to flourish. The 13 Waldorf schools in the Puget Sound area include those in Seattle, Whidbey Island, Orcas Island, and Bellingham. Kent Ratekin, teacher and founder of the Whatcom Hills Waldorf School in Bellingham, says of the schools "they are not just alternative schools, they are just good pedagogy." - They are the art of education.

Each school is unique. It comes into being through the needs of specific children and parents and the readiness of certain persons to become teachers. A Waldorf school begins with a kindergarten and ideally a grade is added each year thereafter. This does not always happen, however, since the growth of the school depends upon the needs and resources of each school. Adequate space must be found, and eventually persons to teach the Main Lesson and also foreign languages, music, painting, eurhythmy and handwork.

The kindergarten children experience an environment which allows them to exercise their fantasy by playing with simple, handmade toys, such as wooden

blocks, clay, and crayons, designed to stimulate the child's imagination rather than dominate it. Other learning comes about through imitating the surrounding world through performing meaningful tasks such as cooking, cleaning, and planting seeds.

The elementary grades are characterized by feeling. Through the imaginative picture form and artistic presentation the heart and soul of the child is reached. Whether the subject is math, science, history, or music, the presentation must live, speaking to the wholeness of the child's experience. The Waldorf method recognizes and addresses the basic need in children up to the age of fourteen for genuine authority, rooted in love and respect of the child for the teacher, and in respect for the child's inherent self by the teacher.

The need for independence in the high school years is as natural as the earlier need for authority. The class teacher is now replaced with subject teachers who bring in diversified knowledge and experience. The emphasis is directed toward reasoned insight, intellectual understanding, and a philosophic conception of the whole world.

What was learned in a more artistic way in the earlier years is now reviewed,

analyzed, and tested through the emerging power of logical understanding. The high school curriculum is designed to lead into direct contact with the practical life of our day and with study in all of the traditional subjects. Ideally grades and examinations are not given, but many compromises are made due to parental and cultural pressures. Those preparing to go on to college are given grades during high school and then are also coached for College Boards and Scholastic Aptitude Tests.

Anthroposophy: A way of knowledge which would lead the spiritual in the human being to the spiritual in the universe

The goal of this cumulative approach to learning is the development of "a thoroughly grounded, whole human being." College preparation under this system is not an unrelated year of cramming but a review of years of work. Waldorf graduates do well in colleges but the goals are more fundamental: a Waldorf education is for life.

The Bellingham school opened in the fall of 1986 with an early childhood program, kindergarten and first grade, with the goal of adding a grade each year until there are eight. It now has between 20-25 students ranging in age from 4-8 years old. The school, located at 920 24th St., will move to a larger space next year to incorporate the new students.

Since the teachers stay with the same class as the children progress through the grades, new teachers will become part of the school as they are needed. The value of students and teachers progressing together, Ratekin said "is like having a garden: planting seeds and nurturing the soil." The teacher is able to assist in the growth process.

If a teacher is with a child for just one year, then by the time a teacher has recognized and begun working with the child to develop his weaker areas, the year is over and the student moves on to a new instructor. The Waldorf method enables the teacher to develop a strong bond of trust with the child, facilitating the child's own exploration and development. In addition, it frees the teacher from repeating the same initial process year after year and opens a door for their own growth.

Our highest endeavor must be to develop free human beings who are able of themselves to impart purpose and direction to their lives.

Rudolph Steiner

Initially, most people asked by Steiner to be teachers had never taught school before. Their qualifications were an openness to life, experience and knowledge drawn from a vocation, love for children and interest in Anthroposophy. Since that time a number of Waldorf Teacher Training Institutes have come into being, and many of the teachers come to the schools after at least two years of study and student teaching. The two training institutes in the United States are located in Sacramento, California and in Spring Valley, New York.

The training itself includes a Foundation Year and a Teacher Training Program. The Foundation year provides students with a basic understanding of the anthroposophical world view. Classes are given in history, art, science, philosophy, social studies, and an in-depth study of Steiner's work. The daily and weekly schedules lead students through the same rhythmic process taught to the children in the schools. The process addresses the threefold nature of the human being: thinking, feeling, and willing.

This educational process enables students to "gain perspective and evaluate life experience with a view toward the future." The Foundation Year is a time for reflection and gathering forces so that students can take greater responsibility, in freedom, for their deeds and contributions in society.

The Teacher Training Program is designed specifically for those who have completed the Foundation year or its equivalent and includes courses in Waldorf teaching skills, curriculum studies, and child development. Practice teaching is an essential part of the training and is carried out in one of the Waldorf schools. This full-time program is designed to prepare the person to carry out the art of teaching in one of the Waldorf schools.

At a time when the holistic approach is proving its worth in other fields of knowledge, it seems natural to apply it to schooling. If humanity is to save itself from destruction, we must reawaken the creative side of ourselves - our connection with our spirit.



Imagination serves a vital function in play at Waldorf Schools.

by Jim Wiggins

The Puget Sound region, located on the Pacific Rim, formed by tectonic and glacial activity, houses an area of one of the world's most productive forests and inland waterways.

Westerly winds pick up moisture from the Pacific Ocean and deposit it in the form of rain and snow, producing over 10,000 rivers and streams. As a consequence of the abundance of precipitation, this marine basin acts as the end point of all silts and debris produced by urban, agricultural and industrial activities on the western side of the Cascade mountain chain.

In 1985 the Washington State Legislature established the Puget Sound Water Quality Authority (Authority) to protect and enhance water quality, fish and shellfish, and wetlands and wildlife habitat.

From seven major rivers flowing into the Puget Sound, 41.5 thousand cubic feet per second of fresh water flow into the Sound and over 6.5 billion pounds per year of sediment are deposited into this marine ecosystem. Within the 2000 miles of shoreline and approximately 2300 square miles of surface water, over 200 species of fish, 14 species of marine mammals, 400 common species of invertebrates and 500 common species of plants inhabit these waters.

To ensure the perpetuation of a viable estuarine community, two areas of this ecosystem are of vital importance: the microlayer and the estuarine wetlands. The phytoplankton, the major contributor of the food web, reside in this small layer. The microlayer is composed of organic compounds produced by the phytoplankton as well as many organic contaminants.

Estuarine wetlands include mudflats and kelpbeds, rocky and sandy shores acting as rookeries and juvenile habitat for most marine organisms. These two habitats are the location where most pollutants accumulate.

The estimated 1984 market value of the Puget Sound fisheries was \$73.9 million. All of the fish and shellfish used in this estimate inhabit either the micro layer or the wetlands sometime in their life cycles. As pollutants enter and circulate in these ecosystems the resident juvenile species are affected.

Pollution of this area and bottom sediments are cause for concern. Of the nine major river deltas forming wetlands, 72% have been lost to human encroachment. All are affected by industrial, agricultural and municipal effluent or runoff.

The major contaminants to these systems are a broad range of pesticides, polychlorinated biphenyls (PCB), Polycyclic aromatic hydrocarbons (PHA), heavy metals (i.e. mercury and lead) and biological pathogenic organisms. Many of these contaminants are proving to be carcinogenic.

Of the 50 potentially toxic compounds all may concentrate in the

micro-layer where eggs and larvae are exposed. In addition, bacteria which reside in this layer feed on the synthetic organic matter, consuming oxygen during their metabolic process. The consumption of oxygen by bacteria reduces oxygen availability which can cause the death of many natural inhabitants.

Accumulation of heavy metal, copper, lead, zinc, chromium, cadmium, arsenic and mercury from industrial processes, along with organotin from boat hull bottom paints are now present in the food web.

The processes of bioaccumulation and biomagnification concentrate heavy



Estuary in Distress

metals and pesticides which are slow to break down. Much of these contaminants originate from the 650 million gallons of effluent which enter the water from industrial and municipal sewage systems. These known single point sources of pollutants are correctable and under Authority mandate will be improved.

Three problem areas which exist and are difficult to pinpoint are termed Non Point Sources (NPS). The first and major source of marine contamination enters through ground water and stream contamination. Toxins originate from old land fills, failed septic systems, indiscriminate dumping and agriculture and dairy runoff.

The second problem area stems from an overload on sewage systems due to heavy rainfall. Pipes known as Combined Sewer Overflows (CSO) shunt excess raw sewage into the Puget Sound or its tributaries when incoming volume overflows its carrying capacity.

The third NPS originates from commercial and pleasure boaters. This pollution is in the form of raw sewage, bilge oils, flecks of poisonous boat hull paint and garbage thrown overboard.

Many documented cases show toxic pollutants originate, enter and effect the marine life of the Puget Sound. Examples of spills and marine degradation are as follows:

1. A coast guard database registers approximately 500 oil spills of varying sizes each year.

2. Runoff from the abandoned copper smelter in Tacoma, Asarco, is a primary source of arsenic, PCB's and other metals leaching in to nearby water.

3. With an estimated 3.5 % failure rate of septic systems, 16,000 are permitting contaminants to enter the marine water.

4. The National Oceanic and Atmospheric Administration (NOAA) has detected trace metal and organic chemical concentrations ten to 10,000 times greater in the micro layer than in the underlying water column.

5. During an average rainfall year two billion gallons of raw effluent enter the Puget Sound through failing storm water systems. Correcting just 12 of the most contaminated systems on shore soil sites may exceed \$65 million.

Toxic contamination entering the Puget Sound is showing its effect. Most substance contamination results in lesions, tumors, spine deformities and embryo mortality in some marine species.

Samples taken by NOAA from urban bay sites found certain contaminants, tissue abnormality, changes in species composition, high levels of PCB's in marine mammals and bottom fish, fin erosion, protruding lumps of skin, kidney and gill lesions and contaminated bottom sediments with high levels of pesticide and heavy metal concentrations.

Although no estimates have been made, the Puget Sound fishing industry is on a down swing. With fishing restrictions due to contaminated bottom fish, the destruction and pollution of juvenile salmon habitat and the closure of clamming beaches, the economic ramifications are being felt. Current restrictions on commercial shellfish harvesting have reduced annual profits by \$3 million.

What is being done to reduce the strain human inhabitants placed on the organism of the Puget Sound? The 1972 Clean Water Act (CWA) and the National Pollution Discharge Elimination System (NPDES) mandate total elimination of pollution discharges by 1985 and making all the nations' waters fishable and swimable by 1983. The state of Washington has mandated to the Authority to reduce and ultimately eliminate all pollutants entering the Puget Sound.

1987 Water Quality Management Plan

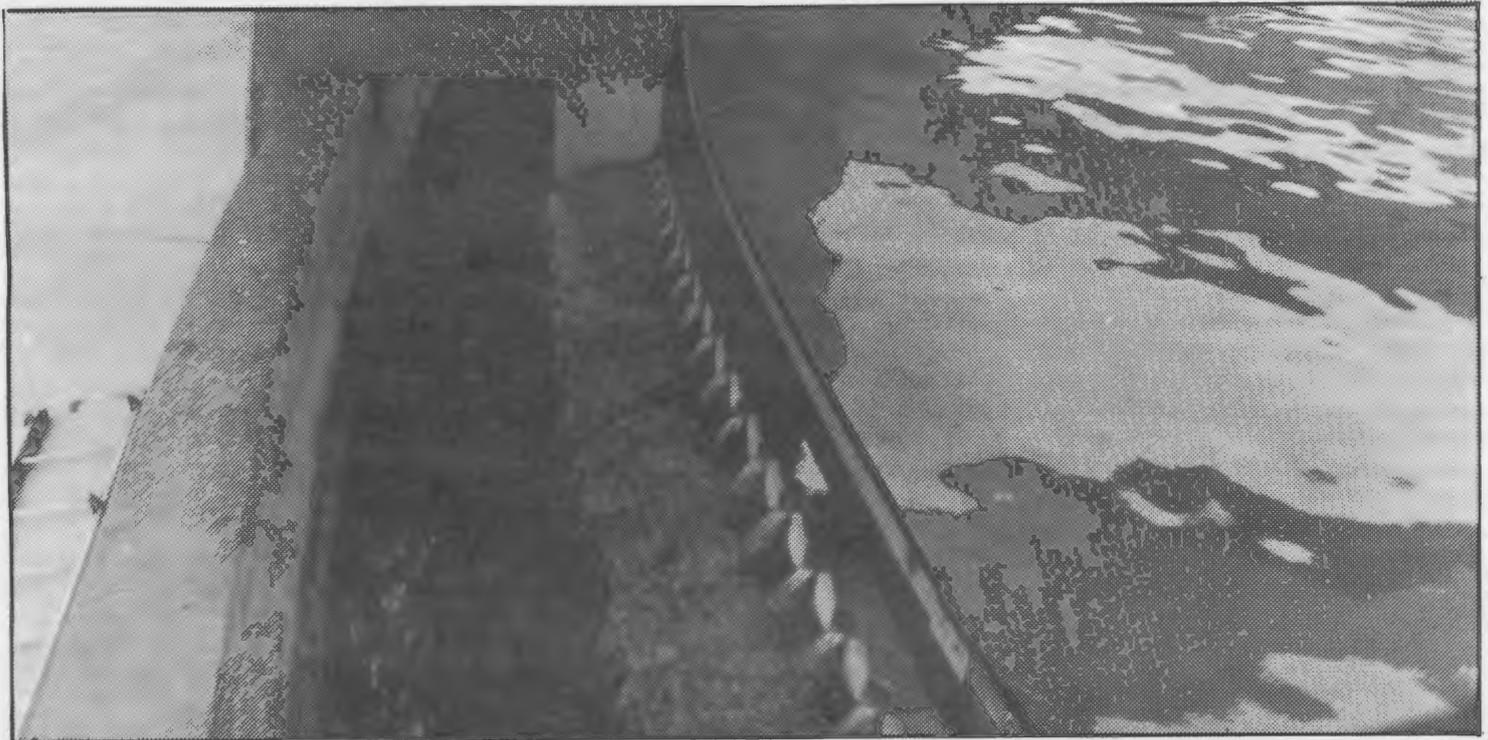
The responsibility of the Puget Sound Water Quality Authority is to develop, adopt and oversee a management plan. On December 10, 1986 the 1987 Water Quality Management Plan was completed and adopted for implementation.

In writing the Draft Plan, ideas, comments, and advice were solicited from federal, state and local agencies, industries, organizations, Indian tribes, state legislators, individuals and an advisory committee. During the two-year process to design the final Environmental Impact Statement for the Management Plan, 14 major points were concluded. These 14 points are a culmination of ideas and suggestions which the Authority feels may best bring about the necessary changes to reach their goal.

They are as follows:

1. **Nonpoint Source Pollution**- reduction of pollution which does not come from a pipe, i.e. septic systems, landfills, dairy waste, agricultural spraying, etc.
2. **Shellfish**- protection and rehabilitation of existing beds.
3. **Municipal and Industrial discharge**- increased enforcement of an applicable permit system to eliminate point source pollution.
4. **Stormwater and combined sewer overflows**- all urban areas shall have programs to plan and implement storm water control systems.
5. **Contaminated sediments and dredging**- gradual elimination of sediment introduction which cause adverse biological effects.
6. **Laboratory Support**- establishment of certified laboratories to monitor water quality and perform bioassays.
7. **Habitat and Wetlands**- preservation of existing wetlands and prevention of wetland degradation.
8. **Oil spill response planning**- coordination of existing cleanup and prevention programs.
9. **Monitoring**- environmental monitoring to assess the problems, trends and success of the program.
10. **Research**- identification of causes and solutions to the problems of the biological and physical systems of the Puget Sound.
11. **Household hazardous waste education**- alleviation of the toxic substances entering the Puget Sound, originating from homes.
12. **Education / public involvement**- education of the public to better understand their impact on the Puget Sound ecosystem.
13. **Legal and personnel support**.
14. **Costs and funding**- total estimated management costs from 1987 to 1992 are \$119 million. Actual costs for full implementation of the Authority's goals have not been estimated.

Secondary Sewage: Who needs it?



An average of 11 million gallons/day of drinking water flows through Post Point primary treatment plant settling tanks.

Bellingham will pay a larger share of the cost to construct a mandatory secondary sewage treatment plant than cities with waste water quality problems.

"Those who pollute the least are going to end up paying the most," said Jack Garner, director of Bellingham Public Works. He described the process as being grossly unfair.

Cities are slated to receive funds according to waste water quality. Those exhibiting water quality problems will receive priority in grant distribution. Bellingham's water quality is good compared to many areas and therefore received a low position of the waiting list for state and federal funding, Garner said.

The Federal Water Pollution Control Act of 1972 required the addition of secondary sewage treatment plants to all municipal city and industry locations. A 1977 decision resulted in the opportunity for coastal communities, which discharge wastes into saltwater, to obtain waivers.

Areas whose water quality met acceptable levels would be exempt if granted a waiver by the state. Bellingham and 38 other Washington cities requested waivers in 1985, but the state refused to grant any of them.

The quality of Bellingham's waste water may be due, in part, to the relative lack of heavy industry.

"Bellingham doesn't have any heavy

by Kim Washburn

industry other than Georgia-Pacific. Bellingham's waste water is not as much of a problem in terms of heavy metals and organic solvents," Richard Mayer of Huxley College of Environmental Studies said.

A \$350,000 study requested by the Bellingham City Council indicated waste water quality wouldn't change significantly with the addition of secondary treatment, Anne Rose, council president, said.

CH2M Hill, a research firm based in Bellevue, found the city's waste water is producing no ill effects on the organisms in Bellingham Bay.

The study showed no measurable decline of dissolved oxygen in the water. "Of course this applies to now, to today," Mayer said. "People could argue, 'What about in 20 years?' and have a good argument, but there are no signs indicating a future problem."

Water quality sampling, which has been conducted continuously over the past four years, has shown no degradation of water quality around Bellingham, Garner said.

The current discharge level is good, with a 40 percent removal rate of biological oxygen demand (BOD), Garner said. BOD is a water pollution indicator. It is a

measure of oxygen used by microorganisms in the biodegradation process.

Material is continually discharged through the system at rate of 11 million gallons per day, Garner said. The primary plant has an 18-million-gallon-a-day capacity. Because of this excess in capacity, expansion of the primary plant isn't foreseen, he said.

Secondary sewage treatment will increase the removal of waste from water to 90 percent, Mayer said. This may be necessary in legal terms to comply with state and federal laws, but it isn't necessary ecologically, he added.

Because Bellingham Bay is an estuary, it is subject to much tidal action and replacement of water. The tidal action dilutes waste dumped into the bay to the point that secondary treatment is not needed, Mayer said.

Between 1972 and 1986, available government funding for secondary sewage treatment projects totaled 90 percent; 75 percent federal and 15 percent state. Changes made last year resulted in a 40 percent cut in grants. Bellingham now can receive only a maximum of 50 percent government funding for implementation of a secondary sewage treatment plant, which is estimated to cost between \$36.5 million and \$50 million.

Clean Drinking Water

Managing the Lake Whatcom watershed

by Judy Hockett

Lake Whatcom provides drinking water for over 50,000 people in Whatcom County. It is the source of supply for two public water systems, the City of Bellingham and Whatcom County Water District 10, as well as for many private shoreline residents.

Peter Willing, General Manager of Water District 10, said that Lake Whatcom is unique as a water supply system. The use of the lake and its surrounding watershed is not controlled by the water suppliers but is part of the general community. Most other large municipal water suppliers in Washington maintain strict control over the watersheds draining their supply.

The city of Tacoma, for example, uses the Green River as its principal water supply source. The Green River watershed (above the city's diversion) encompasses a total of 231 square miles. The Tacoma system does not own all of the land in the watershed, but it does

exercise considerable control through agreements with major landowners. The entire area is restricted. All but one road is protected by a locked gate. Outdoor recreation is prohibited and the area is patrolled daily by city employees.

In contrast, the Lake Whatcom watershed is uncontrolled by the city or the county water districts. Forestry constitutes about 74% of the land use, and the largest landowners are Georgia-Pacific, the State of Washington, and Scott Paper Company.

Agricultural uses comprise about 17% of the watershed, residential housing makes up about 4% and the remaining 4% consists of commercial, industrial and public land.

Activities on the lake, or in its surrounding watershed can degrade the quality of the water. Boating can introduce petroleum hydrocarbons from engines and toxins from paint.

Faulty residential septic tanks contribute high concentrations of bacteria and viruses. Logging in the area can increase the lake's sedimentation rate through soil erosion and raise the levels of organic matter and nutrients in the water.

In an effort to manage more effectively and protect the watershed, sections of the 1970 Whatcom County Comprehensive Plan relating to Lake Whatcom were replaced in 1982 by the Lake Whatcom Subarea Comprehensive Plan.

The plan called for an in-depth study of the area to determine potential impacts on water quality, and for the appointment of an advisory committee to aid the Council in evaluation of the findings.

In December, 1982, the Whatcom County Council formed the Watershed Advisory Committee, composed of county citizens and agency representatives. The committee was to help in the design of an effective land use plan for the Lake Whatcom watershed area.

A Seattle engineering firm, the URS Corporation, was contracted to begin the watershed land use survey. Funding for the survey was provided through local contributions and a grant from the Washington State Department of Ecology. In 1985 the initial results were published as the Lake Whatcom Restoration Study.

Subsequent to the study by the URS

(continued next page)



Kathy Creahan, IWS researcher.

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Pete Willing surveys Lake Whatcom, source of the areas drinking water.

Corporation, Whatcom County contracted with the Institute of Watershed Studies (IWS) at Western Washington University to develop a watershed management plan that would preserve the current quality of the lake water as well as protect other beneficial uses.

In December, 1986 the IWS produced the Lake Whatcom Watershed Plan, a document that presented options for the successful management of the lake and its watershed. The recommendations in the plan include creating a coordinating mechanism for watershed management. At the present time there is no integrated management structure to administer the watershed efficiently.

Also recommended is the development of a program to monitor and maintain existing septic tanks while encouraging local residents to hook up to the sewer system. Septic tanks in a water supply watershed are a major concern because even when operating efficiently, they are sources of bacteria and added nutrients.

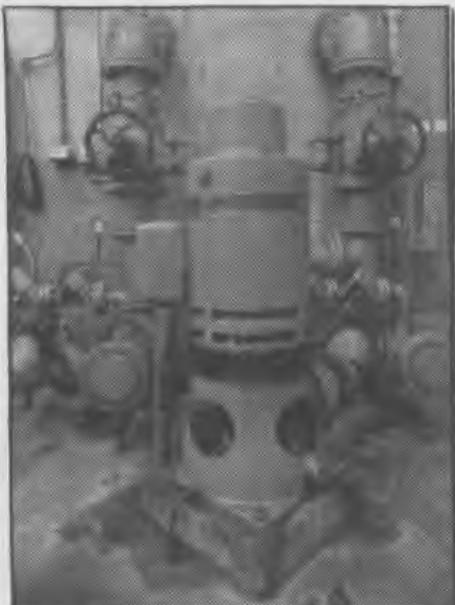
According to the IWS Watershed Plan, a broad educational program is urgently needed to increase public awareness of the problems affecting the lake and how private activities can have a negative impact on it.

The objectives of the educational plan are:

- 1) Educate the residents of the watershed about the impacts of various activities, such as chemical use and disposal, and disruption of land surfaces;
- 2) Educate recreational users, especially boaters, about their impact on the watershed. Users must be made aware that they are using a public drinking water supply;
- 3) Educate water consumers of Bellingham and the watershed about drinking water.

The Lake Whatcom Watershed Plan was produced to aid the county council in the development of a land use plan that will provide for the continued safe use of Lake Whatcom as a drinking water supply. The plan was submitted to the Watershed Advisory Committee at their monthly meeting on February 11th to be discussed and evaluated. Changes and recommendations will be made by the members and the Committee will then pass its findings on to the county council for further action.

If adopted by the council, the Watershed Management Plan could be a big step toward the implementation of a comprehensive land use plan that would provide for the protection of Lake Whatcom, the major source of drinking water for the county.



Treated drinking water is pumped into large storage tanks

Cooperative Effort and Food

The Food Web: A Different Kind of Coop

by Amy Morrison

Interweaving cooperative effort and bulk food buying is the basis of the Food Web, a local cooperative food buying club.

Originating as a neighborhood coop, the Food Web centers on a cooperative ideology; "members" are equal, everyone does a share of the work, and there is no hierarchical management structure.

Dave Toler, Food Web coordinator, explains, "The Food Web originated as a sort of neighborhood coop to procure food closer to its source so that the consumer can free him/herself from the corporate manufacturers of food," something which Toler believes will "lead to a more free society."

Unlike most food coops, the Food Web has no aspirations of a storefront or of making a profit. Its priorities are to maintain its financial stability and to provide more diverse food products grown or manufactured locally.

Food Web participants pay 30 -70% less for their food than consumers at grocery stores. Food is available at prices 5-10% above wholesale prices with no additional mark-up. "Most people participate mainly because of economic advantages," said Toler.

Dairy foods, grains, tofu, tempé, cheese, and other foods can be ordered from the Food Web, with the more households participating, the more the diversity in foods available.

Currently, about 10 households participate. Participation is open to anyone interested, and there is no fee payment. Interested households obtain a

Food Web order sheet and indicate what foods and in what quantity they would like. Shipments come about every three weeks. Most food is obtained from Seattle, but Toler would like to see more foods coming from the Bellingham area. "There needs to be a link established between local growers and local contractors."

Food Web participants share the necessary work load by helping with distribution and other small services such as slicing cheese, picking up grain from the Fairhaven Mill, among others.

"The biggest barrier against more participation is people adjusting to not running down to the store every day. Ordering your food in bulk and in advance requires a different frame of mind," explained Toler.

He explained that although local food buying clubs are not uncommon, most are different from Bellingham's Food Web. Many function purely because of an economic incentive and are run by one person. Cooperative effort is not particularly stressed. The Food Web, on the other hand, functions more for the cooperative purpose.

Toler believes that it is necessary for food coops to keep an ideological distinction between themselves and mainstream retail grocers. Coops are becoming too concerned with competitiveness and are focusing less on cooperativeness, he said.

The Food Web is working on obtaining the status necessary to accept food stamps in order to further accomodate those using them.

For further information contact Toler at 734-9879.



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Monkeywrenches vs. Pinstripes

Direct action confrontation vs. Corporate approaches

by N.S. Nokkentved

Treading the fine line between a worthy cause and lawlessness, two members of Paul Watson's group of "ecodefenders," the Sea Shepherd Conservation Society, recently sank two whaling ships in Iceland.

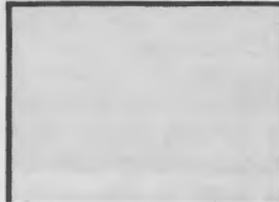
The Sea Shepherds is not the only group working to protect the environment. But Watson is not impressed with the recent accomplishments of most other large environmental groups. "I don't have much use for them, really, because I don't think they accomplish a hell of a lot. They've become self-perpetuating bureaucracies," he said.

It's true, many of the once mighty environmental groups such as the Sierra Club, Friends of the Earth and the National Audubon Society spend a lot of their energy on infighting. Their efforts and decisions are based more on sustaining the organizations than on protecting the environment.

Most of these groups no longer are headed by environmentalists but by \$70-80,000 a year corporate executives. David Brower, who led the Sierra Club for 17 of its most effective years, was asked in 1969 to resign from the organization over disagreements about his management style.

He then founded another environmentalist group, the Friends of the Earth, which also grew to bureaucratic proportions. Once again the reigns of power were taken from him by the management and board of directors of the FOE, people he had picked.

The Sierra Club, the Audubon Society, the National Wildlife Federation, and many other organizations have chosen to work within the system through litigation and lobbying. Environmental law, however, has been disappointing and ineffective in defending the environment.



The Environmental Impact Statements required by the National Environmental Policy Act (NEPA) have become just another administrative hurdle. Agencies have learned to compile an impact statement and then go ahead with the project as planned.

For instance, recently the Department of the Interior compiled an impact statement on the possible oil development in the Arctic National Wildlife Refuge on Alaska's north coast. The statement disclosed the negative effects on indigenous wildlife, and Interior biologists recommended against oil development, particularly in areas used by caribou as calving grounds. The Department of the Interior supports full leasing of the entire area, including the most sensitive areas.

The recent 60 percent cut in the Environmental Protection Agency's budget has left that agency little more than a public information office.

The deterioration of the effectiveness of these groups has left many former environmentalists disenchanted. Watson's attitude is similar to that of the activist group, Earth First! - large



environmental groups, by choosing to work within the system, have become part of the system and thus part of the problem.

Earth First!, whose tactics in "defending" the environment stretch the "aggressive non-violence" philosophy to its limits, practice direct action and confrontation potentially deadly to some of their opponents.

The group is known for its acts of sabotage (it calls them "ecotage") disabling heavy equipment such as log skidders and bulldozers. It also has been known to pound spikes into trees around the base in a way that catches and breaks the chains of loggers' saws.

The group most effective in environmental protection, however, also is the most unobtrusive. It is The Nature Conservancy. Through the past 30 years this conservative group quietly has bought up millions of acres of land containing threatened or endangered species of plants and animals.

The Conservancy philosophy is just about opposite to that of Watson and Earth First! Its method is strictly non-confrontation, preferring gentle persuasion and cash. The organization, centered in Arlington, Va., owns 2.61 million acres of fragile environments. A recent article in *Time* quoted William Blair of the Conservancy, "We are the largest private owner of land sanctuaries in the world."

The Nature Conservancy is able to outbid competitors by persuading owners to donate part of the land and selling the rest at a low price. The seller then earns a sizable reduction in taxes from the charitable deduction making the sale to the Conservancy more attractive.

The sad part is that human values are such that these groups exist at all.

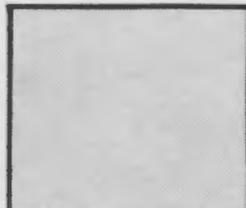
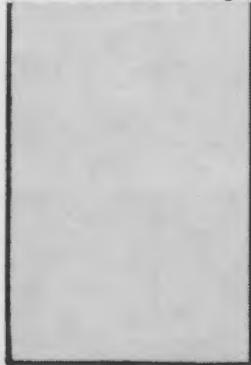
Frozen Assets: Oil Politics in the Arctic

by Ken Bennett

The debate between environmentalists and oil developers has begun over the proposal to lease the Arctic National Wildlife Refuge's 1002 land area for oil and gas development. Just three months old, the debate focuses on the U.S. Fish and Wildlife Service's recommendation to open the 1.55 million acre Arctic coastal plain for full-scale oil development. That recommendation has been endorsed by the U.S. Department of the Interior, and the oil development proposal has been sent to the Congress. It is expected that Congress will deliver its verdict on the Arctic refuge this year.

On Feb. 6 Canada entered into the debate when it declared that the Arctic refuge should be given a wilderness designation. Canada believes that the traditional migratory routes of the Porcupine caribou herd should be protected. The 180,000 member caribou herd migrates annually across the U.S.-Canadian border on the Arctic coastal plain. To protect the Porcupine caribou herd Canada wants to create a joint U.S.-Canadian wildlife preserve.

U.S. Interior Secretary Donald Hodel severely criticized the Canadian proposal on the grounds that he felt it was a tactical maneuver by the Canadians to increase their oil production and sell oil to the U.S. at higher prices. Hodel cited the extensive Canadian Arctic oil development as the basis for his criticism. In an interview with reporters that was printed February 12 in the *Seattle Post-Intelligencer*, Hodel also objected to a wilderness designation for the ANWR coastal plain because of "national interests". According to Hodel,

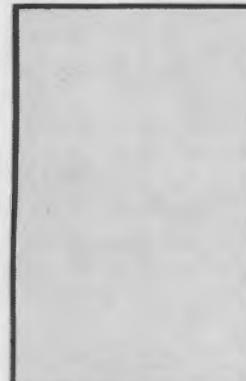


Americans will be "sitting in gas lines" in the near future if America does not develop the oil reserves on the refuge. He fears that the U.S. will be subject again to oil price increases by the Organization of Petroleum Exporting Countries (OPEC). Hodel believes it is within the national interest for the United States to bolster its oil production to restrain OPEC from raising its prices.

Canadian officials were outraged by Interior Secretary Hodel's comments. In a statement released by Jim Fulton, a member of Canada's House of Commons, he declared Hodel's remarks "disgusting". Fulton could not believe the U.S. Interior Secretary would "stoop so low" as to claim Canada wanted protection for the Porcupine caribou herd in order to sell oil.

The U.S. Interior Department should be admonished for its political rhetoric. I question the department's rationale for wanting to industrialize the ANWR coastal plain. The rationalization used by Interior Secretary Hodel that it is in the United States' national interest to tap the oil resources of the refuge is reminiscent of the argument used by the Nixon Administration in 1968 when oil companies discovered the oil-rich fields of Prudhoe Bay, Alaska. The Interior Department in 1968 argued that it would be in the national interest to strive for energy independence. The oil development of Prudhoe bay became the cornerstone of America's quest for energy independence.

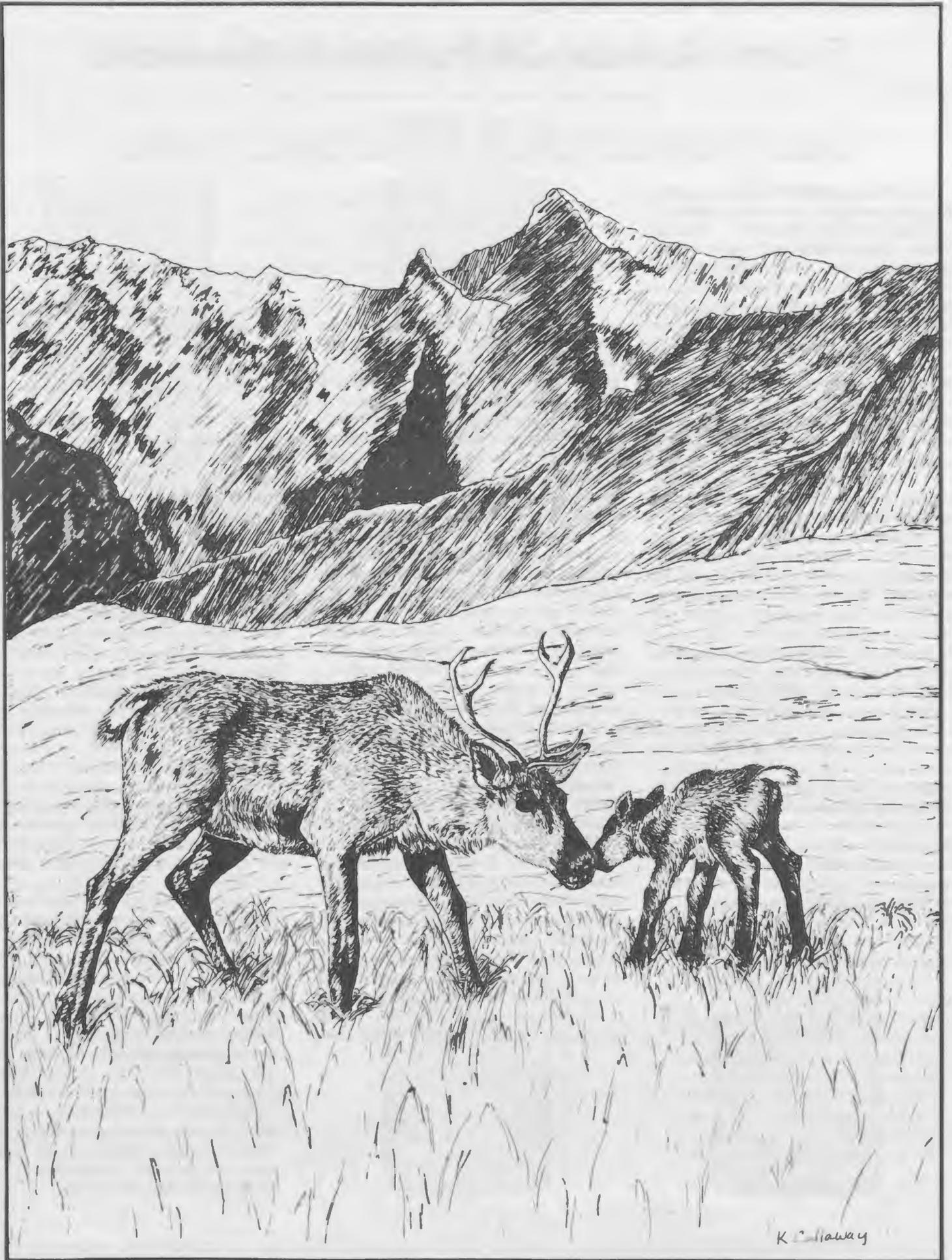
The colossal, oil-rich fields of Prudhoe bay failed, though, to restrict OPEC from



quadrupling oil prices after the 1973 Arab-Israeli War. It also failed in 1979 to stop OPEC from raising oil prices during the Iranian oil embargo against the U.S.. I seriously doubt the estimated recoverable 600 million to 9.2 billion barrels of oil contained in the ANWR 1002 area will impede OPEC's control over oil prices because OPEC has an estimated supply of 398 billion barrels. That supply is 57% of the world's known oil reserves and it will keep OPEC in control of oil prices for many years.

America now consumes an estimated 5.8 billion barrels of oil a year. If the Fish and Wildlife Service is correct in their estimate that the ANWR coastal plain contains 9.2 billion barrels of recoverable oil, the refuge will meet the oil demands for this country for only a year-and-a-half. To industrialize the wilderness refuge and disrupt the migratory routes of the Porcupine caribou herd hardly seems justifiable.

Representative Morris Udall of Arizona, chairman of the House Interior Committee, has introduced legislation that would classify the ANWR 1002 area as a wilderness habitat. The bill, labeled as House Resolution 39, currently has 35 co-sponsors. Representative Al Swift of Bellingham has indicated he usually doesn't concern himself with public land bills outside the state of Washington. Thus far, Swift is uncommitted to H.R. 39. I encourage the constituents of Swift's district to write to the Representative and inform him your views on H.R. 39. Swift's vote on this issue is important to the residents of Whatcom County.



K. Callaway

Kathy Callaway