DEPARTMENT

OF

ENVIRONMENTAL

CONSERVATION

3-4-81

Alaska State Legislature

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STATE CAPITOL
JUNEAU, ALASKA 99811
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Senate

Committee on Resources

March 4, 1981
1:30 p.m.

Beltz Room
211 - Capitol

MEMBERS PRESENT

Senator Fahrenkamp
Senator Fischer
Senator Mulcahy
Senator Sturgulewski
Senator Eliason
Senator Gilman

The Committee was briefed by the Department of Environmental Conservation. Ernie Mueller, Commissioner, Glenn Akins, Director Environmental Quality Management, Gary Hayden, Chief, Water Quality Management and Environmental Health, Joe Cladouhos, Chief Sanitarian, Tom Hanna, Chief, Air and Solid Waste Management, Deena Henkins, Director, Environmental Quality and Dr. Honsinger, State Veterinarian and head of the Office of Seafood and Animal Health.

Commissioner Mueller described how the Department is organized and how it generally operates.

Glenn Akins, stated that his Division defines environmental problems and then tailors programs to meet those problems. One of the Divisions goals is to delegate as much authority as possible to local governments.

Gary Hayden, stated that the responsibility of his Division is establishing water quality standards that fit Alaska's special conditions, and assuring that the public has a safe water supply. He said they are in the process of revising wastewater regulations and have been conducting extensive meetings with the public on the subject.

Tom Hanna, stated that his division is responsible for air quality, hazardous waste, solid waste and litter. He said that air quality is a major health problem in Anchorage and Fairbanks. They are working with the local communities to

provide techinical assistance.

Joe Cladouhos, stated that his division is responsible for protecting public health and sanitation. The division has 15 sanitarians that perform inspections.

Deena Henkins, stated that the district and regional offices provide technical assistance, conduct inspections and enforce the Department's regulations.

Dr. Honsinger stated that his Division's 5 inspectors are responsible for conducting meat, poultry and seafood inpections and assuring animal health. There 325 inspection units, 101 floater processing vessels and 190 shore based processing plants in the state.

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Committee on Resources

TO: SENATE RESOURCES COMMITTEE

FROM: SENATE RESOURCES COMMITTEE STAFF

DATE: MARCH 2, 1981

RE: DEPARTMENT OF ENVIRONMENTAL CONSERVATION - BRIEFING MARCH 4, 1981

Attached please find the following background information for the briefing by the Department of Environmental Conservation:

1. Department of Environmental Conservation - a brief description of the Department.

2. Department of Environmental Conservation - Issue Papers.

3. Public Opinion on Alaska's Environment - Results of a survey by the Alaska Department of Environmental Conservation Summer 1980.

4. Dutch Harbor - Unalaska Water Quality Survey - November 1980.

Attachments

DIVISION OF ENVIRONMENTAL QUALITY MANAGEMENT

Director
Glenn Akins
7056 R26

Chief, Water Quality Mgmt.
Gary Hayden
7150 R22

Drinking Water Program
- Reporting system to assure safety of public water supplies
- Statewide drinking water regulations
- Investigation of disease outbreaks
- Federal grants administration
- Training and technical assistance for Regional staff

Oil Spill Program
- Regional Response Team coordination for oil spills
- Spill cleanup and contingency plans
- Local community spill response

Water Pollution Control
- Statewide Water Quality Standards
- Wastewater Disposal Regulations
- Permits for large industrial facilities
- Technical Assistance on outfalls, diffusers and mixing zones
- Secondary treatment requirements and waivers
- Best management practices (e.g. Forest Practices, Placer Mining)
- Water quality problem assessment and information system
- Federal grants administration

Environmental Sanitation
- Statewide Sanitation Regulations
- Response to disease outbreaks
- Technical assistance to business/ industry
- Training of field staff

Chief, Mgmt. & Technical Assist.
Richard Marcum
7077 R22

Permit and Project Coordination
- Single contact for industry on all environmental permits
- Major project review (EIS and funding for projects and issues of statewide significance)
- Representation on Interagency Policy Committees and Task Forces

Technical Assistance
- Development of guidelines to assure consistency of regulation statewide (wetlands, navigable waters, hydroelectric projects)
- Guidelines for community watershed protection
- Development of local coastal management projects
- Biological monitoring for large facilities

Management Assistance
- Alternative methods of regulation
- Coordination of statewide environmental research program
- Effectiveness of performance measures and objectives

Chief, Air & Solid Waste Mgt. Section
Thomas Hanna
7040 R22

- Statewide Air Quality Plan and regulations
- Air permits for large facilities
- Solid waste regulations
- Statewide solid waste inventory, plan and regulations
- Statewide hazardous waste program and inventory
- Litter control and recycling program
- Technical assistance to Anchorage and Fairbanks (control of carbon monoxide from vehicles)
- Air/solid waste federal grant & fiscal administration
- Enforcement & technical training for regional staff

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

The Alaska Department of Environmental Conservation was created by the Seventh Alaska Legislature in 1971 and given primary responsibility to protect the quality of the state's natural resources and the health and quality of life of its people.

Specifically, the department carries out the policy set down in Title 46 of the Alaska Statutes: "It is the policy of the state to conserve, improve and protect its natural resources and environment and control water, land, and air pollution, in order to enhance the health, safety and welfare of the people of the state and their overall economic and social well-being."

The department has broad regulatory authority in the areas of water quality control, water supply, air quality control, land and subsurface pollution prevention, pesticides, radiation protection, public health, and meat, dairy and seafood inspection. In addition, the department manages several water, sewer and solid waste facility construction programs in urban and rural areas.

In October of 1979 the department reorganized. Reorganization took place at top levels to streamline the former management. Public contact and regional office operations were strengthened by grouping together the programs which provide the most direct services to the public. Also, specific programs such as air, land, and water quality were combined into one unit, making the inter-relationships between these aspects more apparent in any given environmental problem.

In July of 1980 the department's public health, meat, dairy and seafood inspection programs were transferred from two other departments to Environmental Conservation. The move was made primarily to reduce the number of duplicative visits made to businesses and establishments by combining inspection functions under the same organization.

Office of the Commissioner

The commissioner's office is responsible for overall management of the department, setting departmental goals and evaluating performance of lower units of management. Information disseminated to the general public is produced or coordinated through the commissioner's office, and assistance is given to other departmental units in providing opportunities for public involvement in the various programs.

Here regulations receive their final departmental approval, and emergency orders are issued from this point to halt or alleviate situations which pose a great danger to health of people or the environment.

The administrative services section is responsible to the commissioner and performs accounting, fiscal management and budgeting, payroll, personnel and supply functions for the department.

The office of seafood and animal inspection has duties which include inspection and/or permit issuance for seafood processing plants, importation of animals, milk processors, milk products, frozen dessert manufacturers, sale of biological products, and meat production from slaughter to retail.

Division of Environmental Quality Operations

The division's basic responsibility is to carry out the department's laws, regulations, objectives, policies and programs through direct contact with the public, municipalities, businesses, industries and other government agencies.

The division is composed of the following units: the director's office, three regional offices and their satellite district offices, the facility construction and operation section, the laboratory and monitoring section and the permit coordination section.

The director's office is responsible for the budgetary and policy functions of the division and the pesticides and data mangement personnel.

The pesticides program consists of training and certification of applicators, permit issuance, enforcement and research.

In the data management office, data on public water supplies and water quality are stored and maintained on a computer system which is linked to other such systems nationwide.

The three regional offices, headquartered in Juneau, Anchorage and Fairbanks with district offices in Sitka, Ketchikan, Kodiak, Soldotna, Wasilla, Valdez, Tok and Nome, provide technical assistance to persons and groups to comply with the state's laws and regulations. If voluntary compliance is not achieved, various administrative, civil and criminal remedies are available.

Typical activities include response to complaints, plan review for public water supplies and subdivision sewage disposal, periodic quality testing of public water supplies, inspection of on-lot water and sewage disposal facilities for bank loan approval, permit review, gas pipeline surveillance, certification that activities requiring federal permits meet state water quality standards, assistance in community clean up campaigns, and inspection of food services, public institutions and tourist accommodations. Within the Fairbanks, Soldotna, and Kodiak offices is staff of the seafood and animal inspection services.

The facility construction and operation section administers state and federal grant programs to assist incorporated municipalities with the construction of water supply and sewerage facilities. The village safe water group supplies state funds to smaller villages and second class cities for construction and operation of facilities with potable water, sewage disposal, laundries, showers/saunas. Special grants from the legislature are awarded to villages for construction of water and sewerage facilities. A training and certification program for water and sewerage system operators is also run by this section.

The major functions of the laboratory and monitoring section are to develop a comprehensive strategy to monitor environmental problems, analyze samples from regional office enforcement efforts, measure ambient air quality, and design and conduct sampling programs to obtain baseline water quality data.

The permit coordination section oversees the processing of permits and certifications so that the rather complicated review procedure is handled efficiently and quickly. A Directory of Permits is also revised and distributed, and permit information centers in Juneau, Anchorage and Fairbanks are managed by this group. The responsibility falls here for the design and operation of a master permit application process and for coordinating administrative appeals and enforcement actions.

Division of Environmental Quality Management

The two basic responsibilities of the Division of Environmental Quality Management are:

1. providing specialized, professional advice to industry, local governments, other agencies and the department's regional offices, and

2. maintaining current standards, plans, and other management tools for the air, solid waste, drinking water, water pollution control, oil pollution and environmental sanitation programs.

The division is comprised of four sections: water quality management, air and solid waste management, management and technical assistance, and environmental sanitation.

Drinking water, water pollution control, and oil pollution programs are the responsibility of the water quality management section. In addition to planning and overseeing these programs statewide, the section develops and revises water-related regulations and standards. It also coordinates water quality planning between agencies and is responsible for preparing Alaska's contingency plan for spills of oil and hazardous substances.

Major responsibilities of the air and solid waste management section include managing the air quality, solid waste, and pesticides programs for the department. There are two units in this section. The air quality control program unit produces and updates the state's air quality control plan, policies and procedures for compliance with air standards, and air quality regulations. This unit also reviews and issues permits for air quality. The solid waste and pesticides management unit assists industry and local communities to correct disposal practices which endanger public health, develops Alaska's solid waste management plan, keeps solid waste and pesticide regulations current, ensures that pesticides are used safely, and promotes recycling and litter reduction.

The management and technical assistance section provides assistance to industry, local government, and other agencies to ensure that development in Alaska is environmentally sound. It also develops legislation, serves as the department's coordinator for development of policies, evaluates the department's effectiveness, represents the department on various interagency task forces, and provides technical assistance to ADEC's regional offices on permits and project review.

The overall management, planning and coordination of the statewide environmental health program is handled by the environmental sanitation section. Responsibilities include plan review, regulation development and revision, prevention and control of environmentally related communicable disease, food service and food processing sanitation, environmental health education, water and sewage systems in public facilities, sanitation conditions at public accommodations and facilities, and federal regulations and programs. This section advises and coordinates with district offices and public and private agencies.

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PUBLIC OPINION ON ALASKA'S ENVIRONMENT

Results of a survey by the
Alaska Department of Environmental Conservation
Summer 1980

Prepared by the
Information Office
Department of Environmental Conservation

"THIS IS WHAT WE THINK"

SUMMARY OF RESPONSES TO STATEWIDE PUBLIC OPINION QUESTIONNAIRE SUMMER 1980

This summer the Department of Environmental Conservation (DEC) sent out a questionnaire to determine what Alaskans view as the greatest environmental problems in their communities. A copy of the questionnaire is attached. Results came back from 292 people all over the State. Results were tabulated by four regions: Anchorage (101 respondents), Fairbanks (29), Southeast Alaska (66), and rural Alaska excluding Southeast (96). The last category may be a bit of a misnomer since it includes all areas except the three listed above and therefore includes the Kenai Peninsula, the Mat-Su Borough, Valdez, and other communities.

This was not a random survey. The questionnaires were sent to people on DEC's mailing list, which includes public officials, business and industry representatives, chambers of commerce, and others who have stated an interest in environmental matters. Those on the list are by no means necessarily supporters of the Department's actions. Most are listed because they wish to keep informed about the agency's actions. The results are given in percentages; these do not always total 100, due to unanswered questions and duplicate answers to some questions. No attempt has been made to determine the statistical significance of the figures--the results of the questionnaires are to be used by Department and EPA personnel primarily to incorporate into the State/EPA Agreement and to determine any trends, directions, or useful information.

Most Critical Environmental Problem

Litter came in first place in the State as the most critical environmental problem, with land use planning, air quality, solid waste, and oil spills close contenders. Here is a regional breakdown of the responses:

	Anchorage	Fairbanks	Southeast	Rural
1	Litter	Air Quality	Land use	Litter
2	Land use	Land use	Litter	Land use
3	Air quality	Litter	Solid waste	Solid waste
4	Stream pollution	Solid waste	Drinking water	Stream pollution
5	Solid waste	Stream pollution	Stream pollution	Drinking water
6	Drinking water	Drinking water	Oil spills	Oil spills
7	Oil spills	Hazardous waste	Air quality	Air quality
8	Hazardous waste	Oil spills	Hazardous waste	Hazardous waste

Water Pollution

Of those who felt water pollution was a problem, sewage was listed as a reason by 15% (19% in rural Alaska), garbage and refuse by 10%, stormwater by 7% (20% in Anchorage), and industrial waste by 3 1/2%. Other sources suggested were autos, construction siltation, nature, mining effluent, seasonal pumping into rivers, oil spills, and land development.

Air Quality

In Anchorage 51% and in Fairbanks 66% of those responding said they are concerned that air quality in their community may be unhealthy due to pollution. In rural Alaska and Southeast, only 14% expressed this concern. Causes of air pollution were listed as, in Anchorage, autos by 57% and dust by 40%; in Fairbanks, autos by 76% in Southeast, dust by 35%, industry 20%, none by 18%, and sources such as wood stoves, sawmills, and winds by 18%; and in rural Alaska, dust by 35% and none by 27%. Other sources listed included garbage, dumps, generators, inversions, aircraft, and diesel trucks.

A solution to air pollution listed by 33% was to pave roads. Car pooling scored high in Anchorage and Fairbanks with 51% of the respondents. Vehicle inspection and maintenance was seen as a good solution by 30% of the Anchorage people and 17% of those from Fairbanks. Regulation of industry was emphasized only among those questionnaires returned from Southeast. Other suggested solutions were: cold weather studies, revegetation, street flushing, trains, nuclear power, education, free enterprise, oiling of roads, stop open burning of trash, conversion to electricity, lower speed limit, and less government. It appears that the people responding from Anchorage and Fairbanks, where the greatest air pollution problems are, have a fairly high recognition of that fact and a fairly good understanding of where the problem comes from.

Sixty-one percent of the 292 said they would be willing to change their lifestyle if they knew motor vehicles were making their community's air unhealthy.

Solid Waste Disposal

The current method of solid waste disposal was found to be inadequate in 47% of the responses. Of these, 66% used a city or community landfill. Southeast Alaskans expressed the most dissatisfaction with 57% of the responses indicating inadequate solid waste disposal means.

Hazardous Wastes

Twenty-five percent of the respondents indicated a concern that areas of their community contain hazardous wastes, with the highest concern expressed by 40% from Fairbanks. Fifty-seven percent said that disposal of hazardous waste in isolated areas would not eliminate danger. Fifty-nine percent felt that an approved disposal site for hazardous wastes should be designated in Alaska if the need arises. The fairly large percentage responding with concern about hazardous wastes is probably at least a reflection of the lack of information about the existence of these substances in Alaska.

Litter

Litter in their community is a problem to 78% of those who responded, and 76% said they participate in local cleanup activities. Fifty-nine percent support the new litter law, and a notable 25% said they are not sure whether or not they do. The low percentage of supporters of Alaska's new litter law is understandable since the comprehensive anti-litter and recycling program is just beginning activities, and only time will show what it produces. A little over half of those that can recycle actually do: inconvenience and the newness of opportunities probably accounts for much of this. It remains to be seen whether a statewide program to encourage recycling will increase this usage.

Oil Pollution

Oil pollution is seen as a threat to wildlife, the land, jobs, lifestyles or other community resources by 53% of those who replied, with the highest being 64% in Southeast. The responses to the question "does the technology exist to clean up oil spills well enough?" were fairly split, with 44% saying it does exist.

Statewide, 32% of the responses indicated the attention given oil spills by State government is good (48% in Fairbanks, 19% in rural Alaska, 36% in Southeast and 28% in Anchorage). Sixteen percent said the State gives too much attention, 25% said the State pays too little attention, and 12% said they didn't know (19% in rural Alaska).

By comparison, 19% rated the federal government's attention to oil spills as good (scoring most poorly in rural Alaska), 24% said "too much," 36% said "not enough," and 13% said they didn't know.

Those who said the State pays too little attention to oil spills or who just didn't know if the State pays enough attention will be a good base figure to ultimately judge the perceived success of the new State oil spill program just now being implemented.

Overall Responsiveness

The questionnaire asked the readers to rate DEC and EPA's responsiveness to concerns expressed to them. The replies were: for DEC - 35% good, 8% bad, and 25% don't know; for EPA - 17% good, 15% bad, and 43% don't know. Some reasons given for poor responsiveness on the part of DEC were: "not doing enough, not enough staff and travel, lack of enforcement, goes by the books, no action taken, pass the buck, not effective, they just lock up land, indifferent to rural communities." Reasons given for EPA's poor responsiveness were: "lack common sense, little flexibility, bureaucracy, no local office, inadequate, no cooperation between DEC and EPA, don't like feds, too much power to check, not rational, overloaded."

Environmental Quality

The quality of Alaska's environment has decreased, according to 55% of those answering. Reasons listed included more people, more litter, industrial wastes, citizen apathy, greed, noise, dust, stream pollution, poor planning, oil development, reduced wilderness, federal control, government intervention, and too many parks. Numbers of people and poor attitudes accounted for many of the responses.

Would the private sector continue improving or maintaining the quality of Alaska's environment if government funds were reduced? Not according to 54% of the people; although 36% believe that private industry is capable of controlling its pollution without government regulations.

Public Participation

A question was asked concerning which of three choices is most necessary for effective public participation in environmental decisions. Those choices are: (1) increased responsiveness by government to take into account what is heard through public participation - 53%; (2) information and facts about the environment and environmental programs - 38%; and (3) increased opportunity to participate in decisions about environmental problems - 16%. The total exceed 100% because some checked more than one item. The responses to this question are worth noting, particularly since most of the respondents have attended public hearings. Information and facts about environmental problems are needed before anyone, including a member of the general public, can make an intelligent decision and then those who do bother to participate in the making of decisions must in some way feel they have contributed to those decisions. The decisions cannot always be made the way each person would like, but studies have documented decreased frustration and increased acceptance of decisions where the participants felt they were heard and understood why the decisions were made. The primary issue seems to be the quality of opportunities to participate. Those responding characterized the opportunities given by DEC to participate in decisions as: enough - 35%, too many - 7%, and too few - 41%. For EPA the same question turned up 23% for enough, 13% for too many, and 46% for too few.

"SO WHAT ARE YOU DOING ABOUT IT"

SUMMARY OF DEC ACTIVITIES RELATING TO ISSUES IN THE 1980 OPINION QUESTIONNAIRE

In addition to the multiple-choice questions appearing in the survey, open-ended questions were asked which invited comment on what more the department should be doing; that is, which problems need more (or less) attention. This summary was prepared to show major issues raised by the questionnaire results and how these issues are or will be addressed by the Department's programs.

Enforcement

Many comments dealt with enforcement, including the need for more enforcement staff. This concern has been addressed in part through the transfer of 16 environmental sanitarians, several meat, dairy, and seafood sanitarians and inspectors, the creation of several new positions in the regional offices for the oil spill program, and three new positions in the regional offices for the anti-litter and resource recovery program. Combination of the environmental sanitation program and meat, dairy and seafood inspections will streamline and extend DEC's enforcement capabilities. The Department now has three new field offices in Tok, Nome, and Kodiak, making both enforcement and technical assistance easier in areas formerly remote for our staff. Current plans are for transferring a position to Unalaska/Dutch Harbor for better coverage of our responsibilities to the Chain. One suggestion was made for more experienced personnel - and the Department this year is considerably upgrading and increasing staff training. The Department also will soon add a training officer to the staff.

Mining

Comments were made both to make less and more of an effort to enforce laws regulating mining activities. The Department has recently developed a program for working with Alaskan placer miners to protect water quality in the State. The program consists of technical advice to miners through a demonstration project to test settling pond techniques and transfer of information to miners about successful ways to maintain water quality. Also, the three State agencies with regulatory authority over placer mining activities have signed an agreement spelling out enforcement priorities and authorizing the use of a single, one-page application for permits from all three agencies, as well as the Department of Revenue. In addition, the Department greatly increased the number of visits to mining operations this summer, providing suggestions on maintaining water quality and creating awareness of the Department's intent to monitor for violations.

Public Information

A large number of comments recommended increased public information and education efforts. The Department sees this as a very important part of achieving its goals, as well as a necessary part of tracking environmental problems and issues in Alaska. The Department will conduct extensive

public participation activities (including workshops and radio and television programs) to initiate the statewide litter and resource recovery program and to gather public recommendations on petrochemical development in the State.

DEC's public information office will provide more public information through all media this year than in the past, and two new school curriculum units on safe drinking water and air quality in Alaska will be introduced into Alaskan schools. DEC's newsletter, Alaska Environment, will increase in circulation from 5,000 to 6,000 people.

Regulations

Many comments were directed at regulations. Reducing regulations was a common recommendation. At this time there are not efforts underway to eliminate or simplify specific regulations, and to streamline existing programs. General permits and permits by regulation will eliminate the need for many individual applications.

Both DEC and EPA will develop a general permit for certain types of activities (such as placer mining and seafood processing), meaning that one permit will be written for a type of operation rather than one for each operator or discharger. This will save much paperwork while providing uniform performance standards for all who run certain types of operations.

Soon, permits will no longer be necessary for about 250 operations currently requiring air quality permits. These operations will be kept in compliance with State regulations by good operating and maintenance procedures and continued surveillance. Also, Alaska's solid waste regulations are being revised to eliminate the need for solid waste permits for certain types of facilities.

All of these forms of regulatory reform place more emphasis on self-regulation among businesses and other operations.

Solid Waste

Several comments were made about the need for assistance in solving Alaska's solid waste problem--landfills, junked cars, recycling, and litter. There will be two new programs addressing the problems. The 1980 Alaska Legislature passed legislation for a bond initiative, which would provide $33 million to communities for sanitation services which can include solid waste facilities. And the Legislature also created a comprehensive anti-litter and recycling program for Alaska to tackle litter problems and encourage recycling. The program will include grants to local governments and organizations, stiffer fines and penalties for littering, a large public information and education program, youth litter patrols, and a network of well-maintained litter barrels. The use of prosecuted litterers to pick up litter was suggested in one of the responses and is already part of the penalties listed for littering.

Increased State Role

More State control of Alaska's environment was mentioned in the survey responses as desirable. The State/EPA Agreement reflects this in several federal programs that the State of Alaska will administer during the coming year. Several parts of the federal air quality program will be administered by DEC as will most of the federal wastewater facility construction grants program. DEC has taken an inventory of solid wastes in Alaska and is considering taking over the federal hazardous waste program. DEC, with a program newly-strengthened by State legislation enacted in the 1980 session, will take a lead role in oil spill prevention and cleanup. DEC already has authority to administer the federal safe drinking water program in Alaska, and is proceeding on a multi-year schedule to assume the National Pollutant Discharge Elimination System, a federal program for permitting industrial wastewater discharges.

Alaska Natives

More attention to Alaska Natives was a comment received on what more DEC should be doing. While the Department makes its efforts where pollution problems are rather than where certain people are, it is true that DEC's main efforts are in larger cities. Rural areas with smaller populations often have fewer problems, but are also more expensive and difficult to reach due to the usual restraints of travel budgets and small staff. In the past, our Village Safe Water program has funded construction of water and wastewater facilities in some 20 communities in rural Alaska. Money will be available in 20 more villages for sanitation services, including for the first time solid waste services. Solid waste problems in rural areas have been difficult to solve without local revenue sources, and poor solid waste disposal practices may be a much greater health threat than questionable drinking water and sewage disposal. Two years ago a contractor for DEC reported that the Department must pay more attention to oil spills in rural areas, and this year, with new authority, more staff, and a $1 million dollar a year cleanup fund, DEC will respond to oil spills in more rural areas, such as the recent problem in Kotzebue.

Regional staff have begun to focus on inquiries and complaints received from many rural communities in water and sewage systems provided by the federal Public Health Service or in areas where none is provided. Efforts are underway to increase technical assistance for management of village facilities. With the slight increase in staff in the Department's Village Safe Water program and regional offices, greater response can be provided to the multitute of rural environmental problems.

Land Use Planning

Better zoning and land use planning was mentioned a few times as something the State should do more of. Land use planning and zoning is primarily a local responsibility, at least in incorporated communities whose governments have assumed that authority. Actual land uses are decided, however, in a highly fragmented series of processes involving local governments, State and federal agencies, private developers, financial institutions, home buyers, speculators and planners. Air quality is

often a function of where pollution sources are sited: power generating plants, industries, roads, shopping centers, etc. Development on land above or around a drinking water source can result in contamination of that water for drinking. DEC participates with all other State agencies in the Alaska Coastal Management Program, under which decisions by agencies must be reviewed for consistency with local and State coastal standards. The Department also reviews subdivisions for adequacy of water and wastewater disposal systems for residential development. Land use planning is probably at the heart of many of the problems DEC deals with.

Wetlands

DEC is increasing its involvement in wetlands protection. One response to the questionnaires indicated that DEC needs a much stronger stand on wetlands. Activities planned for the next few years in wetlands protection are: (1) identification and classification of wetlands; and (2) local planning to determine development needs consistent with State and federal laws.

Energy

Several people suggested that DEC encourage technology that conserves energy. Through its regulatory programs, the Department can significantly affect energy use at the local level. In the solid waste program, the Department is attempting to find appropriate local or regional solutions to solid waste problems emphasizing material and energy recovery. Additional funding is available to communities incorporating recycling in their solid waste disposal facilities. In building sanitary facilities in remote villages, the Department is encouraging villages to use a renewable energy resource. And the Department is supporting exemptions from federal secondary sewage treatment requirements in towns where such treatment is not necessary and creates excessive cost burdens through energy requirements.

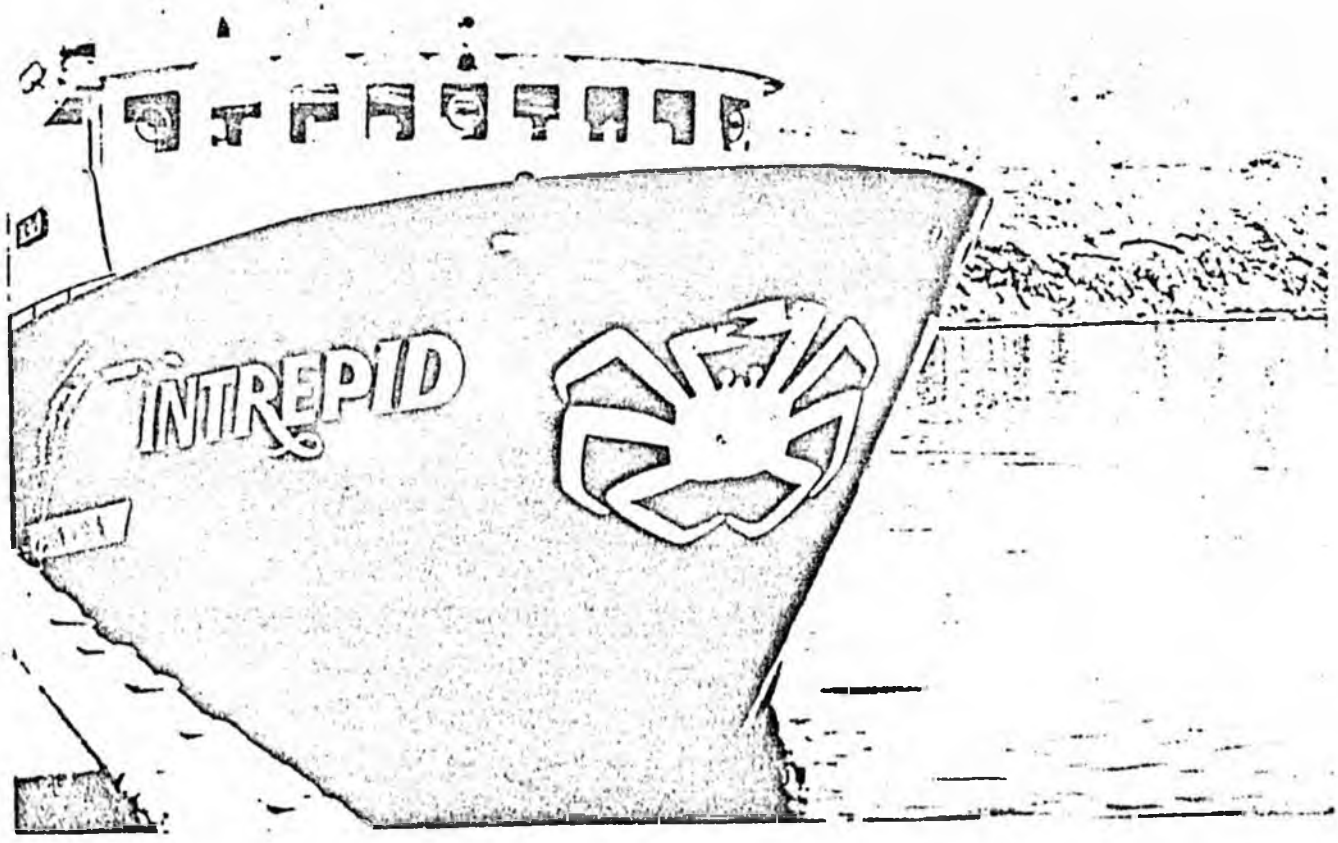
The Department is also active on a number of interagency planning task forces including those addressing OCS activities, coal, geothermal resources, the Susitna dams, and rural energy. The Department strongly advocates energy efficiency and development of renewable resources and makes use of opportunities such as project review, feasibility studies, and proposed legislation to promote energy conservation.

(4)

DUTCH HARBOR - UNALASKA WATER QUALITY SURVEY

NOVEMBER, 1980

. A WORKING PAPER



ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL QUALITY OPERATIONS
ENVIRONMENTAL QUALITY MONITORING AND LABORATORY OPERATIONS

A working paper presents results of investigations which may be limited or incomplete. Therefore, conclusions expressed or implied are tentative. Mention of trade names or commercial products does not constitute endorsement or recommendation by the State of Alaska.

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PURPOSE

During the early 1970's, the seafood processors operating in Dutch Harbor - Unalaska were advised by State and Federal agencies to take steps to abate local marine water degradation. The problem was created by years of indiscriminate disposal and accumulation of processing wastes in the marine environment. In response to this mandate, the discharge outfalls were relocated from the enclosed bays to areas of increased water circulation. Also, the outfall pipes were shortened to mixing zones more strongly influenced by wind and tides. By 1978, improvements in water quality were found, at least seasonally. By the spring of 1980, changes in the mode of waste disposal were completed.

The purpose of this survey was to determine the quality of water in the enclosed bays from which waste disposal outfalls were removed and to assess water quality in those areas now subject to waste disposal. However, due to poor weather and time limitations, it was not possible to determine water quality in current zones of waste disposal. This portion will be deferred until the next study in this area.

During the planning stages of this study an outbreak of gastro-intestinal illness in Dutch Harbor - Unalaska prompted ADEC to conduct a comprehensive investigation of drinking water and marine water for evidence of mammal induced bacterial and protozoan contamination. This marine water quality survey was intended to compliment the drinking water survey as much as possible.

Finally, this study is part of this Department's on going monitoring program to ensure the quality of waters throughout Alaska.

INTRODUCTION

The islands of Amaknak and Unalaska are located in the central Aleutian Islands about 880 miles southwest of Anchorage (Figure 1). The waters of Iliuliuk Bay, Iliukiuk Harbor, Dutch Harbor and Captains Bay on the Bering Sea side of Unalaska Island, are interconnected and provide the only deep water port in the central Aleutians (Figure 2). These waters exchange with the southern portion of Unalaska Bay.

Dutch Harbor, on Amaknak Island, was an important Naval base during World War II. The town of Unalaska, on Unalaska Island, is now encompassed by the abandoned military ruins of Fort Mears. At present, the economies of both communities are dependent upon the crab processing industry, an activity that requires unpolluted marine water for processing and propogation of shellfish species.

Of interest oceanographically in the study area is the existence of sills at the northern ends of Captains Bay and Iliuliuk Bay. A sill is the terminal moraine of a glacier that is left behind when a glacier recedes Sills produce shallow areas in fjords which tend to restrict deep water exchange with neighboring water. This condition increases the residence time of water in the fjord and often makes the system more subject to pollution.

The waters of the study area are clearly marine rather than estuarine. Salinities found in the stations sampled ranged from 31 0/00 (parts per thousand) to 33 0/00. Only a small quantity of freshwater run-off

occurs in the area. This situation is actually advantageous for the purpose of maintaining a homogenous water column.

Large amounts of freshwater run-off can create density stratification. Fresh water will flow onto the surface of marine waters with little mixing for some distance. The large difference in specific gravity between fresh and saline water causes the stratification. In these situations, the body of water can act as two separate water masses with little or no exchange between them. When this happens, the presence of organic matter in either the fresh or salt water portion may deplete the dissolved oxygen of that portion regardless of the oxygen content of the other.

Thus, a strongly stratified body of water has a greater tendency of exhibiting low dissolved oxygen levels than one weakly stratified or well mixed. However, in the case of Dutch Harbor - Unalaska, the water is only weakly stratified.

The Dutch Harbor area has a cold maritime climate with temperature ranging from 40°F to 60°F in summer to 27°F to 37°F in winter.[1] Annual precipitation is 58 inches including 81 inches of snow. Most of the precipitation falls between September and March. The least precipitation occurs in July, 1.9 inches, and the most, 7.9 inches, in October. Frequent winds blow from the southeast at an average speed of 9.6 knots, and extreme winds can blow from the east at 70 knots. Inclement weather is common and characterized by low cloud cover. High winds and low clouds often interfere with airline transportation.

In 1980, the extreme low tide for the area was minus 1.1 foot in June and July and the high tide was in December at 4.7 feet.[2]

NATURE OF THE LOCAL SEAFOOD INDUSTRY

The first crab processing plant began operating in the early 1960's. Prior to this, there had been a salmon and herring processing industry. After a sharp downturn in 1970, the crab industry has shown a resurgence and processors are diversifying into salmon and bottomfish. Currently, there are nine major seafood processors in the Dutch Harbor - Unalaska area (Figure 2).

In 1979, 136.8 million pounds of commercial fish worth 92.7 million dollars were landed at Dutch Harbor - Unalaska.[3] This was the highest dollar value for any U.S. port in 1979. Presently, two species of king crab, two species of tanner crab and shrimp are processed. Crab and salmon seasons occur such that a processor utilizing finfish and shellfish may operate year-round.

The quantity of waste resulting from processing crab is variable ranging from zero if the product is frozen whole, to 80 - 85 percent of live weight if shelled. Waste from shrimp ranges from 80 to 85 percent of live weight when shelled. The current practice to treat waste is to grind prior to discharge. Minimum annual seafood solid waste production is reported to be between 13 and 14 million pounds.[4] If allowed to

accumulate on the seafloor, this vast amount of waste has the potential to reduce benthic habitat and alter established biotic community structures ie., animal and plant species diversity and abundance.

PREVIOUS STUDIES

In June of 1968, personnel from the University of Alaska, Institute of Water Resources, conducted a brief water quality survey in the Dutch Harbor-Unalaska area.[5] The objective of this study was to determine the fate of processing wastes on water chemistry by the measurement of nutrient concentrations and dissolved oxygen. The study found both increased nutrient levels and low dissolved oxygen and concluded that this resulted from bacterial degradation of accumulated seafood wastes.

In October of 1975 and October of 1976, the Alaska Department of Environmental Conservation in conjunction with the U.S. Environmental Protection Agency conducted water quality surveys.[6] The objectives of these studies were to determine 1) water circulation, 2) effects of shellfish waste on water quality, 3) extent of seafood waste sludge deposits 4) check compliance of processors with NPDES permit requirements. The objectives were fulfilled: degradation of water quality was still apparent.

In the early fall of 1977, the University of Alaska, Institute of Marine Science carried out a water quality survey for the Association of Pacific Fisheries.[7] The objectives of this study were to assess water quality and determine suitability of a location between Hog and Amaknak Island for an outfall by measuring current speed and direction.

This study found oxygen and nutrient levels in Unalaska Bay to be typical of Bering Sea waters in the fall with no elevated nutrient concentrations or dissolved oxygen levels. Bottom waters in Dutch Harbor and Iliuliuk Harbor were found to be anoxic, that is, without oxygen. The report also concluded that the northern portion of Hog Island - Amaknak Island channel would be a suitable location for an outfall as would be the northeast side of Amaknak Island.

A Brown and Caldwell study in March 1978, further investigated areas suitable for outfalls, evaluated various diffuser systems and investigated the nature of crab waste.[8]

The investigation concluded that the northeast side of Amaknak Island would be a suitable location for an outfall, recommended fine grinding and a multi-port diffuser system and suggested an experimental shallow water outfall. All sampling stations had at least 9.9 mg/l of dissolved oxygen to the ocean bottom in contrast to anoxic conditions found the previous fall. This suggested that water mixing caused by winter storms may relieve anoxic conditions seasonally.

The Environmental Protection Agency in October 1979, hired Industrial Underwater Services, Inc., to conduct an outfall survey.[9] The objective of this study was to photographically document the outfall piles, measure their extent and depth and accurately fix their location. Some violations of EPA's criteria of a maximum of 3 inches depth of wastes 30 meters from the outfall were noted.

The consulting firm of Brown and Caldwell (March 1980), was contracted by the Pacific Seafood Processors Association to (1) determine the extent of present outfalls, (2) inspect shoreline for appropriate discharge sites with better mixing characteristics and (3) to compare and contrast the dispersal characteristics of a shallow water waste discharge with a deep water waste discharge (minus 42 feet MLLW or greater).[10] It was determined that the shallow (less than minus 42 feet MLLW) outfalls were somewhat better for the purposes of dispersal than deep water outfalls. This is possible because the near shore zone is an area of high energy and mixing.

In June of 1980, the National Marine Fisheries Service conducted a survey of waste outfalls and evaluated habitat destruction, biota recolonization and benthic population density and diversity. They concluded that the vast amount of waste being discharged did indeed cause severe local habitat destruction, altered community populatior structures and hindered recolonization in these areas.

To summarize the findings of the previous studies, poor water quality documented by the University of Alaska in 1968, was followed by movement of the discharge outfalls to areas of better mixing and increased water circulation and mixing. Poor water quality in the area of the former outfall locations was apparent until the Spring of 1978. At this time it is not clear if acceptable water quality is now the norm or a seasonal effect of mixing brought on by winter storms. Outfall waste piles were photographically documented and measured in depth and breadth. Benthic habitat destruction was documented by the 1980 NMFS study.

METHODS AND MATERIALS

Six sampling stations were selected for water quality measurement. Locations are as shown on Figure 2. Samples were taken at depths of 0,1,5, and 10 meters. Water samples at depth were taken by means of a messenger tripped Van Dorn type water sampler. Temperature, salinity and dissolved oxygen were measured by instrument. This was accomplished by means of a cable and probe lowered from the sampling vessel to the appropriate depth. The sampling vessel was a 21 foot fiberglass hull runabout with cabin and twin 70 HP outboard engines contracted from Dutch Harbor Transit, Inc.

Color, turbidity and total nonfilterable residue analysis were performed on samples sent to the Douglas Laboratory Facility of ADEC. Residual free chlorine analysis was done immediately on board ship with a LaMotte-Palin DPD chlorine test kit. Analysis for pH was also done immediately aboard ship with a pH meter. Fecal coliform and surface BOD samples were sent to Chemical and Geological Laboratories of Alaska at Anchorage for analysis. Prepared bottles and appropriate shipping containers were taken. Instruments and techniques are described on Table 1.

RESULTS AND DISCUSSION

The Dutch Harbor - Unalaska Island waters exhibited typical wintertime conditions of low temperature, 4°C to 5°C, high salinity 31.0 0/00 to 33.5 0/0, and high dissolved oxygen content, 8.6 mg/l to 13.4 mg/l. Oxygen saturation at 4°C and 31 0/00 salinity is 10.7 mg/l.

Much of the water examined was found to be supersaturated with respect to oxygen. (See Table 2). The less protected waters of stations CB-2, IB-1 and IB-2 contain more dissolved oxygen than the more protected stations of DH-1, DH-2 and IH-1. This is probably due to the differences in wind stress with the less protected stations receiving the most wind mixing, greater aeration and hence, higher dissolved oxygen.

The waters examined were very clear with a color content of 5 PCU (Platinum Cobalt Units). Total nonfilterable residue was low (53 mg/l or less). Turbidity was also low with no samples greater than 0.8 NTU (Nephelometric Turbidity Units).

Results of the BOD analysis of surface waters show the water to contain only small amounts of oxidizable organic matter. It should be reiterated that these samples were taken from the former outfall areas and not near any active discharge outfall. Three stations gave positive results for fecal coliform but levels found were well under the limits set by the Alaska Water Quality Standards."

The small variability in the parameters within a station is indicative of winter conditions ie., lack of freshwater run-off, cold temperatures and frequent winds lessening stratification and causing the water column to be homogenous.

The pH values are lower than open ocean "average" values of 7.8-8.3. The reason for this is unclear. Their similarity from station to station, including those distant from processors, may indicate larger scale processes at work ie., a property of the southern Bering Sea water mass in winter rather than influence from seafood waste discharges.

CONCLUSIONS

At the time of this report the water quality of the study area appears acceptable. The suggestion of good water quality first prompted by the high dissolved oxygen values of the Brown and Caldwell study of March 1978, is again seen in the high oxygen values found in this study. This report could not, however, determine if the acceptable water quality is a seasonal or permanent marine feature. Nor could we determine if the acceptable conditions went to the bottom as our sampling terminated at 10 meters depth. The water quality of the former discharge areas continues to improve. The water quality in the area of the present discharges on the west side of Amaknak Island remains unaddressed.

Table III shows fecal coliform contamination from water in close proximity to the seafood processors. This implies that water near the processors is contaiminated with human waste to a greater extent than more distant waters. However, levels of fecal coliform bacteria are well below the maximum contaminant level as defined in Alaska Water Quality Standards.

No parameters could be found in violation of the AWQS. There remains, however, a problem of habitat destruction and degradation found by other investigators not apparent from water quality measurements.

RECOMMENDATIONS

Comprehensive seasonal water quality surveys that sample to the bottom are needed to determine spatial and temporal extent of incompletely documented acceptable water quality in the former discharge areas.

Water quality of the present discharge areas needs to be investigated with the intent of determining spatial and temporal variabilities more completely.

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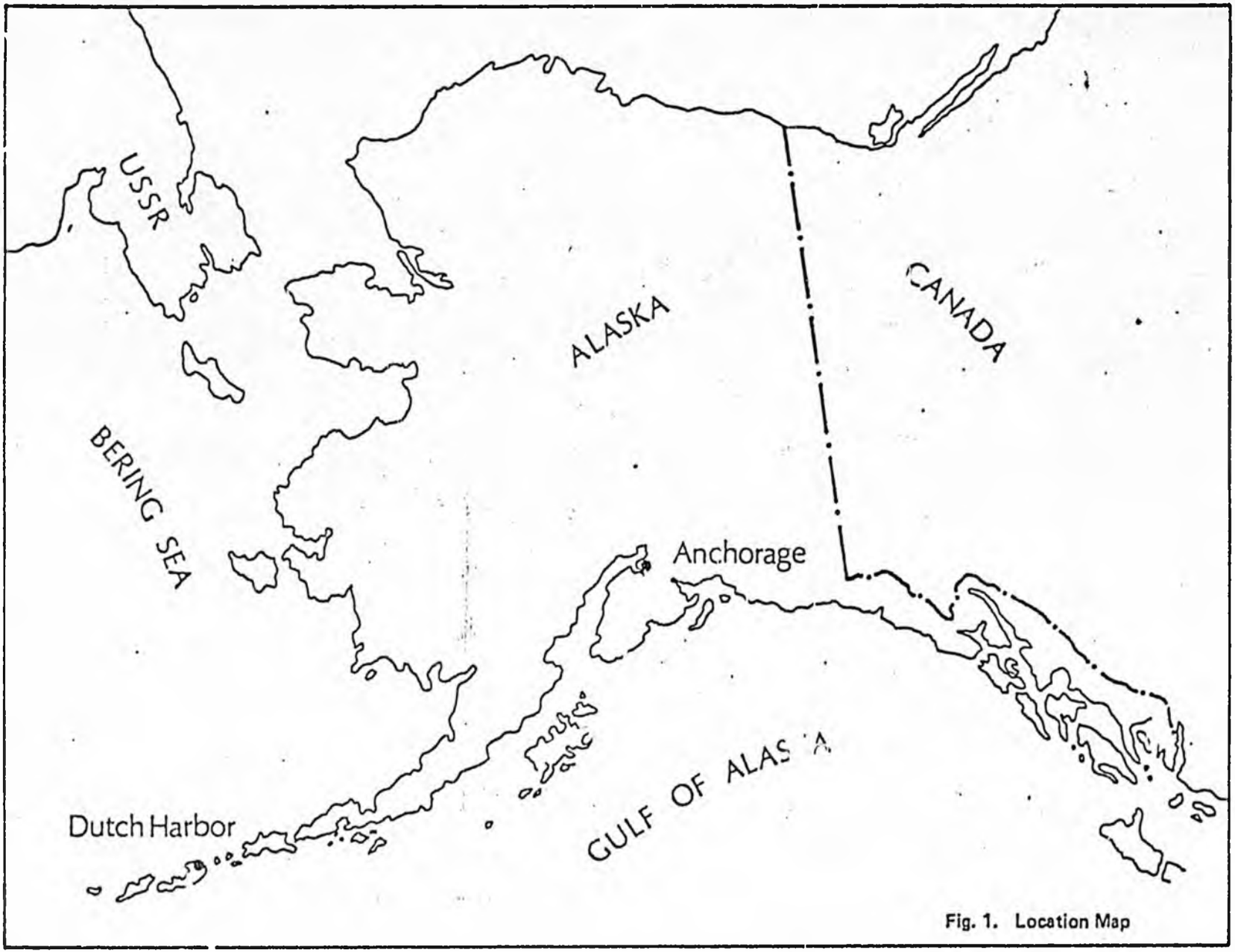


Fig. 1. Location Map

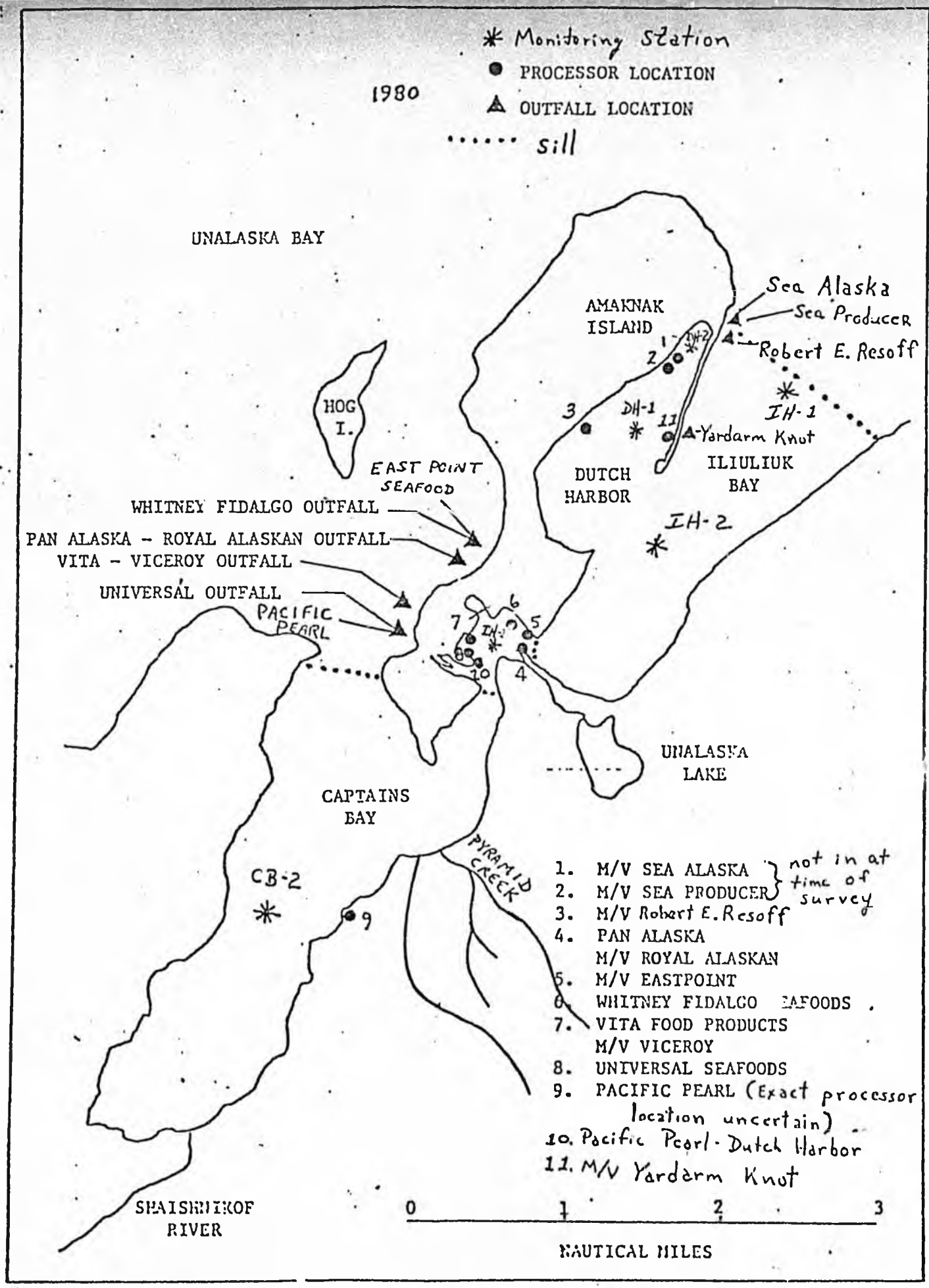


FIGURE 2

Location of Processors, Outfalls, and Monitoring Stations

TABLE I

Instruments and Techniques used in Dutch Harbor - Unalaska Monitoring Survey.

Parameter	Instrument or Technique	Where Measured
Salinity	YSI Model 33 S-C-T Meter	in Situ
Dissolved Oxygen	YSI Model 57 Oxygen Meter	in Situ
Temperature	YSI Model 33 S-C-T Meter	in Situ
TNFR	per Standard Methods 14th. ed.	by grab, Douglas Lab
Turbidity	Hach Model 2100A Turbidimeter	by grab, Douglas Lab
Color	Visual Comparison Method per Standard Methods 14th. ed.	by grab, Douglas Lab
Fecal Coliform	per Standard Methods 14th. ed., membrane filtration	by grab, Chemical and Geological Laboratories of Alaska
BOD_5	per Standard Methods 14th. ed.	by grab, Chemical and Geological Laboratories of Alaska
pH	Orion Research Ionalyzer Model 407A	by grab, aboard ship
Residual Free Chlorine	LaMotte - Palin DPD Chlorine Test Kit Model LP-18	by grab, aboard ship

TABLE II

DUTCH HARBOR - UNALASKA WATER QUALITY RESULTS

NOVEMBER 21, 22, 24, 1980

Sta.	Depth Meters	Temperature °C	Salinity 0/00	Dissolved oxygen mg/l	Free Chlorine mg/l	pH	Color PCU	Turbidity NTU	Fecal Coliform per 100ml	B.O.D.+ mg/l	Total Nonfilterable Residue mg/l
CB-2	0	4.0	31.0	13.2	0	6.2	<5	0.75	0	2	41
	1	4.0	31.0	13.4		6.3		0.50	0		14
	5	5.0	32.0	13.0		6.5		0.65	0		14
	10	5.0	32.5	12.1		6.9		0.45	0		11
IB-1	0	4.0	32.5	13.1		6.1		0.55	0	Broken	16
	1	4.5	32.0	13.8		6.5		0.50	0		18
	5	4.5	32.0	12.8		6.5		0.60	0		8
	10	4.5	32.0	12.7		6.7		0.60	0		10
IB-2	0	4.0	32.0	13.3		6.1		0.60	0	2	Lost
	1	4.0	32.0	13.3		6.2		0.65	0		37
	5	4.5	32.0	13.1		6.4		0.70	0		41
	10	4.5	32.0	12.8		6.8		0.50	0		20
DH-1	0	4.0	33.5	9.9		* -		0.65	0	4	45
	1	4.0	33.5	9.8		-		0.70	0		9
	5	4.0	33.5	9.7		-		0.50	0		12
	10	4.5	33.5	9.5		-		0.53	3		10
DH-2	0	3.5	33.0	9.3		-		0.65	6	2	41
	1	3.5	33.0	9.2		-		0.50	3		62
	5	4.0	33.5	9.2		-		0.70	0		8
	10	4.0	33.5	9.2		-		0.55	0		25
IH-1	0	4.5	31.5	9.6		6.0		0.40	13	2	34
	1	4.5	32.0	9.4		6.2		0.80	13		16
	5	5.0	32.0	9.0		6.4		0.55	13		46
	10	5.0	32.0	8.6	0	6.6	<5	0.65	4		44

*pH meter batteries discharged
Note: Oxygen saturation at 4 C and 31 0/00 Salinity = 10.7 mg/l
+ only surface samples taken

TABLE III
SEAFOOD PROCESSOR SURVEY
NOVEMBER, 1980

Untreated Salt Water Facility	Date	Result	Test
Barge Vita	11-18	40	Total
		40	Total
		8	Fecal
		12	Fecal
Barge Unisea	11-18	128	Total
		152	Total
		44	Fecal
		24	Fecal
	11-19	43	Total
	11-20	TNTC	Total
P/V Viceroy	11-18	10	Fecal
	11-21	0	Total
Pacific Pearl Dutch Harbor Fac.	11-18	5	Fecal
	11-18	62	Total
Pacific Pearl Captain's Bay Fac.	None		
Pan-Alaska Shore Facility	11-19	12	Total
	11-19	7	Fecal
Vessel Magellan	11-19	2	Fecal
Vessel Yard Arm Knot	11-19	6	Total
	11-19	3	Fecal
Barge Whitney	11-19	2	Total
	11-19	0	Fecal
Vessel Robert E. Resoff	11-19	2	Total
	11-19	2	Fecal

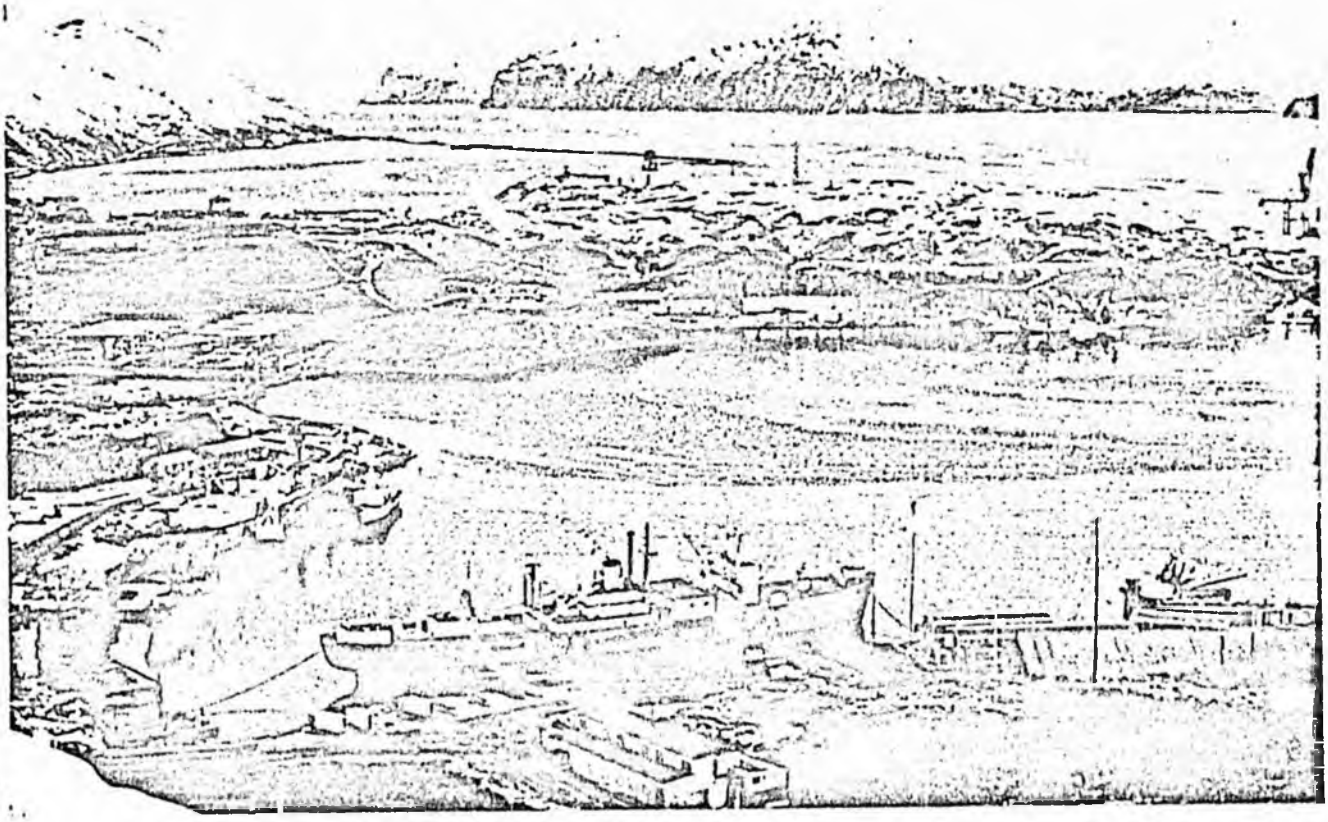
TABLE III CONTINUATION

East Point Shore Facility	11-19	0	Fecal
	11-19	10	Total
P/V East Point	11-19	15	Total
	11-19	5	Fecal

These samples were collected from each processor's salt water intake pipe. The salt water was used in the processing of crab. The Alaska Water Quality Standards specify that the average fecal coliform levels shall not exceed 20 FC per 100 ml taken from a minimum of 5 samples in a period of 30 days. No more than 10 percent of the samples should exceed 40 FC per 100 ml.

APPENDIX A

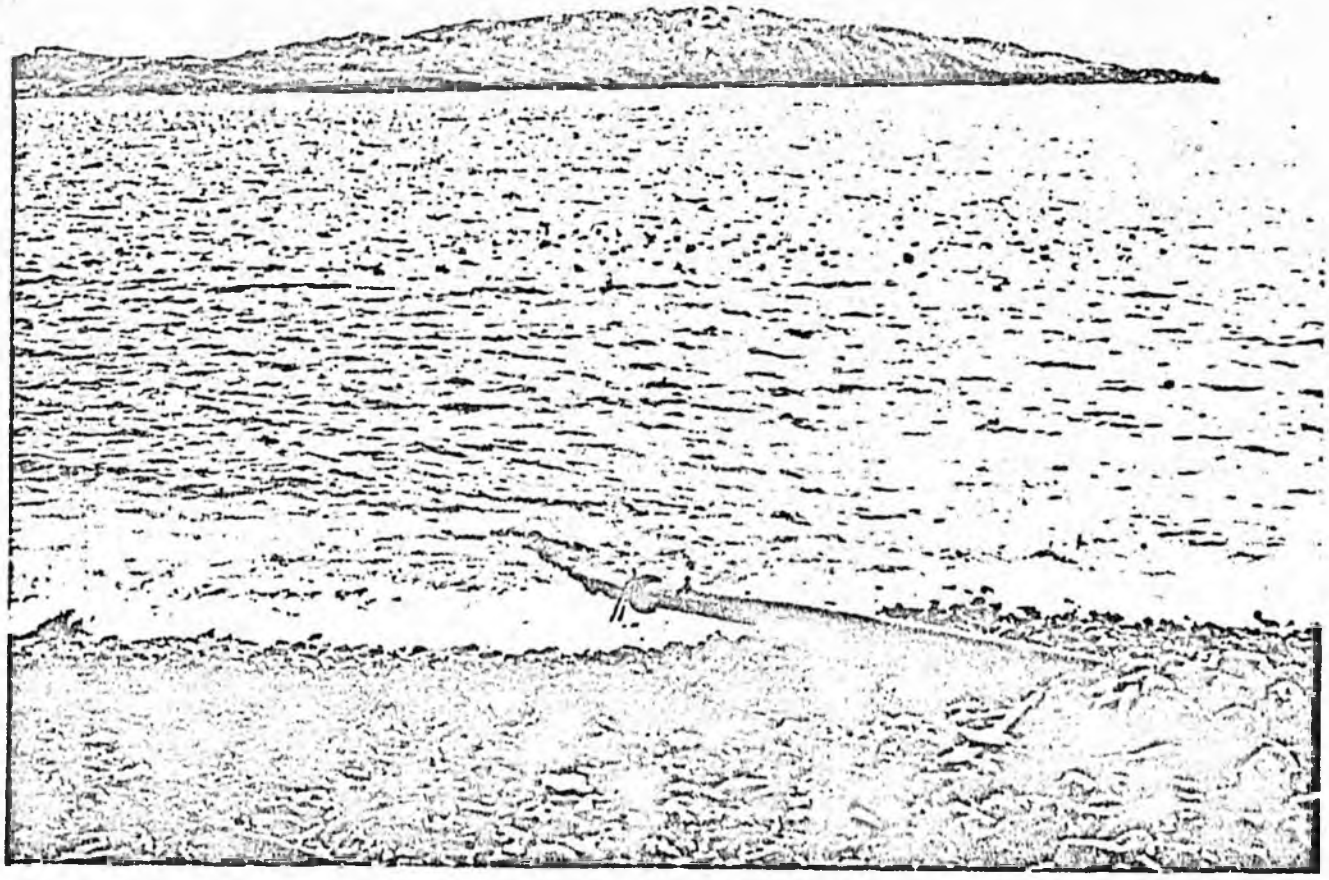
Photographs from ADEC's
Monitoring Library



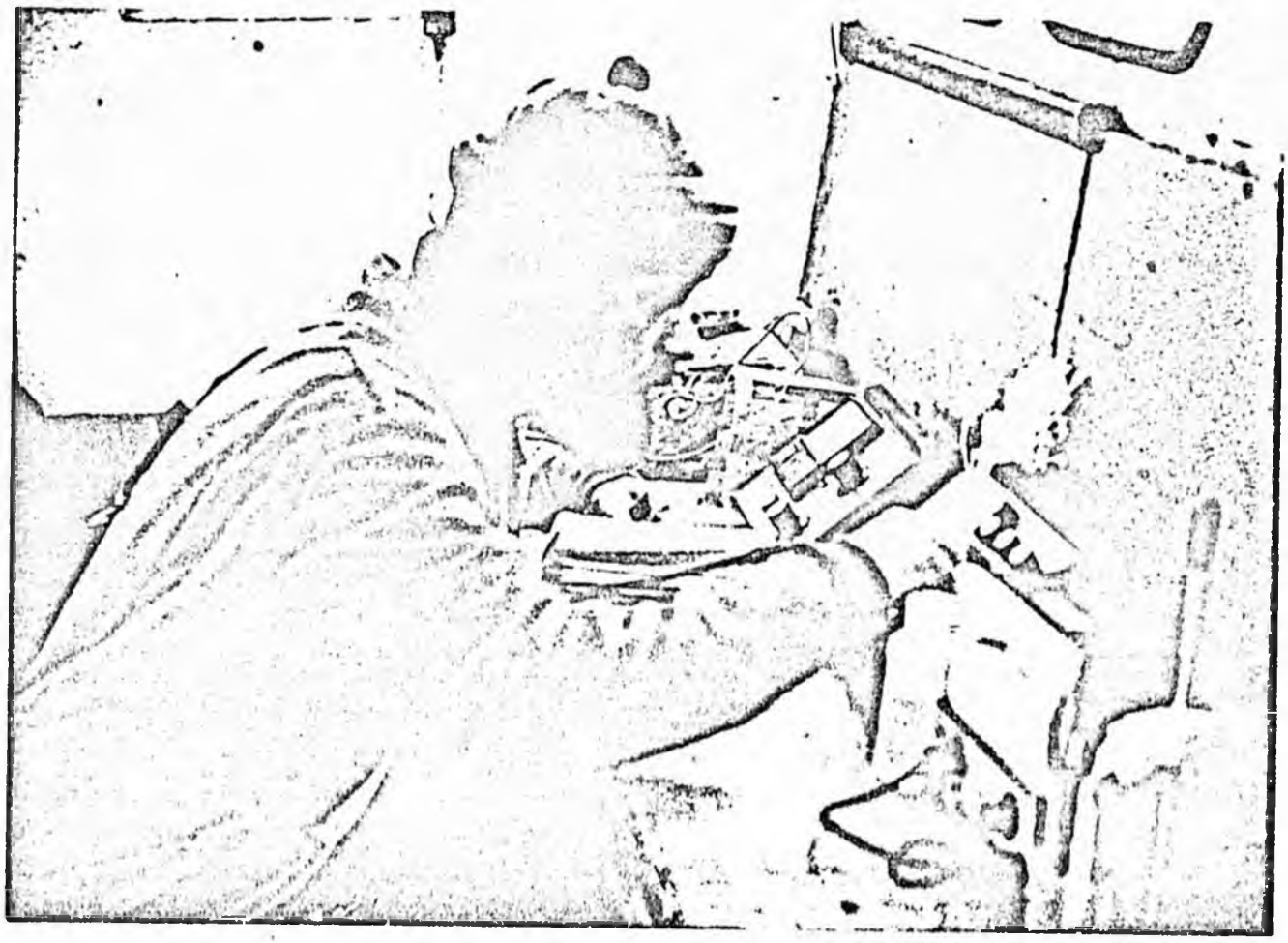
Iliuliuk Harbor. View north toward Dutch Harbor.

Processor Unisea in center foreground.

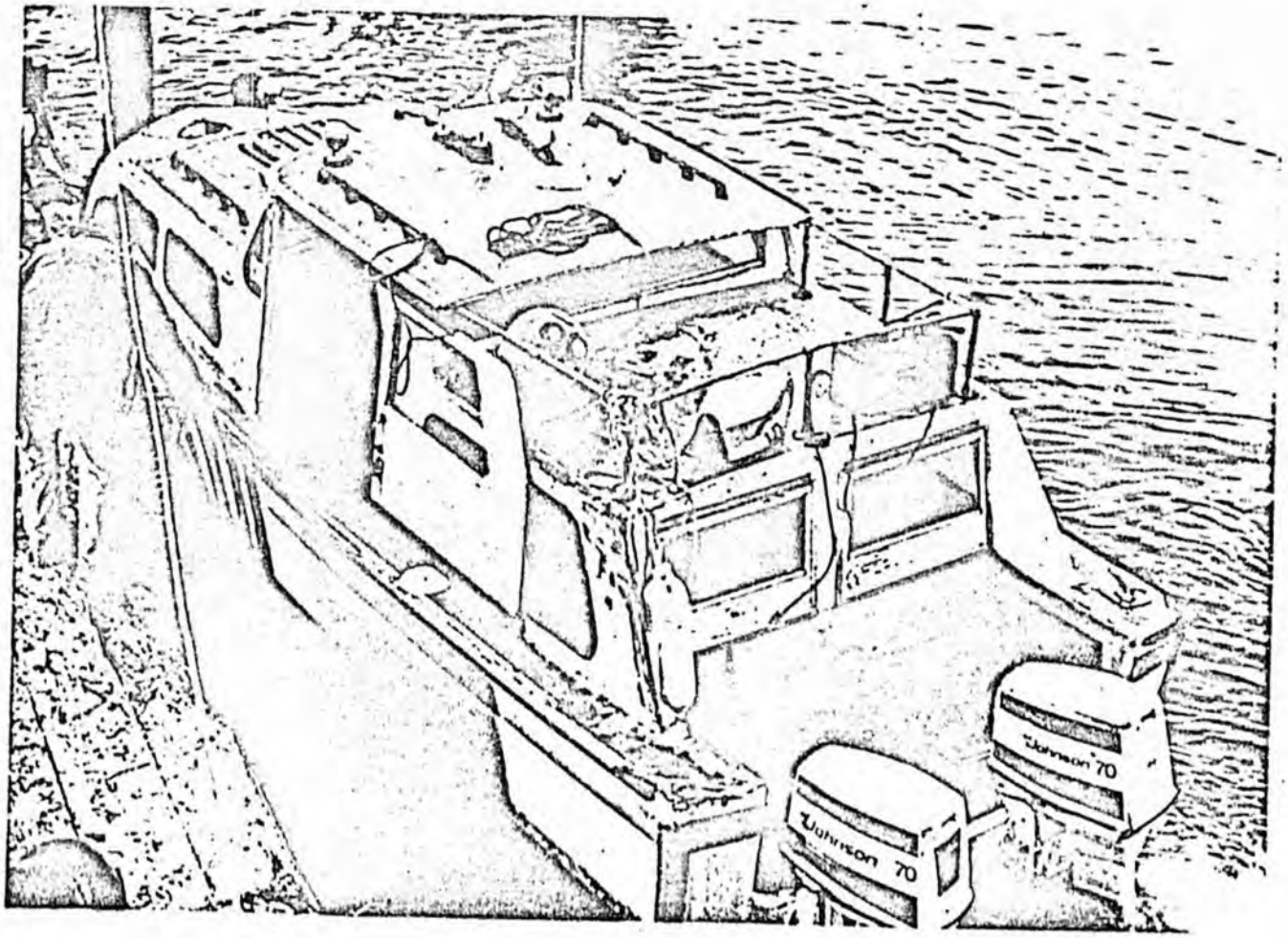
Dutch Harbor spit visible at upper center.



Unidentified processor discharge pipe on West side of Amaknak Island. Note gulls feeding on processor waste.



Alaska Department of Environmental Conservation personnel monitoring instruments aboard sampling vessel.



Sampling vessel contracted from Dutch Harbor Transit Inc.

MEMORANDUM State of Alaska

TO: Resa King
Senate Resources Committee
Alaska State Legislature

DATE: March 2, 1981

FILE NO:

TELEPHONE NO: 465-2600

FROM: C. Deming Cowles
Deputy Commissioner
Department of Environmental Conservation

SUBJECT: Senate Resources Committee Briefing

Enclosed is our proposed format for the agency briefing on March 4 at 1:30 p.m. I'd appreciate your thoughts--adjustments can be made to expand or contract presentations. Give me a call at 2600.

Thanks.

Cushions during or after presentation

48 min

SENATE RESOURCES COMMITTEE BRIEFING

March 4, 1987

Department of Environmental Conservation

Commissioner's Office (5 minutes)	- How we're organized - what we do generally. Our general philosophy: preventive action, assumption of programs and decentralization of services to the public.
Glenn Akins, Director, Environmental Quality Management (3 minutes)	- what the management division is, - defining problems and tailoring programs to meet those problems, - making federal programs work in Alaska, - delegation to local governments.
Gary Hayden, Chief, Water Quality Management and Environmental Health (3 minutes)	- Drinking Water Program: - assumption of federal program, - municipalities in general compliance, - emphasis now on small and rural, villages, - attempts to simplify program.
Gary Hayden (5 minutes)	- Water Pollution Control: - water quality standards - to fit Alaska's special conditions, - wastewater regulations revisions - extensive meetings with public and public comments, - list of 208 projects high-lighting placer mining, village sanitation, on-lot and sludge disposal.
Joe Cladouhos, Chief Sanitarian (3 minutes)	- Environmental Health: - what, generally.
Tom Hanna, Chief, Air and Solid Waste Management (5 minutes)	- Hazardous Waste: - problems in State, - developing a good State program, - why and how State program may encompass federal program, - State bill.
	- Air Pollution: - assumption of federal program, - what problem areas (Fairbanks, Anchorage), - what are we doing about them?
	- Litter: - problem most often recognized by Alaskans, - what are we doing about it?

Andy Spear (3 minutes)	-	Oil Pollution: - State program to supplement, not duplicate, federal efforts, - emphasis on local planning and response (Yakutat), - assumption of federal duties, - industry planning.
Deena Henkins, Director, Environmental Quality (10 minutes)	-	- Regional Offices - what they do--why it's good to decentralize--what efforts at more regionalized decision making.
Keith Kelton, Chief, Facilities Construction and Operation (5 minutes)	-	Construction Grants: - federal program, - State "municipal," - State "rural," - how we review for energy efficient operation and precautions to requiring substantial State outlays of operating, maintenance, and replacement.
Dr. Honsinger, State Veterinarian and head of the Office of Seafood and Animal Health (5 minutes)		Seafood Program: - what we do, why, - importance of strong inspection effort for marketability of fish in multi-billion dollar industry, - how attachment to DEC has improved the program (more people, more emphasis, coordination of other inspections, less bureaucratic hassle for industry), - what emphasis in future.
Deming Cowles, Deputy Commissioner (1 minute)	-	- permit and regulatory reform efforts, - legislative response.

WEDNESDAY MARCH 4TH

1:30 P.M. SJR 21 RELATING TO FEDERAL PREEMPTION OF OF STATE OIL POLLUTION LEGISLATION.

BRIEFING

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DEMMING COWLES, DEPUTY COMMISSIONER --

WILL INTRODUCE OTHERS -- THEY WILL SIT ON FIRST ROW.

TAKE QUESTIONS FROM THE COMMITTEE AS THEY ARISE.

BLENN AKINS, DIRECTOR, ENVIRONMENTAL QUALITY

GARY HAYDEN, CHIEF, WATER QUALITY MANAGEMENT AND ENVIRONMENTAL HEALTH

JOE CLADOUHOS, CHIEF SANITARIAN

TOM HANNA, CHIEF, AIR AND SOILD WASTE MANAGEMENT

DEENA HENKINS, DIRECTOR, ENVIRONMENTAL QUALITY

DR. HONSINGER, STATE VETERINARIAN AND HEAD OF THE OFFICE OF SEAFOOD AND ANIMAL HEALTH

(2)

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

I S S U E P A P E R S

Department of Environmental Conservation
Issue Papers

TABLE OF CONTENTS

OIL POLLUTION CONTROL

A new law relating to the prevention and control of oil pollution (AS 46.04.010 - .120) has increased the Department's responsibilities for the prevention of damages from oil spills. This law sets out procedures for prompt cleanup of oil spills, using money from a $1 million spill expense reserve, in cooperation with federal agencies. The measure also calls for the state to seek prompt reimbursement for cleanup costs from either the Federal government or through direct action in State Court against the spiller.

The law provides the greatest protection and coverage for areas not now covered under federal law, such as offshore rigs in state waters. Although very similar to the past laws the Department now has a funding mechanism for spill cleanup previously lost by Court action, Alaskans are provided direct access for reimbursement of damages from spills and those who handle large amounts of oil must be financially responsible enough to pay such claims. In addition, it is required that oil spill contigency plans specific to the Alaska environment be prepared.

With this new emphasis on oil pollution, the principal functions of the program involve developing and establishing regulations to implement the new law and hiring personnel to conduct the necessary field investigations, inspections and spill response. In addition, the Department laboratory services will be significantly enhanced to provide oil identification, emergency monitoring and spill analysis.

The need for this program is continually illustrated by spills occurring year-round. For instance, in the last year there were two major oil spills in Alaska and one that was barely averted. The Ryuyo Maru spill at St. Paul demonstrated the highly toxic nature of diesel fuels commonly used in Alaska: the beach at English Bay Lagoon was littered with dead animals poisoned by the oil; birds that ate the infected animals also died. The Lee Wang Zin spill near Ketchikan showed how wide-spread the effects of the spills can be: over 100,000 gallons were spilled affecting more than 250 miles of coastline. The near grounding of the Prince William Sound, carrying 35 million gallons of crude oil points out the need for safeguards to prevent future catastrophies. Hopefully large spills will be few, but each year there are hundreds of small spills which affect public health, productivity of plants and animals and that create nuisances. These spills, particularly in undeveloped areas, can be devastating to fish and wildlife by direct contact and by ingestion through the food chains. A major spill in highly productive fishing areas could have a drastic economic affect on a large portion of Alaska's fishing industry.

The over-all policy of oil pollution control is the protection of public health and the environment through effective spill response, technical assistance, education and implementation of applicable State statutes and regulations.

Authority: AS 46.03.740-.770
AS 46.03.822
AS 46.04.010-.120

Department contact: Andy Spear, 465-2686

ENVIRONMENTAL QUALITY MONITORING & LABORATORY

Environmental monitoring is the process of observing and measuring existing conditions within a given geographic area. The information gained is needed to determine how to retain existing resource values prior to the start of any potentially impacting activity. Monitoring is also needed to check the effectiveness of programs that are designed to avoid or stop pollution from activities already underway.

Monitoring data can be applied in a variety of ways. For example, levels of carbon monoxide have been measured in Anchorage and Fairbanks for many years. By studying the long-term trends of carbon monoxide levels, it is possible to determine whether local programs such as traffic rerouting or vehicle inspection and maintenance help to lower carbon monoxide levels. Monitoring is also used to determine if levels found are in compliance with national or state standards. Finally, if carbon monoxide levels are found to be so high that human health is endangered, the public can be alerted to avoid contaminated areas.

It is important to know what, when, and how much of certain contaminants are being released into our air, soil or waterways. In Alaska, most of our vital renewable resources and communities are closely linked to our water and depend upon the high quality of the water. Some municipal and industrial contaminants can render our water unfit to support life and unsafe to use and enjoy. Therefore, the state has given us the responsibility to monitor water courses to assure that only safe, allowable amounts of pollutants are released to them. This is compliance monitoring, a function which may serve as the basis for action taken by field officers to stop pollution. In many instances, industry and developers work cooperatively with our monitoring efforts to provide the best data possible to protect the resources we all share.

Only some data such as temperature, dissolved oxygen and pH (a measure of acidity) can be measured directly in the field. Most environmental contaminants of concern to the public cannot be detected by field instruments or by human senses and must be measured under laboratory conditions.

Measurements of arsenic, lead, mercury, cyanide, DDT, PCB's, bacterial and radioactive contaminants in water, air, soil, and living organisms require skilled scientists and sophisticated equipment. This department operates a lab facility in Douglas that has the capability of detecting and measuring these and many other potentially harmful substances. In addition, the lab is looking at the feasibility of a bio-assay program whereby living organisms, mostly fish, will serve as indicators for the presence of suspected contaminants. Such measurements can provide a fast means of detecting a problem within a given system.

In order to extend and regionalize its capabilities, the lab/monitoring section of DEC is conducting a program of approving private laboratories to perform analyses of public water supply samples. Thus far, 17 laboratories have received approval to conduct microbiological, inorganic chemical, organic chemical and radiochemical analyses. This program will ensure comparability of analysis, and will provide water samplers with a choice of laboratories that can produce acceptable data.

When the laboratory/monitoring personnel are in the field, they relate to area residents for first-hand observations and input. Such contact is important to the monitoring process as it frequently results in increased public support, awareness and involvement. Of equal importance is the need to work closely with personnel in the department's regional offices who maintain a close working knowledge of environmental situations and concerns of residents within their areas.

The lab/monitoring staff also works closely with program managers when interpreting and applying the varied types of information. Cooperation within the department assures that useful information is obtained, that samples are being collected and analyzed according to strict procedures, and that the data will be correctly interpreted.

Authority: AS 46.03.020(5)

Department contact: Tom Tribble, 364-2165

UNIFIED OR "HOLISTIC" APPROACH TO ENVIRONMENTAL MANAGEMENT AND REGULATION

Development projects and activities frequently affect the environment in several different ways. Regulations usually address a single environmental problem (such as solid waste). Addressing a single aspect of a project may result in the creation or enhancement of adverse environmental effects in another area. Requiring certain types of air or water pollution control machinery, for example, may result in the creation of solid waste (in certain industries in Alaska, to the level of several tons per day.) In applying regulatory controls, a project must be addressed as a whole, rather than by each of its parts, in order to provide the most environmentally-acceptable and cost-effective approach.

In Alaska, disposal of wood wastes generated by lumber mills has been an important concern. In the past, mills generally used "tepee burners" (industrial-scale, enclosed outdoor fireplaces with a conical shape) to burn these wastes. Air quality regulations required ending this practice due to poor combustion and resultant smoke emissions. As an alternative, some mills are now landfilling wood wastes. When decomposition takes place, however, toxic materials tend to be leached out into surrounding land and water, and may create serious health (drinking water) and environmental problems. The best solution environmentally is probably the use of wood wastes as a fuel in a manner efficient enough not to cause air pollution. Some mills are already burning wood wastes to fire a boiler for production of electricity and others are considering this process.

A second example concerns the treatment of wastewater discharged from pulp mills. The mills were required by the Environmental Protection Agency to construct treatment plants to reduce pollutant content of the wastewaters, including solids and biochemical oxygen demand.

Treatment of wastewater to remove solids creates the problem of disposal of wet sludge. Burning may create an air quality problem and placing sludge in a landfill may create both solid waste and water pollution problems. Burning also requires energy, in the form of expensive liquid fuel, to dry the sludge.

Reducing the amount of organic material (biochemical oxygen demand) in the wastewater creates still more sludge, which also increases air quality or solid waste problems.

To achieve an overall solution requires a complete analysis of a project, the environment of the area where it is located, and the concerns and interests of nearby communities.

The Department assigns a single staff member to deal with a project or a facility (such as a pulp mill). This person becomes familiar with the plant process, problems and economics, and provides technical assistance on meeting all applicable state and federal environmental standards. This lead staff person coordinates regulatory decisions by DEC programs (air, solid waste, water quality) and regional staff. Industry has expressed agreement with this approach to environmental management.

ENERGY ACTIVITIES

Energy production is a mainstay of Alaska's economy, and involves most of the large development projects in the state. The Department of Environmental Conservation has responsibilities for regulation of air, land and water quality in connection with these projects. At the same time, in-state consumption of energy has become a widespread concern, and this agency has a strong responsibility to promote efficient and conservative use of energy in the state.

Major energy projects are complex and long-term activities; they substantially affect the environment. The Department works closely with developers and other resource agencies, to ensure that environmental concerns are addressed early, and regulatory requirements are met in a timely manner.

As energy resources become more difficult to develop and energy prices increase, it becomes essential to the state, along with the rest of the nation, to develop two available sources of energy--improved efficiency of energy use and renewable energy resources. The Department is particularly concerned with promoting energy efficiency and renewable resources, since these energy sources generally have less associated environmental impact than the development of oil, gas, coal, and large hydroelectric projects.

Through its regulatory programs, the Department can significantly affect energy use at the local level. In the solid waste program, the Department is attempting to find appropriate local or regional solutions to solid waste problems emphasizing material and energy recovery. The Department has established a full-time position devoted to developing resource recovery programs. In building sanitary facilities in remote villages, the Department is giving priority to villages which can use a renewable energy resource. And, the Department is supporting exemptions from federal secondary sewage treatment requirements in towns where such treatment is not necessary and creates excessive cost burdens through energy requirements. The Department provides environmental evaluation assistance to the Division of Energy and Power Development, and has participated in panels and workshops at the Alaskan Alternative Energy Conferences held in 1979 and 1980.

Department contact: Dave Sturdevant, 465-2636

WETLANDS PROTECTION

Regulatory programs to protect wetlands have been formed because of widespread public and legislative awareness that wetlands have too often been altered or destroyed. Wetland habitats perform important functions with substantial social and economic values. For example, they can be:

- highly productive ecosystems, including those that produce commercially important fish and shellfish;
- important habitat for migratory waterfowl, shorebirds and furbearers;
- areas for purification of ground and surface water through natural filtration;
- water retention areas to buffer storm and floodwaters, and shield other areas from erosion;
- maintain natural drainage characteristics, sedimentation patterns, salinity distribution, flushing characteristics, current patterns, or other environmental characteristics; and
- recreational, educational and scientific resources.

Under authority in the Clean Water Act, the Department of Environmental Conservation reviews permits issued by the Corps of Engineers and other federal agencies to certify that activities proposed comply with State Water Quality Standards and other state environmental regulations. The Corps issues permits for placing structures or discharging dredged or fill material in navigable waters. Under the Corps expanded jurisidction, wetlands are included within the scope of "waters of the State." The regulations of the Corps recognize wetlands as "a productive and vital public resource, the unnecessary alternation or destruction of which should be discouraged as contrary to the public interest," and provide that no permit may be granted to work in wetlands unless it is determined that the benefits outweigh damage to the wetland resource.

The Alaska Coastal Management Program requires all state agencies, municipalities and private parties that conduct activities having a direct and significant impact on coastal waters to be in conformance with that program. Federal actions must be consistent to the "maximum extent practicable." Wetlands are addressed by a specific standard, stating:

> "Wetlands and tideflats must be managed so as to assure adequate water flow, nutrients, and oxygen levels and avoid adverse effects on natural drainage patterns, the destruction of important habitat, and the discharge of toxic substances." (6 AAC 80.130)

The program also incorporates sections of the sections of the Corps of Engineers regulations, including those regarding wetlands. All permits and certifications in the coastal zone issued by the Department are required to be consistent with these standards.

Direct federal activities affecting the coastal zone also are reviewed by State agencies for consistency with ACMP. In addition to the above standards, federal agencies must also observe the Executive Order regarding wetland protection. This order requires all federal agencies to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands in carrying out agency responsibilities. Federal agencies may not undertake or assist new construction in wetlands unless there exists no practicable alternative and all practicable measures are taken to minimize harm to wetlands.

The Department is currently working with other agencies, through the joint Federal-State Wetlands Task Force, to establish criteria for classifying wetlands and determining their sensitivity to development by conducting necessary inventory work. Geographic areas recently emphasized include the North Slope, Kenai Peninsula and Sitka. These criteria will provide a uniform basis for applying the laws and regulations specified above. The Department is also considering the use of a general permit, or general regulations, to replace individual permits for certain types of activities in wetlands, or in those types of wetlands which are less critical for fisheries and wildlife. Providing more information to applicants and reducing the time required in issuing permits and authorization for activities in wetlands are major objectives toward which the Department and the Corps of Engineers are working.

Authorities: PL 92-500 (The Clean Water Act) Sections 208, 401 and 404
The River and Harbor Act of 1899, 33 CFR 320-329
(regulations of the U. S. Army Corps of Engineers)
18 AAC 70 (Alaska Water Quality Standards)
President Carter's Executive Order (May 1977) on
wetlands and floodplains
Federal Coastal Zone Management Act
Alaska Coastal Management Program
AS 16.10.010 (Anadromous Stream Protection)
AS 46.15 (Water Use Act)
AS 38.05.070 (Tidelands Leasing)
A 38.05.323

Department Contact: Doug Redburn, 465-2687

MAJOR PROJECT REVIEW

An important function of the Department of Environmental Conservation is review of major industrial projects and working closely with industry to assure that environmental safeguards are incorporated early into project design and planning, and that regulatory costs and delays are avoided.

The ALPETCO petrochemical and refinery complex in Port Valdez, oil and gas leasing in Upper Cook Inlet and the ARCO Waterflood reinjection project planned for Prudhoe Bay are examples of major projects that the Department has addressed within the last year. All are large operations potentially impacting air, land, and water quality.

The major environmental issues surrounding the ALPETCO project include maintaining air quality, ensuring that plant and wastewater discharges meet State water quality standards, and that pipelines and other facilities are constructed in an environmentally sound manner.

DEC has attempted to resolve these issues in several ways. The Department has assisted EPA in preparing the required environmental impact statement. Through this process, the Department has been able to provide the company with concerns identified by State agencies. Air quality controls have been discussed and agreed upon by EPA, the State and ALPETCO. Water quality concerns have been accommodated through a strong working relationship between the applicant, EPA and DEC concerning monitoring, control of petroleum hydrocarbons, cyanide, and potential effects on water quality from discharges of toxic heavy metals. Plant design and monitoring of biological and chemical parameters were agreed upon far in advance of the deadline for permit applications.

The Prudhoe Bay Waterflood Project is a proposal by ARCO and SOHIO to inject Beaufort Sea water into the Prudhoe Bay oil field to enhance secondary recovery of oil which would otherwise be unrecovered. The water quality issues that are of concern include backwashing of filtered sediments into the marine environment from the water treatment facility, chlorine discharges, the marine effects of causeway extensions, and requirements for gravel.

The Department is attempting to clarify its concerns early to avoid misunderstandings later. Several meetings sponsored by the Corps of Engineers provided State and federal resource agencies with opportunities to discuss concerns and regulatory requirements. This process is designed to speed completion of the environmental impact statement process scheduled for November 1980 by defining critical issues. The Department is working closely with ARCO and SOHIO on the design of air and water quality control programs and helping to ensure that project planning complies with State standards and regulations.

The Management and Technical Assistance Section of the Department is responsible for conducting major project reviews. The section staff serves as, or supports, the single contact person that the Department assigns to work with an industry to coordinate all regulatory requirements.

Authority: State of Alaska Governor's Administrative Order #55
U. S. Office of Management and Budget Circular A-95

Department Contact: Dick Marcum, 465-2685

WATER QUALITY MANAGEMENT PLANNING

(208 Program)

Water quality management planning in Alaska is carried out as part of a national program mandated by Section 208 of the Clean Water Act. The objectives of water quality management planning are to achieve and maintain surface water quality consistent with the 1983 national goals, defined in federal policy as fishable and swimmable. In order to accomplish these objectives, a planning process for continuing water quality management must be established and implementable plans must be developed. This program is the major means by which control of "non-point" pollution from runoff or erosion.

Plans and projects under the 208 program must include significant public involvement through citizen advisory committees, newsletters, public meetings and hearings and other means as appropriate.

Alaska 208 Program

The Alaska Department of Environmental Conservation is responsible for 208 planning for the entire state, except for the Municipality of Anchorage which is "designated" to do its own 208 planning. The technical work of the program is conducted by private consultants, other government agencies (local, state or federal), or ADEC staff, as appropriate, and is funded largely by federal grants from the USEPA. The state's initial 208 efforts, recently completed, consist of five technical investigations conducted over a two and one-half year period at a cost of $700,000, on the following subjects:

- village sanitation - NPDES Assumption
- waste oil disposal
- timber harvesting
- transportation corridors
- placer minning.

The results of these studies are summarized in the Alaska Water Quality Management Plan for Non-Point Pollution Sources, November 1979.

Projects which are currently underway but are not yet completed include:

- development of onsite sludge disposal guidelines
- statewide water quality problem identification and assessment
- placer mining demonstration project
- development of a state agricultural water quality management plan
- development of sludge disposal guidelines
- waste oil demonstration project
- protection of community water supply watersheds
- data management needs in ADEC.

These projects are funded by $422,655 grant covering a three year period, 1980 to 1983.

The next phase of the program, submitted to EPA for funding, will consist of investigations into the following subjects:

- placer mining aerial surveillance and enforcement
- village facilities assistance
- wetlands best management practices.

The cost of these studies and the plans to implement them will be approximately $436,000 over a three year period, 1981 to 1984.

An additional activity of the 208 program is Anchorage 208 program oversight. This entails working with the Municipality of Anchorage in this development of their water quality management plan, attendance at their policy advisory committee and review and comment on program output.

Accomplishments to Date

The completed portions of the Alaska 208 program have already resulted in several accomplishments. Among these are:

- statewide water quality management plan for non-point pollution sources;
- best management practices for timber harvest operations;
- ADEC work program for dealing with pollution from placer mines;
- revised water quality standards; and,
- an inventory and assessment of Alaskan water quality problems, both point source and non-point source.

One result of these accomplishments is a noticeable increase in public understanding and support for a variety of ADEC programs.

Future 208 Program

ADEC has developed a prioritized list of study needs related to existing and anticipated water quality problems. Several projects have been designed and are presently awaiting decisions by EPA on their eligibility for funding. Over the next several years, ADEC must consider and develop a strategy for transferring funding responsibility from federal to state sources, as new federal funding will terminate in 1983.

Authority: AS 46.03.060
PL 95-217 (Federal Clean Water Act 1977)

Department Contact: George Franklet, 465-2626

PERMIT PROCESS AND ASSISTANCE

The Department of Environmental Conservation has an on-going effort to revise and simplify the permit process.

In an effort to define procedures for the Department, regulations addressing the availability of information to the public (18 AAC 10), administrative procedures for permit issuance and appeal proceedings (18 AAC 15), and enforcement procedures (18 AAC 95) were promulgated. Also, all water and water quality, air and solid waste regulations were reviewed and have been or will be amended as necessary to clearly define environmental standards and decision making criteria.

The department's three regional offices and the permit section are responsible for implementing the department's programs. The regional offices provide technical assistance to developers and review project proposals and propose department decisions, and initiate enforcement actions. The permit section provides support to the regional offices and the commissioner's office performing the administrative actions related to permit issuance. The section also contributes to many of the department's efforts to simplify the permit process.

The department currently is evaluating its forms and, as appropriate, each form is being retitled, numbered, and drafted for printing. When necessary, forms are being designed to reflect the program needs and to more effectively communicate desired information. All permit application forms are being revised so that they have a consistent, more manageable format and, whenever possible, application forms are being consolidated.

More realistic procedures for issuing permits are being established. The emphasis is to compliment the substantive work on an application rather than allow the procedural actions to become a surrogate for the substantive work. Whenever possible, duplicate efforts by staff are being eliminated, paper flow is being streamlined, and administrative time is being reduced. Also, when several agencies conduct permit reviews for a single project, duplicate paperwork and procedures often can be consolidated. The simplified procedures can be extended into interagency agreements.

In 1977, the Environmental Procedure Coordination Act (AS 46.35) was enacted. This act designated DEC as the lead agency for a coordinated permit process and established requirements for master applications, consolidated public notices and hearings, and the permit information centers, as well as processing procedures. The department has proposed amendments to the Act after consultation with industry representatives, as well as agency and legislative staffs, to make the Act a better instrument for improving the state's regulatory process.

Currently, the department is working with the Department of Law and other state agencies to write regulations which establish standard procedures for issuing permits. These regulations also define three classes of permits and assign responsibility for coastal management consistency determinations to various agencies. It is anticipated that the regulations will become effective early in 1981.

The Department, working with the Department of Commerce and Economic Development, published the Directory of Permits as an inventory of federal and state permits, licenses, certifications, plan reviews, leases and other approvals which may be needed for the construction of any activity in Alaska. Each listing included a description, major requirements for issuance, the authority and agency contacts for each permit. The directory has been made available to government agencies, libraries, consultants, and industry representatives.

A revision of the directory will be completed early in 1981. In addition to updating the descriptions of permits, a discussion of the services available through the Alaska Permit Information Centers, and an index of the permits which may be needed for a project will be added. Also, the possibility of establishing the directory and subsequent revisions on a subscription basis will be explored.

The Alaska Permit Information Center has been established as a single information source about permit requirements. Through offices in Anchorage, Fairbanks, and Juneau, the Permit Center can assist the public and developers by identifying (1) the government agencies which have jurisdiction for a proposed activity, (2) a contact within each agency whom a developer should contact for assistance, and (3) the permits which might be required for the project. Each office has a toll free telephone number (279-0254 in Anchorage, 452-2340 in Fairbanks and 465-2615 in Juneau) with an answering device for receiving calls after business hours. Currently, each office is receiving over 30 inquiries a month and is able to respond to most inquiries immediately.

Upon request, the Permit Center will host pre-application conferences. The purpose of this conference is not to judge the worthiness of a project. Rather, it is to enable a developer to learn what requirements he must fulfill to get agency approval and to secure technical assistance as he completes the design of the project. Subsequent meetings, with agency staff before and after applications are submitted, are encouraged.

Also, the Permit Centers will coordinate the review of a master application and the subsequent issuance of state permits. Although not frequently used, a master application, when submitted by a developer, will be processed and will result in the issuance of all required state permits by a predetermined date.

Working with the Departments of Fish and Game and Natural Resources during early 1980, the department developed a master application for water related permits required for placer mining. The application was well-received and was a successful consolidation of several individual applications. Therefore, the three departments decided to revise the application to include land use authorization and to correct the inadequacies which were discovered through initial usage of the form. Also, the Department of Revenue decided to use the form as the application for the Alaska Mining license. The revised form is to be in the agency's offices for use no later than January 12, 1981.

Since the placer mining application is a successful consolidation of several forms and procedures are being developed for its use, it is a model which the department plans to develop further. The master application concept can be applied to more activities and perhaps can be expanded to include more permits. Because many

federal and state agencies are involved in the regulation, through permits of activities, there is a frequent duplication of procedural requirements for the permits. To reduce duplicate efforts and high costs, the department is developing procedures for consolidating public notice and for eliminating duplicate inter-agency reviews as well as consolidating applications. Both federal and state agencies are being included in this effort.

Authority: AS 46.03
AS 46.35

Department Contact: Woody Angst, 465-2670

401 CERTIFICATION

Section 401 of the Federal Water Pollution Control Act requires that any one applying for a federal license or permit for any activity, including the construction or operation of facilities, which may result in a discharge into the navigable waters of the State shall provide the federal permitting agency with a certification from the State that any such discharge will be in compliance with all applicable sections of the act. The federal license or permit cannot be issued unless the State certification has been obtained or has been waived. Section 401 also provides that a certification may include any limitations and monitoring requirements necessary to make sure that the applicant will comply with the applicable sections of the Federal Water Pollution Control Act and with any other appropriate requirements of State law. Conditions included in the State certification become conditions of the federal license or permit.

In Alaska, the Department of Environmental Conservation is the State agency which provides the certification.

The types of permits most often requiring certification in Alaska include the U. S. Environmental Protection Agency National Pollutant Discharge Elimination System permits for point source discharges, Corps of Engineers permits for work in navigable waters, including wetlands, and dredge and fill activities in the waters of the United States, U. S. Coast Guard bridge permits over navigable waters and Federal Energy Regulatory Commission licenses for hydroelectric power plants.

The Department has written agreements with the U. S. Environmental Protection Agency and the Corps of Engineers to initiate processing certification simultaneous with the federal agencies' own public notice period to avoid unnecessary delays for the applicant.

401 certification is a powerful tool for the State in preventing water-related pollution because the project or activity is generally reviewed and negotiated before it is implemented and specific conditions can be placed on the federal permit or license to prevent problems. The projects are judged primarily for impact on water quality against the State Water Quality Standards, and for consistency with regulations of the Alaska Coastal Management Program. Other applicable regulations will be considered, depending on the project.

Authority: AS 46.03.020
AS 46.03.090
AS 46.03.100
AS 46.03.110

Department Contact: Doug Redburn, 465-2687

COASTAL ZONE CONSISTENCY

All activities conducted in the coastal zone must be in full compliance with the standards and guidelines of the Alaska Coastal Management Program (ACMP). Additionally, in local areas with approved district plans, activities must also be conducted consistent with the provisions of the district plan. The Department of Environmental Conservation is given a particular responsibility, in that this program incorporates directly the air, land, and water quality statutes, regulations and procedures of the Department of Environmental Conservation.

Application of the program through the Department's activities occurs in two instances. In both cases, proposed projects and activities affecting the coastal zone are reviewed by the Department to determine whether they are consistent with district programs and ACMP standards. This process is termed "consistency review." The Department's consistency reviews focus on its own statutes, regulations, and procedures and the standards of the ACMP, but may consider other program standards.

In the first case, any application to the Department for a permit, certification, approval or grant for a project which may significantly affect the coastal zone must undergo a consistency review internally. This is termed the "State consistency" process. Procedures for this review have been specified by the Commissioner through a General Management Order. If the proposed project is found to be consistent with an approved district program and the ACMP standards, the application must be approved. If the project is found to be inconsistent, the application must be denied (approval may be granted in some cases upon a showing of significant public need and absence of a feasible and practicable alternative) or conditioned with stipulations to maximize conformance of the project with the standards and guidelines.

In the second case, the Department may be involved in a consistency review of federal activities significantly affecting the coastal zone. This is termed "federal consistency." Under the Federal Coastal Zone Management Act, each federal agency or applicant for a federal permit must conduct activities in the coastal zone in a manner consistent with the Alaska Coastal Management Program, to the maximum extent practicable. The federal agency must submit to the State a copy of the applicant's consistency finding for each significant activity. The State's A-95 procedures are used to obtain a consistency review from appropriate State agencies, federal agencies and local governments. The State then evaluates agency comments and submits concurrence with, conditional comments, or objection to the consistency determination to the parent federal agency. The criteria for consistency review of direct federal activities are the same as for a project requesting a permit or other authorization. An agreement is currently being discussed which will separate responsibility for federal consistency determinations between several State agencies to avoid making two or more rulings on the same project by different agencies.

The standards and guidelines of the Alaska Coastal Management Program constitute an umbrella authority over the operations and activities of each State agency. The consistency review, with respect to district programs and ACMP standards, has become an important element of the Department's permitting programs and also for the State's control of federal activities within the coastal zone.

Authority: AS 46.40; 44.19; 44.47

Department Contact: Doug Redburn, 465-2687

SOLID WASTE PERMITS

Current regulations require any landfill, intermediate disposal facility (transfer station, baler, etc.), incinerator, landspreading operation, and composting, recycling and reclamation facility to obtain a permit. The department's 100 permits, however, have been issued only to owners and operators of landfills, landspreading facilities, transfer stations, and incinerators.

The department has found that some facilities do not need permits because they are adequately controlled by other regulations or permits, or do not present a significant threat to human health or the environment. By the end of April 1981, the department will promulgate revised solid waste management regulations. At that time, permits will no longer be needed for intermediate disposal facilities, incinerators, and composting, recycling and reclamation facilities.

Improperly sited and maintained sanitary landfills and landspreading operations may cause water, air and land pollution. Therefore, in order to continue encouraging efforts to comply with standards, maintain environmental quality, and protect public health, the department will continue to require permits for these operations.

Authority: AS 46.03.020(10)(A)
46.03.020(10)(E)
46.03.140
46.03.160

Department Contact: Tom Hanna, 465-2666

PREVENTION OF SIGNIFICANT DETERIORATION

In response to widespread environmental concern, the 1977 Clean Air Act Amendments established the Prevention of Significant Deterioration (PSD) program. This program is designed to maintain a high level of air quality by limiting new pollutant sources and requiring the use of the best technology available. The program consists of two major parts:

> First, each area was classified into four categories according to present air quality, and limits on the allowable change in air quality were fixed. A procedure for reclassifying certain areas was also established.
>
> Second, a mandatory pre-construction review and permit program was established. This program applies only to new or modified major emitting facilities as defined in the act. It requires an applicant to prepare a comprehensive analysis of air quality changes which would result from the project, and to obtain a permit prior to starting construction.

In Alaska, four areas are Class I. This classification provides for maximum protection from air pollution. The areas are Mt. McKinley National Park and the three wildlife refuges of Tuxedni, Bering Sea (St. Matthew) and Simeonof. Virtually no increase in pollution is allowable in or near these areas.

The rest of the State is Class II, which will allow increased air pollutant levels of 25% of the current standard. While this is a very restrictive limitation, it will allow for moderate industrial growth. The State has authority to reclassify localized areas into a Class III designation if more industrial growth is desired. This would allow a change in air quality of up to 50% of the current standards.

US EPA is currently managing the PSD permits program in Alaska. During the past 15 months, the following projects were subjected to PSD review:

PROJECT NAME	STATUS
Phillips Petroleum Company drilling rig	Permit granted
North Slope Facilities' expansion	Permit granted
Golden Valley Electric Association #2	Project cancelled
US Coast Guard Kodiak Power Plant	Permit granted
ALPETCO Refinery	Permit granted
North Slope Productivity Enhancement	Permit granted
North Slope Waterflood	Application submitted
Tesoro Refinery Modification	Permit granted
Alyeska Pump Stations 2, 5, 7	Permit granted
Alaska LNG Plant	Permit granted
Northwest Alaskan Gas Line Compression Stations	Application submitted

Two projects which are currently preparing applications include the US Borax molybdenum project near Ketchikan, and the Noranda Greens Creek mining project on Admiralty Island. Beluga Coal Field and any gas liquids processing facility will also require PSD review.

The PSD permit application may consist of a relatively straightforward description of the facility, if the estimated change in air quality is very low. However, in most cases a thorough technical analysis is required, including very sophisticated computer models.

EPA Region X has the responsibility to review the PSD permits in Alaska until the State establishes an acceptable program. The department has revised air quality regulations and programs and requested that the State assume responsibility for the PSD program. One objective will be to keep the monitoring requirements and permit processing time to a minimum in order to reduce costs to the applicant. The department will provide technical assistance to applicants through the permitting process, to ensure that all steps are completed as quickly as possible.

The department also has revised the administrative regulations necessary to reclassify areas if additional industrial growth or stricter air quality protection is desired.

Authority: AS 46.03.020(10)(A)
46.03.140
46.03.150
46.03 160

Department Contact: Stan Hungerford, 465-2667

AIR QUALITY EFFECTS OF WOOD STOVES

Wood stoves have been used frequently as an alternative heating source throughout Alaska, but not until 1979 have they begun to heavily supplement oil-fired furnaces as a heating source in urbanized areas. While this is a logical and highly desirable response to the sharply rising oil prices, it causes increased visible air pollution. This has been particularly noticeable in urbanized areas, such as Juneau's Mendenhall Valley and in the Fairbanks area.

Wood stove usage is expected to further increase in the next few years. This paper reviews the potential air pollution problems of wood stoves, recommends ways in which this problem can be minimized, and presents ideas to reduce the potential health hazard of this heating source.

Wood Stove Pollution and Effects

Wood stoves emit large quantities of ash and material which give the whitish-blue color to stack exhausts. They also emit carbon monoxide and hydrocarbons. The solid particles are made up of partially-burned wood, ash, and liquid hydrocarbons which condense from the stove gases.

Formation of combustion by-products are significantly higher when burning wood instead of oil or gas because the combustion devise does not achieve adequate mixing of air and fuel within the immediate proximity of the flame. Hence, the wood itself is not responsible for poor combustion but simply the manner in which it is burned.

When completely burned, wood will form water vapor and carbon dioxide and give off heat. To be effective, the burning process must be maintained for a long period of time at a high temperature with adequate air supply to achieve complete oxidation of the fuel. The end products of complete combustion do not have any direct health or nuisance effects. However, incomplete combustion can cause the following:

1. Solid particles
   - highly visible: in large enough quantities and right weather conditions, can cause substantially reduced visibility;
   - health: generally are not a health hazard, but under the right conditions can become a respiratory irritant and have direct adverse health effects;
   - odor: although usually pleasant smelling, can become very irritating and pungent in large amounts.
2. Carbon monoxide
   - health: causes decreased awareness and ability to react, because it restricts the blood's ability to carry oxygen. At high enough levels, can have adverse effects on cardiovascular patients, and can cause death.

3. Heat loss - Incomplete combustion generally means less heat is obtained from your wood. This is slightly offset by a lower stack temperature which means that less heat escapes up the stack.

When do Wood Stoves Become an Air Problem?

Wood stoves emit 30-250 times more solid particles, and 1,000 times more carbon monoxide than oil-fired furnaces (on a heat-equivalent basis)! In spite of this, wood stoves have not created a problem in the recent past because there have not been enough of them. However, with the recent increases in wood fuel use as motivated by favorable economics and energy independence, prolonged smoke conditions are occurring in some of the more populated valley locations throughout the State. This haze is likely to become common during most winter and fall conditions when there is little or no wind, and thin or no cloud cover. During these periods, temperature inversions occur in which pollutants will be trapped in a layer below 300 feet above ground.

What Can be Done to Wood Stove Emissions?

The more efficient combustion that occurs, the less emissions. As noted before, there are virtually no emissions with complete combustion. The most important consideration is to DRY YOUR WOOD SUPPLY, a 1/2 cord of wood can have up to 2 tons of water, all of which must be vaporized before the wood will burn--this can take up to 30% of the entire heat content of the wood.

The next major consideration is to make certain that the fire is maintained in as efficient a manner as possible. Remember, during incomplete combustion all of the available heat energy is not being extracted from the wood. Dry wood, and a well placed fire which can allow enough oxygen to mix throughout the fire are very important. Finally, a properly designed stove which will allow for efficient combustion is recommended: preheated air systems and stoves with a secondary combustion chamber cannot operate efficiently with a large load of wood and insufficient air. A significant amount of pollution will result.

When buying a stove, take the time to evaluate your heating needs. Proper sizing of a wood burning appliance for your specific home is very important. Oversizing can result in a tendency to starve your fire of air to prevent overheating of the room. This produces a smoldering fire which results in increased emissions and creosote deposition on your stack. Undersizing, on the other hand, may result in interior discomfort and additional fuel reloadings each day.

Action Proposed by the Department of Environmental Conservation

Currently, the department has not regulated wood stove emissions, primarily because they have not been known to cause any major pollution problems. However, the deaprtment is conducting some air monitoring studies to assess the present health-related impacts of increased wood burning in select locations.

To aid persons using wood stoves in efficient stove operation and in reducing their air pollution effects, the department will

1. publish detailed "do's and don'ts" for operating wood stoves to reduce the air pollution effects;

2. evaluate all possible control options which might be available to ensure that wood stoves are adequately operated for proper combustion including the practicality of setting emission standards.

Results of the monitoring study currently in progress will be available this coming spring. The department will then determine whether any additional control steps are needed.

Authority: AS 46.03.020(10)(A)
46.03.140

Department Contact: Tom Hanna, 465-2666

WASTEWATER PERMITS

The Department of Environmental Conservation is responsible for ensuring that liquid wastes discharged into the water or onto the land of the State do not harm public health or the environment. In order to accomplish this a permit procedure controls wastewater discharges. The department reviews projects to assure that standards to protect public health and the environment are maintained. The views of other agencies and the public are sought through public notice and hearings.

For many small and routine discharges, the department intends to develop "general permits" which would eliminate or reduce specific permit applications and processing. The department will emphasize informing the public of standards for discharges, and enforcing general standards for these discharges.

For example, there are many on-site sewage disposal systems in Alaska. As presently worded, the law requires these systems to be regulated by permit. These systems can, however, be effectively controlled by regulations, enforcement and plan review.

Other small discharges which may effectively be controlled by either a general permit or through regulations are: seafood processors, placer miners, exploratory camps, small community sewage facilities, on and offshore oil drilling platforms, and water reinjection. It is believed that general permits and regulations may well be our best tool to protect public health and the environment while at the same time reducing delay and complexities in the permitting process.

The best means presently available to accomplish this goal would be the passage of a bill which would give the department the authority to issue general permits.

Authority: AS 46.03.100
46.03.110

Department Contact: Gary Hayden, 465-2651

SURFACE OILING PERMITS

The Department of Environmental Conservation has statutes which state that no person may discharge, cause to be discharged or permit the discharge of petroleum or other petroleum products into, or upon the waters or land of the State except in quantities, times, locations and other circumstances and conditions that the department may permit.

In 1973, the Department of Environmental Conservation proposed surface oiling regulations which require a surface oiling permit before any petroleum products can be discharged onto the land. The regulations allow construction of five types of conventional asphalt paved surfaces without permits and outline general conditions applicable to all surface oiling permits to avoid pollution of lands and adjacent waters.

The object of requiring a permit for the oiling is to know when and where oiling is being done, and to know how much of what kind of oil is being discharged onto the land.

Requiring a permit also allows the department to directly forbid oiling by denying a permit where there is a high probability of pollution, such as in high rainfall areas.

The permits are simple to obtain either by letter or in person at one of the department's regional or district offices. No public notice or review period is required. Several hundred permits are issued annually by the Anchorage and Fairbanks offices, primarily for dust control on unpaved surfaces. Few permits are issued in Southeast Alaska because high rainfall tends to carry the oil into adjacent surface waters, and considerably less dust control is needed.

The most common violation of the regulations is application of too much oil to the surface, forming pools of oil which is splashed on cars or which may run off into surface water.

The department is considering eliminating surface oiling permits and regulating the discharge of oil to the land for dust suppression or disposal of minor amounts of oily wastes by standard conditions in the surface oiling regulations. Discharges of oil to the land for one time or routine disposal of large quantities of oily waste can be controlled by a waste disposal permit.

Authority: AS 46.03.740

Department Contact: Deena Henkins, 465-2609

WATER QUALITY STANDARDS

Alaska's water quality standards define water pollution and how to measure it. The standards accomplish this by identifying the uses of Alaska's waters and establishing the pollution control necessary to ensure the long-term protection of those uses.

All Alaska's waters have been classified according to use. Classifications for marine and fresh waters are: (1) drinking water supply; (2) industrial water supply; (3) water recreation; (4) growth and propagation of aquatic life and wildlife; and (5) harvesting for consumption of raw mollusks and other aquatic life. Standards are set to prevent pollution which would substantially reduce or eliminate the use of water for these purposes.

The water quality standards are the legal mechanism by which man-caused sources of pollution can be controlled. The standards are the basis for State wastewater disposal permits, and State approval of various federal permits. They are the primary enforcement tool for prosecution of those who pollute State waters. The standards also serve as guidelines for the development of environmentally sound methods for cleaning pollution from non-point sources.

The water quality standards are revised every three years in order to include updated technical information and changing environmental conditions. The revisions involve extensive participation by citizens, organizations, industry, and State, federal and local governments. During the revisions completed in February 1979, workshops and an extensive mailing and media campaign were held across the State. Suggestions made at these well-attended workshops were incorporated into the revisions and presented once again at public hearings. In all, ten different Alaskan communities were visited at least once during the revision process. Upon final completion, the revised standards are sent to the U. S. Environmental Protection Agency for approval.

The department attempts to influence the U. S. Environmental Protection Agency's development of water quality and pollution control standards. The department also tries to assure that nationally used standards are either appropriate for Alaskan conditions or include the flexibility needed to meet unique circumstances often present in Alaska.

Authority: AS 46.03.070
46.03.080

Department Contact: Alex Viteri, 465-2660

DRINKING WATER PROGRAM

Years of public health and water supply expertise and experience have led to the universally accepted conclusion that human health is directly affected by the chemical and bacteriological quality of water consumed. It is universally accepted that controlling the concentration of certain chemical and biological parameters and seeking certain water system management practices will significantly decrease mortality and morbidity rates.

Dramatic and acute incidents of drinking water contamination have over the years sent scores of seriously ill people in Alaska to hospitals because of defects in water supply and distribution systems. The most recent incident affected 189 persons working in a crab processing facility at Unalaska. Since 1971, eight dramatic waterborne disease outbreaks have been documented in Alaska. Besides such sensational events, there are long term chronic consequences of consuming substandard water which are frequently not recognized by the public or even measurable by public health officials. Of the diseases which are measured, hepatitis A, shigellosis, and salmonellosis, can be transmitted by water. Alaska's incidence of heptatitis A was nearly 14 times that of the State of Washington in 1976. The incidence of salmonellosis and shigellosis were 1.6 to 2.3 times that of Washington, respectively.

There are several methods of supervising public water systems, varying from strict enforcement of legal requirements to financial assistance for water suppliers. ADEC has chosen a balanceed program, the major features of which are:

1) a continuing public education program,
2) technical assistance in solving water supply problems,
3) formal regulations that set minimum standards for water supplies,
4) plan review for additions to existing water systems and construction of new facilities,
5) training and certification of water system operators,
6) inspecting water systems,
7) surveillance for waterborne diseases, and
8) a construction grants program.

ADEC's prime objective is to assure that all public water supplies provide safe water. The department prefers to assist water system owners and operators in their efforts to meet acceptable standards. But legal remedies are also available if all else fails.

The drinking water program is seventy-five percent funded by a federal grant--for FFY '81 the grant was approximately $763,100. The state provides twenty-five percent matching funds--for FFY '81 match was $254,400. This $1,017,500 program can support approximately 20.5 man-years of staff time.

Authority: AS 46.03.020(10(c)

Department Contact: Gary Hayden, 465-2651

ON-LOT SEWAGE DISPOSAL

About 23-25% of Alaskans attempt to dispose of their household sewage by underground soil absorption systems. The soil absorption systems usually consist of a septic tank to remove floating and settleable solids and perforated pipes in a trench or a seepage pit to allow the wastewater from the septic tank to seep into the ground. Soil conditions in Alaska are usually not suitable for underground disposal and odorous, potentially disease-causing untreated sewage often reappears in roadside ditches and backyards or contaminates nearby water wells. Even with acceptable soil conditions, cold stress reduces the efficiency and life expectancy of underground sewage disposal systems and increases their costs. Alternative treatment systems are only partly successful and much more costly. In some common soil conditions, on-lot sewage disposal must be ruled out altogether, with community collection sewers and off-site treatment systems the best alternative.

Alaska statutes require plans of sewerage systems to be submitted and approved by DEC prior to construction. For individual residences, DEC has waived this requirement with three exceptions:

1. When requested by and in cooperation with, local governments.

2. When requested by a financial institution as part of a loan approval requirement, especially for FHA, VA, and other federally guaranteed loans.

3. In areas of known unsuitable soil conditions.

With the absence of approval or permit requirements, it is up to the builder or buyer to ensure that his on-lot system meets the regulations. However, DEC frequently provides technical assistance to people building on-lot sewage systems.

Another means to ensure that adequate sewage disposal systems are installed has been for DEC to conduct training sessions for contractors routinely involved in construction of such systems. Work done by graduates of training sessions could be approved without an actual on-site visit by DEC.

It is estimated that during FY 81, DEC will be requested to approve about 500 bank loan related on-lot sewage systems, provide technical assistance to over 1,500 home builders and conduct four training sessions for septic tank installers.

Poor Soil Conditions

The two major causes of septic tank/drainfield failures are high water table and shallow soil over bedrock--at least four to six feet of dry soil below a drainfield is needed for effective purification of sewage. Fine silts and muskeg cannot accept sewage. With deep burial required to prevent freeze-up of sewer pipes, this limits practical use of conventional septic tank systems to the Mat-Su Valley and certain soils in Anchorage and Kenai Peninsula areas.

In other areas, artificial sand beds can be built to filer septic tank output or prefabricated miniature sewage treatment plants can be installed, both at greater costs. With any on-lot system, lot sizes must be sufficient to provide buffer zones to protect water wells from contamination. With such large lots, eventual hookup to community collector sewers is hindered because of the low density of dwellings.

Subdivision Plan Review

A potentially serious situation for home builders is when a new property owner cannot secure financing for home construction because soils are unsuitable for on-lot sewage disposal, or the property value of a recently constructed home is reduced because of failing on-lot sewage disposal systems. These potential problems can be greatly reduced by review of soil conditions before a residential subdivision is developed. Subdivision developers are required to submit soil, terrain, and other information so that DEC can determine whether on-lot sewage disposal is acceptable or whether alternatives should be developed. Local governments can be delegated this subdivision plan review authority. To date, only the Municipality of Anchorage has assumed this role. Subdivision soils review is the only means by which prospective buyers can be assured that on-lot sewage disposal can be provided for their residences.

Authority: AS 46.03.020
.090
.100
.110

Department Contact: Deena Henkins, 465-2609

WATER, SEWERAGE & SOLID WASTE CONSTRUCTION GRANTS

The department, through the Facility Construction and Operation Section, administers a construction grants program which provides incorporated communities assistance in constructing needed community water, sewerage and solid waste projects. The financial assistance provided by this program amounts to 50% of eligible project costs not financed by the federal government. Additionally, if it can be shown that a solid waste processing or disposal system utilizes resource recovery, the State will increase its grant amount to 60% of the eligible project costs not financed by the federal government.

The department's construction grants program has been in existence since 1970 and over the years has helped provide adequate drinking water and acceptable sewage disposal for Alaskans in all regions of the State. The Second Session of the Eleventh Legislature expanded the department's statutes to include additional responsibilities for a solid waste construction grants program. This new program will help communities address the problems of disposing of their solid waste.

In support of the construction grants program, the section performs the following functions:

* review of grant applications
* review of project plans and specifications
* analysis of project construction and operating costs
* processing of grant offers and payment requests
* on-site inspections during construction and following project completion
* preparation of project audit reports to ensure that grant funds were properly utilized by the grantee

At the present time, there is no priority list for projects due to sufficient funds. The funding source for the State grants are general obligation bonds which have been periodically authorized by the voters. Presently, approximately $13.4 million are available for obligation to projects through this program.

Authority: AS 46.03.030

Department Contact: Keith Kelton, 465-2610

VILLAGE SAFE WATER

The Village Safe Water Act calls for at least one facility for safe water and hygienic sewage disposal in each village in Alaska.

Since 1972, eleven VSW facilities have been constructed. They are in the villages of Northway, Chevak, Alakanuk, Selawik, Nulato, Koyukuk, Beaver, Pitkas Point, Kongiganak, Tanana, and Council. A facility is being designed for Akiachak and will be constructed during the summer and fall of 1980.

In these eleven villages the VSW projects consist of sanitation facilities to which village residents can come to obtain water supply and sewage disposal services, with bathing and laundry services available to all except Council. No piped water distribution or sewage collection systems are involved except for water and sewer service lines to schools.

Construction methods used so far have included: (1) competitive bid construction contracts administered by what was then the Alaska Department of Public Works; (2) competitive bid construction contracts administered by the Alaska Department of Environmental Conservation (ADEC); and (3) force account construction by the village through construction management contracts with engineering consultants.

The force account/construction management method of construction has been the most satisfactory of the three methods used. Facilities constructed that way have been built cheaper and faster than those built under competitive bid construction contracts; the quality of construction has been better, and the villages have been more intimately involved in, and satisfied with, their projects.

VSW facilities have cost from $118,000 at Council for a project begun in FY 78, to over $1,400,000 at Tanana, of which $755,000 were VSW funds. Villages served have ranged in size from 60 (Council) to over 550 (Selawik).

Experience in the VSW program has proved that financial, technical, and/or management assistance to the villages is necessary to ensure that the facilities continue to operate. ADEC provides technical and management assistance to the eleven villages. The VSW operation and maintenance support program has made it possible for all completed VSW facilities to serve the public as intended. It is instructive to note that the operation and maintenance cost per village has been decreasing in actual dollars (i.e., ignoring inflation) over the last few years.

VSW staff have been working to implement bond propositions authorized by the Legislature and approved by the voters in 1978 and 1980. For example, SB 449 directed this department to make sanitation improvements in eleven communities and specified the amount to be spent in each place. Projects are underway or have been completed in ten of these communities. HB 689 which was recently approved authorizes the expenditure of $10 million in 20 communities and VSW staff have been developing facility plans for each place which will: (1) identify sanitation problems; (2) recommend needed improvements; and (3) estimate project costs and a tentative construction schedule.

Authority: AS 46.07

Department Contact: Greg Capito, 465-2664

OFFICE OF SEAFOOD AND ANIMAL INDUSTRY

The Office of Seafood and Animal Industry, which is lodged in the Commissioner's Office, is charged with extensive responsibilities in the areas of meat, seafood and milk. We have located our staff in areas where there is readily available transportation or a concentration of specialized activity. For instance, our dairy sanitarian is stationed in Palmer, a seafood sanitarian resides in Kodiak. The bulk of our field staff work out of Anchorage, Anchorage being the transportation crossroads of Alaska. In Palmer, we have specialized laboratory back-up to support our field staff.

Our activities are concentrated for the most part at the food manufacturing level. The only areas where we deal at the retail level are in meat markets, milk and milk product sales, and transient fish peddlers. We interface with environmental sanitation inspectors at the retail level. Our inspectional duties vary from continuous inspection in the meat program, to routine inspections of the other facilities under our regulatory control. We work very closely with the U.S. Food and Drug Administration and with the U.S. Department of Agriculture. In fact, our meat inspection program is funded, to a great extent, by USDA under provisions of the Wholesome Meat Act. The seafood produced in plants under inspection is sold in the national and international markets.

We do not give any particular program special or high priority, rather attempting to provide equal service to the entire scope of our assigned duties.

Our office assists in the development of new sources of business, we are working with the seafood people in the development of a clam processing and harvesting industry. Because of the potential for paralytic shellfish poisoning, extensive and complicated testing must be done. We assist, advise, contribute financially, and act as an intermediary with the U.S. Food and Drug Administration on the interstate shipment of the product.

Where possible, we work and assist in the other functions of DEC and other state and federal agencies.

Our overall policy is to serve and protect the public to the extent of our resources.

Authority: AS 3 and AS 17

Department Contact: Fred Honsinger, D.V.M., 465-2628

ENVIRONMENTAL SANITATION

The goal of the Environmental Sanitation Section is to protect the health and productivity of residents and visitors to Alaska. Assistance is given in the form of education, inspection, consultation and enforcement of regulations. Direct service is provided in all areas of the State (except Anchorage, which has assumed health powers) by a field staff of 16 professional sanitarians stationed in 11 regional and district offices.

The science of keeping people healthy through the observance of sanitation has grown from a few simple hygienic practices in biblical times to the modern science of environmental health comprised of bacteriology, biology, physics, chemistry and engineering. In Alaska, authority for sanitation services is mandated by six statutes and 21 sets of administrative code associated with food handling, water supplies, housing, rodent control, public health nuisances and public facility sanitation. Environmental services at restaurants, bars, food stores, bakeries, hospitals, day care centers, schools, swimming pools, tourist accommodations, fairs, barber/beauty shops and similar public facilities. Periodic, unannounced inspections of these establishments are made to protect the public from the hazards of poor sanitation.

Food service is the first priority in the area of routine regulatory inspections. There is a continuing need for improvement in food handling practices in the State. Since food-borne illness is frequently not reported unless large numbers of people are involved, there is no way of documenting the actual number of cases occurring during the year. However, each year sanitarians are called upon to investigate proven cases.

Miscellaneous sanitation services, consisting of field investigations of complaints, recommendations on nuisance conditions and distribution of health education material are also furnished by the staff. Requests are also received to speak to various groups concerning various aspects of environmental health.

The overall policy of the Environmental Sanitation Section is protection of the public health by means of education, technical assistance and implementation of applicable State statutes and regulations.

Authority: AS 17.05
17.20
18.05.040
18.35

Department Contact: Joe Cladouhos, 465-2656

LITTER REDUCTION PROGRAM

A goal of the department is to reduce litter throughout Alaska and thus enable citizens and visitors, in their daily experiences, to enjoy a clean and aesthetically pleasing environment. An additional objective is to promote the recovery of resources and energy from discarded materials and thereby achieve a reduction in litter through resource conservation. On June 5, 1980, the State Legislature passed a new Litter Control and Resource Recovery Act, which provides for a wide range of activities to achieve the goals of litter reduction and resource recovery.

The State of Alaska has a special need to deal effectively with the problem of litter, and this was recognized by the Legislature. The State is often thought of as a "last frontier," both by visitors and by residents, and many are appalled by the growing appearance of litter. Visible evidence of the throw-away society is especially unwelcome in a State which is considered to represent the ultimate in natural beauty.

Litter control is but one of several solid waste problems and the program is therefore, placed within the Air and Solid Waste Management Section of the department. Litter is a problem which is traceable to acts of negligence or bad habits of many individuals, and for this reason a major component of the program emphasizes public awareness and education. Additional measures include increasing the number and use of litter receptacles in public places, distributing litter bags for use by individuals in their cars and boats, grants to public and private entities to encourage litter reduction and resource recovery, establishing youth litter patrols, prohibiting littering and enforced compliance with litter laws, and prohibiting the sale of detachable ring tabs and plastic six-pack holders. Emphasis is placed upon coordination of these activities with those required by the other solid waste management efforts of the department.

The new liter and resource recovery law further mandates public involvement by providing for a seven member Advisory Council. This is a citizen committee appointed by the Governor to advise and work with department employees to implement the program. The staff includes a litter program coordinator, a resource recovery development specialist, an administrative clerk, and a public information officer. These employees in the central office are aided in the program by a field officer in each of the three regional offices. The field officers work to coordinate the programs in their respective regions, including activities with communities, schools, litter patrols, public relations, receptacles, and enforcement.

Authority: AS 46.06

Department Contact: Joe Ferguson, 465-2634

RESOURCE RECOVERY

The policy of the resource recovery program is to develop practices and incentive which encourage the reuse of materials, promote energy conservation, reduce the amount of solid waste to be disposed of, and protect the aesthetic values of the State. The ultimate goal of the program is to achieve measurable increases in the amounts of materials which are recycled or reused. The 1980 legislative session passed the new Litter Control and Resource Recovery Act, which calls for the reduction of litter, recovery of all recyclable materials, and a move toward a more aware and informed public. In carrying out the responsibility under the act, the Department of Environmental Conservation will actively involve other State agencies, local government organizations, and the general public in developing the Litter and Resource Recovery program.

During World War II, significant amounts of materials were salvaged from municipal wastes. Some wastes were set aside in the home for separate collection by a collection agency, civic group, or social service agency. Many communities also removed salvageable materials prior to final disposal. However, as labor costs rose and the compactor truck was introduced, these operations became more expensive and most were slowly abandoned. Today, there is increasing concern about conserving our resources. There are new and more stringent air and water pollution control laws, and industry's costs for processing raw materials are increasing. Rapidly rising energy costs favor the reuse of waste material, as their processing requires less energy and causes less pollution. Landfill space is becoming increasingly difficult to find, thereby providing incentives to cut down on the materials going to landfills. New landfills are difficult to locate, and new facilities are not always acceptable to communities.

The Department of Environmental Conservation has developed a program, as authorized in the Litter Control and Resource Recovery Act, which will help to conserve the State's valuable resources and energy. It will identify all possible markets and opportunities for waste recycling, and promote development of recycling facilities and programs throughout the State. There are several barriers to resource recovery in Alaska. These are primarily long haul distances, high freight rates and low population densities. The resource recovery program will determine the types of materials that may be recycled and actively work with industry to improve the logistics and cost effectiveness of recovery. An extensive public relations program will help educate the public to the problems and needs of the State and the means by which each individual may contribute to these efforts. The department is also in the process of establishing a public advisory council which is expected to provide effective and practical direction for the litter and recycling programs as they are developed over the next year.

Grants will be made available for demonstration projects and for the establishment, implementation and operation of any programs which will further the aims of the act. The program's first efforts will be to help communities evaluate whether or not heat recovery from the burning of solid waste is practical, and to encourage the use of equipment for separating or compacting materials.

The resource recovery program consists of a development specialist who acts as program manager, supported in part by three field officers, an information office, and a clerk. The manager of the litter program will be providing additional support and assistance, as well as other technical and planning staff in the Solid Waste Section of the department.

Authority: AS 46.06

Department Contact: Tom Hanna, 465-2666

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MAR 16 1981

STATE OF ALASKA

DEPT. OF ENVIRONMENTAL CONSERVATION

JAY S. HAMMOND, GOVERNOR

465-2650

POUCH O – JUNEAU 99811

March 12, 1981

Bettye — Environmental? response

Senator Bettye Fahrenkamp
Pouch V
S te Capitol Bldg. Room 113
J eau, Alaska 99811

Dear Senator Fahrenkamp:

As discussed at the senate resource committee meeting on March 4, 1981 I have enclosed several copies of the Chena River and Noyes Slough water quality "success story". This article was prepared and published by the U. S. Environmental Protection Agency in June, 1980. The article summarizes the history of the serious water quality problems that faced the residents of this area and the clean up measures taken by various government agencies to correct it.

Although the water quality of the Noyes Slough is now a success story, sediment deposition caused by local development and beaver dams have stagnated the slough's waters. Before the slough could support canoeing and other public recreational uses dredging of the slough will be needed. The City of Fairbanks has repeatedly expressed interest in having the slough dredged but to date no funds for this program are available.

Please feel free to call me with any further questions you may have on this. I can be reached at 465-2650.

Sincerely,

Gary Hayden

Gary Hayden, P. E.
Chief
Water Quality Management

cc: Doug Lowery, ADEC
Lane Tompson, Public Works Director
City of Fairbanks

United States
Environmental Protection
Agency

Office of Water
Planning and Standards (WH-551)
Washington, DC 20460

June, 1980

EPA

A Water Quality Success Story

Chena River and Noyes Slough, Fairbanks, Alaska

(This story deals with progress in cleaning up conventional pollutants such as oxygen-demanding materials, suspended solids and bacteria. However, toxic substances may be present which may require further abatement actions.)

Today, Alaska's Chena River, a near-arctic stream which flows through the City of Fairbanks only 130 miles below the Arctic Circle abounds with sport fish and attracts hundreds of nature lovers, picnicers, and boaters.

And Noyes Slough, a winding side channel to the Chena north of Fairbanks flows through a wooded suburban surrounding and awaits funding so that it can be transformed into a haven for boating and hiking.

Only a few years ago, however, water quality along the Chena River and Noyes Slough was quite another story.

POLLUTION ALONG THE CHENA RIVER IN FAIRBANKS

By the late 1960's, municipal wastes were discharged into the Chena River from about 25,000 people in Fairbanks, the United States Army base at Fort Wainwright, and a utilities area which served the Town of College outside the Fairbanks city limits. These wastes received primary waste treatment from several outdated facilities which were not designed to remove the increasing load of oxygen-demanding wastes placed on the river.

According to a Federal Water Pollution Control Administration study conducted in early 1970, chemical oxygen demand levels -- a measure of the oxygen-consuming capacity of water or wastewater measured in milligrams per liter (mg/l) -- at four locations along the Chena River were between 44 and 47 mg/l. These levels were far higher than anticipated for a stream like the Chena which flows through a largely undeveloped area.

While Fairbanks is not an industrial city, dry-cleaning plants and small industries such as auto paint shops and an industrial gas generating plant also discharged wastes directly into the Chena, or to the Fairbanks primary treatment plant.

In a citizen's brochure published in 1970, the Alaska Conservation Society's Tanana-Yukon Chapter stated: "In terms of bacterial pollution, the City of Fairbanks is violating Alaska's water quality standards which set limits for coliform bacteria in water for the following uses: Drinking water - less than 50 coliform organisms per 100 milliliters (ml); swimming - less than 240 organisms per 100 ml; and boating and fishing - less than 1,000 organisms per 100 ml.

"At the present time," the Chapter concluded, "coliform counts taken in the Chena River by the Alaska Water Laboratory range anywhere from 37,000 to 500,000 coliform organisms per 100 ml."

Reacting to this environmental degradation, sportfishermen angling for grayling and whitefish now went upstream of Fairbanks where the river's cold, near-arctic waters were cleaner.

POLLUTION IN NOYES SLOUGH

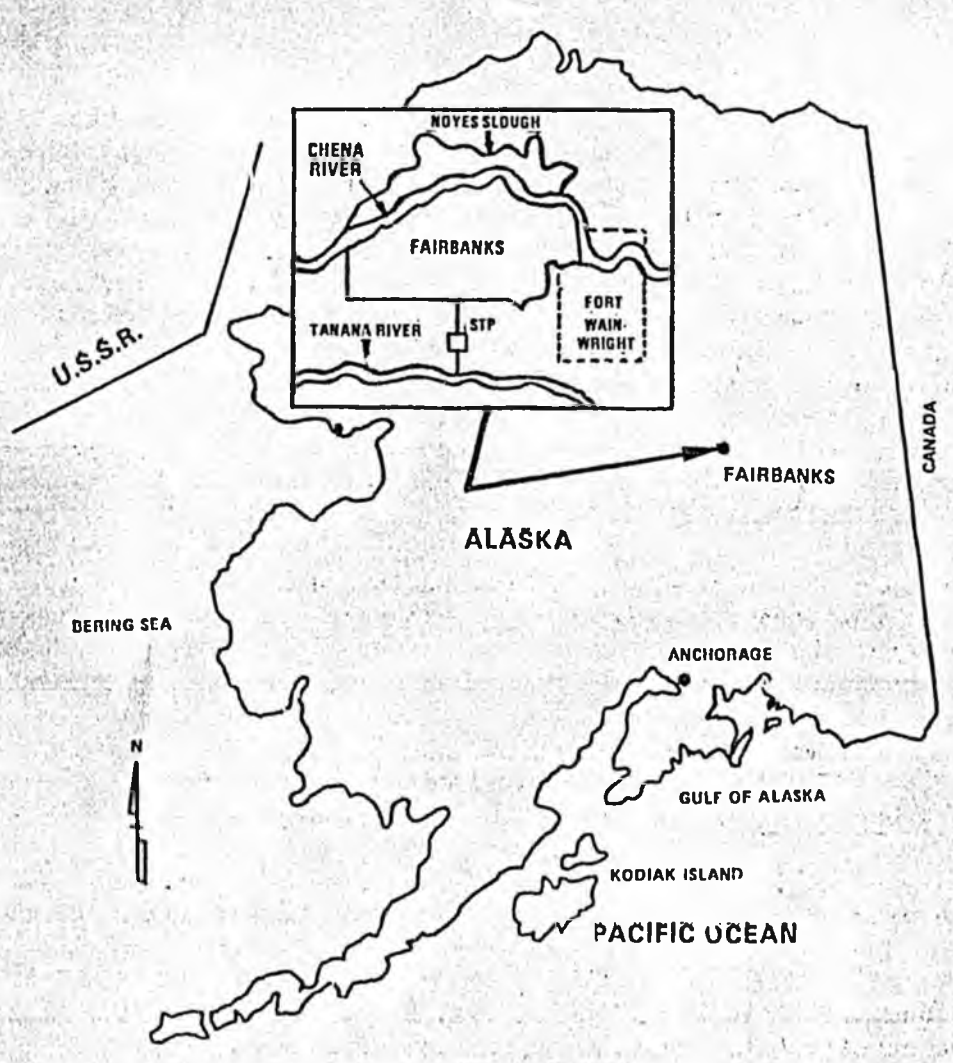
Grossly degraded in the recent past, pollution along this small waterway exemplifies the nuisance conditions and ravages that raw sewage discharged without proper treatment can inflict on homeowners.

Noyes Slough begins at the Chena in the City of Fairbanks, circles north through the formerly unsewered Slaterville, Lemeta and Aurora subdivisions, and winds back into the Chena on the west side of Fairbanks. Until recently, the Noyes served as a sewage dumping ground for the subdivisions along its banks. Electrical power was supplied by a utility which used water from local wells, then pumped its cooling water back into the slough. Since there was no local sewage authority and enforcement at that time, people living along the Noyes laid sewer pipes directly from their homes into the slough and sent raw sewage into the stream.

When the utility stopped discharging cooling water into the Noyes in 1967, clumps of sewage, mounds of garbage and scrap car bodies surfaced. Local health officials sampled the water and found that it contained an astronomical 6 million bacteria per 100 ml.

Reacting to this public health hazard, the Fairbanks Superior Court ordered property owners along the slough to install septic tanks and stop piping sewage directly into the Noyes until sewage lines could be installed. Shortly after, many of these tanks proved to be inadequate; their contents entered overloaded septic drainage fields and from there, seeped into the ground water.

Eventually, things came to a crisis in the Lemeta subdivision along the slough for a husband and wife whose name, for the sake of



anonymity, has been changed to the John Doe family in the following newspaper article.

In the article which appeared in the October 30, 1969 edition of the Fairbanks Daily News-Miner, a staff writer wrote: "There is a sewer line which is busily discharging raw sewage into Noyes Slough. The line serves Block 18 in Lemeta, and the sewage produced by all but a few of these people is served by a single overloaded septic tank."

The writer added an ironic touch.

"The tank, which fails to meet state and federal standards, isn't even in Block 18. It's on property belonging to John Doe, who, in turn, isn't even hooked up to the same tank. When asked to describe the effluent from the sewer line whose outfall is directly behind her home, Mrs. Doe shuddered. 'Horrible,' she said. 'I'd call it solids.'"

Shortly after, another staff writer described this family's plight.

"With the advent of warm weather, the Does are forced into a strange way of life. Their home is equipped with a special air conditioner to filter out the overwhelming stench from the slough, and their windows must be closed tight and covered with screens to keep out flies which swarm to luxuriate in the stinking mess. Mrs. Doe is looking forward to another summer of splitting headaches brought on by sewer gas, and her husband is so tense he's afraid he'll be rude to his customers. On top of that," the writer continued, "they must haul nearly every drop of water they use in their house. The polluted slough water has seeped back into the water table and ruined their well water. Often, the Does must pour hauled water back into their toilet to flush it; their well water is so bad that it literally pollutes the toilet."

A couple of months later, a National Broadcasting Company television news team arrived in Alaska to do a documentary on new developments, particularly in oil, while keeping a weather eye open for environmental hazards for another series the network was producing.

Early one morning, the news team was in Fairbanks preparing to head for the North Slope when an article on the John Does in the Fairbanks Daily News-Miner caught its attention.

A day or so later, the Does went on national television. After the interview, Mrs. Doe asked the anchorman if he would live on the slough.

"I wouldn't live here," he replied brusquely. "I've been all over the country but I've never seen such gross pollution."

LOCAL AND STATE CLEANUP ACTIONS

Toward the end of the 1960's, Fairbanks city officials decided to annex the outlying suburbs to provide these communities with sewer services.

In 1969, the State of Alaska Boundary Commission held public hearings in Fairbanks on the annexation issue, and in early 1970, annexation became a reality when the Lemeta, Aurora, Johnston and Graehl subdivisions -- some 3,700 people and 3,000 acres -- became part of the City of Fairbanks.

Next, and top priority on the cleanup schedule, was the City of Fairbanks' sewer improvement project which called for diverting sewage from Fairbanks, Fort Wainwright, and the outlying suburbs away from the Chena River through a sewer interceptor system to a new regional secondary treatment plant below Fairbanks on the Tanana River. Wastewaters from the city, its suburbs, and local small industry would be carried by trunk lines to the interceptor system for treatment at the secondary regional facility, and discharged

after treatment into the Tanana.

Finally, the project called for eventually phasing out the old Fairbanks, Fort Wainwright and College Utilities outfalls on the Chena, and also phasing out all of the outmoded primary treatment facilities along the river.

In 1971, the City of Fairbanks placed a sewage facilities bond issue on the city ballot asking that the citizens approve a general obligations bond issue to help finance the sewer improvement project. In a brochure published during this period, the Tanana-Yukon Chapter strongly urged that the citizens vote "yes."

"If you are interested in restoring the Chena River," the Chapter said, "you can help by approving the bond issue when it appears on the ballot. The city is making a firm commitment but voter delays mean we'll have missed this golden opportunity. If we don't clean up now we'll have to do it later, under much less favorable circumstances.

"Since a bond election is required for the city's share in funding sewage treatment facilities," the Chapter concluded, "our executive committee has decided to meet with other interested organizations to explore ways to meet the problem. Chapter members can contact Ernie Mueller."

Today, Mr. Ernst Mueller is the Commissioner, Alaska Department of Environmental Conservation (DEC) which was created in 1971.

Working with the Chamber of Commerce, the League of Women Voters, the Fairbanks Outboard Association, the American Association of University Women, and Students for Environmental Action -- and coordinating its grass roots push to clean up the Chena concurrently with the Sierra Club, the Fairbanks Environmental Center and the Tanana Valley Sportsmen's Association -- the Tanan-Yukon Chapter sponsored an intensive mailing campaign to get additional voter acceptance for the bond issue. Using a high school print shop and student volunteers, the Chapter printed and mailed thousands of brochures describing the bond issue to registered voters in the Fairbanks metropolitan area.

Shortly after, the citizens of Fairbanks voted approval on the city ballot.

FEDERAL CLEANUP ACTIONS

In July, 1972, the U.S. Environmental Protection Agency (EPA) awarded the City of Fairbanks $979,360 to construct an interceptor sewer system and a pumping station. In the following year, the EPA awarded Fairbanks $6.6 million to construct a regional secondary treatment plant and a sludge disposal facility on the Tanana River,

plus interceptor sewers, manholes, and lift stations, and a year later, awarded the city an additional $8.3 million to complete this project.

All of these new facilities were on line by mid-1976. The Fairbanks Wastewater Treatment Facility presently removes 90 percent of the biochemical oxygen demand -- a measure of the organic matter in water which consumes oxygen during biological processes that break it down -- and suspended solids in its discharges, and uses gaseous oxygen to enhance wastewater oxidation.

On October 18, 1972, Congress passed the 1972 Amendments to the Federal Water Pollution Control Act. Section 402 of the Act established the National Pollutant Discharge Elimination System (NPDES). Implemented since its inception by the EPA and the states, this system defines the requirements for permits to discharge into the nation's waters.

Between 1974 and mid-1976, the EPA issued discharge permits under the NPDES program to the City of Fairbanks, Fort Wainwright, and the College Utilities Corporation.

The EPA, in addition, recently funded two Facilities Planning Studies under Section 201 of the landmark federal 1972 Water Act.

In December, 1978, the EPA awarded the Fairbanks North Star Borough $19,635 to address the problem of septic tank failure in the Ballaine Lake subdivision. During February, 1979, the EPA also awarded the City of Fairbanks $33,855 to develop a facilities plan for disposal of dewatered sewage sludge generated by the regional secondary treatment plant. The planning area includes a 20-mile radius around Fairbanks; within this area, the study will address the problem of sewage sludge from the regional treatment plant and sludge from septic tanks. Many of the outlying suburbs still use septic tanks for other on-lot sewage disposal.

These preliminary engineering studies will assess wastewater treatment within each community, and will develop cost-effective solutions to local waste treatment problems.

EPILOGUE

Today, the 110-mile-long interceptor sewer system encircles Fairbanks. Along the way, its trunk lines receive the wastes from the city, most of its outlying suburbs including Lemeta, its small industries and Fort Wainwright, and carry these wastes to the regional plant for secondary treatment. By June, 1980, the interceptor system will tie in to the College Utilities Corporation to receive wastewaters from outside the northwestern portion of the city limits, including the University of Alaska, the College area and a few new housing developments.

These cleanup actions have had a positive environmental effect upon the Chena River. According to a study conducted by the Alaska DEC in 1978, the chemical oxygen demand load to the Chena previously sampled at four locations had dropped to between 5 and 8 mg/l, a marked improvement.

Today, DEC water quality specialists in Fairbanks say that "the level of bacterial pollution in these waters has dropped dramatically since pre-cleanup days, when coliform counts ranged from 37,000 to 500,000 coliform organisms per 100 ml.

"We conducted a bacteriological survey of the Chena in July, 1977, and found that the coliform count at one sampling location was down to 70 coliform organisms per 100 ml, and that counts taken at five other locations along the lower river in Fairbanks ranged from 10 to 25 organisms per 100 ml, a resounding tribute to the combined local, state, and federal cleanup actions which have saved the Chena River."

In response to greatly improved water quality conditions along this Alaskan stream, anglers in and around Fairbanks have returned to these waters to catch grayling -- a gourmet delight and a prince of a sportfish -- and whitefish, a species which is valued for its tasty white meat. Since cleanup, boat landings and a picnic and camping ground have appeared along the Chena, attracting boaters, canoers, and nature lovers. Canoeing enthusiasts test their skills during racing competitions held in the summer, and a raft race highlighted the festivities last July during Fairbanks' annual Golden Days celebration.

Noyes Slough is no longer a pesthole, but there is still work to be done.

Raw sewage still poured into it after Lemeta was annexed to Fairbanks, and continued to pollute the stream until 1973, when Lemeta tied into the regional interceptor system. At that point in time, Noyes Slough ceased to be a municipal cesspool.

In 1972, Alaska DEC water quality specialists conducted a survey along the Noyes to collect evidence of sewage-related problems. The DEC discovered that several local residents were violating state waste disposal regulations and ordered them to either connect into the expanding trunk lines to the interceptor system, or remove their discharges from the slough.

The DEC surveyed the Noyes again in 1975, this time to check the number of remaining outfalls and determine which outfalls required further state enforcement, and in 1978 conducted a last survey: This final inspection now showed there were no more sewage dischargers to these waters and that water quality had improved along the entire length of Noyes Slough.

Since the Noyes is a slow-moving stream with a low dilution capability, the remaining problem was getting fresh, fast-flowing water into it to flush it out, allowing the stream to restore itself and to help clean up pockets of bottom sediments which were still relatively polluted.

In 1976, Fairbanks city officials started cleanup by dredging many blocked up areas, deepening the eastern end of the Noyes where it originates on the Chena River, and dredging the mouth of the slough to the west.

Then in mid-1978, a Fairbanks sanitary specialist paddled down the Noyes in a rented canoe to verify once again if it was still the unnatural sewer some people still claimed that it was.

Followed by a local newscaster from Station DTVF-TV, his inspection showed that: Public outcries that many householders were still dumping sewage were unfounded; yes, there were still car bodies, old furniture, beer bottles, toilets, wheelbarrows, toys, and an old hot water tank in the slough; but most encouraging, his trip confirmed the conclusions of the DEC surveys by turning up an inventory of zero visible sewage outfalls and only one half-way suspicious-looking storm sewer.

His report, submitted to the Fairbanks City Council with 24 photographs taken as evidence, concluded that "Noyes Slough is now in fairly good condition and can be made into a canoeing area with the help of the city and the people who live on, or near it."

Right now, the Noyes is clean enough to support beaver, muskrat and mink, "but lack of funds," says the Tanana-Yukon Chapter, "is the main bottleneck in the push to dredge the full length of the Noyes so that it can be used for boating, and cleaning up its banks to provide paths for hiking."

"We sampled the Noyes for bacteria in 1978," says the Alaska DEC, "and found that instead of 6 million bacteria per 100 ml the coliform count had dropped to a meager 70 per 100 ml. With gross water quality degradation a thing of the past, we hope and expect that the slough will be fully restored in the very near future."

(Information for this story was kindly contributed by: Mr. Ernst Mueller, Commissioner, Alaska Department of Environmental Conservation, Juneau; Mr. Wallis Droz, City Manager, Fairbanks; Mr. Merritt Mitchell, formerly with the EPA Arctic Environmental Research Station, Fairbanks; Mr. Stanley Brust, EPA Alaska Operations Office, Anchorage; and Mr. Douglas Lowery, Alaska Department of Environmental Conservation, Fairbanks. We thank them for their valued assistance and cooperation.)

Success stories in print:

Buffalo River, New York
Beaver Creek, Tennessee
Chena River and Noyes Slough, Alaska
Deerfield River, Massachusetts
Detroit River, Michigan
Dillon Reservoir, Colorado
Rocky Mountains
Escambia Bay, Florida
Grove and Center Creeks, Missouri
Hackensack River, New Jersey
Haley Pond, Maine
Kodiak Harbor, Alaska
Lake Minnetonka, Minnesota
Mohawk River, New York
Monongahela River, West Virginia
and Pennsylvania
Naugatuck and Lower Housatonic
Rivers, Connecticut
Neches River, Tidal Area, Texas
Ogden Bay, Utah
Pearl River near Bogalusa,
Louisiana
Pemigewasset River, New Hampshire
Roseberry Creek, Alabama
Sope Creek, Cobb County, Georgia
St. Johns River, Florida
Willamette River, Oregon
Yellowstone National Park,
Wyoming