ALASKA LEGISLATURE COMMITTEE FILES 1981-1982 8672

1880 SRES GEOCHEMICAL BRIEF 1/30/81 - HABITAT REGS. 3/25/81 1880

On a regional or reconnaissance basis, hydrogeochemical surveys can provide information on the relative abundances of water-soluble elements, such as uranium, even when they occur at considerable depths below the surface. As water migrates through the crustal environment, it continuously dissolves, precipitates, and redissolves soluble minerals with which it is in contact, thus providing a record of the mineral environment through which it passes. Surface water from streams and small lakes can also reflect subsurface conditions because they are constantly fed by and mix with ground water from springs and seeps. Figure 1 illustrates some of the ways ground water can circulate in the earth's crust.

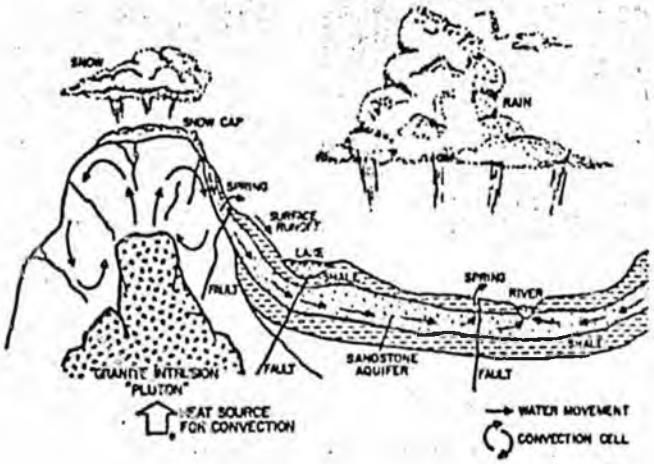

Fig. 1.

Many uranium minerals, as they commonly exist in nature, are soluble in water (that is, they dissolve in water much like salt), and when chemical conditions are favorable (oxidizing environment), they are carried for long distances in solution. When the chemical conditions change (reducing environment), the uranium precipitates out of solution, and, over many thousands of years, large local concentrations can develop. Because of the solubility of uranium minerals, waters sampled in uraniferous areas will generally possess relatively higher concentrations of uranium than waters sampled in areas with no uranium. Underground waters typically possess more uranium than surface waters because of their longer transit time through, and more intimate contact with, the rock and soil. Average uranium concentrations in ground waters range between 0.5 and 4 parts per billion (ppb) and in surface waters between 0.1 and 3 ppb. In northern latitudes (such as Alaska), the average uranium concentrations in water are less, usually in the parts per trillion (ppt) range.

When evaluating water data, it is usually not possible to compare the ground water results directly with surface water results. However, because similar concentration trends are often visible in both, they are complementary sets of information. By analyzing many samples taken over a large area, it is possible to determine the average or background uranium levels for that area. This information provides a basis for defining the significance of uranium concentrations that are considerably higher (or lower) within that area.

Sediment, transported and deposited by water in streambeds, small lakes, and ponds, is also collected and analyzed for uranium. The sediment results provide a completely distinct set of data from the water results, and must be evaluated separately. The normal background uranium levels in sediment range between 1 and 10 parts per million (ppm), depending on the predominant rock type from which the sediment was derived. The sediment analyses can be used like the water analyses to establish background values on which to compare higher and lower concentrations within geologically similar areas.

Because both water and sediment data can be used to define regional patterns of uranium mineralization, they are both important to a meaningful resource study.

THE LASL HSSR

The LASL program was designed largely on the basis of the results of similar surveys conducted in many parts of the world during the past 30 years. Consultation with experts in the field plus pilot studies in each of the five LASL states have been and continue to be used to refine and improve the methodology and effectiveness of the LASL program. The expertise of LASL Groups G-5, CMB-1, P-2, and Q-12 has provided the necessary technical knowledge required for this complex program.

FIELD SAMPLING

Water and waterborne sediment samples are collected at an average density of one location every four square miles throughout each of the lower four states and in mountainous regions of Alaska. Whenever possible, both water and sediment are collected at each location. In lake areas of Alaska, which include approximately two-thirds of the state, lake water and bottom sediment are collected from one location every nine square miles. All of the sampling in Alaska is done using helicopters. Upon completion of the field work, about 240,000 locations will ultimately be sampled in the LASL region, which includes about 35% of the US land area. Nearly half of these have already been sampled.

All samples are collected and treated in the field according to stringent standards established by LASL. The water samples are filtered to remove particulates (except in Alaska where the waters are usually very pure) and acidified to keep the uranium in solution. The sediment is dried with low heat and then sieved to remove all coarse material. In addition to improving the analytical results, standard collection and treatment procedures make the data more directly comparable.

Each sample location is assigned an identification number and is marked precisely on the best available map for that area, usually large-scale United States Geological Survey (USGS) topographic maps. Selected water chemistry measurements (pH, specific conductivity, and temperature) and a measurement of the ground radiation are made at each sample location to further aid in evaluating the data. Finally, general information about each site, including the local geology, hydrology, geography, weather, and possible sources of contamination, are noted on the field data form.

When the samples arrive at LASL, they are verified individually and sent to two LASL analytical groups. The waters are all analyzed for uranium, using a fluorometric method, at an analytical chemistry laboratory. By using an evaporative concentration technique, as little as 0.02 ppb uranium can be measured. All sediment samples, and those water samples having more than 10 ppb uranium, are analyzed by a delayed-neutron counting method. Here, each sample is injected automatically into a reactor-generated neutron field, extracted, and counted after a short time delay. Uranium measurements as low as 0.25 ppb in water and 0.05 ppm in sediment are possible using this analytical technique. After analysis, the samples are placed in archival storage. Figure 2 is a simplified flow diagram of the overall LASL HSSR program.

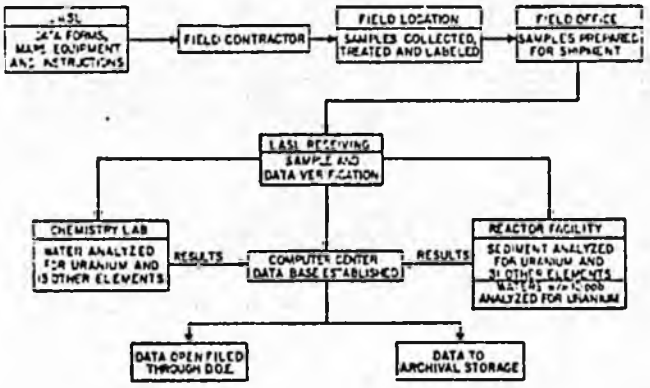

Fig. 2.

The information resulting from the HSSR is made public as open-file reports through the DOE Grand Junction, Colorado, office and at other DOE regional offices across the country. A typical LASL HSSR report includes information about the sampling methodology, general geographic and climatic summaries, an overview of the hydrologic and geologic setting of the area, descriptions of known mineral occurrences (with particular attention to uranium), and finally, a brief evaluation of the data, noting those factors most likely to influence the analytical results. All the information collected at each field location, along with the exact location coordinates and the analytical data, are listed as appendixes to the reports. A geologic base map, and location and uranium concentration overlays, all at 1:250,000-scale (as simulated in Fig. 3) are also included with each report. This basic report format was developed to make the HSSR data as easy to understand and use as possible, while still making the information available to the DOE and the general public on a timely basis.

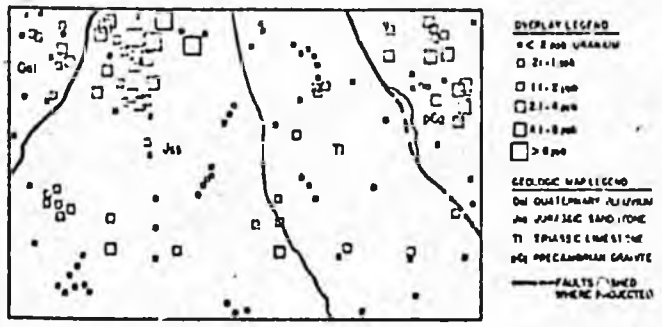

Fig. 3.

HSSR MULTIELEMENT CAPABILITY

Beginning in October 1977, the scope of the HSSR was broadened considerably to include not only uranium, but also thorium, lithium, and several other elements as selected by each participating laboratory. LASL plans to analyze and report on 43 elements in addition to uranium. Water samples will now be analyzed by emission spectrography for calcium, cobalt, chromium, copper, iron, magnesium, manganese, molybdenum, nickel, lead, zinc, and titanium. Sediment samples will be analyzed for beryllium and lithium by emission spectrography, and for silver, bismuth, cadmium, copper, niobium, nickel, lead, tin, and tungsten by x-ray fluorescence. Sediment samples will also be analyzed for aluminum, barium, calcium, chlorine, dysprosium, potassium, magnesium, manganese, sodium, strontium, titanium, and vanadium using neutron activation with a short time delay before analysis; and for gold, cerium, cobalt, chromium, cesium, europium, iron, hafnium, lanthanum, lutetium, rubidium, antimony, scandium, samarium, tantalum, terbium, thorium, ytterbium, and zinc by using neutron activation with a long time delay before analysis. The use of short- and long-delay times is required because some of the energy spectra for the short-delay elements musk the energy spectra for the long-delay elements. By waiting a few days before measuring the long-delay elements, the masking effect is diminished sufficiently to allow reasonably accurate concentration measurements. All results of the multielement analyses will be published as separate listings in appendixes of LASL HSSR reports. As with the uranium results, all water analyses will be in weight ppb and all sediment analyses in weight ppm.

Expansion of the HSSR to include multielement analyses greatly enhances the overall program. Several of these additional elements will be useful for evaluating the uranium data in a more thorough manner; but even more significant, many of them are very important in their own right as essential raw materials. In effect, the HSSR has assumed a key role in assessing the long-range mineral resources of the US both for energy planning and for future economic growth.

ABOUT THE AUTHOR

Paul Aamodt is Assistant Group Leader of LASL's Geochemical Applications Group, G-5. He is a graduate of the University of Nevada, Las Vegas, with a degree in geology. Before joining Group G-5, Aamodt worked at the Nevada Test Site where he was involved in nuclear test containment studies, and in industry, siting underground hydrocarbon storage facilities. He has been involved with the NURE HSSR since 1975, the year LASL began its program.

This work was supported by the US Department of Energy, Division of Uranium Resources and Enrichment. Program Code B048.

Mini-Review readers are encouraged to correspond directly with the author

LASL PROPOSAL

ANALYSIS OF GEOCHEMICAL SAMPLES FROM THE STATE OF ALASKA

For submission to the State of Alaska

by the

Los Alamos Scientific Laboratory
P. O. Box 1663
Los Alamos, NM 87545

Prepared by:

David E. Broxton
Principal Investigator

Merle E. Bunker
Principal Investigator

Glenn R. Waterbury
Principal Investigator

Approved by:

Robert R. Brownlee
G Division Leader

George A. Cowan
Associate Director for
Chemistry, Earth, and
Life Sciences

George A. Keyworth
P Division Leader

Harry C. Hoyt
Associate Director for
Energy Programs

William J. Maraman
CMB Division Leader

Robert N. Thorn
Associate Director for
Physics and Mathematics

Ann Tellier
Financial Management Office

Larry S. Germain
Deputy Assistant Director
for Alternate Energy Sources

STATUTORY BASIS:

PROJECT DESCRIPTION: The nationwide Hydrogeochemical and Stream Sediment Reconnaissance (HSSR) portion of the National Uranium Resource Evaluation, sponsored by the US Department of Energy, is being terminated in September 1981. The present status of the HSSR in Alaska is shown in Figure 1. With its remaining HSSR monies, the Los Alamos Scientific Laboratory (LASL) will be able to analyze only one-half of the remaining collected but unanalyzed sediment samples (i.e., 20,000 out of 40,000 unanalyzed samples or 33 of the 66 remaining quadrangles). This effort will require $800,000 of the LASL's $1,500,000 HSSR budget, the remainder to be used for analyses in the lower states and program closeout.

If funded by the State of Alaska for $800,000 to match the LASL's $800,000, the LASL would be able to complete the analysis of all remaining Alaskan HSSR sediment samples. Each sediment sample would be analyzed for 12 elements by x-ray fluorescence (Ag, As, Bi, Cd, Cu, Nb, Ni, Pb, Se, Sn, W, and Zr) and for 32 elements by neutron activation analysis (Al, Au, Ba, Ca, Ce, Cl, Co, Cr, Cs, Dy, Eu, Fe, Hf, K, La, Lu, Mg, Mn, Na, Rb, Sb, Sc, Sm, Sr, Ta, Tb, Th, Ti, U, V, Yb, and Zn). The analytical costs and detection limits are comparable to or better than those obtainable commercially.

OBJECTIVES/POLICIES:

The principal objective of this proposal is to complete the analysis of all HSSR sediment samples collected from the State of Alaska and open file these analytical data to the public. These data provide baseline geochemical information, covering approximately 85% of Alaska, that can be used for formulating policy decisions regarding natural resources and environmental quality.

INTEREST GROUPS AFFECTED:

Alaska Department of Natural Resources (State Geologist, Division of Geological and Geophysical Services, Division of Parks, Fish and Game Department.)
Alaska Department of Environmental Conservation.
Alaska Department of Commerce and Economic Development (Alaska Energy Office - Division of Energy and Power Development.)
Alaskan Senate Committee on Natural Resources.
All Alaskan Native and Village Corporations.

LEGISLATION/REGULATIONS REQUIRED:

CATEGORY

COVER PROGRAM

BRU

COMPONENT

SHORT FORM PAGE

SOURCE OF REQUEST:

PROJECT LOCATION:

DEPARTMENT PRIORITY:

____ OF ____

GOVERNOR'S ACTION:

LEAD DIVISION/PROJECT MANAGER:

DNR
PROJECT

EQUIPMENT	AMOUNT	DIVISION	PURPOSE

POSSIBLE ADJUSTMENTS

UPWARD INCREMENT

It would cost $2,000,000 to complete the sample collection, analysis, and open filing of 18000 locations from the unsampled areas of Alaska exclusive of the Aleutian Island chain west of the Unimak quadrangle (Fig. 1).

DOWNWARD INCREMENT

For each downward increment of $24,000, one quadrangle will remain unanalyzed.

RELATION TO LAST YEAR:

ONAL SERVICES

OB TITLE	LOCATION	DIVISION	SALARY	BENEFITS	NO. OF MONTHS	POSITION COST

EL

	AMOUNT	DIVISION	PURPOSE

TRACTUAL

	AMOUNT	DIVISION	PURPOSE
Alamos entific oratory	$800,000	Geosciences Div.	Analyze and open file data listings, 1:250,000 scale location maps, and data tapes for 44 elements in 20,000 Alaskan sediment samples.

For each quadrangle, a data listing, a sample location overlay (1:250,000 scale), and, if desired, a computer data ape will be delivered to the State Geologist's office. Details of payment schedules and deliverable schedules to be egotiated between the State of Alaska and the Los Alamos Scientific Laboratory.

MMARY OF PROJECT COST:

DE	EXPENDITURES BY OBJECT	DIVISION	DIVISION	DIVISION	DIVISION	DIVISION	DIVISION	DIVISION	DIVISION	TOTAL
)	PERSONAL SERVICES									
)	TRAVEL									
)	CONTRACTUAL SERVICES	Los Alamos Scientific Laboratory								$800,000
)	COMMODITIES									
	EQUIPMENT									
	LANDS, BLDGS., ETC.									
	GRANTS, CLAIMS, ETC.									
	MISCELLANEOUS									
	TOTAL									$800,000
	1-A TRANS. (non-add)									

). RECEIPTS – CODE:	
MATCH.	
N. FUND	
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ITAL

CRIPTION OF ASSOCIATED CAPITAL COSTS:

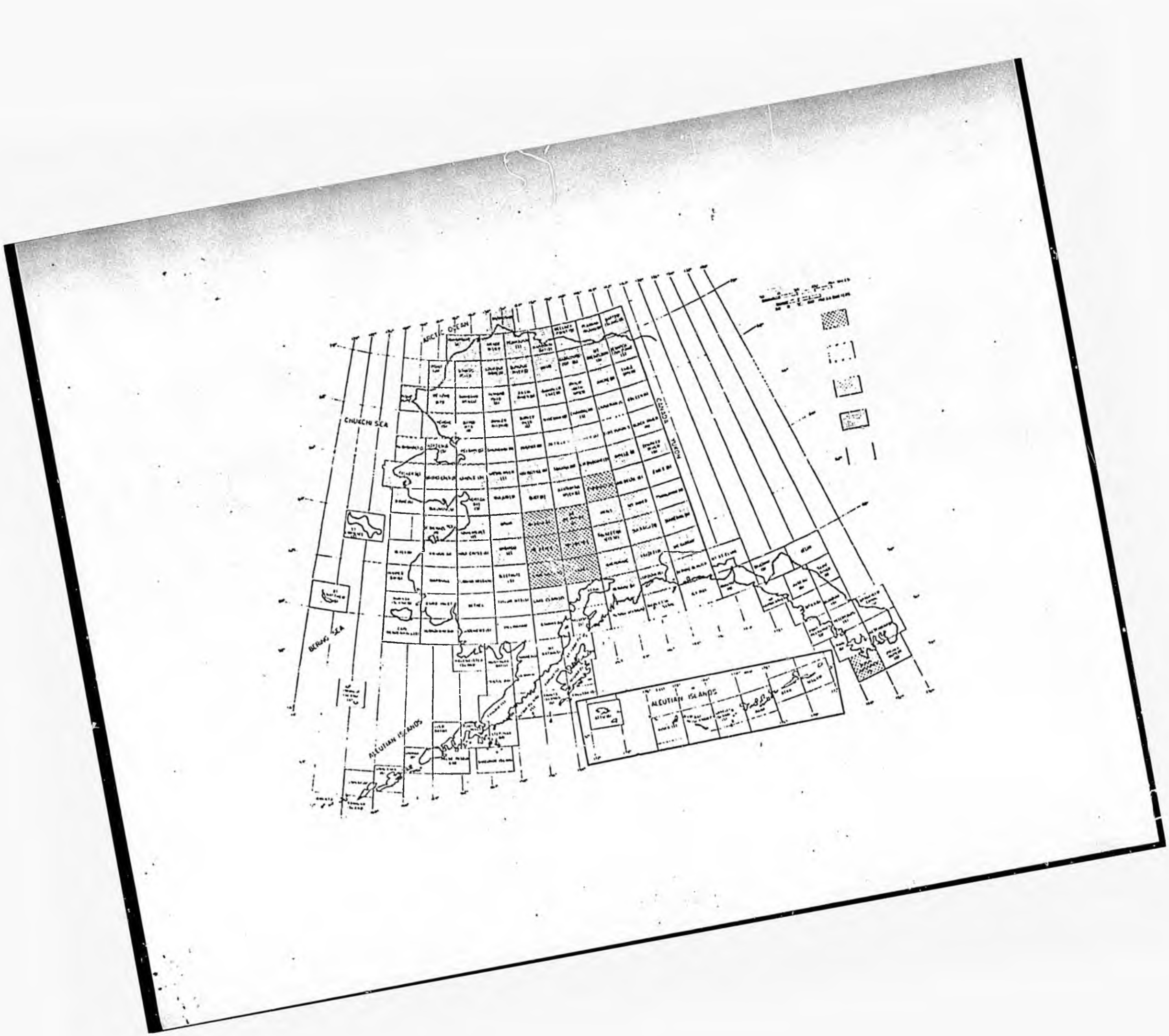
NONE

TS TO OTHER AGENCIES

NONE

JECT DURATION/LIFE CYCLE COST:

Project Duration: 1 year


ARCTIC OCEAN
CHUKCHI SEA
BERING SEA
ALEUTIAN ISLANDS
ALEUTIAN ISLANDS

GOVERNOR'S APPOINTMENTS

4-5-82

Alaska State Legislature

Senate

JUNEAU, ALASKA

TO: Senator Bettye Fahrenkamp, Chairman
Senate Resources Committee

FROM: Senator Bob Mulcahy

SUBJ: Appointments

DATE: February 20, 1982

In regards to your memo dated February 17, 1982, I have no requests to bring any of the appointees before the committee, and I have no problems with any of them.

Alaska State Legislature

SENATE
Resources Committee

POUCH V
STATE CAPITOL
JUNEAU, ALASKA 99811
(907) 465-3834
(907) 465-3835

Offical Business

TO: Senate Resources Committee

FROM: Senate Resources Committee Staff

RE: Committee Meeting, 4/5/82

DATE: April 1, 1982

Please find attached background information for Monday's hearing on the following bills:

SB 875 Transfer of ownership and management of University of Alaska trust land from the Department of Natural Resources to the Board of Regents of the University of Alaska.

SB 876 Making special appropriations and appropriation transfers to the Department of Law for implementation of a settlement agreement.

HB 409 Relating to hunting.

Also attached is background information for review of the Governor's appointments.

The meeting will be held at 1:30 p.m. in the Beltz Room.

Labor & Comm
+
CR & M

April 5, 1982

The Honorable Jalmar M. Kerttula
President of the Senate
Alaska State Legislature
Pouch V
Juneau, Alaska 99811

Dear Mr. President:

Pursuant to your instructions, and in accordance with AS 39.05.030, the Senate Resources Committee has reviewed the following named individuals who were appointed by the Governor:

John W. Katz, Commissioner, Department of Natural Resources

Edward Schavings, Mekoryik, Guide Licensing and Control Board, term expiring 6/15/84

Clarence V. Chatterton, Anchorage, Alaska Oil and Gas Conservation Commission, term expiring 12/31/82

Robert B. Weeden, Fairbanks, Alaska Power Authority, term expiring 7/1/83

Samuel J. Harbo, Jr., College, Board of Game, term expiring 1/31/85

Chuck Conway, Anchorage, [illegible]a Power Authority, term expiring 7/1/84

Val D. Stuve, DVM, Fairb[illegible]oard of Veterinary Examiners, term expiring [illegible]86.

There were no stated objections to confirmation of the named individuals by committee members. This does not necessarily indicate an intention to vote for or against the individuals named at the time of the joint session on confirmations.

Sincerely,

Bettye Fahrenkamp
Chairman

Alaska State Legislature

SENATE
Resources Committee

POUCH V
STATE CAPITOL
JUNEAU, ALASKA 99811
(907) 465-3834
(907) 465-3835

Offical Business

TO: Resources Committee Members

DATE: 3/23/82

FROM: Bettye Fahrenkamp BF.
Chairman

RE: Additional Appointees

The President has referred three additional Governor's appointees to the Resources Committee for recommendation. I am attaching a copy of their resumes for your review.

I would appreciate you letting me know which appointees you would like brought before the Committee for hearing.

Samuel J. Harbo, Jr., Board of Game, term expiring 1/31/85

Chuck Conway, Alaska Power Authority, term expiring 7/1/34

Val D. Stuve, Board of Veterinary Examiners, term expiring 1/31/86

Attachment

Alaska State Legislature

Senate
Resources Committee

Official Business

Pouch V
State Capitol
Juneau, Alaska 99811

TO: Senate Resources Committee

FROM: Bettye Fahrenkamp, Chairman

RE: Appointees

DATE: February 17, 1982

The President has referred four Governor's appointees to the Resources Committee for recommendation. I would appreciate you letting me know which appointees you would like brought before the Committee for hearing.

2/15

Alaska State Legislature

Senate

Office of the Secretary

Official Business

Pouch V
State Capitol
Juneau, Alaska 99811

M E M O R A N D U M

DATE: February 10, 1982

TO : Senator Fahrenkamp
Chairman
Resources Committee

FROM: Peggy Mull gan
Secretary of the Senate

RE : Governor's Appointments

The President has referred the following Governor's appointee's to your Committee for recommendation in accordance with AS 39.5.080:

COMMISSIONER

John W. Katz, Commissioner, Department of Natural Resources

GUIDE LICENSING AND CONTROL BOARD

Edward Shavings, Mekoryik, term expiring 6/15/84

ALASKA OIL AND GAS CONSERVATION COMMISSION

Clarence V. Chatterton, Anchorage, term expiring 12/31/82

ALASKA POWER AUTHORITY

Robert B. Weeden, Fairbanks, term expiring 7/1/83

Resumes enclosed

February, 1981

JOHN W. KATZ

Resume

Employment

- Special Counsel to the Honorable Jay S. Hammond, Governor of Alaska.

  With concurrence of the Governor, responsible for the formulation of policy and strategy concerning Alaska lands legislation and certain other public land matters. Advocacy of the State's position in Congress, with the media, and in other forums. Supervision of an interdisciplinary team of state employees and of lawyers and lobbyists hired by the State in Washington, D. C., legal analysis, research, and drafting. Entails close working relationship with Alaska Congressional delegation, Alaska Legislature, and various groups which are supportive of the State's position (February 1979 - present).

- Counsel - Joint Federal-State Land Use Planning Commission For Alaska (established by Federal law and complementary state legislation) (July 1974 - February 1979).

  Responsibilities are described in accompanying document entitled "Performance Improvement and Position Review)

  Award for "Superior Sustained Performance".

- Co-Counsel - Joint Federal-State Land Use Planning Commission (September 1972 - July 1974).

- Associate in law firm of McGrath & Flint, Anchorage, Alaska.

  Specialized in natural resources, native claims, and commercial law (January 1972 - September 1972).

- Legislative Assistant to United States Senator Ted Stevens of Alaska. Staff responsibility for Senator Stevens' legislative program, with specialization in natural resources, Native claims, and various public land problems ((January 1971 - December 1971).

- Legislative and Administrative Assistant to United States Representative Howard W. Pollock of Alaska (August 1969 - December 1970).

- High School English teacher and coach, Baltimore City Public Schools (1966 - 1967).

Education

Law School: University of California at Berkeley (J.D. - 1969).

Class standing: top 15 percent with several honors grades, including two independent research projects.

College: Johns Hopkins University (B.A. - February, 1965).

Nomination for Woodrow Wilson Fellowship; English Honor Society.

Bar Memberships

United States Supreme Court, District of Columbia Court of Appeals, United States District Court for the District of Columbia, Superior Court for the District of Columbia, United States Court of Claims.

Publications

"Pretrial Discovery in Criminal Cases: The Concept of Mutuality and the Need for Reform," 5 Criminal Law Bulletin 441 (October, 1969); reprinted in part in The Monthly Digest of Legal Periodicals (December, 1969).

"The Opportunity to be Heard in Public School Disciplinary Hearings", 4 Journal of Urban Education 292 (January, 1970).

"The Status of Mining Claims Located on Native Lands," Information Circular No. 19, State of Alaska, Division of Geological and Geophysical Surveys (April 5, 1974).

"Legal Analysis of Section 14(c) of the Settlement Act," Information Circular, Joint Federal-State Land Use Planning Commission for Alaska (June 23, 1974).

Selected legal memoranda of the Joint Federal-State Land Use Planning Commission (Vol. 30, Parts 1 and 2); editor or author of over 20 memoranda published therein.

Additional legal opinions and memoranda prepared for the Land Use Planning Commission and circulated to government agencies and other interested parties.

"Alaska Lands Legislation: Where the State Stands" (1980); editor or writer of a compilation of analyses and issue papers regarding the lands legislation.

Special Appointments

Alaska Power Survey Executive Advisory Committee of the Federal Power Commission (July, 1972-74).

Academic Supervisor, Alaska Externship Program, University of Denver College of Law (October, 1976 - February, 1979).

Special Committee on Hard Rock Minerals of the Governor's Council on Science and Technology (1979-present).

Guest lecturer in natural resources law at the University of Alaska, University of Denver College of Law and other institutions.

Member of the Reagan-Bush transition team for the U. S. Department of Justice (November-December, 1980).

References

United States Senator Ted Stevens
Governor Jay S. Hammond
Congressman Don Young
Bill Timmons
Others upon request

DEPARTMENT OF NATURAL RESOURCES

JOHN W. KATZ, *Commissioner*

(appointment effective July 1, 1981)

Born in 1944; holds a BA degree from Johns Hopkins University, a J.D. degree from the University of California at Berkeley. Was special Counsel to the Governor in Washington, D.C. during the Congressional action on the Alaska Lands Bill. Served as counsel to the Joint Federal-State Land Use Planning Commission for Alaska, 1974-79; Legislative Assistant to U.S. Senator Ted Stevens, 1971; to U.S. Representative Howard W. Pollock, 1969-70. Has published several articles and memoranda concerning legislation relating to Alaska lands. Is a member of several bar associations and was a member of the Reagan-Bush transition team for the U.S. Department of Justice, November-December 1980. Appointed to present position in March 1981.

Nunivak Island Guide Service

Ed J. Shavings, Sr.
Registered Alaskan Guide

ASSISTANT GUIDES
Chuck Shavings
Tom G. Amos
P.O. BOX 31
MEKORYUK, ALASKA 99630

GUIDED TOURS FOR
WALRUS – MUSK-OX
SPORT FISHING
PHOTOGRAPHY ADVENTURES

MEMBER
A.P.H.A. – N.R.A.
S.C.I.

Associates
L & S OUTFITTERS

Nov.24,1981

State of Alaska
Office of the Governor
Pouch A
Juneau,Alaska 99801

ATTN:(Miss) Kar W.Cory
Special Assistant to the Governor

Dear (Miss) Cory:

Thank you for your letter regards to the appointment I had from Governor Hammond to the Guide Licensing & Control Board.

I am sending you up-to-date resumé about myself to provide information Alaska State Legislature in January 1982 for confirmation of my term of service on the Guide Licensing and Control Board.

I am an full blood eskimo, born and raised here on the Island and spend most of my life hunting supporting my family.

After graduated from Mt.Edgecumbe High school I put in 5 years of teaching in school for Bureau of Indian Affairs.

I have been employed for Bering Sea Reindeer Products,Inc. here on the Island as Marketing Specialist and General Manager.

Today I am involved in Board of Directors for the following.

NIMA Corporation,here in the village as Vice-President.
Mekoryuk High School, Secretary.
IRA Council (Village Council)Member.
Church Board, Local Church. Secretary.
Alcoholism Awareness Program, Chairman.

In 1968 I was issued Special Guide License to Guide Walrus Hunters.
In 1975 I took my guide Tests and became Registered Guide.

Under those licenses, I have guideed 10-12 walrus Hunters and about 50 musk-ox hunters both residents and Non- residents.

Today I am involved in Board of Director for the Alaska Professional Hunters Association.

I am also member of the Safari Club International, member of the National Rifle Association.

I also have been selected to the Eskimo Walrus Sport Hunting Committee from 5 villages.

I hope this information will be helpful to you and the State Ligislatures.

Sincerely yours,

Edward J. Shavings, Sr.

Edward J. Shavings, Sr.

Top Quality Arctic Adventures

STATE OF ALASKA

OATH OF OFFICE

Office or Department Guide Licensing and Control Board

I, Edward J. Shavings,Sr., do solemnly swear (or affirm) that I will support and defend the Constitution of the United States, and the Constitution of the State of Alaska, and hat I will faithfully discharge my duties as a _____ of (board or commission) Guide Licensing & Control Board to the best of my ability.

Edward J. Shavings Sr.

Subscribed and Sworn to before me this 4th day of November, 1981.

(Seal)

Notary Public, State of Alaska
My Commission expires: 11/14/85

AFFIDAVIT

QUALIFICATIONS FOR APPOINTMENT

TO AN ALASKA BOARD OR COMMISSION

FULL NAME Edward J. Shavings,Sr.

PLACE OF RESIDENCE Nunivak Island

BIRTHPLACE Mekoryuk

MAILING ADDRESS P.O.Box 31 Mekoryuk,Alaska 99630

I HAVE LIVED IN ALASKA FOR 53 YEARS.

DATE/PLACE OF NATURALIZATION, IF A NATURALIZED CITIZEN

PLEASE GIVE EXACT NAME OR NUMBER OF THE ALASKA PRECINCT IN WHICH YOU LAST VOTED Nunivak Island Precint 17

I, Edward J. Shavings,Sr., DO SOLEMNLY SWEAR (OR AFFIRM) THAT THE ABOVE STATEMENTS ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Edward J Shavings Sr.

Subscribed and Sworn to before me this 4TH day of November, 19 81.

Cindy Vaggu

Notary Public, State of Alaska

My Commission expires: 11/4/85

RESUME'

CLARENCE VAIL CHATTERTON

2308 Boniface Parkway
Anchorage, Alaska 99504

Office: 907-279-2448
Home: 907-333-8161

VICE PRESIDENT, ROWAN DRILLING - U. S., Anchorage, Alaska

OBJECTIVE: *Appointment to the Oil & Gas Conservation Commission*

SUMMARY: Thirty-seven years of experience in oil and gas drilling, construction, exploration and production operations. Twenty plus years in Alaska, which includes eleven plus years guiding and being held accountable for Chevron - U. S. A. - Drilling & Production activities in Alaska including supervision of engineering, production, drilling and construction, and nine years with Rowan Drilling - U. S. as Administrative Officer. Concurrent with Rowan assignment served four years 1977-1981 in the Alaska State Legislature as a member of the House of Representatives.

EXPERIENCE:

January 1973 to present — Rowan Drilling - U. S., 601 West 5th Avenue, Suite 531, Anchorage, Alaska, 99501. Vice President oil and gas well drilling contractor with five drill rigs in Alaska.

April 1961 to January 1973 — Standard Oil Company of California, P. O. Box 7-839, Anchorage, Alaska, 99510. District Superintendent, Producing Department, Alaska. Responsible and accountable for the guidance and direction of 61 employees, including professional engineers, foremen, operating, drilling and construction personnel. This period covered the drill-campaign at Swanson River, the installation of production facilities, the installation of a complete gas cycling-pressure maintenance plant as well as company's exploratory drilling activities in remote areas of Alaska, such as the Arctic North Slope. Assignment also includes negotiating all labor contracts for the Producing Department, Alaska. Also included an 8 month assignment in 1965 to an Organization and Cost Control Survey team for Standard of California to review their producing operations in the seven Western states for the purpose of developing a streamlined organization, work force, and cost saving methods.

November 1957 to April 1961 — Standard Oil Company of California, P. O. Box 455, Vernal, Utah 84078. District Superintendent, Producing Department, Utah. Responsible and accountable for the guidance and direction of 54 employees, including professional engineers, foremen, operating, drilling and construction personnel. This period covered an active development drilling campaign in the Redwash Oilfield, initiation

CLARENCE VAIL CHATTERTON

2308 Boniface Parkway
Anchorage, Alaska 99504
333-8161

of pressure maintenance by water flooding and gas injection, initiation of gas sales to El Paso Natural Gas as well as responsibility for exploratory drilling operations in other parts of Utah and producing operations in the Aneth Oilfield.

November 1952 — Standard Oil Company of California, 225 Bush Street, San Francisco, California 94120. Staff Formation Evaluation Engineer, San Francisco. Responsible for establishing well bore formation evaluation procedures for the Producing Department, Western Operations, Incorporated. Assignment included holding formation evaluation seminars for the purpose of training Prudúcing Department Engineers in formation evaluation techniques. Also functioned as the Department's expert on difficult well completion practices based on formation evaluation interpretations.

December 1944
November 1952 — Standard Oil Company of California, P. O. Box 397, La Habra, California, 90631. Subsurface Petroleum Engineer, La Habra, California. Assignment carried responsibility of developing drilling and completion programs for oil and gas wells, subsurface structural interpretation, the assurnace that operations fulfilled engineering requirements and the supervision of two or more Professional Engineers.

May 1942
November 1944 — Lockheed Aircraft Corporation, Victory Boulevard, Burbank, California. Stress Analyst. Assignment covered the analytical stress analyses of designed component parts of aircraft such as the P-38 and the Lockheed Constellation and the writing of reports to prove airworthiness of air frame for Civil Aeronautics Board.

EDUCATION: Professional Engineer in Petroleum Engineering, Colorado School of Mines, 1942. Major: Petroleum Engineering and Geology. Minor: Mining Engineering.

PERSONAL: Married, no children at home. Height: 5' 11" Weight 180 lbs. Excellent health.

LICENSE: Registered Professional Engineer in Petroleum Engineering, State of California. Alaska extends reciprocity to California.

COMMUNITY ACTIVITIES:
1964: President, Petroleum Club of Anchorage
1966: General Campaign Chairman, Greater Anchorage Community Chest.
1967: President, Board of Trustees, Greater Anchorage Community Chest.
1968: President, Rotary Club of Anchorage.
1969: President, Greater Anchorage Chamber of Commerce.
1976: Member of Governor's Management & Efficiency Review Group

STATE OF ALASKA

OATH OF OFFICE

Office or Department Alaska Oil & Gas Conservation Commission

I, Clarence Vail Chatterton, do solemnly swear (or affirm) that I will support and defend the Constitution of the United States, and the Constitution of the State of Alaska, and that I will faithfully discharge my duties as a Chairman of (board or commission) the Alaska Oil & Gas Conservation Commission to the best of my ability.

Clarence Vail Chatterton

Subscribed and Sworn to before me this 28th day of December, 1981.

Notary Public, State of Alaska
My Commission expires: 8/17/82

(Seal)

A F F I D A V I T

QUALIFICATIONS FOR APPOINTMENT

TO AN ALASKA BOARD OR COMMISSION

FULL NAME Clarence Vail Chatterton

PLACE OF RESIDENCE 2308 Boniface Parkway Anchorage, AK 99504

BIRTHPLACE Albany, New York

MAILING ADDRESS 2308 Boniface Parkway Anchorage, AK 99504

I HAVE LIVED IN ALASKA FOR 20+ YEARS.

DATE/PLACE OF NATURALIZATION, IF A NATURALIZED CITIZEN

N/A

PLEASE GIVE EXACT NAME OR NUMBER OF THE ALASKA PRECINCT IN WHICH YOU LAST VOTED Precinct #33 - Election District #10 - Anchorage

I, Clarence Vail Chatterton, DO SOLEMNLY SWEAR (OR AFFIRM) THAT THE ABOVE STATEMENTS ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Clarence Vail Chatterton

Subscribed and Sworn to before me this 28th day of December, 1981.

Notary Public, State of Alaska
My Commission expires: 8/7/82

Biographical Summary

Robert B. Weeden

Bob Weeden was born and raised in New England. After earning baccalaureate and masters degrees in wildlife management at the universities of Massachusetts and Maine he headed west to study ecology at the University of British Columbia. In 1959 he and his Canadian wife (Judith Stenger, a biologist) moved to Fairbanks where they have made their permanent home. Their three children were born in Fairbanks.

Dr. Weeden was a biologist in the Alaska Department of Fish and Game from 1959-1969, responsible for statewide research on fur animals, waterfowl, and upland game. He did a stint as Acting Director of the Game Division in 1968. He joined the faculty of the University of Alaska in 1970 with an appointment shared between the Wildlife-Fisheries program and the Institute of Social and Economic Research. His work has involved teaching (in wildlife management and a wide array of courses in natural resource management), research, and public service.

From January 1975 to June 1976 he was Director of Policy Development and Planning in the Office of the Governor in Juneau while on professional leave from the University. His basic responsibility was coordination of cabinet-level policy development processes. Bob's deep interest in government is reflected in the numerous consulting projects he has completed for state and federal agencies and in the boards and commissions on which he has served. The most important of these are the Alaska Environmental Advisory Board (1971-74), U.S. Marine Fisheries Advisory Committee (1975-76), U.S. Marine Mammal Commission (1977 to present; appointment ends 1984), and the Alaska Power Authority (1980-present).

Bob maintained a very active participation in citizen conservation groups, primarily the Alaska Conservation Society which he helped form in 1960. He has written 60 scientific papers and a book on resource stewardship in Alaska (Alaska: Promises to Keep. 1978), as well as numerous short nontechnical articles.

December 1981

CURRICULUM VITAE

Name: Robert B. Weeden

Birth: 8 January 1933, Fall River, Massachusetts

Education:

B.Sc., University of Massachusetts, 1953, Wildlife Conservation
M.Sc., University of Maine, 1955, Wildlife Conservation
Ph.D., University of British Columbia, 1959, Zoology

Employment:

July 1976 - present: Professor of Resource Management, School of Agriculture and Land Resources Management, University of Alaska (joint appointment with Program in Wildlife and Fisheries, College of Environmental Sciences).

Jan., 1975 through May, 1976: On professional leave from University of Alaska. Director of Division of Policy Development and Planning, Office of the Governor, Juneau. State-wide planning. Responsibility for development of State policy under direction of the Governor and cooperatively with Cabinet. (See further details page 3, Public Service).

1970-75: Professor of Wildlife Management, University of Alaska, Fairbanks. Public service, teaching, and research. Joint appointment, Department of Wildlife and Fisheries and Institute of Social, Economic and Government Research.

1967-70: Associate in Wildlife, University of Alaska, Fairbanks.

1969-70: Alaska Conservation Representative (employed by coalition of local and national conservation groups). Public education, lobbying in Alaska Legislature.

1959-69: Game Biologist, Alaska Department of Fish and Game, Fairbanks. Upland game and waterfowl research, research administration for northern region; acting director, Division of Game (1968).

1958-59: Instructor in Zoology, Washington State University, Pullman. Taught animal ecology, waterfowl biology, general zoology.

1956-57: Teaching assistant, Department of Zoology, University of British Columbia (physiology, general zoology).

1953-55: Research assistant, University of Maine, Cooperative Wildlife Research Unit. (Waterfowl and fur animal research).

1952: Field assistant, Vermont Department of Fish and Game (Botanical survey of marshes and ponds in Connecticut River watershed).

Professional Organizations:

American Institute of Biological Sciences
American Ornithologists' Union (Life member)
Arctic Institute of North America (fellow)
Cooper Ornithological Society
Society of Sigma Xi
The Wildlife Society (life member; Regional Representative and Council Member, 1971-75)

Honors:

Lotta Crabtree Scholarship, University of Massachusetts, 1950
Research Assistantship, University of Maine, 1953-55
Research Assistantship, Canadian Research Council, University of British Columbia, 1956-57
Research grant, Arctic Institute of North America, 1956
American Motors Conservation Award, 1968
National Wildlife Federation - Sears, Roebuck Conservation Award, 1970
Outstanding Alaskan Conservationist Award, Shirkar Safari Club, 1971
Travel grant from Ford Foundation to visit selected universities with environmental programs, 1972
Grant for writing book on Alaskan resource conservation, 1972-73 (Western Pennsylvania Conservancy, The Varian Foundation, The Sierra Club Foundation)

University Committees:

Ad Hoc Committee on Research Natural Areas, 1969-73
Educational Programs Subcommittee, Self-Evaluation for Accreditation, 1973-74
Ad Hoc Committee on Environmental Curriculum Development, 1970-71
University Academic Plan Development: Natural Resources General Responsibility Area (Wildlife-Fisheries Representative), 1974
Professional Schools Curriculum Council (1978-81)
Chancellor's Legislative Affairs Committee (1978)

Professional Meetings (Partial List):

North American Wildlife and Natural Resources Conference. At least 10 attended between 1952 and present. Papers (2); session chairman (4)
Northwest Section of The Wildlife Society. Four attended; invited papers at 2
Society of American Foresters (1970). Invited talk
Geological Society of America (1971). Paper
American Society of Petroleum Engineers (1970). Invited talk
Association of Western Attorneys General (1974). Invited talk
Western Association of Game and Fish Commissioners (1965, 1979). Papers (2)
Western Regional Conference, National Audubon Society (1978). Invited talk
International Ornithological Congress (1966). Oxford, England
International Conference on Polar Bear Conservation (19 5)
Conference on Arctic Alternatives (1972). Ottawa; invited talk
Conference on Productivity and Conservation in Northern Circumpolar Regions (1970). Edmonton; paper
Symposium on Alaska (1976). Yale University; paper
Coastal Zone Management Conference (1975). Asilomar, California
Alaska Constitution Review (1976). Invited talk
Alaska Growth Policy Symposium (1974). Invited talk
Symposium on Northern Forest Management (1977)
Alaska Science Conference (attended 8 between 1960-1980)
Conference on Development of Communities in the Circumpolar North. Wolcott, Vermont; paper

Teaching Assignments, 1970-1981:

Wildlife-Fisheries

Principles of Animal Population Dynamics and Management (Fall 1970, 1971)
Wildlife of Forest and Tundra (Spring 1972, Fall 1973, 1974, Spring 1981)
Advanced Wildlife Biology and Management (Spring 1974, Fall 1976 through 1980)
Wildlife Seminars (Spring 1972, Spring 1974)
Issues in Wildlife Management (Spring 1977 through 1979)

Biology

Ornithology (Spring 1971)

Land Resources

Conservation of Natural Resources (Spring 1971, Summer 1971, Spring 1972, Fall 1973 through 1980)
Regional Planning (Fall 1974)
Natural Resources Legislation (Spring 1974, 1977, 1979, 1981)
Predicting Environmental Changes (Fall 1977, 1979)
Natural Resources Seminar (Spring 1977, 1979, 1980)
Natural Resources Policies (Spring 1978, 1980)

Recent Research:

Sabbatical Leave project: book on the role of natural environments in public policy in Alaska

Hewlett Foundation grant to plan Alaska Resource Managers Training Center (1980-81)

Nongame Program Development Planning, 1978-79, Alaska Department of Fish and Game. Land Use in Northern Alaska, especially the corridor and impact area of the North Slope Haul Road, 1976-77. For Division of Policy Development and Planning, Office of the Governor

From 1973-1975, participated in Man in the Arctic Program, Institute of Social and Economic Research, University of Alaska. Policy-oriented studies of present and projected natural resource activity, consequences of alternate petroleum leasing policies with respect to population growth, environment, quality of life

Public Service:

Member, Alaska Environmental Advisory Board (1971 through 1974)
Member, Arctic Environmental Council (1974) (Established to conduct independent evaluation of Trans-Alaska pipeline project; administered through the Arctic Institute of North America)
Member, Marine Fisheries Advisory Committee, U.S. Department of Commerce. Three-year appointment beginning 1 September 1975
Member, Governor's Committee on Delta Agriculture Project (1976-78)
Member, Committee of Scientific Advisors, U.S. Marine Mammal Commission (1977-80): Commissioner, 1981-1984
Member, Scientific Advisors, Trout Unlimited (1979-80)
Scientific Studies Coordinator, Delta Farm Development Project, (1977-79)

Public Service (continued):

Member, Board of Directors, Alaska Power Authority. Three-year appointment beginning July 1980

Also, variety of less formal but important non-remunerative consulting activities with Alaska Department of Fish and Game, Joint Federal-State Land Use Planning Commission, Alaska Department of Natural Resources.

As Director, Division of Policy Development and Planning, Office of the Governor of Alaska, I served in 1975 and 1976 as cabinet-level advisor to Governor Jay S. Hammond. Areas of particular involvement included forest policy in Southeast Alaska; natural gas pipeline routing; outer continental shelf development and coastal management policy; State land policy, including development of a State position on ANCSA Sec. 17(d)2; and petroleum leasing policies. Administrative duties included development and administration of the Alaska Coastal Management Program, administration of State Clearinghouse; Comprehensive State Planning (HUD 701 program); and Economic Development Administration comprehensive planning. Member of five-member Governor's Budget Review Committee.

Other Activities:

Position Statements Committee, The Wildlife Society (1974, 1978, 1979)
Natural Resources Impact Committee, The Wildlife Society, 1974-75
Long-Range Planning Committee, The Wildlife Society, 1975-76
National Academy of Sciences Committee on Yellowstone Grizzlies, 1973-74
Conservation action and advocacy: Member of numerous local, state, national and international conservation groups. Major forum for advocacy is the Alaska Conservation Society; member since formation in 1960, editor of quarterly publication for five years, held offices of Vice President, President (eight terms), Board Member. Became Honorary Life Member, March 1976. Board Member, National Audubon Society (1976-1981)
Coordinator, Arctic Regional Directorate, MAN AND THE BIOSPHERE Program (1976-77)
Office of Technology Assessment Workshop on Access to Mineral Reserves in Alaska (1977)
Moderator, Joint Federal-State Land Use Planning Commission Wilderness Management Workshop (1978)
American Petroleum Institute Seminars on Alaska (1970, 1978)
Society of American Foresters Panel on Noncommercial Forests (1978)
National Research Council Committee on Department of Energy Arctic Research (1980-81)
Consultant, National Research Council Committee on Alaska Coal (1980)
Consultant to Alaska Historical Commission, 1980-81, on Alaska History Textbook project
Consultant, Alaska Council on Science and Technology

STATE OF ALASKA

OATH OF OFFICE

Office or Department ALASKA POWER AUTHORITY

I, _____, do solemnly swear (or affirm) that I will support and defend the Constitution of the United States, and the Constitution of the State of Alaska, and that I will faithfully discharge my duties as a DIRECTOR of (board or commission) ALASKA POWER AUTHORITY to the best of my ability.

Robert B Weeden

Subscribed and Sworn to before me this 27th day of August, 19 81.

Barbara A. Metivier
Notary Public, State of Alaska
My Commission expires: 12-14-83

(Seal)

AFFIDAVIT

QUALIFICATIONS FOR APPOINTMENT
TO AN ALASKA BOARD OR COMMISSION

FULL NAME ROBERT B. WEEDEN

PLACE OF RESIDENCE GRENAC ROAD, FAIRBANKS 99708

BIRTHPLACE FALL RIVER, MASS.

MAILING ADDRESS PO BOX 80425 FAIRBANKS 99708

I HAVE LIVED IN ALASKA FOR 22 YEARS.

DATE/PLACE OF NATURALIZATION, IF A NATURALIZED CITIZEN

PLEASE GIVE EXACT NAME OR NUMBER OF THE ALASKA PRECINCT IN WHICH YOU LAST VOTED SHANLEY-TOTEM

I, Robert B Weeden, DO SOLEMNLY SWEAR (OR AFFIRM) THAT THE ABOVE STATEMENTS ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Subscribed and Sworn to before me this 27th day of August, 19 81.

Barbara A. Metrokin
Notary Public, State of Alaska
My Commission expires: 12-14-83

Alaska State Legislature

Senate

Office of the Secretary

Official Business

Pouch V
State Capitol
Juneau, Alaska 99811

M E M O R A N D U M

DATE: 22 March 1982

TO : Senator Fahrenkamp, Chairman
Resources Committee

FROM: Peggy Mulligan PM
Secretary of the Senate

RE : Governor's Appointments

The President has referred the following Governor appointee's to your Committee for recommendation in accordance with AS 39.5.080:

BOARD OF GAME

*Samuel J. Harbo, Jr., College, term expiring 01/31/85

ALASKA POWER AUTHORITY

*Chuck Conway, Anchorage, term expiring 07/01/84

BOARD OF VETERINARY EXAMINERS

*Val D. Stuve, DVM, Fairbanks, term expiring 01/31/86

*Reappointment

Resumes enclosed

Game

PROFESSIONAL VITAE

Name: Samuel James Harbo, Jr.

Birthdate: March 3, 1929

Education:

B.S. University of Nebraska, 1951
-- University of California (Berkeley), Sept. 1954 - Jan. 1956
M.S. University of Alaska, 1958
Ph.D. North Carolina State University, Raleigh, 1972

Employment:

University of Alaska, Chairman, Wildlife and Fisheries Program, current; Associate Professor, 1971-current; Assistant Professor, 1965-1971; Instructor of Biometrics, 1964-1965; Acting Head, Department of Wildlife Management, 1968-1969.

North Carolina State College, U.S. Public Health Service, Biomath Fellowship, 1963-1967.

North Carolina State College, Cooperative Wildlife Statistics Project, Research Assistant, 1961-1964.

Alaska Department of Fish and Game, Nome, Alaska, Research Biologist, 1959-1961.

U.S. Fish and Wildlife Service, Cold Bay, Alaska, Biologist, May-Dec., 1958.

Publications:

1958. An investigation of mink in interior and southeastern Alaska. Unpubl. M.S. thesis, University of Alaska.

1969. Revision of the sailfish genus Istiophorus. Copeia, 1969(1): 34-44 (with J. E. Morrow).

1972. An aerial census of ringed seals, Phoca (Pusa) hispida Schriber, along the Northern Coast of Alaska. Arctic 25(4): 280-90 (with J. Burns).

1972. Modeling forest succession. Ph.D. dissertation. North Carolina State University, Raleigh.

1973. Discussion of Environmental Planning and Ecological Possibilities by S. A. Bella and W. S. Overton. J. of Envir. Eng. Div. Proc. of Am-Soc. Civil Eng. 99: 385-87 (with F. C. Dean).

1977. Surveys of Spotted Seals, Phoca vitulina Largha, in the ice front of Bering Sea. Presented at Second Conference on the Biology of Marine Mammals (with J. Burns).

1978. Moose Survey Techniques, Presented to No. Amer. Moose Conference (with W. C. Gasaway and S. D. DuBois).

Paper Presented: Statistical Considerations in Bird Censuses and Indices. 1974 Northern Bird Resources Workshop.

Various Unpublished Papers and Completion Reports Dealing with Marine Mammals:

1959. A study of the walrus and the King Island economy. Alaska Dept. of Fish and Game. 47 pp.

1960. Walrus Biology and Status: Annual Project Report, Federal Aid in Wildlife Restoration Act, Project W-6-R-1. 3 pp.

1960. Walrus Harvest and Utilization. Annual Project Report, Federal Aid in Wildlife Restoration Act, Project W-6-R-1. 13 pp.

1960. Seals, Magnitude and Characteristics of Harvest. Annual Project Report, Federal Aid in Wildlife Restoration Act, Project W-6-R-1. 12 pp.

1961. Walrus Biology and Population Status. Annual Project Report, Federal Aid in Wildlife Restoration Act, Project W-6-R-2. 27 pp.

1961. Walrus Harvest and Utilization. Annual Project Report, Federal Aid in Wildlife Restoration Act, Project W-6-R-2. 25 pp.

1961. Seals, Magnitude and Characteristics of Harvest. Annual Project Report, Federal Aid in Wildlife Restoration Act, Project W-6-R-2. 2 pp.

Additional Duties: Statistical consulting regarding fisheries and wildlife problems with numerous federal and State agencies and private groups (since 1963).

Chairman, Alaska Board of Game (since 1976).

CHARLES Q. CONWAY
821 N St., Suite 201
Anchorage, AK 99501

EDUCATION:	Sitka Public Schools	
	1949-52	University of Washington, Seattle, WA
	1955-57	University of Washington, Seattle, WA Major in marketing
	1952	U.S. Army Language School
MILITARY:	1952-55	U.S. Army Intelligence Europe
EXPERIENCE:	1980-Present	Fawcett McDermott Cavanagh/Conway, Inc. Executive Vice President
	1978-1980	Conway Corporation of Alaska, Sitka President
	1958-1978	Conway Dock Company, Sitka Manager

PROFESSIONAL AFFILIATIONS:

Past Director - Alaska State Chamber of Commerce

Past President - Sitka Rotary Club

Past President - Alaska Visitors Association

Board of Directors - Alaska Airlines

Board of Directors - Alaska Repertory Theatre

Member - Greater Anchorage Chamber of Commerce

- Anchorage Rotary Club

- Sitka Elks Club

- Advertising Federation of Alaska

STATE OF ALASKA

Oath of Office

OFFICE OR DEPARTMENT ....

I, Charles Quinlan Conway, do solemnly swear (or affirm) that I will support and defend the Constitution of the United States, and the Constitution of the State of Alaska, and that I will faithfully discharge my duties as

Member, Alaska Power Authority to the best of my ability.

Charles Conway

Subscribed and sworn to before me this 5 day of January, 19 [illegible]

Michael J. [illegible]

(SEAL)

My Commission expires 3-[illegible]

'01-625

A F F I D A V I T

QUALIFICATIONS FOR APPOINTMENT
TO AN ALASKA BOARD OR COMMISSION

FULL NAME Charles Quinlan Cooway

PLACE OF RESIDENCE Sitka, Alaska

BIRTHPLACE Skagway, Alaska

MAILING ADDRESS Box 620 Sitka, Alaska 99835

I HAVE LIVED IN ALASKA FOR 45 YEARS

DATE/PLACE OF NATURALIZATION, IF A NATURALIZED CITIZEN

PLEASE GIVE THE EXACT NAME OR NUMBER OF THE ALASKA PRECINCT IN WHICH YOU LAST VOTED Sitka, Precinct 3

I, Charles Q. Cooway, DO SOLEMNLY SWEAR (OR AFFIRM) THAT THE ABOVE STATEMENTS ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Charles Q. Cooway

Subscribed and Sworn to before me this 5 day of January, 1977

Notary Public

My commission expires 3-22-80

Val D. Stuve, DVM
SR 70389
Fairbanks, AK. 99701

ph: 488 2335

Date/Place of Birth: 8/10/46, Alpena, Mich.

Sex: Male

Race: Caucasian

Marital status: Single

Received degree as Doctor of Veterinary Medicine, June 1969, from Michigan State University, Lansing, Michigan.

Practice experience:

Arctic Animal Hospital, Anchorage, AK.
July '69 to December '69

Relief Veterinarian, Seattle, WA.
December '69 to March '70

Arctic Animal Hospital, Anchorage, AK.
April '70 to June '73

Mt. McKinley Animal Hospital, Fairbanks, AK
November '73 to July '77

P.E.T. Pet Emergency Treatment Clinic, Anchorage, AK.
April '78 to August '78

North Pole Veterinary Clinic, Fairbanks, AK.
October '78 to present

Secretary, Southcentral Veterinary Medical Assoc. '71, '72
Ethics Committee Chairman, Alaska State Veterinary Assoc., '75
Secretary, Interior Veterinary Medical Association, '74, '75, '76
President, Interior Veterinary Medical Association, '79-'80

AFFIDAVIT

QUALIFICATIONS FOR APPOINTMENT

TO AN ALASKA BOARD OR COMMISSION

FULL NAME VAL DUANE STUVE

PLACE OF RESIDENCE 3½ Mi. BADGER RD., FAIRBANKS, AK. 99701

BIRTHPLACE ALPENA, MICHIGAN

MAILING ADDRESS SR 70389, FAIRBANKS, AK. 99701

I HAVE LIVED IN ALASKA FOR 11 YEARS.

DATE/PLACE OF NATURALIZATION, IF A NATURALIZED CITIZEN

PLEASE GIVE EXACT NAME OR NUMBER OF THE ALASKA PRECINCT IN WHICH YOU LAST VOTED LEMETA PRECINT, ELECTION DISTRICT 20

I, VAL D. STUVE, DVM, DO SOLEMNLY SWEAR (OR AFFIRM) THAT THE ABOVE STATEMENTS ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Val D. Stuve DVM

Subscribed and Sworn to before me this 2nd day of July, 19 80.

Notary Public, State of Alaska
My Commission expires: 5 July 83

STATE OF ALASKA

OATH OF OFFICE

Office or Department BOARD OF VETERINARY EXAMINERS

I, VAL D. STUVE, DVM, do solemnly swear (or affirm) that I will support and defend the Constitution of the United States, and the Constitution of the State of Alaska, and that I will faithfully discharge my duties as a MEMBER of (board or commission) THE BOARD OF VETERINARY EXAMINERS to the best of my ability.

[signature]

Subscribed and Sworn to before me this 29th day of July, 19 80.

[signature]
Notary Public, State of Alaska
My Commission expires: 15 [illegible] 85

(Seal)

Alaska State Legislature

SENATE
Resources Committee

Offical Business

BETTYE FAHRENKAMP, Chairman
VIC FISCHER, Vice-Chairman
BRAD BRADLEY
DICK ELIASON
DON GILMAN
BOB MULCAHY
ARLISS STURGULEWSKI

POUCH V
STATE CAPITOL
JUNEAU, ALASKA 99811
(907) 465-3834
(907) 465-3835

MEMBERS PRESENT

Senator Fahrenkamp
Senator Gilman
Senator Mulcahy
Senator Sturgulewski

April 5, 1982
1:35 p.m.

Beltz Room
Capitol - Room 211

Hearing:

HB 409 Relating to hunting.
SB 875 Transfer of ownership and management of University of Alaska trust land from the Department of Natural Resources to the Board of Regents of the University of Alaska.
SB 876 Making special appropriations and appropriation transfers to the Department of Law for implementation of a settlement agreement.
Confirmation of Governor's Appointments

HB 409

Vern Hurlbert, District 18 Representative, explained that HB 409 requires a guide for nonresident aliens to hunt big game, and permits for both nonresidents and nonresident aliens. The intent is to control the large flood of unregulated hunters from both overseas and the Lower 48.

Greg Bos, Division of Game, Alaska Department of Fish and Game, favors the bill if it is amended to delete Section 2. He stated there may be Constitutional questions in requiring a permit of nonresident citizens, and expressed concern that Section 2 could be construed to mean that the Department of Fish and Game would have to establish a permit system for every species of big game, which would be a tremendous burden and create a fiscal impact. In addition, the Board of Game would have to determine that Alaskans were not being denied an opportunity to take big game, which would be a difficult task.

Senator Gilman moved the adoption of an amendment to delete Section 2, and asked unanimous consent. He then moved the adoption of an amendment to insert the word "alien" after the word "nonresident" on line 13, and asked unanimous consent. Gilman moved the adoption of SCSCSSSHB 409, and asked unanimous consent. He then moved the bill with individual recommendations.

SB 875

John Katz, Commissioner, Department of Natural Resources, expressed support for SB 875. The trial judge ruled that the trust relationship between the State and the University had been violated. This bill reflects an out of

court settlement of the dispute. The agreement consists of three components: conveyance of title, management, and control of the University grant lands; a $500,000 appropriation to do appraisal work necessary to effectuate the agreement; and a process for evaluating the liability that may be owed by the State. Katz noted that the Municipality of Anchorage believes it is adversely affected by the agreement outlined in SB 875. Katz suggested that, to avoid taking sides, the Legislature mandate a negotiation process that would lead to a definitive resolve at a certain time, and require a report to the legislature early next session.

Merry Tuten, Director, University of Alaska Lands Office, stated that the Court made clear that the University is entitled to receive compensation for the taking of its lands, and that SB 875 solves the problems between the University and the State. The settlement agreement is a mechanism for the University to reestablish itself as a land grant college, and will provide the University an opportunity to use its lands to produce income. Tuten stated the University's opinion that the Municipality of Anchorage is not adversely affected by the bill, and assured the Committee that the University has every intent of reconciling their differences with the Municipality.

Alan Tesche, Deputy Municipal Attorney, Municipality of Anchorage, explained that the Municipality has selected 821 acres of University Trust Land, but that no final conveyances have taken place because of the ongoing litigation. He stated that SB 875 prejudices the Municipality's rights by giving the University tremendous leverage and provides no motivation for the University to proceed with land transfers. Tesche proposed an amendment that would prohibit the conveyance of land or cash payment to the University until the University/Municipality issue is fully resolved.

Senator Sturgulewski offered an amendment stating that nothing in SB 875 precludes or prejudices negotiations between the Municipality and the University. She also offered a letter of intent urging the University and the Municipality to settle their claims and report to the legislature by the tenth day of the 1983 session.

Senator Sturgulewski moved the adoption of her amendment and the accompanying letter of intent, and asked unanimous consent.

Senator Mulcahy moved the adoption of CSSB 875. He then moved the bill with individual recommendations.

SB 876

Senator Mulcahy moved SB 876 with individual recommendations.

Confirmation of Governor's Appointments

Without objection, Senator Fahrenkamp signed approval of all appointments.

The meeting was adjourned at 3:10 p.m.

HABITAT
REGULATIONS
3-25-81

STATE OF ALASKA

JAY S. HAMMOND, GOVERNOR

DEPARTMENT OF LAW

OFFICE OF THE ATTORNEY GENERAL

POUCH K—STATE CAPITOL
JUNEAU, ALASKA 99811

March 4, 1982

The Honorable Ronald O. Skoog
Department of Fish and Game
Subport Building
Juneau, Alaska 99801

Re: Department of Fish and Game Jurisdiction over Habitat Protection.
Our File No. J66-839-81

Dear Commissioner Skoog:

By memorandum of June 15, 1981, Habitat Division Director Richard Logan asked for our opinion on several matters relating to your department's proposed habitat protection regulations (5 AAC 95). The opinion request centered on the jurisdiction of the department and the boards of Fisheries and Game over habitat protection, and was prompted by the comments of the Alaska Loggers' Association and Sealaska Regional Corporation on the draft regulations. These comments suggested that the proposed regulations exceeded the department's and boards' authority.

In response to the questions posed by Director Logan, it is our opinion that:

1. The Department of Fish and Game has permit jurisdiction both over activities affecting anadromous streams (AS 16.05.870) and over activities in streams "frequented by fish" if those latter activities will result in the physical obstruction of that stream. AS 16.05.840. The department also has permit jurisdiction over all land use activities within the state refuge system. AS 16.20.050-.060;

03-C6LH

2. The Board of Game has permit jurisdiction over land use activities within state game sanctuaries. AS 16.20-.120. The boards of Fisheries and Game, in conjunction with the department, have permit jurisdiction over activities within critical habitat areas. AS 16.20.250-.260;

3. Within the scope of the department's and boards' permit jurisdiction, the department and the boards have the authority to adopt regulations establishing standards and procedures for the processing of those permits; and

4. With respect to anadromous stream permits issued under AS 16.05.870, we believe that the department's jurisdiction is not limited to activities occurring directly and intentionally within the continuously inundated portions of the waterway. Rather, it is our opinion that this jurisdiction extends to those activities occurring upland of classified anadromous streams or their tributaries which, absent sufficient mitigating measures, would create a direct and substantial threat that one of the results specified in AS 16.05-.870(b) would occur. Specification of that jurisdictional line is best accomplished by rulemaking -- which is precisely what the department intends.

The issues involved with respect to part four of our opinion are controversial. Good faith and serious arguments can be made that the department's jurisdiction over anadromous streams is limited to direct in-stream activities. Because of

the arguable ambiguity of the statutory language involved, both arguments may ultimately hinge on legislative intent, which in this case is difficult to discern. We believe that our interpretation is the preferable one because we view it as being more consistent with the purpose of the statute.

I. The department and boards' permit jurisdiction.

Most of the permit statutes at issue in Director Logan's opinion request use some variant of the language employed in the department's anadromous stream legislation. AS 16.05.870. The anadromous stream permit statute was enacted as part of Alaska's comprehensive Fish and Game Code in 1959. SLA 1959, ch. 94, § 31. It is fair to say that the language utilized in the statute is difficult and oblique. The anadromous stream statute applies to persons who desire:

> . . . to construct a hydraulic project, or use, divert, obstruct, pollute, or change the natural flow or bed of a specified river, lake, or stream, or to use wheeled, tracked or excavating equipment or log dragging equipment in the bed of a specified river, lake, or stream.

AS 16.05.870.

This jurisdictional catalogue has created a significant controversy. See sec. III, infra. Equally unsettled are the procedures contemplated. An activity leading to one of the jurisdictional results described in sec. 870 is not simply required to be permitted by the department. Rather, the responsible person is required to "notify the Commissioner of

his intention before the beginning of the construction or use." Id. After receipt of the notice, the commissiner, if he "determines to do so," will "require the person . . . to submit to him full plans and specifications of the proposed construction or work." AS 16.05.870(c). In that case, the commissioner shall also "require the person . . . to obtain written approval from him as to the sufficiency of the plans or specifications before the construction or use has begun." Id. Finally, AS 16.05.880 provides:

> If a person . . . begins construction on a work project or use for which notice is required by sec. 870 of this chapter without first providing plans and specifications subject to the approval of the commissioner for the proper protection of fish and game, and without first obtaining written approval of the commissioner as to the adequacy of the plans and specifications submitted for the protection of fish and game, he is guilty of a misdemeanor.

AS 16.05.870-.880, then, is a licensing statute, which has been the view of this department for at least 18 years. Op. Atty. Gen., January 3, 1963, "Sec. 31, Art. 1, Ch. 94, SLA 1959 As Amended" [hereinafter "1963 Op."]. The Department of Fish and Game has administered the statute accordingly.

The permit requirements of the law, however, are potentially quite cumbersome. A person must initially "notify" the commissioner of his proposed activity. The commissioner is then to determine whether the activity is of a nature which will require the submission of "full plans and specifications." Since the initial "notification" must be sufficiently

specific to enable the commissioner to render an informed determination on the "plans and specifications" question, the statute would seem to allow that the applicant submit, essentially, two permit applications -- the first to determine whether a more detailed inquiry will be made, and the second to obtain the needed authorization.

In the department's habitat protection regulations, the department proposes to short circuit this two-step procedure by specifying in advance, and through regulation, those circumstances under which "full plans and specifications" will be necessary. Those activities are delineated in 5 AAC 95-.030. Activities not listed in that section will not require "notification" under AS 16.05.870(b). While the list in proposed 5 AAC 95.030 has been criticized as a policy matter for being overly broad,[1] it is our opinion that when the department or board has established a general policy of requiring plans and specifications in all instances involving specific types of activities, that policy can and perhaps must be codified by regulation.

The appeal of predetermining, by regulation, circumstances under which "full plans and specifications" would be required becomes manifest with respect to permits within

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[1] Letter, Alaska Loggers' Association to Director Logan, March 25, 1981 at 3. The letter states that the listing requires the submission of full plans and specifications "in every instance."

critical habitat areas. Under AS 16.20.250, a person desiring to use either private or public land within a critical habitat area is required to notify the commissioner. However, under AS 16.20.260, the determination of whether to require "full plans and specifications" is vested in the appropriate board.[2] Since the boards of Fisheries and Game meet on an infrequent basis, under the statute a person may have to wait a long time for the board to determine the appropriate disposition of his "notification" under AS 16.05.250.

The proposed 5 AAC 95.040(a) would specify those construction activities which will require detailed plans and specifications to be submitted to the commissioner under AS 16.20.260. The statute does not preclude the board from "determining" the necessity for submitting plans and specifications by regulation rather than on a case-by-case basis. The choice of which option to pursue would seem committed to the sound discretion of the department and board.

From the permitting statutes discussed supra, it can be seen that Title 16 attempts to divide permitting responsibility between the department and the boards. As noted previ-

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[2] AS 16.20.260 states that full plans will be required "when a board so determines." The statute is unclear as to which board is the appropriate deciding entity. Since the habitat regulations will be jointly adopted by both boards, the problem is avoided.

ously, AS 16.05.870 vests all permitting authority with respect to classified anadromous streams in the commissioner. The same is true of the "obstruction" permit requirement of AS 16.05-.840.[3] With respect to critical habitat areas (AS 16.20-.250-.260), the permit program is administered by the commissioner in those situations in which the board "determines" that plans and specifications will be necessary. With respect to state game refuges, AS 16.20.050-.060 [illegible] permit jurisdiction

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[3] AS 16.05.840 states:

> If the commissioner considers it necessary, every dam or other obstruction built by any person across a stream frequented by salmon or other fish shall be provided by that person with a durable and efficient fishway and a device for the efficient passage of downstream migrants.

Emphasis supplied.

"Plans and specificatins" must be approved by the department. Id. This statute is geographically broader, but topically far narrower than AS 16.05.870. It applies to any stream frequented by fish -- whether anadromous or not. On the other hand, it governs only physical obstructions to the stream, and confers regulatory authority only to the extent necessary to ameliorate the impacts of that obstruction. Proposed 5 AAC 95.020 appropriately confines permit jurisdiction over "streams frequented by fish" to those situations.

solely in the commissioner.[4] Finally, the state game sanctuary statutes provide that "the boards may adopt regulations governing entry, development, construction . . ." in both Walrus Island State Game Sanctuary (AS 16.20.120), and the McNeil River State Game Sanctuary. AS 16.20.170.

Because statutory jurisdiction is split among the areas involved in the habitat protection regulations, the question has arisen as to the authority for the adoption of habitat protection regulations governing all of the areas

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[4] While the state game refuge statutes use the same "notification" and "plans and specifications" language as AS 16.05.870 (and AS 16.20.250-.260), AS 16.20.050 contains one important variation. Unlike the critical habitat statute (AS 16.20.250), permit jurisdiction is confined to land within state game refuges which is "under the control or jurisdiction of the state, whether through federal permit or state ownership." Moreover, the initial applicant under sec. 050 is "the responsible state department or agency." Under the statute, then, when a private individual seeks a permit or lease from the Department of Natural Resources, DNR is obligated to "notify" the Department of Fish and Game. In cases when full plans and specifications are required, however, those plans must be submitted and permission obtained by the private individual. AS 16.20.060. The Department of Fish and Game has sought to streamline this potentially cumbersome procedure by providing for the "adoption" of DNR permits in these areas.

In the case of one state refuge (the Mendenhall Wetlands State Game Refuge), AS 16.20.034(g) provides the "management of the surface and subsurface estate is the responsibility of the Department of Natural Resources." However, that subsection adds that "any actions by the Department of Natural Resources which affect the habitat shall be in conformity with the plan proposed and adopted by the Department of Fish and Game." AS 16.20.034(g) should not be read as an implied repealer of AS 16.20.050-.060. See Morton v. Mancari, 417 U.S. 535, 549 (1974). Rather sec. 034(g) would seem consistent with the "veto" device provided in AS 16.05.050-.060.

involved. That issue is treated in the following section of this opinion.

II. Regulatory authority for adoption of habitat protection regulations.

No one entity has explicit permit jurisdiction over all of the areas covered by the Habitat Protection Regulations. In certain cases, permit jurisdiction is vested in the boards; in other cases it is lodged in the commissioner; and in one case (critical habitat areas), the jurisdiction is shared. It is our opinion that each entity has the authority to adopt regulations implementing those permit programs explicitly granted to it by the legislature. This is does not mean, however, that joint adoption of habitat protection regulations covering all of the areas involved is not appropriate. To the contrary, since the standards and procedures for permit approval are common to all of the areas covered, joint adoption would seem to promote both clarity and efficiency.

A particular argument has been raised with respect to rule-making authority to implement the anadromous stream permit program. As noted previously, the anadromous stream statutes (AS 16.05.870-.880) confer permit jurisdiction solely on the commissioner. However, AS 16.05 does not explicitly confer upon the commissioner the authority to adopt regulations to implement the particular powers granted by that chapter. As a result, it has been argued that "the legislature may have

intentionally chosen not to give the commissioner clear authority to write regulations" implementing AS 16.05.870. Letter, Sealaska Corporation to Commissioner Skoog, March 27, 1980 at 7.

The authority to adopt regulations need not be explicitly granted. Indeed, administrative agencies generally are held to have the implied power to adopt regulations necessary to implement explicitly conferred authority. Calif. Drive-In Restaurant Assoc. v. Clark, 140 P.2d 657, 665 (Calif. 1943); Fertich v. Mitchner, 11 NE 605, 609 (Indiana 1887). One of the most common examples of implied authority is the power to adopt rules of procedure to execute quasi-judicial powers. See Sutherland, Statutory Construction, 4th Ed., sec. 55.04. The question of the scope and extent of implied powers involves a mixture of common sense and legislative intent. Although the authority to adopt regulations is not explicitly conferred, the existence of the authority is recognized in Title 16. See AS 16.05.070. All "administrative, budgeting and fiscal powers" are explicitly conferred on the commissioner (AS 16.05-.050), and his specifically enumerated powers are given "not by way of limitation." Id. In particular, the commissioner is to "manage, protect, maintain, improve, and extend the fish, game, and aquatic plant resources of the state" (AS 16.05.020(2)) and is given "all necessary power to accomplish the foregoing." AS 16.05.020(c).

Given the general law with respect to implied rule-making authority, it is hard to argue that the commissioner does not at least have the power to adopt procedural rules to implement AS 16.05.870. Similarly, we believe that he possesses the authority to establish by regulation the standards under which sec. 870 permits will be issued. We cannot impute to the legislature an intent that the commissioner issue permits under sec. 870 solely on an ad hoc basis. Such an intent would be contrary to the most rudimentary concepts of civilized administrative practice. Equally clearly, once the ability to develop standards of general applicability has been assumed, the only lawful means for adoption of those standards by the commissioner is through regulation. Kenai Peninsula Fishermen's Cooperative Assoc., Inc. v. State, 628 P.2d 897 (1981); AS 44-.62.640(2). Because of that constraint, to suggest that the commissioner lacks the authority to adopt regulations governing the issuance of permits under AS 16.05.870 is to argue that the commissioner is constrained in the administration of that permit program to "seat-of-the-pants" adjudication.

The commissioner's implied regulatory authority, however, does not extend beyond the permit authority explicitly conferred. The same is true of the rule-making authority of the boards with respect to the permit programs under their jurisdiction. In the past, it has been suggested that the absence of explicit rule-making authority in the commissioner

is immaterial because of the broad rule-making authority of the boards to adopt habitat protection regulations. Thus, the entirety of proposed 5 AAC 95 -- even as it affects anadromous streams -- has been justified in part by the general rule-making authority conferred on the boards by AS 16.05.251 and AS 16.05.255. Because both the boards, and the commissioner, have the authority to adopt regulations implementing each of their respective permit programs, whether the entirety of the regulations might be juscified under the boards' broad rule-making power is a question which we need not resolve.

In sum, the habitat protection regulations should be viewed as an amalgam of allocated authority. For example, the authority citation for proposed 5 AAC 95.030 should reference the commissioner's permit program under AS 16.05.870. Where the boards' permit authority is involved, those permitting statutes should be cited. Where a section of the regulations applies to both the boards' and the commissioner's permit programs, both authority citations should be utilized.

III. Geographical scope of the department's jurisdiction under AS 16.05.870.

The most difficult question raised by the comments of the Alaska Loggers' Association and Sealaska involves the geographical scope of the department's permit jurisdiction under AS 16.05.870. The argument is advanced by Sealaska as follows:

> The intent with respect to this language [AS 16.-05.870(b)] provides that only when the party specifically desires or intends to discharge or deposit into the waterbody are they required to secure commissioner concurrence, while those activities adjacent to specified waters that do not purposefully intend to pollute are not required to secure commissioner concurrence. Extension of the commissioner's authority to the area outside the boundaries of the streambed would exceed legislative intent.

Sealaska Letter, supra at 13.[5] Under this view, a permit is not necessary under AS 16.05.870 unless a person intentionally desires to place injurious materials directly into a stream.

The issue of the geographic scope of the department's jurisdiction is difficult because the statute is not necessarily clear. A permit is required under AS 16.05.870(b) if a person "desires to . . . pollute . . . the natural flow or bed of a specified [anadromous] river, lake or stream." That phrase may not have a plain meaning (see Horowitz v. Alaska Bar Assn., 609 P.2d 39 (Alaska 1980), since the statute speaks only

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[5] Earlier in their comments, Sealaska suggested that AS 16.05.870 does not confer upon the commissioner, in any instance, "the authority to require a permit." Id. at 11. This issue is treated in Section I of this opinion. Since the statute clearly does require written approval when the commissioner so requires, and since it is a crime to commence construction without that written approval, the use (or absence) of particular words in the statute -- such as "permit" -- hardly seems important.

of the result, and not how it occurred.[6]

The lynchpin of sound statutory interpretation is legislative intent; AS 16.05.870 must be construed in a manner which effectuates its purpose. Anchorage Municipal Employer Assn. v. Municipality of Anchorage, 618 P.2d 575 (Alaska 1980); Kenai Peninsula Borough v. Andrus, 436 F. Supp. 288 (D. Alaska 1977). The purpose of the "plans and specifications" requirement of AS 16.05.870 is for the "protection of fish and game." AS 16.05.870(c). The introduction of pollutants into the stream will have the same effect upon fish and game regardless of whether the pollutants were directly dumped into the stream, or were the result of streamside or tributary activity.

In this regard, it should be noted that the distinction between direct discharges ("point sources") and consequential discharge ("non-point sources") is primarily one of federal law. The terms were first used in Alaska law in 1978, and even then they were not intended as a jurisdictional demarcation. See infra.

Environmental and fish and game protection statutes "should be liberally construed to achieve their intended purpose." Kenai Peninsula Fishermen's Cooperative Association, Inc. v. State, 628 P.2d at 903. This is particularly true with

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[6] It can well be argued that the statute is clear on this issue, since any act of pollution requires a permit, regardless of causation. Even if that were true, more in the way of interpretation would be required. See infra.

respect to the jurisdictional scope of such statutes, Leslie Salt Co. v. Froehlke, 578 F.2d 742 (9th Cir. 1978), and with respect to proferred "intent" requirements. U.S. v. Standard Oil, 384 U.S. 224 (1966). We believe that a "direct discharge" interpretation would disserve the purpose of the statute.

Stock v. State, 526 P.2d 3 (Alaska 1975) provides guidance on this issue. AS 46.03.710 states that "no person may pollute or add to the pollution of the air, land, subsurface land or water of the State." "Pollution" is in turn defined in Title 46 as including both the "actual or potential" harm to protected uses of waters. AS 46.03.900(15). Stock v. State involved the interpretation of the prohibition in AS 46.03.710. In particular, the court stated that the prohibition did not turn upon whether the activity occurred directly in the waterbody:

> We hold that by use of the word 'potentially' the statute prohibits acts which a reasonable person would foresee as creating a substantial risk of making water actually injurious to the statutorily protected interests. Pertinent examples would include the disposal of atomic wastes in biodegradable containers or the construction of a septic tank on a hillside known to be subject to landslides and located above a stream.

Id. at 10.

Thus, if a person constructed a septic tank on a hillside under such circumstances, he would be creating a potential for harm. More telling for the purpose of this

opinion, if a landslide were to actually occur, and sewage were to enter the stream, he would be guilty of actual pollution -- even though his activity solely occurred outside the streambank. That view is the only one consistent with the purpose of the statute -- which is to protect the quality of the water in the stream.

Given that the purposes of AS 46.03.710 and AS 16.05-.870 are similar, we fail to see why a landslide induced sewage entry would constitute actual pollution in one case, but not in the other. Indeed, since AS 46.03.710 is a penal statute, while AS 16.05.870 is a public welfare licensing law, the latter would seem, if anything, to be entitled to a broader interpretation. Kenai Peninsula Fishermen's Cooperative Association, Inc. v. State, supra; United States v. Holland, 373 F. Supp. 665 (D.C. Md. Fla. 1974) As the United States Supreme Court observed in a similar context, "oil is oil." Regardless of how it entered the water, "its presence in our rivers and harbors is both a menace to navigation and a pollutant." United States v. Standard Oil, 384 U.S. at 229.

Our belief that sec. 870 should not be construed to imply a limitation based upon "direct discharge" is supported by a weighty body of case law which has developed with respect to the jurisdictional scope of the federal Clean Water Act, 33 U.S.C. §§ 1251 et seq. Under secs. 402, 404, and 502 of that act, permit jurisdiction extends to all "waters of the United States" -- a term which is undefined in the act. In the

mid-1970s, it was repeatedly argued that the jurisdictional scope of the act stopped at the mean high water line -- the traditional demarcation of federal jurisdiction for navigation purposes. Borax Consolidated Limited v. City of Los Angeles, 296 U.S. 10 (1935). In particular, substantial litigation resulted with respect to the U.S. Army Corps of Engineers jurisdiction under sec. 404 over dredge and fill activities in intertidal wetlands. In refusing to impute an artificial jurisdictional limit on the term "waters of the United States," the courts employed a rationale applicable to the issue in question:

> Getting at the source of pollution is going beyond the confines of the high water line. It cannot be doubted that most of the damage to marine life results from land based and not sea based activities . . . .
>
> The occasional lapping of the bayou waters has conveyed these pollutants into the waters of the United States. That the pollutants are not so conveyed everyday is of no consequence. Pollutants have been introduced into the waters of the United States without a permit, and the mean high water mark cannot be used to create a barrier behind which such activities can be excused. The environment cannot afford such safety zones.

United States v. Holland, supra at 675-76; See also Leslie Salt v. Froehlke supra; United States v. Ashland Oil, 364 F. Supp. 349 (W.D. Kentucky 1973), affirmed 504 F.2d 1317 (6th Cir. 1974); PFZ Properties v. Train, 393 F. Supp. 1370 (D.D.C. 1975); NRDC v. Calloway, 393 F. Supp. 685 (D.D.C. 1975); See also 1975 Op. Att'y Gen. #19 (November 19, 1975).

Similarly, we believe that the salmon streams of Alaska cannot afford "safety zones" beyond which individuals may engage in activities which create a substantial risk, and in some cases a certainty, of polluting the adjacent stream. The statute by its terms creates no such limitation, and the purpose of the enactment would seem to preclude it.

While we believe that this interpretation offers the better view, the opposing arguments are not without force. Essentially, both Sealaska and the Alaska Loggers Assn. believes that other laws adequately protect anadromous streams from non-point source pollution, and therefore there is no need to interpret sec. 870 broadly to accomplish that purpose. Our primary fault with that argument is that while it holds appeal as a matter of policy, as a matter of law the theory devalues into one of "implied repeal" -- i.e. that the legislature intended, in enacting other resource laws, to limit the otherwise applicable scope of sec. 870. Implied repeal is strongly disfavored by the courts,[7] and will be found only when legislative intent is abundantly clear. Id. We do not believe that any such intent is clearly evident in this case.

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[7] Morton v. Mancari, 417 U.S. at 549; Kenai Peninsula Borough v. State of Alaska, 612 F.2d 1210 (9th Cir. 1980), affd. 101 S.Ct. 1673.

Before proceeding to these theories, it has been argued that sec. 870 itself, read as a whole, limits the jurisdictional phrase "pollution" to direct discharges. Sec. 870(b) lists several jurisdictional incidents. All except the act of "pollution" generally speak to activities usually occurring directly within the stream itself. Therefore, it is argued, such a limitiation should likewise be implied with respect to the term "pollution." The argument appears to be one of ejusdem generis -- that specific enumerations may be construed to modify and limit general phrases, absent more reliable indicators of legislative intent. Sutherland, Statutory Construction, 4th Ed. at § 47.17; see Crump v. State, 625 P.2d 857, 859 (Alaska 1981).

However, in this case the phrase "pollution" is not demonstrably broader than many of the other jurisdictional phrases. Simply put, it is hard to determine which phrase is the modifier and which is the modified. The phrase "pollution" should be viewed as a jurisdictional incident distinct from the other listed results or activities in sec. 870 -- otherwise it becomes a redundant restatement of the remainder of the subsection. Christie v. State, 580 P.2d 310 (Alaska 1978). In sum, we do not believe that the limited statutory construction tool of ejusdem generis is particularly useful here.

With respect to Sealaska and the Alaska Loggers Assn.'s. implied repealer arguments, both focus on the Alaska Forest Practices Act (AS 41.17.010), and the Department of

Environmental Conservation's non-point source pollution control program under AS 46.03. DEC's program is undertaken in conjunction with sec. 208 of the federal Clean Water Act. See infra.

AS 16.05.870 was enacted in 1959 (SLA 1959, ch. 94, sec. 31), and its jurisdictional scope was redefined in 1962. SLA 1962, ch. 132. The Department of Environmental Conservation was not created until 1971 (SLA 1971 ch. 120), and the Forest Practices Act was not adopted until 1978. SLA 1978, ch. 108. Thus, if any implied limitation on the authority under AS 16.05.870 exists, it must come from the latter enactments, and not from legislative intent in 1959, or 1962.

The Forest Practices Act creates the greatest difficulty. In regulating forest practices, the statute, while not purporting to lodge exclusive regulatory authority in one agency, does establish a preference for a notification rather than a permit system in controlling these activities (AS 41.17.090), and does attempt to "coordinate" some other regulatory authorities under the Act. In this regard, AS 41.17.030(j) provides:

> Notwithstanding any other provision of this chapter, the commissioner may not employ the authority vested by this chapter so as to duplicate or pre-empt the statutory authority of other state agencies to adopt regulations or undertake other administrative actions governing resources, values, or activities on forest land except for (1) regulations under the Coastal Management Act; and (2) if authorized by the commissioner of Environmental Conservation, regulations relating to control of non-point source pollution.

AS 16.05.870 is not mentioned in the statute -- an omission from which two conclusions are drawn by Sealaska and the Association. First, it is argued that if the legislature in 1978 believed that the Department of Fish and Game possessed non-point source jurisdiction over logging activities, that authority as well as DEC's would have been "coordinated" under the Act. However, "the views of a subsequent [legislature] form a hazardous basis for inferring the intent of an earlier one." Benevento v. United States, 461 F.2d 1316, 1322 (Ct. Cl. 1972). Here the "subsequent views" are woven from the tenuous cloth of mere silence, and we therefore believe that the argument is not persuasive.

The next question is whether the Department of Natural Resources, under the authority of AS 41.17.030(j), can pre-empt the regulatory authority of the commissioner of Fish and Game under AS 16.05.870 over non-point source pollution of anadromous streams caused by logging activities. In our view, the answer is no. The subsection quoted supra is, with certain specified exceptions, a pre-emption disclaimer, and the Department of Fish and Game does not expressly fall within the exceptions. Non-point source pollution control is the topic of clause (2) of that subsection. However, we believe that this clause should be read in conjunction with sec. 030(g), which provides:

> The commissioner may develop proposed regulations under this chapter as part of the state program for control of non-point

> source pollution under the Federal Water Pollution Control Act, as amended, and shall seek to enter into a cooperative agreement with the commissioner or Environmental Conservation for that purpose. However, the Department of Environmental Conservation is the lead agency for water quality and control of non-point source pollution under that act, and the regulations and cooperative agreement are therefore subject to the advance approval of the commissioner of Environmental Conservation.

Emphasis supplied.

Thus, the Forest Practices Act gives the Department of Natural Resources a significant role in the implementation of non-point source pollution control under sec. 208 of the Clean Water Act. This cross-over of authority, however, is explicitly confined to control programs undertaken in conjunction with the federal act -- i.e., DEC's program. See infra. The commissioner is not infused with any authority for the control of pollution under AS 16.05.870. If the legislature had intended to confine or modify the Department of Fish and Game's authority under that statute as well as the Department of Environmental Conservation's under Title 46, we believe that the statute would have provided for the same type of concurrent approval that is specified with respect to DNR and DEC.

Because of the language in the Forest Practices Act with respect to the control of non-point source pollution under sec. 208, Sealaska and the Alaska Loggers' Association have argued that the legislature intended that section 208 of the federal Act -- as administered by DEC under Title 46 and DNR

under AS 41.17 -- form a comprehensive scheme of reguation of non-point source pollution from logging activities, to the implied exclusion of other existing authorities.

Under sec. 208 of the Clean Water Act, states are asked to prepare comprehensive planning amd regulatory programs for the control of non-point source pollution.[8] The Department of Environmental Conservation has accepted grants under that section, and is preparing a state program in conjunction with other interested agencies. DEC has adequate regulatory authority irrespective of the Forest Practices Act to implement the eventual state program. Under AS 46.03.100, DEC has the statutory jurisdiction to require permits of non-point pollutant sources. See 1975 Op. Atty. Gen. #19 (November 13, 1975).

Sec. 208 is, of course, a federal law, and does not purport to allocate responsibilities between DEC, DNR and Fish and Game. The question can only be answered with reference to the state laws involved.

As noted previously, AS 16.05.870 was enacted in 1959. The sec. 208 concept was developed in the 1972 Federal Water Pollution Control Act (PL 92-500), and thus postdates the

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[8] A "point source" means "any discernible, confined and discreet conveyance, including but not limited to a pipe, ditch, channel, tunnel, conduit, well, discreet fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged." 33 U.S.C. Sec. 1326(14). An example of "non-point source" pollution is siltation from streamside devegetation.

Department of Environmental Conservation's organic legislation. Therefore, it should come as little surprise that nothing in Title 46 expressly or impliedly purports to limit the authority of other state agencies over "non-point source pollution." Since, as discussed previously, AS 41.17 speaks of the Department of Fish and Game's authority, if at all, only in the pre-emption disclaimer, we can find no statutory basis in either AS 46.03 or AS 41.17 for implying that the Department of Fish and Game's authority under AS 16.05.870 is limited by the sec. 208 program.

The remaining implied repealer argument relates to a statute which was enacted prior to sec. 870 -- AS 16.10.010. As early as 1919, the Territorial Fish Commissioners were vested with permit authority roughly coterminous with that conferred by sec. 870. See ACLA 1949, § 39-2-31 (history note). That authority, now lodged in DEC, has been passed over the years to the erstwhile Water Pollution Control Board (SLA 1949, ch. 117, § 2), the Department of Health and Social Services (SLA 1971, ch. 104, § 6) and DEC. SLA 1975, ch. 208, § 12. AS 16.05.870 was enacted as part of the Department of Fish and Game's organic legislation in 1959 (SLA 1959, ch. 94), and it is argued that the legislature intended therein to grant only that licensing authority not previously granted by AS 16-.10.010.

At the outset, we believe that this argument falls of its own weight. AS 16.10.010 requires a permit for well-nigh any activity covered by sec. 870, including any activity which "renders the water inaccessible or uninhabitable for salmon." AS 16.10.010(3). Indeed, the statute is broader than § 870, applying as it does to all waters of the state. We believe it unlikely that the legislature in enacting sec. 870 intended to create an exception broader than the rule itself.

We do not believe there is a conflict between AS 16-.05.870 and AS 16.10.010. While the co-existence of these statutes may be undesirable as a matter of policy, we are aware of no rule of law which discourages concurrent jurisdiction. Yet even if such a rule existed, and one statute were required to yield to the other, it is AS 16.10.010 which would suffer the narrowing constructon. Aside from the fact that AS 16.05-.870 is the more recent enactment, Art. IV, § 1 of SIA 1959, ch. 94 -- the genesis of sec. 870 -- broadly provides that the entire chapter is intended to repeal "all acts and parts of acts in conflict with the provisions of this Act."

It may well be that the legislature should place under one exclusive regulatory umbrella either the control of non-point source pollution in general, or pollution of any kind from particular industries such as forestry or mining. Those, however, are policy issues beyond the scope of this opinion. While such an approach may be desirable, it is not to be found

expressly or by fair implication in either Title 46, AS 41.17 or AS 16.10.010.

With the Department of Fish and Game, in our opinion, lawfully entitled to regulate activities beyond those occurring directly within the stream itself, definition of the precise jurisdictional line remains to be provided. The proposed habitat protection regulations would define that jurisdictional line as follows:

> A habitat protection permit is required for any landclearing or filling with earth and materials within a specified distance of the mean high water line for the anadromous streams listed in (b) of this section, and within 50 feet of the mean high water line for anadromous streams not listed in (b) of this section.

Proposed 5 AAC 95.260(a).

Defining the jurisdictional scope of a licensing statute is an appropriate use of the rulemaking power. In a similar context, it has been encouraged by our Supreme Court. In Stock v. State, supra, the court noted with approval that the Department of Environmental Conservation was then in the process of developing water quality standards which would define with specificity the prohibited act of "pollution:"

> We note, however, that if future offenders are charged with violation of regulations of sufficient specificity, the substantial problems involved in defining the parameters of conduct falling within the statutory definition of the term 'pollution' may be avoided.

526 P.2d at 7, note 4.

Similarly, the regulations will avoid the situation of a person engaging in a streamside activity which in fact results in pollution of the stream from being subjected to after the fact prosecution once the harm has been done.

Indeed, the Department of Fish and Game proposes to follow precisely that course of action taken by the U.S. Army Corps of Engineers under sec. 404 of the Clean Water Act. As noted previously, the courts have refused to imply an artificial jurisdictional limitation on that act. The agency was thus left to define by regulation the outer boundaries of its licensing jurisdiction. For intertidal wetlands, the Corps chose the aquatic vegetation line (33 CFR Sec. 323.2(c)), and the courts have found that delineation "reasonable, consistent with the intent of Congress, and not contrary to the Constitution." Leslie Salt Co. v. Froelke, 578 F.2nd at 756.

Whether Alaska courts would find the distances specified in the proposed regulations to be "reasonable" (see Union Oil Co. v. State, 574 P.2d 1266 (Alaska 1978)) is at this point difficult to determine. We do believe, however, that if the distances generally reach only those streamside activities which, if unregulated, would pose a direct and substantial threat of "polluting" an anadromous stream, the court would find the regulations both reasonable and necessary to accomplish the purposes of the statute. Id. Moreover, while the issue is admittedly one of "jurisdiction," that jurisdictional line is to be drawn based upon a blend of hydrology, biology,

chemistry, limnology and soil science. These are precisely the types of considerations which our court has held, even on matters of statutory interpretation, to call for application of the "reasonable basis" test. Weaver Brothers, Inc. v. Alaska Transportation Commission, 588 P.2d 819, 821 (Alaska 1978). Based upon information available to this department to date, we would be inclined to believe that the court would accept the limitations chosen -- particularly because of the obvious care taken by the department to shorten the distances where technical considerations do not justify a 50 foot line. [9]

Irrespective of the "direct discharge" limitation offerred by commentators on the regulations, it has equally been argued that the statute applies only when an individual intends to pollute the stream. Since the Department of Fish and Game proposes, as we think proper, to define "pollution" as a violation of the state's water quality standards (proposed 5 AAC 95.990(18)), the argument means that if a person does not specifically intend to violate state water quality standards, a permit is not necessary.

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[9] It should be noted that the 50 foot jurisdictional limitation can by no means be considered a "buffer zone." The line merely sets that limit at which the Department of Fish and Game wishes to examine the project to determine whether harm to the stream might result. In this regard, it is our understanding that the vast bulk of anadromous stream permits are in fact issued.

The argument is premised on AS 16.05.870(b), which requires a permit if a person "desires to pollute." Admittedly, there is superficial appeal in equating "desire to pollute" with a subjective intent to befoul the stream. If that indeed is the "plain meaning" of that phrase, the argument would suggest that no further inquiry is necessary. While we believe that the phrase is not self-defining, the "plain meaning" rule is not a rigid formulary -- an inquiry into intent and purpose is still required to assure an interpretation which does not disserve the goal of the statute. Kenai Peninsula Borough, State of Alaska, supra; North Slope Borough v. Sohio Petroleum Corp., 585 P.2d 534 (Alaska 1978). In light of the purpose of sec. 870, it is our opinion that the fundamental question should be whether the nature of the construction or work is such as to constitute a "desire to pollute," and not what the individual hopes will or will not happen.

We reach this conclusion for two reasons. First, the conclusion suggested by the commentators would be hostile to the purpose of the statute -- which, again, is to protect fish and game. Charged as we are with interpreting sec. 870 "broadly" in order to achieve those purposes (Kenai Peninsula Fishermen's Cooperative Association, Inc. v. State, 628 P.2d at 903), we are hesitant to accept an interpretation which would confine jurisdiction to only a fraction of those occasions in which it is warranted and which would make enforcement of the law all but impossible. Pollutants discharged in a stream are equally

damaging, whether placed there out of malice, intent, recklessness, negligence or mere lack of foresight. And if the permit requirement hinged upon a showing of "intent" to pollute the stream, few violations would be prosecuted under AS 16.05.880. The defense of "I didn't know that would happen" would be too obviously available. In this regard, one might fairly ask whose purposes would be served by a statute which would raise the permit issue only after the facility had been constructed, and the damage to the stream had been done?

Secondly, applicable case law likewise argues against the interpretation offered. The landmark case in this regard is Standard Oil Co. v. United States, supra, in which the U.S. Supreme Court was called upon to interpret sec. 13 of the Rivers and Harbors Act of 1899 (The Refuse Act). Standard Oil Co. had accidentally discharged oil into the navigable waters of the United States, and was charged with a violation of that Act, which prohibited, inter alia, "the deposit . . . [of] any refuse matter of any kind or description . . . into any navigable water."

Obviously, the prohibition upon the "deposit of any refuse matter" could easily be read to prohibit only the intentional discarding of useless material. The argument that the Refuse Act requires the court to look at the subjective intent of the discharger is virtually indistinguishable from the argument being advanced with respect to the habitat protection regulations. We share the Supreme Court's rationale in

rejecting that argument when it held that the Refuse Act prohibited the entry of oil into waterways regardless of the intent of the discharger:

> Oil is oil whether usable or not by industrial standards. It has the same deleterious effect on waterways. In either case, its presence to our rivers and harbors is both a menace to navigation and a pollutant . . . .
>
> There is nothing more deserving of the label refuse than oil spilled into a river. . . that seems to be the common sense of the matter. The word, 'refuse' includes all foreign substances and pollutants. . . .

384 U.S. at 229-230.

We believe the requirement of broad construction is better served by interpreting "desire to pollute" in the same manner as the Supreme Court interpreted "desposit of refuse."

IV. Conclusion.

As stated at the outset of this opinion, while the allocation of jurisdiction between the department and boards present little difficulty, legal and policy controversy will continue to surround the scope of the department's jurisdiction under AS 16.05.870. The arguments advanced by the Alaska logging industry are made in good faith, and they are not insubstantial. At the same time, we believe that much of the force of those arguments lies in the realm of policy. Whether through administrative or legislative action regulatory authority over non-point source pollution should be consolidated is

not a question addressed by this opinion. We are only concluding that the better reading of AS 16.05.870 would seem to encompass permit jurisdiction over non-point pollutant sources adjacent to classified anadromous streams or their tributaries which, absent sufficient mitigating measures, would create a direct and substantial threat to pollution of the anadromous stream itself.

Sincerely,

WILSON L. CONDON
ATTORNEY GENERAL

By: Jonathan Tillinghast
Assistant Attorney General

JKT:dlm

STATE of ALASKA

MEMORANDUM

TO:
Doug Jones
Pink Salmon Project Leader
Juneau

DATE: September 6, 1979

FILE NO:

TELEPHONE NO:

FROM:
Karl Hofmeister
Pink Salmon Research
Ketchikan
Dept. of Fish and Game

SUBJECT: Staney Creek salmon die-off

On August 21, 1979 I was approached by Bruce Hoffman of the State Environmental Conservation office concerning a joint investigation of the Staney Creek (103-90-30) salmon die-off. This is a preliminary report dealing with the data collected between August 22, 1979 and August 28, 1979.

The fact that a problem existed at Staney Creek became known on August 17 when John Valentine observed an estimated 15,000 dead unspawned pink salmon throughout the intertidal area. Although very few dead fish were observed up river, the extent of the die-off suggested that stranding in intertidal pools was not the sole cause. A temperature of 17°C and dissolved oxygen of 4.0 p.p.m was recorded at Station A (Fig. 1) at 11:00 a.m. on August 17. At that time Southern Southeast Alaska was experiencing drought conditions. Precipitation at the Ketchikan Airport was 23 inches below the 20 year average for January through August. Total precipitation during the month of August at the Ketchikan Airport was only 1.56 inches compared to the 20 year average of 11.27 inches. Low water conditions were reported at most streams in the area, but Staney Creek had the first reported and most severe die-off to date.

Bruce Hoffman and I arrived at Klawock on Wednesday afternoon. Since it was uncertain how much longer the drought would last, a cursory examination of the entire area, rather than an intensive study on selected streams, was chosen as the study method. The road system was driven and sample sites marked at the numerous stream crossings. Figure 1 is a map of the study area with sample site locations. Figure 1 can be used as an overlay on Quadrangle maps, Craig D4 and Craig C3 for slope and elevation information.

Table 1 presents the temperature recordings taken at the various sites. Sample site locations south of Site #90 are depict on Fig. 2. Except for that required to build roads, no recent cutting has taken place from Klawock to Sample Site #8

Site numbers 73 and 74 are excellent examples of what may be an important contributing factor to Staney Creek's problem. The stream which had a flow of approximately .1 c.f.s. crossed the road from a timbered area at #73 and recrossed the road at #74 after flowing approximately 50 yards through a cut area. A temperature difference of approximately 3°C was noted over that 50 yard sectio during each of the first 3 days of the study. Cloud cover during the first 3 da of study was between 0% and 10%. During the last 2 days of the study, under mostly cloudy skies, the temperature rose 1°C.

The data from August 25 provides the most complete picture of the temperature profile of Staney Creek under drought conditions on sunny days. The temperature at the upper portion of Staney Creek (Site #83) was 12.0°C at 6:00 p.m. Fifteen minutes later and 2.5 miles downstream (Site #81), the temperature was 16.5°C. Ten minutes later and 1.4 miles downstream (Site #78), the temperature was 17.0°C. Thirty minutes later and 1 mile downstream (Site #75), the temperature was 21.0°C. Forty-five minutes later and 2.4 miles downstream (Site #1), the temperature had fallen to 19.0°C. This drop in temperature is somewhat surprising since two major tributaries at Sites #76 and #72 were discharging water into Staney Creek at 21.0 and 19.0°C respectively. Whether the drop in temperature between Sites #75 and #1 was due to increased ground water discharge into Staney Creek or some other factor is at present unknown.

Table 2 presents the information from locations where dead unspawned fish were observed. The counts represent only what was observed from the bridge as time requirements precluded any stream walking.

Picture 1 on page 7 was taken at Sample Site #12 where the highest temperature during the study period of 23°C was recorded. Two small lakes are located at the head of this tributary which undoubtedly contributed to the problem. However, temperatures taken at Site #13 located below the lakes were 4.0 and 3.0°C cooler on Thursday and Friday afternoons. The second picture on page 7 was taken at Site #77. It is an example of the type of creek which may be too small to warrant a leave strip under the present guidelines. However, it is my belief that as a watershed becomes logged as extensively as Staney Creek, the cummulative effects of cutting to the banks of numerous small tributaries play an increasingly important role in the temperature profile of the main channels. Streams which were under 3 feet wide (e.g. #70, #71, #6, #7, and #10) generally had an adequate herbaceous plant cover to maintain relatively low temperatures.

The data obtained from this study only documents the water temperatures occurring in the Staney Creek area at this time. The question of whether temperatures would have been significantly lower prior to logging can not be answered with the available data. However, the high temperatures which were recorded and aerial survey estimates of 30-40 thousand dead unspawned pink salmon in Staney Creek attest to the fact that it is, at the present time, temperature sensitive. Because of the above, I believe it would be appropriate to reconsider the cuts presently scheduled for the Staney Creek watershed.

DATE / TRANSECT	8/23 TIME	8/23 TEMP°C	8/24 TIME	8/24 TEMP°C	8/25 TIME	8/25 TEMP°C	8/27 TIME	8/27 TEMP°C	8/28 TIME	8/28 TEMP°C
1	1940	19	1020	16	0920	15	2100	17.5	0700	14.0
2					1020	14.5	1730	15.5	0810	12
71			1935	13	1030	12	1625	13	0815	11
3	1725	17	1120	14						
3			1940	15						
70	1735	14	1125	12.5	1045	13	1630	14	0820	12
70			1950	14						
5	1740	22	1130	19	1050	17	1635	18	0825	14.5
5			1955	19						
6					1055	12	1640	12	0835	10.5
7					1100	12			0845	11.5
8					1105	14.5	1645	16.5	0900	12.5
9					1110	14	1650	14	0910	12.5
10					1115	12	1655	14.5	0920	11
11					1120	14.5	1700	14.5	0925	13
12	1755	23	1150	19	1125	18	1705	19	0930	14.5
12			2015	21						
13	1830	19	1200	16	1140	16.5	1710	17	0945	13.5
13			2030	17						
72			1920	19.5	1915	19	1620	15.5	1050	14
73	1710	14	1910	15.5	1910	15	1610	13	1055	12
74	1710	19	1955	19	1900	19	1605	14	1100	12.5
75	1700	22	1900	21	1855	21	1550	17.5	1110	14
76	1635	21	1850	21.5	1850	21	1540	18		
77	1625	20	1840	19	1845	20	1530	17		
78	1620	18	1825	17	1825	17	1525	15.5	1120	13.5
79			1830	16.5	1830	16.0	1520	13	1125	12.5
80			1815	13	1820	14				
81			1805	17	1815	16.5	1515	14	1130	13
82			1800	17.5	1810	17	1510	15	1135	13.5
83			1745	13.5	1800	12	1500	12		
84			1725	14	1745	14	1455	14	1145	14
85			1720	15	1730	16	1450	15		
86			1715	14	1720	14	1445	14	1155	12
87			1705	16	1710	15	1435	14	1210	12.5
88			1655	16	1700	16	1425	13.5	1220	12.5
89			1645	15.5	1640	16.0	1415	15	1305	13.5
90			1255	14	1620	17	1410	15	1310	14
90			1610	16						

DATE	8/23		8/24		8/25		8/27		8/28	
TRANSECT	TIME	TEMP°C	TIME	TEMP°C	TIME	TEMP°C	TIME	TEMP°C	TIME	TEMP°C
91			1315	18	1555	19	1400	17	1315	16
91			1550	18						
92			1545	12	1550	12	1345	12	1320	11.5
93			1540	14.	1545	14			1330	11
94			1535	13	1540	12	1340	11		
95			1530	12.5	1535	12.5				
96			1525	12.5	1530	12				
97			1520	13.5	1525	13.5				
98			1510	12	1520	12				
99			1505	13.5	1515	13	1320	13	1350	13

8/23 0 - 10% Cloud cover

8/24 0 - 10% " "

8/25 0 - 10% " "

8/27 100% " " (0700 to 1300)
50% " " (1300 to sundown)

8/28 100% " "

Table 2.

UNSPAWNED DEAD FISH OBSERVED DURING STUDY PERIOD

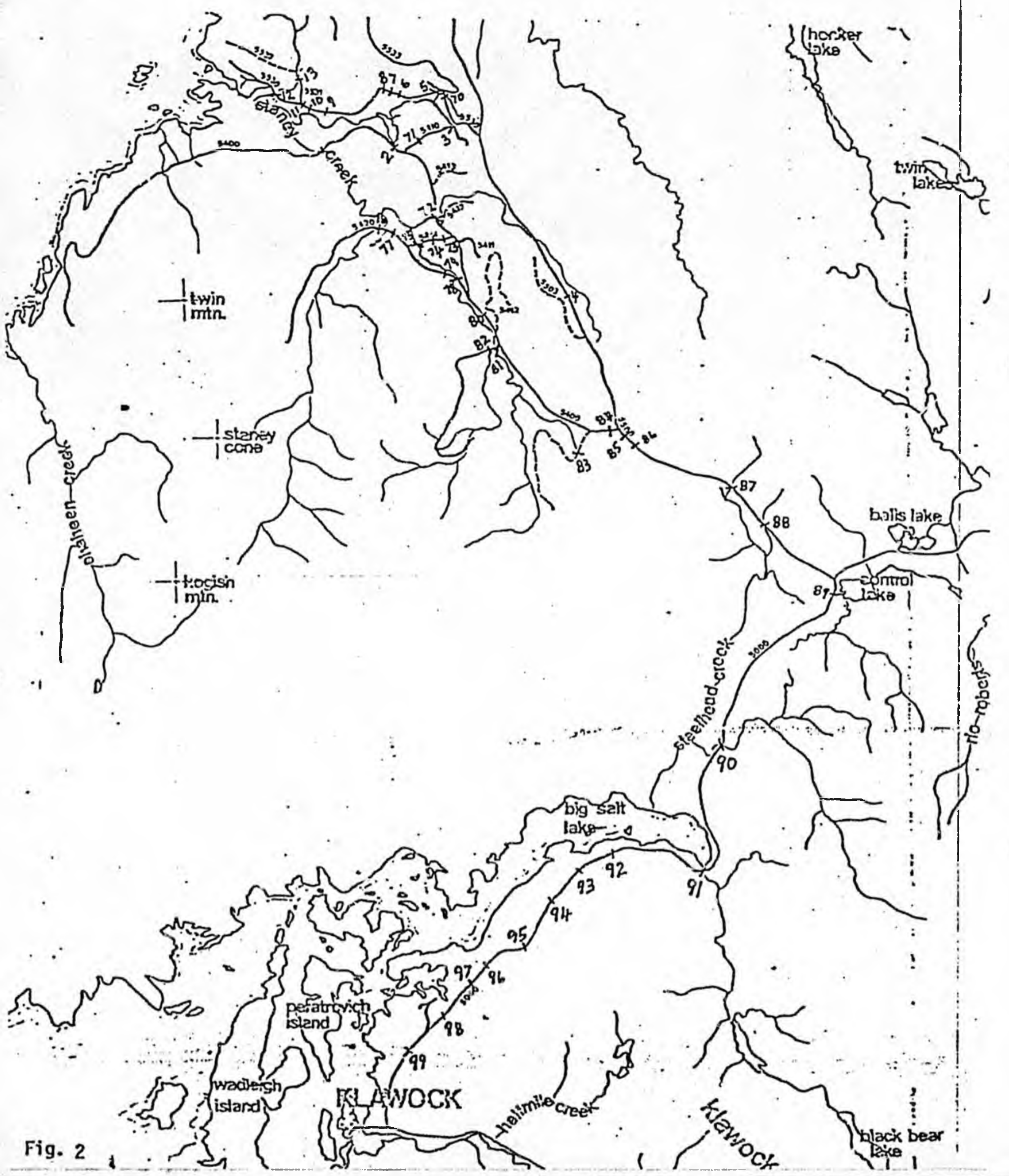
Transect	Date	Time	O_2 P.P.M.	Temp°C	Remarks
78	8/23	1620	6.8	18	4 DP, 200 LP
78	8/24	1825		17	No change
78	8/25	1825		17	20 DP, 200 LP
76	8/23	1635	4.9	21	33 DP, 3,000 LP
76	8/24	1850		21.5	150 DP, 3,000 LP
76	8/25	1850		21	500 DP, 3,000 LP
75	8/23	1700	7.4	22	5 DP
12	8/23	1755	3.7	23	40 DP, 1 DCO, 2 DC, 50 LP
12	8/24	1150	5.4	19	70 DP, 9 LP
1	8/23	1940	7.5-5.0*	19	9 DP, 4,000 LP, 30 LC
1	8/24	1020	9.5-6.0*	16	No change
1	8/25	0920	9.6-6.4*	15	300 DP, 6 DC, 4,000 LP, 30 LC

* First O_2 measurement from above hole; second O_2 measurement below hole. Hole approximately 75 yards by 15 yards by 4 feet deep.

DCO - Dead coho adults DC - Dead chum DP - Dead pink

LCO - Live coho adults LC - Live chum LP - Live pink

DV - Dead Dolly Varden



hooker lake
twin lakes
staney creek
twin mtn.
staney cone
kogish mtn.
shaheen creek
balls lake
control lake
steelhead creek
rio roberts
big salt lake
peratrovich island
wadleigh island
KLAWOCK
halfmile creek
Klawock
black bear lake

Fig. 2