ALASKA LEGISLATURE COMMITTEE FILES, 1989-1990

5996 HOUSE RESOURCES

8672

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TO: House Resources Com. FAX: _____ PHONE: 465-4745

FROM: Dick Bishop PHONE: _____

INSTRUCTIONS: Written testimony for House Resource teleconference 4/18/89 - HB 210.

RECEIVED: Date _____ Time _____

SENT: Date 4/18/89 Time _____

DISPOSAL OF ORIGINAL: Discard ____ Hold for Pickup ____

NUMBER OF PAGES: 1 (Not counting cover sheet)

SENT BY: Jean

Alaska State Legislature

Please enter into the record my testimony to the HOUSE RESOURCES committee name

committee on HB 210 bill/subject, dated 3/8/89.

I SUPPORT THE CONCEPT EMBODIED IN HB210. THE STATE IS CONSTITUTIONALLY OBLIGATED TO MANAGE FISH & WILDLIFE ON THE SUSTAINED YIELD PRINCIPLE FOR COMMON USE BY ITS CITIZENS. TO DO SO REQUIRES MAINTAINING ADEQUATE HABITAT. THIS BILL WOULD HELP ENSURE ADEQUATE FISH HABITAT, & INCIDENTALLY WILDLIFE HABITAT.

THE RESERVATION OF 60% FLOW IN ICE-FREE MONTHS IS PROBABLY ADEQUATE, BUT SHOULD BE EXAMINED BY EXPERTS. THE 30% RESERVATION MAY NOT BE ADEQUATE. SOME NORTH SLOPE STREAMS HAVE LITTLE OR NO WINTER FLOW, & FISH ARE HIGHLY DEPENDENT ON EXISTING WATER FOR OVERWINTER SURVIVAL.

Signed: _____
Testifier

Richard K Bishop - Self
Representing (Optional)

1255 Gus's Grind Fairbanks Ak 99709
Address

907.455-6151
Phone No.

FEDERAL AGENCIES COMMENTARY

DEPARTMENT OF INTERIOR
- NATIONAL PARK SERVICE
- BUREAU OF LAND MANAGEMENT
- UNITED STATES GEOLOGICAL SURVEY
- FISH AND WILDLIFE SERVICE

DEPARTMENT OF COMMERCE
- NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

DEPARTMENT OF AGRICULTURE

United States Department of the Interior
NATIONAL PARK SERVICE
ALASKA REGIONAL OFFICE
2525 Gambell Street, Room 107
Anchorage, Alaska 99503-2892

IN REPLY REFER TO:
L54(ARO-RNR)

28 MAR 1989

RECEIVED [illegible]

Honorable Cliff Davidson
State of Alaska
House of Representatives
Box V
Juneau, AK 99811

Dear Representative Davidson:

These comments are offered in support of HB 210, as requested in your letter of March 16, 1989. As you may know, the National Park Service is guided in its management activities by the fundamental purpose of parks as described in the National Park Service Organic Act of 1916 (16 USC, Sec. 1). Specifically, the fundamental purpose of National Park Service managed units is to "... conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." In light of this Congressional mandate, the Service seeks to support those actions by governmental and private entities which serve to protect the environment.

Alaska has taken an early, forward-looking approach in its efforts to address instream flow needs for fishery purposes. The net effect of HB 210 will be the protection of instream flows for the safeguard of fishery values. If Alaska adopts an instream flow law having the basic contours of HB 210, it will have the opportunity to avoid some of the problems which have been encountered in the lower forty-eight states.

By setting aside the water flow necessary for a healthy fishery, Alaska can avoid the problems often encountered elsewhere of attempting to "repair" aquatic systems once they are "broken." By informing prospective appropriators of an outstanding reservation of water for the protection of fishery needs, the intent of the prior appropriation doctrine will be served, giving appropriators a reasonable degree of certainty.

While the intent of HB 210 is laudable and fully supported by the National Park Service, certain concerns arise about possible misinterpretation of its language. Specifically, the flow of a lake may not be the best measure of protection for lake fishery values. Lake level maintenance may be a better measure. Similarly, the language does not explain how to reserve the

quantity and priority of instream flow in streams without presently identified fishery values if such fisheries are found later. Also, the language may prevent the Alaska Department of Fish and Game from modifying instream flow requirements when data or resource sensitivity indicate the need. Any possible ambiguity in the bill should be eliminated at this time to avoid future conflicts.

Thank you for the opportunity to review HB 210 and offer comments from the perspective of the National Park Service. We encourage the State of Alaska's efforts to protect its natural resource values. Please feel free to call upon me or my staff if we may be of further assistance in moving this important initiative forward.

Sincerely,

Richard J.Stenmark
Acting Regional Director

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
ALASKA STATE OFFICE
701 C STREET, BOX 13
ANCHORAGE, ALASKA 99513-0099

TAKE PRIDE IN AMERICA

7200/6700
(930)

April 21, 1989

RECEIVED APR 27 1989

Honorable Cliff Davidson
District 27
Box 746
Kodiak, Alaska 99615

Dear Mr. Davidson:

My staff has reviewed the proposed legislation, House Bill 210, concerning the reservation of Instream Flows in waters important for fish. We fully support the concept of establishing an instream flow reservation in rivers, lakes and streams important to fisheries. This bill will recognize and allow us to ensure the necessary protection and reservation of water resources on public land critical to fisheries habitat.

The process of reserving a percentage of mean annual flow will provide an administratively efficient method of appropriating water for the critical fisheries. This use of percentages of mean annual flow of a water body (Sec.46.15.146a) may not ensure protection of fishery habitat in some areas, however, we feel it is a good starting point to acknowledge the instream reservation for important fisheries. We feel Sec.46.15.146a will allow the needed flexibility to adjust the instantaneous flow reserved to ensure maintenance of fish habitat. It was refreshing to see that all fisheries were included in this legislation and it was not limited to anadromous fish.

Thank you for the opportunity to respond to this proposed bill.

Sincerely,

David R. Boldt

State Director, Alaska

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
ALASKA STATE OFFICE
222 W. 7th Avenue, #13
ANCHORAGE, ALASKA 99513-7599

TAKE PRIDE IN AMERICA

Heather Bradner
April 7, 1989

7200/6700
(930)

Representative Cliff Davidson
District 27
Box 746
Kodiak, Alaska 99615

Dear Representative Davidson:

My staff has reviewed the proposed legislation, House Bill 210, concerning the reservation of Instream Flows in waters important for fish. We fully support the concept of establishing an instream flow reservation in rivers, lakes and streams important to fisheries. This bill will recognize and allow us to ensure the necessary protection and reservation of water resources on public land critical to fisheries habitat.

The process of reserving a percentage of mean annual flow will provide an administratively efficient method of appropriating water for the critical fisheries. This use of percentages of mean annual flow of a water body (Sec.46.15.146a) may not ensure protection of fishery habitat in some areas, however, we feel it is a good starting point to acknowledge the instream reservation for important fisheries. We feel Sec.46.15.146a will allow the needed flexibility to adjust the instantaneous flow reserved to ensure maintenance of fish habitat. It was refreshing to see that all fisheries were included in this legislation and it was not limited to anadromous fish.

Thank you for the opportunity to respond to this proposed bill.

Sincerely,

D Schejnoha AK 933
271-3186

United States Department of the Interior

GEOLOGICAL SURVEY
Water Resources Division
4230 University Drive - Suite 201
ANCHORAGE ALASKA 99508-4664

March 6, 1989

Mr. Christopher Estes
Statewide Instream Flow Coordinator
Alaska Department of Fish & Game
Division of Sport Fisheries
Research and Technical Services Unit
333 Rasberry Road
Anchorage, Alaska 99518

Dear Mr. Estes:

In a phone call with Gordon Nelson on February 6, 1989, you requested that we review our streamflow records and revise a letter that I wrote to you on November 9, 1987. Bob Lamke reviewed the records and determined that there are now 171 streams that have continuous historical flow records of ten or more years. An additional 55 stations have a record length of five to nine years, and about 90 have record length of one to four years. These numbers do not include stations on streams that are regulated, because regulated streams can not be used for comparative regional statistics.

We have not done any regional analyses since the November 1987 letter, a copy of which is attached. If you have any questions, please contact me or Bob Lamke at 271-4138.

Sincerely,

Philip A. Emery

Philip A. Emery
District Chief

United States Department of the Interior

GEOLOGICAL SURVEY

Branch of Alaskan Geology
4200 University Drive
Anchorage, Alaska 99508-4667

March 23, 1989

The Honorable Cliff Davidson
Co-Chairman, House Resources Committee
State of Alaska
House of Representatives
Box V
Juneau, Alaska 99811

Dear Mr. Davidson:

Thank you for your letter of March 16, 1989 concerning legislation requiring an instream flow reservation in rivers, lakes, and streams important to fisheries. Our Water Resources Division is extremely knowledgeable about water problems in Alaska. Consequently, I am taking the liberty of forwarding your letter to Phillip A. Emery, District Chief of the Water Resources Division offices in Alaska.

The Branch of Alaskan Geology, which is under my direction, is concerned with the general geology of Alaska, and especially mineral resources, geologic mapping, engineering geology, and geologic hazards.

As a scientific research organization, we are always anxious to help the State Legislature in any way we can.

Very truly yours,

Donald J. Grybeck
Chief
Branch of Alaskan Geology

cc: P.A. Emery

United States Department of the Interior

GEOLOGICAL SURVEY
Water Resources Division
4230 University Drive - Suite 201
ANCHORAGE ALASKA 99508-4664

March 27, 1989

Representative Cliff Davidson
House of Representatives
Box V
Juneau, Alaska 99811

Dear Representative Davidson:

A copy of your proposed legislation (HB 210) and supporting documents, which were sent to Mr. Donald Grybeck, Chief of the Branch of Alaska Geology of USGS, have been forwarded to this office. As a resource-information agency with neither regulatory nor enforcement powers or responsibilities, the Geological Survey is unable to "take a position" on legislation. After review of the proposed bill, however, we would offer the following comments and (or) questions for your consideration:

1. Determination of the mean annual flow -- for many, and perhaps most, streams in Alaska, streamflow data have not been collected over a long enough period (at least 5 years of daily discharge records?) to allow computation of a meaningfull value for mean annual flow. For most streams, then, the mean annual flow value is based on correlation of a few discharge measurements with simultaneous discharge at the nearest long-term, continous record station. If that correlation is a tenuous one, the calculated or estimated mean annual flow will be suspect. Equations have been developed by several investigators to estimate mean annual flow of a stream from its basin characteristics, primarily drainage area and precipitation. However, if 90% of the total yearly flow of a stream takes place during a short, 2- to 3-week period at spring breakup (North Slope streams, for example), is the mean annual flow value a meaningful one?

2. Point/location on stream at which the 30% (winter) or 60% (summer) of mean annual flow criterion specified in the proposed legislation will be applied -- discharge may vary along a stream due to gains from tributaries and seepage from ground water and losses due to infiltration into the stream bed. Under winter low-flow conditions in particular, streamflow may equal or exceed 30% of the mean annual flow at one point while at other points on the stream there may be no flow.

3. Documentation/verification of flow -- it may be extremely difficult, if not impossible, to measure or accurately determine flow under ice in winter.

4. Selection of the 30% and 6"4 criteria -- Although these values have been "successfully court tested" in other States, are they appropriate for [illegible] streams, in which flows may be affected (reduced) by freezing temperatures for as long as 5 to 8 months?

These questions have doubtless been discussed at length in the course of drawing up HB 210, but there appears to be wide latitude for determination [illegible] and application of the value of mean annual flow within the bill as written.

Sincerely,

Philip A. Emery

Philip A. Emery
District Chief

United States Department of the Interior

GEOLOGICAL SURVEY
Water Resources Division
4230 University Drive - Suite 201
ANCHORAGE ALASKA 99508-4664

November 9, 1987

Christopher Estes
Statewide Instream Flow Coordinator
Alaska Department of Fish & Game
Division of Sport Fisheries
Research & Technical Services Unit
333 Raspberry Road
Anchorage, Alaska 99518

Dear Mr. Estes:

This letter is in response to your inquiry as to whether a mean annual discharge can be calculated or estimated for all streams in Alaska.

Yes, a mean annual discharge value can be determined for most streams; however, the quantity and quality of the data base and analysis used to derive this value for a given stream will limit its statistical reliability. We would therefore strongly urge that the presentation of these values, or for that matter any flow calculations or estimates that are reported, also reference the data source or sources and include a summary of the analysis used to derive a value and its confidence intervals.

There are over 8,400 named streams in Alaska and many more un-named streams. Of them, only 160 have continuous historical flow records of ten or more years (long-term record), 55 have a record length of five to nine years, and 95 have a record length of one to four years. A few streams have short-term seasonal records. The remaining streams have no continuous records. From a statistical perspective, stream-flow statistics from streams with ten or more years of record are considered statistically reliable for use in regional flow analysis. Any flow value derived from a data base of shorter duration should be examined to see if there is sufficient range in discharge and whether it can be compared to long-term streamflow data at nearby stations or within the region. Adjustments can be made to the short-term data to reflect flow conditions over a longer time period.

It is recognized that deriving a value from a limited data base and presenting the results with proper qualifiers is better than not having any value at all. If possible, a statistical assessment of a value derived from a limited data base should be made or proper qualifiers should be presented; otherwise, use of the value could result in serious misinterpretations and decisions using that information.

An analysis and brief discussion is attached for some of the available methods for estimating a mean annual discharge for ungaged streams having no data. Mean annual discharge of streams on or near a stream-gaging station with a long-term record can easily be calculated and applicable adjustments made. Methods for correlating discharge measurements at ungaged sites to gaged streams are available. The methods that have been used in Alaska are discussed in:

Scully, D. R., Krumhardt, A. P., and Kernodle, D. R., Hydrologic Reconnaissance of the Beluga, Peters Creek, and Healy Coal Areas, Alaska: U. S. Geological Survey Water Resources Investigations 81-56, 71 p.

Savard, C. S., and Scully D. R., 1984, Surface-Water Quantity and Quality in the Lower Kenai Peninsula, Alaska: U. S. Geological Survey Water-Resources Investigation Report 84-4161, 62 p.

Alaska has only one active stream gage per 7000 square miles as opposed to an average of one gage per 400 square miles in the lower 48 states. Obviously, the best solution to deriving reliable stream flow values for Alaska would be to expand our gaging-station network, and maintain a sufficient number of stations to insure that long term records can be developed.

I hope this provides you the information requested.

Sincerely,

Philip A. Emery
District Chief

Attachment

EXAMINATION OF METHODS USED TO ESTIMATE MEAN ANNUAL DISCHARGE IN ALASKAN STREAMS

R. D. Lamke August 21, 1987

Techniques that can be used to estimate mean annual discharge at ungaged sites throughout Alaska were provided in a report by Bruce Parks and Robert J. Madison in the 1985 report: "Estimation of Selected Flow and Water-Quality Characteristics of Alaskan Streams", U.S. Geological Survey, Water-Resources Investigations Report 84-4247. In order to use the techniques, some degree of technical expertise is required. However, the specific methods of estimating annual discharges are just a portion of the report. A discussion of the pertinent parts of the report follows:

The best method (of those examined in the report) to estimate average discharge (cubic feet per second) of a stream throughout the year are equations that use drainage area of the basin and the mean annual precipitation averaged over the basin. The maps used for drainage area were standard U.S. Geological Survey contour maps of 1:63,360 and 1:250,000 scale. Precipitation should be determined from an isohyetal map issued by the National Weather Service in 1972 entitled "Mean Annual Precipitation". It is important to use the same methods and maps used to derive the equations. A level of knowledge is required to determine drainage area in that the location of the site in question for which the mean annual discharge is desired has to be located on a USGS contour map, the drainage basin boundaries have to be defined on the contour map, and the drainage area has to be measured. The general definition of the drainage area boundaries needs to be transferred to the

isohyetal map (NWS, 1972) and an average precipitation (inches) determined by averaging values of precipitation from several equally-spaced locations within the drainage boundaries defined on the isohyetal map. If the drainage basin is relatively small, the precipitation value on the NWS map at the point of interest is sufficient.

Parks and Madison (1985, p. 26-27) developed a statewide equation and regional equations to estimate mean annual discharge. They state (p. 26) that in southwest, northwest, and Arctic Slope regions, where they are few data available, statewide equations offer the best alternative for estimating flow at ungaged sites.

The mean annual discharge can be estimated by using a form of the equation:

$$\text{Log } Q_A = \text{Log } a + b_1 \text{ Log } A + b_2 \text{ Log } P$$

where Q_A is mean annual discharge in cubic feet per second

a = regression constant

A = drainage area in square miles

P = mean annual precipitation in inches

b_1 and b_2 are regression coefficients

An equivalent form of the equation is:

$$Q_A = a A^{b_1} P^{b_2}$$

Values within the range of drainage area and precipitation used in the derivation of the equations should be used. The ranges used are presented below:

		Statewide	Southeast	South-central	Yukon
Range in area:	lower	2.5	2.5	4.7	9
(mi^2)	upper	321,000	226	20,600	321,000
Range in precipitation:	lower	4	60	10	12
(inches)	upper	280	280	160	80

Reliability of the equations is the highest where sufficient streamflow data are available. Therefore, equations are less reliable where data are sparse. There is no map which shows the locations of the gages used to determine the equations for mean annual discharge. However, figure 1 (Parks and Madison, 1985) shows the locations of the 246 gaging stations used in WRI 84-4247. Of these, 172 were used in computing the regression equations for mean annual discharge.

Regression equation theory is briefly explained on pages 10 and 11 of Parks and Madison (1985). The measurements of the accuracy of the equations are discussed in paragraphs 1 and 2 of page 11 and evaluations of the equations are discussed on pages 19 and 26. Table 5 on Page 27 gives the log of the regression constant, regression coefficients, and error statistics of the equations derived to estimate mean annual flow, Q_A. In using these equations, it is helpful to know that "a" is the antilog of Log a and the logarithms are to base 10.

The standard error of estimate is given in log units. Standard errors in log units are more understandable when expressed in (+) and (-) percent. The standard errors shown are standard errors of estimate (SEE); a more common method of expression is to give the standard error of the regression equation (SER). (See discussions on the two types of standard errors on pages 17-19.) The equations and error information given in table 5 of the report have been reformatted to incorporate some of the information discussed in the two preceding paragraphs.

	Statewide	Southeast	South-central	Yukon
a	(0.0309)	(0.347)	(0.0468)	(0.00912)
Log a	-1.51	-0.46	-1.33	-2.04
b_1	0.98	1.01	0.96	1.05
b_2	1.19	0.68	1.11	1.39
n (sample size)	172	66	56	32
r^2 (coef. of determination)	0.98	0.92	0.97	0.99
SEE (log units)	.15	.14	.16	.10
(+) percent	(41)	(38)	(45)	(26)
(-) percent	(29)	(28)	(31)	(21)
SER (log units)	(0.123)	(0.114)	(0.133)	(0.077)
(+) percent	(33)	(30)	(36)	(19)
(-) percent	(25)	(23)	(26)	(16)

Note: The values in parenthesis are not given in the report by Parks and Madison, 1985; but they can be estimated from the information in the report.

A summation of the methods to compute flow characteristics in WRI 84-4247 is given on pages 88-92 of the following publication (Appendix C of this publication contains the precipitation map):

Entrix, Inc., 1986, Best Management Practices for Placer Mining, Technical Report: Alaska Department of Fish and Game, Division of Habitat, Juneau, AK, 250 p.

There are other reports that present methods, utilizing regression equations of basin characteristics, to determine mean annual discharge. The two that are the most readily available are for U.S. Forest Service areas in Alaska and the other is for the Cook Inlet sub-region. The references are:

OTT Water Engineers, Inc., 1979, Water Resources Atlas for USDA Forest Service, Region 10 Juneau, Alaska: Redding, Calif., 7 p., 5 appendices.

Freethey, G.W., and Scully, D.R., 1980, Water Resources of the Cook Inlet basin: U.S. Geological Survey Hydrologic Investigations Atlas HA-620, 4 sheets.

A subjective comparison of the results of determining average discharge using methods in these two reports with results from Parks and Madison (1985) was made. Some observations follow:

FOREST SERVICE

1. The author's selected the stations to use. They arbitrarily excluded stations with significant glacier areas.

2. The precipitation maps presented in the report have to be used in the regression equations.

3. Results for average discharge seem to be quite good. However, there is an element of cross-correlation involved; because runoff data were used as an aid in drawing the precipitation maps.

4. However, in spite of the above drawbacks, I would recommend that mean annual discharges be estimated for comparable (maritime, island, non-glacial) streams in Southeast Alaska and Chugach Forest using this method. The result should be compared with the results from using the methods in WRI 84-4247.

COOK INLET

1. The mean elevation of the drainage basin has to be determined for use in the equation presented in this report.

2. Results [in terms of standard error of the regression (SER)] using the equation presented in this report are better than results from methods given in WRI 84-4247.

3. In other regional analyses (unpublished), I have found that including a third variable (besides area and precipitation) reduces the standard error of the equation and this third variable is significant at the 95% level.

Other methods to estimate average discharge at ungaged sites involve making several measurements of discharge at the site and comparing their discharges with concurrent flow at an index streamflow station; or to determine runoff from "runoff" maps. The first method is expensive. The second method is not very accurate and the potential error can not be quantified. Also, only a few areas of the state have regional runoff maps.

United States Department of the Interior
FISH AND WILDLIFE SERVICE
NATIONAL ECOLOGY RESEARCH CENTER

2627 Redwing Road - Creekside One
Fort Collins, Colorado 80526-2899

April 5, 1989

In Reply Refer To:
FWS/Region 8/NERC

ASB: 705.02

Representative, Cliff Davidson
State of Alaska
House of Representatives
Box V
Juneau, AK 99811

Dear Mr. Davidson:

We have received the copy of House Bill 210 which was sent for review. I had already received a copy from personnel of Alaska Department of Fish and Game and have discussed the advantages of such stream flow protection with Mr. Christopher Estes on two occasions.

Let me congratulate you for the foresight which this bill reflects in reserving instream flows for the benefit of protecting the fishery resources of Alaska.

Alaska is in the unique position of being able to reserve from future appropriation a portion of the water now flowing in its streams in order to maintain the stream habitat conditions necessary for existing high levels of fish production. By enacting such legislation well in advance of any real conflict with consumptive uses of water the state can maintain certainty in the appropriation process into the future. Most instream flow legislation in the lower 48 states has come about after stream flows had been severely depleted and fisheries were degraded or eliminated. Under such circumstances the threat of a "taking" of water rights has always been the most controversial aspect of instream flow legislation. Sec.46.15.146(b) protects existing water rights quite nicely and should therefore direct attention to future appropriations being made while adequately protecting the fishery needs for water.

Lastly, Sec.46.15.146.(c) allows for site specific studies to be called for when in the future there is a challenge to a specific stream reservation by a proposed off-stream use. Our experience has shown that a detailed study always allows for some adjustments in stream flow without significantly impacting the fishery.

I hope the Alaska State Legislature enacts this bill because it will provide a

model to the humid eastern U.S. States, many of which are presently considering instream flow protection.

Sincerely,

Clair B. Stalnaker

Clair B. Stalnaker
Chief, Aquatic Systems Branch

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1011 E. TUDOR RD.
ANCHORAGE, ALASKA 99503

IN REPLY REFER TO:
WRB/3703f

APR 10 1989

Representative Cliff Davidson
Co-Chairman, House Resources Committee
State of Alaska House of Representatives
P.O. Box V
Juneau, Alaska 99811

Dear Mr. Davidson:

Thank you for your letter of March 16, 1989, and the opportunity to review and comment on House Bill 210.

The U.S. Fish and Wildlife Service (Service) is directly responsible for the management of land and water resources on approximately 77 million acres of National Wildlife Refuge lands in Alaska. In addition, the Service serves in an advisory capacity to other agencies on such water-related issues as Federal Energy Regulatory Commission permits and licenses, Federal water resource development projects, U.S. Army Corps of Engineers permits, and other water issues as they may pertain to fish and wildlife populations or their habitats. Needless to say, the Service has a very strong interest in any legislation that may affect the management of water resources.

We believe House Bill 210 has the potential to ensure a high level of recognition and protection for aquatic habitat areas. House Bill 210 also assures appropriate attention to assessment, evaluation, and preservation of aquatic resources. The bill has the potential to greatly reduce the cost of quantifying water rights to public agencies.

The percentages of the mean annual flow that are proposed for use in House Bill 210 were derived by employing the Montana (Tennant) Method of recommending instream resource maintenance flows. The Montana Method has received extensive use by the Service throughout the United States. The method has been used for assessing individual water resource development projects, regional comprehensive river basin management plans and National water use assessments. We believe the application of this method is entirely appropriate and consistent with its intended use.

We believe consideration should be given to reserving instream flows to maintain water dependent wildlife habitat areas. Wetlands adjacent to many streams and lakes are critical to maintaining both wildlife and fish populations. Oxbow lakes, for example, are some of the most productive waterbodies for waterfowl and other wildlife. Many oxbow lakes are totally dependent on water levels of adjacent streams. Furbearers such as beaver, muskrats and river otter are totally dependent on aquatic habitats.

The Service has formally asserted Federal Reserved Water Rights on all waters within the boundaries of the National Wildlife Refuge System in Alaska. These water rights are based on the withdrawal of Federal lands and waters for specific refuge purposes, including maintenance of fish and wildlife populations and their habitats. Although there has been no quantification of

the assertions, they are valid existing rights that are senior to any appropriation that may occur as a result of this legislation. The Federal Reserved Water Rights presently in place would not be affected by the passage of House Bill 210.

The following are specific comments and recommendations that we would like you to consider:

1. House Bill 210 does not specify in whose custody the reservation is to be held. We recommend that Section 1.(a) be amended to specify that the reservation be established in the name of the Commissioner of the Alaska Department of Fish and Game. This amendment would make the proposed reservations consistent with other instream flow water rights now held, applied for, or yet to be applied for, by the Department of Fish and Game under existing legislation.

2. We concur with the language in Section 1.(a) that states "...the Commissioner shall reserve...instantaneous flow." To make this legislation effective we encourage you to retain this language. Our support for this legislation is based on our belief that this is a major step toward water allocation for natural resource purposes.

3. The author of an explanatory attachment to the bill repeatedly referred to "anadromous fish" and "anadromous fish streams". We support the broader wording of the bill which would allocate instream water for all fish. Because of the even broader purposes of the Service, and of the Alaska Department of Fish and Game, we recommend that Section 1.(a) be amended at line 12 to read "...upon receipt by the Commissioner of an application to appropriate water from a river, lake or stream that is important for the spawning, incubation, rearing, or migration of fish, or that is important for game and non-game birds or other wildlife, the Commissioner shall reserve an instantaneous flow in the river, lake or stream for the instream use of the fish and wildlife and to maintain existing habitat for fish and wildlife." (Underlined words are added.) Section 1.(c), line 6 should also be amended to include "wildlife."

4. We believe it is essential that the intent contained in Section 1.(d) be retained. With the existing regulations in effect, the priority date of a State water right is considered to be the date of application. As noted in Section 1.(a), a reservation of instream flows will be made only after an application for an off-stream use is received. Section 1.(d) removes any confusion as to the priority date and the intentions of the proposed legislation.

If you have any questions, or if we may be of further assistance, please contact Rowan Gould at (907) 786-3522.

Thank you again for the opportunity to review and comment on this proposed legislation.

Sincerely,

Walter O. Steiglitz

Regional Director

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

March 28, 1989

RECEIVED MAR 3 0 1988

Honorable Cliff Davidson
Co-Chairman, House Resources Committee
State of Alaska
House of Representatives
Box V
Juneau, Alaska 99801

Dear Mr. Davidson:

The National Marine Fisheries Service (NMFS) has reviewed the copy of House Bill 210, legislation which you have introduced that would require an instream flow reservation for rivers, lakes, and streams important to fisheries.

The legislation is intended to ensure that commercial, subsistence, and recreational fisheries are maintained at or above current levels. The proposed reservation of instantaneous flows of 30 percent and 60 percent of the mean annual flow for winter and summer periods should adequately protect fish habitat upon which these fisheries depend.

The proposed legislation does not state a minimum time period required as a base for determining mean annual flow. Less than 300 Alaska streams and rivers have a continuous period of record for flow of one year or greater. In most cases, therefore, the burden would be on the applicant to estimate mean annual flow and demonstrate that a diversion would not affect flow reservations. Specific procedural standards are needed to guide applicants so that flow estimates are meaningful.

Although there are a number ways to estimate flows required for fish habitat, the proposed Tenant or Montana method would suffice when a diversion is first considered. Other techniques (such as the Instream Flow Incremental Methodology) provide more precise estimates of what changes may occur in fish habitat at different flows. If necessary, applicants could be required to use these instream flow techniques at a later stage to demonstrate that diversions will not jeopardize fish habitat.

The success of this legislation in protecting fish habitat will in part be related to the oversight and review of instream flow studies. In particular, the design, methods, and results of any instream flow study will require careful scrutiny by objective third parties. Because of NMFS involvement in the review of Federal Energy Regulatory Commission hydropower license and exemption applications in Alaska, we maintain expertise in instream flow studies. We are available to assist in the review

of instream flow methods and for consultation on the results of instream flow studies.

Thank you for the opportunity to comment.

Sincerely,

for Steve Pennoyer
Director, Alaska Region

NMFS contact person: John Hamilton

cc: ADFG, Douglas
FWS, Juneau, Nadeau
ADNR, Juneau
EPA, Anchorage
ADEC, Juneau

United States Department of Agriculture | Forest Service | Alaska Region | P.O. Box 21628 Juneau, AK 99802-1628

Reply to: 1500

Date: APR 4 1989

Honorable Cliff Davidson
Alaska House of Representatives
Box V
Juneau, AK 99811

Dear Mr. Davidson:

Thank you for the opportunity to review House Bill 210 which requires instream flow reservation in rivers, lakes, and streams important to fisheries.

We have the following technical comments concerning House Bill 210:

1. The tenant method on which the bill is based is best suited for large streams with low flow variability. Streams draining the National Forests of Alaska are generally short, very flashy (the ratio of high to low flows is very high) streams. It would be desirable if the bill could be regionalized in its instream flow determinations to account for the variability across the State.

2. The seasonal ability of the flows is not accounted for with respect to two main points: (1) the fall flushing flows which cleanse the gravels would not occur: Possible Solution - perhaps during the peak runoff month, a 14-day peric of 200% of the mean annual flow should be specified; and (2) it does not address the critical low flows (for example the calculations are based upon mean annual flow but does not account for the 10 day and 30 day natural low flows when salmon eggs are in the gravel and fry in the streams): Possible Solution - Perhaps the standard should be during low flow months when mean monthly flow is <30% of the mean annual flow, then the mean monthly flow should be the minimum flow.

3. The Forest Service Alaska Region's fish passage designs for habitat enhancement structures may not be compatible with the minimum flow standards. Present designs are based upon natural stream flows.

4. The rearing habitat for salmon and trout would be greatly reduced by a 40% flow reduction because the largest percentage of fry are found in the off-channel and side channel areas of the main streams.

5. The tenant method is designed primarily to address consumptive water use. Since hydroelectric and mining are nonconsumptive uses, detailed instream flow determinations would still be necessary.

Again thank you for the opportunity to comment on the technical aspects of your bill. If I or my staff may be of further assistance, please do not hesitate to call upon us.

Sincerely,

Mike Barton

MICHAEL A. BARTON
Regional Forester

United States Department of Agriculture
Soil Conservation Service
201 East 9th Avenue, Suite 300
Anchorage, Alaska 99501-3687
Telephone: (907) 271-2424

April 5, 1989

Representative Cliff Davidson
State of Alaska
House of Representatives
Box V
Juneau, Alaska 99811

Dear Representative Davidson:

In response to your request for comments on Alaska House Bill 210, (legislation requiring an instream flow reservation in rivers, lakes and streams important to fisheries), we are unable to provide a thorough and detailed position paper on the bill as requested due to the limited time available. However, we would like to provide the following information.

The U. S. Department of Agriculture, Soil Conservation Service (SCS) in Alaska provides technical assistance to private landowners and local units of government for the management of soil, water and related resources; these services are provided through Soil and Water Conservation Districts within the Alaska Department of Natural Resources. We believe there is an opportunity to assist with your request through the SCS Cooperative Snow Survey Program, where we collect and publish monthly snow accumulation and annual precipitation data. These data are used by many state and federal natural resource managers throughout the state and the data is especially useful for the determinations of mean annual streamflow upon which HB210 is based. They can help relieve the burden on DNR when estimating available flow, and especially applicable for correlating discharge measurements at gaged streams with ungaged streams where historical snow survey data are available.

The Snow Survey Program consists of approximately 200 long-term snow measurement sites. Currently 53 of these include shielded precipitation gages that measures total annual precipitation. However, these shielded gages are providing data consistently different from the unshielded National Weather Service (NWS) gages. The unshielded gages are severely affected by wind and in the windy regions, all but a few of the unshielded gages are reporting a significant undercatch of true snowfall or winter precipitation; windshielding is generally not necessary during summertime rainfall events. A comparison of the NWS unshielded and SCS shielded gages located at Barrow and Barter Island on the

Arctic coast provides an indication of the size of this problem: After 12 years of concurrent record, the shielded gages catch 3 times more moisture during the 5 coldest winter months, 2 times more for the 9-month winter season, and between 1.5 to 1.8 times as much for the whole year than the unshielded gages (Clagett, 1987). This effectively provides an understanding of why the North Slope hydrology was so severely underestimated relative to the road construction north of the Brooks Range. The North Slope may well represent the "worst case," but the problem of under-caught and under-reported precipitation (snowfall) is true throughout the state with few exceptions, and is an important consideration for instream flow reservations.

The SCS Snow Survey Program is currently working on two projects that have important significance to HP210: the first project is to establish a windshield study of the best known and proven windshields (the Wyoming shield for unstaffed locations, the Canadian National Standard Nipher Shield for staffed locations). The shielded gages will be compared with the United States standard unshielded gage - all to be rated against a continuous wind speed record. We see two immediate benefits of this effort. The first would provide a calibration factor for adjusting the unshielded catches of record to date. The second is a much more accurate measurement of precipitation. More accurate estimates of the mean annual flows required by HP210 could be provided, as a result, within two years.

Our second project is to establish several hundred brand new precipitation gage locations statewide, including the large data void areas of western and southwestern Alaska, a critical area of consideration relative to HB210. This proposal will have data collected by volunteers who will also pay the major cost of the gages. The gages will be equipped with proper windshielding. This could have an even greater impact on HB210 in very few years by providing a much denser data network.

Several years ago SCS began a cooperative program of climate data collection through secondary schools. Long-term quality data was not the original objective, but it now appears it will be a highly successful side benefit. Schools are looking for learning projects. Five schools started out collecting excellent data. Twenty-nine more have now requested assistance. We have developed an idea through the Alaska Soil and Water Conservation District that encourages the schools, especially small rural schools, to read precipitation gages each day of the schoolyear. We believe a high percentage of rural schools may want to participate.

These two SCS projects, as you can see, would have a positive benefit on HB210. Our interest, and the support by the conservation district, encourages success in these efforts.

However, the timing may not meet the immediate need of HB210 due to budget limitations. Both projects are in the state's best interest and we are anxious to share, and in fact, are looking for cooperative support. Estimating accurate mean annual streamflow can only be done through an accurate data collection system, and HB210 can only be implemented if good data is available which is the reason we have noted the above collection information.

A positive aspect and potential benefit of instream flow reservations not discussed in detail is maintenance of water quality through the dilution or mixing of nonpoint source pollutants. The potentially higher flow levels assured by HB210 would provide a higher level of dilution and, as such, instream flow reservations could be considered as a water quality Best Management Practice (BMP). This in turn will aid industries such as placer mining, timber harvest and agriculture, in meeting Alaska water quality standards. Therefore we recommend that reservations of instream flows be identified as a water quality strategy in the state's Nonpoint Source Pollution Control Management Plant to EPA, as required by Section 319 of the Water Quality Act of 1987.

As a side issue, I personally see two considerations relative to the proposed legislation. One is the critically important benefit to our great fisheries resource. I believe there is a still greater fisheries potential through appropriate management and stewardship for which this legislation can benefit.

A contradictory issue, however, is the potential negative impact on other resource development. I can see, if the base flow reservation of a stream or streams is not known in somewhat absolute terms, that this could be used as a project limiting factor. The enactment of HB210 would certainly give such reasoning significant credibility. Paragraph (c) of HB210 suggesting "An analysis of data obtained from an instream flow study....." is a tactic that can be used to limit or stop a viable development until the study was complete. My recommendation, in the interest of other resource considerations, particularly toward the development of these resources, would be to have language in the bill allowing a decision based on existing data even though it was not considered as the most exacting. We believe existing data, especially from accurate collection systems is sufficient to carry out the intent of this legislation if resource managers realize that the reservations are really no more than a reasonably accurate estimate. You might give this aspect some more thought when considering this legislation.

Specific questions related to the water quality benefits and the Alaska Cooperative Snow Survey Program will be answered upon your request.

Sincerely,

Burton L. Clifford
State Conservationist

Attachment

cc: Lennie Gorsuch, Commissioner, Department of Natural Resources
Dennis Kelso, Commissioner, Department of Environmental Conservation
Rod Swope, Deputy Commissioner, Department of Natural Resources
Norman Cosgrove, Chairman, Soil & Water Conservation Board

Snowfall Measurements in the Arctic

GEORGE CLAGETT

Soil Conservation Service, Anchorage, Alaska 99501

1. INTRODUCTION

Arctic winters are characterized by months of very low temperatures, infrequent and light-density snowfall, and incessant wind, the sum of which precludes much hope of accurate snowfall measurements using traditional methods. A precipitation gauge without artificial windshielding has little chance of catching a correct amount of new moisture falling out of a wind-driven Arctic snowstorm. In the mid-1970's, the University of Wyoming produced a windshield after 7 years of research that included tests in a wind tunnel [*Rechard*, 1975]. It provided snowfall catch in an exposed, windy area that was within 7% of the catch in a forest-protected area. This report compares snowfall catches using Wyoming windshielded gauges with catches using NWS nonshielded gauges at Barrow and Barter Island on Alaska's Arctic Coast for the last 12 years. These measurements are also compared with nearby measurements of the tundra snow-water equivalent (SWE).

2. METHODS

The Wyoming windshield consists of two concentric rings of snowfences surrounding the precipitation storage can orifice. A solid framework elevates the 1.2-m tall snowfence mesh. The outer circle is 3 m off the ground and 5.1 m in diameter; the inner circle is 2.4 m off the ground and 3 m in diameter. The rings of fencing are canted inward at the bottom, 30° from the vertical for the outer ring and 45° for the inner ring, to form a cup or funnel effect. The level of the storage can orifice is 2.4 m above the ground surface (i.e., level with the top of the inner ring of fencing).

The funnel shape is a critical part of the design, since wind hitting the leading edge of the fencing is forced downward and underneath the gauge rather than over the top. This causes air speed below the gauge to increase slightly in order for the larger air volume to pass. With the increased air speed below the fencing, a downward pressure gradient is created within the fencing, causing snow particles clearing the top of the gauge to settle out within the fencing and to fall into the can. Research suggests that the snow passing under the gauge is primarily drift material and snow at the 3-m elevation is primarily new snowfall.

The precipitation cans mounted within the Wyoming windshields are storage devices with an antifreeze solution and an evaporation-inhibiting oil layer. The storage-type gauge is a basic requirement of remote, seldom-visited locations, which constitute the bulk of the network of 23 active Wyoming windshields in Alaska monitored by the SCS. Frequency of readings generally ranges from twice monthly at Barrow to nine times annually at Barter Island. Contents of the 20.3-cm-diameter by 0.9-m-tall storage cans are weighed with an open-face dairy scale read to the nearest 0.25 cm. In 1984, a larger 30.5-cm-diameter by 2.4-m-tall can was installed at Barter Island, along with the attachment of a float-driven fluid-level recording system, whose accuracy is also to the nearest 0.25 cm. This level of resolution makes accurate evaluation of small increments over short time periods impossible, especially in the Arctic where many small events are often required to meet the smallest recordable increment. Therefore, monthly totals are used for the evaluation period of this report.

The Barrow gauges are separated by 7 km: the NWS gauge is near town center, which affords some disruption of air flow past the gauge; the Wyoming gauge is northeast of town near the NOAA-GMCC facility. GMCC services the Wyoming gauge. At Barter Island, the Wyoming gauge was originally 1.6 km south of town; however, it was difficult to get consistent readings by local observers, so the gauge was moved closer to town in June 1983. The new location is only 230 m from the NWS gauge which is about 60 m beyond the Barter Island DEW Line barracks. Readings are currently being made by the U.S. Fish and Wildlife Service.

3. COMPARISON OF DATA

NWS has staffed a first-order weather station for 67 years at Barrow and for 40 years at Barter Island. Published precipitation averages (30-yr period) for the two sites are 12.06 cm annually and 6.45 cm during the September-May winter months for Barrow, and 16.48 and 9.70, respectively, for Barter Island. Scientists have recognized that these averages are not accurate winter precipitation levels [*Black*, 1954; *Benson*, 1982]. Benson constructed two of the first three Wyoming gauge installations in Alaska at these two villages in the fall of 1975. By the end of the 1987 wateryear, 11 years of matching records were collected at Barrow and 8 years at Barter Island. Table 1 lists the average monthly catches over the last 12 years for both the NWS unshielded and Wyoming shielded gauges. NWS figures in the table correspond to the same periods that are available for the Wyoming gauge. For Barrow, the 1982 wateryear is missing because the Wyoming gauge was damaged; for Barter Island 1978, 1980, 1982, and portions of 1976 and 1981 wateryears are missing.

In Table 2 we combined the monthly totals by periods of the year for matching periods during 1976-1987. The shielded gauges yielded an overall catch 2 times that of unshielded gauges during the 9-mo winter season. However, the factor is 3 times during the November-April coldest months. Although the windshield is the probable reason for these discrepancies during the winter months, a windshield does not seem to provide any significant additional benefit during the three summer months.

TABLE 1. Average Monthly Precipitation (cm) at Barrow and Barter Island

Month	Barrow NWS 1976-1987 Average*	Barrow NWS 30-yr Average†	Barrow Wyoming 1976-1987 Average*	Barter Island NWS 1976-1987 Average‡	Barter Island NWS 30-yr Average†	Barter Island Wyoming 1976-1987 Average‡
Sept.	1.96	1.50	1.73	1.40	2.03	2.13
Oct.	1.02	1.40	1.55	1.40	2.06	2.36
Nov.	0.43	0.76	1 34	0.56	1.02	1.37
Dec.	0.28	0.46	1. 1	0.64	0.58	1.57
Jan.	0.30	0.53	1.19	0.56	1.27	1.52
Feb.	0.36	0.43	0.96	0.25	0.68	1.35
March	0.23	0.43	0.96	0.48	0.61	1.52
April	0.33	0.53	0.64	0.30	0.56	1.32
May	0.28	0.41	0.53	0.43	0.89	0.84
June	0.66	0.94	1.14	0.81	1.42	1.37
July	2.03	2.18	2.08	1.90	2.62	2.26
Aug.	2.11	2.49	2.13	2.41	2.74	2.05

*Does not include 1982 wateryear.
†For the period 1951-1980.
‡Does not include 1978, 1980, 1982, and portions of 1976 and 1981 wateryears.

Table 1 points out another peculiar discrepancy. The NWS monthly average data over the last 12 years are consistently far below published 30-yr long-term averages (for the period 1951-1980). *Benson* [1982] noted that the Barrow station was moved in 1955 and again in 1966 and that these moves or possibly the addition of an Alter shield to the gauge had a profound effect on the recorded precipitation. After 1955 the gauge caught 1.4 times as much as before the move, but after 1966 it caught only 0.63 as much. The result is that most years since 1966 have precipitation data far below the inflated average. Barter Island also recorded a higher rate of precipitation during the period 1956-1967 than afterward. A sharp break occurred in 1967 on the double mass plot to 0.67 as much precipitation, even though the gauge was not moved, leading one to suspect that the Alter windshield was removed from both Barrow and Barter Island gauges at that time. Benson states that the site histories for both sites mention the use of

TABLE 2. Monthly Snow Catch Total (cm), Combined Into Period of the Year, for Matching Periods During 1976-1987

	Barrow NWS	Barrow Wyoming	Barrow Factor	Barter Island NWS	Barter Island Wyoming	Barter Island Factor
Wateryear Oct. 1-Sept. 30	9.98	15.42	1.54	11.15	20.67	1.85
Winter Season Sept. 1-May 31	5.18	10.06	1.94	6.02	14.00	2.32
Mid-Winter Nov. 1-April 30	1.93	6.25	3.24	2.79	8.66	3.10

Alter shields, but do not give details. It is known, however, that gauges have been unshielded since 1966 at Barrow and 1967 at Barter Island.

The NWS measurement technique creates another problem. Precipitation increment is measured four times per day by exchanging the can each 6 hours with another one. The catch for the previous 6 hours is thawed, then measured to determine the new increment. If the catch is less than 0.13 mm, it is recorded as a trace. The can is then dried to be ready for its next 6-h shift. Since Arctic snowfall generally comes in small amounts, is of light density, and is wind driven, this technique of discounting even 0.13 mm four times a day becomes significant, as the unshielded gauge appears to be catching only a fraction of the small natural snowfall increments. This results in an extraordinary number of trace readings in the record. *Benson* [1982] reported that traces in the winter record go as high as 80% of all precipitation entries. Accumulation of precipitation over time in a storage gauge eliminates this problem.

Tundra snow measurements provide more data for comparisons (Table 3). The USGS team made reconnaissance snow measurements on the Arctic Slope during the spring of the year, just prior to the breakup season, in five different years (1977, 1978, 1979, 1982, and 1983). In 1979, however, they were late, as spring thaw was well under way in much of the region.

TABLE 3. USGS Tundra Snow-Water-Equivalent (SWE) Measurements Compared With Wyoming Shielded Gauges and NWS Unshielded Gauges

Year	Location	Date	Tundra SWE (cm)	Wyoming Gauge (cm)	NWS Gauge (cm)	Tundra SWE as % of Wyoming	NWS as % of Wyoming	NWS as % of Tundra
1977	Barrow	April 22	7.9	9.6	4.3	82%	45%	55%
1978	Barrow	April 17	7.4	9.1	4.1	80%	44%	55%
1982	Barter Is.	April 24	11.9		5.3			58%
1983	Barrow	April 25	6.1	8.6	3.6	70%	41%	58%
1983	Barter Is.	April 22	7.9	11.7	0.8	67%	6%	10%
Average (Barrow only)			7.11	9.14	4.06	73%	43%	56%

They landed a ski plane on the tundra at 24-40 sites over about a 1-wk period each year. Their transects avoided obvious deposition areas. Their reported figures represent an average of 40 individual random samples per site [*Sloan et al.*, 1979]. These surveys provide valuable insight into the variability of the snowpack across the slope.

Tundra snow measurements do not provide a precise comparison because of too many remaining unknowns, such as amount of wind exposure, representativeness of sample, or sublimation loss. But they do provide a starting point from which to make comparisons. For Barrow, the NWS gauge caught 56% of the precipitation remaining in the tundra snowpack. This is less than what fell, since a significant amount is blown away, according to the downwind drifts, and another portion is sublimated. The NWS gauge caught 43% of that caught by the Wyoming gauge, which is also probably less than what fell. (The values for Barter Island are much lower.)

Theoretically, the measurements from the two gauges and the tundra snow would be the same if snow always fell during calm air. However, wind is a dominant feature of the Arctic Coast. Long-term mean wind speed is 5.8 m s^{-1} at Barter Island and 5.4 m s^{-1} at Barrow [*Searby*, 1968] and calm air occurs only 2-3% of the time [*Wendler*, 1978]. It is probable that the principal difference in the two catches is attributable to wind-speed effect. The U.S. Forest Service's Rocky Mountain Forest and Range Experiment Station at Laramie, Wyoming, studied the Wyoming shield catch efficiency for 7 years and concluded that the catch efficiency drops off with increasing wind speed when the temperature is below -2°C [*Sturges*, 1984]. If the catch does drop off with increasing wind speed for a shielded gauge, it is probable that it drops much further with an unshielded gauge. The undercatch of a nonshielded gauge may be exemplified by comparison of a shielded catch with an unshielded catch at Barter Island in 1983 (Table 3): the unshielded gauge caught only 6% of that of the shielded gauge. At the same time, snow-on-the-ground water equivalent measurements by the USGS were 10 times greater than the unshielded gauge measurements.

Still another problem affects the comparison of shielded versus unshielded catches at Barrow and Barter Island: the Arctic Coast has a significant incidence of riming events in which supercooled fog coats everything, including the inside of the orifice of a precipitation can. NWS does not consider rime as true precipitation and effectively eliminates it from the record, since rime and precipitation events do not overlap and the gauge is serviced every 6 hours. Because the Wyoming shielded gauges are unstaffed and visited only once or twice a month, rime builds up from time to time, sometimes capping the orifice. This reduces or precludes further precipitation accumulation until the rime melts or is removed during maintenance visits. Therefore, the error is magnified, resulting in either a net loss due to the covered or reduced orifice or a net gain due to the rime melting into the can. Wyoming gauge observers are instructed to carefully remove rime from the can whenever it is found, in an attempt to be as similar as possible to NWS procedures. The field observers have frequently stated their belief that the riming error leans heavily to the net loss side. Some scientists argue that eliminating rime from the precipitation total is a mistake.

4. Conclusion

The accuracy of the data from the Wyoming windshielded gauge compared with true or total snowfall-water-equivalent is still somewhat unknown. The small amount of data presented here only indicate that the shield allows 2 to 3 times greater catch during the winter months compared with unshielded gauges along Alaska's Arctic coast. Unshielded gauges, in fact, catch only slightly more than half the snow-water equivalent of snow remaining on the tundra. Since accurate data is needed from locations offering no natural wind protection, there appears to be no viable alternative other than the use of a windshielded measuring device.

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OTHER STATES COMMENTARY

MONTANA
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Department of Biology
College of Letters and Science

Telephone (406) 994-4548

TO: Representative Cliff Davidson

FROM: Dr. Robert G. White, Leader Montana Cooperative Fishery Research Unit, Montana State University

DATE: 7 April 1989

SUBJECT: House Bill No. 210

I am writing in support of House Bill No. 210 for reservation of instream flows for fish in Alaska waters. I compliment you, Mr. Goll, and Mr. Jacko for authoring this far-sighted legislation to protect Alaska fisheries. You have seized upon the opportunity to insure economic benefit for future generations of Alaskans by providing the legal basis for reserving necessary flows for fish, while at the same time providing an opportunity to adjust these flows when due cause is shown. I believe the Montana method provides a technically sound approach for instream flow reservations in Alaska. If similar legislation had been enacted in the western portion of the lower 48 states 100 years ago, our present fisheries would be significantly enhanced. In many cases, water was already over-appropriated before instream flows were considered as a beneficial use. Many of our streams are dewatered each year. Some states still have weak or no protection for instream flows.

My only suggestion regarding the wording of the bill relates to the definition of "important" and who decides which streams are important. It may be desirable to designate an agency (Alaska Department of Fish and Game) as responsible for recommending which streams are "important" for the spawning, incubation, rearing, or migration of fish.

I urge the Legislature of the State of Alaska to move quickly to pass House Bill 210. This legislation will provide a legacy for future generations of citizens of Alaska and will be of great economic benefit to the nation.

Thank you for the opportunity to provide input on this landmark legislation.

MEMORANDUM

TO: All Members, House of Representatives
Alaska State Legislature

FROM: Matthew J. McKinney MM

SUBJECT: Testimony on H.B. 210

DATE: April 7, 1989

My name is Matthew J. McKinney and I have been asked to testify on H.B. 210. I am currently a water resources planner/policy analyst with the Montana Department of Natural Resources and Conservation where I work, among other things, on instream flow policy and management. I am also in the process of completing my Ph.D. in Natural Resources Policy from The University of Michigan, where my research has focused on instream flow policy and management in the western United States. I have published several articles on instream flow policy and management.

For purposes of organization, I have broken my testimony into three sections: Benefits of H.B. 210, Costs of H.B 210, and Conclusion. The views expressed in this testimony are based on my best professional judgment and in no way reflect the views of the Montana Department of Natural Resources and Conservation.

BENEFITS OF H.B. 210

H.B. 210 represents a proactive approach to protecting public values in water resources. It automatically reserves instream flows for fisheries on streams where and when an application for an offstream appropriation is received by the commissioner. Consequently, H.B. 210 eliminates the incremental, cumulative, adverse effects on instream resources of granting offstream appropriations without adequately considering instream values.

Given the relative abundance of unappropriated water in Alaska, H.B. 210 makes a lot of sense and should avoid some of the instream flow problems faced by other western states. While most of the western states allow unappropriated water to be appropriated (in one way or another) for instream purposes, such instream flow water rights are so junior in status as to be nearly meaningless. That is, instream flow concerns emerged after many streams throughout the West were overappropriated and instream resources adversely affected. Allowing unappropriated water to be appropriated for instream purposes in such cases,

however, is more symbolic than effective because it results in instream water rights that are junior to the offstream appropriations that cause the problem.

The basic problem in most western states, then, is how to enhance or increase instream flows in dewatered streams. The least disruptive strategy to accomplish this goal is to allow the transfer (i.e. sale, lease, or gift) of offstream water rights to instream uses. Such a strategy has been adopted by many western states. Another, much more disruptive strategy is to apply the Public Trust Doctrine, which may take private water rights away without compensation for public instream uses. This strategy has been resorted to in several western states.

Enactment and implementation of H.B. 210 can avoid the problem of dewatered streams and reduce the likelihood of a Public Trust lawsuit. It would adequately protect public instream flow values before the state's streams and rivers become overappropriated and dewatered.

H.B. 210 is also more comprehensive and far-reaching than the reservation process outlined in Section 46.15.145, AS. As mentioned above, it automatically establishes an instream flow on streams when and where an application for an offstream appropriation is received. By contrast, the reservation process outlined in Section 46.15.145, AS requires someone to file for an instream flow reservation. H.B. 210 would clearly reduce the administrative costs associated with acquiring instream flow reservations (when compared to the process outlined in Section 46.15.145, AS), but, as will be explained more fully below, places the burden on the offstream appropriator rather than the instream flow reservant.

COSTS OF H.B. 210

Although H.B 210 would automatically protect instream flows for fisheries on every stream and river where an offstream appropriation is sought, it assumes that 30 to 60 percent of the average annual streamflow is the highest and best use of the water resource in all cases. This may be an acceptable solution where the proposed offstream appropriation does not directly compete with the instream flow reservation.

However, if the proposed offstream appropriation threatens to cut into the 30 to 60 percent of the average annual streamflow automatically reserved for instream flows, there is apparently no opportunity to consider the relative value of the competing water uses (unless Section 1(c) of H.B. 210 can be broadly interpreted). If H.B. 210 cannot be so broadly interpreted, this becomes a relatively irresponsible approach to water policy and management. In this respect, the reservation process outlined in Section 46.15.145, AS is not only a more responsible approach to

instream flow management, but also accomplishes the same purposes as H.B. 210.

Moreover, Section 46.15.145, AS places the burden of proving why instream flows should be reserved on the instream flow reservant. By contrast, H.B. 210 places a burden on offstream appropriators to show why 30 to 60 percent of the average annual streamflow should not be reserved for instream flow purposes. H.B. 210 may thus limit the private appropriation and development of water resources.

The automatic reservation of 30 to 60 percent of the average annual streamflow also assumes that such quantities of water are both necessary and sufficient in all cases. While such quantities are undoubtably based on the best scientific information available and may be generally appropriate for most streams and rivers, there may be cases when 30 to 60 percent of the average annual streamflow is insufficient to adequately protect fisheries. By contrast, there may be cases where 30 to 60 percent of the average annual streamflow may not be necessary to adequately protect fisheries, thereby constraining offstream appropriations. In short, it reduces the scientific and technical validity of instream reservations compared to the requirements outlined in Section 46.15.145, AS.

In addition to these costs, H.B. 210 also suffers from several limitations. First, it only focuses on the protection of instream flows for fisheries. By contrast, Section 46.15.145, AS allows water to be reserved for recreation and park purposes, navigation and transportation purposes, sanitary and water quality purposes, and wildlife. While the reservation of instream flows for fisheries under H.B. 210 may result in the protection of these other instream values, it should not be a foregone conclusion that such a result occurs.

Second, H.B. 210 does not provide for public participation (other than through the legislative process in discussing this bill) in what amounts to a major allocation of the state's water resources. Given the public nature of water, perhaps there should be some type of public review and comment prior to establishing instream reservations under H.B. 210.

Finally, it is not clear who would hold an instream flow reservation acquired under H.B. 210. Consequently, it is not clear who has standing to enforce such instream flow reservations.

CONCLUSION

In conclusion, H.B. 210 provides a proactive management tool for protecting public instream values in Alaska's water resources. However, it assumes that instream flows for fisheries

are the highest and best use of the water resource in all cases. It does not provide for the weighing and balancing of competing uses of water resources.

I support the bill but strongly suggest that some type of provision is included that would allow instream reservations acquired under this process to be modified, either legislatively or administratively, in light of competing uses for the water resource. Perhaps a clarification of Section 1(c) would be sufficient.

Responsible water policy and management requires policymakers and resource managers to take a broad, balanced look at the water resource with the goal of maximizing social benefits.

I would be happy to testify further on H.B. 210.

Matthew J. McKinney
Water Resources Division
Department of Natural Resources and Conservation
1520 East Sixth Avenue
Helena, MT 59620
(406) 444-6889

Montana Department of Fish, Wildlife & Parks

1420 East Sixth
Helena, Montana [illegible]
April 7, 1989

Honorable Cliff Davidson
House of Representatives
State of Alaska
Box V
Juneau, AK 99811

Dear Representative Davidson:

This responds to your letter to me of March 28, 1989 requesting my thoughts on HB 210 now before the Alaska legislature.

From our experiences in Montana, it appears Alaska is in a unique position to protect its valuable fishery resources. Alaska's situation is quite in contrast to that of Montana and other western states. Alaska stands today in water allocation where Montana and many other western states were over 100 years ago -- very little water has been appropriated for out-of-stream uses. Alaska has the unique opportunity to allocate water for fisheries purposes while there is still sufficient water left to allocate.

Montana's economy first developed around mining, then agriculture. Agricultural development has removed water from streams in sufficient quantities to create undesirable flow conditions in many streams. It is currently very difficult to reclaim the lost water for fishery purposes, and our ability to acquire adequate instream flows through our water reservation process is limited by the physical availability of unallocated water in many Montana streams. In addition, we have a costly, cumbersome and time consuming water reservation process.

Montana's reservation process was first authorized by the 1973 legislature. In November, 1976, this department filed an application for instream flow reservations in the Yellowstone River basin with the state Board of Natural Resources and Conservation. In December, 1978, after extensive contested case hearings and issuance of an environmental impact statement, the Board granted those reservations, but not necessarily in the flow quantities requested.

Ten years have passed since those first authorizations and no other reservations have been granted. A second application has been pending before the Board since December, 1986 and a third one is being completed by our department. In the meantime, new water use permits are being issued which further deplete streamflows.

The point of this is that any process which Alaska can utilize to allocate streamflow to fisheries which is more efficient and less costly than just described should be seriously considered. HB 210 appears to be quite appropriate in this regard.

Attempts in the 1989 Montana legislature to authorize the department to lease water rights from existing water users and convert them back to instream flows has so far not been successful, primarily due to the agricultural lobby. Leasing of water rights would be used to restore water to streams which have been severely dewatered by over 100 years of diversions, principally by agriculture.

One of Alaska's basic industries is fisheries. It makes sense to allocate water in Alaskan streams which support that industry, for without this water, fisheries production and its contribution to Alaska's economy cannot endure. Although many streams are apparently undeveloped at the present time, the future is always uncertain. Montana's first water diversions occurred in the 1860's. Today we are simply trying to maintain the status quo of instream flows through our water reservation process, and, if we are able to obtain authority to lease or purchase water rights, we will try and rebuild those fisheries which are most affected by low flows.

Had fisheries been a principal industry in Montana over 100 years ago, we undoubtedly would have better streamflow conditions than now occur. However, Montana's heritage began at a time when fisheries values were not recognized in an economy which, for the most part, required the diversion of water. Only in recent years has the importance of our sport fisheries been seriously recognized as an important part of the state's economy. Since Alaska's heritage and its economy is highly dependent on its sport, subsistance and commercial fishery resources, it is appropriate that an important basis for those resources, i.e., streamflow, be acquired and legally protected.

The Tennant Method is not one we use extensively in Montana at the present time. Our reservation process requires a more detailed methodology than the Tennant Method. However, our water availability situation is much different here than in Alaska. We in Montana are attempting to appropriate instream flows in streams which are already in a depleted condition. Therefore, our method has to take this into consideration. We are usually not in a position to acquire all or even a large percentage of streamflow because diversionary uses have already appropriated much or that water. In Alaska's situation, it seems perfectly reasonable to use the Tennant Method to reserve flows because most of your streams are apparently still in a virgin flow condition.

In summary, because of the high value of fishery resources to Alaska's economy and well being, and because the stream resource

is necessary to protect those values, Alaska is wise to reserve adequate flows in those streams through the mechanism provided in HB 210.

I hope I have adequately responded to your questions. Please feel free to contact me if you have any further questions.

Sincerely,

Liter Spence

Liter Spence
Water Resources Supervisor
Fisheries Division

drg

THE STATE OF WYOMING

MIKE SULLIVAN
GOVERNOR

Game and Fish Department

BILL MORRIS
DIRECTOR

April 5, 1989

Mr. Cliff Davidson
House of Representatives
Box V
Juneau, Alaska 99811

Dear Mr. Davidson,

Thank you for the opportunity to provide comments on your proposed instream flow legislation. This proposal certainly appears as if it would be a significant public benefit.

As you may or may not be aware, specific instream flow legislation was not passed in Wyoming until 1986. This law officially recognizes instream flows for fisheries as a beneficial use. As such, waters need not be removed from the stream channel in order to perfect one's water right. This right is held by the State and may not be held by any other entity or individual. Unlike the legislation which you are sponsoring, Wyoming's law does not automatically provide protection to all streams in the state. Rather, instream flow water rights are granted only after a fairly cumbersome and costly process. This process involves a study by the Game and Fish Department, a feasibility study by the Water Development Commission and a public hearing conducted by the State Engineer.

Legislation such as you are proposing would definitely have provided much-needed protection to Wyoming's fishery resources - had enlightened lawmakers possessed the vision to enact it 100 years ago. However, Wyoming's economic as well as natural resource environments are drastically different than most other states. It is highly unlikely that, even if early settlers had proffered such thoughts, they would have received serious consideration. Whether good or bad, settlement of the state was more-or-less dependent on development of our water resources. Admittedly, many of the water "problems" facing the West today are a result of water users' failure to conscientiously live within the limits set by our environment and equitably recognize the multiple interests in water resources. For example, legislation in Wyoming allows some ranchers to divert up to three times their adjudicated water right when the water is available (such as during spring runoff) thus creating "water shortages" in certain situations.

1890-1990 WYOMING CENTENNIAL A LASTING LEGACY

Preventing such abuses of the water right system in Wyoming would be one of the primary benefits of the type of legislation you are proposing.

From a technical perspective, I'd like to offer the following thoughts. Your supporting documentation accurately notes that the Tennant Method has been court-tested and is a generally accepted method for determining instream flow needs. We commonly use it in Wyoming for making reconnaissance level recommendations for proposed water projects. Research which we conducted several years ago (Annear and Conder 1984, enclosed) showed that this method was one of the least biased of 18 instream flow methods that we compared for general predictive tendencies in Wyoming. However, it is not a refined-enough model to provide specific information about instream flow needs for different species, life stages, river types or seasons. We use other models to provide answers to these instream flow questions. Not being intimately familiar with rivers in Alaska, I presume that the hydrologic characteristics of different rivers are at least as varied as the number of fish species found in them. As a consequence, you should be aware that this method of establishing water rights will often over or under-estimate flow needs for different rivers. Still, your legislation appears to recognize this reconnaissance level aspect while providing an opportunity for modifying the amount in the future.

Regarding the quantities of water to be reserved, I support use of 60 percent of the mean annual flow for the period between April 1 and October 31. Acknowledging the variety of runoff patterns on the 12,000 streams affected by the bill, 60 percent of the mean annual flow should prevent instream flow reductions from at least mid July through the end of October. This coincides with the growing season for fish and is the time of year that most affects fish growth rates and production. Maintenance of these flows should ensure no reduction in the natural standing crop of fish and also provide adequate water for fish passage.

I do not support use of the 30 percent criteria for the November 1 to March 31 time period. Almost every study that I have seen which addresses the relationship of winter flow conditions to fish survival, indicates that natural winter fish mortalities are higher than any other type of mortality - including angling mortality (ranging from 40 to 85 percent annually). The cause of these mortalities is directly attributable to harsh conditions associated with low winter flows. The formation of frazil ice, anchor ice, collapsing snow banks and fluctuating flows resulting from the periodic formation and breakup of ice dams are all related to flow conditions. Any reduction of natural winter flows would magnify these adverse conditions and reduce the survival of all life stages of fish including eggs deposited in riffle

areas. I strongly suggest that you consider rewording this portion of your bill to reserve all winter stream flows for fisheries survival.

Section (c) is also a concern that should be modified slightly. One of the most widely used instream flow modeling techniques in this country involves the use of Physical Simulation Models (PHABSIM) developed by the U.S. Fish and Wildlife Service. This approach is generally regarded as state-of-the-art technology and we use it extensively in Wyoming. I believe that it is also widely relied upon in Alaska. Providing the opportunity for adjusting reserved flows is an appropriate and necessary part of this type of bill. However, research we have done in Wyoming (Conder and Annear 1987, enclosed) has shown that while PHABSIM modeling may be hydrologically precise, it does not always provide the same level of biological precision. Its precision on large rivers is a special concern, as the model invariably tends to provide what we believe is a gross underestimate of instream flow needs for fish. Flow reductions can be beneficial in some rivers and this tendency is often shown by instream flow models. However, the present level of instream flow modeling is not refined enough to consistently make these types of predictions with an acceptable level of accuracy.

I suggest you consider adding a provision to the bill that any exemptions to initial reservations of water which involve reduced instream flows will be issued as temporary permits for at least five years after project completion. At that time, if a monitoring study approved by the Alaska Department of Fish and Game finds no negative fishery impacts, the right may be converted to a permanent right. This section should also clearly indicate that greater amounts of water could be required to maintain fishery values.

Again, I appreciate the opportunity to provide input to this important piece of legislation. If you have any questions about my comments or would like additional information, please feel free to contact me.

Sincerely,

Thomas C. Annear

Thomas C. Annear
Instream Flow Supervisor

Enclosures

CHRISTINE O GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Mail Stop PV-11 • Olympia, Washington 98504-8711 • (206) 459-6000

April 26, 1989

The Honorable Cliff Davidson
State of Alaska
House of Representatives
Box V
Juneau, Alaska 99811

Dear Representative Davidson:

I am responding to your recent letter regarding your proposed legislation for reserving instream flows in Alaska's anadromous fishery streams. Your proposal for reserving specific percentages of the mean annual flow during specified months is based on the "Montana" or "Tennant" method. This method is based on Tennant's empirical observations of Rocky Mountain area streams with primary interest in preserving cold water fisheries.

In Washington, we have generally regarded this method as a useful tool for making general assessments of instream flow needs, but we have preferred to use habitat based methods such as the Instream Flow Incremental Method (the same method that was used for Alaska's Terror Lake project) as the basis for establishing instream flows by administrative rule because it is based on specific analysis of the habitat of the stream being addressed. Climate, hydrology and stream morphology vary greatly across our state. Fisheries biologists in our state have questioned whether the Tennant method can be applied on all sizes and sorts of streams without causing an excess allocation of water to instream flows in some cases and in other cases, insufficient protection. We have carried out or otherwise been involved in numerous IFIM studies in the past eight years. Based on this experience, we believe that hydrologic instream methods such as Tennant's probably tend to protect too much water in larger streams and not enough in smaller streams.

The cost of IFIM studies need not be as high as that which was carried out for the Terror Lake project. We have on our staff several biologists and hydrologists who carry out our studies along with other work. The cost is really rather moderate considering the value of the data it produces. Of course, our streams are nearly all accessible by road which is not the case in your state. We run the IFIM models on an IBM PC compatible computer, thus avoiding mainframe computer costs. Our experience using this method has been generally quite positive and it is now regarded by most interested parties in our state as the preferred method for assessing fish flow needs.

The standard or level of protection that should be afforded by instream flows is a major issue in our state at this time. This issue has been studied extensively since 1985 and is not yet resolved. Several statutes

provide the Department of Ecology with authority to establish and protect instream flows, but are ambiguous with regard to the level of flow that should be protected (copies of statutes are enclosed). In 1987 our department proposed to protect "optimum" flow levels for anadromous fish (see enclosed Draft Environmental Impact Statement and Preferred Alternative). However, water development interests then succeeded in getting a bill passed that placed a moratorium on our development of rules implementing this standard (see Senate Bill 6724 enclosed).

The bill also established a Joint Select Committee on Water Resource Policy to review and recommend changes in the state's fundamental water resource policies. The Committee recommended in its draft report that a high level of protection be afforded to anadromous fishery streams but this was strongly opposed by water developers in public hearings held by the Committee. Consequently, the Committee retreated and focused on a process for resolving this and other issues in the next two years (draft and final Committee reports are enclosed). Several weeks ago the legislature passed legislation that would refocus the Committee's efforts, establish various advisory committees and an administrative structure to carry out studies (copy of Senate Bill 5891 enclosed). This bill was vetoed several days ago because of separation of powers concerns. It is unclear what will happen next.

In a relatively undeveloped state such as Alaska, your proposal is probably an appropriate means of establishing instream flow protection standards. The data requirements and costs are relatively low. Subsection c of section 1, allowing for adjustments based on instream flow studies, is an excellent idea. I suggest you make it more clear that the burden of proof and the expense for supporting such a change is on the proponent of a water development project.

I hope this information will be helpful in your deliberations regarding instream flow protection. Please feel free to call me if you have any questions at (206) 459-6114.

Sincerely,

Ken Slattery

Kenneth O. Slattery
Water Resources Program

KOS:lk
Enclosures

IDAHO FISH & GAME
600 South Walnut / Box 25
Boise, Idaho 83707

April 14, 1989

The Honorable Representative Cliff Davidson
House of Representatives
Box V
Juneau, AK 99811

Dear Representative Davidson:

This letter is in response to your letter of March 28, 1989 about House Bill 210, regarding the reservation of instream flows. I read through the legislation and commend you for putting together such simple language to deal with a complex issue. As written, I think you have a tool that will preserve fish propagation in nearly any stream.

Idaho's waters use system (and our climate) is quite different from Alaska's. Because of our "Doctrine of Prior Appropriation," and the fact that no water right was created unless the water was diverted from the natural stream bed, wholesale loss of some fish populations and severe degradation of others occurred. Legislation as you now propose needed to be in effect over 100 years ago to save stream integrity and instream aquatic resources.

Our current instream flow law has been effective in preserving some of our most important fisheries. However, it is a cumbersome process and is only effective in streams that are not already over-allocated. In some cases, we have applied for instream flows on existing water rights just to ensure that water stays instream until it reaches its diversion point.

Good luck in your pursuit of instream flow legislation. Feel free to contact me if you have additional questions about Idaho's legislation.

Sincerely,

for William D. Horton
Staff Biologist

Enclosure
WDH:mw

LETTERS COMMENTING ON HB 210

IN ALASKA:

SOUTHWEST FISH AND GAME COUNCIL
UNITED FISHERMAN OF ALASKA
ALASKA SPORTFISHING ASSN.
BRISTOL BAY COASTAL RESOURCE AREA
BRISTOL BAY SALMON ENHANCEMENT ASSN.
KODIAK REGIONAL AQUACULTURE ASSN.
AQUATECH INC.
ALASKA CENTER FOR THE ENVIRONMENT
WILDLIFE FEDERATION OF ALASKA
KENAI PENINSULA FISHERMEN'S ASSOCIATION
COOK INLET AQUACULTURE ASSN.
ANCHORAGE WATERWAYS COUNCIL
AMERICAN FISHERIES SOCIETY
NATIONAL WILDLIFE FEDERATION
AMERICAN RIVERS
THE GOOD SAM CLUB
ECO-NORTHWEST (WASHINGTON)
WATER WATCH OF OREGON

3b

SOUTHWEST REGIONAL FISH & GAME COUNCIL

c/o ADF&G, DIVISION OF BOARDS, P.O. BOX 1030, Dillingham, Alaska 99576/ph#842-51

January 26, 1987

Senator Fred Zharoff
P.O. Box V
Mail Stop 3100
Juneau, Alaska 99811

Senator Zharoff;

The Southwest Regional Fish and Game Council, at their November 22, 1986 meeting in Anchorage, discussed at length the enclosed draft Bill titled "An Act Providing an Instream Flow Reservation for Anadromous Fish, a Priority Date for Anadromous Fish, and Providing for an Effective Date."

The SW Regional Council adopted and supported this Bill with amendments which have been included in this proposed draft legislation.

I have included the minutes of the November 22, 1986 meeting for your information and further review.

The Southwest Regional Fish and Game Council endorses and supports this proposed Bill.

Thank you for your consideration.

Sincerely,

Alvin Osterback /dsw/

Alvin D. Osterback,
Chairman, Southwest Regional Council
P.O. Box 1030
Dillingham, Alaska 99576

cc: ~~SWRC~~ Members
~~Rep.~~ Adelheid Herrmann
Distribution (hold)
File

AO/SA/dsw

UNITED FISHERMEN OF ALASKA

211 4th Street, Suite 106
Juneau, AK 99801
907-586-2820

UNITED FISHERMEN OF ALASKA

Resolution 88-7

WHEREAS fisheries resources constitute one of the major contributors to the economy and well-being of the state of Alaska; and

WHEREAS maintenance of sufficient instream flows are essential to the continued production of these fisheries resources; and

WHEREAS United Fishermen of Alaska promotes the wise management of fisheries resources and the habitat that sustains them; and

WHEREAS UFA supports the intent of the existing Water Use Act (AS 46.15.145) to reserve instream flows for fish, wildlife, navigation and other purposes; and

WHEREAS the existing provisions of the Water Use Act are inefficient because they do not provide a cost-effective and timely process for reserving instream flows within the 12,000 waters that are classified under AS 16.05.870 as important to anadromous fish; and

WHEREAS UFA supports the attached proposed amendments to the water Use Act designed to provide for a more efficient and technically sound process to reserve water within the waters specified in the "Anadromous Fish Catalog" under AS 16.05.870;

NOW THEREFORE BE IT RESOLVED that United Fishermen of Alaska urges the Alaska State Legislature to enact legislation similar to the attached proposal, to reserve instream flows for fish habitat.

Jim Bacon
President

3-1-88
Date

Alaska Sportfishing Association

3605 Arctic Blvd., Suite 800 • Anchorage, Alaska 99503

February 17, 1989

Mr. Stosh Anderson
Box KS
Livelock, AK 99625

Dear Stosh:

Thank you for sending us a copy of the proposed legislation that would improve the existing instream flow law and Water Use Act. We support this concept and commit our organization to assist you to obtain legislative approval.

We are disappointed that the existing legislation does not guarantee water rights for fish. It is apparent that the current processes to reserve instream flows or to condition out of stream appropriations to protect fish are too cumbersome and inefficient. It is obvious that the current rate at which the Department of Fish and Game or others can reserve instream flows under the present system will require hundreds of years to protect our important fish streams in Alaska. Observing the over appropriation of water in the Lower 48 and the resulting impacts to their fisheries makes it obvious that this legislative proposal is essential to the socioeconomic well-being of Alaska.

We whole heartily support your efforts to date.

Sincerely,

Russ Redick

Russ Redick
Executive Director

BRISTOL BAY COASTAL RESOURCE SERVICE AREA
P.O. Box 849
Dillingham, Alaska 99576

Resolution 87-02

WHEREAS The salmon resource provides the basis for a multi-million dollar commercial fishery and growing recreation industry, and is the primary subsistence resource for residents in the region; and

WHEREAS Given the socioeconomic importance of this resource, both the Bristol Bay Area Plan and the Bristol Bay Coastal Management Program identify maintenance of fish stocks as generally the highest priority water use in Bristol Bay; and

WHEREAS Under AS 46.15.145, the use of water within a stream, lake, or other surface waterbody may be reserved to maintain an adequate instream flow or level of water for specific activities; and

WHEREAS Under AS 46.15.145, a permissable instream use can include protection of fish and wildlife habitat, migration and propogation; and

WHEREAS Draft legislation has been written that would require the state to reserve instream flows in waters important to anadramous fish for specified periods of time; and

WHEREAS The appropriation of water specified in this draft bill would help ensure protection of one of the states most valuable and economically productive renewable resources; and

WHEREAS The amount of water to be withdrawn from appropriation for fish and wildlife would not preclude additional water reservations for other compatible multiple uses;

NOW THEREFORE BE IT RESOLVED, the Bristol Bay Coastal Resource Service Area (CRSA) Board supports the draft legislation entitled "An Act Providing an Instream Flow Reservation for Anadromous Fish, a Priority Date for Anadramous Fish, and Providing for an Effective Date" and encourage our elected representatives to introduce formal legislation as soon as possible.

SIGNED: _____
Chairperson

CERTIFICATION: I, the undersigned Secretary of said Board, do hereby certify that the full Bristol Bay Coastal Resource Service Area Board composed of seven members, of whom 5 were present at a meeting the 10 day of March, 1987, adopted the following resolution by the affirmative vote of 4 members.

SIGNED: _____
Secretary

BRISTOL BAY SALMON ENHANCEMENT ASSOCIATION
Box 1130
Dillingham, Ak 99576

February 27, 1989

Cliff Davidson, Representative
PO Box V
Juneau, AK 99811

Re: Instream Flow Amendment

Dear Rep. Davidson,

The importance of maintaining continuous water flows in the rives and streams in our region is important. The fishing industry in Bristol Bay has the biggest Red Salmon run in the world and is totally dependent on natural stocks in our river systems. The draft legislation that provides for instream reservations on all anadromous streams in the Alaska is an excellent approach to insure protection of our fish stocks. This approach will not only insure protection of our instream flows but will aid us in evaluating potential enhancement projects as it will quantify the amount of water available for appropriation.

Sincerely,

Stosh Anderson
Chairman BBSEA

KODIAK REGIONAL AQUACULTURE ASSOCIATION

BOX 3407 KODIAK, ALASKA 99615

(907) 486-6555

March 29, 1989

Representative Cliff Davidson
Ak. State Legislature
House District # 27
Box V
Juneau, Alaska 99811

Dear Mr. Davidson:

On March 27, the Kodiak Regional Aquaculture Association brought up at their regular board meeting House Bill No. 210 regarding Reservation of Instream Flows for Fish.

This Bill could provide to be of upmost importance in ongoing and upcoming salmon enhancement projects that KRAA is involved with.

The Board feels that House Bill No. 210 is very beneficial to them and to fisheries enhancement and wanted to let you know they fully support this Bill.

Sincerely,

Jeanne Friel
Admin. Asst
KRAA Board of Directors

RFB AQUATECH INC.

P.O. Box 593 Kodiak, Alaska 99615 (907) 486-3505

RECEIVED [illegible]

March 30, 1989

Representative Cliff Davidson
Alaska House of Representatives
P.O. Box V
Juneau, Alaska 99811

Dear Cliff:

I support HB 210 reserving instream flows for fish. This legislation is long overdue.

I am concerned, however, about what I perceive as some deficiencies in the original version (3/8/89):

(1) The word "important" (lines 7 & 14) is vague and open to interpretation and challenge. Who determines importance and by what criteria?

I suggest in line 7 "important" be deleted and in line 14 "important" be deleted and replaced by used or usable.

(2) There are numerous streams blocked to anadromous fish that could become productive by installation of a fishway or by-pass channel at a falls or by stocking of fish into barren systems. The Bill needs to also address reservation of instream flows for fish in streams where it is feasible to create new fisheries by fisheries enhancement. This is my reason for adding "or usable" in line 14.

(3) An alternative to the changes above would be inclusion of definitions of important, instream flow, commissioner, etc.

(4) The Bill could be strengthened by provisions for monitoring flow, adopting regulations, enforcement, and penalties.

These are my initial comments in reviewing HB 210. Keep up the good work.

Sincerely,

Roger Blackett

Alaska Center for the Environment

700 H Street, Suite 4 • Anchorage, Alaska 99501 • (907) 274-3621

April 19, 1989

RECEIVED APR 2 4 1989

Rep. Cliff Davidson
Co-Chair, House Resources Com.
Box V
Juneau, AK 99811
Re: House Bill 210

Dear Representative Davidson,

Thank you for your letter on House Bill 210, and for introducing this very much needed and important piece of legislation. We strongly support this proposal.

Alaska's most valuable resources, especially in the long term, are its renewable ones. These include its air, water, fish and wildlife, scenic beauty, and wilderness. They provide us with both direct financial benefits, and with equally important subsistence, quality of life and recreational benefits without which life in Alaska would be substantially poorer. H.B. 210 would provide a major tool for protecting many of these values, as well as implementing a constitutional mandate that we have to date failed to adequately honor.

The existing procedure for protecting instream flows is time-consuming, costly and unfair. As a practical matter it favors out-of-stream, generally private, appropriators over instream, generally public, uses. It is effectively impossible, because of the time, money and expertise required to prepare an acceptable application, for most private individuals or non-profit organizations to reserve instream flows for public purposes. The result is to place the burden virtually entirely on a single governmental entity, the Alaska Department of Fish and Game. And of course ADF&G clearly lacks the resources to protect more than just a tiny fraction of Alaska's important fish streams.

The history of over-appropriation of waters in the western U.S. should be a warning to us. One of the most egregious examples is the serious threat to already endangered Whooping Cranes as a result of badly diminished flows in the Platte River. This is also an example of the fact that this legislation, though aimed at fisheries protection, will have many side benefits for other resources, activities and industries such as wildlife, recreation, tourism and scenic beauty.

This proposal will not create unreasonable burdens for either state government or other users. One additional DNR hydrologist will be able to handle both instream reservations and other needed water quantity responsibilities. Furthermore, ADF&G has

demonstrated in its support materials that impacts to municipal water supplies and the logging, mining, oil and gas, hydroelectric and fish processing industries will either be insignificant or can be adequately mitigated. We would add that even if impacts to these industries were to be more severe we need to be willing to accept those impacts as the price of protecting such priceless long-term values as our air, water, fish and wildlife, scenic beauty and wilderness.

Finally, it is unreasonable, and perhaps unfair, based on past experiences statewide as well as in the rest of the country, to expect that state government will be able, in the face of immediate pressures to appropriate waters for possibly substantial short-term economic gains, to protect long-term resources with an ad hoc adjudicatory process. We need to protect ourselves and future generations with reasonable, guaranteed reservations of adequate instream flows.

Thank you again.

Sincerely,

Cliff Eames

Cliff Eames
Issues Director

cc: Governor Cowper
Commissioner Collinsworth
Commissioner Gorsuch

WILDLIFE FEDERATION OF ALASKA
The Alaska Affiliate of the National Wildlife Federation

Representative Cliff Davidson
Co-Chair, House Resources Committee
Box V
Juneau, AK 99811

RE: House Bill 210

Dear Representative Davidson:

I am writing on behalf of the Wildlife Federation of Alaska to express our strong support of House Bill 210.

The Wildlife Federation of Alaska is an organization of outdoor enthusiasts, hunters, and fishermen with approximately 500 members. We work to protect Alaska's fish and wildlife resources, primarily by focusing on habitat protection. We are also the Alaska affiliate of the National Wildlife Federation, the largest conservation organization in the nation.

House Bill 210 is a very important step towards maintaining habitat which is critical to Alaska's fish and wildlife resources. It is, of course, obvious that fish are dependent on the water in Alaska's rivers, lakes, and streams. Wildlife also rely on those waters and on the fish within the waters for a source of food.

House Bill 210 is particularly important at this time because it protects the water flows necessary for fish and wildlife without adding regulatory costs to the State. In fact, the legislation relieves the regulatory burden now faced by the Department of Fish and Game which must, on a case by case basis, seek in-stream flow reservations. House Bill 210 corrects this problem by reserving sufficient water flow for the needs of fish, but also allowing appropriations for other uses.

We strongly support passage of House Bill 210.

Sincerely,

Jimmy Jackson
President

4/3/89

P.O. Box 103782 • Anchorage, Alaska 99510
(907) 278-3420

Kenai Peninsula Fishermen's Association
Box 546, Soldotna, Alaska 99669
Phone: 262-2492

April 20, 1989

Representative Cliff Davidson
Co-Chair, House Resources Committee
Box A
Juneau, Alaska 99811

Dear Representative Davidson:

We are writing in support of House Bill 210, "An Act relating to the reservation of instream flow."

It would seem in the best interests of Alaska and Alaskans to provide sufficient safeguards to ensure the ongoing viability of our fish and wildlife resources. Much of what Alaska is depends on the health of these resources. Additionally, this bill would provide adequate water for navigation and other recreational and subsistence uses.

Alaska has the unique benefit of learning from the failure of other states who did not safeguard sufficient instream flows to protect spawning, incubation, rearing, migration, and survival of fish. These states have lost their fish resources and will never recover them.

It has become alarmingly apparent through the *Exxon Valdez* oil spill just how important our waters and fishery resources are. House Bill 210 would codify a more efficient process for cataloging water flows on a case by case basis as need arises and for permitting competing water uses.

We believe that DNR's fiscal note is exceptionally high and would caution you and your committee against prejudicing your support of House Bill 210 because of the costs associated with implementation of these amendments to the Water Act.

We would urge you to pass this bill during this session; however, if you do not and choose to study the issues associated with the bill during the interim, we would appreciate being apprised of your actions. Thank you for your consideration.

Sincerely,

Cheryl Sutton

Cheryl Sutton
Special Projects Coordinator

COOK INLET
AQUACULTURE ASSOCIATION

HC 2, BOX 849
SOLDOTNA, AK 99669-9707
(907) 283-5761

RESOLUTION

IN SUPPORT OF HOUSE BILL NO. 210 -

"AN ACT RELATING TO THE RESERVATION OF INSTREAM FLOWS IN WATER IMPORTANT FOR FISH"

WHEREAS, perpetuation of the productivity of Alaskan salmon fisheries, because they are based predominately on the harvest of "wild" stocks, depends upon the continued maintenance of naturally occurring habitats for fish, and

WHEREAS, maintenance of minimum instream flow is of extreme importance in maintenance of existing habitat for fish, and

WHEREAS, the method specified in the bill (the "Tennant" or "Montana" method) for determining the amount of instream flow required to maintain fish habitat and sustain fish production has been widely accepted by fisheries scientists and has been successfully court tested in other areas, and

WHEREAS, the amount of instream flow required for maintenance of fish habitat is almost always greater than the amount required to support recreational use of a stream or use of its fish and wildlife resources, and

WHEREAS, the demands of other users of water within the State can only be expected to increase in the future, and

WHEREAS, the Alaska Constituiton grants a general reservation of water to fish and wildlife,

THEREFORE, LET IT BE RESOLVED, that the Board of Directors of the Cook Inlet Aquaculture Association urge the Alaska Legislature and Administration to enact without delay House Bill 210, thereby implementing the Constitutional provision of water to fish and wildlife.

Margaret Branson

Margaret Branson, President

April 22, 1989

ANCHORAGE WATERWAYS COUNCIL

801 W. Fireweed Lane, Suite 103 • Anchorage, Alaska 99503

April 18, 1989

Representative Cliff Davidson
Alaska State Legislature
P.O. Box V
Juneau, Alaska 99811

Dear Representative Davidson:

The Anchorage Waterways Council (AWC) is a group of citizens who work to protect, restore, and enhance the creeks, lakes, and wetlands of Anchorage. The AWC supports efforts to improve and enhance waterways in general, for fish as well as waterbirds, and for recreational and aesthetic reasons. We have reviewed HB 210 and would like to express our support for the concept of in-stream flow reservations to protect fishery resources. We believe an ounce of prevention is worth a pound of cure--the Exxon Valdez spill seems to bear that out.

We also offer the following comments. First, we believe in-stream flow reservations also should be established to maintain and enhance water quality. Water quality is enhanced by adequate stream flow and is a public good that also protects fishery resources. This benefit should be incorporated into the bill. Second, we support the concept of applicants assuming responsibility for the costs of determining stream flows and believe this feature of the bill should be retained. Those who wish to derive private benefits from a public resource should be held responsible for the costs incurred in transferring that benefit from the public domain to them. Last, we concur with the principle of identifying a minimum flow like that established in HB 210 and allowing deviations from that only after analysis indicates that less flow is acceptable. Setting a minimum flow level based on general needs of the resource establishes the State's baseline and shifts the burden of proof for creating a different minimum flow for an individual creek on the user.

We hope these comments are useful in your deliberations on HB 210.

Sincerely,

Maureen McCrea

Maureen McCrea
President

Organized 1870 to Promote the Conservation, Development and Wise Utilization of the Fisheries

AFS American Fisheries Society

ROBERT G. WHITE
President 1988-1989

CARL R. SULLIVAN
Executive Director

PAUL BROUHA
Deputy Director

Honorable Cliff Davidson
Co-Chairman
House Resources Committee
State of Alaska
Pouch V
Juneau, AK 99801

April 4, 1989

Dear Representative Davidson:

Thank you for providing me the opportunity to provide comments pertaining to house Bill 210. If enacted, this law would provide for a guaranteed instream flow reservation for fish in water throughout Alaska.

Based upon my professional experiences as the former Director of the Fisheries Rehabilitation, Enhancement and Development Division of the Alaska Department of Fish and Game and having served as President of the American Fisheries Society (AFS), and currently Chairman of F.I.S.H., Fishermen Involved Saving Habitat, "the coalition for the conservation of aquatic habitat". (I have enclosed a list of the organizations that associate themselves with F.I.S.H.), I recognize the significance of and fully support your efforts to enact this legislation.

As President of the AFS, I often travelled throughout North America and observed the effects of poor water management and over-appropriation of our nation's water resources. In the west, insufficient instream flows has resulted in the decimation of fisheries in what were once prime fish producing streams and rivers. In the east, the water pollution of fish streams and rivers can partially be attributed to insufficient instream flow receiving waters and poor enforcement of effluent laws. If the "lower 48" states had the opportunity to turn back the clock, I am confident they too would attempt to pass legislation similar to HB 210 to prevent repeating these mistakes. Many states are in the process of now attempting to provide for instream flows, for fish and wildlife, and the price is very high, if they are even successful at all.

I also believe our nation and other countries are finally beginning to recognize the significance of the contribution of fishery resources to the economic and social well being of this planet. North America is blessed with a significant amount of

this planet's fishery resources and Alaska is responsible for about two thirds to three quarters of what is found on this continent. Commercial, sport land subsistence fisheries contribute over a billion dollars to the Alaskan economy annually and while oil provides most of the State's income for the present, the fishing industry provides the jobs for Alaska's citizens. The Alaskan fishery represents tremendous renewable resource wealth that will provide jobs and income for Alaskans forever, if properly cared for.

It is apparent to me that as the oil and other non-renewable resources in Alaska dwindle, fish and related enterprises will become even that much more vital to the future of Alaska. Yet, without your legislation, there is not guarantee that water will be available that is critical to continued fishery production. And if we can draw upon the experiences of the "lower 48", we can say with certainty that the water will not be available. I often think of the fish habitat and environmental consequences of the pipeline development had not there been strong laws and regulations to support the permitting process via Title 16. . Alaska needs to look to the future and secure the water necessary for continued production of its aquatic resources.

The recent tragedy of the oil spill in Prince William Sound is the classic example of why legislation that protects our resources must be enacted now, not after the destruction has occurred. I offer you my full support of this legislation and I feel confident that the fisheries scientists as well as all segments of the fish community support this legislation.

Please let me know if I can be of further assistance.

Sincerely,

Stan Moberly, Immediate Past President
American Fisheries Society
Chairman of F.I.S.H.
P.O. Box 99488
Seattle, WA 98199-0488

cc: Senator Ted Stevens
Senator Frank Murkowski
Representative Don Young
Governor Steve Cowper
Don Collinsworth, Commissioner ADF&G
Carl Sullivan, Executive Director AFS
Bob White, President AFS

F.I.S.H., FISHERMEN INVOLVED SAVING HABITAT
"a coalition for the conservation of aquatic habitat"

Organizations associated with F.I.S.H.

AMERICAN FISHERIES SOCIETY
AMERICAN FISHING TACKLE MANUFACTURES ASSOCIATION
ATLANTIC OFFSHORE FISHERMEN'S ASSOCIATION
BASS ANGLERS SPORTSMAN SOCIETY
COASTAL CONSERVATION ASSOCIATION
COASTAL SOCIETY
KIP KOEHLER, (CITIZEN CONSERVATIONIST)
COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION
FISHERIES MANAGEMENT FOUNDATION
IZAAK WALTON LEAGUE OF AMERICA, INC.
MID-ATLANTIC FISHERIES MANAGEMENT COUNCIL
NATIONAL COALITION FOR MARINE CONSERVATION
NATIONAL FISHERIES INSTITUTE
NATIONAL FISHERMAN
NATIONAL WILDLIFE FEDERATION
NEW JERSEY MARINE SCIENCES CONSORTIUM
OUTDOOR WRITERS ASSOCIATION OF AMERICA
PACIFIC COAST FEDERATION OF FISHERMEN ASSOCIATION
PACIFIC MARINE FISHERIES COMMISSION
SALTWATER SPORTSMAN
SOUTHEASTERN FISHERIES ASSOCIATION
SPORT FISHING INSTITUTE
SPRING AND GROUNDWATER RESOURCES INSTITUTE
TEXAS SHRIMP ASSOCIATION
TROUT UNLIMITED
UNITED FISHERMEN OF ALASKA
UNITED STATES TUNA FOUNDATION

Working for the Nature of Tomorrow

NATIONAL WILDLIFE FEDERATION

750 West Second Avenue, #200, Anchorage, Alaska 99501 (907) 258-4800

April 4, 1989

Honorable Cliff Davidson
State Of Alaska
House of Representatives
Box V
Juneau, Alaska 99811

Dear Representative Davidson:

I am writing to you on behalf of the National Wildlife Federation. We are the nation's largest conservation organization with 5.2 million members, 10,000 of whom are Alaskans.

The National Wildlife Federation is an organization of concerned conservationists--outdoor enthusiasts, hunters and fishermen--who share a common commitment to the wise use of our nation's wildlife resources and the protection of habitats on which they depend. It is this commitment that prompts our strong support of HB 210, "an act relating to the reservation of instream flows in water important for fish."

We applaud your sponsorship of this bill. We believe as you do that Alaska's fisheries resources support a significant part of the state's economy through commercial, sport and subsistence fishing activities. HB 210 would insure that sufficient water flows exist for these fisheries as well as for wildlife and recreational use by requiring that water be reserved in stream to maintain fish and wildlife populations.

Upon thorough review of the bill, we agree with you that enactment of this legislation would not only protect fisheries and wildlife resources, but also provide a cost-effective mechanism for allocation of water from streams that do not presently have flow records, thereby benefiting users of water and expediting the application process for water appropriation to these users.

Additionally, in this time of severe budget constraints, passage of HB 210 becomes particularly significant because it would protect water flows necessary

for fish and wildlife without adding regulatory costs to the State. In fact, the bill relieves the regulatory burden now faced by the Department of Fish and Game which must, on a case by case basis, seek instream flow reservations in waters important for fish and wildlife.

Again, we appreciate your sponsorship of this important legislation and strongly support its swift and timely passage through the House.

Respectfully,

Ann L. Rothe
Regional Representative

cc: Members, Resources Committee, State of Alaska
House of Representatives
Bruce Apple, Director, NWF Pacific Northwest Natural Resources Center
Larry Schweiger, Vice President, NWF Regional Programs

ECO - NORTHWEST
510 North Granger Road
Granger, Washington 98932
(509) 854-2841

6 April, 1989

Representative Cliff Davidson
State of Alaska
House of Representatives
Box V
Juneau, Alaska 99811

Subject: HB 210

Dear Representative Davidson:

I was pleased to receive your letter regarding HB 210, and a copy of the bill, which I read with great interest. Alaska, if it is to retain its vast fisheries resources, must not make the same mistakes that where made by the western states with regard to protection of fisheries habitat. The western states once thought that the salmon, steelhead, and resident fisheries resources of the Columbia River Basin and the Sacramento River Basin were also inexhaustible. To our sorrow, we have learned that they were not. Where are the large runs of Sacramento River chinook? Gone. Where are the thousands upon thousands of upper Columbia River chinook and sockeye? Gone. Where are hundreds of other runs that once returned to streams big and small, from southern California to the Olympic Peninsula? Gone.

Although a number of factors have contributed to this drastic decline over the past century, the failure to protect instream flows for fisheries habitat surely ranks as one of the most important. Dewatering streams or stream reaches destroys rearing and spawning habitat and may block migration for both juvenile and adult anadromous fish. If it occurs on regular basis over a period of years, you can be sure it will drastically reduce, if not totally destroy, salmon and steelhead runs in the affected stream.

Low or nonexistent instream flows are a fact across most of the western states. Why? Because none of these states took action early to reserve or protect instream flows from out of stream diversions until the streams were over appropriated. Fisheries habitat disappeared, and so did the fish.

Now, many states are struggling with the legal and administrative process of establishing instream flows. This is proving to be very difficult for a number of reasons. In many cases (such as

the Yakima Basin in eastern Washington) there are no unappropriated natural flows remaining to reserve for instream flows. This means that the state is faced with a paper instream flow, or buying water rights, building reservoirs to store flood waters, or implementing other action. Any program to acquire water for instream flows is expensive, takes many years to implement, and is often the victim of budgetary constraints. Alaska will show great wisdom and leadership if it establishes instream flows before its streams and rivers are dewatered.

In the state of Washington, the legislature has passed various water laws over the past 20 years that recognize the importance of instream flows and establish procedures for implementation. Many streams in eastern Washington, however, have been over appropriated for many decades, and establishing instream flows is purely a paper exercise. In addition, as you can well imagine, establishing instream flows meets strong opposition from those groups that have traditionally diverted water for out of stream uses. Setting instream flows thus becomes a highly charged, emotional and political issue. The technical aspects often get lost in the rhetoric.

Based on our experience in Washington, I would strongly urge the Alaska Legislature to establish a system of reserving instream flows now, before it is faced with individual water resource allocation issues. If that is done, Alaska will avoid the sad experience of the western states, who have largely squandered their inherited fisheries resources wealth. It may be true that society did not recognize the importance of fisheries resources during the early development of the West, but that is certainly not the case now. Alaska should move decisively to preserve its economic base and its heritage.

I hope this short summary has been some help. Should you desire more detailed information and analysis, I would be happy to provide that for you. Should it be appropriate, we can also provide graphic visual evidence of the consequences of not adopting an instream flow program.

Good luck with HB 210!

Sincerely yours,

Bob Tuck

Bob Tuck,
Fisheries Biologist

American Rivers

Rep. Cliff Davidson
Box 746
Kodiak, AK 99615

April 5, 1989

Dear Representative Davidson,

American Rivers, Inc., the nation's principal river-saving conservation organization, wholeheartedly supports HB 210 to reserve the instream flows of Alaska's rivers. The State of Alaska is to be commended for appropriately addressing this important matter now - before it becomes an overcommitted resource. Many of the Lower 48 wish that they could reverse the clock and undertake this type of advance planning for their rivers.

The provisions in the bill for quantifying instream flow are simple - easy to regulate and comply with - and adequate. The bill appropriately calls for the holding of water instream, with the "burden of proof" needed when changes from that norm are requested.

American Rivers is pleased that the bill includes all rivers, not just those that sustain anadromous species and that it requires protection of fisheries, rather than just "consider" this resource as do existing laws. While the latter is admirable from both an economic and resource perspective, American Rivers believes that it is important to recognize that rivers are a multi-faceted resource and that instream flow is vital to more than just fish. Nonetheless, we believe that this bill, while not necessarily providing for the water needs of all aquatic resources or all forms of recreation, does secondarily and adequately meet many of their requirements.

Alaska holds approximately one third of the nation's fresh water. Its decision makers should protect this important resource for future generations. American Rivers commends your efforts with this bill and urges support of HB 210 in the April 11 House Resources Committee, in the full House and in the Senate.

Sincerely,

Suzi Wilkins

Suzanne C. Wilkins
Director of River Protection

801 PENNSYLVANIA AVE. S.E.
SUITE 303

The World's Largest and Fastest Growing RV Owners Organization

THE GOOD SAM CLUB

International Headquarters: P.O. Box 500, Agoura, California 91301 (818) 991-4980

April 5, 1989

The Honorable Cliff Davidson
Co-Chair, House Resources Committee
State of Alaska House of Representatives
Box V
Juneau, Alaska 99811

Dear Representative Davidson:

On behalf of the Good Sam Club, an international organization of 675,000 familes who are recreational vehicle enthusiasts (and with nearly 2,000 family members in Alaska), I want to strongly support House Bill No. 210, an effort to reserve instream flows in water which is important for fish to survive.

Each year, thousands of our members drive their recreational vehicles to enjoy the fabulous scenery and take advantage of the magnificent outdoor recreational opportunities which are so abundant in your state. Our organization and a number of tour operators sponsor planned tours and caravans through Alaska; other RVers venture to your state on their own.

Regardless of the actual number of RVers who tour your state, I can assure you that an RV trip to Alaska is virtually every RVer's dream. In a recent internal survey we conducted of our members in order to determine their travel preferences, the first choice of a north American destination for 51% of our members was Alaska. The lure of the relatively untouched resources in your state is tremendously appealing to those of us who live in the congested lower 48.

That's why we as recreationists see House Bill No. 210 to be vitally important to our pursuit of our interests. 76% of our members own fresh water fishing gear. They have the means and the transportation to venture far from home in order to take advantage of fishing opportunities they may not be able to find in their immediate locales. Our research tells us that they are looking to your resources in Alaska for these opportunities.

We at the Good Sam Club urge you to do all that you can to protect and enhance your waters and fishing opportunities for all enthusiasts.

Sincerely,

Susan Bray

Susan Bray
Executive Director/Vice President
The Good Sam Club

WaterWatch
OF OREGON

3 April 1989

The Honorable Cliff Davidson
House of Representatives
Juneau, Alaska 99811

Dear Representative Davidson:

Your House Bill 210 is a visionary piece of legislation if there is any valid comparison between Oregon and Alaska.

Oregon failed to protect its streams many years ago. We now face a condition in the state of massive overappropriation of our streams. We are struggling with the bleak and costly process of restoring streamflows in most streams in Oregon in order to salvage something of our recreation and anadromous fish resources.

You will note by the enclosed legislation that the process of streamflow restoration is a long and difficult task once streams become overappropriated. (HB3203 is before our current legislature.) Once the water has been allocated for out-of-stream use, the legal and political problems of streamflow restoration become almost impossible to manage. I can not impress on you and your legislature enough, the importance of acting now to forestall a serious problem in your state's future.

We wish you the best of luck. Please let us know if we may be of any assistance to you.

Sincerely,

Tom Simmons

Tom Simmons
Chairman of the Board

MOSES, WITTEMYER, HARRISON AND WOODRUFF, P. C.

LAW OFFICES

1002 WALNUT STREET, SUITE 300

BOULDER, COLORADO 80302

TELEPHONE: (303) 443-8782

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BOULDER, CO 80306-1440

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BOZEMAN, MONTANA 59715
(406) 586-1373

April 4, 1989

Representative Cliff Davidson
State of Alaska
House of Representatives

BY FAX 9074652718

Dear Representative Davidson:

In response to your March 29, 1989 letter, I have quickly reviewed the draft House Bill 210. Honestly, I am not in a very strong position to comment on Alaska law, my own experiences being limited to instream flow situations in the western states in the lower 48.

On the face of it, however, it seems that you have come up with something that appears to be appropriate for the Alaska situation. Certainly it is important to do something; the problems of reparing instream flow situations after out-of-stream diversions have already been instituted is a tough one throughout the west. It appears that your bill adequately protects existing out-of-stream users, which is in my opinion a fundamental necessity. As far as the argument that we sometimes hear about instream flow reservations precluding future uses, I think that becomes an Alaska decision to be made by Alaskans. What is the value of the resource to support instream uses which are so uniquely valuable in Alaska compared with the value for future development based on out-of-stream diversions?

Again, based on my limited knowledge of the situation, it certainly sounds like you are on the right track. Good luck on this important endeavor.

Very truly,

MOSES, WITTEMYER, HARRISON
AND WOODRUFF, P.C.

By 
David L. Harrison

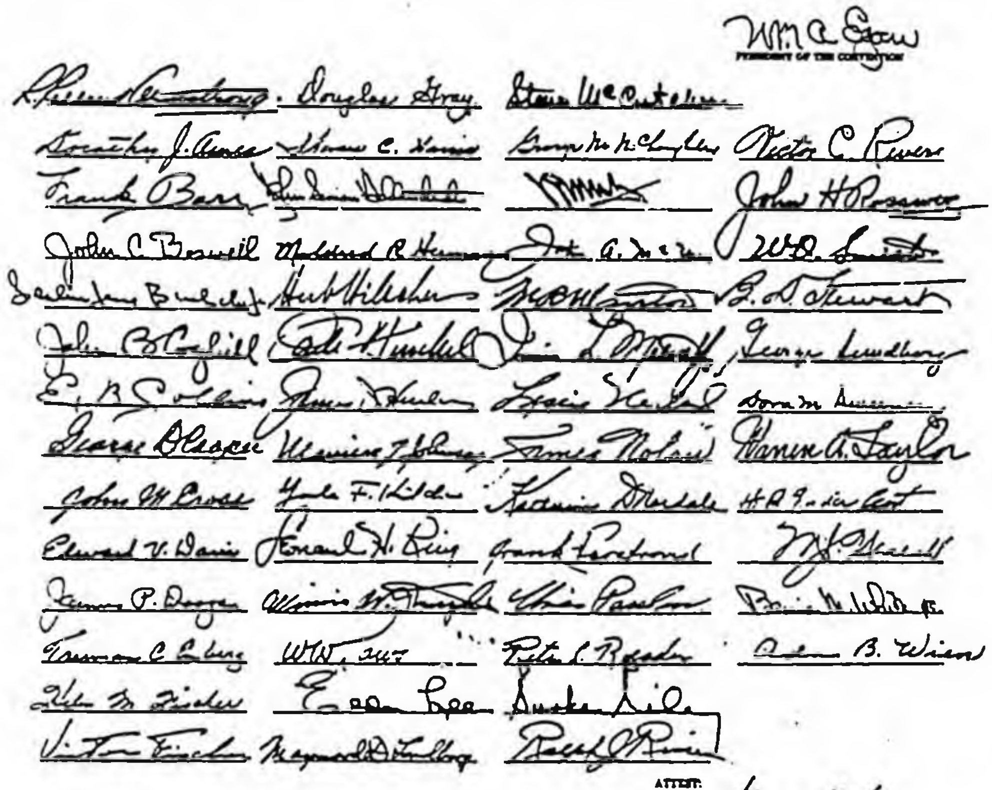
DLH:rlo

ALASKA CONSTITUTION
ALASKA STATUTES
FEDERAL LAW

Alaska's Constitution
A Citizen's Guide

GORDON S. HARRISON

Agreed upon by the delegates in Constitutional Convention assembled at the University of Alaska, this fifth day of February, in the year of our Lord one thousand nine hundred and fifty-six, and of the Independence of the United States the one hundred and eightieth.



ORDINANCE NO. 1

RATIFICATION OF CONSTITUTION

Election — SECTION 1. The Constitution for the State of Alaska agreed upon by the delegates to the Alaska Constitutional Convention on February 5, 1956, shall be submitted to the voters of Alaska for ratification or rejection at the territorial primary election to be held on April 24, 1956. The election shall be conducted according to existing laws regulating primary elections so far as applicable.

Ballot — SECTION 2. Each elector who offers to vote upon this constitution shall be given a ballot by the election judges which will be separate from the ballot on which candidates at the primary election are listed. Each of the propositions offered by the Alaska Constitutional Convention shall be set forth separately, but on the same ballot form. The first proposition shall be as follows:

"Shall the Constitution for the State of Alaska prepared and agreed upon by the Alaska Constitutional Convention be adopted?" Yes ☐ No ☐

$2.00

Section 13. Water Rights

> All surface and subsurface waters reserved to the people for common use, except mineral and medicinal waters, are subject to appropriation. Priority of appropriation shall give prior right. Except for public water supply, an appropriation of water shall be limited to stated purposes and subject to preferences among beneficial uses, concurrent or otherwise, as prescribed by law, and to the general reservation of fish and wildlife.

This section continues the traditional right to use water on a "first-come-first-served" basis. This method differs from an early method of acquiring water rights used historically on the East Coast. Known as the "riparian method," it allocated water rights to owners of the stream bank. In Alaska and the other western states, however, water rights were traditionally acquired by actual use of the water. Under this constitutional provision, which is further developed in state statute and regulation, a prior user of water has preference to it, but his rights may be withdrawn or limited as necessary to protect public interests.

Section 14. Access to Navigable Waters

> Free access to the navigable or public waters of the State, as defined by the legislature, shall not be denied any citizen of the United States or resident of the State, except that the legislature may by general law regulate and limit such access for other beneficial uses or public purposes.

Citizens have the right to use publicly owned lakes and streams. The state may not deny this use except by a general law that protects a public interest. For example, the state may keep people away from a lake that supplies drinking water to a town, or build a dam on a river, but it may not prevent the public from fishing in a public lake because it wants to protect the interest of nearby private fishing lodges. Disposals of state-owned land along navigable waters must reserve a public access easement.

Section 15. No Exclusive Right of Fishery

> No exclusive right or special privilege of fishery shall be created or authorized in the natural waters of the State. This section does not restrict the power of the State to limit entry into any fishery for purposes of resource conservation, to prevent economic distress among fishermen and those dependent upon them for a livelihood and to promote the efficient development of aquaculture in the State.

The second sentence of this section was added in 1972 by amendment. In the mid 1960s, Alaska's major salmon fisheries were in bad shape: too few fish, too many fishermen, and low prices

Restricting entry into the fish
In 1968 a limited-entry law v
validated by the courts as a v
VIII (a three-judge federal c
but the U.S. Supreme Cour
grounds; then the issue was l
found the law to violate Secti
tion 1 of Article I).

Recognizing that a limite
tional authorization, the legisla
voters in 1972. A limited-en
creating the Commercial Fish
The constitutionality of the
supreme court (Ostrosky v. St
tiative to repeal the law was r
in 1976.

An issue raised by this s
issue was whether the leasing
netting creates an exclusive
attorney general on the matter
of Article VIII prohibits the
rights through legislation or re
from granting property interes
clusivity of use for fishing. The
the creation of the property in
of no consequence . . . . "

In 1981 the state supreme
of fisheries that established pric
recreational fishermen in Cook
violated the exclusive right o
(Kenai Peninsula Fishermen's C
897; 1981).

Section 16. Protection of Rights

> No person shall be invol
> waters, his interests in la
> cept for a superior benef
> with just compensation an

This section further reinf
state-owned resources by declar
right may be infringed or revo
established in law may intervene
a specific existing right is extingu

Alaska Statutes

Title 46. Water, Air, Energy, and Environmental Conservation.

Chapter 15. Water Use Act.

Article 1. Administration.

Sec.46.15.010. Determination of water rights. The Department of Natural Resources shall determine and adjudicate rights in the waters of the state, and in its appropriation and distribution. (§ 1 ch 50 SLA 1966)

Sec. 46.15.020. Authority and duties of the commissioner [Effective July 1, 1987]. (a) The commissioner shall exercise all those powers and do all those acts necessary to carry out the provisions and objectives of this chapter. The commissioner may

(1) subject to AS 36.30 (State Procurement Code), enter into contractual agreements necessary to carry out the provisions of this chapter including agreements with federal, state and local agencies;

(2) apply for, accept, administer and expend grants, gifts, and loans from the federal government and any other public or private sources for the purposes of this chapter, and adopt procedures and do acts not otherwise restricted by law which are necessary to qualify the state to receive grants, gifts and loans;

(3) establish a division of water in the Department of Natural Resources and assign to that division the responsibility for carrying out the provisions of this chapter.

(b) The commissioner shall

(1) adopt procedural and substantive regulations to carry out the provisions of this chapter, taking into consideration the responsibilities of the Department of Environmental Conservation under AS 46.03 and the Department of Fish and Game under AS 16;

(2) keep a public record of all applications for permits and certificates and other documents filed in his office; and shall record all permits and certificates and amendments and orders affecting them and shall index them in accordance with the source of the water and the name of the applicant or appropriator;

(3) cooperate with, assist, advise and coordinate plans with the federal, state and local agencies in matters relating to the appropriation, use, conservation, quality, disposal or control of waters and activities related thereto;

(4) prescribe fees or service charges for any public service rendered. (§ 1 ch 50 SLA 1966; am § 6 ch 104 SLA 1971; am § 50 ch 71 SLA 1972; am § 56 ch 106 SLA 1986)

Effect of amendments. — The 1986 amendment, effective July 1, 1987, added "subject to AS 36.30 (State Procurement Code)" at the beginning of paragraph (1) of subsection (a).

Article 2. Appropriation and Use of Water.

Sec. 46.15.030. Waters reserved to the people. Wherever occurring in a natural state, the waters are reserved to the people for common use and are subject to appropriation and beneficial use and to reservation of instream flows and levels of water, as provided in this chapter. (§ 1 ch 50 SLA 1966; am § 4 ch 84 SLA 1980)

Effect of amendment. — The 1980 amendment, effective June 19, 1980, inserted "and to reservation of instream flows and levels of water" near the end of the section.

Pursuant to the Alaska Statehood Act, the Submerged Lands Act of 1953 applies to Alaska. Alaska Pub. Easement Defense Fund v. Andrus, 435 F. Supp. 664 (D. Alas. 1977).

Ownership and control of land under navigable waters. — The court takes judicial notice of the fact that Alaska lies westward of the 98th meridian. Thus, under federal law, ownership and control of the land under navigable waters is confirmed in the state. Alaska Pub. Easement Defense Fund v. Andrus, 435 F. Supp. 664 (D. Alas. 1977).

Ownership of ground and surface waters is to be determined according to state law. Under the Alaska Constitution and state law, the right to use such waterways is placed in the people of the state. Alaska Pub. Easement Defense Fund v. Andrus, 435 F. Supp. 664 (D. Alas. 1977).

Purpose of easement along courses of major waterways is to provide a place for docks, campsites and such facilities to service those who are properly using the public waters. This purpose is apparently accommodated by the reservation of site easements under the order of the Secretary of the Interior. Alaska Pub. Easement Defense Fund v. Andrus, 435 F. Supp. 664 (D. Alas. 1977)

Sec. 46.15.040. Right to appropriate. (a) A right to appropriate water can be acquired only as provided in this chapter. No right to the use of water either appropriated or unappropriated shall be acquired by adverse use or possession.

(b) A right to appropriate water shall be obtained by first making application to the commissioner for a permit to appropriate. The commissioner shall by regulation prescribe the form and contents of the application and the procedure for filing the application. If a permit is granted and the means of appropriation is constructed, a certificate of appropriation may be obtained.

(c) All applications to the commissioner for a permit to appropriate water, filed subsequent to July 1, 1966, shall be considered as having been simultaneously filed with the Department of Fish and Game under AS 16 and the Department of Environmental Conservation under AS 46.03.

(d) The commissioner's issuance of a permit under AS 46.15.080 or of a certificate under AS 46.15.065 or 46.15.120 does not represent a guarantee by the state to the permittee or certificate holder that water will be available for appropriation at a certain volume, quality, artesian pressure, or cost. This subsection does not, however, alter the right a permittee or certificate holder may have against a later appropriator, including a government agency. (§ 1 ch 50 SLA 1966; am § 6 ch 104 SLA 1971; am § 51 ch 71 SLA 1972; am § 1 ch 135 SLA 1986)

Effect of amendments. — The 1986 amendment, effective June 10, 1986, added subsection (d)

Sec. 46.15.050. Priority. Priority of appropriation gives prior right. Priority of appropriation does not include the right to prevent changes in the condition of water occurrence, such as the increase or decrease of stream flow, or the lowering of a water table, artesian pressure, or water level, by later appropriators, if the prior appropriator can reasonably acquire his water under the changed conditions. (§ 1 ch 50 SLA 1966)

Sec. 46.15.060. Existing rights. A water right acquired by law before July 1, 1966 or a beneficial use of water on July 1, 1966, or made within five years before July 1, 1966, or made in conjunction with works under construction on July 1, 1966, under a lawful common law or customary appropriation or use, is a lawful appropriation under this chapter. The appropriation is subject to applicable provisions of this chapter and rules and regulations adopted under this chapter. (§ 1 ch 50 SLA 1966)

Sec. 46.15.065. Determination of existing rights. (a) A claimant of an existing right under AS 46.15.060 shall file a declaration of appropriation with the commissioner as set out in this section. The declaration shall be considered correct until a certificate of appropriation is issued or denied. Priority of such right dates from the day work was begun on the appropriation if due diligence was used in completing the work; otherwise, from the day water was applied for the beneficial use.

(b) The commissioner shall, as soon as practicable, determine the rights of persons owning existing appropriations. To accomplish this, the commissioner shall

(1) by order set a definite period for filing a declaration of appropriation within a specified area or from a specified source;

(2) publish notice of the order once a week for three weeks before the beginning of the period in a newspaper of general circulation in the affected area;

(3) give notice of the order by certified mail to any appropriator within the specified area or from the specified source who has requested mailed notice or of whom the commissioner can readily obtain knowledge including each owner of a recorded mining claim.

(c) The commissioner shall make such investigations as he considers necessary of rights asserted by declarations filed under this section and shall determine each existing appropriation and mail a summary of such determination to each person who has filed a declaration with respect to the specified area or source. Any person adversely affected by a determination may file with the commissioner a request for a hearing within 20 days of the date the notice is mailed. If a hearing is requested the commissioner shall send a notice of the time and place of the hearing to each person who has filed a declaration.

(d) If a hearing is not requested with respect to a determination, or if, after the hearing, the commissioner finds the determination to have been correctly made, he shall immediately issue a certificate of appropriation. If the commissioner finds the determination to be incorrect, he shall correct it and either issue a certificate of appropriation or refuse the certificate according to his findings.

(e) A person aggrieved by the action of the commissioner may appeal to the superior court within 30 days of the date on which that action is final.

(f) The adjudication process for a declaration filed under (a) of this section that is pending before the commissioner on June 10, 1986 continues under the procedures set out in this section until the com-

certificate. If a certificate is issued under this section, the certificate holder may be included as a participant in an adjudication under AS 46.15.165 or 46.15.166. (§ 1 ch 50 SLA 1966; AS 46.15.135; am § 2 ch 135 SLA 1986)

Effect of amendments. — The 1986 amendment, effective June 10, 1986, added subsection (f).

Sec. 46.15.070. Notices; objections [Renumbered].

Revisor's note. - This section now appears as AS 46.15.133. It was renumbered by the revisor of statutes for more logical arrangement.

Sec. 46.15.080. Criteria for issuance of permit. (a) The commissioner shall issue a permit if he finds that

(1) rights of a prior appropriator will not be unduly affected;

(2) the proposed means of diversion or construction are adequate;

(3) the proposed use of water is beneficial; and

(4) the proposed appropriation is in the public interest.

(b) In determining the public interest, the commissioner shall consider

(1) the benefit to the applicant resulting from the proposed appropriation;

(2) the effect of the economic activity resulting from the proposed appropriation;

(3) the effect on fish and game resources and on public recreational opportunities;

(4) the effect on public health;

(5) the effect of loss of alternate uses of water that might be made within a reasonable time if not precluded or hindered by the proposed appropriation;

(6) harm to other persons resulting from the proposed appropriation;

(7) the intent and ability of the applicant to complete the appropriation; and

(8) the effect upon access to navigable or public waters. (§ 1 ch 50 SLA 1966)

Sec. 46.15.090. Preference in granting permits. When there are competing applications for water from the same source, and the source is insufficient to supply all applicants, the commissioner shall give preference first to public water supply and then to the use which alone or in combination with other foreseeable uses will constitute the most beneficial use. (§ 1 ch 50 SLA 1966)

Sec. 46.15.100. Terms of permit. The commissioner may issue a permit for less than the amount of water requested, but in no case may he issue a permit for more water than can be beneficially used for the purposes stated in the application. He may require modification of plans and specifications for the appropriation. He may issue a permit subject to terms, conditions, restrictions, and limitations he considers necessary to protect the rights of others, and the public interest. However, the permit shall be subject to termination only as provided in this chapter. (§ 1 ch 50 SLA 1966)

Sec. 46.15.110. Time for construction and completion. A permit may place a time limit for beginning construction and perfecting appropriation. Reasonable extensions of time shall be permitted for good cause shown. (§ 1 ch 50 SLA 1966)

Sec. 46.15.120. Certificates. Upon completion of construction of the works and commencement of use of water, the permit holder shall notify the commissioner that he has perfected his appropriation. If the commissioner determines that the appropriation has been perfected in substantial accordance with the permit, he shall issue the permit holder a certificate of appropriation. The certificate shall set out any condition which the commissioner may prescribe by regulation, including conditions that are necessary to protect the prior rights of other persons and the public interest. (§ 1 ch 50 SLA 1966; am § 9 ch 175 SLA 1980)

Sec. 46.15.130. Priority. (a) Priority of appropriation made under this chapter dates from the filing of an application with the commissioner.

(b) Priority of appropriation perfected before July 1, 1966, shall be determined as provided in § 135 of this chapter. (§ 1 ch 50 SLA 1966)

Sec. 46.15.133. Notices; objections. (a) Upon receipt of an application, the commissioner shall prepare a notice containing the location and extent of the proposed appropriation, the name and address of the applicant and other information he considers pertinent. The notice shall state that within 15 days of publication or service of notice, persons may file with the director written objections, stating the name and address of the objector, and any facts tending to show that rights of the objector or the public interest would be adversely affected by the proposed appropriation.

(b) The commissioner shall publish the notice at the applicant's expense in one issue of a newspaper of general distribution in the area of the state in which the water is to be appropriated. The commissioner shall also have notice served personally or by certified mail upon an appropriator of water or applicant for or holder of a permit who, according to the records of the division of lands, may be affected by the proposed appropriation and may serve notice upon any governmental agency, political subdivision or person; notice shall also be served upon the Department of Fish and Game and the Department of Environmental Conservation

(c) Within 15 days of publication or service of notice, an interested person may file an objection. The commissioner may hold hearings upon giving due notice and shall grant, deny, or condition the application in whole or in part within 30 days of receipt of the last objection or, if the commissioner elects to hold hearings, within 180 days of receipt of the last objection. Notice of the order or decision shall be served personally or mailed to any person who has filed an objection.

(d) If no objection is filed, the commissioner may proceed to make his determination upon the application.

(e) A person aggrieved by the action of the commissioner or by the failure of the commissioner to grant, deny, or condition an application in accordance with (c) of this section may appeal to the superior court.

(f) The commissioner may, by regulation, designate types of appropriations which are exempt from this section and provide simplified procedures for ruling on the applications. (§ 1 ch 50 SLA 1966; am § 6 ch 104 SLA 1971; am § 52 ch 71 SLA 1972; am §§ 5, 6 ch 84 SLA 1980)

Revisor's note. — This section formerly appeared as AS 46.15.070. It was renumbered by the revisor of statutes for more logical arrangement.

Effect of amendment. — The 1980 amendment, effective June 19, 1980, substituted "if the commissioner elects to hold hearings, within 180 days of receipt of the last objection" for "at the conclusion of the hearing" at the end of the second sentence of subsection (c), and inserted "or by the failure of the commissioner to grant, deny, or condition an application in accordance with (c) of this section" near the middle of subsection (e).

Sec. 46.15.135. Determination of existing rights [Renumbered].

Revisor's note. — This section now appears as AS 46.15.065. It was renumbered by the revisor of statutes for more logical arrangement.

Sec. 46.15.140. Abandonment, forfeiture, and reversion of appropriations. (a) The commissioner may declare an appropriation to be wholly or partially abandoned and revoke or amend the certificate of appropriation as to the unused quantity of water if an appropriator, with intention to abandon, does not make beneficial use of all or a part of the appropriated water.

(b) The commissioner may declare that an appropriator has wholly or partially forfeited an appropriation, and shall revoke the certificate of appropriation in whole or in part if the appropriator voluntarily fails or neglects, without sufficient cause, to make use of all or a part of the appropriated water for a period of five successive years. A person who has a permit to develop a use of water including but not limited to residential, agricultural, industrial, or mining use, but has not developed that property to the point of water use before permit expiration, may file a request for permit extension with the commissioner.

(c) Failure to use beneficially for five successive years all or part of the water granted in a certificate of appropriation raises a rebuttable presumption that the appropriator has abandoned or forfeited the right to use the unused quantity of water and shifts to the appropria-

(d) If the commissioner revokes a certificate in whole or in part, the portion of the certificate covered by the revocation reverts to the state and the water becomes unappropriated water. (§ 1 ch 50 SLA 1966; am §§ 3, 4 ch 135 SLA 1986)

Effect of amendments. — The 1986 amendment, effective June 10, 1986, in subsection (a) inserted "or amend" and "as to the unused quantity of water" and substituted "the" for "his" and deleted the former second sentence, which read "An appropriation so forfeited and abandoned reverts to the state and the water becomes unappropriated water"; in subsection (b) in the first sentence substituted "that an appropriator has" for "an appropriation to be," "The" for "An" preceding "appropriator voluntarily," and "the" for "his" preceding "appropriated water" and inserted "in whole or in part" and added the last sentence, and added subsections (c) and (d).

Sec. 46.15.145. Reservation of water. (a) The state, an agency or a political subdivision of the state, an agency of the United States or a person may apply to the commissioner to reserve sufficient water to maintain a specified instream flow or level of water at a specified point on a stream or body of water, or in a specified part of a stream, throughout a year or for specified times, for

(1) protection of fish and wildlife habitat, migration, and propagation;

(2) recreation and park purposes;

(3) navigation and transportation purposes; and

(4) sanitary and water quality purposes.

(b) Upon receiving an application for a reservation under this section, the commissioner shall proceed in accordance with AS 46.15.133.

(c) The commissioner shall issue a certificate reserving the water applied for under this section if he finds that

(1) the rights of prior appropriators will not be affected by the reservation;

(2) the applicant has demonstrated that a need exists for the reservation;

(3) there is unappropriated water in the stream or body of water sufficient for the reservation; and

(4) the proposed reservation is in the public interest.

(d) After the issuance of a certificate reserving water, the water specified in the certificate shall be withdrawn from appropriation and the commissioner shall reject an application for a permit to appropriate the reserved water.

(e) A reservation under this section does not affect rights in existence on the date the certificate reserving water is issued

(f) At least once each 10 years the commissioner shall review each reservation under this section to determine whether the purpose described in (a) of this section for which the certificate reserving water was issued and the findings described in (c) of this section still apply to the reservation. If the commissioner determines that the purpose, or part or all of the findings, no longer apply to the reservation, the commissioner may revoke or modify the certificate reserving the water after notice, hearing when appropriate, and a written determination that the revocation or modification is in the best interests of the state. (§ 7 ch 84 SLA 1980; am § 5 ch 135 SLA 1986)

Effect of amendments. — The 1986 amendment, effective June 10, 1986, in subsection (f) in the second sentence substituted "the commissioner" for "he" preceding "may revoke" and substituted the language beginning "after notice" at the end of the subsection for "in accordance with AS 46.15.140(b)" and made two minor punctuation insertions.

Sec. 46.15.147. Termination of permits. (a) If the commissioner has reason to believe that a person who holds an appropriation permit under this chapter is wilfully violating or has wilfully violated a term, condition, restriction or limitation of his permit, he may commence proceedings to terminate the appropriation permit under the Administrative Procedure Act (AS 44.62.330 — 44.62.630).

(b) When an appropriation permit is terminated under this section, the appropriation of water made by the permit reverts to the state and becomes unappropriated water. (§ 8 ch 175 SLA 1980)

Editor's note. — As originally enacted, this section was designated AS 46.15.145. However, since a section with that designation had already been enacted by SLA 1980, ch. 84, this section was redesignated AS 46.15.147.

Sec. 46.15.150. Preferred use. (a) An applicant who asserts and proves a preferred use shall be granted a permit and shall be granted preference over other appropriators. A preferred use of water is for a public water supply.

(b) To be entitled to a preference an applicant must show that his use will be prevented or substantially interfered with by a prior appropriation; the use is a preferred use; the applicant agrees to compensate a permit or certificate holder for the prior appropriation for any damages sustained by the preferred use, and other information which the commissioner requires by regulation. (§ 1 ch 50 SLA 1966)

Sec. 46.15.160. Transfer and change of appropriations. (a) The right to use water under an appropriation or permit shall be appurtenant to the land or place where it has been or is to be beneficially used, provided, that water supplied by one person to another person's property shall not be appurtenant to the property unless the parties so intend. An appurtenant water right shall pass with a conveyance of the land, or transfer, or by operation of law unless specifically exempted from the conveyance.

(b) With the permission of the commissioner, all or any part of an appropriation may be severed from the land to which it is appurtenant, may be sold, leased or transferred for other purposes or to other lands and be made appurtenant to other lands. A permit or certificate or a deed, lease, contract, assignment of permit or other instrument transferring an appropriation must be filed for record in the office of the commissioner and a certified copy of the instrument must be recorded in the recorder's office of the recording district in which the appropriation is located. (§ 1 ch 50 SLA 1966)

Sec. 46.15.165. Administrative adjudications. (a) The commissioner may, by order, initiate an administrative adjudication to quantify and determine the priority of all water rights and claims in a drainage basin, river system, ground water aquifer system, or other identifiable and distinct hydrologic regime, including any hydrologically interrelated surface and ground water systems.

(b) In the order initiating an administrative adjudication, the commissioner shall describe the appropriate geographic and hydrologic boundaries of the adjudication area. During the adjudication, the commissioner may adjust the boundaries to ensure the efficient administration of water appropriations among users.

(c) Upon initiation of the adjudication, the commissioner shall

(1) serve the order on each applicant, certificate holder, or permittee listed in the department's records within the adjudication area;

(2) serve the order on any agency of the federal, state, or a local government with management authority over land or water within the adjudication area;

(3) serve the order on any person who owns or claims land within the adjudication area if the land is held in trust by the United States for the person or if the patent, deed, or certificate to the land from the United States was issued under 25 U.S.C. 334 (Indian General Allotment Act of February 8, 1887, 24 Stat. 389, as amended and supplemented), 25 U.S.C. 372 (the Allotment Act of June 25, 1910, 36 Stat. 855), 43 U.S.C. 270-1, 270-2 (the Allotment Act of May 17, 1906, 34 Stat. 197), any other allotment act, or the Alaska Native Townsite Act of May 25, 1926, 44 Stat. 629, and serve the order on the United States on behalf of the person;

and the appropriate governing body of the Annette Island Reserve established by 25 U.S.C. 495 (the Act of March 3, 1891, 26 Stat. 1101) if the land or water, including hydrologically interconnected water, of the Annette Island Reserve is within the adjudication area;

(5) serve the order on any other person claiming a federal reserved water right within the adjudication area;

(6) serve the regional corporation and village corporation established under 43 U.S.C. 1601-1623 (Alaska Native Claims Settlement Act) that has a pending land selection or has acquired ownership to land under that act that is located within the adjudication area; and

(7) serve the order on each mining claimant of record with the United States and the state within the adjudication area as of the date of the order initiating the administrative adjudication.

(d) Service of an order under (c) of this section does not constitute an admission by the state that the person served with the order has a water right.

(e) Service of the order under (c)(1) of this section is sufficient if mailed by certified mail, return receipt requested, to the last known address that the applicant, certificate holder, permittee, or claimant has given to the division of the department responsible for administration of water rights. A person served under (c)(1)—(7) of this section who fails to appear in a timely manner and assert a claim as prescribed by the commissioner is estopped from subsequently asserting an objection to the adjudication of that person's water rights within the adjudication area, unless the person is entitled to a federal reserved water right and has failed to consent under (k) of this section.

(f) In an adjudication under this section, the commissioner may appoint an impartial qualified person as a master to preside over the adjudication, to hold hearings, to take testimony, to collect evidence, to propose to the commissioner an order adjudicating the validity of, quantifying, and determining the priority of all water rights, and to take other action the commissioner decides is necessary.

(g) A state agency may assert a water right on behalf of the state in the adjudication.

(h) A division of the department or another state agency may provide documentary and testimonial evidence, research, and scientific analysis during the adjudication. The commissioner may provide evidence, research, or analysis from sources outside government.

(i) In conducting an adjudication, the commissioner may take action necessary for the efficient and fair administration and use of the state's water including

(1) determining indispensable, necessary, and convenient parties to the adjudication;

(2) classifying applicants, certificate holders, permittees, and claimants in groups that share similar interests, such as by the amount of water used or the type of use, and restricting their active participation in the adjudication by appointing group representatives for the purposes of receiving notices, examining witnesses, and other adjudica-

(3) entering interlocutory orders appropriate to a disposal of all or part of the issues in the adjudication, and designating the orders as final for the purposes of an appeal to the superior court under (l) of this section; and

(4) allocating to a participant the extra costs that the state has incurred in conducting the adjudication because the participant has in bad faith asserted a claim to water wholly without merit or has unreasonably delayed the proceeding.

(j) For the purposes of asserting a water right in an adjudication, a certificate issued under this chapter is prima facie evidence of the water right and its priority date.

(k) If the commissioner has initiated the adjudication and the federal government or a private person who has been served under (c)(2)—(4) of this section asserts a federal reserved water right but fails to consent in writing to the adjudication, then the commissioner may exclude the federal government or the person, respectively, as participants in the adjudication. The commissioner may negotiate the terms of the written consent.

(l) A person adversely affected by a final order of the commissioner adjudicating water rights under this section may appeal to the superior court within 30 days after the decision is mailed or delivered to the person.

(m) The commissioner may adopt regulations setting out procedures for administrative adjudications under this section. (§ 6 ch 135 SLA 1986)

Effective dates. — Section 8, ch. 135, SLA 1986, makes this section effective June 10, 1986, in accordance with AS 01.10.070(c).

Sec. 46.15.166. Judicial adjudications. (a) Instead of initiating an adjudication under AS 46.15.165, the commissioner may, with the concurrence of the attorney general, if a federal reserved water right has been or might be asserted by an agency of the United States on its own behalf or on behalf of a person described in AS 46.15.165(c)(3)—(6), file on behalf of the state a complaint in superior court to initiate a judicial adjudication consistent with 43 U.S.C. 666 to quantify and determine the priority of all water rights in a drainage basin, river system, ground water aquifer system, or other identifiable and distinct hydrologic regime, including any hydrologically interrelated surface and ground water systems.

(b) The venue for an action filed under (a) of this section shall be established by rule of the supreme court under AS 22.10.030.

appoint an impartial, qualified person as a master to hold hearings, take testimony, collect evidence, and make recommendations to the court regarding the scope and content of a proposed judicial decree that would finally adjudicate the validity of water rights, quantify them, and determine priorities among the water rights appropriations in the adjudication area. Employment by a federal, state, or local government agency does not disqualify an individual from appointment as master under this subsection if the court determines that the individual is otherwise impartial and qualified to act as master. The master may, with the court's permission, take action that the commissioner would be authorized to take in an administrative adjudication under AS 46.15.165.

(d) In an adjudication under this section, the court may incorporate in an order or judgment final orders of the commissioner previously issued under AS 46.15.165.

(e) Proceedings under this section shall be conducted without a jury. (§ 6 ch 135 SLA 1986)

Effective dates. — Section 8, ch 136, SLA 1986, makes this section effective June 10, 1986, in accordance with AS 01.10.070(c).

Sec. 46.15.167. Effect of decision. The final order of the commissioner under AS 46.15.165 and the final judgment of a court under AS 46.15.166 are binding on each party to the adjudication and on each person who subsequently makes an application for a water right. The court or the commissioner may retain jurisdiction for a period of time necessary to implement an adjudication order or judgment and to provide for subsequent water appropriations. (§ 6 ch 135 SLA 1986)

Effective dates. — Section 8, ch 135, SLA 1986, makes this section effective June 10, 1986, in accordance with AS 01.10.070(c).

Sec. 46.15.168. Other actions. (a) The state may timely intervene as a party in a superior court action potentially involving a determination of the validity, quantity, use, reservation, or priority of water rights.

(b) The commissioner may accept a remand from a state or federal court of a water rights dispute and may administratively adjudicate the dispute under AS 46.15.165.

(c) The commissioner may enter into arbitration to resolve a water rights dispute.

(d) The commissioner may incorporate and apply as binding upon the parties to an administrative adjudication under AS 46.15.165 any court decree concerning the state hydrologic regime involved in the adjudication. (§ 6 ch 135 SLA 1986)

Effective dates. — Section 8, ch 135, SLA 1986, makes this section effective June 10, 1986, in accordance with AS 01.10.070(c).

Sec. 46.15.169. Federal reserved water rights. This chapter does not represent a commitment by the state to a specific federal reserved water right. (§ 6 ch 135 SLA 1986)

Effective dates. — Section 8, ch 135, SLA 1986, makes this section effective June 10, 1986, in accordance with AS 01.10.070(c).

Sec. 46.15.170. Effect of recording. (a) A deed, lease, contract, assignment of permit or other instrument transferring an appropriation is void as against a subsequent innocent purchaser who in good faith paid a valuable consideration for the appropriation or any portion of it and whose instrument is first filed and recorded under § 160(b) of this chapter.

(b) A deed, lease, contract, assignment of permit or other instrument transferring an appropriation which is recorded under § 160(b) of this chapter is constructive notice of its contents to subsequent purchasers of the appropriation or any portion of it. An unrecorded instrument is valid between the parties to it and as against one who has actual notice of it. (§ 1 ch 50 SLA 1966)

Sec. 46.15.180. Crimes. A person who constructs works for an appropriation, or diverts, impounds, withdraws or uses a significant amount of water from any source without a permit or certificate of appropriation; or a person who violates an order of the commissioner to cease and desist from preventing any water from moving to a person having a prior right to use the same; or who disobeys an order of the commissioner requiring him to take steps to cause the water to so move; or who fails or refuses to install meters, gauges or other measuring devices or control works; or who violates an order establishing corrective control works; or who violates an order establishing corrective controls for an area or for a source of water, or who knowingly makes a false or misleading statement in a declaration of existing rights, is guilty of a misdemeanor. Crimes under this section are in addition to any other crimes provided by law. (§ 1 ch 50 SLA 1966)

Quoted in G & A Contractors, Inc. v Alaska Greenhouses, Inc., Sup. Ct. Op. No 987 (File No. 1763), 517 P.2d 1379 (1974).

Sec. 46.15.185. Appeals. Appeals to the superior court under this chapter are subject to the provisions of the Administrative Procedure Act, AS 44.62.560 — 44.62.570. (§ 1 ch 50 SLA 1966)

Article 3. Water Resources Board.

Sec. 46.15.190. The Water Resources Board. There is created the Water Resources Board composed of seven members having a general knowledge of the use and requirements for use of the waters of the state and the conservation and protection thereof, and the commissioner of environmental conservation or his designee shall serve as an additional, ex officio member serving without a vote. The commissioner of natural resources shall act as the executive secretary of the board, and shall provide clerical staff for the board. Members of the board are appointed by the governor, subject to confirmation by a majority of the members of the legislature in joint session. (§ 1 ch 50 SLA 1966; am § 1 ch 58 SLA 1972)

Sec. 46.15.200. Term of office. The term of office for members of the board is four years. The first members appointed serve as follows: two members serve for one year, three for two years and two for three years. If a vacancy occurs, the governor shall fill it by appointment for the unexpired term. The appointment shall be submitted to the legislature for confirmation at the next regular or special session. (§ 1 ch 50 SLA 1966)

Sec. 46.15.210. Duties of the board. The board shall inform and advise the governor on all matters relating to the use and appropriation of water in the state, including, but not limited to: the effect and adequacy of all state laws and regulations governing the establishment of water rights, the multi-purpose uses of water, the prevention of pollution and the protection of fish and game, studies of the state's water supplies and plans for future requirements, development of water resources, participation of local governmental units in the management of water resources, lands which are or may be needed for dams, reservoirs, flood dams, flood ways, canals or ditches for the impoundment, storage, flow and control of waters. (§ 1 ch 50 SLA 1966)

Sec. 46.15.220. Board meetings. The board shall hold one regular meeting annually at the state capital and one or more additional meetings at the time and place in the state the board selects for the transaction of business. (§ 1 ch 50 SLA 1966)

Sec. 46.15.230. Public meetings. The board may hold and conduct public meetings at any time or any place in the state in order to obtain public opinion on a water use problem or proposal and it may, by majority vote of all members, formally or informally delivered, authorize one or more of its members to hold and conduct a public meeting. (§ 1 ch 50 SLA 1966)

Sec. 46.15.240. Compensation of board members. Each member of the board is entitled to travel expenses and per diem as authorized for state boards by AS 39.20.180 while traveling to or from, or in attendance at, regular or special meetings or conferences authorized by the board. (§ 1 ch 50 SLA 1966)

Article 4. General Provisions.

Sec. 46.15.250. Enforcement authority. The following persons are peace officers of the state and they shall enforce this chapter:

(1) a state employee authorized by the commissioner;

(2) a police officer of the state. (§ 1 ch 50 SLA 1966)

Sec. 46.15.255. Enforcement. (a) In addition to a penalty imposed under AS 46.15.180 for violation of an order issued under this chapter, the commissioner may

(1) remove or abate unpermitted works of appropriation, diversion, impoundment, or withdrawal;

(2) install corrective controls or control works; and

(3) seek enforcement of the order by filing an action in the superior court.

(b) A person who violates an order issued under AS 46.15.180 is liable for all costs of removal, abatement or installation and for court costs and attorney fees incurred by the state in seeking enforcement of the order. (§ 7 ch 135 SLA 1986)

Effective dates. Section 8, ch 135, SLA 1986, makes this section effective June 10, 1986, in accordance with AS 01.10.070(c).

Sec. 46.15.256. **Data collection authority.** To carry out the provisions of this chapter, the commissioner may

(1) inspect books, records, meters, gauges, well logs, works of appropriation, diversion, impoundment, withdrawal, or control and other relevant information or physical condition;

(2) enter private property at all reasonable times after obtaining a search warrant from a judicial officer if the owner refuses consent to entry, and

(3) compel the production of relevant information by a subpoena or subpoena duces tecum signed by the commissioner if the commissioner reasonably believes the information is necessary to carry out the purposes of this chapter. (§ 7 ch 135 SLA 1986)

Effective dates. Section 8, ch 135, June 10, 1986, in accordance with AS SLA 1986, makes this section effective 01 10 07(8c).

Sec. 46.15.260 Definitions. In this chapter, unless the context otherwise requires,

(1) "appropriate" means to divert, impound, or withdraw a quantity of water from a source of water, for a beneficial use or reserve water in accordance with AS 46.15.145;

(2) "appropriation" means the diversion, impounding or withdrawal of a quantity of water from a source of water for a beneficial use or the reservation of water in accordance with AS 46.15.145;

(3) "beneficial use" means a use of water for the benefit of the appropriator, other persons or the public, that is reasonable and consistent with the public interest, including, but not limited to, domestic, agricultural, irrigation, industrial, manufacturing, fish and shellfish processing, navigation and transportation, mining, power, public, sanitary, fish and wildlife, recreational uses, and maintenance of water quality;

(4) "source of water" means a substantial quantity of water capable of being put to beneficial use;

(5) "water" means all water of the state, surface and subsurface, occurring in a natural state, except mineral and medicinal water;

(6) "commissioner" means the commissioner of the Department of Natural Resources;

(7) "director" means the director of the Division of Lands, Department of Natural Resources;

(8) "person" includes an individual, partnership, association, public or private corporation, state agency, political subdivision of the state, and the United States. (§ 1 ch 50 SLA 1966)

(9) "mineral and medicinal water" means

(A) water of a hot spring or spring with curative properties which has been reserved by the federal government under Public Land Order No. 399; and

(B) geothermal fluid, as the term is defined in AS 41.06.060. (am §§8 — 10 ch 84 SLA 1980; am §§ 10, 11 ch 175 SLA 1980)

Effect of amendment. — The first 1980 amendment, effective June 19, 1980, added "or to reserve water in accordance with AS 46.15.145" at the end of paragraph (1), added "or the reservation of water in accordance with AS 46.15.145" at the end of paragraph (2), inserted "fish and shellfish processing, navigation and transportation" near the middle of paragraph (3), and added "and maintenance of water quality" at the end of paragraph (3).

The second 1980 amendment substituted "subsurface" for "subsurfaces" near the middle of paragraph (5), and added paragraph (9).

As the rest of the section was not affected by the amendment, it is not set out.

Editor's note. — As to declaration of legislative policy, see § 1, ch. 175, SLA 1980, in Temporary and Special Acts and Resolves.

Sec. 46.15.270. Short title. This chapter may be cited as the Alaska Water Use Act. (§ 1 ch 50 SLA 1966)