

**ALASKA LEGISLATURE COMMITTEE FILES 1991-1992 8672**  
**7165 HOUSE RESOURCES**

# ALASKA WATER RESOURCES BOARD

Resolution 91-15

## STORET Program

WHEREAS: During the years 1981 to 1984 the Department of Natural Resources, with assistance from a grant from the Environmental Protection Agency, began numbering river miles for stream reaches in the STORET system; and

WHEREAS: When the funds for this project were discontinued work on the STORET system ceased; and

WHEREAS: The STORET program identifies stream reaches on a mile-by-mile basis, making the computer storage and retrieval of the information more readily available; and

WHEREAS: The identification of river miles on streams is important for many reasons; such as instream flow designations, placer mining requirements, river corridor planning, and fish habitat management, to name a few; and

WHEREAS: Not having the STORET system slows the permitting processes and increases costs of managing our surface water resources.

### NOW THEREFORE BE IT RESOLVED:

The STORET program be funded and reactivated to complete the identification of river miles on USGS maps, enter this information into DNR's LAS computer system, and integrate this system with DNR's other water management computer systems.

Adopted this 20th day of March, 1991  
Alaska Water Resources Board



Peg Tileston, Chairwoman  
Alaska Water Resources Board

# **CORRECTION**

**THIS DOCUMENT  
HAS BEEN REPHOTOGRAPHED  
TO ASSURE LEGIBILITY**



# Alaska Center for the Environment

519 West 8th Avenue, Suite 201 • Anchorage, Alaska 99501 • (907) 274-3621

March 4, 1992

Rep. Cliff Davidson  
Chair, House Resources Committee  
Alaska State Legislature  
P.O. Box V  
Juneau, AK 99811

Re: House Bills 353, 354, 355

Dear Representative Davidson:

I am sorry that my trip out of state has prevented me from writing earlier to express our strong support for House Bills 353, 354, and 355, and sorry also that this letter will have to be so brief. Please do not think that we are not very interested in this issue.

These bills would provide for the collection of instream flow data, the efficient management of such data and, last but certainly not least, the protection of important Alaskan fish and wildlife habitats and populations through the reservation of necessary instream flows. Protecting adequate instream flows is essential if we are to maintain the fish and wildlife values that so many of us rely on or enjoy for a variety of direct economic and other equally important reasons.

It is unfortunate that we have yet to achieve these goals after several years of effort. Perhaps we think that our water resources are so abundant that there is no urgent need to enact legislation of this sort. If so, that is an unfortunate and ultimately destructive attitude. We have the chance in Alaska--and I'm sure many other states are extremely envious--to shut the barn door before rather than after the horses have escaped. Protecting resources before they're lost or threatened is not only far more effective but far cheaper as well.

It has been said in the past, to some effect unfortunately, that Alaska doesn't need these bills because it already has the best instream flow legislation in the country. The truth is that that says a great deal more about the sorry state of water resource protection elsewhere than about the real merits of Alaska's existing law.

While it's true that Alaska does have a procedure for the reservation of instream flows, it is cumbersome, expensive and inequitable. It takes so long, and costs so much, to successfully obtain an instream reservation that since 1980 only 11 such reservations have been granted out of 46 applications, all or nearly all of those successes having been achieved by the Department of Fish and Game as a result of a substantial

expenditure of time--and money. As a practical matter, the procedure is practically worthless for anyone outside of government and useful only very occasionally by the agency charged with protecting Alaska's fish and wildlife.

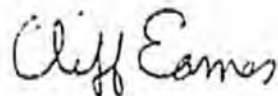
Meanwhile, since statehood approximately 4,500 out-of-stream water rights have been granted. And not only is it obviously far easier to obtain out-of-water rights than instream rights, but out-of-water users have the additional advantage of obtaining a priority right by merely filing an application, whether or not adequate justification for the application has been provided at the same time. On the other hand, instream flow applications do not create an immediate priority; no right obtains until the complete technical justification for the reservation has been submitted, which generally takes many months. The result is that if two separate applications are filed at the same time, one to protect the public's interest in fish and wildlife habitats and populations, the other to obtain a private, individual right to take water out of a stream for a private purpose, the single individual or company's application takes priority over the public application and could result in the taking of water that is necessary for fish and wildlife.

HB 355 would resolve these problems without requiring any state agency to embark on a massive program of reserving instream flows on all of Alaska's waterways. It very sensibly requires instead an incremental program of protection based on whether an out-of-water application has been made for a particular waterbody--that is, it becomes effective only on those waterbodies that are potentially threatened by an actual appropriation application.

We urge the committee, and the legislature, to address this problem now (and at a time, incidentally, when the granting of applications for massive water exports is for the first time a real possibility) rather than to wait until we are faced with certain losses and can only try to minimize, not prevent, adverse impacts to Alaska's most precious resources (incidentally, reserving instream flows for fish and wildlife provides substantial benefits for other values and uses as well, such as recreation, tourism and Alaska's incomparable scenic beauty).

Thank you.

Sincerely,



Cliff Eames  
Issues Director

**Sponsor statement**  
**House Bill 353 by Representative Davidson**

HB 353: "An Act making an appropriation to the Department of Natural Resources for completion of water appropriation data automation and update; and providing for an effective date."

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The purpose of this legislation is to enable the Department of Natural Resources, as the state's manager of our water resources, to complete automation and updating of its water appropriation data base identified as the STORET system. HB 353 would appropriate \$239,400 from the general fund to Department of Natural Resources for completion of this important project.

The STORET system was started in the early 1980's, but funding was later discontinued and the project was never completed. The project was 50% complete when funding ran out. In order to gain any benefit for funds already expended to date, the project should be finished.

HB 353 would appropriate these long needed funds. The Water Resources Board (the citizens' advisory board appointed by the Governor to advise him on water policy issues) has passed resolutions requesting funding for several years. In addition, completion of this project is of high public value and important to all users of water data information.

Currently, the Department has a computer filing system, the Land Administration System (LAS), to store information from water rights casefiles. However, water rights information can only be retrieved for single points on rivers or streams on the LAS, not for a stretch of river. The STORET system will allow information to be stored for segments of rivers. It will enable DNR, who is responsible for administering, monitoring, and adjudicating water use in Alaska, to monitor the cumulative effects of multiple appropriations on the same stream system and will facilitate the identification and availability of unappropriated water.

I ask your support in funding the automation and update of of this water appropriation data base, which every state in the Union now maintains except Alaska. The use of water is indispensable to all industry in Alaska, and its management crucial to viability of Alaska's health, welfare and economy.

ALASKA WATER RESOURCES BOARD

Resolution 91-15

STORET Program

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- WHEREAS: When the funds for this project were discontinued work on the STORET system ceased; and
- WHEREAS: The STORET program identifies stream reaches on a mile-by-mile basis, making the computer storage and retrieval of the information more readily available; and
- WHEREAS: The identification of river miles on streams is important for many reasons; such as instream flow designations, placer mining requirements, river corridor planning, and fish habitat management, to name a few; and
- WHEREAS: Not having the STORET system slows the permitting processes and increases costs of managing our surface water resources.

NOW THEREFORE BE IT RESOLVED:

The STORET program be funded and reactivated to complete the identification of river miles on USGS maps, enter this information into DNR's LAS computer system, and integrate this system with DNR's other water management computer systems.

Adopted this 20th day of March, 1991  
Alaska Water Resources Board



Peg Tileston, Chairwoman  
Alaska Water Resources Board

DEPARTMENT OF FISH AND GAME  
POSITION PAPER

BILL NO: HB353

SPONSOR: Representative Davidson

DIVISION: Habitat & Sport Fish

Department Position:

The Department of Fish and Game supports passage of HB353.

The purpose of HB353 is to enable DNR to complete its project to develop an automated water rights data base. The completion of this project should improve the management of water resources by DNR. Presently, DNR must retrieve and review water rights that have been issued on a case-by-case basis. This is a cumbersome and time-consuming process that does not easily allow for monitoring the cumulative effects of multiple appropriations on the same stream system. Consequently, damage to fish and wildlife habitat and resources can occur from over-appropriation and lack of oversight. An automated system such as STORET should enable DNR to retrieve the status of water rights, the quantities appropriated, and other pertinent information required to properly monitor water rights by stream reach. This should make DNR's water program more accurate and allow for improved consideration and protection of aquatic resource values.

Because the STORET system was developed over a decade ago and improved computer software may be available to accomplish this task, this bill should be amended to allow flexibility for DNR to update and maintain an alternate system if they determine that such a system would equal or exceed the capabilities of STORET.

COMMISSIONER'S SIGNATURE

*For Somerset J.* DATE 12/12/91

**INSTREAM FLOW DATA MANAGEMENT**  
**Division of Land and Water Management (DLWM)**

This bill will require that DNR be able to track water that is withdrawn from appropriation for protection of fish habitat. The department presently has a computer filing system, the Land Administration System (LAS), to store information from casefiles. Water rights data from applications, permits, and certificates are stored in this system. However, this information is for single-point uses of water. This bill will require keeping track of information for withdrawn flows in segments of streams and rivers.

In the early 1980s DNR started a program to identify and record river miles on all streams in the state so that information can be stored for segments of streams in addition to single points. This system is the STORET system, which was developed by EPA. The procedures for mapping the river miles and physical work to identify, record, and index the river miles on USGS maps was begun. The project was approximately 50 percent complete when funding ran out.

The STORET system was identified as the best system for this type of tracking of stream flows in stream segments. This project and the mapping of the river mile index must be completed. The procedure manuals and original completed maps presently exist in DNR.

Initial programming to integrate the STORET system into the LAS system and link it to the water rights case file information system was completed in the early 1980s. It has not been used because the river mile index mapping was never completed. It will be necessary to evaluate the STORET system within LAS and make modifications if needed. Also, the river miles recorded on maps must be entered in the system.

Completion of the mapping, necessary programming, and data entry can be completed in one year. No new employees are requested. Funds will be required in subsequent years to pay programmer costs to maintain the STORET system in LAS.

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**300 LAS Modification**

1 Project Manager, 1/3 time	17.0
1 Programmer, 1/3 time	41.6
3 Drafting Techs, full time	102.0
2 Data Entry Clerks, full time	56.0
Expenses	
Cartographic Materials	2.0
Mapping Equipment	0.6
USGS Maps (1200 at \$2.00)	2.4

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**300 Contractual Services**

LAS modification will be contracted to the appropriate consultant or agency. This one-time expense is needed to evaluate the STORET system within LAS and make all necessary modifications. The contractor will also enter into this system all river miles recorded on maps.

United States  
Environmental Protection  
Agency

Region 10  
1200 Sixth Avenue  
Seattle WA 98101

Alaska  
Idaho  
Oregon  
Washington



March 4, 1992

Reply to  
Attn of: WD-131

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

Dear Representative Davidson:

Steve Torok, of our Juneau Operations Office, forwarded to me your request for Environmental Protection Agency's (EPA) comments on legislation to improve the management of Alaska's water resources, namely House Bill 353, House Bill 354 and House Bill 355.

House Bill 353 focuses on completing the state's water appropriation database. The approach being used focuses on storing information on a stream reach basis. This approach provides a foundation for integrating other types of information besides streamflow and appropriation data. Other information includes fisheries data, water quality monitoring information, spill data, water supply locations, point source discharges, etc. EPA has been using a "Reach File" approach to serve as the integrating mechanism to pull this data together and to provide more complete assessments of water resource information. This, in turn, leads to more effective water resource management.

Thank you for this opportunity to comment.

Sincerely,

A handwritten signature in cursive script that reads "Charles E. Findley".

Charles E. Findley  
Director, Water Division



United States Department of the Interior

FISH AND WILDLIFE SERVICE  
NATIONAL ECOLOGY RESEARCH CENTER  
4512 McMurry Avenue  
Fort Collins, Colorado 80525-3400



In Reply Refer To:  
FWS/Region 8/NERC

March 4, 1992

RWEB: 705.02

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

Dear Mr. Davidson:

I have reviewed the copy of House Bill 355 sent to me by your staff. I am pleased to see that you and the citizens of Alaska are still attempting to bring certainty to the water allocation process. This is essential while you still have an abundance of natural resources in terms of flowing water, fisheries, and wildlife. As I understand the present situation in Alaska, you have perhaps the most progressive legislation for recognition and protection of instream flows for fishes of any State in the nation. This bill as proposed would firmly establish a priority date for instream reservations for fish and wildlife protection and further clarifies that the quantitative analysis must be carried out no later than the time an appropriation request for consumptive use is permitted. This guarantees that some attention is paid to the Fish and Wildlife habitat needs for flowing water before a consumptive use permit is issued. This should in no way impact existing water users and, furthermore, is clearly subordinate to future needs for domestic water supply. Subordinating instream flow rights to future demands for domestic supply is a feature of some other state regulations and statutes.

I can see no threat to carrying out this legislation and would encourage the citizens of Alaska to enact it in order to make very clear to future appropriators that a certain amount of water is reserved for Fish and Wildlife benefits in specified streams around the State. It would be very rare for one single consumptive applicant to make a request that would require all of the water flowing in a stream, however, this is a possibility. This legislation would put on record to future consumptive users that the entire water supply is not available to them and that the amount available will be determined at the time of their application. Just as you have struggled over the last several years searching for a "formula" approach to quantifying the statewide instream flow needs, many of the other States have debated whether or not it is appropriate for the legislature to establish instream flow reservations by formula within the statutes or by a clearly defined process. The latter seems to be the preferred route.

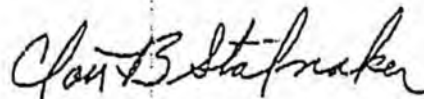
I see House Bill 355 as an excellent compromise while still bringing certainty to the allocation process. By deferring the quantification of the instream flow reservation until such time as an application is made for consumptive use, you spread out the work load over a considerable period of time but future appropriators are forewarned well in advance that all of the water is not going to be available for consumptive use. As you further develop regulations and procedures for quantifying the instream flow reservation, the

future applicants will have a better idea of the amount of water that may be available to them.

Given the probability of the State establishing a water use fee as proposed in House Bill No. 550, it is essential that the stream reaches to be protected for future fishery production be identified with certainty. When so identified and given a priority date of reservations, future generations of Alaskans can be assured that they will not have to spend billions of dollars in purchasing water rights and physically rebuilding fish rearing habitat because the streams have become overappropriated. Tens of millions of taxpayers dollars are now being spent annually in the Colorado, Mississippi, and Missouri river basins trying to restore large river fisheries. This is in addition to the 100's of millions of dollars spent in the Columbia system.

As I stated when reviewing your 1989 bill, I again hope that the Alaska state legislature will enact this bill because it will provide an example and precedent for some of the eastern and southeastern states. These legislatures are now struggling with exactly the same concern as they are approaching real conflicts among instream and desired out-of-stream uses.

Sincerely,



Clair B Stalnaker  
Chief, Riverine and Wetlands  
Ecosystems Branch

# KODIAK REGIONAL AQUACULTURE ASSOCIATION

BOX 3407 KODIAK, ALASKA 99615

(907) 488-6555



March 4, 1992

Representative Cliff Davidson  
Alaska State Legislature, House Dist.  
Box V  
Juneau, AK 99811

Dear Cliff:

In reference to the legislation you have introduced this session which pertains to improving the management of Alaska's Water Resources, namely HB 353, HB 354, and HB 355, the Kodiak Regional Aquaculture Association (KRAA) strongly supports these three bills.

KRAA's activities and goals are directed toward stabilizing salmon production in the Kodiak area. These efforts, in order to be successful, require adequate amounts of high quality fresh water. Our association, and others like us in the state, continues to rely on these features of our water resources to be successful at helping to maintain statewide salmon production at or above average levels.

All of our efforts, both the state's and private group's such as ours, which have successfully rebuilt depleted salmon runs and built new artificial salmon runs, is due in large part to the pristine nature of Alaska's water resources. We've been able to succeed where other western states have not. Consequently, legislation such as that contained in these three bills represents a sound legacy of statutory planning which will be needed to further ensure that Alaska does not repeat the costly mistakes experienced by other states when dealing with their water resources and fishing issues. This legislation seems to encompass the necessary data base development which will be needed to deal with future demands and allocation problems encountered as our state grows.

We in Alaska often times assume our water resources will continue to retain the pristine qualities and be of unlimited quantities forever, because of the vastness of our state. However, if you render water management scenarios down to localized community levels where watershed alteration activities and water resource demands are more obvious, then it quickly becomes apparent that water allocation issues will become more frequent and frenzied as this state grows.

For instance, in the Kodiak Salmon Management Area, there are at least 390 documented salmon streams which annually support viable populations of salmon. A significant number of these are critical for the production of subsistence caught salmon. Even more of these streams are important for the production of fish for the recreational sport fisherman who either reside on or visit the Kodiak Area. All of these streams are important to the commercial fishermen who rely on these systems to produce harvestable surpluses of salmon. Additionally, the millions of dollars worth of salmon being produced by our area's two hatcheries rely on the life line of adequate quantities of quality water to a greater degree than do the other 390 natural salmon streams. While many of our streams will continue to flow in a pristine manner, many other streams within our area are potentially being

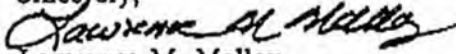
Representative Cliff Davidson

Page 2

exposed to water-bed alteration activities for the first time, which could effect traditional use patterns. Management of water resources in these instances is going to require a broad data base to ensure that when water allocation issues arise, the interaction of watershed development and fish production can be clearly addressed.

Again, we feel that these three bills are very timely and that they will provide for the development of a sound statewide water management strategy for all users of our water resources.

Sincerely,



Lawrence M. Malloy  
Executive Director

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## Sponsor Statement

HB 354 by Representative Davidson

House Bill 354, "An Act making an appropriation to the Department of Natural Resources for payment as a matching grant for completion of a surface-water data network evaluation for Alaska; and providing for an effective date."

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The purpose of this legislation is to improve Alaska's hydrological data base. HB 354 appropriates \$242,000 of general fund monies as a pass through grant to the United States Geological Survey to perform a surface-water data network evaluation.

This is a highly cost-effective use of state funds. Alaska has over 40% of the nation's freshwater reserves, yet we have the least data to manage that water: Alaska has one gage per every 7,000 square miles while the Lower 48 has one gage per every 400 square miles. HB 353 would ameliorate this situation by funding a surface-water data network evaluation.

Before more gages are funded, a surface-water data network evaluation would provide a "blueprint" to fund a core network of long-term index gages by 1) assessing the adequacy of existing stream gage network and database and 2) evaluating the adequacy of existing mathematical formulas for estimating stream flows at ungaged sites. The results of this information will be used for prioritizing the location and need for establishing and maintaining stream gages.

Gages are expensive to fund yet streamflow data is needed for a wide variety of purposes: municipal water supply, industry, construction, land use planning, evaluation of movement of toxic substances and spills in the environment, fish and wildlife management, and adjudication of water rights. Lack of streamflow data can result in loss of millions of dollars through under or over designed projects and repair; delays in projects; legal conflicts among users; and can unnecessarily and negatively impact fish and wildlife.

To date, almost all states have completed a surface-water data network evaluation except Alaska. I encourage your support in funding this important study so important so cost-effective decisions can be made by all users of water data in Alaska.

U.S. GEOLOGICAL SURVEY

SURFACE-WATER DATA NETWORK EVALUATION FOR ALASKA

The stream-gaging network evaluation for Alaska will,

- provide a quantitative assessment of the adequacy or "worth" of streamflow data collected at existing and historical gaging sites and,
- provide a technical basis for modifying the existing network to meet the needs of the Alaska water user community.

Streamflow information is required by several State and local agencies, as well as private companies, for the design, construction, and operation of the States infrastructure including dams, roads, bridges, pipelines, railroads etc. This same information is needed by other State and local agencies for water rights appropriation and adjudication, management of in-stream-flows, and management of other natural resources, such as fish and wildlife. Additionally, private citizens and environmental groups require streamflow information for planning and environmental impact assessments.

Streamflow information is collected at single locations on streams. Analysis of a continuous record of streamflow will provide values of mean annual flow, flood and low flows, and other parameters at that point only. In Alaska, this information has been collected at only 155 sites. Streamflow information at ungaged sites must be determined from correlation of short term data collected at that site with data from a long term gaging station, or from equations relating basin characteristics (precipitation, land use, etc.) to flow values. There more than 40,000 streams in Alaska, each with many miles of length, where streamflow information could conceivably be required.

Streamflow collected at a site has an accuracy that can be quantified. Streamflow values determined at an ungaged site have less accuracy, but that accuracy can still be quantified. These accuracies are dependant on many factors, including the length of record at each stream gage and the number of stream gages available for correlation or statistical analysis.

The network evaluation will identify the accuracy now attainable when determining streamflow values at ungaged sites using existing data from current and historical sites. These accuracies will be compared to those required by the water data users of the State. Statistical methods used for the evaluation can also be used to identify the number and location of gaging stations required to meet the accuracy goals of the water users. All of the analyses will be completed using a geographical information system which will facilitate the evaluation, as well as, provide data bases available for use by others.

**EXECUTIVE SUMMARY**

**SURFACE-WATER DATA NETWORK EVALUATION FOR ALASKA**

**Why does the State need data on streamflow?**

Streamflow data are needed for a wide variety of purposes, including:

- o Design of highways, bridges, drainage facilities;
- o Adjudication of water rights;
- o Land-use planning, mapping flood plains, and predicting floods;
- o Evaluation of movement of toxic substances and spills in the environment;
- o Hydropower planning and development;
- o Conservation or preservation of wildlife habitat.

Streamflow data are obtained from:

- o A statewide network of "stream gages," at which streamflow is monitored and estimated on a daily basis, and "crest-stage gages," at which only flood events are monitored;
- o Mathematical expressions that relate data to rivers where gages are not present.

Lack of streamflow data results in:

- o Loss of millions of dollars in construction of underdesigned and overdesigned structures and in repair of transportation facilities and other structures in flood plains;
- o Delays in major developments and projects while needed data are collected;
- o Legal conflicts among potential users of the resources.

200-410 } The present stream-gage network in Alaska consists of 47 stream gages that are available for estimating flow characteristics throughout the state. Errors in extending information from this small network to the ungaged areas of the state are large, in some cases, so large that reasonable design criteria can not be met.

**What are the objectives of the study?**

- o To evaluate how well streamflow can be predicted throughout the state;
- o To design a statewide network of stream gages that will provide an adequate base of information;
- o To prioritize gages in the network in terms of data needs of the various users of the data.

**How will the objectives be accomplished?**

1 } A committee consisting of State, local, and appropriate Federal agencies will be formed to direct the progress of the network analysis, determine geographic priorities, and recommend the limit of acceptable errors.

The network analysis will involve two types of analyses depending on the availability of existing streamflow data:

- o In those areas where there are sufficient data, mathematical relations will be developed;
- o In areas where data are insufficient, the stream-gaging network will be designed on the basis of an inventory and analysis of watershed and climatic characteristics.

**How much will the program cost?**

The total cost of the project, which will include creation of a large Geographic Information System, will be \$484,000. Of this:

- o The State of Alaska will contribute \$242,000;
- o The U.S. Geological Survey will contribute Federal matching funds of \$242,000.

**SURFACE-WATER DATA NETWORK EVALUATION FOR ALASKA**

A Proposal by

R.D. Lamke and W.O. Thomas, Jr.

U. S. Geological Survey

Water Resources Division

**PROBLEM:**

A need exists for a better knowledge of streamflow characteristics for management, planning, and design throughout the State of Alaska. Lamke (1984) indicates that the stream-gaging program in Alaska grew from 16 stations in 1945 to 110 stations in 1983. Currently, the network has only 72 stations. Of these stations, 25 either are not suitable or do not have records long enough to include in an analysis. There still is an increasing need for streamflow data in response to water-resources development within the State. Lamke (1984) described the uses of streamflow data at the stations being operated in 1983 and made suggestions for the cost-effective operation of the network. A previous study by Childers (1970) evaluated the utility of the network in estimating streamflow characteristics at ungaged sites and made recommendations about modifications in the program. At this point in the progression of the network, a new assessment and evaluation of the network is warranted.

**OBJECTIVES:**

Existing streamflow data collected at stations (both past and present) provide a basis to evaluate the extent of our knowledge of the surface-water resources of Alaska. A network analysis of these data would provide answers to the question "How should the stream-gaging network be improved to provide the needed information on streamflow characteristics"? Examples of streamflow characteristics that are needed by water-resources management agencies include mean flows, low flows, peak flows or flood volumes. The seasonal variability of some flow characteristics will also be significant. Needs for information will be prioritized on the basis of costs and the needs for potential users of the information

The specific project objectives will be to:

1. Evaluate the existing network's utility in providing adequate hydrologic information on peak flows (such as the 50-year peak flow), flood volumes (such as the 30-day 50-year flood volume), low flows (such as the 7-day, 10-year low flow or the 95th percentile on the flow-duration curve) and mean annual and monthly flows. [We should select 3-5 characteristics that would be indicative of peak flows and low flows in addition to the annual and monthly means.]
2. Identify areas where adequate information has been obtained through the existing network.
3. Determine geographic areas or types of watersheds where additional information should be obtained.
4. Recommend improvements in the existing network that would enhance the streamflow data base in Alaska. These improvements should consider costs and potential benefits to users of the data.

**BACKGROUND:**

Streamflow data are either non-existent or so sparse in about half of Alaska that streamflow characteristics cannot be estimated with sufficient confidence. The gages (both active and discontinued) with records of sufficient length for regional analysis of streamflow characteristics within the State are shown in figure 1.

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Figure 1. -- Map showing stream-gaging sites having 10 or more years of record through 1989 water year.

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**APPROACH:**

The network analysis would involve two types of analyses depending on the availability of existing streamflow data. In those areas where there are sufficient data for a rigorous statistical analysis, regional regression analysis will be employed to determine how the existing network should be modified in order to improve the accuracy of estimation of the selected streamflow characteristics. In areas where insufficient data exist, the stream-gaging network will be designed on the basis of an inventory and analysis of watershed and climatic characteristics.

Specifically the approach will be to:

- Update selected streamflow characteristics (such as mean annual flow or 7-day 10-year low flow) at current and discontinued stations. For short-record stations, it may be appropriate to extend records in time, using techniques such as MOVE.1 or MOVE.2 (Hirsch, 1982), if the records were collected in unusually wet or dry periods.

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05 MAR 91

- Update watershed and climatic characteristics at current and discontinued stations using conventional methods or computer-oriented geographical information systems (GIS).
- Use the at-site streamflow data to develop regional regression equations for estimating selected streamflow characteristics on the basis of watershed and climatic parameters.
- Define the error associated with estimating the selected streamflow characteristics using the existing data and regression analysis as a function of the number of stations, the varying record lengths and correlation structure among the stations, and different planning horizons for operation of the network.
- Identify data deficiencies and redundancies in relation to acceptable error.
- Develop a geographical information data base that would include overlays on vegetation cover, digital elevation models, climatic characteristics, physiography, permafrost cover, glacial cover, etc. [This could be for the entire State or just those areas lacking streamflow data.]
- Utilize the geographical information data base to determine where additional (beyond existing network) streamflow data should be collected in hydrologically distinct areas where streamflow data do not presently exist.
- Plan for and design a cost-effective stream-gaging network.

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05 MAR 91

A number of related activities, some of which can be done concurrently, will be necessary to accomplish the objectives. A logical succession of steps are presented below:

1. Review and update computer files (data base). The files and their present state are:

a. Daily Values File - The Daily Values File is essentially complete and contains few errors for those stations with one or more complete years of record through water year 1989.

b. Streamflow/Basin Characteristics File (SF/BC file) - The SF/BC file must be updated to include precipitation data from our new precipitation map for those sites not included in ongoing flood frequency and magnitude study. This file must be updated to include, for all stations with 5 or more complete years of record, the statistics for monthly/annual flows, flow durations, and  $n$ -day low and high flows. (For Alaska stations with 10 or more complete years of record, statistics are up-to-date through the 1909 water year. These same statistics will be updated for selected Canadian stations as well.)

c. Peak Flow File - This file has been recently updated in connection with a statewide flood-frequency report.

2. Develop a GIS data base to identify areas of the State where streamflow data are needed and to provide input to the regional regression equations.

- D - R - A - F - T -

05 MAR 91

3. Analysis - The analytical effort will be separated into successive (or at times concurrent) activities. The effort is envisioned to cover:
- a. Regionalization of monthly and annual flow statistics,  $n$ -day low-flow statistics, selected percentiles from flow-duration curve, and  $n$ -day flood volumes.
  - b. Network analysis to determine how the stream-gaging program should be modified to minimize the regional standard error of the selected streamflow characteristics.

Regional regression equations will be developed using procedures for generalized least squares (GLS) regression and network analysis described by Tasker (1986), Stedinger and Tasker (1985), Tasker and Stedinger (1989), and Lumb and others, (1990). Computer programs exist for performing the analysis using an interactive hydrologic analysis and data-management system called ANNIE (Lumb and others, 1990).

The objective of the GLS network analysis is to minimize the regional standard error for estimating the selected streamflow characteristics. The preferred network is composed of those stations that minimize the regional standard error for a given predefined budget and can consist of both existing and possible future stations. New stations are selected on the basis of their watershed and climatic characteristics and their contribution to reducing the regional standard error. The relative contribution of each station in reducing the regional standard error is identified in the analysis. The correlation of streamflow characteristics among the stations (measure of redundancy) and the time-sampling error at each station is taken into consideration in selecting stations for the network.

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A study using these techniques was conducted in Kansas and documented by Medina (1987). The analysis of different streamflow characteristics may provide different "optimal" networks. The analyses for each of the different streamflow characteristics can be combined using multi-objective methods described by Cohon (1978).

Various network strategies will be evaluated for short planning horizons (such as 5 years) in order to thoroughly evaluate the tradeoff between increasing the spatial density and (or) the average record length of the network. In a large hydrologically diverse state like Alaska, it may be preferable to operate stations for 5 to 10 years and then move to other locations.

As part of the GIS regression and network analysis, it is necessary to identify stations that are critical to the network and should not be discontinued. The uses of the data generally determine this priority. Therefore, it may be worthwhile to identify the current data uses of all stations in the network similar to a previous study by Lamke (1984). The relative worth or importance of these stations could be defined using a weighting scheme similar to the one suggested by Wahl and Crippen (1984).

Not all data needs are of equal importance. Needs will be discussed with Federal, State, and local agencies in order to obtain the most widely useful data within various funding levels.

- c. Analysis of the GIS data base to determine the hydrologic areas and types of watersheds where new stations should be established.

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A more subjective analysis will be needed in areas of Alaska where little or no streamflow data presently exist. The use of the GIS data base and analysis is intended to provide guidance on the network design in these areas. An example of using combinations of landform, vegetation, and climatic zones to guide the design of the network is described by Perks and others (1988). The use of GIS to determine basin characteristics is described by Majure and Soenksen (1988). It is envisioned that a multi-dimensional analysis of all the possible combinations of landforms, vegetation and climatic factors will provide guidance on the types of watersheds for which new stations will be established. Information from the regional GIS regression analysis should also provide some guidance in extending the network into areas where little or no streamflow presently exists.

4. A key component of the network analysis will be the formation of an "Advisory Committee" consisting of State, local, and appropriate Federal agencies. This committee, co-chaired by a State representative and a U.S. Geological Survey representative, would:
  - a. Direct the progress of the network analysis.
  - b. Determine geographical priorities within the State. This would allow the network analysis and the products of the network analysis to be concentrated in those areas with highest priorities.
  - c. Determine the limit of acceptable errors for use in data analysis and computations.
  - d. Advise all parties concerned of the progress of the network analysis.

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5. Preparation of a report describing the study. A Water-Resources Investigations Report will be written to describe the methods used, the results, and a summary of the data bases. This report will evaluate how well the objective (estimation of streamflow characteristics at ungaged sites throughout Alaska) has been met, assess the accuracy and applicability of the findings, identify gaps in the current data-collection program, and designate areas where specific types of additional surface-water data are needed.

Additionally, the regression equations developed in the study would be packaged in a computer program for easier utility.

**MANPOWER:**

The Project Chief will be a hydrologist GS-13, surface-water discipline; some technical assistance will be required. Also, support will be needed to help determine and enter data into the computer and for report preparation. These personnel are available within the district and will have other duties during the time the project is ongoing. Some technical support will probably will be requested from Regional and Headquarters surface-water personnel.

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**COSTS:**

The study is planned for 15 months beginning July 1, 1991 and ending September 30, 1992.

	<u>Costs</u>
Labor	\$165,260
Travel	5,400
Contractual Services	20,000
Supplies and Materials	6,000
Equipment Purchases	16,000
Vehicles	6,300
Computer	40,500
Reports	11,100
Alaska Common Services	160,200
Headquarters Services	<u>53,240</u>
TOTAL	\$484,000

Note: Alaska Common Services include costs of labor, goods, and services which, in order to simplify record keeping, are charged as a general assessment rather than as charges directly to each project. Examples are clerical and administrative support, program management, physical facilities, and utilities.

Headquarters Services include program and technical support from both the Geological Survey's national and regional headquarters.

Total cost of the program is \$484,000.

The U.S. Geological Survey will contribute 50 percent of the costs (\$242,000) using Federal cooperative monies.

The State of Alaska will contribute the other 50 percent of the costs (\$242,000).

**REFERENCES:**

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Lamke, R.D., 1984, Cost-effectiveness of the stream-gaging program in Alaska: U.S. Geological Survey Water-Resources Investigations Report 84-4096, 100 p.

Lumb, A.M., Kittle, J.L., Jr., and Flynn, K.M., 1990, Users manual for ANNIE, a computer program for interactive hydrologic analyses and data management: U.S. Geological Survey Water-Resources Investigations Report 89-4080, 235 p.

Majure, J.J. and Soenksen, P.J., 1988, Using a geographic information system to determine physical basin characteristics for use in flood-frequency equations: Proceedings of the USGS 1988 National Computer Technology Meeting, Phoenix, Arizona, November 14-18, 1988.

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DEPARTMENT OF FISH AND GAME  
POSITION PAPER

BILL NO: HB354

SPONSOR: Representative Davidson

DIVISION: Divisions of Habitat and Sport Fish

Department Position:

The Department of Fish and Game supports passage of HB354.

The USGS currently operates some 72 stream gaging stations in Alaska of which approximately 47 have sufficient duration that they can be used for estimating flow characteristics. Alaska has over 40,000 streams and accurate stream flow estimates are needed for, among other things, engineering, mining, fish habitat protection, flood protection, and hydroelectric development. Over 99 percent of Alaska's streams are ungaged. The USGS can perform a comprehensive evaluation of Alaska's stream gaging network, using federal dollars matched by 50 percent state funding to determine the accuracy of estimated streamflow values at ungaged sites using data from current and historical gages.

The surface-water data network evaluation funded by this bill will benefit several programs in the Department of Fish and Game including fish habitat permitting, special areas planning and permitting, land management planning, instream flow, fisheries enhancement, and fisheries research. The department's ability to determine optimum instream flows for fish and wildlife, evaluate hydraulic projects in fish habitat, define floodplains, design fish hatcheries and other fish enhancement projects, and conduct fisheries research using weirs and traps is hampered because of the inadequate ability to accurately predict stream flows. This evaluation once completed should provide a sound basis to significantly improve our future streamflow predictions and reduce the margin of error. Industry and other water users will also benefit.

COMMISSIONER'S SIGNATURE

*Ron Somerville* for

DATE

12/17/91

FISCAL NOTE

STATE OF ALASKA  
1992 LEGISLATIVE SESSION

BILL NO. HB 354

Revision Date: 12/13/91

Department Affected: Fish and Game

Title: Surface-Water Data Network

BRU: Habitat

Component: Habitat

Sponsor: Representative Davidson

Requestor: House Resources Committee

COMPONENT SERIAL NO. 

	4	8	6
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Expenditures/Revenues: (Thousands of Dollars)

OPERATING	FY 93	FY 94	FY 95	FY 96	FY 97	FY 98
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0	0	0	0	0	0

CAPITAL	0	0	0	0	0	0
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REVENUE FUND SOURCE:	0	0	0	0	0	0
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FUNDING: (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER FUND SOURCE:						
TOTAL	0	0	0	0	0	0

POSITIONS:

FULL-TIME	0	0	0	0	0	0
PART-TIME	0	0	0	0	0	0
TEMPORARY	0	0	0	0	0	0

Estimate of current year impact: None.

ANALYSIS: (Attach a separate page if necessary.)

Prepared By: Kimbal Sundberg Phone: 267-2334

Division: Division of Habitat Date: 12/16/91

Approved by Commissioner: [Signature]

Agency: Department of Fish and Game Date: 12/17/91

Distribution (by preparer): Leg. Fin., Legislative Sponsor, Requestor, OMB/OBR, Gov. Legis. OSC., & Impacted Agency(ies)



A.W.R.A.  
ALASKA SECTION  
P.O. BOX 101184  
ANCHORAGE, ALASKA 99510

AMERICAN WATER RESOURCES ASSOCIATION

June 26, 1991.

Cliff Davidson  
P.O. Box 746  
Kodiak, AK 99615

Dear Representative Davidson:

Water is a resource vital to the well being and continued development of Alaska. The Alaska Section of the American Water Resources Association (AWRA) is comprised of hydrologists, biologists, engineers, geologists, and planners working on various aspects of water resources in Alaska. We work for state and federal agencies, local governments, consultants, industry, and the University of Alaska. Through our work we recognize the need for information about this resource so that cost efficient development decisions can be made.

The intent of this letter is to encourage the legislature to appropriate funds that would allow for the establishment of a statewide stream gaging network. Such a network would allow for the collection of long term hydrological data for selected stream systems and hydrological regions. The Alaska Water Resources Board under Resolution 91-7 (attached) has made a similar recommendation. The implementation of a stream gaging network would tie into House Bill No. 354 which requests funding for an evaluation of the adequacy of existing stream data collection. There are a number of reasons why such a network would be a highly cost effective use of state funds:

1. The U.S. Geological Survey division of the Department of Interior currently has matching funds available for state use in stream gaging efforts up to \$300,000 per year (or possibly more). A major portion of these funds is currently unused and represents a wasted state resource.
2. Stream gaging in Alaska to date has almost always been conducted in a reactive mode in relation to specific development projects, community needs, or recreational needs. However, because of natural climatic variation, a historical record of 10-20 years is needed to make accurate decisions based on stream flow data. Therefore, many water use, water supply, and stream engineering decisions made in the past have been based on insufficient information, often resulting in costly miscalculations. For example, many of the culverts on the North Slope haul road have been replaced one or more times because the hydrological data used in the initial design were not adequate. A statewide gaging network would be a step in the direction of advance planning which could avoid some of

these problems. Potential problem areas which would benefit directly from improved stream gaging include:

Engineering design for culverts and bridges (including fish passage provisions)

Community and public water supply

Industrial water supply (e.g., fish processing, aquaculture and mining)

Design of hydroelectric facilities

Instream flow allocation (including flows required for fish and wildlife protection)

Flood prediction

Planning for future commercial and industrial development in all areas of Alaska

3. Establishment of a stream gaging network would necessitate setting priorities on hydrologic data collection needs (see also H.B. 254). Such a process could not help but be beneficial from a statewide planning standpoint. Most stream gaging is currently conducted by the U.S.G.S. Their priorities are established by input from both state and federal agencies. A statewide network would allow the state to have greater control over the location of gaging stations.
4. Because of Alaska's size and topographic/climatic diversity, watershed characteristics within whole regions of the state are virtually unknown. These characteristics are required for accurate hydrologic calculations. A stream gaging network would allow gaging on selected index streams so that regional characteristics could be better established.
5. A historical stream flow record in potential development areas such as ANWR would be very valuable and would send a message to industry that the state is willing to be a cooperator in the collection of technical data that is useful to both parties.
6. Adequate protection of streams and rivers and the fish and wildlife that depend on them is essential for the maintenance of the recreation and tourism industries, as well as the commercial fishing industry. Currently proposed House Bill No. 355 addresses the issue of reservation of instream flows for fish and wildlife.

Field implementation of a stream gaging network could probably be best administered by the U.S. Geological Survey. Network design and priorities could be established by a planning team consisting of representatives from the state, federal and private sectors.

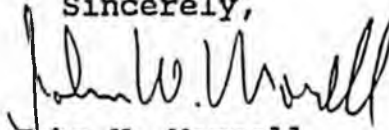
The AWRA, Alaska Section is currently in the process of developing an index of all hydrological data collected in the state. This index will provide a good starting point for design of a gaging network.

We urge you to seriously consider allocating funding to the Department of Natural Resources to be specifically used for matching the USGS cooperative program with the purpose of establishing a statewide stream gaging network. It is our opinion that the end result would be substantial savings in expenditure of state funds in the long run.

Although this year's legislative session is over, the AWRA, Alaska Section would consider it a privilege to work with you during the interim to put together a plan for a stream gaging network.

Thank you for your consideration.

Sincerely,



John W. Morsell

Chairman, Legislative Affairs Committee

cc: Harold C. Heinze, Commissioner, DNR

Phil Carpenter, USGS

Peg Tileston, Alaska Water Resources Board

## NOTES TO DECISIONS

Municipality has no duty to purchase third party's property or liability. — A third party owning property that a municipality expressed an interest in buying is at most an incidental beneficiary of any contract between the municipality and the state, assuming, without deciding, that the contractual concept of third party beneficiary rights can apply in

the legislative grant situation; there is not a statutory duty for the municipality to purchase the property but discretion to spend or not to spend funds within the parameters set by the legislature; and there is no intentional interference with prospective economic advantage. *Ellis v. City of Valdez*, Sup. Ct. Op. No. 2844 (File No. S-32), 686 P.2d 700 (1984).

**Sec. 37.05.316. Grants to named recipients.** (a) When an amount is appropriated or allocated to a department as a grant for a named recipient that is not a municipality, the department to which the appropriation or allocation is made shall promptly notify the named recipient of the availability of the grant and request the named recipient to submit a proposal to provide the goods or services specified in the appropriation act for which the appropriation or allocation is made. At the same time, the department may issue a request for proposals from other qualified persons to provide the same goods or services in the same area. The department shall award the grant to the named recipient unless the Office of the Governor, with due regard for the local expertise or experience of those making proposals, determines that an award to a different party would better serve the public interest. If the grant is awarded to a party other than that named by the legislature, the basis of that action shall be stated in writing at the time the grant is issued and a copy of the written statement shall be sent to the Legislative Budget and Audit Committee. A grant agreement must be executed within 60 days after the effective date of the appropriation or allocation.

(b) The Department of Labor shall require a recipient awarded a grant for a public works project under (a) of this section to comply with the hiring preferences under AS 36.10.150 — 36.10.175 for employment generated by the grant. (§ 2 ch 4 SLA 1982; am § 8 ch 33 SLA 1986; am § 39 ch 106 SLA 1986)

**Cross references.** — For applicability of subsection (b) to contracts entered into before May 25, 1986, see sec. 10, ch. 33, SLA 1986 in the Temporary and Special Acts.

**Effect of amendments.** — The first 1986 amendment added subsection (b).

The second 1986 amendment, in subsection (a), deleted "or both" following "appropriation act" in the first sentence, deleted "or both" following "goods or services" in the second sentence, substituted

"award the grant to" for "contract with" near the beginning of the third sentence, substituted "grant" for "contract" near the beginning of the fourth sentence, substituted "grant agreement must" for "contract shall" near the beginning of the fifth sentence, deleted the former sixth sentence which read, "The purchase of the goods or services, or both, shall be in accordance with AS 37.05.230(1)(B)," and made related grammatical and technical changes.

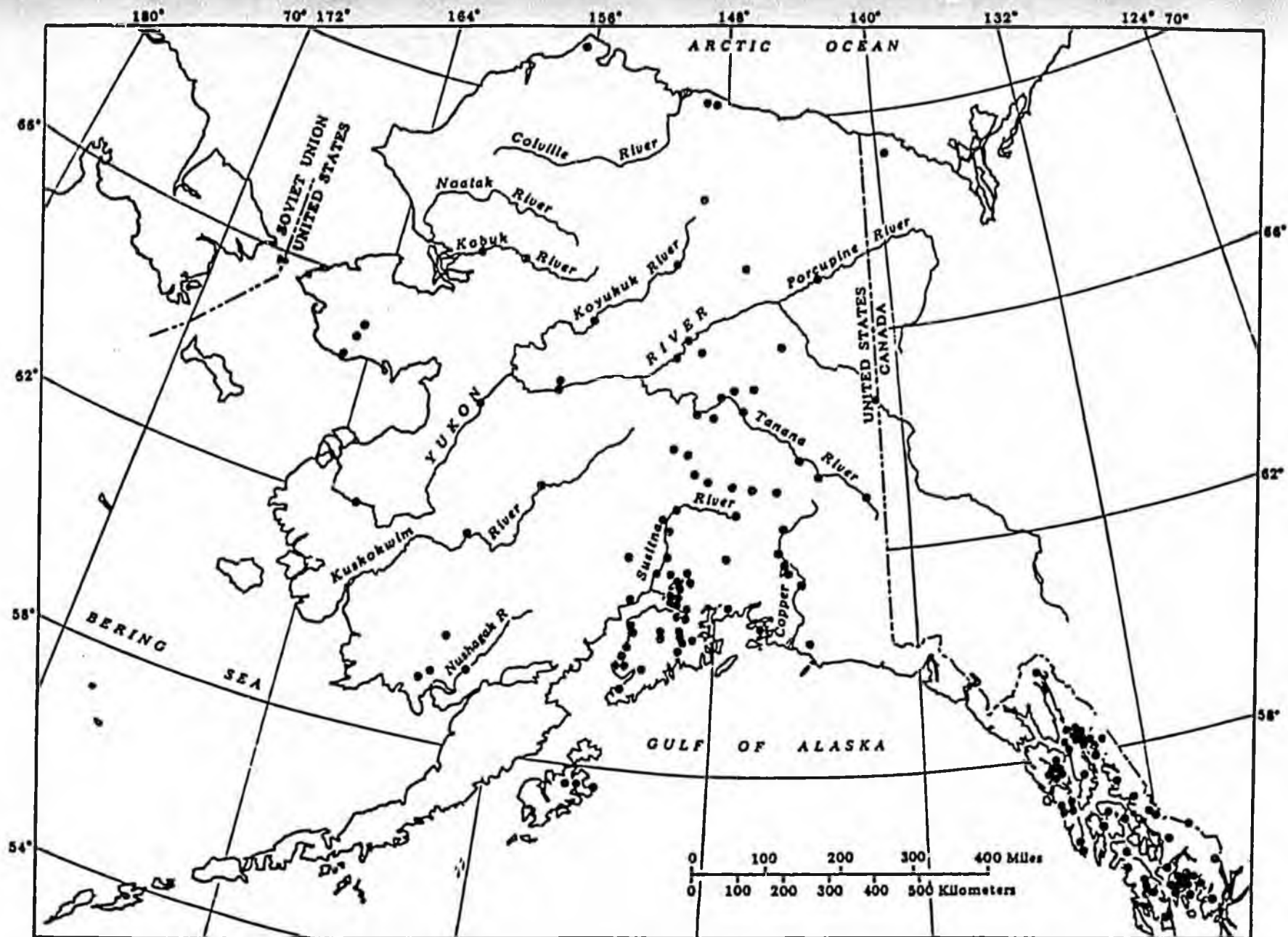
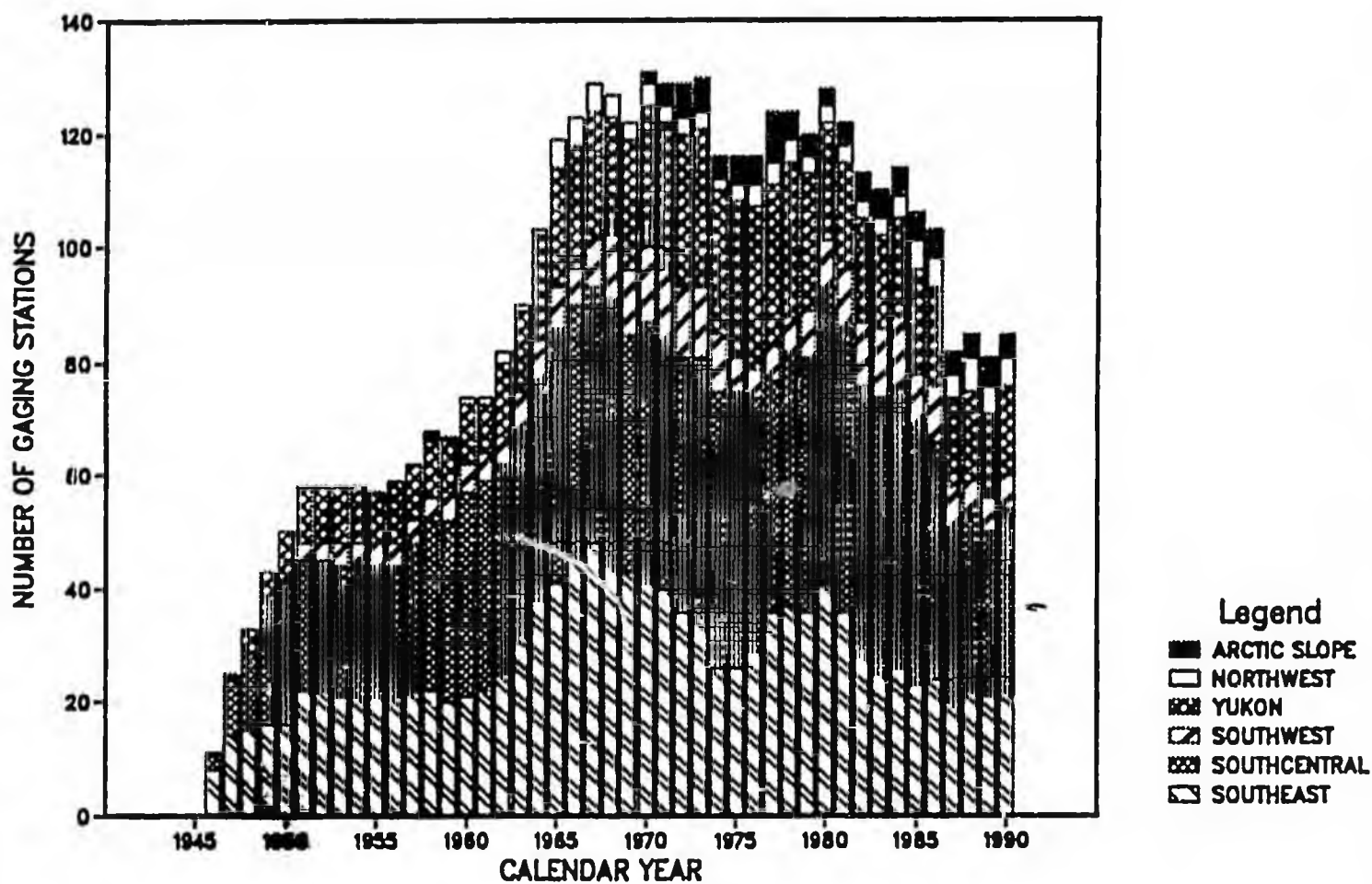


Figure 1.--Stream-gaging sites having 10 or more years of record through 1990 water year.

158 Stream-gaging sites in Alaska

2 Stream-gaging sites in Canada

# HISTORY OF STREAM GAGING BY AREAS IN ALASKA



# **CORRECTION**

**THIS DOCUMENT  
HAS BEEN REPHOTOGRAPHED  
TO ASSURE LEGIBILITY**

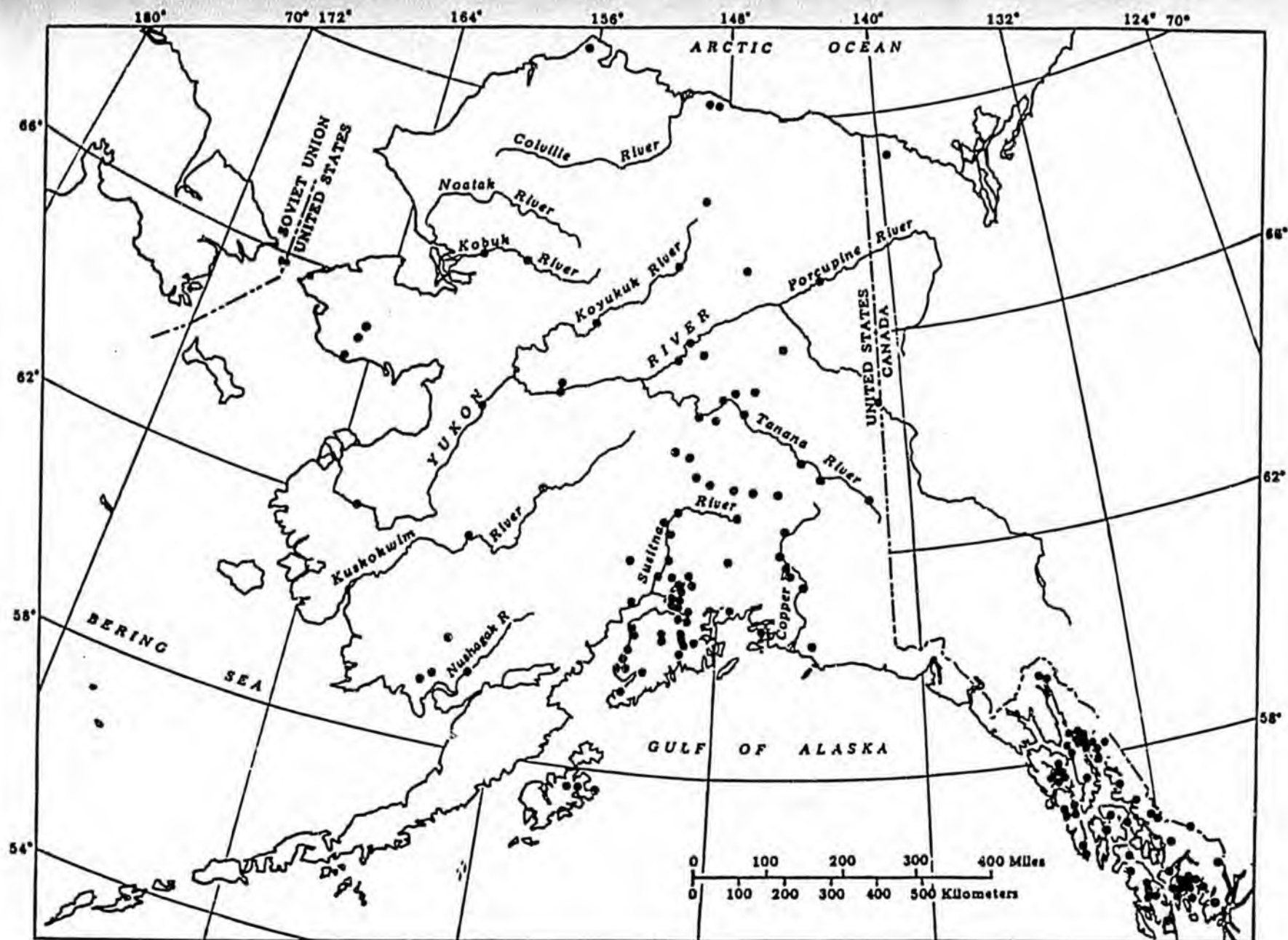


Figure 1.--Stream-gaging sites having 10 or more years of record through 1990 water year.

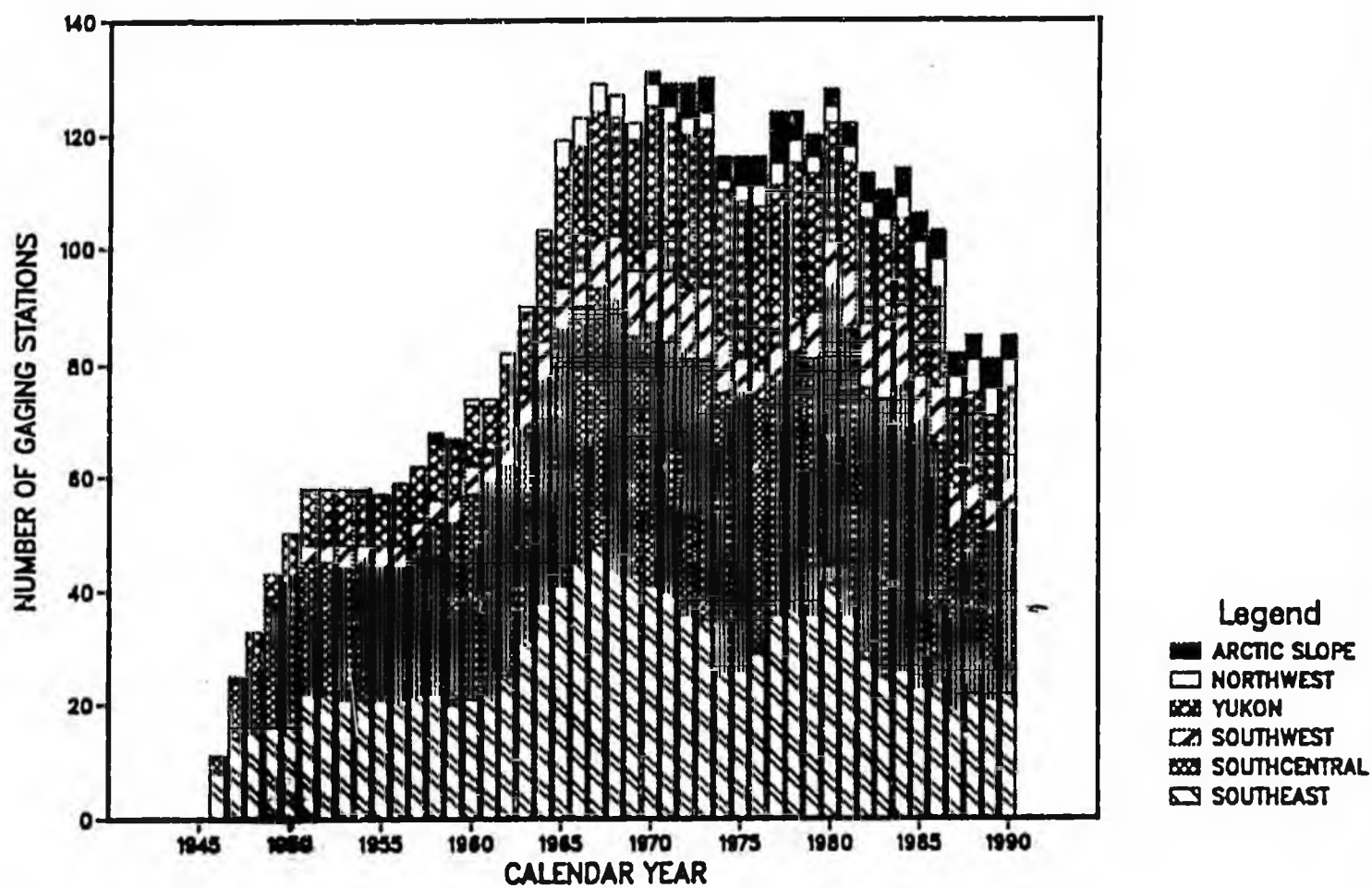
158 Stream-gaging sites in Alaska

2 Stream-gaging sites in Canada

## USGS Data Collection Program in Alaska

- The USGS began collecting Hydrologic Data in Alaska in 1906 near Nome
- Surface water statistics:
  - 2,560 sites in National Water Information System data base for Alaska
  - 1,180 streams (96 in Canada)
  - 630 lakes, 33 meteorological sites and 11 estuaries
- This includes:
  - 358 streamgaging stations with 1 or more years of record
  - 230 streamgaging stations with 5 or more years of record
  - 160 streamgaging stations with 10 or more years of record
- During the 1991 water year the USGS collected data at:
  - 85 stream gaging stations
  - 67 crest gage stations
  - 100 wells
  - 12 lakes
  - 24 water-quality sites
- During the current water year the USGS is collecting data at:
  - 97 stream gaging stations
  - The other sites remain about the same
- Ground water Statistics:
  - 17,000 sites in ground-water data base (GWSI) which include about:
    - 6,400 sites in the Municipality of Anchorage
    - 4,120 sites in the Matanuska-Susitna Borough
    - 2,610 sites in the Kenai Peninsula Borough
    - 1,630 sites in the Fairbanks North Star Borough
- Water-quality Statistics:
  - 4,130 sites which include about:
    - 2,100 ground-water sites
    - 1,550 surface-water sites
- The USGS is putting a major effort into publishing the annual report in a timely manner.
- Coordination efforts via "Interagency Hydrology Committee" and the new Division of Water

# HISTORY OF STREAM GAGING BY AREAS IN ALASKA



## HYDROLOGIC DATA STATIONS OPERATED BY THE U.S. GEOLOGICAL SURVEY -- 1992

Station No.	Station name	Drainage area (mi <sup>2</sup> )	Period of record	Mean annual flow (ft <sup>3</sup> /s)
<b>DAILY DISCHARGE STATIONS</b>				
<b>SOUTHEAST ALASKA</b>				
15019990	Tye Lake outlet nr Wrangell	--	1979-81, 1991-	---
15022000	Harding River near Wrangell	67.4	1951-	737
15024800	Stikine River near Wrangell	19,920	1976-	56,600
15028300	Farragut River near Petersburg	151	1977-	1,636
15039900	Jorothy Lake outlet near Juneau	11	1986-	---
15041200	Taku River near Juneau	6,580	1987-	---
15049900	Gold Creek near Juneau	8.41	1984-	110
15051010	Salmon Creek near Juneau	9.77	1991-	---
15052500	Mendenhall River near Auke Bay	85.1	1965-	1,132
15056090	Goat Lake outlet near Skagway	2.92	1991-	---
15056560	Klehini River near Klukwan	245	1981- 1984-	1,489
15072000	Fish Creek near Ketchikan	32.1	1915-36, 1938-	420
15081495	North Fork Stoney Creek near Klawook	3.07	1990-	---
15081497	Stoney Creek near Klawook	50.6	1989-	---
15083500	Perkins Creek near Metlakatla	3.38	1976-	36.0
15085100	Old Tom Creek near Kasaan	5.90	1949-	39.6
15087520	Hamilton Creek near Kake	65.0	1972-73, 1975-86	350
15087690	Indian River near Sitka	10.1	1980-	103
15101490	Greens Creek at Greens Creek Mine near Juneau	8.62	1989-	---
15101500	Greens Creek near Juneau	22.8	1978-	102
15106920	Kadashan River above Hook Creek near Tenakee	10.2	1968-78, 1980-	64.7
15129000	Aleak River near Yakutat	10,820	1991-	---
15129500	Situk River near Yakutat	36	1988-	---
15129600	Ophir Creek near Yakutat	2.5	1991-	---
<b>SOUTH-CENTRAL ALASKA</b>				
15200280	Gulkana River near Sourdough	1,170	1973-78, 1982, 1988-	1,130
15214000	Copper River at Million Dollar Bridge near Cordova	24,200	1988-	---
15215992	Honey Creek at canyon mouth near Cordova	1.53	1991-	---
15216000	Power Creek near Cordova	20.5	1913, 1947-	255
15216003	Middle Arm Eyak Lake tributary near Cordova	2.90	1991-	---
15216008	Murcheson Creek near Cordova	0.37	1991-	---
15226000	Solomon Gulch near Valdaz	19.7	1948, 1949- <sup>80</sup> , 1986-	144
15236000	Hobo Creek near Whittier (Golden)	5.53	1913, 1991-	---
15237360	San Juan River near Seward	12.4	1986-	---
15238600	Spruce Creek near Seward	9.26	1967-79, 1991-	76.6
15238648	Upper Nuka River near Homer	-3	1984-	---
15238820	Barbara Creek near Seldovia	20.7	1972-	107
15238982	Battle Creek below glacier near Homer	11.8	1991-	---
15238984	South Fork Battle Creek near Homer	6.5	1991-	---
15238985	Battle Creek near tidewater near Homer	21	1991-	---
15238990	Upper Bradley River near Nuka Glacier near Homer	10	1979-	---
15239000	Bradley River near Homer	54	1955, 1957-	439
15239001	Bradley River below dam near Homer	--	1990-	---
15239050	Middle Fork Bradley River near Homer	9.25	1979-	50.8
15239070	Bradley River near tidewater near Homer	82	1983-	---
15239500	Fritz Creek near Homer	10.4	1963-85, 1985-	13.4
15239900	Anchor River near Anchor Point	137	1965-73, 1978-86, 1991-	202
15258000	Kenai River at Cooper Landing	634	1947-	2,843
15266300	Kenai River at Soldotna	2,010	1965-	5,958
15272280	Portage Creek at Portage Lake near Whittier	39.7	1989	---
15274550	Little Campbell Creek at Nathan Drive at Anchorage	15	1981, 1986-	---
15274600	Campbell Creek near Spenard	13.4	1966-	67.2
15275100	Chester Creek at Arctic Boulevard at Anchorage	27.2	1966-86, 1987-	19.6
15276000	Ship Creek near Anchorage	90.5	1946-	164
15290000	Little Susitna River near Palmer	61.9	1948-	210

HYDROLOGIC DATA STATIONS OPERATED BY THE U.S. GEOLOGICAL SURVEY -- 1992--Continued

Station No.	Station name	Drainage area (mi <sup>2</sup> )	Period of record	Mean annual flow (ft <sup>3</sup> /s)
<b>SOUTH-CENTRAL ALASKA--Continued</b>				
15292000	Susitna River at Gold Creek	6,160	1949-	9,821
15292700	Talkeetna River near Talkeetna	2,006	1964-	4,095
15294005	Willow Creek near Willow	166	1978-	410
15294350	Susitna River at Susitna Station	19,400	1974-	49,910
15294585	Montana Bill Creek near pipeline near Kenai	---	1991-	---
15294591	Drift River near Redoubt Volcano near Kenai	102	1991-	---
15294592	Crater Creek near Redoubt Volcano near Kenai	---	1991-	---
15294900	Paint River near Kamishak	205	1983-85, 1990-	---
15295700	Terror River at mouth near Kodiak	45.7	1964 68, 1981-	293
15297485	Kizhuyak River near Port Lions	27.5	1980-	---
<b>SOUTHWEST ALASKA</b>				
15302000	Nuyakuk River near Dillingham	1,490	1953-	6,246
15302500	Nushagak River at Ekwok	9,850	1977-	23,720
15303011	Wood River tributary near Aleknagik	3.35	1990-	---
15303700	Tatalina River near Takotna	76.9	1987-90, 92-	---
15304000	Kuskokwim River at Crooked Creek	31,100	1951-	41,020
15304393	Browns Creek near Eethel	4.79	1986-	---
<b>YUKON ALASKA</b>				
15344000	King Creek near Dome Creek	5.99	1975-82, 1983-90, 1992-	1.70
15356000	Yukon River at Eagle	113,500	1911-13, 1950-	83,220
15388960	Porcupine River near international boundary, Yukon Territory	23,100	1986-	---
15453500	Yukon River near Stevens Village	196,300	1976-	118,400
15478000	Phelan Creek near Paxson	12.2	1966-78, 1989-	69.7
15484000	Salcha River near Salchaket	2,170	1909-10, 1948-	1,632
15485500	Tanana River at Fairbanks	---	1973-	19,970
15493000	Chena River near Two Rivers	941	1967-	680
15493700	Chena River below Moose Creek Dam	1,460	1979-	916
15511000	Little Chena River near Fairbanks	372	1966-	207
15514000	Chena River at Fairbanks	1,995	1947-48, 1948-	1,371
15515500	Tanana River at Nenana	25,600	1962-	24,130
15518080	Lignite (Hoseanna) Creek near Healy	48.1	1985-	31.3
15565447	Yukon River at Pilot Station	321,000	1975-	224,300
<b>NORTHWEST ALASKA</b>				
15635000	Eldorado Creek near Teller	5.83	1988-90, 1992-	---
15743850	Dahl Creek near Kobuk	11.0	1986-	---
15744500	Kobuk River near Kiana	9,520	1976-	15,190
15746980	Ikalukrok Creek above Red Dog Creek near Kivalina	59.2	1991-	---
15746983	Red Dog Mine clean-water ditch near Kivalina	---	1991-	---
15746990	Red Dog Creek above mouth near Kivalina	---	1991-	---
15747000	Wulik River below Tutok Creek near Kivalina	705	1984-	1,039
<b>ARCTIC SLOPE ALASKA</b>				
15798700	Nunavak Creek near Barrow	2.79	1971-	1.01
15896000	Kuparuk River near Deadhorse	3,130	1971-	1,342
15904800	Atigun River near Pump Station 4	48.7	1991-	---
15906000	Sagavanirktok Tributary near Pump Station 3	28.4	1987-	---
15908000	Sagavanirktok River near Pump Station 3	1,860	1982-	1,295
<b>FLOOD WARNING STATIONS</b>				
15237900	Salmon Creek near Seward	---	1988-	---
15290100	Little Susitna River near Houston	168	1980-81, 1984-	---

# THE U.S. GEOLOGICAL SURVEY STREAM-GAGING PROGRAM IN ALASKA

## INTRODUCTION

The Water Resources Division of the U.S. Geological Survey (USGS) is the principal Federal agency that collects water data in the United States. These data are collected in cooperation with State and local governments and other Federal agencies. Water in rivers and lakes is called "surface water." One method of collecting data from surface water is the establishment of a stream-gaging program.

What is a stream-gaging program? It is a network of stream-gaging stations on rivers and lakes that provides data on surface-water resources. These data help planners make decisions on the use and management of these resources.

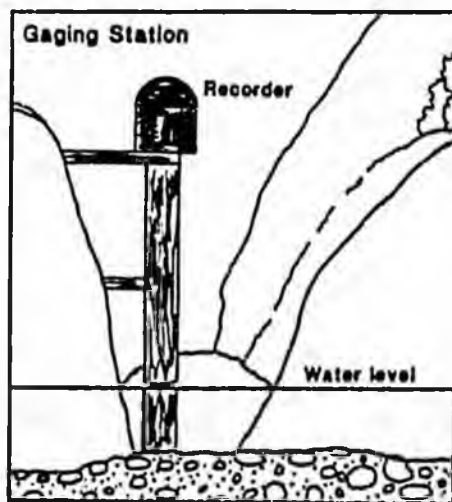
What is a stream-gaging station? It is a particular site on a stream or lake where systematic observations of hydrologic data are collected (see sketch below). The most commonly collected data, called "stages," are measured by recording gage heights (1) manually by an observer, (2) with mechanical instruments on special purpose paper, or (3) with electronic methods into a computer file. A continuous record of discharge at a station can be computed using recorded gage-height and 6 to 12 discharge measurements made at the station each year. The commonly reported data are discharges at a site for each day of the year.

What are surface-water records? Surface-water records consist of data on stage and discharge. Data are also collected at "partial-record stations," such as the network of "crest-stage gages" where only the peak discharge for the year is determined. Water-quality data are collected at many stream-gaging stations.

*Stage (gage height)* is the height of a water surface above an established datum plane. Stream-gaging stations provide a continuous record of stage.

*Discharge* is the volume of water that passes a given point at a given time.

*Water-quality data* report the following types of water characteristics: physical (such as water temperature), biological (such as fecal coliform bacteria), and chemical (such as dissolved iron).



## USES OF DATA COLLECTED

### What are the data collected at gaging stations used for?

*Regional Hydrology:* Discharge data at a station whose streamflow characteristics have not been altered by man can be used to develop relationships for a region. The relationship, which is based on streamflow characteristics (stage, discharge) and basin characteristics (geographic traits, climatic data), can estimate streamflow characteristics at ungaged sites on streams within the same region.

*Hydrologic Systems:* Data can be used to define current hydrologic conditions and to document changes in these conditions. For example, as an urban area becomes increasingly developed, stations can yield data that show changing streamflow characteristics.

*Planning and Design:* Data from these stations are used to plan and design a specific project, such as a dam or bridge.

*Project Operation:* Data are used to assist water managers in making operational decisions, such as reservoir releases at hydroelectric power plants and reservoir storage and release at flood-control projects.

*Hydrologic Forecasts:* Data provide information to various government agencies for flood forecasts.

*Water-Quality Monitoring:* Continued monitoring of streams can detect physical, chemical, and biological changes in water quality. Some gaging stations in Alaska are part of a nationwide network designed to assess the water-quality of major streams.

*Research:* Some gaging stations are operated for a particular research water-investigations study, such as those operated for the studying the effects-of the Redoubt Volcano eruptions.

*Other:* Some stations are operated to collect data for legal obligations or for the adjudication of water rights.

## THE STREAM-GAGING PROGRAM IN ALASKA

The USGS began its streamflow data collection in the summer of 1906 near Nome, in connection with gold placer mining. During the next few years, data collection expanded on the Seward Peninsula and into the Yukon and Tanana River basins. In 1913, emphasis shifted to reconnaissance of water-power sites in the lower Copper River basin and Prince William Sound area, and eventually in southeast Alaska. Although the USGS discontinued data collection in 1921, private companies and other Federal agencies continued to collect some data in southeast Alaska until 1946.

In 1946, the Alaska District of the USGS was established and the stream-gaging program was initiated with 16 stations. By 1951, 58 gaging stations were operating. The graph below shows the status of the network since 1946. The greatest number of stream-gaging stations was 131 in 1970.

During 1990, water-discharge data were collected at 85 gaging stations and water-quality data at 24 of these. Data were also collected at 66 crest-stage partial-record stations and at 22 lakes. The map below shows the locations of these stations.

Although surface-water records have been compiled in Alaska since the early years of the century, the State is so large that data are sparse for many areas. Northern and western areas of the State, in particular, have few stream gages. More streamflow data are needed in response to the increasing water-resources development within the State.

### DATA COMPILATION AND REPORTS

#### How can I acquire streamflow data?

The U.S. Geological Survey publishes the surface-water records obtained at gaging stations. From 1957 to 1971, water resources data for Alaska were published annually by the Survey in Water-Supply Papers. In 1972, a series of Water-Data Reports was started, which merged all water resources data. The most recent of these are referenced below:

U.S. Geological Survey, 1976-91, Water resources data for Alaska, water years 1975-90: U.S. Geological Survey Water Data Reports AK-75-1 to AK-90-1 (published annually).

The following report lists all sites in Alaska that had surface-water records up to 1988:

Still, P.J., and Cosby, J.M., 1989, Alaska index: Streamflow, lake levels, and water-quality records to September 30, 1988: U.S. Geological Survey Open-File Report 89-269, 189 p.

The following reports may also be of interest:

Feulner, A.J., and Reed, K.M., 1977, Bibliography of reports by members of the U.S. Geological Survey on the water resources of Alaska, 1870 through 1976: U.S. Geological Survey Open-File Report 77-687, 112 p.

Lamke, R.D., 1984, Cost-effectiveness of the stream-gaging program in Alaska: U.S. Geological Survey Water-Resources Investigations Report 84-4096, 100 p.

Parks, Bruce, and Madison, R.J., 1985, Estimation of selected flow and water-quality characteristics of Alaskan streams: U.S. Geological Survey Water-Resources Investigations Report 84-4247, 64 p.

Snyder, E.F., 1990, Activities of the Alaska District, Water Resources Division, U.S. Geological Survey, 1990: U.S. Geological Survey Open-File Report 90-157, 21 p.

\_\_\_\_\_, 1991, Location maps and list of U.S. Geological Survey reports on water resources in Alaska, 1950 to 1990: U.S. Geological Survey Open-File Report 91-60, 44 p.

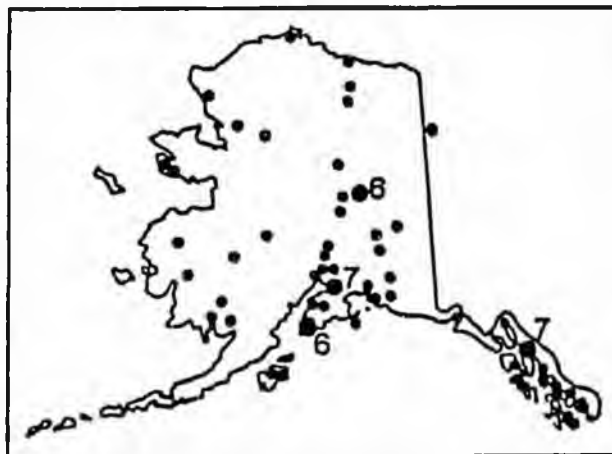
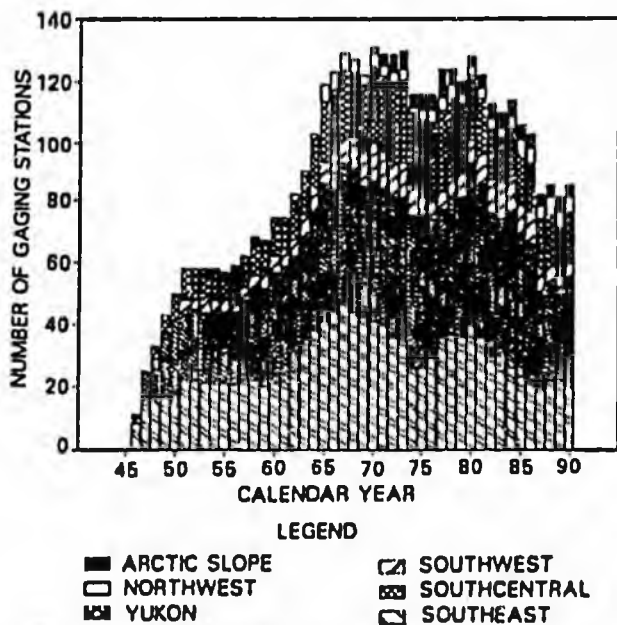
In addition to the reports, most of the surface-water data are available through computerized data-retrieval programs. For information contact:

District Chief  
U.S. Geological Survey  
4230 University Drive, Suite 201  
Anchorage, Alaska 99508-4664  
(907)786-7100

by Elisabeth F. Snyder

February 1992

HISTORY OF STREAM GAGING BY AREAS IN ALASKA



Locations of stream-gaging stations in 1990

## Stream Gaging for Alaska

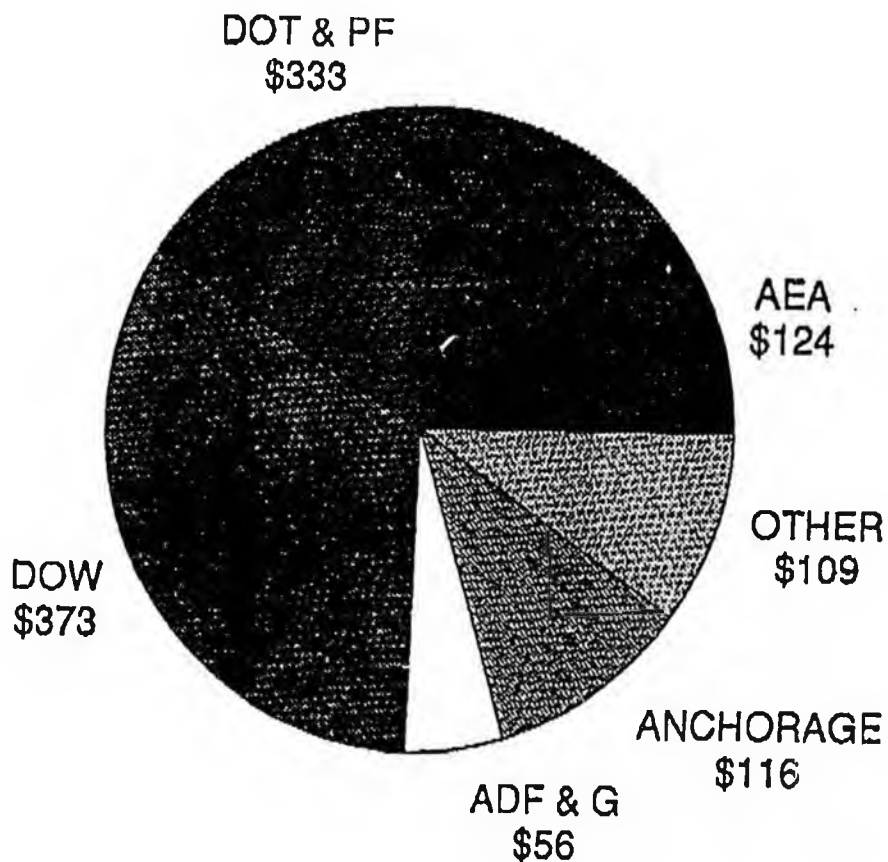
### Advantages of the U.S. Geological Survey Program

- o The U.S. Geological Survey (USGS) has developed, published and uses standard methods for collection, analysis and dissemination of data and information. These standards have been accepted and recognized by the National and International hydrologic communities and ensure the compatibility of widely used analytical techniques.
- o The USGS has developed and used a nationwide quality control and quality assurance program to quantify the accuracy of data collected, stored, and published.
- o The USGS, a non-regulatory and non-management agency, has a strong reputation for the collection of unbiased data. This data has historically stood up in court after close technical scrutiny.
- o Data collected by the USGS in Alaska are published for use by all parties including other Federal agencies, State agencies, local Boroughs, cities, private Alaskan business, and the general public.
- o Data collected by the USGS are stored in a local and a national computer data base. These data bases allow easy access to all current and historic USGS data.
- o The data base allows timely retrieval of data. Existing software allows for efficient tabling, graphics, data reduction and statistical evaluation of Alaskan data.
- o No other comprehensive data base exists in Alaska that allows easy access by not only all Alaskans but all interested parties nation-wide. The USGS data are also available commercially on CD-ROM (laser disks) for ease of use in desk-top applications.
- o The USGS data base will be maintained indefinitely.
- o The USGS cooperative program provides up to 50% of the costs in joint water-resource programs with State and local government agencies in Alaska.
- o The USGS has a local staff of trained hydrologists and hydrologic technicians familiar with all aspects of hydrology in Alaska.
- o The USGS has local field offices in Anchorage, Juneau and Fairbanks. Locating field offices in three different areas of the state allows our staff to be aware of local hydrology and associated local problems and needs.
- o The USGS has a nationally recognized training program that insures our personnel use the best techniques available to collect water-resource data. This training program is available to cooperators.
- o The USGS has the necessary equipment to collect all types of water-resource data.

- o The USGS has an ongoing program of research and development of new methods and new instrumentation in the field of hydrology.
- o The USGS in Alaska has access to a highly skilled research staff and leading experts in the field of hydrology nationwide capable of addressing the most difficult hydrologic problems. This pool of expertise is unparalleled worldwide.
- o The USGS actively seeks out local governmental agencies to share resources and knowledge and cooperate with on water-resource data collection and water-resource studies.
- o The USGS collects data from all areas of Alaska.
- o The USGS works jointly with Canada to share data and information concerning water-resources common to both countries.
- o The USGS works cooperatively with local universities to provide expertise when needed and learn from new ideas generated by the universities.
- o The USGS hires local university students in our "Student Coop Program" to help train future Alaskan scientists and inject new ideas in our day-to-day programs.
- o The USGS hires local high school students to aid career development and job skills.
- o The USGS collects data in the most cost effective manner consistent with the quality assurance guidelines.
- o USGS programs and presence in Alaska feed monies directly into the Alaskan business community.
- o USGS data are often the first stepping stone in detailed studies of hydrology.

# COOP FUNDING

(in thousands of dollars)



ALASKA WATER RESOURCES BOARD

Resclution No. 90-13

Matching Funds for Stream Gage Programs

WHEREAS: For many years the U. S. Geological Survey (USGS) has provided matching funds to the state for gaging the amount of water flowing in Alaska's streams; and

WHEREAS: This jointly funded procedure has accounted for the majority of stream flow data available in the state; and

WHEREAS: Over the past several years, the state has reduced the amount of matching funds available for stream flow gages; and

WHEREAS: Stream flow data is important for sound decision-making by both government and business; and

WHEREAS: The joint Senate-House Resources Committee requested that the Alaska Water Resources Board provide information concerning levels of matching funds between USGS and the Department of Natural Resources/Division of Geological and Geophysical Surveys (DGGs) and the Department of Transportation and Public Facilities (DOT/PF).

NOW THEREFORE BE IT RESOLVED: That the Alaska Water Resources Board requests the Department of Natural Resources, the Department of Transportation and Public Facilities and the USGS provide data concerning these matching funds to the Board.

Adopted this 15th day of March, 1990  
Alaska Water Resources Board



Peg Tileston, Chairwoman  
Alaska Water Resources Board

ALASKA WATER RESOURCES BOARD

Resolution No. 90-7

Indian River Stream Gaging, and Coordination of the Stream Gaging Program between the Division of Land and Water Management and the Division of Geological and Geophysical Surveys

WHEREAS: The gathering of accurate stream-flow data on Indian River has been important to support the State's ability to adjudicate all water claims and rights on Indian River; and

WHEREAS: The conclusion of the current water rights adjudication will not determine federal claims to Indian River, which will remain to be quantified or litigated at some future time; and

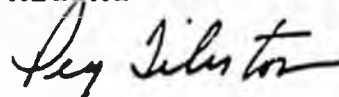
WHEREAS: The continuous historical record provided by the Indian River stream gage is vital to both that river drainage, and by extrapolation, to numerous other Southeast rivers which have no stream gage records.

NOW THEREFORE BE IT RESOLVED: That the Alaska Water Resources Board urges that the Division of Geological and Geophysical Surveys (DGGS) maintain the Indian River stream gage in its present location with its own funds, federal USGS matching funds, Department of Fish and Game participation, or any workable combination of funds which will assure continuation of the historical record provided by this gage; and

BE IT FURTHER RESOLVED: That the Board urges DGGS to closely coordinate and consult with the Division of Land and Water Management (DLWM) regarding any future plans to abandon stream gauges where an historical record of importance to the State has been established; and

BE IT FURTHER RESOLVED: That the Board urges DGGS to annually coordinate with DLWM concerning locations important for the installation of new stream gages, and the financial support for such installations.

Adopted this 15th day of March, 1990  
Alaska Water Resources Board



Peg Tileston, Chairwoman  
Alaska Water Resources Board

ALASKA WATER RESOURCES BOARD

Resolution No. 90-5

Funding of Stream Crest Gages Along Road Systems by  
The Department of Transportation and Public Facilities

- WHEREAS: The Alaska Water Resources Board has recently learned that the Alaska Department of Transportation and Public Facilities (DOTPF) has failed to obtain approval for its nominal budget request to continue its program of measuring peak stream flows through bridges and culverts along the State's road system; and
- WHEREAS: The data provided by these crest gages is invaluable for the proper design and construction of DOTPF facilities, to insure that all stream and river crossings are adequately sized and properly designed; and
- WHEREAS: Matching funds for the crest-gage program have been available through the U.S. Geological Survey's Small Streams program; and
- WHEREAS: The nominal cost to DOTPF of the crest-gage program is minuscule when compared to the future costs of repair and reconstruction of state highways and bridges which may be inadequately designed to accommodate peak stream flows, where such data is unavailable; and
- WHEREAS: The crest-gage data provided by DOTPF is also vital to the Alaska Department of Fish and Game and the Alaska Department of Natural Resources in fulfilling their statutory responsibilities for land, water, and habitat planning and management, particularly in areas of the state where no comparable data is available from other sources;

NOW THEREFORE BE IT RESOLVED: That the Alaska Water Resources Board urges the Governor and DOTPF make every effort to adequately fund the existing crest-gage stream measurement program, to insure the continuity of this valuable data for many important state functions.

Adopted this 15th day of March, 1990  
Alaska Water Resources Board



Peg Tileston, Chairwoman  
Alaska Water Resources Board

# ALASKA WATER RESOURCES BOARD

Resolution 91-12

## Statewide Stream Gaging Network

- WHEREAS: Stream flow obtained from stream gage data is required to properly manage the state's water resources for such uses as water rights allocation, instream flow reservations, resource development projects, and design of roads, railroads and pipelines; and
- WHEREAS: Stream gage data is extremely limited in the state and almost totally lacking in northwest Alaska; and
- WHEREAS: At least ten years of continuous data collection at each gage is required to establish good hydrologic data for a stream; and
- WHEREAS: Data from index gage sites can be correlated and extrapolated to other similar stream basins regionally; and
- WHEREAS: The Division of Geological and Geophysical Surveys (DGGs) is the state agency designated to coordinate and collect basic hydrologic data; and
- WHEREAS: The U.S. Geological Survey (USGS) is the primary federal agency designated to coordinate and collect hydrologic data; and
- WHEREAS: The DGGs/USGS Cooperative Matching program to fund stream gages and collect flow data has been decreasing annually resulting in decreasing numbers of stream gages.

### NOW THEREFORE BE IT RESOLVED:

- < That the Alaska Water Resources Board recommends the DGGs coordinate with all state agencies needing stream flow data, with interested private organizations, and with the USGS to cooperatively design a statewide stream gage data collection network.

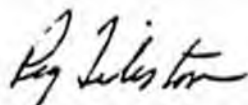
### BE IT FURTHER RESOLVED:

- That the DGGs and USGS cooperatively prepare a map of the proposed stream gaging network and a report summarizing a list of proposed gage sites prioritized by need, cost for the establishment and maintenance of the gages, rational for choosing the gage locations, and proposed multi-year budget for the gage network.

### BE IT FURTHER RESOLVED:

- That the DGGs and USGS present the maps and report to the Water Resources Board at its next meeting.

Adopted this 20th day of March, 1991  
Alaska Water Resources Board



Peg Tileston, Chairwoman  
Alaska Water Resources Board

**ALASKA WATER RESOURCES BOARD**

**Resolution 91-7**

**USGS Matching Funds for Stream Gaging**

**WHEREAS:** The United States Geological Survey (USGS) conducts a \$300,000 annual matching grants program available to the State of Alaska for stream gaging; and

**WHEREAS:** The State of Alaska failed to take full advantage of this program in 1990; and

**WHEREAS:** Stream gaging is necessary for knowledgeable fish and game management, orderly development, navigation and commerce planning; and

**WHEREAS:** The State of Alaska can double its much needed data collection activities by funding up to \$300,000 in matching funds to the USGS grants.

**NOW THEREFORE BE IT RESOLVED:**

That the Alaska Water Resources Board recommends that the State of Alaska should fund a budget increment of \$300,000 per year to participate in the USGS matching fund program for stream gaging stations.

Adopted this 20th day of March, 1991  
Alaska Water Resources Board



Peg Tileston, Chairwoman  
Alaska Water Resources Board

STATE OF ALASKA  
**DEPARTMENT OF FISH AND GAME**

Division of Sport Fish

P.O. Box 20  
Douglas, AK 99824  
(907) 465-4270

June 14, 1990

Mr. William Long  
State Hydrologist  
Alaska Department of Natural Resources  
Division of Geological and Geophysical Surveys  
P.O. Box 772116  
Eagle River, AK 99577

and

Mr. Phil Carpenter  
District Chief  
United States Geological Survey  
Water Resources Division  
4230 University Drive - Suite 201  
Anchorage, AK 99508-4664

Subject: Restoration of State/Federal Funding for Indian River Gage Site

Dear Messrs. Long and Carpenter:

Representatives from the Alaska Department of Fish and Game, Sheldon Jackson College, City of Sitka, U.S. Forest Service, Trout Unlimited, and the U.S. National Park Service met to discuss a proposed cooperative steelhead enhancement project for Sheldon Jackson College. Indian River would supply the water for the project.

I am transmitting this letter at the request of all the participants advocating restoration of the joint state/federal funding program to insure the continued operation of the Indian River gaging station #15087690.

Participants were concerned that the decision by the Division of Geological and Geophysical Survey of the Alaska Department of Natural Resources (DGGS/ADNR) to discontinue funding the state's fifty percent share (\$10,000) of operational costs for the Indian River gage jeopardizes its continued operation. The participants indicated that they had not been forewarned that the state had planned to drop its portion of the funding for this important site.

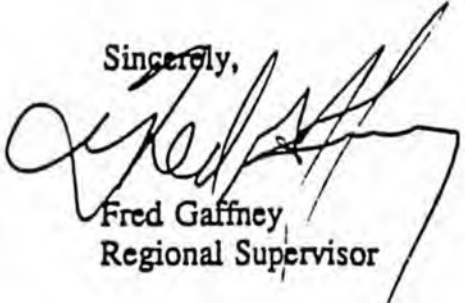
Operation of this gaging station is required to: enable the state to monitor and enforce water rights that are pending adjudication by the ADNR Division of Land and Water Management; serve as an index station for the numerous ungaged systems in coastal southeast Alaska; and

enable Sheldon Jackson College to monitor water availability for the operation of the existing and future hatchery operations. A pending Federal Reserved Water Rights adjudication would also rely on the data generated by this gage.

Participants discussed alternatives and favored the current gaging system over a less reliable datapod system after considering the importance of the data generated at this site as an index station.

In summary, we encourage your agencies to continue the existing operation of this site and would appreciate notification of any planned changes from the status quo.

Sincerely,



Fred Gaffney  
Regional Supervisor

cc: Bill Davidson, Sheldon Jackson College  
Lowell Tomquist, Sheldon Jackson College  
Art Schmidt, Alaska Department of Fish & Game  
Christopher Estes, Alaska Department of Fish & Game  
Dave Hardy, Alaska Department of Fish & Game  
Marlene Campbell, City of Sitka  
Jere Christner, US Forest Service  
Vic Starostka, US Forest Service  
Ivan Jones, Trout Unlimited  
Mikki Hellickson, National Park Service



# United States Department of the Interior

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



7250 (933)

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

Dear Mr. Davidson:

My staff has reviewed the proposed legislation, House Bills 353, 354 and 355. House Bill 353 concerns the automation and updating of water resource data, House Bill 354 concerns the surface-water data network, and House Bill 355 concerns the reservation of instream flows for fish and wildlife.

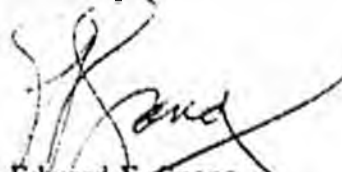
The Environmental Protection Agency's (EPA) STORET system has been used successfully nationwide by other Bureau of Land Management (BLM) offices. It has been identified as the best system to track streamflow data. We fully support the completion of the automation process for the State water data base.

We fully support the surface-water data network system proposed in House Bill No. 354. We would like to have a technical representative participate in the cooperative effort to locate new stream gaging sites.

House Bill 355 would guarantee the allocation of instream flow water rights for fish and wildlife. This bill does not specify a formula and procedure for quantifying the amount of water that is reserved for fish and wildlife. This will allow flexibility in the procedure chosen to handle regional variability in flow regimes. It is encouraging that wildlife are also included in this legislation. We support this concept of establishing an instream flow reservation in rivers, lakes and streams important to fish and wildlife.

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

Sincerely,



Edward F. Spang  
State Director, Alaska

HB

355

STATE OF ALASKA  
1992 LEGISLATIVE SESSION

BILL NO. HB 355

Revision Date: \_\_\_\_\_ Department Affected: Natural Resources  
 Title: An Act relating to the reservation of water for in-stream flow BRU: Water Management  
 Component: Water Management  
 Sponsor: Davidson  
 Requestor: \_\_\_\_\_ COMPONENT SERIAL NO. 

--	--	--	--

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 93	FY 94	FY 95	FY 96	FY 97	FY 98
PERSONAL SERVICES	47.0	47.0	47.0	47.0	47.0	47.0
TRAVEL	2.0	2.0	2.0	2.0	2.0	2.0
CONTRACTUAL	3.0	3.0	3.0	3.0	3.0	3.0
SUPPLIES	2.0	2.0	2.0	2.0	2.0	2.0
EQUIPMENT	8.0					8.0
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	62.0	54.0	54.0	54.0	54.0	54.0

CAPITAL						
---------	--	--	--	--	--	--

REVENUE FUND SOURCE:						
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FUNDING: (Thousands of Dollars)

GENERAL FUND	62.0	54.0	54.0	54.0	54.0	54.0
FEDERAL FUNDS						
OTHER FUND SOURCE:						
TOTAL	62.0	54.0	54.0	54.0	54.0	54.0

POSITIONS:

FULL-TIME	1.0	1.0	1.0	1.0	1.0	1.0
PART-TIME						
TEMPORARY						

Estimate of current year impact: \_\_\_\_\_

ANALYSIS: (Attach a separate page if necessary.)  
See attached page(s).

Prepared By: House Resources Committee Phone: 465-3715  
 Division: \_\_\_\_\_ Date: March 10, 1992  
 Approved by Commissioner: Representative Cliff Davidson, Chairman  
 Agency: House Resources Committee Date: March 10, 1992

# TESTIMONY

## BEFORE THE HOUSE RESOURCES COMMITTEE

by Ric Davidge, Director of Water, State of Alaska  
March 4, 1992

### Overview

This administration has, in only months, raised the public and political dialogue on the management of our water resources to a higher profile than at anytime since statehood. We see this as necessary, because we believe the management of this essential resource must be directly addressed in the face of our own domestic interests as well as growing external demand. If we, together - the legislature and the administration, can demonstrate that this resource is a **valuable** commodity, a **valuable** natural resource in terms of its intrinsic and economic worth, then we can begin to leverage funds necessary to provide for the responsible management of our water.

Within the ever focusing fiscal realities that we must live, we find that Alaskan's have freely enjoyed the quantity and quality of our water resources, but we do not have the fiscal resources necessary to properly manage a growing demand for water or administer appropriations already made.

If we can provide the funds for **water management** from the **use of water**, then we can also begin to allocate the funds necessary for water resource data collection, analysis, instream reservations, planning and management next year and beyond. Without the funds there is no capability to collect or assimilate the data. Without the data it is difficult to manage the resource.

Under the laws of our State and in compliance with US Supreme Court decisions, we have a choice. Do we continue to give the water resources of Alaska away, as is the current practice, or do we recognize the value of this resource? Can we do this in a manner that does not cause economic pain to specific economies while generating the funds necessary for the responsible management of water?

Mr. Chairman, we are here to support your continued and recognized leadership in the management of Alaska's water resources. We are here to support your effort to provide the funds necessary to accumulate needed water data in a fiscally responsible manner. We are here to support your effort to provide the tools necessary to water managers that will allow them to better understand what they are managing and the impacts of their decisions on water and its users, including fish and game. But we are also here to impress upon you, and the committee, that without the fees from the use of water we have little hope that we will be able to meet your objectives.

We are committed to the protection of instream uses. Within the framework and intent of the state's Constitution and existing statutes, we firmly and professionally believe that we are doing just that within existing statutes. But we are not adjudicating the ten applications a year we receive from the Department of Fish and Game, not because we consider them unimportant or inappropriate, but because we do not have the funds to do otherwise. However, let me point out that even though we have not adjudicated these instream applications, they still are of record and will be processed on a stream by stream basis if and when another party applies for an appropriation from that stream.

### **HB353 STORET**

DNR initiated the STORET (STORAge and RETrieval) program in 1980 using federal funds. The computer programming work associated with the system was completed as part of the DNR, Land Administration System (LAS), water subsystem and it still exists on the system today. The actual data (river mile index) was never completed or entered into the system. When the federal funds ran out, the project was put on hold. The legislative intent is to revive the project and complete the mapping and computer entry of data on the LAS, water subsystem.

The DNR support this legislation. The need for a completed River mile/water resource data system within the existing LAS system is very important to proper and effective management of Alaska's water resources. Because of the time that has passed since initiating the STORET project, the original computer program will need to be updated do to the advances in DNR's computer system. STORET is still an active and valid EPA water data management system, and would serve the needs of the Division of Water. However, it may not be the best system for the money available today.

We would suggest that instead of specifying STORET, the bill read "A system equal to and compatible with STORET system be completed." This would give DNR the ability and authority to evaluate STORET with other similar data base systems now available.

## HB 354 NETWORK EVALUATION

I must tell you that the State of Alaska does not have an organized stream gaging network. Alaska has about one stream gage for every 7000 square miles compared to the national average of one every 500 square miles. The lack of good stream flow data has and will continue to hinder the state's ability to effectively plan and manage its surface water resources. This information is vital to any water user, transportation infrastructure planner or designer, flood control, or fish and game management. The intent of this legislation is to evaluate the existing stream gages in the state, and to determine what the state needs to implement a sound stream gaging network.

The evaluation of a statewide stream gaging network in cooperation with the US Geological Survey (USGS), will assist the Division of Water (DOW) in determining where stream flow data is needed, where the data needs improvement, the scope of work necessary to implement the network, and the cost of an effective network. Using USGS matching funds will allow DOW to call upon USGS's expertise in gaging streams for long term records, network design to assure statewide coverage on both state and federal lands and to share the cost of the evaluation. Users of water resource data have long known that a need exists for an organized network of gaging stations. The data collected through this type of network will be of great value to Alaska water resource managers in the public and private sectors. This bill as written addresses this point very clearly.

## HB 355 INSTREAM FLOW

Mr. Chairman, you and I have discussed this bill before. And as you requested I have spent a considerable amount of time reviewing this bill and all other applicable statutes. As a result of that review I must conclude that:

1. The State of Alaska must maintain flexibility in the management of its water resources, within the constraints of existing law.
2. Existing water laws and regulatory processes provide more than sufficient protection for fish and wildlife and their habitat.

AS46.15.080 Criteria for issuance of a permit. The Commissioner SHALL issue a permit if

The proposed appropriation is in the "public interest"

Which means that he has considered, among 7 other public interest concerns, that the effect of such an appropriation on fish and game resources and on public recreational opportunities, if any, is found to be in the public interest.

What this law and its regulations mean is that any significant appropriation of water, and any (regardless of scale) appropriation or use of water within an anadromous stream, must be coordinated with the Commissioner of Fish and Game as well as the Commissioners of DNR and DEC. And that if the Commissioner of Fish and Game is unwilling to concur with that appropriation, even with stipulations that would ensure adequate flows, he can initiate a

#### AS46.15.145 Reservation of water.

Under this statute any entity, foreign or domestic, may apply to reserve sufficient water to maintain a specified instream flow . . . for

the protection of fish and wildlife habitat, migration, and propagation

(as well as 3 other purposes)

In addition to these statutes the Department of Fish and Game, under Title 16, has a discretionary ("may" - they are not required to issue) has a discretionary permitting responsibility for any activity within an anadromous stream.

Once you overlay these 3 significant statutes and their tested regulatory processes we are convinced that the State of Alaska has sufficient means to protect fish and wildlife and their habitat without any additional statutory language.

3. If you were to assume passage of HB355, as presently written, the Division of Water would be required to adjudicate over 100 instream reservations a year. This number is based on an annual average of surface water appropriation applications that are not source duplicative. In addition we estimate that we would be required to adjudicate over 100 groundwater applications as they "may" be interactive with surface sources.

This work load for this single category would be impossible even under flush budget times, and to process instream flows regardless of the scale of the appropriation request is in our opinion not a wise use of dwindling fiscal resources. This is particularly true in the face of escalating federal mandates.

The process under existing statutes ensures that the Department of Fish and Game is notified ("shall be considered as having been simultaneously filed with F&G and DEC) and formally consulted. And again, if F&G has a concern they can initiate a reservation.

4. The quantification of instream needs for fish is scientifically possible in most cases. The Department of Fish and Game is most able to assist our "public interest" determination when confronted with an appropriation from a stream which they have concern with rather than all streams in general.

This is not necessarily the case for "wildlife habitat". To my knowledge there is no accepted method, given the diversity of Alaskan wildlife and their ecological systems, to quantify a specific reservation of water for wildlife habitat.

5. Regardless of any instream reservation, an application for a public water supply has a Constitutional and statutory (AS 46.15.090) priority. Those few streams where there was an instream conflict were due to public water priorities.

This means that even with a general reservation for fish and wildlife habitat, as public water needs increase, the general reservation for fish and wildlife may be reduced. This is consistent with the intent of the Constitution and is exactly what happened at Piller Creek in Kodiak, as it has been explained to me. And even in that case the decision required agreement by the Commissioner of Fish and Game.

Outside of the direct debate over this proposed legislation, the Division of Water would like to request the assistance of this Committee, in response to recent discussions at the State Water Resources Board, to redirect some of the Federal Dingell-Johnson funds now received by the State to pay for a full time instream adjudicator.

This would provide a dedicated adjudicator for the instream applications we are now receiving but are unable to adjudicate due to lack of funding in the face of higher priorities.

As you know I represent the Governor on the Western States Water Council (16 States). In that capacity I have had a number of occasions to interact with other states on the instream issue. I have been advised by other states, that Alaska has one of the best instream statutes and one of the clearest "public interest" requirements in its Water Management Act. Some states are using our statutes as models as they review and change their own laws.

In closing, there are many things we would like to do to improve water management, to promote conservation, and to help provide quality water to all Alaskans, but without the funds - these goals remain only dreams and wishes. Passage of the water management fees legislation will enable the Commissioner to construct, through an open public process, a revenue stream that, within the limitations of our Constitution, can be directed to begin to accomplish those wishes. We believe it can also provide the funds for new safe water projects that are desperately needed in many parts of our state.

We must constantly remind ourselves that it is not a question of IF the water will be used or appropriated. It will be. The law states clearly that **the Commissioner shall issue a permit**, provided the appropriation is in the public interest. The question is what value **you** place of this essential resource. Is the state going to continue to give this resource away? Or is the State, is this legislature, going to recognize the value of this resource? A water management fee of \$1 per acre foot per year will not cause any significant economic harm to any major user of water, with the exemptions we have already agreed to. Is our water worth a dollar an acre foot at this time to ensure that future Alaskans can have what current Alaskans enjoy? This Administration believes it is, and we trust this legislature will come to the same conclusion.

### **SOME NUMBERS**

The Municipality of Anchorage will only pay \$26,000 a year. The Ketchikan Pulp Mill, with a permit that authorizes the use of 10.95 billion gallons a year, will only pay \$33,600. Peter Pan Seafoods, \$1,000 a year. Fairbanks, \$6,500 a year. Juneau, \$4,000; Sitka, \$3,500 and Ketchikan about \$5,000 a year. The Kensington Mine would pay about \$8,000, for the AJ Mine withdrawal from Gold Creek they would pay about \$14,000 a year.

Separately the fees are small but when gathered across the state this small fee will generate an estimated \$3.4 million. A new revenue stream for safe water projects. A revenue stream that will provide the water data needs of all water users as well as the funds for instream adjudications.

The budget of the Division of Water is \$2.6 million of which only \$1.9 is from the General Fund.

LETTERS OF SUPPORT

HOUSE BILL 355

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- United Cook Inlet Drift Association
- Alaska Sportfishing Association
- Trout Unlimited
- Alaska Environmental Lobby, Inc.
- Rural Alaska Community Action Program, Inc.
- Alaska Center for the Environment
- American Rivers, Inc.
- Jack McFarland, Kodiak Fisherman
- Kodiak Regional Aquaculture Association
- Ketchikan Sports and Wildlife Club
- The Good Sam Club
- American Fisheries Society
- United States Department of Interior, Fish and Wildlife Service
- California Department of Fish and Game
- United States Department of Interior, Fish and Wildlife Service, National Ecology Research Center
- United States Department of Interior, Bureau of Land Management

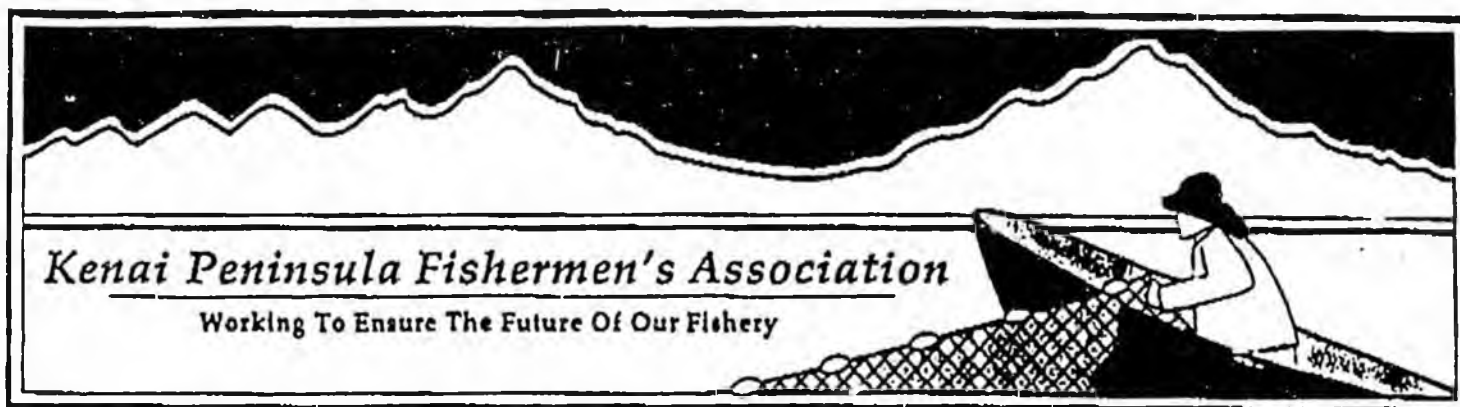


# UCIDA

UNITED COOK INLET DRIFT ASSOCIATION

P.O. Box 4649 • Kenai, Alaska 99611

(907) 283-3600 • FAX (907) 283-3306



34824 Kalifornsky Beach Road • Suite E • Soldotna • Alaska • 99669 • (907) 262-2492

March 9, 1992

Representative Cliff Davidson  
Chairman, House Resources Committee  
State Capitol  
Juneau, Alaska 99801-1182

Dear Representative Davidson:

We would like to state our strong support for House Bill 355, "An Act relating to the reservation of instream flows for fish and wildlife". I would appreciate it if you could relay our comments to other Committee members.

House Bill 355 is consistent with the mandate found in Article VIII, Section 13 of the Alaskan Constitution which states that:

"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 (emphasis added)."

This constitutional requirement recognizes the critical social and economic importance of fish and wildlife to Alaskans.

The Hickel Administration is actively pursuing the export of Alaskan water in enormous volumes. Whatever the economic merits of such proposals, it is inconceivable that the Administration is opposing legislation that would assure Alaskans *can continue to depend on their fish and wildlife resources and other in-state uses dependent on adequate water supply*, prior to exporting water from the State.

House Bill 355 would guarantee fish have a right to the water they need to survive before the water is gone. Current laws and regulations do not "guarantee" sufficient water be set aside for fish and wildlife at the time someone applies to take water out. Existing statutes only require the Department of Natural Resources to "consider" whether to grant water for fish and wildlife protection. In our view, "consideration" is not an adequate assurance that fish will be protected, and is consistent with the constitution.

House Bill 355 should especially be considered urgent in light of the recent Administration proposal to charge for the use or sale of water (House Bill 550). If the Department of Natural Resources funds their budget by receiving money from the sale or use of water, then fish and wildlife needs for water will be up against the need to make a quick buck as State revenues dwindle. Without a safeguard like House Bill 355 to ensure fish and wildlife water needs are first met, user fees are short-sighted and subject to abuse by those that are charged with balancing water needs. This puts the Department in position of potential conflict as they administer water rights among all users of water.

UCIDA and KPFA appreciate the opportunity to comment and urges the adoption House Bill 355. All Alaskans benefit by knowing how much water is available and how much is necessary for maintenance of our fish resources. Even if reservations are made on the best available information or estimates in the short term and refined in the long term, we find that far preferable to no reservations at all given to Alaska's fish wildlife resources.

Sincerely,

*Theo Matthews*  
Theo Matthews *B. S.*  
Executive Director  
United Cook Inlet Drift Association

and

*Loren Flagg*  
Loren Flagg  
Executive Director  
Kenai Peninsula Fishermen's Association

cc: House Resources Committee  
Senate Resources Committee  
House Finance Committee  
Representative Grussendorf



## Alaska Environmental Lobby, Inc.

P.O. Box 22151 Juneau, Alaska 99802

907-463-3366



## Alaska Sportfishing Association

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



*America's Leading Coldwater Fisheries Conservation Organization*

Washington, D.C. Headquarters: 501 Church Street, Northeast • Vienna, Virginia 22180 • 703-281-1100

March 4, 1992

Commissioner Carl Rosier  
Alaska Department of Fish and Game  
P. O. Box 25526  
Juneau, Alaska 99802-5526

Dear Commissioner Rosier:

We are deeply disappointed with your letter of January 22, 1992 to Representative Davidson stating that the Alaska Department of Fish and Game does not support House Bill 355, "An Act relating to the reservation of instream flows for fish and wildlife."

House Bill 355 would guarantee an immediate and legal right to the water that fish and wildlife use for survival. Under current law, there is no such guarantee.

ADF&G is charged with the statutory mandate to manage, protect and improve the fish and game resources in the interest of the economy and well-being of the state. But, ironically, ADF&G finds it unnecessary to guarantee water for fish and wildlife survival. The rationale that HB 355 is not necessary because Alaska's current instream flow laws are "adequate" and already among the most "progressive in the nation" is simply not a valid comparison and must be put into context. Alaska is in a fortuitous position to plan ahead for our water resources.

Most western states have made a disaster of their fisheries resources. Their instream flow laws were only recently enacted, more than a century after granting out-of-stream water rights that destroyed fish habitat. Although western states laws now provide a mechanism to retroactively restore sufficient flows for fish and wildlife, they are only accomplished at

great expense, controversy and effort. As a young state, Alaska's instream flow laws are progressive only because other western states water laws are reactionary to more than a decade of water mismanagement.

Article VIII, Section 13 of the Alaska Constitution mandates a general reservation of water for fish and wildlife. Unlike other western states, Alaska's Constitution recognizes that fish and wildlife values are indispensable to the state's health, welfare and economy. This is unique among state Constitutions. The question is not whether Alaska's water management laws are the most progressive among western states, but whether current laws meet Alaska's constitutional mandate and will protect fisheries from water conflicts in the future. Presently, it does not.

Current law only provides a mechanism to reserve instream flows for fish and wildlife. It does not provide a guarantee that water will be reserved for this purpose. Please note the Commissioner of the Department of Natural Resources must only "consider" the effect of proposed out-of-stream appropriations of water on fish and wildlife. Contrary to your position, we find current law inadequate and we are disturbed at your agency's weak position to protect the fish and game resources so vital to the people of Alaska.

Considering that water policy issues are continually evolving in the Legislature, we hope your Department will have the opportunity to reconsider your existing position on House Bill 355.

Sincerely,

*Marna Schwartz*

Marna Schwartz  
Executive Director, Alaska Environmental Lobby

*Doug Ogden/DO*

Doug Ogden  
President, Alaska Sportfishing Association

Jack Willis by JP  
Trout Unlimited

cc: House Resources Committee  
Senate Resources Committee

# Rural Alaska Community Action Program, Inc.

March 2, 1992

Representative Cliff Davidson  
P.O. Box V  
Juneau, AK 99811

Dear Representative Davidson:

We are an organization with over 26 years of experience working with rural villages, with one area of particular concern being the protection of the subsistence lifestyle and culture. Critical to the future viability of subsistence is the condition of fish-bearing streams and rivers.

This is why we are pleased to see that you have introduced legislation (HB 355) which would guarantee sufficient water is left in-stream for fish habitat when water uses are considered on a case-by-case basis.

Enactment of this legislation would not only insure sufficient water remains in-stream for fish, but also would benefit other uses of water such as navigation, water quality and public recreation, all important to rural Alaska.

Our Board of Directors has, over the past two-and-a-half decades, consistently supported and advocated for the protection of our water resources for the long-term benefit of rural Alaskans. We appreciate your efforts to protect our fisheries and water quality.

Sincerely,



Jeanine Kennedy, Executive Director  
Rural Alaska Community Action Program, Inc.

JK:ct



# Alaska Center for the Environment

519 West 8th Avenue, Suite 201 • Anchorage, Alaska 99501 • (907) 274-3621

RECEIVED MAR 9 1992

RECEIVED MAR 9 1992

March 5, 1992

Rep. Cliff Davidson  
Chair, House Resources Committee  
Alaska State Legislature  
P.O. Box V  
Juneau, AK 99811

Re: House Bills 353, 354, 355

Dear Representative Davidson:

Please substitute this original letter for the facsimile copy faxed to you yesterday just prior to the committee hearing. I have altered it slightly having learned yesterday that, contrary to an ADF&G document I had been relying on which is now dated in part due to the recent revision of DNR's instream flow regulations, instream flow reservation applications now receive a priority date at the time of filing (unfortunately, since out-of-stream applications are apparently apt to be given a priority when it comes to the actual adjudication, out-of-stream water rights could presumably be granted in excess of a necessary instream reservation that is legally prior in right).

I am sorry that my trip out of state prevented me from writing earlier to express our strong support for House Bills 353, 354, and 355, and sorry also that this letter will have to be brief. Please do not think that we are not very interested in this issue. These bills would provide for the collection of instream flow data, the efficient management of such data and, last but certainly not least, the protection of important Alaskan fish and wildlife habitats and populations through the reservation of necessary instream flows. Protecting adequate instream flows is essential if we are to maintain the fish and wildlife values that so many of us rely on or enjoy for a variety of direct economic and other equally important reasons.

It is unfortunate that we have yet to achieve these goals after several years of effort. Perhaps we think that our water resources are so abundant that there is no urgent need to enact legislation of this sort. If so, that is an unfortunate and ultimately destructive attitude. We have the chance in Alaska--and I'm sure many other states are extremely envious--to shut the barn door before rather than after the horses have escaped. Protecting resources before they're lost or threatened is not only far more effective but far cheaper as well.

It has been said in the past, to some effect unfortunately, that Alaska doesn't need these bills because it already has the best instream flow legislation in the country. The truth is that that

says a great deal more about the sorry state of water resource protection elsewhere than about the real merits of Alaska's existing law.


While it's true that Alaska does have a procedure for the reservation of instream flows, it is cumbersome and expensive. It takes so long, and costs so much, to successfully obtain an instream reservation that since 1980 only 11 such reservations have been granted out of 46 applications, all or nearly all of those successes having been achieved by the Department of Fish and Game as a result of a substantial expenditure of time and money. As a practical matter, the procedure is practically worthless for anyone outside of government and useful only very occasionally by the agency charged with protecting Alaska's fish and wildlife. Meanwhile, since statehood approximately 4,500 out-of-stream water rights have been granted.

HB 355 would resolve these problems without requiring any state agency to embark on a massive program of reserving instream flows on all of Alaska's waterways. It very sensibly requires instead an incremental program of adjudication based on whether an out-of-water application has been made for a particular waterbody--that is, an instream flow reservation is adjudicated only for those waterbodies that are potentially threatened by an actual appropriation application.

We urge the committee, and the legislature, to address this problem now (and at a time, incidentally, when the granting of applications for massive water exports is for the first time a real possibility) rather than to wait until we are faced with certain losses and can only try to minimize, not prevent, adverse impacts to Alaska's most precious resources (incidentally, reserving instream flows for fish and wildlife provides substantial benefits for other values and uses as well, such as recreation, tourism and Alaska's incomparable scenic beauty).

Thank you.

Sincerely,



Cliff Eames  
Issues Director



The Honorable Cliff Davidson  
 Chair, House Resources Committee  
 P.O. Box V  
 Juneau, AK 99811

February 20, 1992

Dear Representative Davidson:

American Rivers, Inc., the nation's principal river-saving conservation organization, strongly supports HB 355 to reserve the instream flows of Alaska's rivers. The State of Alaska is to be commended for taking this farsighted step to protect a resource that is vital to your state's economy - before it becomes overcommitted. 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. They represent an improvement over the current system, which is costly and burdensome to administer. 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 instream flow protection in more than 12,000 fish and wildlife streams, rather than making instream flow protection a "consideration" as do existing laws.

Alaska holds approximately one-third of the nation's fresh water. Its decision makers should protect this important resource for future generations. American Rivers applauds your efforts on behalf of this bill and urges support of HB 355 in the House Resources Committee, in the full House and in the Senate.

Sincerely,

*Suzanne C. Wilkins*  
 Suzanne C. Wilkins  
 Director of River Protection

add copy to follow by mail  
 Post-It brand fax transmittal memo 7871 # of pages = 1

To: Heather Braden	From: Suzi Wilkins
Rep. Davidson	Co: American Rivers
Dept.	Phone #
Fax # (907) 415-3444	Fax #

March 2, 1992

Representative Cliff Davidson  
Chairman, House Resources Committee  
State of Alaska  
House of Representatives  
District 27  
Box V,  
Juneau, Alaska 99811

Re: HB 353, 354, 355

Dear Cliff:

Thank you for the invitation to review these important bills and certain amendments to them. Noticing the deadline of March 4, 1991, I will make brief comments to each separately.

HB 353

Excellent Bill at the cost simply because the need to acquire all data for future performance of upland uses, i.e., mines, mills, hatcheries, etc., could have devastating effects on natural fish habitats. New applicants could be allowed water rights and effects of normal water useage while normal uses in themselves may have to at times be cut back. Definitely a necessary expenditure state-wide but definitely Kodiak.

HB 354

Definitely a look into the future. Although the need is not urgent to access stream flow in Kodiak. it appears to be a potentially valuable tool which could midigate the conflicts between timber harvest and stream degredation here.

In fact, this is currently a dilemma in the area where salmon streams are invaded so closely to their edge by timber harvest that both debris and erosion will result in surface flow reduction. The gauging of such abuse would allow a tangible meter in which to stop this intrusion in order to allow the proper and necessary flow of waters in our salmon streams. It is conceivable that even in Kodiak that intrusion to important water sources for community use could be invaded for special purposes such as additional hydro-power and specific and appropriate calculations could be made whereby not jeopardizing the existing flow.

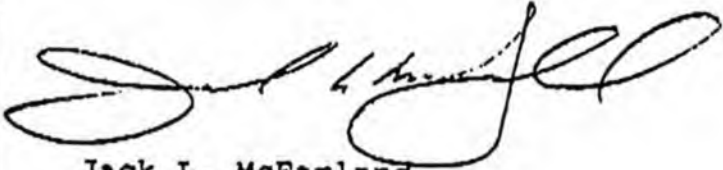
Representative Cliff Davidson  
March 2, 1992  
Page Two

HB 355

The Amendment is good since it captures not only existing streams which provide fish related activities but existing and potential tributaries or water sources to that main stream which provides significant flows necessary to sustain ratio in the main river or stream.

The reservation of these in-stream flows are so vital for our natural resources of salmon and drinking watersheds.

Sincerely,

A handwritten signature in cursive script, appearing to read "Jack L. McFarland". The signature is fluid and somewhat stylized, with a large loop at the end.

Jack L. McFarland

JLM/mlm

# KODIAK REGIONAL AQUACULTURE ASSOCIATION

BOX 3407 KODIAK, ALASKA 99615

(907) 486-6555



March 4, 1992

Representative Cliff Davidson  
Alaska State Legislature, House Dist. 27  
Box V  
Juneau, AK 99811

Dear Cliff:

In reference to the legislation you have introduced this session which pertains to improving the management of Alaska's Water Resources, namely HB 353, HB 354, and HB 355, the Kodiak Regional Aquaculture Association (KRAA) strongly supports these three bills.

KRAA's activities and goals are directed toward stabilizing salmon production in the Kodiak area. These efforts, in order to be successful, require adequate amounts of high quality fresh water. Our association, and others like us in the state, continues to rely on these features of our water resources to be successful at helping to maintain statewide salmon production at or above average levels.

All of our efforts, both the state's and private group's such as ours, which have successfully rebuilt depleted salmon runs and built new artificial salmon runs, is due in large part to the pristine nature of Alaska's water resources. We've been able to succeed where other western states have not. Consequently, legislation such as that contained in these three bills represents a sound legacy of statutory planning which will be needed to further ensure that Alaska does not repeat the costly mistakes experienced by other states when dealing with their water resources and fishing issues. This legislation seems to encompass the necessary data base development which will be needed to deal with future demands and allocation problems encountered as our state grows.

We in Alaska often times assume our water resources will continue to retain the pristine qualities and be of unlimited quantities forever, because of the vastness of our state. However, if you render water management scenarios down to localized community levels where watershed alteration activities and water resource demands are more obvious, then it quickly becomes apparent that water allocation issues will become more frequent and frenzied as this state grows.

For instance, in the Kodiak Salmon Management Area, there are at least 390 documented salmon streams which annually support viable populations of salmon. A significant number of these are critical for the production of subsistence caught salmon. Even more of these streams are important for the production of fish for the recreational sport fisherman who either reside on or visit the Kodiak Area. All of these streams are important to the commercial fishermen who rely on these systems to produce harvestable surpluses of salmon. Additionally, the millions of dollars worth of salmon being produced by our area's two hatcheries rely on the life line of adequate quantities of quality water to a greater degree than do the other 390 natural salmon streams. While many of our streams will continue to flow in a pristine manner, many other streams within our area are potentially being

Representative Cliff Davidson

Page 2

exposed to watershed alteration activities for the first time, which could effect traditional use patterns. Management of water resources in these instances is going to require a broad data base to ensure that when water allocation issues arise, the interaction of watershed development and fish production can be clearly addressed.

Again, we feel that these three bills are very timely and that they will provide for the development of a sound statewide water management strategy for all users of our water resources.

Sincerely,



Lawrence M. Malloy  
Executive Director

PUBLIC OPINION MESSAGE

DEAR: REPRESENTATIVE DAVIDSON

-648 members  
- average member  
residency is 31yrs

NAME: BOB DEWITT/VICE PRESIDENT  
TITLE: KETCHIKAN SPORTS AND WILDLIFE CLUB  
ADDRESS: P.O. BOX 5122  
CITY: KETCHIKAN, AK ZIP: 99901  
PHONE: 247-2381

BILL NO: HB 355

SUBJECT: INSTREAM FLOW RESERVATIONS FOR FISH/GAME

MESSAGE: THE BOARD OF DIRECTORS OF THE KETCHIKAN SPORTS AND WILDLIFE CLUB WOULD LIKE TO EXPRESS OUR SUPPORT FOR HB 355. PROTECTION OF OUR STREAM AND RIVER SYSTEMS HAVE ALWAYS BEEN AN OBJECTIVE OF OUR ORGANIZATION AND NEEDS PROTECTION.

POMID: 08161050

DATE: 92/02/18

TIME: 18:10:50

LIONAME: KETCHIKAN LIO

COPIES: REPRESENTATIVES    REPRESENTATIVES    SENATOR

C.DAVIS  
CARNEY  
HUDSON  
LEMAN  
MOYER  
BARNES  
BROWN  
KOPONEN  
MACLEAN  
R.PHILLIPS  
ULMER

TAYLOR  
FINKELSTEIN  
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JACKO  
LARSON  
NAVARRE  
SHARP

JONES

RECEIVED MAR 4 1992



*The World's Largest and Fastest Growing RV Owners Organization*

## **THE GOOD SAM CLUB**

International Headquarters: P.O. Box 500, Agoura, California 91376 (818) 991-4980

March 2, 1992

The Honorable Cliff Davidson  
Chairman, House Resources Committee  
State of Alaska House of Representatives  
Juneau, Alaska 99811

RE: House Bill 353; House Bill 354; House Bill 355

Dear Representative Davidson:

Thank you for allowing me the opportunity to speak on behalf of the Good Sam Club in voicing our support for the legislation you have introduced to the Alaska House of Representatives concerning the identification and preservation of Alaska's water resources. The Good Sam Club is an international organization of 840,000 families, including more than 3,000 families in Alaska, who are dedicated to the RV lifestyle and the freedom to travel throughout this great country. Needless to say, the issues you have introduced are of vital importance to our members.

Alaska has become a favorite destination for our members. Every year, thousands of them drive to Alaska either independently or on tours conducted by our organization and other operators. This year we have organized three such tours to commemorate the 50th anniversary of the Alaska Highways.

It is the pristine scenery and, for thousands of visitors to Alaska, the lure of great fishing that attracts RVers to your state. With 76 percent of our members carrying freshwater fishing gear in their rigs and 51 percent putting Alaska at the top of their list of places they would most like to visit in North America, you can understand our concern that the waterways and fishing resources in your state be protected. We strongly applaud and support your efforts toward this goal.

We feel that House Bills 353, 354 and 355 are vitally important for the future of recreational interests in Alaska. Since your state has yet to be spoiled by the mismanagement that overcrowding can bring, we urge you to do everything you can to protect the future of Alaska's water resources.

Sincerely,

Susan Bray  
Executive Director/Vice President  
The Good Sam Club

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*American Fisheries Society*

March 4, 1992

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

Dear Representative Davidson:

Thank you for providing me the opportunity to provide comments pertaining to house Bill 355. 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 (1981-87) and having served as President of the American Fisheries Society (1987-88), and currently Chairman of F.I.S.H., Fishermen Involved Saving Habitat, a coalition for the conservation of aquatic habitat, I recognize the significance of and fully support your efforts to enact this legislation. (I have enclosed a list of the organizations that associate themselves with F.I.S.H.)

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 355 to prevent repeating these mistakes. Many states are in the process of now attempting to provide for instream flows for fish and wildlife as they realize the value of the resources they once had in abundance. In those cases where they have been successful in reclaiming some of the lost resources the cost has been economically high and the social disruption great. In most, I am sure law makers in other States are envious of your opportunities.

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 three quarters of what is found on the North American continent. Properly cared for, the benefits to Alaskans and this nation can be realized into perpetuity. This calculates into tremendous wealth for this generation and those that follow.

Commercial, sport and subsistence fisheries contribute over a billion dollars to the Alaskan economy annually. While oil provides most of the State's revenues, for the present, fish provide jobs and food for Alaskans.

But fish cannot survive without water, as your neighbors in the "south-48" are painfully finding out. As Alaska's constitutional authors had the wisdom to envision fish and wildlife forever and as progressive as Alaska's existing water laws may be, there is not yet sufficient protection to assure the future of fish and wildlife in abundance as we see today. As trustees of this resource for all Alaskans, present and future, the present laws, based on the requirement that the Alaskan Department of Natural Resources must only "consider" whether to grant instream flows for the fish and wildlife is not adequate. In the past dozen years less than 20 stream reaches have been granted protection. This leaves Alaska's thousands of rivers, streams and lakes without adequate protection and with their faith to be determined by the Administration and the State agencies. Alaska's law makers, by definition, are the trustees for the fish and wildlife resource. Being a trustee carries with it an obligation to future Alaskans to ensure that the rivers, streams and lakes have sufficient water and to ensure that the benefits from this resource will be perpetual.

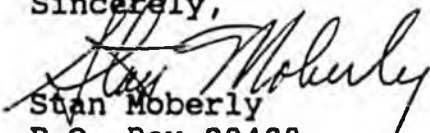
The Departments in State government are charged with carrying out the laws, interpreting them the best they can, guided by the direction of the current Administration. Without a guarantee of water for fish and wildlife, these Departments will always be subject to political whims and the threat of water serving as a means of income through appropriations out of the streams at the expense of instream flow protection. This is too important to be left for interpretation by the agencies and the Administration. There should leave no doubt as to what you intend for the fish and wildlife resources in the State. You must spell out what you envision for the future of these resources. A requirement that instream flows be guaranteed, as would be provided by your bill, is Alaska's assurance for the continued perpetuation of its abundant fish and wildlife resources.

Lastly, I cannot conceive of a rational explanation for the opposition to this legislation by the Departments of Fish & Game and Natural Resources. Their opposition only serves to reinforce my conviction that this piece of "the people's business" cannot be left in the hands of the agencies. In the past the Department of Fish & Game has strongly supported instream flow legislation. I can only suspect pressure from outside the Department. This lack of support for what obviously makes good sense for the fish and wildlife resource is likely to be demoralizing to the professionals in the Department and will almost certainly reduce their credibility on future positions on other issues. I would suggest to acquire an objective professional analysis of your bill and to avoid the possibility of political censorship, that you contact the Alaska Chapters of the American Fisheries Society and the Wildlife Society for impartial professional evaluations of this and other water legislation that affect fish and wildlife. Through their professional organizations, the fish and wildlife professionals can voice their expertise without political interference.

In summary, I offer you my full support of this legislation and I feel confident that the fish and wildlife scientists as well as those Alaskans that depend upon the fish and wildlife resource support this legislation. Future Alaskans will commend you also.

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

Sincerely,

  
Stan Moberly  
P.O. Box 99488  
Seattle, WA 98199-0488

cc: Senator Ted Stevens  
Senator Frank Murkowski  
Representative Don Young  
Governor Walter J. Hickel  
Carl Rosier, Commissioner ADF&G  
Harold C. Heinze, Commissioner ADNR  
Paul Brouha, Executive Director AFS  
Richard Geogory, President AFS  
Alex C. Wertheimer, President Alaska Chapter AFS

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## United States Department of the Interior

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

IN REPLY REFER TO:

WR

MAR 4 1992

Representative Cliff Davidson  
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 February 24, 1992, and the opportunity to review and comment on House Bill 353, House Bill 354, and House Bill 355.

The U.S. Fish and Wildlife Service is directly responsible for the management of 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 Fish and Wildlife Service has a very strong interest in any legislation that may affect the management of water resources.

We have reviewed these Bills and support their intent and your effort. House Bill 353 and House Bill 354 are necessary to effect sound management of the natural resources within the State of Alaska.

We believe House Bill 355 has the potential to ensure a high level of protection for aquatic habitat areas. House Bill 355 also assures appropriate attention to assessment, evaluation, and preservation of aquatic resources.

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

Sincerely,

Regional Director