

# STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

OFFICE OF THE COMMISSIONER

JAY S. HAMMOND, GOVERNOR

R

P.O. BOX 3-2000  
JUNEAU, ALASKA 99802  
PHONE: 465-4100

March 12, 1982

Mr. Jeff Weltzin  
Northern Alaska Environmental Center  
218 Driveway  
Fairbanks, Alaska 99701

Dear Mr. Weltzin:

This is to clarify further the Department of Fish and Game's position pertaining to the Su-Hydro Project. Copies of prior correspondence between our agencies are necessary for the convenience of the persons and agencies who will receive a copy of this response to insure they can view the context of these letters and the questions you have asked the Department. Therefore, we have enclosed: your original inquiry of December 3, 1981, our response January 19, 1982, and your letter of February 1, 1982.

The first question you advance in your February 1, 1982 correspondence basically asks if ADF&G can grant a Title 16 permit to the Alaska Power Authority (APA) if the APA files a Federal Energy Regulatory Commission (FERC) application this summer. The answer to this question is "perhaps." In our opinion, however, it would not be advisable or reasonable for the APA to make such an application or request an approval of a permit from this Department under Alaska Statute 16.05.840 or 870 at this time or in the near future. Some of the reasons are as follows:

1. Because of the size of this proposed project, a FERC License application undoubtedly will receive a broad range of public, governmental agency, and special interest scrutiny. It is therefore most preferable that the FERC license application process be implemented and basically concluded before an ADF&G Title 16 permit is requested. To apply for and receive a Title 16 permit from the ADF&G would be a disruptive and delaying influence on the FERC license application process. Essentially the FERC license application will start a "clearing house" process within which issues and

concerns about the sufficiency of available data, and the adequacy of fish and wildlife mitigation planning and implementation can be addressed between the Alaska Power Authority and the State and Federal resource agencies. With the successful conclusion of the FERC process, ADF&G should be able to issue a Title 16 permit, pursuant to its authority with conditions or stipulations specifically relevant to the hydroelectric project construction plan, and consistent with a mitigation plan accepted by ADF&G, as well as the U.S. Fish and Wildlife Service and other resource agencies.

2. It is explicit in Section (c) of A.S.16.05.870 (enclosed) that the applicant provide complete plans for the proper protection of fish and game before constructing a hydroelectric project. If these plans are not sufficient in the view of this Department, the approval may be conditioned by this Department with those measures or requirements which must be met to protect fish and game resources before construction of the project may begin. The need and value of the additional studies and mitigation planning which we see as being required for the Susitna Hydroelectric Project are to insure that the mitigation and resource trade-off options are clearly spelled out by the applicant and that the "conditioning" and "stipulations" of our permit are minimized. It is not advisable nor reasonable for APA to initiate a "second front" of permit application which would demand an unreasonable amount of time and effort when the FERC license application process is set up to accommodate this Department's as well as other agencies' concerns.

Your second question asks this Department: "...do you plan to advise the Governor, Legislature and the Alaska Power Authority of your assessment regarding what can and cannot be said about impacts to Susitna fisheries from the proposed project at this time?"

The Department has stated its position to the Alaska Power Authority numerous times in the past regarding the level of existing fisheries information available prior to the initiation of this year's Phase I study, and the time frame we believe will be required to complete a reasonable assessment of fisheries resource impacts. Our basic advice has been that an acceptable mitigation plan would require a minimum of five years of comprehensive fisheries and aquatic habitat assessment. With that time frame a level of information could be attained which would enable resource impacts to be evaluated objectively, and a feasible and prudent mitigation plan to be approved and adopted for implementation.

It must be pointed out, however, that the Su-Hydro Aquatic Studies have many tasks or sub-elements which after an annual review may be dropped or continued, consistent with a determination that the data generated from these tasks is sufficient to define or not define a specific impact. We believe the ADF&G Su-Hydro Aquatic Study Program must be continued at its current level in all task areas, and intensified in the "Aquatic Habitat and Instream Flow" project. We see major rescoping being required for the program to be conducted after June 30, 1983, to resolve probable license application deficiencies that may come up in the FERC review process.

We believe it should be the APA's responsibility to define all of the issues about this project that concern the public, special interest groups, and the resource agencies. We know that resource agencies have forwarded their concerns about the project to the APA. However, we have never seen any publication or presentation of these agency concerns to the public, Governor, or the Legislature. Ample opportunity for APA to publicize these concerns has been afforded since 1979 through their public participation program and reports to the Governor and the Legislature. Such an opportunity, for example, could have been afforded in the Susitna Hydroelectric Project Mid Report to the Governor and the Legislature. We believe the Governor and Legislature should have been informed in March 1981 in the Mid Report that there are issues of concern within the State about the Su-Hydro Project. It is important to recognize too that many of these issues are not related to the fish and wildlife resources.

Your third and fourth questions ask our opinion on whether "...it is appropriate for the State to judge project feasibility and commit to project construction at this time?", and "...if you do not feel an informed decision can be made on Susitna Hydro at this time, how much additional fishery study does ADF&G need before enough is known to determine project feasibility?"

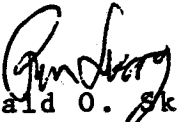
We believe that the feasibility of the Susitna Hydroelectric Project presently is being based on whether a benefit-cost ratio of 1.0 or greater can be obtained for the project. If the benefit-cost ratio calculated for the project is projected to be less than 1.0, we assume that the project would be determined to be "not feasible" from the economic perspective. This Department is not aware to what extent the cost of mitigating fish and wildlife impacts is being included in benefit-cost calculations as a part of determining overall project feasibility, nor are we aware how socioeconomic impacts are being calculated. In our view it logically follows that, if project impacts are neither adequately determined at this time nor prudent and feasible mitigation options described, then the costs of fish and wildlife mitigation efforts in the benefit-cost analysis

cannot be presented objectively because we believe these costs are not presently known.

It should be noted also that it is a fundamental requirement of the Federal "Fish and Wildlife Coordination Act" (48 Stat. 401, as amended, 16 U.S.C. 661 et. seq.) that the cost of mitigation must be incorporated in the benefit-cost assessment relating to project feasibility. Solely from the fish and wildlife resource standpoint project feasibility has not been shown either positively or negatively. That is, while the range of project impacts cannot be addressed adequately now and feasible mitigation alternatives or options outlined, these should occur in due time. As I previously commented in my January 19 letter to you, Terrestrial Environmental Services had a difficult charge to determine fisheries impacts and mitigation alternatives by February 15 of this year. We doubt that the recent delay of FERC licensing to September 30 by the APA will change the quality or objectivity of that effort significantly, due to time and informational restraints. As stated earlier herein, we believe that a five-year study program would be needed as a minimum to assess the impacts of the project from the fish and wildlife perspective. That estimate continues to be this Department's fundamental position.

If you have further questions do not hesitate to contact this Department.

Sincerely,



Ronald O. Skoog  
Commissioner

Enclosures

cc: Governor Hammond  
John Katz - Commissioner ADNR  
Ernst Mueller - Commissioner ADEC

**Sec. 16.05.870. Protection of fish and game. (a)** The commissioner shall, in accordance with the Administrative Procedure Act (AS 44.62) specify the various rivers, lakes, and streams or parts of them that are important for the spawning or migration of anadromous fish. Before December 31, 1968, the specification may be made by designating areas within which all rivers, lakes, and streams are considered important for the spawning or migration of anadromous fish; provided, that the areas lie within 50 miles of the coastline extending from Dixon Entrance through False Pass to Cape Menshikof, including all islands east of False Pass. A person giving notice under (b) of this section before December 31, 1968, may, if the activity is to take place within such a designated area, request the commissioner to specify individually by name or number, the particular rivers, lakes, and streams or parts of them within the area of operations described in the notice which are important for the spawning and migration of anadromous fish. Upon

receipt of the request the commissioner shall promptly make the designation.

(b) If a person or governmental agency desires to construct a hydraulic project, or use, divert, obstruct, pollute, or change the natural flow or bed of a specified river, lake, or stream, or to use wheeled, tracked, or excavating equipment or log-dragging equipment in the bed of a specified river, lake, or stream, the person or governmental agency shall notify the commissioner of this intention before the beginning of the construction or use.

(c) The commissioner shall acknowledge receipt of the notice by return air mail. If the commissioner determines to do so, he shall, in the letter of acknowledgement, require the person or governmental agency to submit to him full plans and specifications of the proposed construction or work, complete plans and specifications for the proper protection of fish and game in connection with the construction or work, or in connection with the use, and the approximate date the construction, work, or use will begin, and shall require the person or governmental agency to obtain written approval from him as to the sufficiency of the plans or specifications before the proposed construction or use is begun. (§ 31 art I ch 94 SLA 1959; am § 1 ch 180 SLA 1960; am § 1 ch 132 SLA 1962; am § 1 ch 89 SLA 1966)

**Purpose.** — The purpose of this section is to protect and conserve fish and game and other natural resources. 1964 Op. Att'y Gen., No. 10.

Alaska has jurisdiction to enforce its fish and game laws in national forests. 1964 Op. Att'y Gen., No. 10.

Alaska's protective fish and game laws, especially this section, complement rather than conflict with federal government functions in national forests and should be enforced by both federal and state officials. 1964 Op. Att'y Gen., No. 10.



# Northern Alaska Environmental Center

218 DRIVEWAY  
FAIRBANKS, ALASKA 99701  
(907) 452-5021

File 02-82-7.0

February 1, 1982

Commissioner Ronald O. Skoog  
Alaska Department of Fish and Game  
P.O. Box 3-2000  
Juneau, Alaska 99802

Dear Commissioner Skoog,

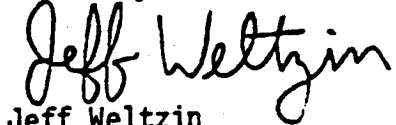
Thank you for your letter of January 19, 1982 dealing with the Alaska Department of Fish and Game's opinion of Susitna fishery issues. I was interested to find that you feel that the Alaska Power Authority's planned time frame for the Federal Energy Regulatory Commission (FERC) license application to construct the Susitna hydro project is premature due to the limited data base available. Accordingly, in regards to making an informed decision on the proposed dams feasibility you state: "The difficulty of performing this task is primarily a function of an artificially set and unrealistic schedule to apply for a FERC license with minimal baseline study in our opinion." In light of this, could your agency grant a Title 16 permit to the APA if the Authority does file a FERC application this summer? If not, how much additional fishery study does ADF&G need before your agency can grant a Title 16 permit?

More specifically, in regards to possible effects to fish below the Talkeetna River to Cook Inlet, you state: "For the Talkeetna to Devils Canyon reach a few general impact conclusions might be drawn. However, the assessment of impacts present for the Talkeetna to Cook Inlet estuary reach of the river may be expected, in our opinion, to be quite general and nebulous for lack of sufficient data." Similarly, you state, "Implications of winter flows on rearing resident fish and juvenile salmon will require the completion of an adequate instream flow assessment program in succeeding years." With this in mind, do you plan to advise the Governor, Legislature and the Alaska Power Authority of your assessment regarding what can and cannot be said about impacts to Susitna fisheries from the proposed project at this time?

Possibly most important, the contents of your letter indicate that while some impacts can be identified with the recently completed year of fishery study, many other potentially significant impacts cannot be addressed at this time. In this regard, do you feel it is appropriate for the State to judge project feasibility and commit to project construction at this time? Lastly, if you do not feel an informed decision can be made on Susitna hydro at this time, how much additional fishery study does

ADF&G need before enough is known to determine project feasibility?

Sincerely,



Jeff Weltzin  
Energy Coordinator

cc: Governor Jay Hammond  
Federal Energy Regulatory Commission  
R. Andrews  
S. Pennoyer  
R. Roys

# STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

OFFICE OF THE COMMISSIONER

JAY S. HAMMOND, GOVERNOR

P.O. BOX 3-2000  
JUNEAU, ALASKA 99802  
PHONE:

January 19, 1982

Mr. Jeff Weltzin  
Fairbanks Environmental Center  
218 Driveway  
Fairbanks, Alaska 99701

Dear Mr. Weltzin:

Thank you for your interest in the Alaska Department of Fish and Game's views regarding aquatic habitat impact issues being considered by the Su Hydro Mitigation Technical Group as presented in your December 3 letter. We regret that you were not afforded an opportunity to question this Department's representative, Tom Trent, regarding mitigation issues at the October 23, 1981 meeting with other Mitigation Technical Group members.

At an earlier Mitigation Technical Group meeting in Seattle the indications were that the October 23 meeting would be a public meeting where all members of the group would participate. However, at the October 23 meeting of the Technical Group, Mr. Kevin Young of Acres indicated only he, Dr. Milo Bell, Mr. Clint Atkinson and Mr. Bob Williams would attend the meeting with you and Eric Myers. Therefore, Mr. Trent and other Technical Group members from Alaska, Mr. Dana Schmidt of Terrestrial Environmental Specialists (TES) and Acres consultant, Woody Trihey, did not participate in the meeting.

Pertaining to the subject of ADF&G's participation at past APA Public Participation Workshop series, ADF&G was not invited to those workshops. However, with respect to the Environmental Public Participation Workshop series planned for October that was cancelled, we had been invited to participate. We, in fact, may have been partly responsible for its cancellation. This is because we informed APA that our data collected in 1981 would not be ready for public presentation until February, 1982. Su Hydro staff members, however, did indicate they would attend the workshops had they been held in late October or early November to:

- (a) summarize what ADF&G's overall position was with respect to the project;
- (b) describe our role in the project;
- (c) describe the types of studies we were performing and what we hoped to learn; and
- (d) answer any questions from the public on these subjects.

It must be emphasized, however, that we would not have been prepared in the fall to actually present findings of our 1981 studies or give any explicit detailing of our views on project impacts.



Your first observation on the discussions held with Mitigation Technical Group members on October 23 was:

"Discussion initially focused on downstream flow changes during post-project. Task Force members indicated that effects to side sloughs are possible, such as dewatering and reduced access to spawning salmon.

1. Do you agree with this and does ADF&G have any additional information on possible effects to side sloughs used by salmon? What effects will the proposed post-project flows have on sloughs upstream of the Talkeetna River? Does your preliminary data indicate that the post-project flows will be capable of supporting spawning and rearing salmon?"

We concur with the assessment that side sloughs utilized by salmon as spawning and rearing habitat in the Devil Canyon to Talkeetna reach of the Susitna River will be impacted by the project operation flows at Gold Creek, as projected by Acres American and which were also provided to the Mitigation Technical Group (these flows are between 8,000 to 10,000 cfs monthly average during the summer months). Based on the flows the Mitigation Technical Group worked with up to October 23, and based on the information ADF&G has at hand, essentially 100 percent of the slough environments would be deprived of river stage levels necessary to permit access by salmon and successful spawning. We must qualify this statement, however, in that only five sloughs out of more than 40 have had the intensity of study which would explicitly show this impact. The hydraulic model produced by R&M Associates does not permit evaluation of stage and slough water levels which permits a better analysis of river stage-slough relationships at all locations. In the judgment of Department staff, however, further studies would probably bear out the 100 percent impact on access and spawning which has been suggested. Stage gauge information at ADF&G study sites will be used to help refine the R&M hydraulic model to the extent possible.

A more recent project flow at Gold Creek provided to the Technical Group by Acres at their December 10 meeting in Seattle, provided higher flows (approximately 12,000 cfs) during the time adult salmon are in the system. At this flow some sloughs will have some water in them. We cannot draw any specific conclusions on the impact of that more recent flow level projection. More detailed work in the future will be needed to determine impacts on these slough habitats at various incremental flows. Further examination of ADF&G data and the R&M hydraulic model by the TES representatives will be needed before we can give an objective opinion on the impact of the newest flow regime suggested by Acres. However, the R&M hydraulic model does generally support the statements made above and further indicates flows in the range of 19,000 cfs at Gold Creek are necessary to maintain flow through sloughs.

Your second question was posed as follows:

"When sediment transport was discussed, Milo Bell indicated that the Task Force expected little change to the reach of the Susitna below Devils Canyon to the Talkeetna River from changes in sediment transfer rates during post-project conditions. He indicated that the river is well armored and will be altered very little.

2. How do you view effects from sediment transport changes in this reach of the Susitna?"

Generally, we would tend to agree with Dr. Bell's assessment of the character of the bed of the river in the Talkeetna to Devil Canyon reach of the Susitna River. Some issues related to the nature of bed load movement and sediment transport changes and their potential impacts on mainstream spawning salmon are pertinent to this, however. These are:

- a). will there be a change in the bed characteristics of areas utilized by chum salmon for mainstem spawning; and
- b). will this change beneficially or negatively affect chum salmon spawning; and
- c). will this change influence the productivity of other members of the aquatic community and hence influence the resident and anadromous fishery?

In evaluating question (a) it must be noted that, according to Acres, gravel and other sediment being transported downstream in the drainage above Devil Canyon will be fundamentally captured within the impoundments, and any new contributions of sands, gravel and larger material to the bed of the Susitna River will originate solely from tributaries below the Devil Canyon dam site. Since major flood events, as they presently occur, that result in major downstream transportation of sediment will be substantially diminished under those post-project flows, a build up of smaller material in the Talkeetna to Devil Canyon reach may occur and this reflects on question (b), which we discuss hereafter.

Redistribution of stream bed gravels could be beneficial if it created more suitable habitat for chum salmon or potentially other salmon spawning provided post-project flows are sufficient to carry this material and distribute it into beds with a composition suitable for the species of concern. However, project flows may not be able to make these redistributions. Accumulation of new material in the mainstream may occur only in close proximity to tributary mouths which introduced this material. This would diminish the potential for increasing suitable spawning habitat. We cannot objectively state that positive impacts based solely on increase of suitable spawning substrates would occur and this relates to question (c). Other factors such as the suitability of project water quality, water temperature, velocities of flow, etc., need to be factored into the decision on whether an increase in suitable spawning substrates would be beneficial to the overall fishery and other members of the aquatic community.

Your third question was framed as follows:

"Regarding changes in post-project sediment transfer from Talkeetna River to the Delta Islands reach, Milo Bell indicated that the Task Force was not too concerned about possible changes to the present river configuration of channels, bottoms and banks. He indicated that any changes in sediment transfer would be very gradual and probably would be insignificant. When advised of External Review Panel member Starker Leopold's concern over possible reconfigurations of the Susitna due to changes in sediment transfer, Milo Bell indicated that streams are only altered at "bank full".

3. What is your view of post-project sediment transfer changes to this reach of the Susitna? Does the Department agree that the Susitna will be changed at only 'bank full'?"

Our response to your second question covers our view of possible changes in the Talkeetna to Devil Canyon reach. We are in general accord with Dr. Bell's statements for that area. However, the influence of the Talkeetna and Chulitna rivers flow contribution for the section below Talkeetna has not been discussed in detail and we (ADF&G) have not formulated any opinion of change possibilities for the Talkeetna through Delta Islands reach.

As to the transport of material at "bank full" we are in general agreement with Dr. Bell.

The fourth question in your letter was stated as follows:

"Discussing changes in water temperature release during post-project, Bob Williams indicated that temperature models show that there will be a gradient of water temperatures within the proposed Devils Canyon impoundment. While he did not mention the specific temperature variations, he did maintain that this variation would be suitable to allow use of a multi-intake structure to assist in controlling water temperature release during post-project. In addition, Bob Williams said that TES is using temperature and hydraulic models to predict post-project temperature and quantity of water flow downstream to the Delta Islands.

4. Do you agree with this evaluation of the temperature regime for the proposed Devils Canyon impoundment? And do you agree with the suggested suitability of using a multi-intake structure to control water release downstream during post-project? What is your evaluation of the temperature and hydraulic models being used by TES?

Do you feel these models are adequate to predict how changes in temperature and water flow will affect salmon populations?"

Acres American, we are aware, is actively running evaluations related to temperature and water flows downstream of the project for several scenarios. Some inadequacies in temperature and flow modeling do exist. Therefore, it is not appropriate at this time to do more than comment on the general conditions that may be expected post-project.

We basically agree that a graduation of temperatures will occur in the impoundment, however, we believe it is generally conceded that development of a thermocline as occurs in clearwater lakes or impoundments will not develop. On a seasonal basis these gradients, based on Acres preliminary assessments, may offer the potential to match existing downstream temperatures during the summer through use of multi-intake structures or some other comparable construction. During the winter, however, the temperature gradient existing in summer will no longer exist, if the current model is correct, and the temperature of reservoir releases will very likely be about 39°F. Currently, winter temperatures of the river run about 32°F.

We do not have complete confidence in either the temperature or hydraulic models at this time, and hope that they can be refined through specific and more extended data collection efforts to insure that adequate judgment of project impacts can be made.

Your fifth question was stated as follows:

"In addressing possible changes in flow and sedimentation on the normally clear low volume flow of the Susitna during winter, Milo Bell indicated that winter flows would be increased and would be slightly milky with fine silt. When asked how these changes would affect juvenile salmon using the main channel during winter for rearing, Milo Bell indicated that there could be disruption of this rearing habitat, but that it is still not known to what extent juvenile salmon use the main channel during winter.

5. How do you view the significance of this rearing habitat and possible changes due to proposed post-project conditions of increased flows and turbidity?"

We do not believe an objective knowledge of the post-project downstream turbidity exists. It should be less, but it is very difficult to say that turbidity will be of some X value. If we had such a value perhaps it could be translated to some visual frame of reference or comparison with other stream systems having that turbidity level. To say the Susitna River will look like this or that river or stream elsewhere in Alaska is impossible now. Literature review alone is not usually adequate because data and findings cited for one location are

not likely to fully or accurately represent another specific location. More often than not, the species present in a system have adapted over time to the natural range of conditions found in that system. Whether the species can withstand acute or chronic changes to the system must be thoroughly investigated. If we could effect such a comparison then some generalization on the positive or negative impacts on the fishery resource from the standpoint of turbidity might be made. The significance of post-project turbidities related to fish, in our view, depends on developing some range of expected turbidity values. Whether this can be determined through modeling or other study we are unsure and will pursue this subject in discussions with the APA and Acres in February on information needs.

Implications of winter flows on rearing resident fish and juvenile salmon will require the completion of an adequate instream flow assessment program in succeeding years. We do know that rearing chinook salmon occur throughout the Susitna system downstream of the project but with the information available presently, we cannot specifically state that post-project rearing habitats for this species and others will increase or diminish in the river from the Devil Canyon to the Cook Inlet estuary.

Your sixth question was as follows:

"On the issue of the recommendations and conclusions TES must make to Acres American by February 15, Bob Williams felt that potential impacts could be defined and possible mitigation measures developed and proposed by this deadline. Clint Atkinson and Milo Bell stated that they will not be able to address all mitigation measures, but at the same time they felt that any shortcomings could be addressed in the proposed phase II studies. All members felt that enough could be said by February 15 to determine project feasibility.

6. Do you feel confident that potential impacts can be identified and mitigation measures defined by February 15? In addition, what is your position regarding the number of field seasons needed before a determination of impacts can be made and mitigation measures developed?"

This Department does not believe that the full range of potential impacts or mitigation measures required to offset fishery impacts will be defined for the project area from the impoundments to the Cook Inlet estuary by February 15. In a recent December 30 letter from my office to Mr. John Lawrence of Acres American on the APA's draft mitigation policy, it was stated that, "This Department does not believe adequate opportunity will be afforded the natural resource agencies to evaluate or review mitigation plans due to the accelerated nature of APA's schedule," and "Also, this Department has relayed to the APA on numerous occasions our concern that a more extended period of fisheries studies

needs to be performed before adequate impact analysis is made and thence feasible mitigation alternatives developed."

We expect that some specific appraisal of impacts will be available for the impoundments to the expected impoundment water level. For the Talkeetna to Devil Canyon reach a few general impact conclusions might be drawn. However, the assessment of impacts presented for the Talkeetna to Cook Inlet estuary reach of the river may be expected, in our opinion, to be quite general and nebulous for lack of sufficient data.

TES has a difficult task, in our view, to meet the February 15 deadline with a product which will ultimately meet the requirements that we expect FERC and the resource agencies will regard as a satisfactory appraisal of project impacts and mitigation of these impacts on Susitna River fish and fish habitats. The difficulty of performing this task is primarily a function of an artificially set and unrealistic schedule to apply for a FERC license with minimal baseline study in our opinion.

This year's studies by this Department should enable a better assessment of the fundamental impact issues that need further study in Phase II, and the impact assessment by TES should define many gaps in our knowledge also.

The idea of determining project feasibility by February is really a larger issue than just feasibility from the fish and wildlife perspective. Feasibility determination must realistically be based on a complex of socioeconomic and environmental factors. In our judgment, the time frame established to FERC license application has limited scrutiny, by the Legislature, concerned state and federal agencies, and the public of the state, about other scenarios for hydro development on the Susitna River or energy alternatives which may complement or possibly replace hydro development on the Susitna River.

Your seventh question was related as follows:

"Discussing the implications of salmon enhancement for the upper 130 miles of the Susitna (with and without the dams) and the possibilities of increased salmon production to Cook Inlet, Milo Bell said he had not been asked by the APA to consider this potential. Bob Williams indicated that Acres and TES would not address upper Susitna salmon enhancement potential either. Both felt that consideration of salmon enhancement as an alternative development for the upper Susitna was beyond the scope of the Fishery Mitigation Task Force mandate.

7. Do you agree that upper Susitna salmon enhancement should not be evaluated by the Task Force? What is your opinion regarding the potential

of upper Susitna salmon enhancement absent the proposed hydro project?"

We would agree with Dr. Bell and Mr. Williams that enhancement of the upper Susitna River has been generally considered as beyond the scope of the present Susitna River feasibility studies. The mandate of law and regulation covering water development projects, in our opinion, basically requires mitigation to achieve a no net loss of habitat values or parity with existing biological conditions. Programs to achieve enhancement of biological productivity beyond the existing baseline condition cannot be required of the Alaska Power Authority as the agency empowered to construct this proposed hydropower development. These types of studies are above and beyond the scope of this project, and must be directed to our fishery divisions and the Board of Fisheries to determine their merit.

Potential for enhancement of salmon resources both upstream and downstream of the impoundments does exist. Enhancement potential downstream of the dams under project conditions would have the greatest possibility of realization if natural fish stocks are undiminished and provided that project flows and water quality meet specific conditions which maintain current habitat diversity. Some manipulative techniques and alterations related to existing slough habitats may provide a practical and relatively inexpensive enhancement benefit. We cannot definitively state that this would occur, however, as a comprehensive assessment of the hydraulic connection between the mainstream river and these sloughs as well as other biological and other factors would be necessary. This enhancement potential downstream would exist without the project also.

Potential for enhancement of salmon by providing access past the Devil Canyon rapids without the project may also exist. The tributaries upstream of the Watana dam site may offer potential as salmon spawning habitat. Obviously, the feasibility of engineering fish passage past the Devil Canyon velocity barriers would have to be assessed and we suspect that to obtain the passage of fish may entail considerable expense for construction or other work.

With the hydro project, some of the enhancement potential may be diminished due to inundation of tributary stream habitats in the impoundments. Passage of fish upstream past the dams would require costly structures, and the passage of downstream migrants would entail problems perhaps similar to those encountered with dams on the Columbia River system.

We might note that a concept of linking a tributary of the Copper River system to Lake Louise which is tributary to the Susitna to provide passage to the Susitna system has been offered in the past. However,

January 19, 1982

opening up the upper Susitna system to salmon for enhancement purposes could not be done without fully weighing the impacts on the natural biological system, the probability of success, and the real dollar costs versus benefits.

If you have future questions please do not hesitate to contact us.

Sincerely,



*for* Ronald O. Skoog  
Commissioner

cc: R. Andrews  
S. Pennoyer  
R. Roys





# Fairbanks Environmental Center

218 DRIVEWAY  
FAIRBANKS, ALASKA 99701  
(907) 452-5021

December 3, 1981

RECEIVED

DEC 8 1981

Alaska Dept. of Fish & Game  
Sport Fish/Susitna Hydro

Tom Trent  
Alaska Department of Fish and Game  
Susitna Hydro Studies  
2207 Spenard Road  
Anchorage, Alaska 99503

Dear Tom,

On October 23, 1981 I was invited by the Alaska Power Authority to meet with the Susitna Hydro Mitigation Task Force. Important fishery and fish habitat issues were discussed by task force members Milo Bell, Clint Atkinson, Bob Williams of Terrestrial Environmental Specialists, Kevin Young of Acres American, along with Nancy Blunck of the APA and Eric Myers.

During the meeting, I inquired as to why ADF&G Task Force representatives were not present. Nancy responded by informing me that ADF&G personnel had attended the regular meeting of the Task Force earlier in the day, but were unable to attend this special meeting. I was pleased to have had the opportunity to meet with members in attendance, but note that the absence of ADF&G representatives at this and other past public meetings hinders public awareness of the Department's view on Susitna fishery issues. This is especially true considering that the APA Public Participation Environmental Workshops planned since early 1980, which would have given ADF&G an important opportunity for public education, have been cancelled.

This action by the APA has unfortunately limited education opportunities available to the public with respect to the fish and wildlife studies before the APA submits its recommendations on project feasibility to the Governor and Legislature. The Fairbanks Environmental Center believes that meetings like the Fishery Mitigation Task Force meeting are important to help fill the public education gap and we are dismayed by ADF&G's absence.

Lacking ADF&G's presence and views eliminates the opportunity to receive the Department's perspective on issues raised at this meeting. Therefore, I have summarized the issues discussed and would appreciate your formal response.

Discussion initially focused on downstream flow changes during post-project. Task Force members indicated that effects to side sloughs are possible, such as dewatering and reduced access to spawning salmon.

1. Do you agree with this and does ADF&G have any additional information on possible effects to side sloughs used by salmon? What effects will the proposed post-project flows have on sloughs upstream of the Talkeetna River? Does your preliminary data indicate that the post-project flows will be capable of supporting spawning and rearing salmon?

When sediment transport was discussed, Milo Bell indicated that the Task Force expected little change to the reach of the Susitna below Devils Canyon to the Talkeetna River from changes in sediment transfer rates during post-project conditions. He indicated that the river is well armored and will be altered very little.

2. How do you view effects from sediment transport changes in this reach of the Susitna?

Regarding changes in post-project sediment transfer from Talkeetna River to the Delta Islands reach, Milo Bell indicated that the Task Force was not too concerned about possible changes to the present river configuration of channels, bottoms and banks. He indicated that any changes in sediment transfer would be very gradual and probably would be insignificant. When advised of External Review Panel member Starker Leopold's concern over possible reconfigurations of the Susitna due to changes in sediment transfer, Milo Bell indicated that streams are only altered at "bank full".

3. What is your view of post-project sediment transfer changes to this reach of the Susitna? Does the Department agree that the Susitna will be changed at only "bank full"?

Discussing changes in water temperature release during post-project, Bob Williams indicated that temperature models show that there will be a gradient of water temperatures within the proposed Devils Canyon impoundment. While he did not mention the specific temperature variations, he did maintain that this variation would be suitable to allow use of a multi-intake structure to assist in controlling water temperature release during post-project. In addition, Bob Williams said that TES is using temperature and hydraulic models to predict post-project temperature and quantity of water flow downstream to the Delta Islands.

4. Do you agree with this evaluation of the temperature regime for the proposed Devils Canyon impoundment? And do you agree with the suggested suitability of using a multi-intake structure to control water release downstream during post-project? What is your evaluation of the temperature and hydraulic models being used by TES? Do you feel these models are adequate to predict how changes in temperature and water flow will affect salmon populations?

In addressing possible changes in flow and sedimentation on the normally clear low volume flow of the Susitna during winter, Milo Bell indicated that winter flows would be increased and would be slightly milky with fine silt. When asked how these changes would affect juvenile salmon using the main channel during winter for rearing, Milo Bell indicated that there could be disruption of this rearing habitat, but that it is still not known to what extent juvenile salmon use the main channel during winter.

5. How do you view the significance of this rearing habitat and possible changes due to proposed post-project conditions of increased flows and turbidity?

On the issue of the recommendations and conclusions TES must make to Acres American by February 15, Bob Williams felt that potential impacts could be defined and possible mitigation measures developed and proposed by this deadline. Clint Atkinson and Milo Bell stated that they will not be able to address all mitigation measures, but at the same time they felt that any shortcomings could be addressed in the proposed phase II studies. All members felt that enough could be said by February 15 to determine project feasibility.

6. Do you feel confident that potential impacts can be identified and mitigation measures defined by February 15? In addition, what is your position regarding the number of field seasons needed before a determination of impacts can be made and mitigation measures developed?

Discussing the implications of salmon enhancement for the upper 130 miles of the Susitna (with and without the dams) and the possibilities of increased salmon production to Cook Inlet, Milo Bell said he had not been asked by the APA to consider this potential. Bob Williams indicated that Acres and TES would not address upper Susitna salmon enhancement potential either. Both felt that consideration of salmon enhancement as an alternative development for the upper Susitna was beyond the scope of the Fishery Mitigation Task Force mandate.

7. Do you agree that upper Susitna salmon enhancement should not be evaluated by the Task Force? What is your opinion regarding the potential of upper Susitna salmon enhancement absent the proposed hydro project?

In closing, your response to these issues and questions will be greatly appreciated. I would like to encourage you and your staff to consider taking advantage of any future public participation efforts that the APA might conduct in the coming months.

Sincerely,



Jeff Weltzin  
Energy Coordinator