STATE OF ALASKA

DEPARTMENT OF FISH & GAME

JAY S. HAMMOND, Governor

Habitat
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Ketchikan, Alaska
99901

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September 30, 1980

Jack Robinson
Harza Engineering Company
150 South Wacker Drive
Chicago, Illinois 60606

Dear Jack:

I'm writing to more fully discuss our concerns and recommendations for research on the impacts of the proposed hydroelectric development in the Black Bear Creek drainage (ADFG #[redacted]-29). When we reviewed and commented on the Reconnaissance Report on this project submitted earlier this year, we urged that thorough investigations of fishery habitat be undertaken before any environmental impact statement was written. We felt this would be especially important in those portions of the stream above Black Lake. Since then, we've obtained information from Dan Bishop, who is conducting hydrological investigations in the area, which indicates that this upper portion of the stream contributes significantly to the system's total production.

I'm sure that Mr. Bishop has provided you with a report on his activities, but I think some of the fishery-related observations are worth listing for the purposes of this discussion.

While conducting hydrological and limnological investigations on the system in late August, Mr. Bishop made the following observations:

- Chum salmon were spawning in Black Bear Creek below Black Lake.

- Pink salmon were schooled at the stream mouth, with some intertidal spawning observed.

- Bishop estimated that 1,000 sockeye salmon were in the system at this time. Sockeye were seen spawning in Black Bear Creek about 3/4 mile above Black Lake, and a number of sockeye were schooled at the stream mouth at the head of Black Lake.

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-Many salmonid fry were observed throughout the system. Undercut banks, debris, and beaver dams supply abundant rearing habitat, especially above Black Lake.

On September 15, while inspecting adjacent logging units with representatives of Sealaska Timber Corporation, I observed approximately 30 sockeye salmon adults and a number of pink salmon adults in Black Bear Creek immediately below Black Lake. I returned to the area on September 24 and saw no pink or sockeye salmon in this portion of the stream at that time.

I spoke with Dan Bishop on Black Bear Creek on September 24. He and his assistant had observed salmonid fry throughout the system and had seen coho salmon adults jumping in Black Lake. An angler reportedly caught six coho salmon at the outlet to Black Lake on Sunday, September 21.

Collectively, these observations indicate the importance of the upper portions of Black Bear Creek to the system's productivity. This portion of the stream supports a significant proportion of the stream's spawning sockeye and pink salmon. Other evidence, particularly the amount of rearing habitat, indicates the importance of the upper stream to spawning and rearing coho salmon. This is also the most likely portion of the stream to be adversely affected by the hydroelectric project. The Reconnaissance Report, our review of the report, and conversations with Dan Bishop identify the following potential impacts:

1. Raising the level of Black Bear Lake will inundate spawning areas used by the lake's resident rainbow trout.

2. Impoundment of Black Bear Lake for hydropower generation will result in changes in the upper stream's flow regime. Depending on the timing and magnitude of these changes, spawning and rearing fish may be adversely affected.

3. Temperature of the upper stream may be altered, depending on the point of withdrawal from the lake and rates of discharge.

4. Since a good share of the water discharged from Black Bear Lake may be discharged into a new channel (the penstock), changes in stream channel configuration, bedload and in the amount of suspended sediment may be expected, particularly in the initial period following construction.

5. Changes in the concentrations of dissolved gases, particularly oxygen and nitrogen, may also be expected.

Any one of these impacts could significantly affect the upper stream's fishery resources. In combination, they may cause serious, long-term changes in productivity. We feel that detailed investigations need to be carried out before these impacts may be fully assessed and before mitigation measures may be discussed. Indeed, these investigations are necessary before the viability of the entire project is considered.

I've discussed these observations and possible impacts with members of our staff. We strongly suggest that the following investigations be conducted:

1. Hydrological and limnological work should continue. We feel one year of monthly observations is the minimum that will be required. Preferably, this work should be continued through the design phase of the project, since this information will be required in determining penstock location and drawdown timing.

At the present time, it is our understanding that the hydrological work involves flow and temperature measurements in addition to a limited amount of water quality work in Black Bear Lake. We feel the scope of these investigations should be broadened to include sampling for dissolved gases and sediment load in the upper portion of Black Bear Creek. Surveys to determine impacts of the project on bedload on stream configuration should also be included.

2. Fish habitat in the upper portions of Black Bear Creek should be identified and quantified. Both the quantity and quality of spawning and rearing habitat need to be identified. We suggest that detailed stream surveys be performed, including minnow trapping and electrofishing, to identify areas used by spawning and rearing salmon and trout.

3. The timing and magnitude of spawning runs, emergence and outmigration must also be determined. Available evidence indicates the upper portions of the system are used by pink, coho, sockeye and possibly, chum salmon, cutthroat and rainbow trout and Dolly Varden char. Timing of spawning migrations for these species may differ considerably and must be taken into consideration in the design of any facility and in the timing of periods of minimum and maximum discharge. Similarly the requirements of incubating eggs and pre-emergent fry must be taken into consideration during design and operations.

4. Spawning areas in Black Bear Lake must be identified. Since these resident rainbow trout are spring spawners, efforts should be made to identify spawning areas during April, May and June.

We strongly recommend that studies along these lines begin at the earliest opportunity. Because of manpower and budget limitations, it is extremely unlikely that Department of Fish and Game staff members will be able to participate to any great extent. However, we are ready to assist in any way we can in designing these studies. We would appreciate the opportunity to meet with you and with representatives of the Alaska Power Authority to discuss these proposals at your earliest opportunity.

It is our hope that sufficient baseline information will be gathered to permit an evaluation of the impacts of this project and to permit the development of adequate mitigation measures. We look forward to working with you on these studies and hope to hear from you in the near future.

Sincerely,

Don Kelly

Don Kelly
Area Habitat Biologist

cc: R. Reed-ADFG-Juneau
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