



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE  
BUREAU OF COMMERCIAL FISHERIES

BOX 1668  
JUNEAU, ALASKA, 99801

October 2, 1968

Mr. Augie Reetz, Commissioner  
Alaska Department of Fish and Game  
Subport Building  
Juneau, Alaska 99801

Attention: Mr. Alex McRea

Dear Augie:

Enclosed for your information are copies of correspondence from Auke Bay Laboratory personnel, Linn Forrest Architects, and the Branch of Environmental Health on the proposed sewage outfall for the new Community College unit planned for construction on Auke Lake.

The subject came up in a recent telephone conversation between Dr. Smoker and Mr. McRea regarding possible effects of the outfall location on the water supply for the trout fry station on Auke Creek.

Sincerely yours,

Harry L. Rietze  
Regional Director

Enclosures

- ltr. 9/23/68 to Anderegg, Dept. H&W fm Forrest
- ltr. 9/19/68 to Forrest, fm Anderegg
- ltr. 4/23/68 to M. Pelto, Auke Bay Lab, fm Hartman
- ltr. 10/1/68 to Forrest, fm Dr. Smoker, Auke Bay Lab

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September 23, 1968

Mr. James A. Anderegg, Chief  
Branch of Environmental Health  
Department of Health and Welfare  
Pouch H  
Juneau, Alaska 99801

Juneau-Douglas Community College Sewage System

Dear Mr. Anderegg:

We have received your letter of September 19, 1968, regarding the Juneau-Douglas Community College. Your comments are made, I presume, from a review of the plans submitted by our office to the State Department of Health and Welfare August 7. Your letter indicates that you have not been in contact with other members of your department, namely Dick Britt and Morris Johnson. We have conferred with these men in person on two occasions several months ago, and at other times by phone for the express purpose of designing a proper and acceptable installation for this Community College. Your third paragraph indicates that the outfall line was a proposal by Linn Forrest Architects alone. This is not correct. The entire sewerage was designed according to the suggestions of these men in order to provide the best possible system. The outfall line was devised through discussions with Mr. Smoker of the Bureau of Commercial Fisheries to assure that contaminants and nutrients would not be deposited in the lake in an undesirable location which could effect the normal lake conditions, or near the source of water for the Bureau of Commercial Fisheries Research Laboratory.

Many alternate methods of waste disposal were considered. What resulted is the best possible design according to the man of your department. In the meantime, the project has been bid and is now under construction.

Sincerely yours,

LINN A. FORREST  
ARCHITECTS A.I.A.

Steve Forrest

SF/so

cc: Mr. Charles Sargent w/enc.  
Mr. William Smoker w/enc.  
Mr. Richard Britt w/enc.  
Mr. Scott McDonald w/enc.

# STATE OF ALASKA

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DEPARTMENT OF HEALTH AND WELFARE



September 19, 1953

Mr. Lin A. Forrest, AIA  
1000-A Harbor Way  
Juneau, Alaska 99801

Dear Mr. Forrest:

In our review of your plans and specifications for the Juneau-Douglas Community Outfall at Lake Lab, I note that you contemplate installation of a plastic line to carry treated sewage submerged along the shore of Lake Lab.

Without comment on the other aspects of your planning at this time, I am writing to advise you that the Department of Health and Welfare is concerned about the desirability of this installation, and I am asking that you delay any further planning or construction of this outfall facility until after you have received formal approval by this office.

It is my understanding that the Department of Natural Resources with its responsibility for control in the use of waters of the State may also have restrictions about the outfall line you have proposed.

I assume that members of my staff will be conferring about this and alternate means to you shortly. I have asked the Department of Natural Resources to advise us of that agency's position on this matter, and I suggest that you delay further action until the two State Departments have been thoroughly advised of your proposal.

Sincerely yours,

James A. [Name] [Title]  
[Address]

Personal letter from Dr. Wilbur L. Hartman to Mr. Mauri J. Pelto  
written after a conference at the Bureau's Ann Arbor Laboratory.

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April 23, 1968

Dear Maury,

Enclosed is an outline of salient points on Auke Lake limnology relative to the potential liabilities of pollution enrichment from the proposed Community College. I conclude with several observations and perhaps you and Dick and Jack and Herb can further asses(s) the situation, recognizing the bare minimum of data we have to go on, and establish the Lab's position.

In the last 2 days I've seen pollution, and heard the sorry tale of eutrophication, especially of Lake Erie. In barely 10 years tremendous changes have occurred. Hypolimnetic oxygen disappears for a month or 2 each year in over a 1000 sq. miles of Lake Erie. The bottom fauna has changed from a rich may fly fauna to oligochaetes. Plankton and fish species have rapidly changed in composition. And the trend seems irreversible.

Regards,

/s/ Will

**Auke Lake limnological characteristics relative to complications  
resulting from artificial enrichment**

**Physical characteristics:**

The lake is small at 46 hectares, with a mean depth of 19 m., and maximum depth of 34 m.

Discharges range from 20-35 cfs in summer, (max. 39.5 in June, 1964) to around 10 cfs in fall and winter (min. 4.3 cfs in Feb. 1965). Such a small lake with low discharges, especially in the salmon egg incubation months in Auke Creek, could easily be affected by relatively small increases in nutrients. Thermally the lake is dimictic and strongly stratifies during the summer with the thermocline sharp and between 5 and 10 m.

Transparency is as little as 2 m. and only as deep as 3.8 m. (secchi disk readings)  $S_1O_2$  contributes greatly to the limited transparency except during June-Sept. Then transparency is chiefly restricted by water color leached in from the drainage.

Such limited transparency limits the euphotic zone to the top meter or 2 of the lake.

**Chemical characteristics:**

Oxygen tension values (we only have data for 1963) show a depression in ppm to 5-6 in June and in percent sat. to below 60 percent throughout the water column in June and to below 60 percent at 20 m. depth all summer long. Nutrient enrichment, higher primary production, will likely lead to increased oxygen depression. We do not know anything about the seasonal depth distribution of fish so it's affect on them is conjecture.

pH averages 6.6, and TDS (total dissolved solids) on the basis of limited data seems to be about 12-18 ppm. The lake does not appear to be well buffered and could therefore be influenced relatively easily by nutrient enrichment.

2.

Biological characteristics:

Important fish species--

Sockeye salmon - 5000-10,000 spawners with at least a year's residence of young in lake.

Coho salmon - 300 spawners with at least a year's residence of young in lake.

Pink salmon - 300 spawners in Auke Creek, incubation and alevin stages in gravel, Sept. - May.

Dolly Varden charr ) - small sport-fish populations  
Cutthroat trout )

Rate of I° productivity measured with C<sup>14</sup>

Under ice of course virtually all of the carbon assimilated in photosynthesis is assimilated in the top m of the water column. Yet, in July (15th, 1963) and Aug. (29th, 1963) assimilation still occurred in the top 1 or 1.5 m. The euphotic zone is very shallow. It is so, evidently because of S<sub>1</sub>O<sub>2</sub> levels and water color. Nutrient enrichment could cause rather dramatic responses in this shallow euphotic zone. So, we must be concerned about increased algae blooms and their effects on oxygen tensions in the summer hypolimnion and during winter stagnation, and on water quality for our laboratory experiments, and on the esthetic qualities of the lake.

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Besides the considerations above, Maury, you might add to the report such as the following:

1. -PO<sub>4</sub> levels and the info. from that Maine lake.
2. Needs of the lab--

3.

- a. a potable water supply,
- b. no loss in water quality for our experiments,
- c. the lake as a continuing source of experimental fish.

I hope these comments are useful. Perhaps Hoopes could go over them and add his comments.

Regards,

/s/ Will

October 1, 1968

Mr. Steve Forrest  
Mr. Linn A. Forrest, AIA  
1000-A Harbor Way  
Juneau, Alaska 99801

Dear Mr. Forrest:

Thank you for the copy of your letter to Mr. Anderegg regarding the Community College sewage outfall.

The more important needs of the Auke Bay Laboratory require the outfall to be located so that the effluent will not enter nor accumulate in Auke Lake. Discharging the material into the outlet stream below the lake will accomplish these objectives.

Of course, for the Laboratory, this is a minimal solution and the compromise outfall location does not preclude ecological changes that may effect aquatic life in the outlet stream or in the immediate estuary. The migratory salmon species under study are also involved in these areas. However, in our research program, we feel this is a calculated risk we can take so as not to impose too severe a restriction on the initial construction phases of the Community College unit.

We anticipate that future expansion of the college, in addition to other facilities such as the Forest Service Laboratory, as well as residences in the Auke Lake drainage, will require other means of sewage disposal than into Auke Lake or into Auke Creek.

Sincerely yours,

William A. Smoker  
Laboratory Director

cc: Anderegg, Health & Welfare, Juneau  
/ Alex McRea thru the Commissioner, ADF&G

DEPARTMENT OF FISH AND GAME  
JUNEAU ALASKA

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DEPARTMENT OF FISH AND GAME

James A. Anderegg, Chief  
Branch of Environmental Health  
Department of Health & Welfare

October 7, 1968

Ben Hilliker  
Habitat Coordinator

Community College Sewage,  
Auke Lake

← File  
111-50-?

Reference is made to your memo of September 24, 1968, concerning the above subject.

The Department of Fish and Game has reservations about the desirability of this type of installation, and we concur with your request to delay further plans for construction of the outfall facility until receiving approval from the Department of Health.

The Department of Fish and Game would be concerned over the possible rupture of a plastic pipe laid along the bottom of Auke Lake, which could result in enrichment and subsequent increased algae blooms in this locally important red salmon system.

We therefore question the engineering feasibility of a plastic pipeline, rather than one of a more sturdy composition, as well as the plan which calls for "laying" on the bottom of Auke Lake. We are willing to review with you the plans and specifications for this project and, further, would like to point out to you the various biological concerns we have which are generated by this proposal in the Auke Lake Basin.

cc: Richardson ←  
Hedman  
Hudson  
Hedden