

STATE OF CALIFORNIA
WATER POLLUTION CONTROL BOARD*P. file
El Dorado Co.
Tahoe Keys*

MEMORANDUM:

To: Mr. Robert Montgomery, Manager, Region II.
Dept. of Fish and Game

Date: June 23, 1960

Subject: Tahoe Keys Report

J. T. Leggett, Executive Officer

From: LAHONTAN REGION NO. 6
407 W. Line Street, Bishop
Phone: 6161

Enclosed is a copy of a letter from Dr. Jack McKee commenting on a report which has been prepared by James M. Montgomery, Consulting Engineers, of Pasadena. I am sorry that I do not have a supply of the report at this time but will forward you a copy in the near future when they are received.

I would like to suggest that you review the letter enclosed and be prepared to submit any comments you may have relative to the possible effects this lime treatment may have on fish life. Further details can be obtained when you have received the report by the Montgomery Company.

This Board plans to hold a regular meeting on June 29 at 9:30 A.M., at the Tahoe Valley Fire Department, South Tahoe. During that meeting the Board is requesting that the Tahoe Keys Company submit a progress report regarding the protection of Lake Tahoe against discoloration.

The Company is going to notify the Board that lime treatment appears to be the only satisfactory answer for reducing turbidity of the Tahoe Keys. As nearly as I can determine, the pH's in the neighborhood of 10.0 to 11.0 should not have an adverse affect on fish life unless, of course, it was for a prolonged period of time; then some detrimental affect might be realized.

In order that the Board may be properly appraised by representatives of the Department of Fish and Game I would like to request that you or a member of your staff attend this meeting. The Board may wish to direct some technical questions in this regard.

Your cooperation in this matter will be very much appreciated.



J. T. Leggett

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P- file
El Dorado Co.
Tahoe Keys

JACK EDWARD McKEE
Civil and Sanitary Engineer
2026 Oakdale Street
Pasadena, California

June 16, 1960

Mr. George J. Turner, Project Mgr.
J.H. Pomeroy & Company, Inc.
120 Montgomery Street
San Francisco, California

Dear Mr. Turner:

This letter is being written at the request of Mr. W. W. Aultman of the firm of James M. Montgomery, Consulting Engineers, Inc., of Pasadena, who asked that I review and evaluate their report on clarification of the cove waters at Tahoe Keys, California. Specifically, Mr. Aultman solicited my opinion relative to any possible detrimental effects on the beneficial uses of water in Lake Tahoe when the clarified water in the coves is allowed to mix with the lake water.

The beneficial uses of Lake Tahoe include fishing, boating, water-contact sports, esthetic enjoyment, propagation of aquatic life, and municipal water supply. The constituents of treated cove water that might be considered in relation to these beneficial uses are turbidity, alkalinity, hardness, and hydrogen-ion concentration (pH).

The treatment recommended in the Montgomery report, namely the precipitation of colloidal clay suspensions by lime, appears to be a logical method for clarifying the cove waters. The only added chemical, lime, is commonly used in waterworks practice with no apparent physiological effects. My only questions, therefore, dealt with the resultant pH, alkalinity, hardness, and turbidity.

The report indicates that turbidity can be reduced effectively to a range of 10 to 30 ppm by the application of sufficient lime to bring to pH value to the 10.7 - 11.3 range. Phenolphthalein alkalinity is increased accordingly and there is a concomitant change in the hardness. The pH and phenolphthalein alkalinity will decrease gradually as a result of absorption of carbon dioxide from the atmosphere; but apparently this readjustment does not allow the clay colloids to become resuspended.

When the coves are connected to Lake Tahoe, lake water will flow into the coves, which presently have a lower water surface elevation. This dilution of cove water will result in still further lowering of the pH, but there is no reason to believe that it will increase the turbidity. Later, there will be a continuous but limited interchange of cove and lake waters.

Based on the low turbidity of the clarified cove water and the changes in final pH, alkalinity, and hardness, there does not appear to be any reason to anticipate that any beneficial uses of Lake Tahoe will be affected adversely, especially when one considers the limited interchange of waters and the volumetric relationship of the lake to the coves.

Accordingly, I support your request to connect the coves to Lake Tahoe and to let the clarified waters of the coves mingle with those of the lake.

Very truly yours,

J. E. McKee /s/

JEM:rf

cc: J.M.Montgomery