

(16)

Twin Lakes - 1957
Twin, B - started BT
Twin, L - barren

138

high lake
barren



October 22, 1947

To: Dr. P.R. Needham, Director of Fisheries, Oregon State Game Commission
By: H.R. Newcomb, Field Agent, Oregon State Game Commission

Subject: Twin Lakes, ^{Calf W drainage} North Umpqua River Drainage, Douglas County, Oregon, 1947

Introduction

On August 28, 29, 1947, Mr. George Churchill, Umpqua National Forest District Ranger, Mr. Robert C. Holloway, Chief Biologist, Oregon State Game Commission, and H.R. Newcomb, Aquatic Biologist, Oregon State Game Commission, visited Twin Lakes which are situated in section 9 of township 27 south, range 2 east, in the North Umpqua River drainage, at an elevation of approximately 4,000 feet. The purpose of this investigation was to determine what steps could be taken to maintain and improve the fishing in these waters.

History

These lakes, referred to as Big Twin or Twin Lake Number 1 and Little Twin or Twin Lake Number 2 are approximately nine (9) and six (6) acres in area respectively. They were surveyed by A.R. Roth in 1938. At that time these waters were barren of fish and he recommended an experimental planting of 1,000 eastern brook trout in each lake after making introductions of a variety of aquatic vegetation and building a two foot dam across the outlet of the larger lake to raise the water level.

The dam was built and 2,000 fish were planted in the larger lake in 1938. The initial planting apparently prospered for fourteen to sixteen inch specimens were reportedly caught the second year after their release. A considerable number of aquatic plants such as Nymphaea, Sagittaria, Potamogeton, Vallisneria, and Isoetes were set out during the spring of 1940. Wildrice (Zizania) was planted in October of 1940.

A second release of eastern brook trout was made in 1940, 1,600 in the larger lake and 600 in the smaller lake. There appears to be no Forest Service record of the origin of either group of liberated fish. Reproduction of fish in the smaller lake has apparently been unsuccessful.

The aquatic plants have mostly survived but have not increased to any extent except perhaps the quillwort (Isoetes) which was probably native anyway. It is doubtful if any great increase in plant production would have improved the situation for basic fertility and plankton production (not the higher plants) is the key to fish food cycles.

Lake Characteristics

The two lakes are essentially similar, with shallow shoal areas and abruptly sloping bottom which quickly reaches a generally uniform depth in the central portion. A depth of fifty-one (51) feet was found in Lake Number 1 while a depth of thirty-two (32) feet was reached in the smaller lake. The lake volumes are maintained by surface run-off and springs. The outlet from the smaller lake, if any, is intermittent. Spawning facilities are poor in both lakes.

Water analysis conducted in the larger lake revealed an adequate amount of dissolved oxygen at all depths except the extreme bottom. If this lake ever stratifies there is probably a definite zone of oxygen deficiency. The analysis was conducted after and during a cold, wet period which may have produced a "turnover", for there was a nearly uniform temperature reading at all levels and a peculiar ten foot strata of slightly warmer water between the thirty and forty foot levels. There was no turbidity, however.

The water was just slightly alkaline with an average pH of 7.2. There was no phenolphthalein alkalinity which indicates that the very low reading of two (2) part per million of methyl orange alkalinity was due to the presence of bicarbonates. Lakes low in the various forms of carbonates usually have a much lower rate of production than other waters and accordingly we should not expect Twin Lakes to support a very heavy fishery.

Both lakes were extraordinarily clear. A small lead weight could be seen easily at a depth of thirty-two feet in Lake Number 2. This clarity indicates a low plankton production and is further indication of a low, basic fertility.

Fish

Four (4) eastern brook trout, $6\frac{1}{2}$, $7, 7\frac{3}{4}$, and $8\frac{1}{2}$ inches fork length were caught on a fly. The two smaller fish were in their second year and the two larger specimens were in their third year. All fish were males. Their testes appeared mature and rapidly developing. There was no indication that any had previously spawned but they probably would have attempted to do so this year. This is good growth on the part of the younger fish and the slower third year growth indicates a lack of larger food items, principally fish, for the older individuals. Many fish of the current hatch were observed in the outlet with little, if any, likelihood of returning to the lake.

Food

Bottom samples at various depths revealed Diptera and Coleoptera larvae present in good numbers and volume. Odonata nymphs were abundant along the shore line. Earthworms were abundant at the edge of the shore.

Discussion

It seems that, at present, the larger lake is in reasonably good balance between food supply and numbers of fish which are growing at a fair rate. More fish, if too many are added, will result in smaller, slower growing fish. Since we do not know where the dividing line is between numbers and reduced size, and since more and more people are interested in making the trip into these remote lakes, it seems worthwhile to experiment with further plantings and see to what extent we can safely push production. So much depends upon how rapidly the crop is harvested.

Except for the difficulty of access, these two lakes constitute admirable subjects for experimentation with fertilizers. It seems almost certain that with an annual expenditure of from ten to fifteen dollars an acre the basic fertility of these lakes could be increased and maintained at a higher level. Even if only the smaller lake was treated it could conceivably benefit the larger lake which is at a slightly lower elevation.

Recommendations

- (1) Plant 3,000, two inch, eastern brook trout in Big Twin Lake, annually, as early as possible.
- (2) Plant 1,000, two inch, eastern brook trout in Little Twin, annually.
- (3) Bag Limit: Five fish per day, not to exceed fifteen (15) fish in any seven (7) consecutive days. This limit probably should be increased within two years after planting - depending upon the angling pressure.
- (4) Season: June 1 through August 31.
- (5) Build rock filter dam at outlet of each lake to discourage fish from leaving lake.
- (6) Urge anglers to keep only those fish (within the limit) they wish to eat while camped at the lake - and not take any out - particularly in 1948.
- (7) Attempt to find some way of introducing gravel in or near the inlets to develop better spawning conditions.
- (8) Make arrangements with the U.S. Forest Service to conduct fertilization experiments.

APPENDIX

Water Analysis of ^Big Twin Lake. August 28, 1947. 3:45 P.M.
 Location: 200 feet off southeast corner.

Temperature OF.		O ₂	Phth Alk.	M.O. Alk.	pH(BTB)	pH(P.R.)
Surface	64	6.4	0.0	2.0	7.3	7.1
10'	65					
20'	63					
25'	63	6.4		(no sample)		
30'	64					
40'	64					
50'	60	4.4	0.0	2.0	7.3	7.1
51'	60					

Rained lightly prior to water temperature series.
 Water very clear
 50 cc. samples used for oxygen determination

Temperature series of Little Twin Lake. August 29, 1937 9:30 A.M.
 Location: Slightly southeast of lake center.

Temperature OF.	
Surface	63
10'	61
15'	61
20'	61
30'	61
32'	61

Considerable rain previous 18 hours.
 Water extraordinarily clear