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MANZANITA LAKE

by

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INTRODUCTION

Manzanita Lake was investigated on September 22, 1976. The purpose of this paper is to summarize and discuss the general findings of that investigation. Reflection Lake and Lily Pond were investigated during the same study period.

MATERIALS AND METHODS

Two experimental gill nets were set in Manzanita Lake on the night of September 22, 1976. Fourteen hours later on the morning of September 23, the nets were removed.

One experimental gill net was set in Reflection Lake on the night of September 21, and removed the next morning.

Lake inventories were completed on these lakes and Lily Pond during the study period. The inventories included measurement and observation of water temperature, color, clarity, depth, shoreline and bottom type, and watershed condition. Relative abundance of aquatic invertebrates and vegetation were estimated and generalizations on use type and intensity were made.

RESULTS

Specific results of these investigations are given in individual lake inventory reports.

The gill net set in Reflection Lake yielded one female rainbow trout (Salmo gairdneri) 49.7 cm (19.5") in length, weighing 169.16 gms (3 lbs. 10.3 oz.). The fourteen other fish captured in the net were golden shiners (Notemigonus crysoleucas) weighing 12.1 cm (4.8") long and 24.6 gm (0.9 oz.) in weight. Averaging

Forty-two fish were captured in the two nets set in Manzanita Lake. The catch was composed of 12 brown trout (Salmo trutta), 29 rainbow trout and one golden shiner. The lone golden shiner weighed 21.4 gms (0.8 oz.) and was 11.2 cm (4.4") long. Average length of the brown trout was 42.3 cm (16.7"), far exceeding that of the rainbows which was 29.8 cm (11.7").

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Average weight of the browns (1128.9 gm or 39.8 oz.) also exceeded the average weight of the rainbows (495.9 gm or 17.5 oz.).

No fish were seen or captured from Lily Pond during the study period.

The only lake investigated during the period with suitable salmonid spawning conditions was Manzanita Lake.

Aquatic vegetation was abundant in Manzanita and Reflection Lakes.

DISCUSSION

The large rainbow trout removed from Reflection Lake indicates that conditions there are suitable for sustaining trout, but it is doubtful that salmonid reproduction can occur to any extent. The lake was last stocked with rainbows in the mid summer of 1974, but more than 2/3 of these fish died during the plant. This large fish either remained from those stocked or moved into the lake from Manzanita Lake. A very small ephemeral stream connects Reflection and Manzanita Lakes, but flows at irregular intervals only during periods of high water.

The rainbow trout population in this lake is probably composed of, at most, a few large individuals.

The golden shiners captured in Reflection Lake were probably introduced as "bait" or "trout food" by anglers. Since such a great number of them were captured, their population in the lake is probably very extensive. Conditions for this fish species in Reflection Lake are excellent. Shiners spawn by attaching their adhesive eggs to submerged vegetation according to McKechnie (1966).

Since conditions for growth and reproduction of shiners in Reflection Lake are so favorable, they will probably overrun this lake in several years, unless controls are enacted. Several things could control the density of the shiner population here. Chemical treatment is a possibility, as is netting or encouraging angling for these exotic fish. Another interesting but highly unlikely control would be a natural one. If several brown trout happened to move into Reflection from Manzanita Lake, via the ephemeral stream mentioned before, they would rapidly and most efficiently bring the density of the shiner population down.

The fish fauna of Manzanita Lake is quite interesting. Brown trout were introduced in this lake before 1929 (Wallis, 1955) and are still thriving. It is not known whether rainbow trout were native to the lake, but they were stocked in 1848 by P. B. Reading (Wallis, 1955). Both trout species reproduce in Manzanita Creek and are plentiful in the lake.

The single golden shiner captured in Manzanita Lake probably represents a small population of similar fish. It is doubtful that these fish will establish a notable population in the near future. The brown trout, noted for its voracious feeding habits, will keep the population of shiners and any other small fish low.

Manzanita Lake is, at present, one of the four lakes still being stocked by California Department of Fish and Game. This stocking probably does little for angler success or the trout population density in the lake. Most of the stocked fish are probably consumed by the large brown and rainbow trout in the lake. The fish in the lake do not need to be fed supplementally, because food is very abundant. I can see no reason for continuing the stocking program here.

In conclusion, conditions for salmonid growth and reproduction in Manzanita Lake and Manzanita Creek are excellent. Management policies presently in effect appear adequate, but the stocking program should be discontinued.

LITERATURE CITED

- McKechnie, R. J. 1966. Golden Shiner; in "Inland Fisheries Management" Alex Calhoun (ed.). California Dept. of Fish and Game. 546 pps.
- Wallis, O. L. 1955. Review of Trout Fishery Situation, Lassen Volcanic National Park California. Unpublished report. Page 66.