

Memorandum

To : Files: Letts Lake, Colusa County

Date: August 14, 1980

From : Department of Fish and Game

Subject: Centrarchid Introduction into Letts Lake

In the past, the management of the Letts Lake fishery by the Department of Fish and Game has included regular plantings of hatchery-reared RT of fingerling and catchable size, as well as occasional plantings of catchable BN. Harvest rates of planted fish has been variable and has ranged from highs of 58 to 65 percent at 2.5 fish/angler hour in the early 1960s to 10 to 15 percent at 0.05 fish/angler hour in the mid and late 1970s.

Early plants of fingerling RT were successful and contributed significantly to angler harvest. In later years, fingerling plants became undetectable in the catch and the fishery became dependent upon the regular stocking of catchable-size trout. The management nemesis of the fishery has been the unauthorized introduction of golden shiners (Notemigonus crysoleucas) (GSH) into the lake by bait fishermen in the early 1960s. Since that time, three chemical treatments have been carried out by the DFG to eliminate the abundant population of GSH (treatments: 1965, 1971, 1978). To date GSH still abound in Letts Lake.

The failure of several chemical treatments to eradicate the GSH population is most likely attributable to an incomplete kill of the target species taking refuge in mud and spring areas of the lake. It is also possible that the repeated use of the treatment chemical has selected for a partially resistant strain of GSH in the system. Whatever the reason, the history of chemical treatments at Letts Lake does not inspire optimism with respect to future successes of this technique in the system.

During the past ten years, Letts Lake has been showing increasing signs of eutrophication. The small shallow lake basin is an ideal system for the rapid build-up of organic material. The increased prominence of rooted aquatic macrophytes and floating mats of bog-type vegetation confirm that eutrophication is rapidly progressing. Repeated chemical treatments with their accompanying fallout of organic material have doubtlessly speeded this process.

As eutrophication continues in Letts Lake, water temperature and water chemistry are changing in favor of a warmwater fishery. The heat budget of the system is increasingly storing energy in the littoral areas of the lake. Increases in plant growth, plankton blooms, algae blooms, insect, frog and crayfish numbers are all indicators of the change. With these shifts, the limnetically-oriented salmonid population is less able to effectively utilize the food resources of the system. The GSH population is little effected by the change as the physiological limits of the species are less restrictive than those for salmonids. GSH continue to populate littoral and limnetic areas of the lake.

In recent years our policy of maintaining salmonids as the only gamefish in Letts Lake became inappropriate. The maintenance stocking of catchable trout has provided a fishery, but the program is costly. In addition, the quality and fitness of the catchable trout in the creel has declined. Fish are often small, thin and undesirable to anglers. Further, merely continuing the catchable trout program as before, could not solve the continuing problem of GSH abundance and competition.

In July, 1980, the decision was made to experimentally stock Letts Lake with largemouth bass (Micropterus salmoides) and smallmouth bass (Micropterus dolomieu). At that time, a total of 1,370 LMB fingerlings and 105 catchable-size SMB were planted. The LMB averaged 68 fish/lb. and were from waters containing northern-strain fish. The SMB averaged 3 fish/lb. and were moved from Trinity Lake in Trinity County. The Trinity SMB have provided an unusual trophy fishery in their home water and it is hoped a fishery of similar quality will develop at Letts Lake.

It is expected that both centrarchid species will become established in the system and hopefully they will reproduce. In addition to adding a needed diversity to the catch, the centrarchids should compete effectively with GSH for food and territory. Being extremely piscivorous, the bass should readily utilize the abundant GSH as food. It is hoped that an ecological balance will be struck which will allow both trout and bass to prosper at the expense of the over-abundant GSH.

The DFG will be watching this water closely in future years to determine the fate of this biological alternative to another chemical treatment.

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