

MONTHLY REPORT  
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Outside about a week spent on inspection of coastal hatchery sites, the remaining time during this period was spent in the central office working on various administrative problems. Included as a part of this month's report is a write-up of the problem of providing spiny-ray fish for stocking private waters and a separate report was submitted to the supervisor on coast hatchery sites.

Disease and Nutrition: Feeding trials were run at Cedar Creek and Hood River using meat products and dry foods. The use of a mixer seems justified and the type which is used for mixing plaster seems to be the most satisfactory at the smaller hatcheries. In some instances, it may be possible to use grinders to mix feed and it was determined that mixing of feed on the concrete floor of the feedhouse or in a plasterers' trough, through the use of a hoe, could be carried out if the food to be fed amounted to approximately 100 pounds.

Experiments in the control of copepods, parasitic upon our coastal cutthroat and some of our rainbows, have shown little promise of success.

Following a transfer of eastern brook trout brood stock from the Klamath hatchery to Hood River and Fall River, an outbreak of disease occurred, which at last report, was causing heavy losses among the transferred fish and in the brood stock which had been held at the above-mentioned stations. The administration of sulphamerazine to check what appeared to be a bacterial infection of these trout has not been success-

ful. The difficulty lies in the tendency of the fish to be hard to handle and the mortalities which have resulted have followed handling after the spawning season and the handling which results from the transportation of fish from one hatchery to another. The losses are falling off and it is expected that the disease will have run its course at an early date.

In the absence of any mortality of wild brood stock in East Lake in 1948 during the rainbow trout egg-take, no research or further report is thought to be necessary.

Most of the disease outbreaks were coped with successfully during the past month but the unprecedented incidence of fungus and lack of adequate treating methods and facilities have made this particular disease especially troublesome.

Lacerations on specimens of cutthroat from coastal waters were tentatively determined as having been caused by other fish of unknown identity.

Weed Control: Six separate applications of copper sulphate have been made in Ten Mile Lake where anacharis densa has been found. Several shoreline sections of Triangle Lake were also treated with the same chemical.

The experiments to determine the effectiveness of fertilization in controlling aquatic weeds in a semi-enclosed area of Siltcoos does not appear to be meeting with success and further applications have been halted.

Liberations: All liberation equipment is being used to capacity at the present time. It was not until the early part of August that the last of the winter hold-overs were put out. There is no question that these fish have furnished some of the best fishing in years. However, fishing has been good in some streams and lakes where no legal-size

fish have been planted.

The pack string is now at Breitenbush Lake, having moved there from Elk Lake on August 29. Approximately 150 lakes have been planted by this method thus far. An additional 20 lakes have been planted by airplane. It is anticipated that most of this year's fish will be out by October 1.

It is felt that a better than average distribution has been obtained thus far. The use of small units has aided in this materially. On some streams, it is impossible to spread out loads of fish. The fish must either be planted in one or two places on such streams or not at all. On large streams where several truck loads are planted, there is little necessity of spreading out each load. Another angle to this problem lies in the fact that the extra handling involved in dipping out the fish can do more harm than good. Full loads should never be planted in one place in the smaller streams unless that is the only possibility. The drivers are instructed to spread out the fish as much as possible and, of course, this includes the time element. If all fish were planted by bucket along the streams and along the lake shores, it would take most of the personnel of the Game Commission, and most of the rolling stock to come anywhere near completing the task.

Airplane planting of lakes certainly has excellent possibilities. A small cub plane with a converted belly tank used as fish carrier has been utilized this summer. This plane is too small for maximum efficiency but nevertheless as high as six lakes were planted in one day. With the proper plane and landing facilities, at least 200 pounds per day could be moved out in this manner. The pack string averages less than 50 pounds per day.

Lake Fertilization: After an annoying delay resulting from a shortage of ammonium sulphate, one of the necessary ingredients of the fertilizer, a supply was finally obtained and this activity has commenced. Three lakes, Earhart and Edna on the coast, and Frog at Mt. Hood, have received applications. These will be repeated at least twice this season after which fertilization will be discontinued until next spring. Scout Lake on the Deschutes will be fertilized immediately after Labor Day.

Trash Fish Control: This activity has been carried on at Crescent, Davis, East, Paulina, Diamond, and Fish lakes and Lake of the Woods. The populations have been reduced at East, Paulina, Crescent, and Odell lakes to the point where they do not offer any serious problem. Control at Diamond Lake has not had the desired effect as yet in reducing the roach population to a low level. Control at Davis Lake is difficult because of the presence of small trout in the same areas with the roach. However, on August 12 and 13, an estimated two million adult roach and several million fry were killed with a negligible trout loss. Plans call for a permanent trap installation at Lake of the Woods to replace the present structure. The trap, designed by John Dimick, will be very effective in ridding the lake of undesirable species.

#### Lake Studies

Diamond Lake: Through August 15 approximately 20,000 fish were taken out of Diamond Lake. The average size has been about  $3/4$  inch less than last year indicating a continuation of the decline evidenced the past two years. The total catch, of course, is down considerably from that of last year.

East and Paulina Lakes: East Lake has produced around 37,000 trout in a period of a little over two months. This is a phenomenal increase over last year. Rainbow and eastern brook have both averaged from 12

to 16 inches. Nearly 80 per cent of these fish were caught still fishing with single eggs.

Over 30,000 trout have been taken from Paulina, again reflecting a big increase over last year's total catch. The fish in Paulina have averaged about two inches less than those in East Lake.

Both of these lakes have had very heavy pressure exerted upon them this year, and the relatively poor fishing at Diamond had added to this problem.

South Twin: The season at South Twin Lake ended on August 15 after over 12,500 fish had been removed. Fishing was good throughout the season except for the last few days.

Supplying Spiny-Ray Fish For Stocking Private Waters: Following discussion of this problem at the August meeting of the Game Commission, and at the suggestion of Mr. Lockwood, the following comments are submitted for further consideration.

Spiny-rayed fishing is bound to grow and expand in Oregon in future years and fishing for these types can do much to relieve pressure on our trout waters. The Soil Conservation Service has long advocated the development of farm ponds for the dual purposes of erosion control and providing fish and fishing as another farm "crop". We receive a constant stream of letters asking how to construct farm ponds and how to stock and manage such ponds. Many letters also come in from suburban dwellers who plan to develop ponds on their properties. Practically all of these ask the question as to where suitable fish can be had for stocking them. In case trout are to be stocked, we furnish a list of commercial trout breeders where the fish can be purchased. If spiny-rays are required, we also

tell them where they can be purchased and suggest that they not be stocked in waters where they are not now present or where they might be introduced to the detriment of trout waters.

Dr. H. S. Swingle, on his recent visit to Oregon, advised that many states make it a policy of supplying spiny-ray fishes for private ponds free of charge. He pointed out that this policy permits his department to recommend the proper species, sizes and numbers to stock with the result that far greater production of fish is obtained than would be obtained from ponds indiscriminately stocked and managed. Improper stocking will result in little fish or fishing because they almost invariably produce unbalanced populations with the undesirable species dominant.

If spiny-rays are to be furnished, only three species need be considered, namely, bluegills, bass, and catfish. The most productive combination is bluegills with bass stocked at a ratio of 100 bass to 1500 bluegills per acre. Ponds properly stocked at the start of any operation, will go on producing fish regardless of the rate of removal by fishing.

It is a common practice for people to keep alive, fish caught while angling in public waters and transport these fish to their private ponds or other waters for restocking purposes. There is nothing illegal about this procedure so long as the angling is done in accordance with law. Thus, spiny-rays have been widely spread in trout waters where they have done considerable harm. If it is decided to furnish spiny-rays free of charge for planting in private ponds, it should be done only under permit from the Game Commission after biological investigation of the water and area in which they are to be placed. This system would permit a desirable measure of control against the stocking of warm-water varieties

in unsuitable waters. The permit might also include specific instructions not to stock any other waters than those specified in the permit.

Transportation of Fish: Since most folks do not possess facilities for hauling live fish, consideration should be given to this problem. It would cost a considerable sum each season, for the Game Commission to transport the fish allotted to each customer and because of this factor, it might be better to adopt the policy of having persons given fish, do their own hauling. To accomplish this, the Game Commission might loan cans suitable for the purpose; the cans to be returned upon delivery of the fish.

It is believed that by giving proper advice on stocking and management to prospective pond operators, a very considerable amount of fish might be reared in private ponds to supplement over-the-counter sources and those now being caught in open waters generally throughout the state. Fish are an excellent source of protein food and the development of private ponds would help to relieve angling pressure on public waters. More people are going into fish rearing on a commercial scale each year, and with our rapidly-expanding population, there is no question but that the encouragement of private pond building, plus the development of spiny-ray fishing, can go a long way toward providing fishing for our customers.

It was suggested by Dr. Swingle that we could probably grow bluegills and bass cheaper in ponds on Sauvies Island than the expense of obtaining them from the present salvage operations. He indicated that bluegills can be produced at the rate of over 200,000 per acre of pond space, and bass, likewise, have an extremely high reproductive capacity. This plan would, of course, require a number of small ponds, some for brood bass and bluegills, and some for nursery ponds. No artificial food would be

fed and reliance would be placed entirely on natural fish food animals. It seems to the writer that such a program could be easily coordinated with the Sauvies Island refuge development at small cost and would furnish desirable spiny-rays for stocking both public and private waters. One distinct advantage would be that of having suitable numbers and species on hand at all times, readily obtainable for planting anywhere in the state. Much time is spent in the present salvage operations sorting out trash fish from desirable types in order to secure enough fish of a single species to make up a shipment.

There is no question but that development of fishing for spiny-ray fishes can do much for Oregon anglers and at the same time remove much fishing pressure from trout waters. It is essential that a definite policy be adopted for departmental guidance in this matter and it should cover such facts as fish for private ponds and other problems so that a strong, dynamic program can be developed. It stands to reason that unless this is done, some other agency will do it, probably the Soil Conservation Service or the Fish and Wildlife Service of the Federal Government. We get numerous calls nowadays from Soil Conservation Service officials here in Portland. They are evidently recommending many farm ponds throughout S.C.S. districts in Oregon, and frequently request aid on farm fish pond problems.

A strong publicity program on warm-water fishes and fishing areas in Oregon to parallel the developmental program adopted, would help inform residents and visitors alike of angling possibilities. If the Dingle Bill passes Congress, further funds would become available that could be applied toward the spiny-ray program at Sauvies Island.

The writer began a two-week, annual vacation starting August 30. Current work was well caught up before leaving and arrangements made to handle all phases of the program during the period.