

Oregon State GAME COMMISSION BULLETIN

Vol. VI

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No. 12

Oregon's Fish Stocking Program

By REINO KOSKI, Aquatic Biologist

Two hundred and fifty tons of game fish were stocked in waters of the state during 1951! This statement may be surprising to the reader and especially to those who inquire, "Why doesn't Oregon stock their streams like their neighboring states?"

We will add, for their benefit, that this sort of thing has been going on for many years. It is true that never before has such an amount of trout and salmon been distributed, but since the first hatcheries began production, fish stocking has played an increasingly important part in the management of the resource.

The situation today is vastly different than in the early days. Most streams and lakes were amply stocked by natural means. Planting was done to replenish stocks in streams in which there was a noticeable depletion. Sometimes, all the fish were placed in the stream on which the hatchery was located. Trout and salmon eggs were hatched and the resultant fry were put in streams with but little thought as to the time and place of disposition. As populations increased, anglers caught less fish so more hatcheries were constructed. This followed a pattern established throughout the United States.

Gradually, fishery workers realized that something was drastically wrong. Streams which had been stocked with millions of fry failed to stand up to the increased fishing pressure. Certain lakes stocked with fry or the larger fingerlings showed excellent results. What caused the difference? The more aggressive workers decided to experiment with fish that had been marked, stocking them in areas where they could be

trapped or seined. With the most careful experiments, it was shown that only one or two per cent of the fry reached the adult stage when stocked in streams. The investigators then set out to determine further the shortcomings of fish stocking. Other individuals continued in the opposite direction, refusing to accept the fact that results were so poor from the indiscriminate dumping of fry and fingerlings in streams. Funds necessary for investigating better or different ways

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Legal-sized trout being released in Roaring River, tributary of the Clackamas.

RESEARCH UNIT ADDS PERSONNEL

The Oregon Cooperative Wildlife Research Unit, which only a year ago was experiencing difficulty in securing adequate personnel to conduct the studies assigned to it by the Oregon State Game Commission, is now at record strength. Last year the Unit was expanded to embrace not only game investigation but fishery problems as well.

The research station operates through the cooperation of the Oregon State Game Commission, Oregon State College, Oregon State Extension Service, U.S. Fish and Wildlife Service, and the Wildlife Management Institute. This is just one of seventeen such agencies now functioning throughout the United States and Alaska. The Game Commission assigns to it many of its research problems which in turn details one or

more graduate assistants to the particular search for facts. This search is under detailed outline and guidance. By utilizing graduate students for most of the projects and taking advantage of the facilities which are available at the State College, the cost of practical investigation is very small and the Game Commission dollar is stretched to go as far as possible. The graduate assistant works under the direct supervision of the Unit leaders at all times.

Specific problems are not selected by the Unit staff but must first be proposed by the Game Commission and then be considered and approved by a coordinating committee made up of representatives from the various cooperating agencies. This committee meets four times a year to discuss and decide on projects and matters of policy.

Normally each student

(Continued on page 3)

☆ THIS AND THAT ☆

The 2,921 hunters checked in during the Interstate antlerless deer season held from October 6 through 12 killed a total of 2,343 deer, or a success ratio of 80.1 per cent. This reduction of the deer herd in this area was necessary in order to protect the range.

* * *

During the season in the Silver Lake area from October 13 to 21, 3,337 antlerless deer were killed by the 3,876 hunters checked in, a success ratio of 86 per cent. The purpose of this special season was to control damage to private lands.

* * *

Concrete guzzlers constructed by the habitat improvement division to provide water for game birds are proving to be popular. In Umatilla county all guzzlers are being used by pheasants. At one guzzler in Columbia county 65 quail were counted.

* * *

A survey of the Big Nestucca River watershed to check spawning conditions and barriers to fish migration was conducted from July through October. Young silver salmon were found in abundance throughout the upper watershed and especially in Elk, McKay, Bear and Testament Creeks. Only one barrier to fish migration, a log jam one mile below Meadow Lake was noted. Young silver salmon were getting into all stream sections. Of special interest to the fishery men was the number of spawning spring chinook salmon noted. All told, 140 spring chinook, including 10 jacks, were observed, while others undoubtedly escaped detection.

* * *

During the 1950 fiscal year 1,903,644 waterfowl stamps were sold in the United States, of which 64,239 were bought in Oregon. Although the total national sales were slightly less than in 1949 (1,954,734), Oregon sales increased as in 1949 only 59,853 stamps were purchased.

* * *

The dry camp problem confronting waterfowl hunters at Malheur and Warner Valley public shooting grounds in eastern Oregon was simply solved this year. A 400-gallon capacity fish liberation tanker was sent to each camp to provide a convenient water supply.

* * *

During the last summer's angling season at South Twin Lake, 8,497 fish were checked. The total weight was 2,110 pounds and the fish ranged in size from 6 to 24 inches. It took 10,155 man hours to catch the fish.



A male Mackinaw weighing 22 pounds taken by spawning crew at Odell lake.

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MACKINAWS PLANTED IN ODELL LAKE

A five-year Mackinaw trout propagation program for Odell Lake is now in its second year and shows promise of providing Oregon anglers with many trout of record size.

In 1951 approximately 40 young Odell Mackinaw in the six to eight inch size group were taken by anglers. Only two of the 40 fish were of unmarked wild stock. Last April 80,000 marked yearling Mackinaw reared at Klamath Hatchery were released in Odell Lake, the first release since the fish were introduced there in 1917.

Such a high return of young hatchery fish compared with the few wild fish in the same age group lends support to the program of planting yearling fish as proposed by the Commission's fishery staff.

In view of the large population of minnows, suckers, and whitefish which amounts to lake trout pasture now being utilized, the deep cold oxygen rich waters throughout, the already present Mackinaw, and the enthusiasm with which catches of these large savory trout are made, Odell Lake is ideally suited for a thriving Mackinaw sport fishery.

Only in recent years have anglers awakened to the fact that Odell contains the largest trout in the state, fish that outstrip the famed Kamloops trout of Idaho's Pend d'Oreille Lake.

This year's Odell Mackinaw plant was derived from eggs obtained in Lac La Ronge, Saskatchewan, where the fish are known as lake char. In November of 1950 an experimental attempt to trap and spawn Odell Mackinaws proved successful and 56,000 eggs were obtained. This year, from October 15 to 24, Klamath Hatchery Superintendent Dick Evans conducted a second egg-take that netted 86,000 Mackinaw eggs thus eliminating the need for out-of-state purchases. Three trap nets set along rocky shoals on the east end of the lake were used to capture the mature fish. In this manner 95 males and 22 females were taken, some ranging up to 22 pounds. Others were taken in nets in 1950 that weighed an estimated 40 pounds.

Complementing the Mackinaw propagation program is another for the release of blueback salmon in Odell. Releases over a five year period are expected to smooth out the sporadic nature of the maturing blueback cycles now present. The blueback in turn should provide an excellent food fish for the Mackinaw.

RESEARCH UNIT ADDS PERSONNEL

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must spend one year in the field working on a problem. During this period he gathers facts concerning the specific project to which he is assigned and uses this material later to incorporate into his thesis. He then spends an additional year in school completing the course work leading to a master's degree in fish and game management. At the present time the Research Station at Corvallis has on its roster ten graduate assistants selected from many sections of the country.

Harry Hartwell and Bill Wick have just returned from a year's work on Eliza Island in Puget Sound where they have been conducting pheasant survival studies. Hartwell took his undergraduate work at the University of Massachusetts and is in attendance at Oregon State College for the current school year. Before coming to the Unit he worked for the Division of Wildlife Research and Management in Massachusetts. His work there was with wood ducks and the water chestnut control. Wick, who came from California, did undergraduate work at Oregon State where he is now enrolled. He also was employed at the Summer Lake Game Management Area, the Alsea trout hatchery, and worked for the U. S. Forest Service. Wayne Bohl relieved them on Eliza Island in September and will spend a year there before coming back to the campus next fall.

Bill Barron, a graduate of the University of Maine has been stationed at the Wizard Falls trout hatchery for the past five months assigned to a problem concerning the consumption of salt by mule deer and domestic livestock. He will spend the winter in school and return to the same station for the following spring and summer for the completion of his assignment. Before coming to Oregon, Barron was employed in game work by the New Jersey Department of Conservation and the Department of Inland Fisheries and Game in Maine.

Glen Carter, has completed his year in the field, having been stationed at Madras where he field reared several thousand pheasants for release in that newly irrigated section of central Oregon and made a winter search for causes of game losses. Before being signed on by the Research Unit, he worked for the California Division of Fish and Game and the California Division of Forestry. Carter will graduate this winter from Oregon State College. His replacement at



A group of Bluebird Campfire Girls listen to illustrated lecture given by Game Commission representative.

SUMMER CAMP PROGRAM POPULAR

Wildlife conservation programs were presented this year by Game Commission personnel at 74 separate summer camp sessions with a total of 5,000 youngsters participating.

Camps covered included Girl Scouts, Boy Scouts, Campfire Girls, Y.M.C.A. and 4-H Clubs. Requests for the program far exceeded that of last year, the first season for this phase of the Commission's education program, when 25 camp sessions were visited with 1,800 children attending.

Recreational value of wildlife, importance of good sportsmanship in enjoy-

ing the recreation, game management in relation to natural resource conservation, and balance between game numbers and food supply were stressed by the Game Commission instructors. Austin Hamer, educational representative for the Commission, had two full time assistants, Ronald Shay and Norman Ritter from Oregon State College. Other personnel of the game department filled in whenever needed. Game bird specimens, big game antlers and pelts of furbearers were used to illustrate subject matter of lectures. Field trips also were scheduled for each camp.

the Madras project is Jim Mohr, who graduated last spring from Oregon State and comes from Hood River. During the last several summers Mohr has worked at the Summer Lake Game Management Area and on the Sheldon Refuge in Nevada.

Carrol Rieck, a graduate of Washington State College, has been in the field most of the past year in the Dallas area assigned to the black-tailed deer project. Prior to his work here he was employed by the Forest Service and the U. S. Fish and Wildlife Service.

Since the game fish research program is still quite new, very few specific problems are as yet under way. Several studies have been cleared by the coordinating committee, however, and will be initiated probably in early spring. One problem is under way at present in the Blue River Experimental Forest Area east of Eugene. Don Wustenberg, a graduate of Chico State College in California,

has been on this job for the past five months measuring the effects of logging operations on water temperatures, turbidity, effects of logging on stream flow, siltation problems and other phases of vital interest to fisheries and the logging industry.

Bill Saltzman from Ohio State University and Curt Simes from Pennsylvania State have just recently arrived and will be assigned fishery research problems in the near future. Both these men have considerable field experience. Saltzman was employed by the U. S. Fish and Wildlife Service in Alaska and Simes worked in Pennsylvania and West Virginia.

Through the program outlined above, Oregon has a practical and economical approach to many of its game and fishery problems. At the same time a sound program of training and demonstration is carried on to achieve the primary purposes of the Unit system.



This three-section fish planting boat is used chiefly in the central Oregon lake area. The fish are dipped out of the water-filled center section as the boat travels around a lake.

FISH STOCKING PROGRAM

(Continued from page 1)

of stocking were difficult to obtain. The emphasis was only on production of huge numbers of fish and the performance of each hatchery was judged by millions of fish produced.

Fish stocking procedures have varied through the years. One group of fish culturists has doggedly followed the routine of stocking fry and fingerlings with production of great numbers as the answer to management of angling waters. The second group, led by members of the "stream improvement" school of thought, has forsaken hatcheries almost completely. Each group has succeeded to some extent in improving conditions in depleted streams and lakes. More often than not, the methods have been excessively expensive. Oregon, with other progressive states, adhered to a conservative policy. Faced with increasing populations, it noted what had transpired in the eastern United States and took steps to prevent a similar occurrence. Refusing to accept either doctrine as gospel, the State began to follow a "middle of the road" policy regarding stream and lake management.

In the late thirties, a department of scientific investigation was set up whose

duties were designed to produce better fishing in depleted lakes and streams. The department by that name no longer exists but the ideas and practices were absorbed into the present Division of Fisheries of the Game Commission. Since then a program has been developed which has taken into consideration our experience and that of others, the application of techniques developed in this state and elsewhere, and the utilization of the most modern and efficient equipment. In addition, we have conducted a sizable fishery research program.

The stated policy of the Oregon State Game Commission in regard to fish liberation is as follows:

"Release of salmonoid fish shall be made only in waters available to the public.

"The most efficient and successful techniques of fish liberation shall be employed in the release of hatchery-reared fish and constant effort shall be directed at improving such methods to the end that maximum efficiency shall prevail in the liberation program."

It is believed that the present program of the liberation department conforms to these specifications. The ultimate goal of such a program, of course, is to pro-

vide to the greatest number of anglers, in all areas, an equitable share of healthy, vigorous, hatchery fish which have been distributed in such habitat that they will compare favorably with the wild native fishes. This work has and will be carried on economically, but a limit of economy exists. As fish food costs rise, they can be matched by greater efficiency to some degree. At some point, however, it will be impossible to lower costs further without seriously damaging some phase of the program.

As the total pounds of fish liberated has increased each year, the liberation cost per pound has decreased. Against a five-year average of 11.27 cents per pound, the 1950 cost was 07.76 cents per pound. Figures for the first six months of the current year show a cost of only 06.53 cents per pound.

In a past issue, the Bulletin presented an article describing the excellent fish hatchery program developed in Oregon. The production of our fifteen hatcheries cannot be valuable to the sportsman unless it can be economically returned to the angler. This accomplishment requires the coordinated operations of the other departments of the Fishery Division, and at times the use of other Commission employees with some assistance supplied by cooperative agencies and sportsmen.

The liberation program begins each winter with the allocating of numbers of trout and salmon to the waters of the state. Most allocations remain fairly constant from year to year but numbers scheduled for some waters vary considerably. For purposes of proper management, the state was long ago divided into eighteen watershed areas. The more recent decentralization of activities caused a division of the state into five regions. The regional lines conform to the watershed boundaries, encompassing in each several, though somewhat similar, watersheds. All fishery activities within that area are the responsibility of a regional supervisor.

The regional supervisor makes recommendations for the disposition of fish allotted to his region. He is dependent upon the data accumulated by his field workers. These men are engaged in numerous fact-finding studies throughout the year. Creel census work, population sampling with gill nets, electric shockers and weir counts, spawning bed counts, surveys of fishing pressure, and stream and lake survey methods are all means of determining the condition of the fishery in regional waters. New lakes

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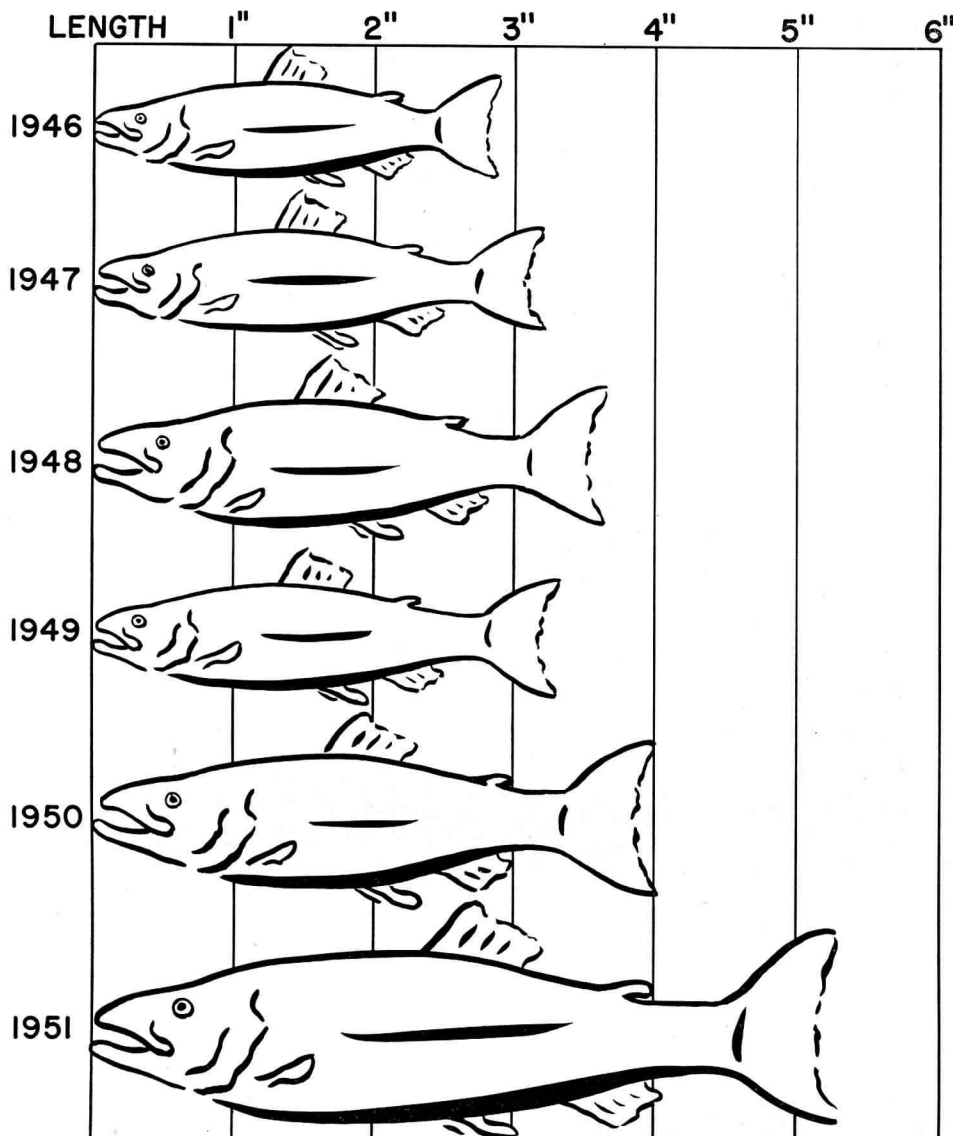


Figure 1—Increase in Average Size of Game Fish Liberated 1946-1951

FISH STOCKING PROGRAM

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are discovered, some lakes are reclaimed after being infested with scrap fish, and new lakes may be formed by flooding meadows or by other measures. The field men, in their daily contact with anglers, measure the catch and derive considerable knowledge of the condition of the waters. The regional supervisor thus has at his command considerable information relative to the need for stocking certain waters. Requests from private individuals to stock streams open to the public are considered and investigated. Usually the stream is already slated for a stocking of trout.

The regional recommendations, when complete, are reviewed by the staff of the fishery division and finally by the Director of the Game Commission. Some

changes are normally necessary because of production changes or transference of fish between hatcheries. The allocations are then pin pointed to hatcheries which will supply the fish and to the month in which the fish will be distributed. Only then, will the actual planting operation begin.

Roughly there are four groups of fish which are to be stocked. First, we are concerned with the yearling trout and salmon which are our most important hatchery product. The fry or newly-hatched fish are stocked during the spring and summer months. Fingerling (those larger than fry and not yet of legal size) are graded out of the fish destined to be yearlings and are stocked mainly in lakes. Old brood fish from some hatcheries are released after they have served the purpose of supplying

eggs and milt but they are relatively unimportant in contribution to the total catch.

The above size groups are represented in the various species which are stocked throughout the state. Rainbow trout lead the field in numbers since they are adaptable to conditions in virtually every part of the state and are most easily reared. Cutthroat trout and eastern brook are the next in importance and numbers. The following table lists all species being stocked in Oregon.

TABLE I

Species of Fish Currently Held in Oregon Hatcheries

1. Cutthroat Trout
 2. Fall Rainbow Trout
 3. Spring Rainbow Trout
 4. Summer Steelhead
 5. Winter Steelhead
 6. Silver Salmon
 7. Fall Chinook Salmon
 8. Spring Chinook Salmon
 9. Eastern Brook Trout
 10. Brown Trout
 11. Lake Trout
 12. Atlantic Salmon
 13. Blueback Salmon
- (Yanks, landlocked sockeyes)

Each year, the results from yearling plants have been so encouraging that the number to be stocked has been increased to the capacities of our hatcheries. Figure No. 1 shows graphically the increase in size of fish stocked in recent years. That fry and fingerlings were also averaged in must be considered. Roughly, 2,200,000 yearlings can be held for one season's planting. Only such other fish as the fingerlings being held for the following year, trout fry being held for summer lake stocking, and the necessary brood fish from which future stocks must come, can be allowed to take up any space in the hatcheries. It is easy to see that with returns as high as 80 per cent in lakes and 50 per cent in streams resulting from these yearling fish, it would be useless to take up valuable space with fry and fingerling, which would show returns in streams of no more than 1 or 2 per cent.

The stocking of legal trout and salmon has a manifold purpose. The rainbows in all areas and cutthroats on coastal streams do provide angling in those streams incapable of rearing large native stocks of resident fish. With the angling pressure now existing on many streams, the small amounts of native fish would perhaps be completely eliminated. The stocked fish bear the brunt of the angler-kill for that time when the pressure

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FISH STOCKING PROGRAM

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is greatest. In the matter of salmon, experience has shown very ample returns from yearling plants, whereas little can be accomplished with fry.

Lakes present a somewhat different picture. Although many of them can be maintained at high levels of production with fry or fingerling plants, the use of yearlings is indicated where angling pressure is abnormally severe, or where mixed species or predatory types are found.

A variety of equipment is currently in use for transporting and distributing fish throughout the state. Tank trucks, por-

hatcheries. Normal trip lengths vary from 25 to 100 miles. The size of load carried depends upon the allocation for a stream, water temperatures, air temperatures, length of haul, and size and condition of fish. A typical load of yearling trout averaging six inches, to be hauled 100 miles on a normal spring day, would weigh 350 pounds and number 3,850 individual trout. Each driver or liberator, as he is termed, has a loading chart which he follows when in doubt. Normally one pound of trout can be carried safely in one gallon of water for one hour when the water temperature is not above 50° F. The larger the fish, the

makes it possible to release fish progressively as they reach legal length.

The within-season releases pose a problem of distribution. If the fish are released in one or two locations, they are easy prey for a few anglers. Even when placed in rapid stretches, the fish tend to congregate in the first available pool. The rate of dispersal has been demonstrated by our workers to be slow. Workers in Colorado found that of an entire season's stocking of rainbow in a stream, over 90 per cent were caught within one mile of the stocking point. The test was on a stream similar in size to many of our Willamette Valley waters. Dispersal would probably be greater in larger rivers. All available data for rainbow trout show migration to be greatest in a down-stream direction.

By distributing fish to many parts of a stream, more anglers will benefit. Normally, this distribution is accomplished by bucketing the fish and then carrying them to the streamside. The liberator usually has some assistance in this. Sportsmen who volunteer in advance for the work through active clubs are helpful and field biologists spend much time in the activity. Cooperating agencies such as the United States Forest Service and the Game Division of the State Police assist with this work at times. Youth groups have been of assistance.

It is difficult to reach many parts of some streams. Roads do not always follow the stream courses, steep canyons and areas of dense brush often prevent access. Thus distribution by bucket is limited in such cases. On many waters, accessible stocking points are on private land or bordering such areas. The liberators have instructions to skip such locations if it is known that the general public does not have access.

Special techniques have been developed to obtain better distribution. Planting boats have been in use for several years on certain lakes and streams. The boat is filled with fish and water from a tanker and the fish are then dipped out at intervals as the boat goes down the stream or around the lake. Concentrations are thus avoided. On the McKenzie, a "trout trolley" has been in use and has proven very suitable for distribution. This apparatus enables the operator to pass buckets to streamside in many areas that would otherwise be inaccessible.

Has the additional effort expended in distribution shown results in greater returns? The answer appears to be in the

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One of several tank trucks used by the liberation department for hauling fish.

table tanks, boats, airplanes, mules and occasionally the backs of strong men have all been used in the program. Almost all of the fish hauled from hatcheries are transported in six tank trucks of which two sizes are now in use of 425 and 725 gallon capacity. The tanks are insulated and are permanently mounted on 2-ton trucks. A circulating pump draws water through a screened outlet and sprays it from nozzles above the water level, thus aerating the water in order to prevent oxygen depletion. The insulated tanks keep the water temperatures low.

These tankers haul fish to streams as far as 250 to 300 miles from some of the

greater the weight that can be carried in a given amount of water.

Distribution of the loads of fish is an important matter. After allocations have been made on the basis of suitable habitat, size of lake or stream, and angling pressure, the distribution must be made in such a manner that the maximum number of fish will be returned. From experimental tests we have knowledge that yearling trout in most instances are available to the angler for a period of not more than six weeks. Hence, in streams that require heavy stocking, releases are made throughout the season. The practice, through repeated grading,

CONFISCATED GUNS FOR SALE

Confiscated guns listed below will be placed on sale December 17, 1951. Anyone wishing to buy a gun must submit his request in writing, accompanied by a check in the proper

amount. All applications will be held until that date and if more than one is received for any one gun, a drawing will be held to determine to whom the gun will be sold.

Lot No.	Make	Model No.	Serial No.	Caliber	Condition	Description	Price
24	Remington Rifle	510	None	22	Good	Bolt Action	\$ 8.00
22	Continental Rifle	1933	None	22	Poor	Bolt Action—Light Weight	4.20
34	Savage Rifle	None	23401	30-06	Fair	Bolt Action—Repeater	31.50
6	Ward W. F. Rifle	35A	None	22	Good	Single Shot	4.80
1,671	Built-up Mauser Rifle	98	13075	30-06	Excellent	Bolt Action—Repeater	60.00
54	Winchester Rifle	None	151785	30-30	Fair	Lever Action	20.00
4	Winchester Rifle	67	None	22	Fair	Bolt Action	5.00
1	H. & R. Rifle	None	1797	22	Fair	Single Shot—Bolt Action	6.00
3	Stevens Rifle	56C	None	22	Fair	Bolt Action—Repeat; Hood Sight; No Clip	8.80
23	Springfield Rifle	84	None	22	Fair	Bolt Action—Repeater; No Clip	14.00
1,611	Ward W. F. Shotgun	10-SD247A	None	410	Good	Single Shot	14.40

FISH STOCKING PROGRAM

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affirmative. Data from the McKenzie River have shown that 50 per cent of angler-caught fish were stocked in the stream. At times an 80 per cent figure is reached in the McKenzie. An investigator on several midwestern streams found that only one angler in nine was benefited by planted fish. A sample of 145 creels on the McKenzie River in April showed marked hatchery fish present in 101 of them. In June on the same stream two months after the last release of marked fish, they still appeared in 30 of 56 creels examined. Results on other streams and lakes in Oregon have been comparable.

Airplane stocking has gradually replaced the pack animal as a means of replenishing isolated lakes. Fry and fingerling trout of several species are used for stocking. Over two million fish are released in this way each year. With the airplane, it is possible to plant as many as 30 to 40 lakes in one day thus cutting down overhead costs considerably. The fish are also stocked at the height of the growing season, taking advantage of ideal food conditions. The fish are dropped from tanks at an altitude of between 100 and 400 feet and suffer no injuries unless they strike some object such as a log or a lily pad. Observers on many lakes stocked in the past two years have indicated excellent survival in most cases. Approximately 340 lakes received fish from the air this past summer.

The fish released in 1951 in Oregon amounted to twenty trout of legal length per angler. This doesn't take into account the stocked fry and fingerlings which

will grow naturally in many lakes to "tackle-busting" size.

In summary then, we endeavor to use the best methods proven in liberating our fish in order to realize the highest possible returns. Additional tank trucks are being constructed. More planting boats will be used. Research is being carried on to cut down on already low transportation losses. Constant attention is given the hatchery-reared fish to produce a superior product. Oregon's hatchery trout are hardy, well formed and healthy.

Anglers can help greatly in this program by reporting all marked or tagged fish. Field study projects contribute much needed information to manage adequately the fishery program. These projects cannot succeed without the interest and cooperation of the angling public.

DECEMBER-JANUARY CALENDAR

Muskrat, Marten—Open both months.
Mink, Otter, Beaver—Closes January 15.
Salmon, Steelhead—Open both months.
Spiny-ray Fish—Open both months.
Predators—Opens both months.
Waterfowl—Closes December 31.

NOTE: Consult official hunting and fishing regulations for exceptions and complete information.

The extensive coastal stream clearance operations carried out by the Game and Fish Commissions and private loggers is paying off this year. Silver salmon have been experiencing an easy passage to spawning grounds on coastal streams only recently blocked by ponderous log jams.

ABOUT THE AUTHOR

An Autobiography

R. O. Koski has been with the Commission for many years and has never been taken seriously enough.

Getting rather old and gray, he is the father of a large family and a dog named Timmy, who goes on field trips with the author. His main interests (the author's, not the dog's) revolve around. He is also interested in old guns and old hatchery sites.

Like most of his fellow employees, he is generally broke, has killed very few elk, deer, or ducks and literally hates fishing. Another hobby is raising walnuts which grow very easily by themselves.

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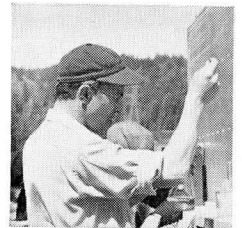
As a supplement to this autobiography, we have the following to offer. Koski, like many others of the game department, graduated in 1939 from Oregon State College in fish and game management and also took graduate work for an additional four terms. After serving in the United States Army from April 1942 to January 1946, he returned to Oregon and was appointed to his present position of aquatic biologist in charge of fish liberations in February 1946.

EDITOR

Fresh water fish and sharks do not drink water. Other fish do.

* * *

The Metolius River in Central Oregon flows straight out of a mountain and, refusing ever to be a creek, is a full-fledged river from the start.



HAROLD SEVEY

Harold Sevey, Superintendent of the Ontario game farm, died November 4, 1951, after an illness of several weeks. He is survived by his wife, Nell Sevey, and seven children.

Harold was born April 5, 1907 at Adams and graduated from the Pendleton High School in 1927. Starting to work part time in 1925, he became a permanent employee of the Game Commission in 1930. After working on pheasant projects in different parts of the state, he was transferred in 1933 to the Pendleton game farm and was made its foreman in 1936. In 1937 he was placed in charge of the newly-established game farm at Ontario and held this position until his death. For about ten years he also served as superintendent of the eastern Oregon game farms, the position then being abolished.

His long experience with pheasant propagation made him invaluable to the department. He was particularly expert in the field of pheasant nutrition and disease.

Field personnel and other fellow employees always found him willing to cooperate in all activities in his area and to do whatever he could to promote the welfare of the department. He had very good public relations with his neighbors and was a community leader, serving as a member of the local school board as well as of several clubs and lodges.

His passing leaves a vacancy in the game department that will be hard to fill.

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BUTTE FALLS HATCHERY

The entire production of the Butte Falls Hatchery northeast of Medford is devoted to the Rogue River. Established in 1916, the old station with its earthen ponds was used for trout production. In 1942 an adjoining federal salmon hatchery was abandoned and the Game Commission transferred its activities to the vacated salmon hatchery. Since then the Commission has also produced silver and spring Chinook salmon for the Rogue River.

For the past two years spring Chinook salmon have been successfully raised to yearling size at Butte Falls Hatchery. Last spring the first release of 40,000 yearling spring Chinooks was made in the lower Rogue. The 19,000 spring Chinook now on hand average six inches in length and when released next March will be 1½ years old. An additional 17,000 yearling spring Chinooks destined for the Rogue are being held at the Klamath Hatchery.

Expenses are higher and production figures much lower when you raise yearling salmon, but the end result, survival and return of salmon, is expected to be far higher than that realized from former fingerling plants.

Butte Falls Hatchery Superintendent Everett Moore describes his spring Chinook as the friskiest fish he has ever seen. They are so energetic Moore has had to place screens over their tanks to keep them from leaping onto the floor of the hatchery house. Disease outbreaks have not occurred among the young Chinook. Moore notes that they differ from other young salmonoids in feeding habits, accepting only food on the water surface.

Moore was raised on a cattle ranch in the Klamath Basin, but he has devoted most of his life to rearing fish for Oregon anglers. He started his hatchery career at the Klamath Hatchery in 1921 and has served continuously as superintendent of the Butte Falls Hatchery since transferring there in 1926.

Rearing of yearling silver salmon was initiated at Butte Falls Hatchery in 1947. Next spring 50,000 yearling silvers now held at the station will be freed in the Rogue. A salmon egg-take station



EVERETT MOORE

operated from the hatchery is located near Trail, just above the confluence of Butte Creek and the Rogue. This fall 90,000 spring Chinook eggs were obtained there and the silver salmon egg-take is still underway. To supplement spring Chinook restoration work on the Rogue, eggs have been obtained from the Federal Fish and Wildlife Service.

No trout brood stock is held at Butte Falls Hatchery as all available space is needed for rearing. Rainbow trout eggs are brought in from other Game Commission hatcheries, especially Roaring River Hatchery. On hand for release in the Rogue as legal-sized and larger fish next year are 115,000 rainbow trout. During the winter, food consumption amounts to 500 pounds a day for the yearling fish and the summer average is a ton of food a day.

Butte Falls Hatchery fish have a healthy environment—they share the same water supply as the residents of Medford. This is obtained from upper Butte Creek, a spring fed stream.

A small park with facilities for all the family is maintained on the hatchery grounds and it is a popular picnic spot especially on hot summer days. The hatchery is 17 miles east from Crater Lake Highway on the Butte Falls road.

Oregon State Game Commission Bulletin

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