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Game Fish Problems in Coastal Streams and Lakes

By FRANCIS H. SUMNER, Senior Biologist

The coast of Oregon is watered by a multitude of fine streams and lakes, all of which are capable of supporting fish populations of a size to delight the angler's heart. However, the comparison of available stream space for trout with the numbers of trout actually present is discouraging. What has happened?

Every old-timer on the coast has stories illustrative of former much more abundant fish populations. What has become of them? For an answer let us turn back a few pages. In 1910 the population of Tillamook county was 6,266. There was no Coast Highway, and most existing roads were unpaved. To every 270 of Oregon's population there was one automobile. Now note the change. Tillamook county's population in 1940 was 12,263. The Coast Highway was carrying a heavy traffic of anglers. Connecting roads were largely paved. Car registrations were one to every three persons in Oregon.

It is a commonplace of economics that a rising demand for a fixed supply must reduce the supply. An increased demand by anglers for coastal stream and lake fishes has indeed severely constricted the supply. Of course, other factors have also been operative. Nevertheless, increased angling pressure is believed to be the most important factor in this regard. What is to be done about it?

The problem is to manage our coastal waters for a constant yield per angler at the maximum practicable level. But the human population is still growing and angling pressure is still on the upswing; therefore, management must envisage a flexible program of continuous adaptation. The tools of this adaptation are: (1) investigation, (2) regulation, (3) improvement, and (4) liberation. On the first of these the other three are based. Thus, the major problem of management is to obtain adequate information on which to base manage-

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Airplane and Radio Used In Pheasant Areas

The use of the airplane in patrol of pheasant habitat has been utilized recently by the Oregon State Game Commission personnel in areas of reported illegal kill of this excellent game bird. Favorable results indicate that more extensive use of this method of patrol and observation will be practiced in the future, particularly in sections of the state closed to pheasant hunting this year.

It is planned also to use mobile radio units in several areas of eastern Oregon during the fall hunting seasons.

The first Oregon angling license law was enacted by the 1909 legislature. Resident license fee was \$1 and nonresident \$5. The daily trout bag limit was 125 and the open season extended from April 1 to October 31.



Steelhead Anglers at Dam Hole on Trask River.

Public Owned Wildlife Management Areas

By A. V. MEYERS, Chief Biologist

The Oregon State Game Commission has rather quietly embarked upon a long-time program of acquiring some of the valuable or potentially valuable game areas of the state for the purpose of improving wildlife habitat and establishing public shooting grounds.

This program was first considered in the late 1930's but the vast scope of the undertaking and the realization that many unforeseen complications would develop caused the Commission to operate in low gear, feeling along their way and thoroughly evaluating their experiences for future reference.

The passage of the Pittman-Robertson Act in September, 1937, by Congress appropriated to states maintaining certain game management standards a pro-rated share of the excise tax on firearms and ammunition. This furnished a source of funds that could readily be used for this purpose. Prior to the war, Oregon received from \$25,000 to \$66,000 per year. During the war this dropped to \$18,000 but increased this year to \$55,000 and is expected to increase more in the future. The state is required to match each \$3.00 of the Pittman-Robertson allocation with \$1.00 from the State Game Fund.

This program requires large expenditures. For instance when our 14,000-acre Summer Lake Management Area is completed, the Commission will have invested approximately \$120,000 in land acquisition and \$90,000 in improvements or a total of \$210,000, which is a lot of money. The question continually arises in thought — is this expenditure justified and the project practical? But it must be considered that this hunting improvement is available to us, our children, their children and so on "ad infinitum" and it then most certainly takes on the status of being justified and practical. With this consideration the acquisition and development becomes capital investment on which an interest is received not in dollars and cents but in hunting assets to the public. The Commission does

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The Supervisor's Column

DIAMOND LAKE

Although the writer has fished Diamond Lake for many years, he never has had the chance to observe the lake and the fishermen to the extent he has this summer.

It is surprising to note how many people do not know where Diamond Lake is. It is in Oregon, although from the looks of the license plates on parked cars there, it might well be in California as sometimes has been claimed by a few ambitious publications.

To be more exact it is approximately 270 miles from Portland and only 21 miles west of The Dalles-California Highway. The road from this highway is paved right to the resort on the lake as is the road up Rogue River from Medford.

It lies only some 20 miles from Crater Lake in a beautiful setting, with Mt. Scott to the south and east, Diamond Peak to the north and west, Mt. Thielson on the north and east and Mt. Bailey on the south and west.

The lake is west of the summit of the Cascades in Douglas county and its outlet, Lake Creek, forms a large portion of the head of the North Umpqua River. The elevation is 5195 feet above sea level and the area of the lake is approximately 3000 acres.

The alkalinity of the water is greater than most of the Cascade lakes, which lends itself to greater growth of marine life, both vegetable and insect. It is only 52 feet at the deepest place and a great deal of the lake is less than 20 feet in depth. There is no doubt but that it is one of the "best fed" and most adaptable to fish life of any of the Oregon lakes.

It is in the Umpqua National Forest and the Forest Service is to be commended for the very fine camp grounds which run from the lodge three miles to the south end of the lake. At the lodge can be had good meals and good boats at reasonable prices.

Throughout August the fly fishing was exceptionally good and we had no trouble taking limits. The minimum length limit is 10 inches and the daily limit 5 fish. Many of our limit catches averaged 10 pounds, or 2 pounds to the fish. Some of the limits were heavier and the last one taken weighed 13 pounds. The largest fish weighed $4\frac{1}{4}$ pounds but many 3 and 4 pound fish were caught during the month.

Three patterns of flies were used, the black widow, the Chappie special and the buck tail Coachman. Space precludes their description here. The trollers were not catching so many fish and many of them were small, and neither were the baiters having very good luck. Although against the law, we believe that many of the latter defeated their own purpose by "chumming" with canned corn, canned

peas and salmon eggs to such an extent that the fish were not hungry. Since the stormy weather about September 1, however, the trollers and baiters are doing better.

The fish count carried on this year by the Game Commission shows about 1000 fish caught each week, which will run into several tons of fish before the season closes.

The Game Commission maintains a hatchery at the lake and approximately 4,000,000 fry were released this season.

With the heavy stress of fishing, it is a wonder that the fish maintain themselves to the extent that they do, and in spite of many complaints, the fishing is more than reasonably good for those who really know how.

History Repeats Itself

History not only repeats itself around the peace tables but also around other tables where mankind spends a great deal of his time—eating.

Time was, a few decades ago, when hunting and fishing was a necessity for our pioneers. From the game and fish, which they found so plentiful in forest and stream, came the greater part of their living. History tells us that it played no little part in the building of our great nation.

For many years now hunting and fishing, with the exception of commercial fishing, has been looked upon and accepted as a luxury. Millions of dollars are spent each year by sportsmen in pursuit of their quarry.

The Oregon State Game Commission is expecting more hunters to take the field and forest this year than ever before in the State's history. There are several reasons for this expectation, and all are well founded. Most of our young men are home from the services, and a great number of them are anxiously awaiting the opening of deer and elk seasons.

Ammunition is available in larger quantities than last year and the expense of long trips will keep no one home.

The main reason for expecting a record number of hunters this fall evolves around the rise in the cost of living and the subsequent high cost of meat.

Hunting will still remain in the luxury classification; nevertheless, this fall one will see hunters with that determined look, looking more determined than ever—a 200-pound deer or a 400-pound elk in these times is something worth looking determined about.

It is estimated that in all probability at least 50,000 deer and 4,000 elk will be bagged in Oregon this fall. With the average deer weighing 160 pounds and the average elk tipping the scales at 350 pounds, a total of 9,400,000 pounds of deer and elk meat will be eaten throughout Oregon this year. At 40 cents a pound—a non-inflationary figure—the sum to-

tal for this almost nine and a half million pounds will be worth \$3,760,000.00.

Yes, sir; the game bagged this year by Oregon hunters will help them economically just as it did their grandfathers and great grandfathers.

September Meeting of The Game Commission

The regular monthly meeting of the Game Commission was held at the Portland office on Saturday, September 14.

The bid of Conrad Brothers, Medford, in the amount of \$6,420.00 was accepted for the construction of four holding ponds at the Butte Falls hatchery on the Rogue River. When completed, the ponds will double the output of the hatchery where steelhead, salmon and trout are raised for release in the Rogue River watershed.

The fisheries department was authorized to enter into agreements with meat and fish packers to be assured of entire output of items suitable for fish food. The difficulty in keeping the hatcheries supplied with an adequate amount of fish food was reported to be one of the main factors in the curtailment of production.

The Commission authorized a reconnaissance of the Willamette Valley to locate possible sites for development as fish and game management areas under a long range program. It was pointed out that small pieces of land that were more or less waste land and of little agricultural value might be developed into pheasant or waterfowl habitat at little cost and that waste water areas might be utilized for spiny-rayed fish.

The assistant supervisor was instructed to file a protest with the State Engineer to application made by Pope and Talbot to appropriate water from tributaries of the upper Willamette River as such appropriation of water would interfere with the operations of the Commission's hatchery.

In view of the several inquiries received, consideration was given to the possibility of selling approximately 100 acres of pasture land at the Hermiston game farm. It was decided, however, that no steps be taken toward selling the land until plans for development of the farm were complete and it could be ascertained whether or not the land was needed in connection with operation of the game farm.

In accordance with the provisions of the Federal Aid Act, it was ordered that the same portion of the Summer Lake Management Area be closed to hunting as last year. This leaves 50 per cent of the area open to shooting.

An appropriation of \$4,000 was authorized again for winter aerial coyote control in the open areas of eastern Oregon. It was also decided that the field biologists of the Commission should be furnished ammunition for predator control in conjunction with their other duties.

The next meeting of the Commission will be held on Saturday, October 12.

Public Owned Wildlife Management Areas

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not expect a direct financial return on their investment but would like these areas to defray partially the cost of operation. Again, for example, consider the Summer Lake Management Area. This unit is being operated on an annual budget of \$12,000 allocated from the Oregon State Game Fund. Last season the direct receipts from the Summer Lake Unit included daily hunting permits (\$1.00) \$4,102; muskrat pelts \$2,256.30; and grazing fees \$392.00, making a total receipt of \$6,750.30, or 67 per cent of the operating costs which is returned to the State Game Fund.

This shows the Summer Lake Area to be operating "in the red" but only so far as direct returns are concerned. The indirect returns cannot be evaluated exactly but unquestionably are the more important. Large numbers of upland birds and waterfowl are hatched and reared on these areas and the surplus is taken by not only the hunters on the management area but on other lands as well. And last but not least, it furnishes a place where any licensed hunter can find a place to get some shooting without having "to know somebody" or pay the usual high membership fee to some hunting club or shooting preserve. This latter asset may not seem so important to us now, but we need only take a look around any thickly populated section, particularly the Far Eastern states, to see what can happen. There are many areas where hunting is available only to members of hunting clubs or patrons of shooting preserves.

When the Commission started this program in the late 1930's it thought it was getting "the jump" on the situation but the way Oregon's population increased during the war years, and seems to be still increasing, it is very apparent that the starting of this program was timely but none too soon.

Under this program Oregon has two projects under development at the present time.

The older project is the aforementioned Summer Lake Management Area located 100 miles southeast of Bend.

Although the acquisition is incomplete and very little of the proposed development accomplished, this project was far enough advanced in 1944 to be a workable unit and has been in operation for the past two years. This 14,000 acre area is composed of approximately 4500 acres of shallow marsh, 1000 acres of open lake water, 2000 acres of grassy meadow frequently interspersed with ponds, 600 acres of grain land and the rest is barren alkali flats or sagebrush. The proposed development that will be started soon will change about 2500 acres of alkali flat to shallow marsh and will improve the present marsh and ponds through water



An aerial view of part of the marsh area in the Public Shooting Grounds at Summer Lake. The open water in the background is the Summer Lake resting area — not a part of the Management Area.

stabilization. It is expected that this project cannot be completed for five to ten years because of the scarcity of materials and equipment.

The other project is known as the Camas Swale Management Area located in the Willamette Valley twelve miles south of Eugene. This area is composed of 3,000 acres of sub-marginal farm land strategically located between two large waterfowl resting areas—Fern Ridge and Cottage Grove Flood Control dams—as well as being on the Willamette Valley waterfowl flyway. Since the purpose of these dams is flood control the water level is fluctuated drastically and frequently, thereby practically eliminating the growth of waterfowl food plants and seriously discouraging waterfowl nesting. As part of the Willamette Valley Flood Control Program, these dams are under the jurisdiction of the U. S. Government and are strictly maintained as inviolate wild life sanctuaries. It is the Commission's intent to develop this management area into a nesting and feeding ground by installing a series of water checks interspersed with food crops to serve the birds using the resting ground sanctuaries.

At the present time this unit has but little wildlife value and will continue so until development can be accomplished. About 85 per cent of the area has been acquired at this time but acquisition should soon be accomplished and development started. It is planned that a portion of this area be left open to hunting each season under a similar plan as is being carried out on the Summer Lake Management Area.

Federal regulations require that on areas purchased with Pittman-Robertson

funds, as was Summer Lake and Camas Swale, at least one-half of the area must be kept closed to hunting. At first, this was looked upon as a penalizing restriction for the hunters but experience has shown that it is not. By keeping one-half of a unit closed, the shooting is stabilized and not so dependent on the arrival of the south bound flights. If all of a unit were left open, hunters would take very few more birds but they would molest every bird there, causing them to move on south. This would result in hunting being good only for a day or two following the arrival of south bound flights.

So far this program has been applied actively only to areas where waterfowl was the primary species but this has been entirely because of circumstances. The character of certain waterfowl areas seems to fit into the program more readily than does desirable habitat of other species. There is nothing in the federal or state regulations or the Commission's plans that would prevent the setting up of management areas for deer, elk, pheasants or other game species when conditions permit.

The management areas and the public shooting that is a part of them are new ideas to hunters in the West and naturally looked upon with some skepticism. This is to be expected of a new program with as large a scope as the management area program offers. However, the experiences the Commission has encountered to date make this program seem increasingly more desirable and from its present "infant" stage, it will undoubtedly grow into a system that will help make Oregon one of the leading wildlife areas of North America.

Summer Lake Hunting Seasons

The 1946 season at the Summer Lake Management Area offers one of the most attractive combined hunting trips in Oregon. Interested and lucky sportsmen have the possibility of enjoying a four-way season in that general vicinity.

Hunters may hunt buck deer on any of the adjacent open land until October 25. Then on October 26, if they made application for one of 500 special Summer Lake deer tags and were lucky in the drawing, they may hunt deer of either sex in the specified area. Also on October 26 the migratory waterfowl and pheasant seasons open. The entire Summer Lake basin was declared a pheasant study area this year, with a long season and liberal three birds of either sex bag limit established. It will be necessary for sportsmen to check in and out of designated checking stations for the special deer, waterfowl and pheasant seasons.

The Summer Lake Management Area includes the first public shooting grounds to be established in Oregon and during the past two years of operation, Summer Lake kill records have been well above national averages. During 1945 every man who hunted at Summer Lake bagged an average of 2.2 birds per day.

Administration is kept as simple as is possible and still comply with all laws. Each hunter is required to check in and out of the area each day he hunts. A daily hunting fee of one dollar is charged for hunting on the Summer Lake Management Area. This money is used to partially defray the expense of such operations as producing waterfowl foods, improving

habitat, and increasing the nesting area.

More hunters are expected this year than ever before. The short waterfowl season is expected to send many western Oregon duck hunters to eastern Oregon for their favorite sport.

Accommodations for hunters will be somewhat improved this year. Two parties have cabins or barracks within one mile of the checking station. Several ranchers again expect to have rooms and meals available for hunters. Two unimproved camping areas are available near the marsh. Cabins, barracks, and ranch accommodations are usually all reserved for the first ten days or two weeks of the season. A mimeographed list of the various known accommodations will be mailed free of charge upon request.

For sportsmen who have never hunted the Summer Lake area the following information is given. The shooting is primarily marsh flyway hunting. Decoys are sometimes successful, but often they are not. Many birds are killed and then lost in the tules. Retriever dogs are recommended to cut down the number of lost and crippled birds. Some small lakes and potholes provide the more usual decoy type of hunting, but most sportsmen hunt the large marsh at the north end of Summer Lake.

The national bird of Guatemala is the quetzal. It was chosen because it is a bird of freedom . . . it will die in captivity, retaining the beautiful color of its plumage even after death.

Elk Regulations

Opening day of the general elk season in Oregon is October 29 but the closing date varies in different parts of the state.

In the open area west of U. S. Highway 97 the season extends through November 14 for bull elk having not less than forked antlers. Counties closed to elk hunting in this section include Jackson, Josephine, Curry, Coos, Douglas, Tillamook, Wasco and Hood River.

In the area east of The Dalles-California highway the season will run to November 20 for elk of either sex except that only bull elk having antlers may be taken in the following section of northeastern Oregon: Beginning at the town of Arlington, thence south along state highway No. 19 to intersection of the North Fork of the John Day river at Kimberly, thence east along the North Fork of the John Day river to the mouth of Cunningham Creek near Peavy Cabin, thence north and east along Cunningham Creek to the summit of the Blue Mountains at Cunningham Cove, thence north along the Blue Mountain summit to intersection with the Union-Baker county line near the Anthony Lake road, thence east along the north line of Baker county to Snake River, thence following the state line north and west to the town of Arlington, the point of beginning.

It shall be unlawful to transport or possess any antlerless elk or spike bulls or any parts thereof, in areas in which the season for said animals is not open, unless said animals or parts thereof have been affixed with a metal seal by the Game Commission.

Tagging stations will be located at North Powder, Medical Springs, Dale and at intersection of Peavy Cabin and Chicken Hill road for antlerless elk entering the northeastern Oregon bull area and at Hood River, Maupin, Sisters and Goshen for elk being transported to western Oregon.

In the following portion of Baker county the season for elk of either sex will be extended from November 21 to December 22: Beginning at the city of Baker, thence south along state highway No. 7 to junction of the Sumpter Valley road at Salisbury, thence west along the Sumpter Valley road to Sumpter, thence north along the Fruit Creek road to the summit of the Blue Mountains, thence north along the summit to posted junction with the Anthony Lake road, thence north along the Anthony Butte road to Bear Wallow spring in Union county, thence north and east along the posted summit and trails to the Forest Service boundary at Howard Meadow, thence east along the north line of Township 5 south to intersection with the Clover Creek road, thence south along the Clover Creek road to North Powder, thence south along U. S. Highway No. 30 to the city of Baker, the point of beginning.

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Four waterfowl bag limits taken on the Public Shooting Grounds of the Summer Lake Management Area. In 1945, 6,296 ducks and 2,864 geese were taken by hunters there.

Upland Game Must Be Tagged

Upland game birds will be required to be properly tagged in the area in which they are killed before they may be possessed or transported to any areas in which there is a closed season or lesser bag limit.

Tagging stations will be maintained at Hood River, Maupin, Sisters, Goshen, Vale, Ontario, Nyssa, Adrian, Juntura, Brogan and Huntington and at all State Police patrol stations in the counties open to hunting. Malheur county stations will be open from 9 a.m. to 9 p.m. each day during the season. The Cascade tagging stations will provide 24-hour service.

Upland game bird hunters will find that their hunting has been curtailed somewhat this season. Poor nesting success made it necessary to shorten the pheasant seasons to assure adequate breeding stock for next year. The decline in numbers of Hungarian partridge, also due possibly to unsatisfactory nesting success, made it necessary to close the season entirely on this species.

Pheasants may be hunted in Malheur county from October 19 to November 3 and a daily bag limit of 4 cocks is allowed but not more than 8 may be taken in any 7 consecutive days or held in possession at any one time.

In the other 20 counties open to pheasant hunting, the season is from October 19 to October 27, and the bag limit is 3 cocks a day but not more than 6 in any 7 consecutive days or in possession at any one time. Open counties include: Douglas, Coos, Josephine, Jackson, Klamath, Deschutes, Crook, Hood River, Wasco, Sherman, Gilliam, Wheeler, Morrow, Umatilla, Union, Wallowa, Baker, Grant, Harney and Lake.

The entire Summer Lake basin in Lake county has been set aside as a pheasant study area and an extended open season from October 26 to December 31 has been provided. The bag limit is 3 pheasants of either sex in any one day but not more than 6 in possession. Hunters shooting in this area will be required to check in and out at checking stations located at Paisley and the Summer Lake refuge headquarters.

Valley quail may be hunted from October 19 to October 27 in the following counties only: Douglas, Josephine, Coos, Jackson, Klamath, Crook, Deschutes, Grant and Wasco. Bag limit is 5 a day but not more than 10 in any 7 consecutive days or in possession at any one time.

Blue or sooty grouse again may be taken only in the following coastal counties from October 12 to October 25: Clatsop, Columbia, Tillamook, Curry, Lincoln, Coos and that part of Douglas and Lane counties lying west of Highway No. 99. Bag limit is 2 grouse a day but not more than 4 during entire season.

Care of Game

DEER—Immediately after being killed, a deer should be drawn and inside of cavity wiped out. It should then be hung up, skinned, quartered if desired, and allowed to cool out at least over night. Care should be taken during the day to keep the meat cool and away from flies, which can be done by covering the meat with a large wool sack or regular deer bag. After the animal heat is out of the carcass, the meat, if the weather is warm, can be wrapped in blankets during the day and hung up again at night. Deer never should be carried home on a fender or running board of a car. The best way to transport the meat is to put the quarters in clean sacks, wrap them up in blankets and put them in the back of the car.

ELK — Immediately after being killed, an elk should be bled and entrails removed. The carcass should then be hung up, skinned and be left hanging until thoroughly cool. If the kill is made in location inaccessible by car, the elk can be skinned out easily on its hide, quartered and then packed to camp where the quarters should be hung up to cool. Under no circumstances should the hide be left on an elk over night as the meat is apt to sour. Also an elk should never be transported until the cooling out process is complete.

Fall Upland Game Bird Census

Fall census of upland game birds is being conducted throughout the state this month by the district biologists of the Oregon State Game Commission.

A measure of the success of this year's hatch of wild birds and the distribution of game farm birds released will be acquired during this census. Late winter checks of the bird populations will be made to determine winter survival and early spring breeding populations.

Muddy Creek Elk Hunt

During the special three-day elk season held August 31, September 1 and 2 in the Muddy Creek area of Baker county, 15 bull elk were killed by the 641 hunters participating in the early hunt.

This area of approximately 20 sections was opened to hunting by the Commission at the behest of Baker county ranchers because of crop damage although it was known that only a small herd was in the area at this time and that reduction of numbers would be accomplished better by the later season. However, some immediate alleviation of the potential crop damage was accomplished as a result of the hunting.

While the Commission had issued warnings in advance that the hunter success in the area would not be high and discouraged those having to make long trips to the area, 70 per cent of the hunters checked in were from west of the Cascades. There were also three non-residents, 2 from Michigan and 1 from Washington.

Rains improved hunting conditions and reduced fire hazards, and the elk killed were in excellent condition. Hunters also observed the rules of safety for no accidents were reported although there were approximately 32 hunters per section concentrated in the area.

The Muddy Creek area also is included in the larger portion of Baker county that will have an extended open season for elk of either sex from October 29 to December 22, at which time it is hoped to accomplish the reduction of the herds that come down in the winter and do damage to the hay crops.

No report of an eagle carrying off a child has ever been substantiated. Scientists estimate the lifting power of an eagle at not more than seven pounds.

BAG LIMIT

*I just got a limit—had very good luck
But didn't shoot pheasant, a quail or a duck.
I got up quite early and traveled the by-ways—
You see, I'm the fiend who shoots road signs on highways.
My very first shot bagged a beautiful SLOW
And I chuckled with glee when I laid that sign low—
Then I sneaked through the grass and I hid among boulders
And knocked over a couple of tender SOFT SHOULDERS.
I got three CITY LIMITS and one sign that read
In arresting black letters LOOK OUT! CURVES AHEAD!
Then I shattered a STOP, but my prize shot no doubt
Was the one that demolished a DANGER! BRIDGE OUT!
It was strenuous work, but I've no cause to squawk
I'm a sharpshootin' champ with an eye like a hawk.
So if you get lost, or get killed, or pay fines,
You can thank me, Ol' Pal—I'm the fiend who shoots signs.*

—AUB BRANDON in "Hunting and Fishing".

Game Fish Problems In Coastal Streams and Lakes

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ment policies. Let us examine more closely some of the questions which investigations may be expected to answer.

SPECIAL PROBLEMS

Trout are by far the most widely sought game fish in coastal streams. Two species are present, the steelhead and the cutthroat. Although both ascend the streams to spawn during the winter, the steelhead, because of its superior size, has been the angler's choice during that season. Conversely, the cutthroat fills the bulk of the summer catch, with large numbers of young steelhead being taken in the early season and late summer.

The question naturally arises, why not manage the fishery to increase the supply of adult steelhead for winter angling, and the supply of cutthroat for the summer sport? Indeed, that is one of our prime problems of coastal game-fish management.

But how to make the increase?—By planting more fish? Where will the eggs come from to hatch the trout? Steelhead eggs must be obtained from wild fish, since steelhead cannot be raised in ponds to the ocean-reared size. But the stripping of wild fish presupposes a superior survival for artificially reared fish, costs being taken into account. However, that belief no longer is as widely held as formerly. Moreover, it can be seriously questioned whether existing methods of capturing spawners do not gravely interfere with spawning runs of other fishes.

The situation with respect to cutthroat is somewhat better. Brood stocks of this species have been successfully maintained at the Alsea Hatchery. Whether or not the present hatchery reared supply materially effects the fishery is a problem awaiting solution.

There is no question but that the stream improvement work being carried on at present, such as the clearing out of logs and slash jams, and the blasting of impassable barriers, will result in a greater natural reproduction of trout. Much more work could be done in making highway culverts passable to fish by the installation of cleats to form fish-ladders.

ANGLING REGULATION

In recent times, regulation has been the key to a continuation of angling at a level warranting much angling effort. Our first settlers took all the fish and game they wanted and no one could say them nay. With the growth of populations, it has been found necessary to impose restrictions in order that the average holder of an angling license could find something to catch when he visited his favorite stream or lake. Only within recent years, the general trout bag limit has been reduced from twenty-five to fifteen per day. As angling pressure increases, it may

again become necessary to reduce the bag limit.

The regulation of seasons too may be a powerful tool for preserving a fishery. Most of the young steelhead which are caught during the early part of our open season for six-inch fish are on their way downstream to salt water, where the steelhead makes its major growth. Data from two tributaries of the Kilchis River reveals the downstream migration taking place through May. This finding seems to indicate that a later opening could improve the angling for winter steelhead.

Previously, it was permitted to take three cutthroat, ten to twenty inches long, with the winter daily bag limit of three steelhead or salmon over twenty inches in length. The 1946 regulations, however, exclude the three cutthroat from the bag. This provision is designed to permit a greater escapement of adult cutthroat to their spawning grounds, and thus to lead to an improvement in summer angling.

Tidewaters constitute about fifteen percent of the length of streams on the coast. However, on account of their accessibility, their importance to angling is out of proportion to their area. A recent study of Tillamook Bay steelhead indicates that most of the young steelhead there spend some time, usually less than a year, in brackish water. Summer angling in tide-water sections of streams accounts for a large proportion of the total catch of trout, particularly cutthroat. Further study is needed to determine the relative importance to species maintenance of the tidewater trout populations.

CLOSED STREAMS

The question of the value to the fishery of closed streams will also require more study. It is no doubt true that the tributaries serve as nurseries to the main streams. Nevertheless, investigation has shown that they may also support considerable populations of legal-sized trout which may or may not descend to the main streams. Also to be taken into consideration is the matter of respect for the law. The present system of maintaining closed streams is undoubtedly making violators of many otherwise respectable citizens, mostly through a misunderstanding of the complicated regulations. Also, because many children cannot travel to open waters, they must fish on closed streams if they are to fish at all, and thus disrespect for the law is bred in them during their formative years. The question to be answered here is, can the regulations be simplified in this respect with compensatory bag, season or size regulations added to make up for any presumed loss to conservation?

Another problem for investigation is the inter-relationships of trout and other species, particularly salmon. That the salmon are important to the trout is indicated by the fact that downstream trout, taken in a Kilchis River tributary during the downstream run of chum and silver

salmon fry, were often gorged with the salmon fry.

COAST LAKES

The lakes of the Oregon coast present many special problems. Some of these waters have maintained their pristine qualities and contain only trout and salmon, while many others have been complicated by liberations of assorted spiny-rays, catfish and carp. Although the introduction of so many exotic species has not been an unmixed blessing, nevertheless, the trout angler could well afford to vary his menu with the fine angling provided by black bass, catfish, yellow perch and sunfish in several coast lakes. Even the dry-fly purist can catch many of them!

The problem of pollution in coast water is above all a matter of improperly disposed logging slash. The main problem here is one of enforcing the existing law which prohibits the depositing of slash in a stream.

All the problems discussed above prove our great dependence on a thorough knowledge of trout life-history. We already possess considerable information on the steelhead, resulting from recent incomplete investigations here, and also from previous work done in California and Washington. However, the life story of the cutthroat trout, as was pointed out by Dr. Paul R. Needham, Director of Fisheries, in a recent article in this series, is still much of a mystery. A great deal more study is necessary to fill out the picture of its life and habits.

FIELD STUDY METHODS

What methods are applicable to such a study? In the first place, all methods used must permit the investigator to examine the fish directly.

The operation of a weir with two-way traps has proved to be the most efficient manner of investigating trout biology. The weir blocks migrating fish, forcing them to enter traps whose openings are on the downstream and upstream face of the weir. The fish can then be dipped from the traps for study. After the fish is measured and marked or tagged, it is released to follow its original direction of travel.

The advantages of a trap are that it may be operated the year round, and that it covers the migrations of all species of fishes in the stream.

For the past few months, downstream migrant traps have been operated in two tributaries of the Kilchis River, and have already revealed much valuable data. These traps are simple cubes of hardware cloth which slide into fixed frames.

In order to determine the proportions of fish populations that are non-migratory, it is desirable to carry on periodic population studies in the upper part of the test stream on which the weir is located. This has been done elsewhere

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The Semi-Automatic As a Sporter

By THURMAN RANDLE, Commander, USNR, President, National Rifle Assn.

(Excerpts from this article reprinted by permission from Transactions of the Tenth North American Wildlife Conference, 1945.)

The semi-auto has enjoyed but mild popularity as a sporter in the past. But in the anticipated increase in postwar hunting the popularity of the auto-loader is likewise expected to soar to new heights. The reason for this is that many of the men who make up the increased roster of hunters will be men who have become used to the semi-automatic and full-automatic weapons of the Army. Most of them knew nothing about guns when they went into the service. Their military tutelage has been with semi-automatics and full automatics almost to the exclusion of other types. They have learned to rely on them in battle, and it seems reasonable to expect that many of them will want them with them in their forays into the hunting fields of peacetime.

Well, what about the semi-auto as a sporter? Is it, or ain't it?

Perhaps it should be explained at the outset that the so-called "automatics" which have been manufactured for sporting use in the past are all semi-automatics. They really are not full automatic in action. The full-automatic weapon continues to load, fire, and eject as long as the trigger of the weapon is held down and there are cartridges in the magazine. This is a military or police action and should be, and is, practically restricted to these two uses by federal law. The semi-auto is in reality only a self-loading weapon which fires but one shot when the trigger is pulled. It then utilizes the power of that shot to operate the action, eject the fired case, and load a new cartridge from the magazine into the chamber. That is as far as it goes. It requires another trigger pull to fire another shot. . . .

But there is another problem with this weapon that is not so psychological. This is the dangerous manner in which the semi-automatic arm has too often been used in the field. In itself the semi-automatic action is a harmless piece of machinery. It takes the asinine cooperation of a damphool to make it lethal. While actually it won't kill an animal any deadlier than an old single-shot muzzle loader, its potentialities for deadliness in improper hands are considerably greater. This, too, has been a liability.

The problem here arises from the fact that this action, by its very nature, encourages volume of fire rather than more deliberate, accurate, safe shooting. Loaded with a hatful of cartridges the inevitable tendency is to "burn 'em up". The accurate placement of those shots too often becomes a matter of secondary importance. The rip and snort of a fast-firing weapon is a thrill to the hearts of

many people, but to the heart of the hunter on the next ridge, carelessly and mistakenly identified as a buck deer in the rut, it strikes in cold terror. The real problem with the semi-auto as a sporter, then, is the misuse by irresponsible hunters of its faculty for quick loading. . . .

The M-1 Garand is a fine military weapon but its possibilities as a sporting arm are decidedly limited. The very nature of its mechanism will prohibit the use of the conventional sporter stock in remodeling to sporter style. And this same mechanism makes it quite improbable that its weight can be reduced to sporter dimensions. It certainly cannot be brought below eight and one-half pounds with iron hunting sights and not this low with the hunting telescope sight. Its M2 .30-'06 cartridge has ample power and accuracy for any American big game. But the M1 Garand was designed for this M2 cartridge, which is loaded with the 150-grain full patched bullet to a velocity of about 2,700 f.s. Under present loadings this develops a breech pressure of about 38,000 pounds per square inch. At this pressure the weapon functions well, but it must be remembered that breech pressure is the one really important limiting factor in the design of an arm of this type. Sporting ammunition in .30-'06 caliber is often more heavily loaded and, while the action of the Garand may be perfectly strong enough to withstand the increased pressures of this ammo, there is quite apt to be considerable trouble with extraction. Smooth functioning of the arm with such ammunition probably cannot be expected. After all, the Garand was designed for military, not sporting, purposes.

The M1 Carbine is a cute little job that has deluded a great many people into thinking they would like to use it in the deer woods postwar. It is a nice, light-handling little piece that has been a bone of contention ever since it was born. Everything about it, including its very purpose in life (i.e. replacing the pistol, . . .) has been criticized. It has an irritating habit of jamming entirely too frequently at exactly the wrong time, and the whole magazine is likely to fall out when you least expect it. But these little quirks can probably be remedied in time. All new weapons have such bugs that have to be worked out. Even the now dependable Garand originally had plenty of them.

But the important point here is the cartridge. The little carbine cartridge is not a deer cartridge. Someone recently dubbed it a "jackrabbit cartridge, period," and he very nearly hit the nail on the head. It is, in fact, the old familiar .32-20 H.S. in a new package. . . . Make no mistake about it, the carbine can kill deer. But so will the .22 Long Rifle — if it hits 'em right. That doesn't make the carbine any more a deer rifle than it does the .22. . . .

Is the semi-automatic action a sporting proposition? After all, it's a matter of how it is designed and how we use it. If it handles a properly designed sporting

cartridge of adequate power; if it is accurate at sporting ranges; if its action is dependable, it will be just as sporting a proposition as the guy in whose hands it finds itself. If he's a sportsman and a straight shooter, the gun will likewise be sporting and straight shooting. But in the hands of a chiseler any gun can be anything.

This and That

The coast survey crew working in Curry county a few weeks ago salvaged about 10,000 stranded fish in Dry creek, a small tributary of Sixes river. Cream cans were borrowed from a local cheese factory and the fish transferred to deeper waters. Steelheads made up 90 per cent of the fish rescued and the rest were chinooks, silvers and cutthroats. Although most of the fish were from this year's hatch, some of the trout ran up to 12 inches in length.

The closing of the general trout season will occur on October 31 although the season for many of the mountain lakes ended in September. With the closure of the trout seasons, however, fishermen will still be able to fish for salmon and steelhead over 20 inches in length and the various spiny-rayed fishes during the winter months.

An albino porcupine was seen recently near Bly by game farm employees releasing birds in that area.

Although several game reserves have been opened to hunting during the game seasons, these refuges will not be open to trapping for fur-bearing animals. Predators may be trapped in refuges only under special permit which is issued if investigation shows that such trapping is necessary for the protection of game.

An unexpected problem developed recently at the Ontario game farm when the superintendent discovered that three coyotes had found their way into the open field where pheasants are raised through a hole caused when the irrigation water was turned off. Two of the coyotes were caught immediately.

Copies of the official hunting synopsis are now in the hands of all license agents. Paper difficulties held up the distribution for several weeks.

Pigeon hunting during the month of September was not as good as hunters had hoped although fair success was had by some.

Hunters may still dispose of their deer and elk hides to dealers authorized to buy hides by the Game Commission. This practice was started during the war years and is being continued in order to prevent an economic waste.

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Game Fish Problems In Coastal Streams and Lakes

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successfully by diverting the stream flow for the required distance and pumping out the pools by means of a portable gasoline-driven pump. The fish are not killed by this procedure, but are kept alive in tubs while data is collected.

To determine the success of angling in relation to existing regulations will require the checking of anglers' creels. Random checking is valuable but time-wasting and incomplete. The operation of a checking station through which all anglers must pass can provide more complete information. This could be done on a stream accessible from only one direction.

The contribution of hatchery trout to the angler's creel can be tested by marking the trout before planting them in a controlled stream on which an angler checking station is operated. A project of this nature has been operated successfully on the Clackamas River.

All of the above investigational methods have for their end the supplying of scientific information on which to base plans for the rearing and liberating of trout, and for the rational regulation of sport angling. The more information obtained, the better balanced can be the management program. Nor will all the problems outlined be solved overnight, regardless of how much money is spent. The majority of steelhead mature in their fourth year. Thus, investigational program must be continued for at least that long to cover one trout life-cycle. The results of scientific investigation can be expected to point the way to greatly improved fishing for the average angler.

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Elk Regulations

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During this postseason hunters will be required to check in and out at stations at North Powder, Baker and Sumpter Valley road.

In all of the foregoing areas elk may be hunted under the general elk tag which is on sale at most license agencies throughout the state at a cost of \$5 for residents and \$25 for non-residents.

In addition, 100 tags have been issued for hunting elk of either sex from October 24 to 28 in the Troy area and 200 tags for the Ukiah area from December 16 to December 22. Holders of these special tags will be required to check in and out of the areas. Checking stations for Troy area will be at Elbow Spring and Troy, and for the Ukiah area at Ukiah.

All checking stations will open at noon one and one-half days before the opening of the season and will remain open until 5 p.m. on the day following close of the season. Most stations will be open 24 hours per day.

Hail Storms in Grant County Damage Winter Deer Feed

Scattered hail storms during the latter part of August and the first of September have partially defoliated certain areas of deer winter browse in Grant county.

The effect was first noticed on a burned over area in Bear Valley where heavy stands of snowbrush, an evergreen, were defoliated up to 75 per cent. While the foliage was knocked to the ground and the plants were almost bare, it is thought that they will be able to put out new leaves and survive.

Then on September 1, a hail storm was actually witnessed passing over Dry and Damon Creeks. Hail stones up to 1 1/2 inches in diameter hammered off the foliage from bitterbrush, juniper, mahogany and other browse plants.

The effect was most noticeable on juniper. It was estimated that an average of not more than 10 per cent of the foliage was removed. Fortunately a large share of this was from the more exposed portions of the trees above deer reach, and the lush terminal branches eaten more by deer when available, were not removed. No accurate method of computing damage done was devised. However, several square foot samples of foliage taken from the ground averaged 2 ounces in weight. The average area around each tree was

estimated at 100 square feet. Throughout the area affected, covering approximately 18 sections, the average number of trees per acre is about 12.

The mahogany stands were affected somewhat but since the majority of the plants are high skirted, the foliage knocked to the ground was of no consequence except it may be of some food value to the deer late this fall.

The real damage is most likely to have occurred to bitterbrush which was stripped of 90 per cent of its mature leaves. However, in most cases the leaves were about ready to fall anyway and the winter leaves were started. If defoliation had occurred during extremely dry weather, the plants might well have succumbed.

1946 Angling Season At South Twin Lake

Open season.....June 29 to August 31
Bag limit.....5 fish a day, 10 a week
Total trout caught.....10,011
Total weight.....6,495 pounds
Ounces per fish.....10.3 ounces
Anglers trips.....4,826
Creel return.....49.8 pounds
Man hours.....21,258 hours
Hours per fish.....2.12 hours
Marked fish caught.....8,101
Per cent of total catch.....81 per cent
Fish sexed.....5,767
Females.....2,948
Males.....2,819

Size	Number	Per cent Catch
6"-8"	134	1.3 per cent
8"-10"	3,336	33.3 per cent
10"-12"	4,710	47.0 per cent
12"-14"	261	2.6 per cent
14"-16"	1,213	12.1 per cent
16"-18"	364	3.6 per cent

October Hunting and Fishing Calendar

Trout Season: Closes October 31
Deer Season: Closes October 25
Elk Season: Opens October 29
Blue Grouse: October 12-25
Pheasants: October 19-27
Pheasants
(Malheur Co.): October 19-November 3
Waterfowl: October 26-December 9

A mammal is an animal but not all animals are mammals. Mammals are warm-blooded, vertebrate creatures, which bear their young alive and feed them at their breasts.