

OREGON STATE  
GAME COMMISSION

# BULLETIN

FEBRUARY, 1958



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Please report promptly any change of address. Send in both the old and new address with notice of change.

At the present time the Bulletin is circulated free of charge to anyone forwarding a written request.

### the cover

Steelhead fishing on the Rogue River at Robertson Boat Landing, one of the several access sites developed by the Oregon State Game Commission on this stream. (Photo by Ron Shay)

### WILDLIFE STAMPS AVAILABLE

The 1958 series of Wildlife Conservation Stamps is now available from the National Wildlife Federation, 232 Carroll Street, N.W., Washington 12, D.C.

Printed by a six-color lithograph process, the 1958 stamps depict 30 species of animals and plants, plus 6 striking public land scenes.

Contributions received in exchange for the stamps help finance the educational programs and conservation projects of the Federation.

### JANUARY MEETING OF THE GAME COMMISSION

At its meeting in January, actions taken by the Game Commission included:

*Eel Lake Right of Way:* Approved application of Lakeside Rural Fire Protective Association for pipeline right of way to take water from Eel Lake for fire-fighting and domestic uses only.

*Sandy River:* Authorized purchase of 225-acre tract on Sandy River.

*Educational Leave:* Approved a policy authorizing the Director to grant under certain conditions educational leave to full-time employees.

*Lake of the Woods:* Consideration of participation in a project to stabilize level of Lake of the Woods was tabled pending decision from the Forest Service as to what should be done.

*Capital Outlay:* Authorized \$1,550 for renovation of residence on White River management area; \$3,168 for dike construction at Sumner Lake; \$540 for water impoundment at Rogue River area.

*Game Refuge:* Rejected application for a private game refuge from Pendleton Country Club as Commission policy is to create game reserves only in areas where needed for game management purposes.

*State Fair:* Authorized preparation of exhibit for 1958 State Fair.

*Supervised Hunts:* Authorized two supervised hunts in Union and Coos counties early in February for damage control.

### 1958 National Wildlife Week

"Protect our Public Lands" is the goal for 1958 National Wildlife Week, March 16 to 22, sponsored by the National Wildlife Federation and its state affiliates.

The Federation suggests the following six courses of action to carry out this goal.

1. *Make it your business* to learn about the public lands, their uses and many values. Find out what public lands are near your home and within your state.

2. *Start educational campaigns* in your community. Interest your leaders in the protection and careful management of the public lands.

3. *Show the people* who are using the public lands—the farmers, lumbermen, mining concerns, hunters, fishermen and other outdoor enthusiasts that their "privilege of use" does not entitle them to abuse.

4. *Protect and defend* city, county, state and federal parks, forests, grazing lands, and wildlife areas from encroachments by special interests who seek to chisel these lands away for their own gain.

5. *Get behind programs* of your public land agencies. After learning of the work these people are doing, study the problems they face in making the most of our rich public land resources.

6. *Support the efforts* of private conservation organizations.

ing the last seven years the number of drownings in Oregon where boats were involved were as follows.

1951	1952	1953	1954	1955	1956	1957
36	35	46	30	44	23	23

\* \* \*

Wickiup Reservoir brown trout eggtake yielded a total of 336,142 eggs.

\* \* \*

Ochoco Reservoir was restocked with 216,246 rainbow fingerlings and South Twin Lake with 10,780 during December. Both were chemically treated last September. Beginning May 24, Ochoco Reservoir will be open to angling the year around. Its tributaries, however, will be open only during the regular trout season, April 26 to October 31.

\* \* \*

Fish released for the year totaled 19,063,589. Weight amounted to 525,760 pounds, almost identical to the 1956 total. Tabulation of releases by watersheds will be published in a later issue.

\* \* \*

Game Commission education personnel presented 115 wildlife conservation programs in 87 schools during the fall period October through December. More than 20,000 students heard the programs.

\* \* \*

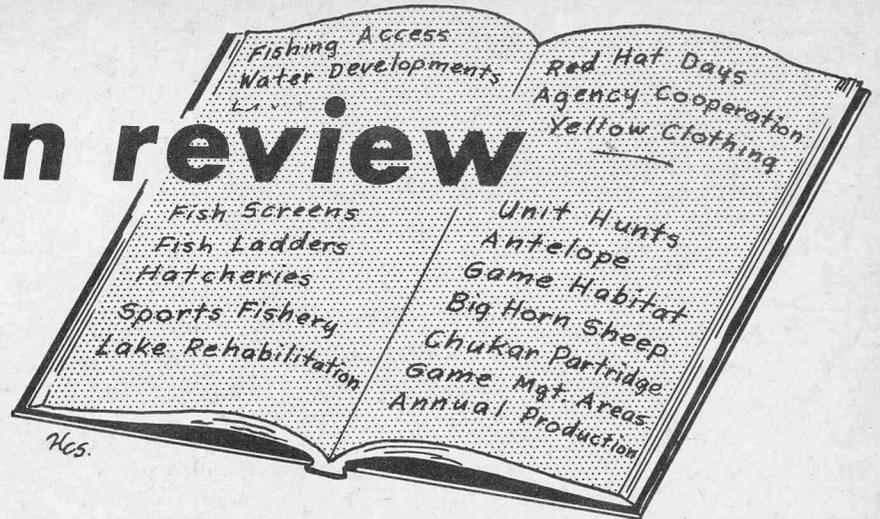


That big elk or deer you bagged this fall might be a record kill. If you wish to find out, write to the Boone and Crockett Club, 5 Tudor City Place, New York 17, for a registration blank, specifying the species of game animal. The form has detailed charts and instructions on how to measure your trophy.

\* \* \*

Educational campaign on boat safety appears to have paid off in Oregon the past two years, according to figures submitted by Ed Brockmann, who has been connected with the campaign. Dur-

# 1956-57 in review



By P. W. SCHNEIDER, Director

THROUGHOUT the past two years, we have reported on activities and progress being made on behalf of the important fish and wildlife resources of the state. These have appeared in the form of specific articles in the Bulletin in an effort to keep our readers informed in some detail about the program of the Oregon State Game Commission.

It would be impossible to compile in a brief article suitable for our Bulletin a comprehensive analysis of all phases of the Commission's program. This is done, however, through other documents, such as the annual division reports, which constitute detailed compilations of activities and data in both the fishery and game fields. These reports are made available to the interested reader by placing copies in libraries and other sources accessible to the public.

It is appropriate, however, both in the course of program analyses and planning for the future, that we periodically review some of the operational highlights of the preceding year or two. That is the objective of this article.

The past two-year period has been an extremely busy one for the employees and members of the Oregon State Game Commission. It has been a period when many phases of planned programs were placed into operation and a period made even busier by the increased activities of land and water use engaged in by other interests. Any activity of land and water use imposes problems and factors to be considered from a fish and wildlife standpoint because these values, as do all other natural resources, originate with our fundamental resource base of land and water. Even minor practices have an impact in one way or another on fish and wildlife.

In the fisheries field, particularly, we are confronted with numerous and, in many instances, formidable problems re-

lating to the maintenance of our very important fish resource. This is especially true with our native anadromous salmonoid fishes. The sea-run salmon, steelhead and trout as well as our resident fishes depend upon an aquatic environment maintained in as nearly natural condition as possible. Water development projects have required the attention of this department to a greater degree than at any time in the history of the Commission. These projects make marked and drastic changes in the natural environment on which our native species must depend. Thus we are confronted with the necessity of employing the combined skills, knowledge, and experience of both the fishery scientists and the engineer in analyzing proposed projects and providing for maximum possible protection to the fisheries. Lacking extensive experience and the accompanying knowledge which comes out of working with projects of this type, the fishery agencies of the Northwest, in cooperation with numerous construction agencies, are attempting to integrate into project designs criteria which will best provide protection for the fish runs involved. That this will be successfully done is not an assured fact because of the many technical and biological problems confronting us.

The absence of a firm forecast of pending projects, likewise, adds difficulty in orderly planning. Within the past several years, those who have followed the development of water-use projects will recall that the region has been confronted with a continually changing pattern of water development and use.

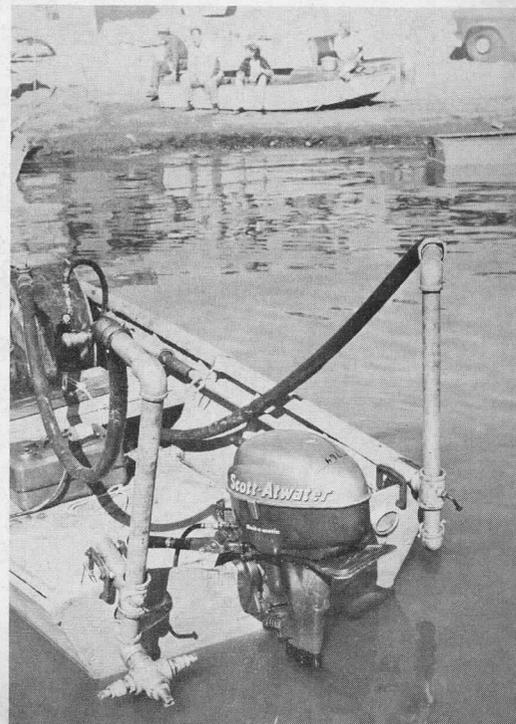
It is our feeling that in the task of protecting and providing for increases of the important fishery resource, we are faced with the most serious and difficult challenge ever confronting fish-

ery management agencies of this region of the country. This task has been a highlight of the past two years and in our judgment will continue to represent one of the most important problems before us in the near future.

In connection with the use of the sports fishery resource, the Oregon angler continues to enjoy, in varying degrees, year around angling for some species of fish. An analysis of angling pressure compared with a decade and more ago presents a picture of increasing demands of large proportions. We look with enthusiasm and optimism, however, toward the ability of a modern fisheries management program to sustain and in many instances, particularly with our lake fisheries, increase even further the returns of fish to the angler. Numerous aspects of the fisheries management

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One of the pumping outfits used during the chemical treatment of Ochoco Reservoir last fall.



## 1956-57 in review

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program are designed to continue that trend. The technique of lake rehabilitation has demonstrated the effectiveness of this program in many of our central and eastern Oregon bodies of water where production following treatment is much higher than at any time in the immediate past and where we can expect a continuation of a thrifty and productive fishery on a sustained basis.

The angling access program, which is relatively new in Oregon, has progressed in a satisfactory way. We have enjoyed the very fine cooperation of local agencies such as the several counties with whom we have executed agreements for joint projects to secure and develop access to many important streams, which will prove of real use to the angling public not only today but in years to come. This program, accumulative in its effect, will proceed essentially along the lines now under way.

Extensive joint consultation with several land management agencies has resulted in the development of guidelines for road construction and timber harvest. This will aid materially in the protection of stream environment for fish production. Further implementation of this effort can represent a real "milestone" in the broad field of fisheries management.

In the effort to reduce further the serious losses which occur to both resident and sea-run fish through diversions, much progress has recently been made through the Lower Columbia River Fishery Development Program. An extensive screening project embracing the John Day River system has resulted in the protection of downstream migrants from



McNary Dam . . . Entrance to fish ladder on the Washington side of the Columbia River. (Corps of Engineers photo)

most major diversions in this system. This, an extremely important factor in the over-all fisheries management program, represents, of course, only one phase of the program for screening of diversions which is now well established in most of the areas of the state. Continued maintenance and surveillance need to be carried on for the success of a program of this type.

Other related stream improvement activities have been stepped up extensively. Working cooperatively with the lumbering industry, we have been able to correct many blockages of fish passage as a result of debris in our coastal streams. The removal of serious blockages to fish movement, such as the splash dams on the south fork of the Coos River, in

cooperation with industry, regulatory agencies, and conservation groups, is also a highlight in improving conditions for fish.

The recent construction, on an experimental basis, of a new type of screen at large installations is exemplified by the louver screen completed during recent months at the dam of Ideal Cement Company at Gold Hill on the Rogue. Installation recently started of a screen at Savage Rapids Dam and negotiations toward the solution of a fish passage problem for downstream migrants at Gold Ray Dam, both also on the Rogue, are designed to continue improvement of this river system for its famous runs of salmon and steelhead. Similar problems have been pursued on such major stream systems as the McKenzie, Klamath, and others.

Many improvements in our hatchery system have been accomplished during recent months. The field of fish culture is a highly technical and exacting activity of the department, as well as the most costly. Continuous efforts have been made to advance our nutrition and rearing techniques and improve the physical plants with the view of reducing the operation cost.

The unspectacular but systematic accumulation of a more complete knowledge and inventory of our fish stocks provides a basis for improving, through regulations and management programs, the status of Oregon's fishery resource. Of as great an importance was the over-all inventory and evaluation of river systems from a fish production standpoint

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FEBRUARY, 1958

Plastic water cistern installed for chukars southeast of Paisley in Lake county. The first "guzzlers" used to provide water for upland game birds were constructed of concrete.



## 1956-57 in review

(Continued from Page 4)

in collaboration with the State Water Resources Board.

In the game field similar activities have proceeded, using as a base one of the most complete backgrounds of biological and management information to be found anywhere. Increased emphasis has been made and will continue to be employed in the field of both habitat improvement and knowledge of trends with respect to wildlife environment. With some exceptions, the success of the game program in general is reflected in a continued high return to the hunting public in recreational use and actual cropping of game surpluses.

In the upland bird field we are depending, from the hunting standpoint, upon annual production, and, as a result, hunting success fluctuates somewhat more from year to year. Fundamentally, our upland bird resource is determined by the type of habitat, which, as every hunter knows, varies widely throughout the state. To the extent that these habitat types prevail, our upland bird resource reflects this variation. Abundance, too, is determined by the quality of habitat prevailing and the associated climatic conditions which prevail from year to year. With this in mind the past two years have witnessed greater emphasis on habitat improvement. This effort must continue in the future at an increased tempo for not only upland forms but for big game as well.

Generally speaking, our upland bird populations are well established. There are some regions in which there is a possibility of introducing, to a limited extent, species new to the state. In an effort to supplement and spread the upland bird resource, there was completed this year a stocking program with the chukar partridge which is adapted to a habitat type not attractive to other upland bird species. At the present time it appears that we have established a population of chukar partridge on many areas of central and eastern Oregon which did not previously carry a game bird population.

The Commission is continuing a search for game species which may be compatible with other land uses and noncompetitive with our established and native populations. Example of this is the work continuing in western Oregon with the so-called European gray partridge. This is a lowland variety of the Hungarian partridge, the initial stock of which was secured from eggs flown from Denmark. Limited work was initiated during the past year with a small stock of Coturnix

quail, an Asiatic form which has received considerable publicity from the work done with the species in the midwestern and central states.

The Commission is engaged in the acquisition and development of a number of game management areas. Several of these projects were initiated some years ago and have now reached a stage in acquisition where physical development has been started. As acquisition is completed and development starts, the capacities of these areas for the production of game and for the related public use will be increased.

In the big game field, increased use of particularly the deer resource has been possible through a combination of more accurate information, a series of mild winters, and modifications of regulations covering the hunting seasons.

In addition to the extensive work with deer, elk, and antelope, a successful reestablishment of the big horn sheep, once native to parts of Oregon, has been accomplished with every indication that this magnificent species may once again occur in reasonable numbers. Of greater importance, this race of sheep is more nearly assured perpetuation by occurring in herds sufficiently separated to reduce the danger of extirpation through such catastrophic losses as might be occasioned by disease or other causes. Likewise, a small establishment of mountain goat appears to be successful and indicates justification in attempting to secure additional stock when possible to supplement the few head already thriving.

The Commission continues to have concern with respect to the antelope. Although we have had very modest seasons on this beautiful animal and such seasons have been under a high degree of control, we are not enjoying the increase desired in our basic herds. Adjacent states have the same problem and research is continuing both here and in collaboration with the states of California, Nevada, and Idaho.

One of our important challenges in the future is to provide for a reasonable use of our wildlife forms on a sustained basis without detracting from the quality of hunting for which Oregon is famous by imposing upon the hunter undue restrictions. As hunting pressure increases, it appears that proper management may require some increase in regulation, particularly in the more popular areas of the state. A careful analysis of the past several years' regulations was recently completed. A new proposal, involving the employment of unit type hunts for harvesting antlerless deer, has been perfected and may be adopted in the near future by the Commission.

There are numerous other activities related to the Commission's program which have a direct bearing upon the resources involved. The growing problem of access, fire hazards, and other factors which always accompany increased participation has been attacked on a cooperative basis with numerous organizations and agencies. Of outstanding importance is the Red Hat Days program. This program is a joint effort of many groups

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*Fish screen construction in the John Day River area. More than 400 rotary screens have been installed in this watershed.*



# Angling Regulation Changes

**A** NGLING regulations for 1958 adopted by the Game Commission last month become effective on February 8.

The general trout season will be about the same as last year, April 26 to October 31. One major exception is the delay until May 24 in the opening date for the coastal streams in Zone 1 as well as the Umpqua and Rogue Rivers in Zones 3 and 4. Because of increasing interest in salmon and steelhead fishing, it is felt necessary to give downstream migrants more protection. The late opening of the trout season will allow the yearling salmon and steelhead to enter the ocean and return later in the winter season.

Coastal lakes and reservoirs, however, will open on April 26. Lakes and reservoirs in the national forests of the Cascade Mountains will have approximately the same season as last year, May 24 to October 5.

Under a new policy the Wilson River will be managed primarily from the standpoint of the salmon and steelhead fishery. Year around fishing for salmon and steelhead 20 inches and over will be permitted in the river below Kansas Creek Bridge; and from there on up to Lee's Bridge such fishing will be open from October 16 through March 31. No fishing will be allowed at any time for trout and jack salmon under 10 inches in length.

Protection of the fall salmon run by allowing immature salmon to escape is the purpose of the regulation prohibiting the taking of salmon under 22 inches in the lower section of the Columbia River and part of the Pacific Ocean during the period from July 1 to October 31.

A 36-inch minimum length limit for sturgeon was adopted in lieu of the previous 30-inch limit to give additional protection to this species.

For the benefit of the summer steelhead run in Hood River and its tributaries, a special bag limit of one steelhead per day, 2 in possession, will apply from March 1 to October 31.

Following is a summary of changes made in this year's regulations. The complete regulations will be published in the 1958 angling synopsis to be available for distribution about the tenth of March.

## SUMMER REGULATIONS FOR TROUT, JACK SALMON, STEELHEAD AND SALMON

### Open Seasons:

April 26 to October 31 in all zones except streams in Zone 1, 3 and 4.

May 24 to October 5 for lakes, reservoirs and their tributaries within national forests in Cascade Mountains.

May 24 to October 31 for streams in Zone 1. (Same opening date for Rogue River and Umpqua River.)

### Bag Limits:

**Trout, Jack Salmon and any Salmon and Steelhead under 20":** 10 fish per day, not more than 5 of which may be 12 inches or over; 20 fish in possession or in 7 consecutive days, not more than 10 of which may be 12 inches or over. In Zones 7, 8 and 9, the 12-inch restriction does not apply.

**Golden Trout:** Special limit repealed.

**Salmon and Steelhead 20" or over:** 2 fish per day and 4 in possession or in 7 consecutive days. Special steelhead bag limit of 1 fish per day and 2 in possession applies to Hood River and tributaries from March 1 to October 31.

### Columbia River and Pacific Ocean:

From July 1 to October 31, the bag

limit for salmon is 2 fish 22" or over per day and 4 in possession or in 7 consecutive days in the:

**COLUMBIA RIVER** between the seaward ends of the north and south jetties upstream to a line drawn at right angles to the thread of the stream at the lowermost tip of Puget Island.

**PACIFIC OCEAN** from the Washington state line to Tillamook Head.

### ZONE I

Eel Lake—regular bag limit to apply. Haynes Slough and Larsen Creek tide-gate closures repealed.

Klaskanine River, North Fork, closed to all angling from Fish Commission racks to tidewater from March 1 to November 30.

Siletz River closed to angling ¼ mile below the falls to 200 feet above the falls.

North Fork Siletz River and tributaries closed entire year.

Sixes River closed to salmon angling except from April 26 to November 30 below Dry Creek.

**Closed to salmon fishing from March 1 to October 15:**

Beaver Creek up to West Fork (Nestucca tributary).

Kilchis River above Bosch Bridge.

Nehalem River from posted markers at the narrows to Fishhawk Creek.

Little Nestucca between Squaw Creek and South Fork.

Nestucca River between Beaver Creek and Moon Creek.

North Fork Trask River below Bark Shanty Creek.

South Fork Trask River below Edwards Creek.

Trask River above Hanenkrat Road.

**April 26 opening date for spring salmon fishing for:**

Kilchis River below Bosch Bridge.

Little Nestucca below Squaw Creek.

Nestucca River below Beaver Creek.

Tillamok River below a point 200 feet below Killiam Creek.

Tillamook Bay.

Trask River below Hanenkrat Road.

### Wilson River regulations:

Wilson River up to Lee's Bridge open to trout and jack salmon 10" and over from July 12 to October 31.

Wilson River below Kansas Creek bridge open to salmon and steelhead entire year.

Wilson River between Kansas Creek bridge and Lee's bridge open to salmon and steelhead angling October 16 to March 31.

Wilson River above Lee's Bridge, and all tributaries of Wilson River, closed to all angling.

### ZONE 2

Dorena Reservoir open entire year; 30 trout a day, 60 in possession.

West Fork Hood River and tributaries closed to angling above the Punchbowl except Greenpoint Creek and Lake Branch above Sawtooth Spur Bridge.

Fish and Lost Lakes (Linn County) closed to fishing from motor boats.

McKenzie River closed to salmon angling in the Walterville Powerhouse Tailrace between the powerhouse and Camp Creek and any portion of by-pass canal between the tailrace and river.

Row River above Dorena Reservoir to first bridge open entire year; 30 trout per day, 60 in possession.

Willamette River above Oregon City Falls—closure on silver salmon between July 1 and December 31 repealed.

### ZONE 3

Diamond Lake open May 24 to October 5, except those portions within a radius of 450 feet of Silent and Short Creeks and 1,000 feet of the outlet are open from July 15 to October 5.

Lake Creek, outlet of Diamond Lake, closed from lake downstream to Forest Service Summer Home Road.

Smith River above the falls opened to trout angling during general season.

North Fork Umpqua River closed to

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# Angling Regulations

(Continued from Page 6)

all angling from boats between Winchester Dam and Soda Springs Dam, and on Lemolo and Toketee Reservoirs above posted deadlines.

Stump Lake, Toketee, Lemolo, Fish Creek and Soda Springs Reservoirs open April 26 to October 31.

## ZONE 5

Blue Lake outlet closure repealed.

Deschutes River closed from P.G.E. reregulating dam down to the fish trap, a distance of about 450 feet.

Lucky and Mud Lakes closed.

Ochoco Reservoir closed until May 24; thereafter open entire year.

Suttle Lake closed within 100 yard radius of Link Creek after September 15.

Three Creek tributaries opened.

## ZONE 6

Devils Lake closed to boat angling.

Thompson Valley Reservoir opened.

## ZONES 7, 8 and 9

John Day River below Indian Creek; Middle Fork John Day below Sunshine Guard Station; and North Fork John Day below Highway 395 open to steelhead and salmon angling except from April 26 to June 30.

Warm Springs Reservoir open to trout angling entire year.

Camp Creek above Higgins Reservoir closed.

## WINTER REGULATIONS

Zone 1—February 8 to February 28, 1958 and November 1, 1958 to February 28, 1959.

Zones 2, 5, 6 and 8—February 8 to April 25, 1958 and November 1, 1958 to April 24, 1959.

Zones 7 and 9—See summer regulations.

**Bag Limit (Zones 1 and 2):** Trout, jack salmon, steelhead and salmon 12" and over: 2 fish per day and 4 such fish in possession or in 7 consecutive days. A special bag limit of 4 fish per day, including not more than 2 trout or steelhead, and 8 such fish in possession or in 7 consecutive days, including not more than 4 trout or steelhead, applies to the Tenmile Lakes and Tenmile Creek.

**Open Waters:** Changes only are listed:

## ZONE 1

Big Elk Creek up to confluence of Deer Creek (Yaquina tributary).

Alsea River and that part of North Fork up to highway bridge crossing below Game Commission hatchery. (Season extended through March 31 with regular winter bag limit.)

Coquille River (East Fork) up to Steele Creek.

Eel Lake.

Lake Lytle.

Nestucca River from its mouth up to



These kids played a part in one phase of the antelope study carried on in an effort to determine why the herds are not increasing.

## 1956-57 in review

(Continued from Page 5)

and interests and we strongly feel that the results of a program of this type will be accumulative over the years. It is a fine example of the pooling of resources and thinking from many groups and individuals to a problem of concern primarily to the hunting public. We are the first to encourage an even more active participation by the individual sportsman and local organizations to whom most of the benefits will accrue.

Tests conducted by several cooperating agencies to determine the relative merits of various colors to be used as a hunting safety factor have resulted in conclusive indication that yellow will be used in preference to red in hunter wearing apparel in future years.

Of basic importance to the Commission's program is the opportunity of working closely with other agencies, organizations and groups. To a great extent the future of fish and wildlife in Oregon will depend upon the policies and considerations given to other land and water use activities over which this agency has no control. During the past two years we have enjoyed the greatest opportunity in the history of the department to work cooperatively with many agencies, including federal, state and

confluence of Powder Creek.

Siletz River up to North Fork.

Siltcoos Lake closures on Maple Creek and Fiddle Creek arms repealed.

Siuslaw River (North Fork) up to first bridge above Wilhelm Creek.

Tillamook River up to Simmons Creek.

Wilson River between Kansas Creek

local as well as with industry and volunteer conservation organizations. To be able to work with other programming and action agencies from the standpoint of fish and wildlife on everything from road design to major projects of varied types is affording us numerous chances to reduce the dangers to fish and wildlife. Occasionally we also can help develop programs jointly which will accrue to the public interest in years to come.

There has been, and continues, an extremely close liaison between sister agencies of adjacent states and throughout the nation on problems and activities of mutual interest.

Organizational changes in the staff have been made which will provide for greater personnel experience and program accomplishment. There is no substitute for continuity and experience in getting a job done. The Commission has fostered a policy which has resulted in experienced and dedicated employees whose value to the program becomes more valuable each year.

We look forward with enthusiasm to the tasks before us. Within the limitations of the Commission's financial resources we feel confident that the place of fish and wildlife in Oregon's over-all economy and society will continue to be of ever increasing importance in both the immediate and long-range future.

Bridge and Lee's Bridge open to salmon and steelhead October 16 through March 31.

## ZONE 2

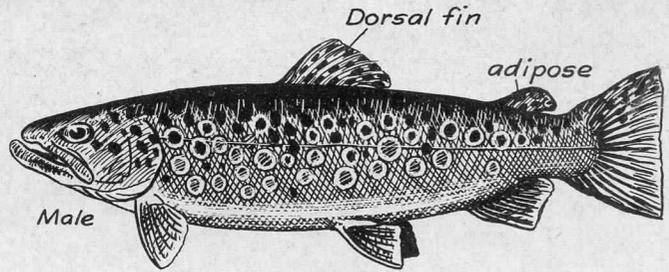
Calapooya River opened.

## ZONE 5

Deschutes River deadline changed to Warm Springs Bridge.

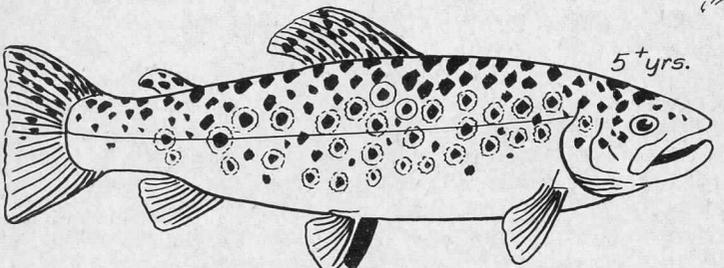
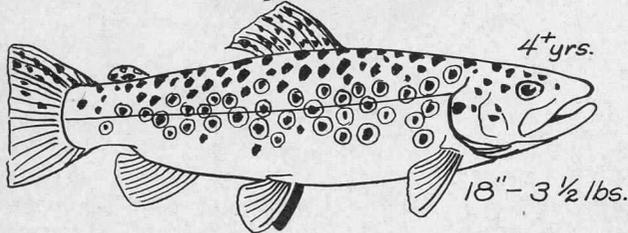
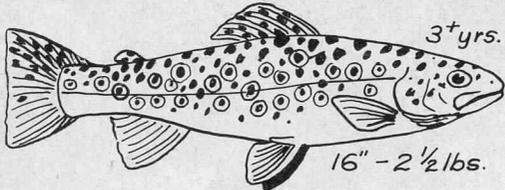
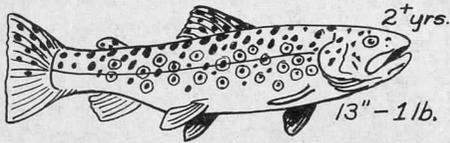
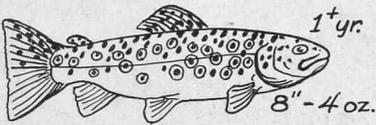
# BROWN TROUT

Brown or Loch Leven trout were introduced into the U.S. in 1883 from Germany. Oregon imported them in 1920. Established in central Oregon mainly in the upper Deschutes system and nearby lakes.



Back and sides yellowish brown. Spots on dorsal and adipose fins. Red spots on sides, halos around red and black spots. May grow to 30" and weigh 30 lbs.

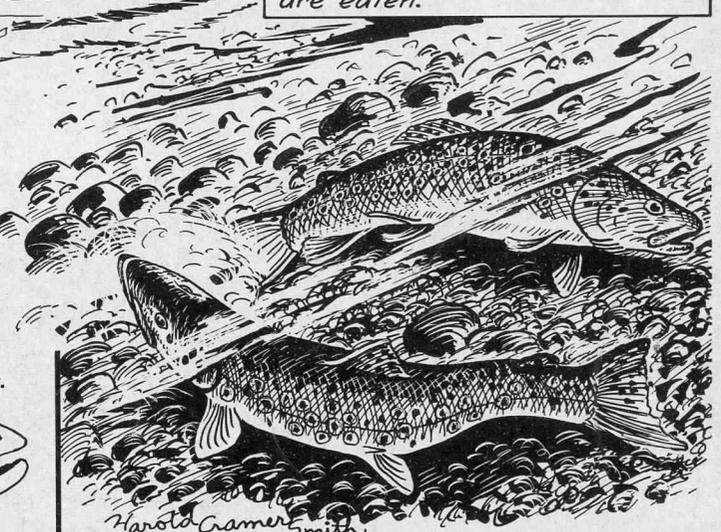
Average yearly growth rate in Oregon streams.



22" plus or longer 5 lbs. or larger



Feeds mostly in early morning and evening. May flies favorite food. Insects, worms, crayfish, crustaceans and small fish also are eaten.



Harold Cramer Smith

Migrate to small, spring-fed streams in fall. Spawn during October thru February. Females lay 200-6,000 eggs.

Oregon State Game Commission Bulletin

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