

BOX 226
BAY CITY, OREGON

*Oregon Fish Comm
Bay City Oregon*

BIENNIAL REPORT of the FISH
AND GAME COMMISSION OF
THE STATE OF OREGON, 1919



MALLARD DUCKS

BIENNIAL REPORT
 OF THE
Fish and Game Commission
 of the State of Oregon
 TO THE
 GOVERNOR AND THE THIRTIETH
 LEGISLATIVE ASSEMBLY
 1919



OREGON FISH AND GAME COMMISSIONERS

Hon. James Withycombe, Governor and Chairman.....	Salem
Hon. I. N. Fleischner.....	Portland
Hon. Marion Jack.....	Pendleton
Hon. C. F. Stone.....	Klamath Falls
Hon. Frank M. Warren.....	Portland
<hr style="width: 20%; margin: 0 auto;"/>	
F. M. Brown.....	Secretary
<hr style="width: 20%; margin: 0 auto;"/>	
Carl D. Shoemaker.....	State Game Warden
R. E. Clanton.....	Master Fish Warden and Supt. of Hatcheries
William L. Finley.....	State Biologist
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Office of the Commission.....	Oregon Bldg., Fifth and Oak Sts., Portland

LETTER OF TRANSMISSION.

Portland, Oregon, December 31, 1918.

To the Board of Fish and Game Commissioners,
State of Oregon,
Portland, Oregon.

Gentlemen :

Being intrusted by law with the discharge of certain duties as State Game Warden, and having been directed by your Board to assume certain other duties in connection with the enforcement of the fish and game code of Oregon, I herewith attach a brief summary of the work. I have annexed reports of various kinds, including financial reports. The reports and tables follow.

Respectfully submitted,

CARL D. SHOEMAKER,
State Game Warden.

Report of Carl D. Shoemaker

State Game Warden for Oregon

To the Board of Fish and Game Commissioners,
State of Oregon,
Portland, Oregon.

Gentlemen:

THE World War has quickened an interest in the protection of our wild animal life. With restrictions placed upon the food supply and the high prices prevailing for the food which was able to be obtained, many people sought to offset, in a way, the high cost of living by hunting, angling and trapping. People who had never before fished or hunted purchased a license and spent spare time on the banks of our streams or roamed the fields and forests in search of game birds and game animals. In supplying their food requirement in this way, they learned that which is of more lasting benefit to them, a love for the wild life of our state. Game protection sentiment is better today in Oregon than it has ever been. The Game Department depends for results, to a large extent, upon co-operation of the people who believe in game protection. The future, therefore, augurs well for the increase of our wild life.

ESTABLISHMENT OF DEADLINES.

A number of deadlines have been established during the past two years by the Fish and Game Commission, chief among these was that on the Rogue River near its mouth. As a result of the operation of this deadline, the screening of nearly all the irrigation ditches on the upper reaches of the Rogue and the enlargement of a hole in the Ament dam, the sportsmen on the Rogue River have had better steelhead angling this past year than for a number of years previous.

The work of establishing deadlines will go on as the necessity for it arises.

FISH SCREENS AND FISHWAYS.

During the biennium, screens have been installed in a large number of irrigation ditches, notably in the Rogue River district. The screen adopted by the Fish and Game Commission has proved satisfactory in service and little or no opposition is being encountered from ditch owners when called upon to install the appliance. A number of screens have also been installed in the Hood River district and the John Day country. The work of screening our irrigation ditches goes on as rapidly as orders can be taken and screens manufactured.

Fishways over dams and obstructions in streams have from time to time during the past two years been installed and are in successful operation. At the Ament dam in the Rogue River, there is no adequate fishway over the dam and the company which owns it has refused repeatedly to provide an adequate ladder for the migration of both commercial fish and game fish up stream. Adequate legislation giving power to the Fish and Game Commission to remove obstructions of this character should be provided by this session of the legislature. The Ament dam has been a trouble breeder for the past fifteen years and if permitted to continue as an obstruction, it will ultimately deplete the Rogue River of its annual run of food and game fish.

OREGON SPORTSMEN'S LEAGUE AND ROD AND GUN CLUBS.

The Oregon Sportsmen's League and its constituent rod and gun clubs and game protective organizations have suffered in interest on account of the war. Little enthusiasm has been maintained in these constituent organizations. This does not mean that game protection sentiment has suffered likewise. The reverse is true. Game protection sentiment has increased, but due to other causes. The Sportsmen's League held its annual meeting in Portland in December and pledged itself to

greater activities in the future. The Game Department realizes that organizations of sportsmen are of benefit to the warden service and that the members stand ready to co-operate in every way possible.

STATE GAME FARM.

In 1917 the Game Department liberated 904 Chinese pheasants and in 1918—1586. These birds were liberated in localities where there was proper cover and food for them throughout the entire year. During exceptionally heavy winters in certain localities the birds must be fed by kind hearted people, and the good citizens of Oregon have responded liberally in this respect. These birds cost the State an average of two dollars apiece.

SALE OF LICENSES.

Oregon responded liberally to the War and Navy Department for volunteers and her draft quota was always filled promptly. A total of those who left this state for service under the Flag approaches 30,000. These men for the most part were young, virile and active, and many of them were prominently identified in sportsmanship activities throughout the state. I estimate that the revenue for the Game Protection Fund was decreased about \$30,000 through our younger sportsmen joining the colors. This has necessitated curtailing our expenditures in various directions. The chief item of curtailment was in patrol service, mention of which will be made later. It was necessary to keep up our work of propagation and restocking of streams. The Hatchery Department has been in constant operation. A report of the Master Fish Warden will be found on other pages.

ENFORCEMENT OF LAWS.

During the biennium, 429 arrests and convictions were obtained by the Game Department, while a number of cases are still pending. In the Fall of 1917, the deputy game warden system was changed and in substitution therefor the district

warden system was arranged. Instead of having more than 30 deputy game wardens, the number was reduced to 17, and each of the 17 wardens was assigned to a district which could be patrolled easily from a central point. In other words, the 17 men became travelling rangers or wardens and have accomplished excellent results. They have received splendid cooperation from sportsmen in their districts.

OYSTERS.

The natural restocking of the oyster beds of Oregon has fallen off to such an extent that the industry today can hardly be said to be profitable. Yaquina Bay offers the most favorable location for artificial restocking of this excellent food. I would recommend that legislation be enacted, giving greater latitude to the Fish and Game Commission, to the end that this work may be better carried on.

COMMERCIAL FISHING.

The commercial fishing industry in Oregon is the means of livelihood for about 10,000 of our citizens and indirectly affects the income of many hundreds more. Since authentic records have been kept, the salmon industry on the Columbia River has produced over \$125,000,000. The artificial propagation of salmon has, undoubtedly, kept alive and growing the salmon industry the past few years, and the continuation of hatchery work will insure a steady run of this king of fish in the future.

The administration of the commercial fishing laws is divided into two districts. District No. 1 includes the Columbia River and tributaries, while District No. 2 includes all other streams of the state. The number of commercial fishing licenses issued remains about the same, indicating a healthy condition in the industry. Nearly \$37,000.00 were realized from this source this year in District No. 1, and in District No. 2 something over \$15,000.00 were collected.

LEGISLATIVE RECOMMENDATIONS.

In order to broaden the scope of authority of the Fish and Game Commission and to simplify certain features of the game code which experience has taught is necessary, I submit the following recommendations for legislative action :

1. That the Commission be given enlarged powers in order that the legislative intent may be fully carried out by the Commission.
2. That provision be made to permit the Fish and Game Commission to readjust the compensation of all its employees where the same has been fixed by legislative enactment.
3. That the open season for deer in Game District No. 1, be from September 1st to October 31st, instead of from August 15th to October 15th.
4. That the bag limit on geese, ducks and other migratory birds conform to the Federal Law, and
5. That the Oregon game code conform in all particulars to the Federal Law.
6. That a 10 day open season on Chinese pheasants be provided for Umatilla County.
7. That a provision of the code giving power to the Commission to establish deadlines be extended so that the Commission may establish deadlines against commercial fishing but at the same time permit fishing with hook and line.
8. That a simpler tagging system be enacted.
9. That the provision making it unlawful to use salmon or trout spawn as a bait while angling in certain streams of the state, be repealed.
10. That the original law requiring the County Court of each county to appoint a deputy game warden to act with the State Game Warden and owners of property in the creation of game preserves be changed so that the regular or District Deputy Game Warden for that county be authorized to act.
11. That Malheur Lake and Mud Lake, in Harney County, be ceded to the United States Government by the State of Oregon for the purpose of creating a permanent wild bird refuge.
12. That the bounty law respecting the taking of seals and sealions be made more definite.
13. That the law relative to the transportation and shipment of game be simplified.

Bills embodying these recommendations will be prepared and submitted to the legislature.

CONCLUSION.

The matter of game protection in the broader sense falls largely upon the good citizens and sportsmen. The efficiency of the Game Department is a reflection of the degree of co-operation which it receives from the good citizens and sportsmen. I cannot too strongly urge that the people generally study more closely our wild animal life. This will have more to do in conserving the game for the future than any other one thing. Wild animal life of Oregon is an asset, not only from the point of view of a food supply, but from the health that it gives to the individual who pursues it. There is no better recreation than hunting and fishing.

Respectfully submitted,

CARL D. SHOEMAKER,
State Game Warden.

LETTER OF TRANSMISSION.

Portland, Oregon, December 31, 1918.

Fish and Game Commission,
State of Oregon,
Portland, Oregon.

Gentlemen:

Under your direction, I have had charge of the educational and scientific work relating to wild birds, animals and fish during the past two years. I herewith hand you my report covering the work of this department during that time.

Respectfully submitted,

WILLIAM L. FINLEY,
State Biologist.

Report of William J. Finley

STATE BIOLOGIST

Fish and Game Commission,
State of Oregon,
Portland, Oregon.

Gentlemen :

THE protection of the out-of-door resources of Oregon is like other important public problems that cannot be successfully worked out merely in the making of laws and the enforcement of these laws. The protection of game and fish is to some extent an economic and educational problem. The accumulation of specimens and the gathering of scientific data bearing on bird, animal and fish life, the taking of still life and motion pictures, lectures before colleges, clubs and other organizations, the organization of bird clubs in schools and the publication of popular articles are the means employed by this department in gaining wider interest among our people and in capitalizing the out-of-door resources of this state.

During the past eight years under your direction, quite a complete collection of wild birds and animals have been accumulated. This collection has grown to be of considerable educational and scientific value. Up to the present time, the means of using and exhibiting this collection have been very limited.

Public spirited citizens who are interested in natural history would be glad to donate specimens if they were properly exhibited. The most recent addition to the collection of the Fish and Game Commission has been made by Dr. A. G. Prill of Scio, Oregon, who donated a collection of about two hundred mounted birds and animals. Dr. Prill is a naturalist who has done splendid work for the Smithsonian Institution and other organizations. His collection represents years of

labor and shows practically all of the commoner game birds of Oregon, as well as some of the rarer specimens. To properly preserve such a collection, it should be kept under glass. Larger exhibition space and more cases are necessary.

Many other states have well established museums for the exhibition of natural history specimens. Oregon will eventually have such a museum that will be of practical value for school work and the general public. It is very important at present that the collection of this material should continue, as certain specimens are becoming rarer and some of the material that has been taken out of this state to other institutions can never be returned or replaced.

During the past two years, nearly two hundred educational lectures have been given under the auspices of schools, colleges, granges, game protective associations and other organizations. Most of these lectures have been illustrated with exceptional motion pictures of wild bird, animal and fish life. Last year, a series of lectures was given in some of the principal eastern cities, Chicago, St. Louis, Washington, New York, Boston and others, furnishing a great deal of publicity to Oregon as an out-of-door state. Motion pictures illustrating our work were also shown before both the Oregon and Washington Legislatures. Numerous lectures have also been given for the soldiers in different camps and cantonments and our pictures have been used as an aid in raising funds for Red Cross work. Nearly a thousand dollars were raised for this cause.

Recently five reels of our motion pictures were printed and taken to France by Mr. W. A. Eliot, who is employed as a Y. M. C. A. worker. These, with some other reels furnished by the Chamber of Commerce of Portland, will be used in the various camps in France to entertain boys from all over the world and educate them about Oregon and her resources.

By special proclamation August 8, 1908, President Roosevelt set aside Lower Klamath Lake as a federal wild bird reservation. On August 18, 1908, he set aside Malheur Lake

Reservation in southeastern Oregon. It is very necessary in order to prevent the extermination of wild fowl that they should be protected on the breeding grounds. These two reservations are the largest and most important in the United States. Inasmuch as there is some question as to jurisdiction between the state and federal government, in order to make these reservations permanent, the state should cede jurisdiction to the federal government, inasmuch as the federal law now provides for the protection of all migratory birds and the government is in position to furnish the necessary warden service.

Inasmuch as there are but a few hundred antelope remaining on the high plateaus of Lake County in the southeastern part of the state, and inasmuch as it is impossible to give proper protection to these animals on account of the remoteness of the region where they are found, an effort is being made to have the federal government set aside a reservation for antelope, partly in southern Oregon and partly in Nevada. In spring and summer, the antelope are in Oregon, but the winter range extends into northern Nevada. An effort should be made through the Department of Agriculture at Washington to get the public lands of this region which are of no value from an agricultural standpoint set aside for the protection of antelope.

The cooperative work with the Biological Survey of the Department of Agriculture has been of considerable importance here in Oregon in collecting specimens and working out life histories of our wild birds and animals. A great deal of benefit has been derived in the protection of big game animals by the employment of federal hunters to kill off predatory animals such as cougars, wolves, bob-cats and coyotes.

Respectfully submitted,

WILLIAM L. FINLEY,
State Biologist.

**REPORT OF R. E. CLANTON, MASTER FISH WARDEN
AND SUPERINTENDENT OF HATCHERIES.**

Bonneville, Oregon, December 31st, 1918.

To the Honorable Board of Fish and Game Commissioners,
State of Oregon,
Portland, Oregon.

Gentlemen :

I beg to submit herein for your consideration report covering the most important features of the hatchery operations, —tabulated figures showing the output of young salmon and trout at the various hatcheries having been attached.

Respectfully submitted,

R. E. CLANTON,
Master Fish Warden and
Superintendent of Hatcheries.

HATCHERIES.

IN spite of the fact that this Department has been greatly handicapped owing to a number of our most efficient employes having joined the Colors,—as will be shown in detail hereafter, there was handled at the various state hatcheries during the past biennial period 68,721,779 salmon and 15,594,864 game fish, making a grand total of 84,316,643 young fish liberated in the streams of the state.

Taking into consideration that practically all of the young fish were held and fed until they reached the age of from three to ten months before being turned out, it is safe to say that the hatchery operations taken as a whole have been very satisfactory. As can be seen by consulting the tables contained herein practically all the salmon fingerlings liberated into the Columbia River in 1917 were of the early spring variety, as well as were a large per cent of those turned out at the coast hatcheries. But, owing to the unfavorable water conditions at the Oregon City Falls, which stopped the parent fish, the take of spring eggs on the upper Willamette fell short in 1917, necessitating the taking of spawn from the fall variety of Chinook at Bonneville and Eagle Creek to make up the shortage. However,—thanks to the 1917 Legislature which appropriated funds for the improvement of the Oregon City fishway, we were more fortunate this last fall, as the three stations produced approximately twenty-eight millions of spring eggs. This not only supplied our own hatcheries on the Columbia but provided a surplus of two millions which were turned over to the U. S. Bureau of Fisheries to be hatched at their Clackamas River hatchery.

Not only was the number of parent fish which reached our racks the greatest ever known, but they averaged at least a third larger than in former seasons, and the eggs were also much larger and of better quality. The egg taking period was advanced at least thirty days over previous seasons, which resulted in the eggs reaching the hatching troughs at least thirty days earlier than usual; and, as the weather conditions were unusually favorable, the fish have all been hatched out

and are now held in the troughs and ponds at Bonneville, Klaskanine, and McKenzie hatcheries and Herman Creek feeding ponds. Taken as a whole they are by far the most husky Royal Chinook babies we have ever handled; and, no adverse conditions arising, the output of Spring Chinook fingerlings liberated into the Columbia during the coming summer should be the best ever known.

PROPAGATION OF GAME FISH.

CONSIDERING the number and size of the young fish when distributed, 1917 marked the most successful season since the propagation of trout was first taken up at the State Hatcheries, the output having reached over ten million. Equal success was also had in the distribution of same, practically every load sent out in the fish car "Rainbow" reaching its destination in good condition. The sportsmen to whom the fish were consigned in most cases met the car promptly and showed activity in getting the fish planted in the streams, and good results no doubt will be apparent from the fry planted in the various streams of the State when they attain the size to be taken by the sportsmen.

While the results of the trout operations during 1917 were very gratifying, unfortunately we are unable to say the same for the past season, the output having fallen off materially. This condition is of course to be deplored, but the reason of the shortage can easily be understood when it is pointed out that the hatchery department—like many other organizations—was severely affected by the war. This is especially true in connection with our trout operations, as some of our best trained men who had previously had charge of the trout egg-taking stations were called to the Colors. This necessitated the employment of new men, who,—while coming to us well recommended as fish culturists,—not being familiar with the local conditions, were unable to cope with the situation, which resulted in an unusually heavy loss in the egg take during the incubation period. The eggs received at the different hatcheries, however, were cared for and the fish raised to fingerling stage with a comparatively small loss, and, while

the number sent out was relatively small, the splendid condition of the fry when planted should in a measure make up the loss experienced in the egg take.

RESULTS OF HATCHERY WORK IN DISTRICT NUMBER ONE (COLUMBIA RIVER)

THE past two seasons, following three profitable years in succession,—the output for the five years almost equaling that of any previous five year period,—should be conclusive proof of the efficiency of the hatcheries, and that the method of fish propagation adopted and put into effect by Oregon's Fish Department is now bringing great results. With five banner fishing seasons to its credit, we may reasonably conclude that this improved method has now passed the experimental stage, and that the Columbia River as a salmon producer has "come back." By following the present system, and adding to the capacity of our hatcheries, thereby increasing the output of young fish, there is no reason to doubt but that the annual pack can in time be built up to greater numbers than ever before known in the history of the industry.

For the benefit of those who are not acquainted with the Columbia River salmon industry, or familiar with the efforts that have been made to keep up the supply of fish by artificial propagation, will state that twenty-two years ago the annual salmon pack began to show a material decrease, and, with the exception of one year, continued to drop until 1912 and 1913. In 1913 it reached the lowest figures known—total output being only 266,479 cases, as against 552,721 cases in 1897, that year marking the period of the downward trend.

This continued falling off of the pack from year to year led those engaged in the business to believe that the industry was doomed, and that the millions of dollars invested in fishing appliances and canneries were soon to become of no further value. But, fortunately, the prophets proved false in their own country, as it might be well said that they did not reckon with the fact that Oregon's Fish Department in 1910,

Having begun to realize the error of the way in which the hatchery work was being carried on, decided to listen to some of the more enterprising cannery men, who pointed to the fact that from thirty to fifty million young fry—with the yolk sac attached—were being put into the river annually with no apparent results, and who demanded that some change be made in the method in which the hatcheries were handled. Realizing that these men were vitally interested, having large investments at stake, the management decided to follow their suggestions, which resulted in the nursery or retaining pond system being put into effect,—where the young fish could be held and fed until they reached the fingerling stage before liberation into the streams.

With private funds provided by some of the cannery men the construction of a system of ponds was first started at the Bonneville Hatchery. Several million young fry resulting from spring eggs taken on the McKenzie River in the fall of 1910 were placed in these ponds and held from four to ten months. There were also several hundred thousand held and liberated at the McKenzie Hatchery about the same time.

Briefly, it can be said that those who were responsible for putting into effect the improved methods were not disappointed at the results, for in 1914—which marked the four year period when the fish are supposed to return as adults—the output of the river for that season jumped to 454,621 cases, almost double that of the year previous which, as above stated, was only 266,479 cases. Fortunately the Department did not wait to see the results of the experiment started in 1910, but continued as rapidly as possible to extend the system, and from that date on practically all the fish hatched in the Columbia River hatcheries were held and fed from three to nine months. The wisdom of this is now apparent, as the annual output following 1914 will show:—

1915	-	558,534	cases
1916	-	547,805	“
1917	-	555,218	“

The figures showing the 1918 pack are not all available, but from information at hand it is safe to say that it will reach to over 600,000 cases, being perhaps the banner year since the industry was started.

While commenting upon the results of the Columbia River hatcheries, due credit should be given to the U. S. Bureau of Fisheries which operates three hatcheries tributary to the Columbia River. The Bureau is not as yet in a position to hold and feed all of its fry, but it does retain practically all until the yolk sac is absorbed, and is now bending every effort to install sufficient retaining ponds to care for all of the fry hatched.

The State of Washington also operates a number of hatcheries tributary to the Columbia, and their reports sometimes show their output to be greater in numbers than those of the Oregon hatcheries, but it must be understood that the hatcheries of our sister state are operated under a different system than are the Oregon plants; for, while as before stated, all the fish hatched at the Oregon hatcheries are held and fed until they are able to care for themselves at liberation, the larger per cent of the output of the Washington plants is turned out with the yolk sac attached, with only a very small per cent being held and fed in the retaining ponds. It is understood, however, that the management of the Washington hatcheries has under consideration the matter of establishing better nursery pond systems, and it is hoped that it will succeed in doing so.

RESULTS OF COAST STREAM HATCHERIES.

WHILE evidence of the returns from hatchery work on the coast streams perhaps has not been so conclusive as that of the hatcheries on the Columbia River, still beneficial results are very apparent. Practically all of the hatchery streams are now showing an increased output of salmon. This can especially be said of the past two seasons, some of these streams having produced the largest take for many years.

Unfortunately, owing to the lack of funds, the changed method of handling the young fish at the hatcheries was not put into effect at all the coast streams as early as on the Columbia, therefore, as early returns could not be expected. Notwithstanding the fact that the money collected from commercial licenses is relatively small, and the small amounts appropriated by the Legislature likewise inadequate, by strict economy and taking advantage of the natural conditions a fairly good system of nursery ponds was provided at all of the hatcheries, and same have now been in operation for from six to eight years. As all the young fish hatched now are held and fed from three to eight months before being liberated to shift for themselves, it is safe to predict that the annual runs of adult salmon will not only hold with the past two seasons but will gradually increase.

SUMMARY OF RECEIPTS AND DISBURSEMENTS, FISH AND GAME COMMISSION

December 1, 1916—November 30, 1917

	Receipts in- cluding balance of Dec. 1, 1916	Dis- bursements	Balance Nov. 30, 1917
Game Protection Fund.....	\$111,468.57	\$ 90,322.71	\$ 21,145.86
Hatchery Fund—District No. 1	46,050.83	45,602.25	448.58
Hatchery Fund—District No. 2	20,195.71	16,877.14	3,318.57
	<u>\$177,715.11</u>	<u>\$152,802.10</u>	<u>\$ 24,913.01</u>

December 1, 1917—November 30, 1918

	Receipts in- cluding balance of Dec. 1, 1917	Dis- bursements	Balance Nov. 30, 1918
Game Protection Fund.....	\$127,250.12	\$ 93,401.69	\$ 33,848.43
Hatchery Fund—District No. 1	48,363.97	48,206.04	157.93
Hatchery Fund—District No. 2	21,532.07	17,884.74	3,647.33
	<u>\$197,146.16</u>	<u>\$159,492.47</u>	<u>\$ 37,653.69</u>

RECEIPTS—GAME PROTECTION FUND

	Dec. 1, 1916, to Nov. 30, 1917		Dec. 1, 1917, to Nov. 30, 1918	
	Amount	Balance	Amount	Balance
Bal. on hand Dec. 1.....		\$ 5,631.17		\$ 21,145.86
Game licenses.....	\$103,165.79		\$102,383.34	
Trappers' licenses.....	744.00		834.00	
Taxidermist licenses.....	75.00		60.00	
Trout Hatchery.....	4.00		16.00	
Scientific Collect.....	1.00		1.00	
Metal game tags sold....	142.90		318.81	
Sale—Confiscated prop....	337.75		274.97	
"Oregon Sportsman".....	439.31		686.20	
"Pheasant Farming".....	89.00		19.50	
Lost license certificates..	8.56		161.74	
Miscellaneous.....	7.74		71.20	
Alien gun licenses.....	25.00		300.00	
Sundries.....	80.00			
Fines collected.....	717.35		787.50	
Game breeder permits....			190.00	
		105,837.40		106,104.26
		<u>\$111,468.57</u>		<u>\$127,250.12</u>

DISBURSEMENTS—GAME PROTECTION FUND

	Dec. 1, 1916, to Nov. 30, 1917		Dec. 1, 1917, to Nov. 30, 1918	
	Amount	Balance	Amount	Balance
State Game Warden—Salary.....	\$ 2,400.00		\$ 2,400.00	
State Game Warden—Traveling expenses.....	655.69		2,192.06	
State Game Warden—Office salaries.....	4,820.40		5,375.85	
State Game Warden—Office expenses.....	2,659.63		2,753.67	
Deputy Game Warden—Salaries.....	18,190.74		13,286.00	
Deputy Game Warden—Expenses.....	11,141.79		13,773.85	
Special Deputy Game Warden—Salaries.....	2,104.60		2,344.80	
Special Deputy Game Warden—Expenses.....	643.38		955.81	
State Game Warden—Miscellaneous accounts..	7,220.08		5,778.49	
Biological and Educational Dept.—Salary.....	2,634.42		2,570.00	
Biological and Educational Dept.—Expense....	931.93		1,424.82	
Bounties and rewards.....	2,050.00		1,960.00	
Commissioners—Salaries.....	75.00		135.00	
Commissioners—Expenses.....	130.68		226.75	
Fishways and screens.....	2,048.70		3,815.41	
Superintendent of Hatcheries account.....	290.01		278.37	
Fish Car "Rainbow".....	3,947.62		3,331.66	
Bass seining.....	399.04		163.51	
Trout eggs.....	116.54		369.32	
Birds liberated.....	1,468.00		3,573.25	
Repairs to Oregon City "Fishways".....			1,042.86	
Ament dam.....			55.82	
Sprague River dam.....			200.00	
Trout propagation—Operation.....	18,603.90		23,070.58	
Trout propagation—Construction.....	7,790.48		2,323.81	
		<u>\$90,322.71</u>		<u>\$93,401.69</u>

GAME PROTECTION FUND—TROUT PROPAGATION

Operation	Dec. 1, 1916, to	Dec. 1, 1917, to
	Nov. 30, 1917	Nov. 30, 1918
Bonneville Central Hatchery	\$ 5,530.28	\$ 6,082.20
McKenzie River Hatchery	1,393.05	983.41
Butte Falls station	2,490.85	3,068.28
Gales Creek feeding ponds	587.44	
Spencer Creek Hatchery	1,070.15	1,252.00
Bend Hatchery	862.97	688.34
Crescent, O'Dell and Davis	947.88	962.67
Eagle Creek feeding station	54.92	50.00
Alesea River Hatchery	193.24	454.84
Siuslaw River Hatchery	351.27	560.15
Four Mile Lake	362.90	316.68
Lower Sandy River Hatchery	236.44	
Drews Creek	720.08	
Dry Creek	605.14	75.00
Lakeview Hatchery	40.00	
Rogue River Hatchery	608.69	1,248.81
Appelgate Station	558.88	368.75
Klamath Hatchery	1,699.52	4,447.64
Bull Run Feeding Station	78.02	
Crane Creek	130.51	40.00
Tsiltcoos and Mercer Lakes	81.67	736.10
Big Sandy River Hatchery		22.50
Clackamas River Hatchery—U. S. Gov't Sta... ..		513.12
Santiam River Hatchery		147.48
Sprague River Hatchery		9.95
Elk Lake Egg Station		1,042.66
	<u>\$18,603.90</u>	<u>\$23,070.58</u>

GAME PROTECTION FUND—TROUT PROPAGATION

Construction	Dec. 1, 1916, to	Dec. 1, 1917, to
	Nov. 30, 1917	Nov. 30, 1918
Bonneville Central Hatchery	\$ 1,693.47	\$ 553.20
Alesea River Hatchery	28.75	237.25
Klamath Hatchery	5,293.66	533.61
Butte Falls Station	227.40	509.40
Spencer Creek Hatchery	24.10	68.01
Four Mile Lake	124.58	
Tsiltcoos and Mercer Lakes	398.52	317.93
Crescent, O'Dell and Davis		104.41
	<u>\$ 7,790.48</u>	<u>\$ 2,323.81</u>

RECEIPTS, HATCHERY FUND—DISTRICT NO. 1

	Dec. 1, 1916, to		Balance	Dec. 1, 1917, to		Balance
	No.	Nov. 30, 1917 Amount		No.	Nov. 30, 1918 Amount	
Balance on hand Dec. 1.....			\$ 137.59			\$ 448.58
Gill net licenses.....	1182	\$8,865.00		1043	\$7,822.50	
Set net licenses.....	323	1,211.25		352	1,320.00	
Trap or pound nets..	76	1,370.00		79	1,695.00	
Stationary wheels ..	22	770.00		21	735.00	
Scow fish wheels....	10	250.00		7	175.00	
Seines	51	2,304.32		61	2,531.86	
Fish dealers	360	5,347.66		303	4,051.15	
Salmon cannery	10	15,122.68		13	15,591.43	
Crawfish licenses....	37	37.00		20	20.00	
Clam licenses	3	3.00				
Crab licenses	1	1.00				
Boat licenses	2	2.00		4	4.00	
Bag net licenses.....	179	179.00		27	27.00	
Trolling licenses ...	503	1,257.50		423	1,057.50	
Additional fees on salmon taken and canned.....		1,520.39	38,240.80		1,451.42	36,481.86
Fines collected			1,361.68			1,043.37
Sale—Confiscated property			1,100.86			240.06
Sale—Salmon eggs			1,700.00			1,300.00
Donations			3,500.00			8,060.00
Sale of land						800.00
			<u>\$46,040.93</u>			<u>\$48,373.87</u>

DISBURSEMENTS, HATCHERY FUND—DISTRICT NO. 1

Operation	Dec. 1, 1916 to Nov. 30, 1917	Dec. 1, 1917 to Nov. 30, 1918
Office expense	\$ 1,351.24	\$ 1,526.00
Commissioner—Salary and expenses	175.02	65.25
Patrol Service—Salary and expenses	7,492.41	6,641.07
Superintendent of Hatcheries account	374.27	
Master Fish Warden account		1,499.49
Fish Car "Rainbow"	923.84	2,034.22
Shad expense	169.15	1,204.48
Wallowa Lake	127.95	579.47
Oregon City "Fishways"		3,188.27
Bonneville Central Hatchery	15,114.86	14,316.13
Klaskanine River Hatchery	3,610.84	3,657.00
McKenzie River Hatchery	2,979.52	2,879.72
Herman Creek Feeding Station	2,038.41	1,721.74
Willamette River Hatchery	1,789.91	4,710.54
Big Sandy River Hatchery	948.69	9.25
Wallowa River Hatchery	55.00	30.00
Bull Run Feeding Station	192.09	
Santiam River Hatchery	1,289.49	1,703.92
Lower Sandy River Hatchery	1,127.72	
Clackamas River Hatchery—U. S. Gov't		150.38
Total operation	\$39,760.41	\$45,916.93
Construction		
Bonneville Central Hatchery	\$ 5,517.34	\$ 1,286.70
Klaskanine River Hatchery	126.50	10.00
McKenzie River Hatchery	15.00	
Wallowa Lake	183.00	276.82
Herman Creek Feeding Station		715.59
Total construction	\$ 5,841.84	\$ 2,289.11
Total operation and construction	\$45,602.25	\$48,206.04

RECEIPTS, HATCHERY FUND—DISTRICT NO. 2

	Dec. 1, 1916, to Nov. 30, 1917		Balance	Dec. 1, 1917, to Nov. 30, 1918		Balance
	No.	Amount		No.	Amount	
Balance on hand Dec. 1			\$ 2,788.32			\$ 3,318.57
Gill net licenses	580	\$4,350.00		589	\$4,417.50	
Set net licenses	1531	5,741.25		1811	6,791.25	
Drag Seines	32	779.40		35	790.00	
Fish dealers	120	1,920.30		102	1,789.02	
Salmon cannery	16	2,864.25		15	2,639.97	
Clam licenses	72	72.00		73	73.00	
Crab licenses	124	124.00		119	119.00	
Boat licenses	19	19.00		12	12.00	
Bag net licenses	11	11.00		12	12.00	
Abutting owners	15	7.50		60	30.00	
Additional fees on salmon canned and taken		800.57	16,689.27		675.35	17,349.09
Fines collected			611.67			735.32
Sale—Confiscated property			106.45			129.09
			<u>\$20,195.71</u>			<u>\$21,532.07</u>

DISBURSEMENTS, HATCHERY FUND—DISTRICT NO. 2

	Dec. 1, 1916 to Nov. 30, 1917	Dec. 1, 1917 to Nov. 30, 1918
Operation		
Office expense	\$ 1,076.46	\$ 1,052.01
Commissioners—Salary and expenses	207.10	64.05
Patrol Service—Salary and expenses	2,627.64	2,592.81
Superintendent of Hatcheries account	180.28	464.34
Oyster Investigation	60.05	
Tillamook River Hatchery	547.03	755.00
Alsea River Hatchery	2,616.90	1,742.33
Siuslaw River Hatchery	1,428.74	1,226.98
Umpqua River Hatchery	2,515.02	3,233.97
South Coos River Hatchery	2,294.69	2,782.47
Coquille River Hatchery	751.93	732.49
Gold Creek Hatchery	1,628.64	1,365.76
Klamath Hatchery	58.50	
Tsiltcoos and Mercer Lakes	93.97	391.62
Ament dam	71.27	79.83
Rogue River Hatchery—U. S. Gov't		31.40
Applegate Station—U. S. Gov't		141.25
Total operation	<u>\$16,158.22</u>	<u>\$16,656.31</u>
Construction		
Alsea River Hatchery	\$ 148.58	\$ 669.00
Siuslaw River Hatchery	31.25	35.24
South Coos River Hatchery	73.50	
Coquille River Hatchery	54.50	12.50
Tsiltcoos and Mercer Lakes	411.09	283.06
Gold Creek Hatchery		103.63
Umpqua River Hatchery		125.00
Total construction	<u>\$ 718.92</u>	<u>\$ 1,228.43</u>
Total operation and construction	<u>\$16,877.14</u>	<u>\$17,884.74</u>

CONSTRUCTION AND IMPROVEMENT OF FISHWAYS AT OREGON CITY

Appropriation of 1917-1918		\$10,000.00
Disbursements		
Labor	\$ 5,945.19	
Lumber	751.34	
Sand, gravel and cement	1,520.38	
Tools and supplies	554.83	
Powder	474.93	
Rent of scow	690.00	
Rent of concrete mixer	42.00	
Boots and coats	18.83	
Boat rent	2.50	10,000.00

CONSTRUCTION AND MAINTENANCE OF UPPER WILLAMETTE AND MCKENZIE RIVER HATCHERIES

Appropriation 1917-1918		\$ 5,000.00
Disbursements		
McKenzie River Hatchery		4,724.02
Balance November 30, 1918		\$ 275.98

IMPROVEMENT AND CONSTRUCTION OF WATER SUPPLIES AND DAMS IN DISTRICT NO. 2

Appropriation 1917-1918		\$ 7,000.00
Disbursements		
Alsea Hatchery	\$ 1,404.95	
Siuslaw Hatchery	836.85	
Umpqua Hatchery	4,330.99	
Tillamook Hatchery	186.19	6,758.98
Balance November 30, 1918		\$241.02

CONSTRUCTION OF WATER SYSTEM AT BONNEVILLE HATCHERY

Appropriation of 1917-1918		\$ 5,000.00
Disbursements		
Wood pipe	\$ 2,915.38	
Labor	990.11	
Expense	7.90	
Supplies	543.54	
Cement	27.29	
Lumber	420.08	
Surveyor	95.70	\$ 5,000.00

RECONSTRUCTION AND ADDITION TO BONNEVILLE HATCHERY

Appropriation of 1917-1918.....		\$10,000.00
Disbursements		
Lumber	\$ 324.02	
Labor	3,166.55	
Cement	455.15	
Freight and supplies.....	395.14	
Sand and Gravel	140.11	
Kitchen & Sweeney contract.....	5,149.88	
Kitchen & Sweeney, force account.....	369.15	\$10,000.00

RECONSTRUCTION OF KLASKANINE HATCHERY

Appropriation of 1917-1918.....		\$ 7,500.00
Disbursements		
Surveyor	\$ 143.89	
Cement and rock	61.00	
Labor	2,600.75	
Real estate	3,191.90	
Lumber	235.73	
Pipe	51.23	
Boots	24.00	
Supplies	391.46	
Rent house moving equipment.....	118.42	
Expense	44.00	\$ 6,862.38
Balance Nov. 30, 1918.....		\$ 637.62

GENERAL FUND MASTER FISH WARDEN—SALARIES AND EXPENSES

January 1, 1917, to December 31, 1918

Appropriation for two (?) years ending Dec. 31, 1918....		\$16,400.00
Master Fish Warden—Salary.....	\$ 5,000.01	
Master Fish Warden—Traveling expense.....	1,509.56	
Master Fish Warden—Office expense.....	1,890.44	
Deputy Fish Warden, Dist. No. 1—Salary.....	1,927.63	
Deputy Fish Warden, Dist. No. 1—Expense....	1,048.56	
Deputy Fish Warden, Dist. No. 2—Salary.....	2,000.00	
Deputy Fish Warden, Dist. No. 2—Expense....	1,000.00	
Clerk to the Master Fish Warden—Salary.....	1,833.39	\$16,209.59
Balance in Fund, December 31, 1918.....		\$ 190.41

NUMBER OF ARRESTS FOR YEAR 1918

Game Department

Killing game birds	36
Killing deer	62
Hunting without license	15
Angling without license	15
Sawdust in waters of State	10
Oil on waters of State	3
Hunting on game refuge	12
Hunting at night	3
Angling within 200 feet of fishway	2
Hunting game birds with sinkboat	1
Hunting during closed season	7
Deer hides in possession not tagged	4
Beaver hides in possession unlawfully	1
Running deer with dogs	1
Catching trout under size	9
Over limit of trout in day	1
Interfering with an officer	1
Killing elk	1
Total arrests	184

Commercial Fish Department

Total number arrests for year 1918	91
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ADDITIONAL BOUNTIES PAID DECEMBER 1, 1916, TO
NOVEMBER 30, 1918

County	Cougar	Wolf	Rewards
Benton	\$ 15.00		
Clackamas	105.00		
Clatsop	75.00		
Columbia	15.00		
Coos	345.00		
Curry	1,140.00		
Douglas	675.00	\$ 160.00	
Grant	15.00		
Hood River	90.00		
Jackson	135.00	40.00	
Josephine	90.00		
Lane	345.00	300.00	
Linn	75.00	100.00	
Tillamook	45.00		
Umatilla			\$ 200.00
Washington	15.00		
Yamhill	30.00		
	\$ 3,210.00	\$ 600.00	\$ 200.00
Cougar	\$ 3,210.00		
Wolf	600.00		
Reward	200.00		
Total	\$ 4,010.00		

**DISTRIBUTION OF GAME FISH DURING 1917, BY COUNTIES,
BY STATE OF OREGON**

Baker	41,662	Lincoln	1,867,802
Benton	83,050	Linn	231,550
Clackamas	388,960	Marion	212,000
Clatsop	232,300	Multnomah	259,778
Columbia	46,200	Sherman	59,000
Coos	224,000	Tillamook	495,090
Deschutes	511,000	Umatilla	346,550
Douglas	109,500	Union	218,925
Gilliam	82,000	Wallowa	493,150
Grant	9,800	Wasco	141,300
Hood River	102,200	Washington	528,265
Jackson	571,805	Wheeler	83,000
Klamath	1,521,001	Yamhill	11,125
Lake	265,400		
Lane	1,084,497	Total	10,220,910

**DISTRIBUTION OF GAME FISH DURING 1918, BY COUNTIES,
BY STATE OF OREGON**

Baker	5,000	Lincoln	292,874
Benton	120,000	Linn	158,000
Clackamas	131,000	Marion	139,060
Clatsop	146,000	Multnomah	182,240
Coos	109,000	Morrow	72,500
Crook	350,135	Polk	107,500
Douglas	25,000	Tillamook	212,450
Grant	41,750	Umatilla	221,000
Hood River	147,750	Union	100,800
Jackson	782,076	Wasco	126,850
Klamath	848,729	Washington	80,000
Lane	866,040	Yamhill	62,000
		Distribution total.	5,327,754

**GRAND TOTAL OF TROUT LIBERATED
Showing Sub-totals of Different Species**

	1917		1918
Rainbow	4,292,616	Rainbow	2,631,962
Eastern Brook	45,746	Eastern Brook	253,110
Steelhead	4,804,743	Steelhead	1,633,580
Blackspotted	443,955	Blackspotted	809,102
Lake trout	633,850		
Total	10,220,910	Total	5,327,754
			10,220,910
		Biennial total	15,548,664

SALMON LIBERATED—SHOWING STATIONS AND STREAMS

Spring Chinook—District No. 1

Bonneville central Station, liberated in—	
Tanner Creek and Columbia River.....	4,309,000
Shipped to Herman Creek, liberated from feeding ponds (Columbia River).....	487,500
Shipped to Reserve Siding, liberated Willamette River	531,000
Shipped to Seufert's, liberated Columbia.....	555,500
Shipped to McKenzie River.....	50,000
Shipped to Arlington, liberated Columbia.....	234,000
Shipped to Jefferson, liberated Willamette.....	77,000
Shipped to Cove Creek, liberated Deschutes....	10,000
Shipped to Bryant, liberated Willamette.....	55,000
Shipped to Lane, liberated Tsiltcoos.....	2,000
	6,311,000
McKenzie Station, liberated McKenzie River..	1,115,775
Klaskanine Station, liberated Klaskanine River.	4,051,372

District No. 2

Siuslaw Sta., liberated Middle Creek.	529,904
Umpqua Sta., liberated Umpqua River.	1,402,700
	1,932,604

Total Spring Chinook..... 13,410,751

Fall Chinook—District No. 1

Bonneville Central Station, liberated in—	
Tanner Creek and Columbia River.....	4,114,538
Shipped to Herman Creek, liberated from feeding ponds (Columbia River).....	3,937,598
Shipped to Seufert's, liberated Columbia.....	149,500
Shipped to Celilo, liberated Columbia.....	265,500
Shipped to McKenzie River.....	215,000
Shipped to Nashville, liberated.....	177,000
Shipped to Dallas, liberated.....	27,000
Shipped to Orchard, liberated Deschutes.....	177,000
Shipped to Arlington, liberated Columbia.....	297,000
Shipped to Jefferson, liberated Willamette.....	277,000
Shipped to Cove Creek, liberated Deschutes....	167,000
Shipped to Bryant, liberated Willamette.....	152,000
Shipped to Lane, liberated Tsiltcoos.....	2,000
	9,958,136

District No. 2

Gold Creek Station, liberated Trask....	442,400
River and Gold Creek.....	1,000,000
Alsea Station, liberated Alsea River....	869,370
S. Coos Sta., liberated Coos River.....	1,208,840
Coquille Sta., liberated Coquille River..	1,219,628
	4,740,238

Total Fall Chinook 14,698,374

Total Spring and Fall Chinook..... 28,109,125

Sockeye—District No. 1

Bonneville Central Station, on hand	15,523	
Shipped to Wallowa Lake feeding ponds	2,697,300	
Shipped to Kroll, liberated Five Mile Lake....	14,000	
Shipped to Bryant, liberated Oswego Lake....	4,000	
Shipped to Salem	1,000	
		<hr/>
Total Sockeye		2,731,823

Silversides—District No. 1

Bonneville Central Station, liberated—		
Tanner Creek	62,514	
Shipped to Enright	247,800	
Shipped to Troutdale, liberated Sandy River...	163,725	
		<hr/>
		474,039

District No. 2

Gold Creek Station, liberated Trask... ..	160,000	
River and Gold Creek.....	374,600	
		<hr/>
	534,600	
Alsea River Sta., lib. Alsea River....	1,107,483	
Siuslaw Sta., lib. Middle Creek.....	147,475	
S. Coos Sta., liberated Coos River...	1,193,960	
Coquille Station, liberated Coquille..	1,098,650	4,082,168
		<hr/>
Total Silversides		4,556,207
Total salmon liberated		<hr/>
		35,397,155

GRAND TOTAL OF SALMON LIBERATED

Showing Sub-totals of Different Species

1917		1918	
Spring Chinook	21,204,600	Spring Chinook	13,410,751
Fall Chinook	6,411,000	Fall Chinook	14,698,374
Sockeye	1,526,024	Sockeye	2,731,823
Silversides	4,183,000	Silversides	4,556,207
			<hr/>
Total	33,324,624	Total	35,397,155
Biennial total	68,721,779		<hr/>
			33,324,624

**TABLE SHOWING NUMBER AND AGE OF SALMON
LIBERATED—1918**

Spring Chinook		Sockeye	
3 months...	905,926	6 months...	2,630,300
4 months...	726,724	7 months...	81,000
5 months...	5,103,028	9 months...	*20,523
6 months...	2,549,229		
7 months...	2,518,086		
8 months...	491,983	Total	2,731,823
9 months...	1,115,775		
Total	13,410,751	Siversides	
		2 months...	327,289
		3 months...	2,052,875
		4 months...	1,045,974
		5 months...	1,130,069
		Total	4,556,207
Total	14,698,374	Grand Total	35,397,155

*Of this amount, 15,523 retained at Bonneville.

**TABLE SHOWING NUMBER AND AGE OF SALMON
LIBERATED FOR YEARS 1917 AND 1918**

Spring Chinook		Sockeye	
3 months...	1,722,266	5 months...	571,000
4 months...	931,474	6 months...	3,585,324
5 months...	6,903,838	7 months...	81,000
6 months...	9,844,870	9 months...	*20,523
7 months...	5,015,366		
8 months...	6,059,003	Total	4,257,847
9 months...	4,138,534		
Total	34,615,351	Siversides	
		1 month...	153,000
		2 months...	1,462,289
		3 months...	4,290,875
		4 months...	1,702,974
		5 months...	1,130,069
		Biennial total	68,721,779
		Total	8,739,207
Total	21,109,374		

*Of this amount, 15,523 retained at Bonneville.

BIENNIAL SUMMARY

1917

Distribution of Trout by fish car "Rainbow".....	10,220,910	
Bass and Catfish liberated.....	46,200	
Spring Chinook Salmon liberated.....	21,204,600	
Fall Chinook Salmon liberated.....	6,411,000	
Sockeye liberated	1,526,024	
Silversides liberated	4,183,000	43,591,734

1918

Distribution of Trout by fish car "Rainbow".....	5,327,754	
Spring Chinook Salmon liberated.....	13,410,751	
Fall Chinook Salmon liberated.....	14,698,374	
Sockeye liberated	2,731,823	
Silversides liberated	4,556,207	40,724,909
Grand total		84,316,643