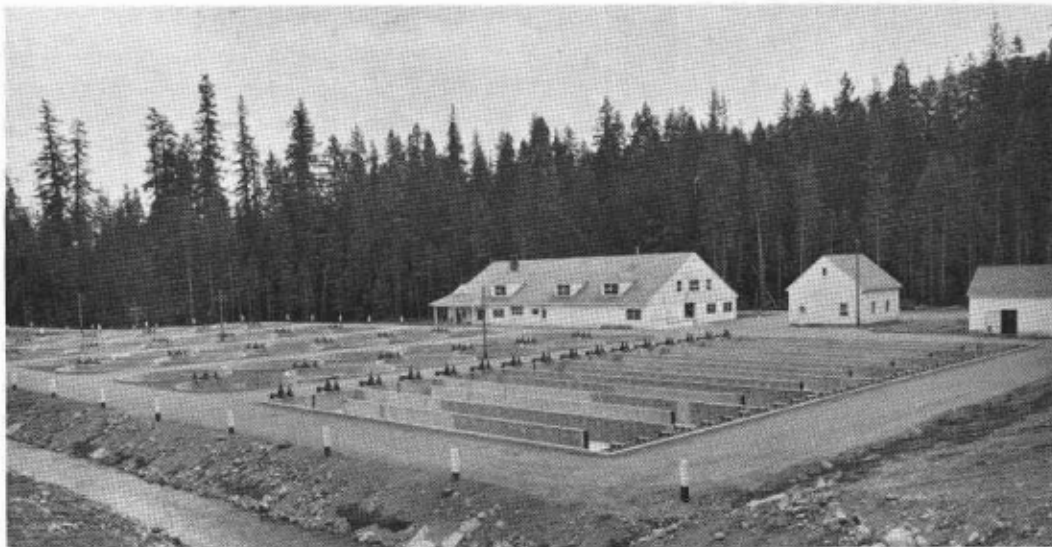


**BIENNIAL REPORT OF THE
FISH COMMISSION
OF THE STATE OF OREGON
1951**



Corps of Engineers Photo

MARION FORKS SALMON HATCHERY, NORTH SANTIAM RIVER

BIENNIAL REPORT
OF THE
FISH COMMISSION
OF THE STATE OF OREGON
TO THE
GOVERNOR AND THE FORTY-SIXTH
LEGISLATIVE ASSEMBLY
1951



FISH COMMISSION OF THE STATE OF OREGON

Hon. John C. Veatch, Chairman, Portland

Hon. Robert L. Jones, Clifton

Hon. Don C. Ellis, Garibaldi

Arnie J. Suomela, Master Fish Warden

LETTERS OF TRANSMITTAL

Portland, Oregon, July 1, 1950

**TO HIS EXCELLENCY, the GOVERNOR, and the MEMBERS
of the FORTY-SIXTH LEGISLATIVE ASSEMBLY**

Gentlemen:

Herewith is transmitted the biennial report of the Fish Commission of the State of Oregon for the period from July 1, 1948 to June 30, 1950.

FISH COMMISSION OF THE STATE OF OREGON**John C. Veatch, Chairman.**

Portland, Oregon, July 1, 1950**FISH COMMISSION OF THE STATE OF OREGON,
Portland, Oregon.**

Gentlemen:

In accordance with the provisions of statute, I herewith submit for your consideration the report of the operation of the department together with financial statement for the biennial period July 1, 1948 to June 30, 1950.

Respectfully submitted,

ARNIE J. SUOMELA,

Master Fish Warden.

REPORT OF THE MASTER FISH WARDEN

During the last two years the Fish Commission has been able to expand its operations somewhat and increase the scope of activities necessary to the perpetuation of Oregon's fisheries. Reports of the U. S. Bureau of the Census indicate that Oregon has been one of the fastest growing states of the Union during the last decade. With this rapid influx of people has come new industries, and concomitant with all of these changes the Fish Commission has had to deal with an avalanche of new problems. The Fish Commission's duties are to preserve, protect and propagate the State's food and shellfish resources, and it is, therefore, clear that it must concern itself with each of the developments that affect or threaten the State's fisheries.

Of particular importance to the salmon fisheries are the logging activities and the increased tempo of hydro-electric developments. Considerable information has been gathered by the Commission's staff about both the general effects of timber removal and the presence of small dams and log jams that accompany lumbering operation and also the specific conditions on the Columbia River tributaries and coastal streams. Much has also been learned, here in Oregon and elsewhere, about hydro-electric developments. As additional information is gathered about fishways, for example, new and better criteria are being developed. The general criteria are based upon a multitude of details, which, in the final analysis, often determine whether or not a run of fish survives. It is this mass of details which must be coped with in order to carry out the Commission's duties in safeguarding the fish populations.

Up to recent years the pattern in Oregon's fisheries was much like that which has occurred elsewhere in the world. Many of the early settlers turned to fishing for their livelihood and there followed a period of heavy exploitation. Soon the production of the fisheries dropped and there followed a period of fishery restriction. Oregon's salmon fisheries are just emerging from the latter period in that it is now generally recognized, both here in Oregon and elsewhere, that regulation of the take is only one of the measures required to manage a fishery. The other fisheries are in various stages of the above cycle, some, such as the soupfin shark, having been overfished and others, such as the albacore tuna, probably being underfished. It is imperative that all phases of the life of the various species with which the Fish Commission is concerned be carefully studied in order that the limiting factor be known and the measures necessary to increase the fish populations be understood. It must be emphasized that the staff is too small to adequately deal with all problems facing Oregon's fisheries.

The basic natural resources of this nation upon which our economy is built include such things as minerals, fertile soils, and the timber and crops they produce, swift flowing rivers and the fisheries. The North American continent has been exploited for only 100 years and it is true that by far the bulk of our food comes from the land. But what of the future? It would be folly to make rash predictions but it is perhaps safe to say that the nation's meat supply will become scarcer. The only available American source of meat protein then available to augment the supply will be the fish taken by our fishermen in the Atlantic and Pacific Oceans and in our inland waters. The extent of our marine fisheries resources is almost incalculable. While it is certainly true that many highly desirable species have declined in abundance, it is likewise true that myriads of marine fishes are never sought by man. Indeed our own marine frontiers scarcely extend more than 50 miles to sea and more than 500 fathoms down. We have but scratched the surface.

Problems of Fisheries Management in Oregon:

In the previous biennial report it was pointed out that certain conservation problems were faced by the Fish Commission in 1948. Among them was the increasing market demand for fisheries products coupled with increased fishing—particularly for salmon—by Oregon's growing recreational fishery. This situation has led to disagreements and recriminations. Since this problem is just as serious in 1950 as it was in 1948 the position of the Fish Commission should be clearly stated. It is this: The fisheries resource belongs to the citizens of the State and not to any one group, be they recreational or commercial fishermen. The Fish Commission recognizes that each group has the privilege of taking fish as required by law and it further feels that each group has rights as citizens to take part in the utilization of the State's resources. The Commission's duty is to safeguard the fish populations so that the excess can be harvested in perpetuity. It is neither its prerogative nor duty to determine who shall take the fish or how they shall be taken, provided that its responsibilities to the fish populations and the people of the State have been duly considered.

I have discussed some of the immediate problems in the foregoing paragraphs. Actually, certain fundamental problems are of far-reaching importance and the immediate problems are really manifestations of these basic difficulties. Among these fundamental problems are: lack of knowledge, lack of understanding, selfishness and population pressure. I mention these not to decry the present situation or present trends, but to emphasize that the Commission's program must be designed to recognize and cope with these problems.

By lack of knowledge I mean technical and biological knowledge. This is the problem with which the research staff in particular and the entire staff in general is endeavoring to cope. While much information is being gathered here and elsewhere, in a sense the science of fisheries has but scratched the surface. Recognizing this need we are making every effort to obtain the fundamental information necessary for the complete understanding and adequate management of Oregon's fisheries.

Lack of understanding about the Commission's aims and activities has been dissipated to a considerable extent in recent years by means of published reports, press releases, and talks to interested groups. There is much to be said for hiring special personnel for the purpose of disseminating information, but this has not been possible under the Commission's budget.

Without question selfishness is the source of some of the problems threatening Oregon's fisheries. Those who are interested in various water uses and who are promoting the construction of various dams and diversions threatening the salmon fishery are often oblivious to the value of Oregon's fisheries. The Commission does not oppose the proper development of the Pacific Northwest, but on the other hand its duty clearly is to strenuously oppose undertakings that threaten the very existence of the fish runs.

Lastly I have listed population pressure as a problem. Oregon is becoming heavily populated faster than most of us realize. More people want to enjoy the fisheries resource and take part in the harvest. New fisheries, both commercial and recreational, have developed and flourished in the last decade. The Fish Commission must recognize the effect of the added demand for fish and see to it that the stocks of fish are not over utilized to the detriment of the resource.

Program of Management:

I have discussed the general aims and problems facing the Commission. Because of the importance of salmon and the interest of the general public in the salmon let me now cite an example to illustrate how the various activities are integrated to perpetuate and improve the resource. In many instances we first send men from the Research Division into a watershed to assess escapements and determine just what factors are inimical to the salmon runs. All too often a number of log jams and other barriers are found. Reports of these findings are placed in the hands of the Engineering Division, which, as soon as possible and within limitations of the budget, takes the necessary steps to remove the jams or ladder the dams. Then in the newly opened areas the Division of Fish Culture aids nature in restoring the runs by planting substantial numbers of hatchery-reared fish. The activities of the Commission are centered around making this and other features of its program as effective as possible. It was previously pointed out that we have yet much to learn in fishery management. Recognizing this, we are bending every effort to combine study with our everyday activities, so that we can profit by our experiences and thus better fulfill our purpose in protecting and improving the State's fisheries.

The Pacific Marine Fisheries Commission, an organization consisting of the food fish agencies of the states of California, Washington and Oregon, has as its purpose the coordinated study and management of the ocean fisheries. Formation of this tri-state body was a major step forward in the regulation and study of the sea fisheries, since the fish do not respect state boundaries in the ocean. Already regulation of the ocean troll fishery for salmon has been accomplished under the auspices of this body. While Canadian regulations are not as severe as those imposed off the three Pacific Coast states, there is reason to be optimistic about Canada bringing her regulations into conformity with those of the states and Alaska. Alaskan regulations were recently made to conform, and so uniform coastwise regulations are in sight for the first time in history. Coordinated coastwise study of the ocean troll and other sea fisheries is being intensified and, as study progresses, sensible adjustments and additions to the regulations can be made.

Our research staff has five laboratories established for the study, respectively of: the Columbia River; marine and ocean troll; coastal salmon; shellfish; and south coast fisheries. Columbia River studies are conducted jointly with the State of Washington.

The Engineering Division has made good progress in log jam removal, laddering of falls and allied activities during the past biennium. On one stream an engineering crew removed well over 100 log jams. This work was done on the Clatskanie River with the aid of Federal funds appropriated under the "Lower Columbia River Rehabilitation Program".

New hatcheries are being added to those in use by the Division of Fish Culture and the physical set-up of the hatcheries is being improved as rapidly as funds permit.

DIVISION OF FISH CULTURE

The aim of the Division of Fish Culture has been to rear and liberate the maximum number of the various species of anadromous fingerling at favorable sizes and condition to produce the maximum return of adult salmon in the most economical manner.

The artificial propagation of salmon as now practiced by the Oregon Fish Commission on most of its salmon-bearing streams becomes increasingly important in view of the fact that each year the spawning grounds and natural habitat of the salmon are further and further reduced. Water diversions, power dams, deforestation with its attendant floods, lowered stream flows and higher temperatures, and pollution have all tended to force the salmon from their spawning grounds.

The planting of migratory fingerling at the proper places and at the proper time can to a considerable extent offset these destructive conditions. The proper distribution of

liberation stock is of great importance, and careful study is given to feeder streams in which releases are contemplated. With obviating of these adverse conditions, insurance is provided that there will be a sizeable population of fingerling salmon reaching the sea. If nature cooperates and fishing is properly regulated, there should be a continuous return of adults to the streams, and runs will be maintained that otherwise might be destroyed.

Up to the present time it has not been possible to hold for yearling feeding the fingerling resulting from a season's egg-take. It may not be necessary to hold fall chinook fingerling a year for maximum survival, but in the case of silvers a much greater survival has been shown by experiments conducted by the commission. Therefore, when station pond capacities become overtaxed, careful study is made of the upper reaches of the streams selected for planting in order to find suitable liberation sites and conditions. Liberations are then made, care being taken not to overpopulate any given area. The early liberations usually occur in May or June after the season of violent floods and stream fluctuations.

At the close of the biennium, June 30, 1950, the total number of 15-month-old silver salmon fingerling planted in the salmon-bearing streams of Oregon was approximately 3,489,000. This planting aggregated some 74 tons of yearling silver salmon. Plantings were made in 12 different stream systems. All told, the planting trucks traveled over 20,000 miles in carrying out this unprecedented planting and distribution program. During the spring and summer of both 1949 and 1950, plantings of several million 6-month-old silver salmon were made as listed in tables in this publication.

Holding spring chinook through the year for long-term feeding presents many difficult problems. Studies of these problems are now underway, and it is believed that they can be solved. Releases of yearling spring chinook were made from all Willamette stations early in the spring of 1950. Approximately 1,000,000 spring chinook are now being held in the Willamette Station for rearing until they have reached 12 months or older. Slightly over 200,000 spring chinook are also being reared for a 12-month or longer period at the Metolius Station. Year-old blueback salmon are also being fed at this station.

The egg-take throughout the state during the biennium was very good. In most instances more eggs were available than were collected, which is in line with the policy of this department to permit the escapement and natural reproduction of a significant percentage of the upstream-migrating adults past the egg-taking rack sites. The silver salmon egg-take for the biennium amounted to over 23,000,000.

The fall chinook egg-take at most stations during the biennium has shown a considerable increase over that of the preceding biennium, although the fall chinook run in the Columbia in 1949 was comparatively light. The runs entering our principal egg-taking stations were well above the average.

The installation of racks at the stations where spring chinook eggs are taken during both seasons of the biennium was completed in most cases in early July. This is a month and a half later than is ordinarily the case. The delay was occasioned by the heavy snow run-off which precluded rack construction at the usual time of mid-May. Because of late rack closure, an undetermined number of adults passed upstream beyond the rack site and spawned naturally. However, despite the escapement, the egg-take of spring chinook was of sufficient size to fit the pond capacities of the station which, in most instances, now regulates the size of our egg-takes.

At the Oakridge Station, holding ponds for adult migrants have been employed for the past two seasons with mediocre success. Racks were placed across Salmon Creek at its junction with the outflow of water from the hatchery pond system. The salmon readily entered the ponds but were affected by too many disturbing influences for too long a period and many were lost. They are now being held out in the river until shortly before the spawning season has arrived, and the loss has been reduced.

The Northwest Metal and Tube Fabricators, working in conjunction with this department and the State Game Commission, have developed a food mixer which will permit the inclusion into the diet a larger percentage of dry food and also provides for a thorough mixing of the various types of food now used in the regular diets.

The cost of fish food during the last two years has risen very materially. In the case of beef liver, it has almost doubled in price. Arrangements have been made with the Bio-products Corporation of Warrenton, Oregon, to make into salmon meal for inclusion in the diet all of the salmon carcasses which we were not able to preserve in the stations' cold storage plants. This resulted in a very material saving in fish food costs and greatly simplified the problem of the disposal of surplus salmon carcasses. Considerable difficulty has been experienced in providing the proper amount and kind of food necessary on the money set forth in the budget for the biennium ending June 30, 1950.

The Detroit Dam, now being constructed by the Army Engineers in the North Santiam River, presents an insurmountable barrier to all anadromous fish ascending the river to spawning grounds beyond this point. It is, therefore, now necessary that fish cultural facilities of sufficient magnitude be provided to handle the entire run of the ascending migrants which would ultimately reach the dam site. The runs of salmon and steelhead which would ordinarily pass this point and destined for spawning grounds high above the Detroit Dam may reach large numbers. Extensive fish cultural facilities are required to propagate the egg-take which may result from the artificial spawning of the total run of both steelhead and spring chinook which ascend the North Santiam River, and in this connection the Army Engineers have provided hatchery facilities at a site selected by this department. The hatching house will have a capacity of 15,000,000 eggs and pond space for 1,500,000 yearling fingerling.

A rack site has been selected which is located a few miles below the Big Cliff reregulating dam, at which place the runs of anadromous fish entering the river will be stopped and the eggs collected. A permanent structure has been designed for the head rack together with adult holding ponds.

McKenzie River No. 1:

The egg-takes for the biennium were fair considering the lateness of rack installation. The egg collection in 1948 and 1949 amounted to slightly over one-half million in each year. During the past biennium spring chinook were reared to yearling size in large quantities at this station.

The Middle Willamette No. 2:

Over 200,000 yearling spring chinook are being held through the year at this station. The loss has been very small through the season and there is every indication that it will continue so through the balance of the year. Very little improvement work has been undertaken at this station since it is expected that the Army Engineers will rebuild most of the facilities because of the complete block that the Meridian Dam will interpose to upstream migrant fish in the Middle Willamette.

The North Santiam No. 3:

Racks were not placed in the North Santiam River in either 1948 nor 1949 until early in July which allowed an escapement for up-river spawning. The egg-take each year amounted to approximately one million eggs; however, before the close of the season the racks were removed while there were yet enough fish below the racks to produce 500,000 eggs.

As previously mentioned, the Army Engineers have built a hatchery for the Fish Commission at Marion Forks designed to handle the entire egg-take of the runs entering the North Santiam River because of the block occasioned by the Detroit Dam. The present station operations at Mehama have been transferred to the new station at Marion Forks and operated under an interim agreement until the permanent agreement now being prepared is approved and accepted by both the Army Engineers and the state of Oregon.

Bonneville Station No. 4:

The fish cultural activities at this station were greatly impeded during the spring of 1950 by the disruption of the station water supply. This was caused by the construction of the new Columbia River Highway.

The station buildings were given two coats of white paint to cover up the wartime camouflage. During the years of 1948 and 1949 over 300,000 visitors were counted through the hatchery grounds each year. Three hundred feet of new pipe line has been laid, but more is needed.

There has been a continual increase in the number of salmon entering this station, and it has now reached a point where our facilities are no longer adequate to properly care for the eggs and fingerling which must be handled.

The Klaskanine Station No. 5:

The Klaskanine station is a heavy producer of silver salmon eggs and fingerling. Each year over a million 14-month-old silver fingerling, as indicated in the liberation tables, have been distributed in streams in northwestern Oregon. The runs which enter this station continue to increase in numbers, and the station equipment is becoming inadequate. Plans are now being prepared for the complete rehabilitation of this station.

The Trask River Station No. 6:

Many improvements have been undertaken and completed at this station during the biennium. New troughs and a new concrete floor have been provided the hatching house. Trays have been provided as well as new partition tins. Concrete walls and dams are to be added to the present pond system as soon as possible. Several ponds have been recently renovated. Plans for a new station dwelling have been drawn up and construction will start in the spring of 1951. A ten-ton cold storage plant has also been provided for this station. The egg-takes and fingerling liberations have been very satisfactory, although the egg-take, particularly the silver salmon, has been somewhat curtailed to allow for rebuilding the pond system.

The Coos Station No. 7:

The continued use of splash dams in the Coos River for carrying logs downstream has greatly handicapped the station's operations in that it makes egg-taking a difficult problem and it also disrupts planting areas. The logging operations have denuded this area of timber, permitting violent floods which cause serious damage to spawning areas and the populations of fingerling. The low flow of the streams during the summer months is further lowered and the water temperatures correspondingly raised.

Additional pond space is being utilized in Smith Basin where the water supply is obtained from two small streams flowing into the Coos River near the pond site. Good results have been obtained from feeding operations at this feeding site. In each year of the biennium past, over 100,000 14-month-old silvers have been planted in the salmon-bearing streams of the Coos, Coquille and Umpqua rivers. The fingerling liberated were remarkable for their size and condition. They averaged 12 to the pound and 6½ inches in length. The feeding costs were also very low.

The South Santiam Station No. 10:

Since it is the intention of the U. S. Army Engineers to build a very high dam in this stream and at its presently proposed location will completely inundate this station, very few improvements have been undertaken. A small portable cold storage plant has been provided, and new dams and screen frames have been built into each pond of the existing

pond system. The runs of adult salmon and steelhead entering through South Santiam have been proportionately better than the runs entering most other tributaries of the Willamette River during the past biennium. The yearly egg-take has been equal to that of the major tributaries of the Willamette. In both 1948 and 1949 spring chinook have been held through the year for the first time at this station. There is now on hand 150,000 spring chinook which will be held until February or March of 1951.

Ox Bow Station No. 12:

The number of salmon entering the Ox Bow egg-collecting traps continue to show an increase. The facilities for handling the yearly egg-take and resulting fingerling are now wholly inadequate. In 1948 there was a potential egg-take of 9,000,000 and in 1949 a potential egg-take of 9,500,000. During the spring of 1949, all of the station's buildings were repainted and the roofs repaired.

The Alsea Station No. 13:

This station has recently been provided with a 10-ton cold storage plant and a new utility building to replace one recently destroyed by fire. The present water supply does not permit holding for 14-month feeding any great number of fingerling.

A new site has been located for this hatchery at which sufficient water of good quality is available. This site is situated on Fall Creek and is approximately 20 miles above the present station. Fall Creek has a minimum flow of 10 c.f.s. Our present site has a minimum flow of 1 c.f.s.

The Siletz Station No. 19:

This station has been almost entirely rebuilt, the latest addition being a new food preparation building. Ten new ponds with concrete sides, a new water supply complete with a new 16-inch pipe line, and dam in Rock Creek has been added. The egg-takes have held up well, and it is expected that we shall be able to stock both the Yaquina and Siletz Rivers from this station.

Foley Creek Station No. 16:

A new cold storage plant has been added to the facilities of this station, and many other necessary improvements are being completed such as new concrete floor and foundation for the hatching house. New troughs are also contemplated as well as the rearrangement and renewal of the feed room.

The quality of the fingerling released from this station has been exceptionally good. Each fall this station, in common with the other coastal stations, has been stocked with fall chinook eggs from the surplus at the Bonneville Hatchery.

Tillasqua Fisheries Station No. 25:

Funds from the Lower Columbia Development Program have been approved for the enlargement and improvement of this hatchery. Additional ponds of the latest type, a 100-ton cold storage plant, a new hatching house and water supply, a utility building and additional dwellings are among the new facilities to be added to this station from this appropriation.

The egg-takes have been very good during the biennium and of particular note has been the increase in the fall chinook run in this river.

The Metolius Station No. 26:

Plans have been laid for the completion of the Metolius Station. This will include all the modern facilities required to operate a salmon cultural station.

This hatchery has a remarkable water supply obtained from a spring which flows 60 c.f.s. and maintains a constant temperature of 45°.

The salmon propagated here are the spring chinook and blueback. The introduction of fall chinook, however, is being considered. The potential spring chinook egg-take amounts to approximately 1,000,000 eggs at the present time.

DIVISION OF ENGINEERING

The Division of Engineering has carried out extensive stream improvement projects during the past two years in addition to carrying out its duties of designing hatchery projects and fishway designs. Inspection of fishways and obstructions in various rivers was conducted. The problem of restoring the rivers to their natural habitat is a costly and time-consuming task. In many instances jams and barriers are placed in streams soon after they have been cleared. In many cases log jams and debris were removed, upon orders by the commission, by those responsible for placing debris in the streams. Greater effort and constant patrolling of the streams is the only sure way of maintaining free access for the salmon to their spawning grounds.

Lower Columbia River Salmon Rehabilitation Program:

In June, 1948, an agreement between the states of Oregon, Washington, and Idaho, and the Federal Government was consummated whereby the Department of the Interior through the Fish and Wildlife Service would provide funds for the rehabilitation of the lower tributaries of the Columbia River. This program is intended to make restitution in part for the irreparable damage to the valuable Columbia River fisheries by past construction of multiple purpose dams on this famous salmon producing stream. The construction of permanent and insurmountable barriers in the upper river has resulted in the confinement of existing runs to a fraction of their former fresh water habitat. In order to maintain this natural resource, it is therefore necessary to fully develop such of these tributaries that can offer potential spawning and rearing areas.

The first funds made available under this program was in 1949 and Oregon's share was \$322,500. Of this amount \$127,500 was designated for stream improvement, \$35,000 for engineering plans and surveys, and \$160,000 to start construction of a new salmon hatchery on the Sandy River system. The first projects under stream improvement to gain approval was for the removal of log jams and beaver dams from the Clatskanie River. Following the completion of the Clatskanie project, a project of like nature was approved for Big Creek in Clatsop County. This project has also been completed.

The engineering monies were for the field work necessary to gather engineering data for the designing of two fishways, Punch Bowl on West Fork Hood River and Elk Horn on Little North Fork Santiam, and the Sandy River hatchery. In this connection an engineering staff was employed, and plans were drawn for the two fishways and the hatchery, complete with all necessary facilities.

The Sandy River hatchery project received final approval on October 20, 1950, and preparations are now being made for awarding contract for construction.

Under the stream improvement program, stream gauging stations have been established on seven potential hatchery streams. The data provided by these stations will be a determining factor as to the suitability of the water supplies for artificial propagation.

In addition to the engineering staff whose duties are confined to the federal aid projects, the personnel of the engineering department has been augmented by the addition of two new members, one of whom is a Civil Engineer whose duties are divided between office and field work; the other has the important job of patrolling fishways and streams to insure the best conditions possible for fish passage. During the past six years a considerable number of fishways have been constructed in streams throughout the western portion of this state, and it has been found necessary to employ a fishway maintenance man to make frequent and regular inspections in order that these facilities will at all times be in proper working order. In addition to fishway patrol, a constant vigil must be kept on the salmon streams where logging operations are being carried on. During seasons when salmon are not migrating, the fishway maintenance man has been kept busy checking logging operations and investigating various complaints received by this department. The services of these additional employees have made it possible for this division to broaden the scope of its activities and accomplishments.

During the past biennium much has been accomplished by this division toward improving salmon spawning and rearing streams. Removal of log jams and construction of fishways have made possible a fuller utilization by salmon of natural spawning areas in many rivers. In order to hasten greater productivity of salmon in the improved areas, the hatchery division has made substantial plantings of species identical to the natural runs known to be present. Among the many projects undertaken by this division during the past two years, the following are the most important:

Clatskanie River:

An extensive program of stream clearance has been completed on the Clatskanie River system and its principal tributaries. This work consisted of the removal of 170 log jams and 32 beaver dams and engaged two 5-man crews for a period of seven months. The channel improvements made to this stream system will prove to be well worthwhile, because these improvements now make available to migratory salmonoids 23 miles of spawning and rearing area that for many years could not be fully utilized for natural propagation. Since this work was completed, the Research Division has found the stream to be very productive, indicating that the project successfully accomplished its purpose.

Big Creek:

A stream clearing project similar in many respects to the one on the Clatskanie River is now completed on Big Creek in Clatsop County. More than 20 miles of Big Creek, including four principal tributaries, have been cleared of innumerable log jams that were serious blocks to adult migrating salmon. This project engaged a crew of five men for a period of more than four months.

Klaskanine River:

Several log and debris jams which at low water blocked early fall runs of chinook salmon from their migration to the holding racks of the Klaskanine Hatchery were removed by this division.

Wilson River:

Two large log jams resulting from high water during the winter of 1948 were removed by a Fish Commission crew.

On Spring Creek, a small tributary of the Wilson River, an experimental station has been constructed for the Research Division. This project consists of a permanent rack placed diagonally across the stream, covered with a fine mesh screen and having an upstream trap at one end for adults and a downstream trap at the opposite end for fingerlings. The purpose of this structure is to gather data for determining the results of natural propagation and for comparing the efficiency of natural and artificial propagation.

Cedar Creek:

At the falls on Cedar Creek, a tributary of the Siletz River, a reinforced concrete fishway was completed by this division in the fall of 1949. The State Game Commission shared equally with this department in the construction of this project.

Four large log jams were removed by this division from Cedar Creek. These barriers were located between the mouth of the stream and the falls.

Smith River:

During the high water period in 1948 considerable damage to the concrete fishway at Smith River Falls was caused by a severe battering of heavy drift logs. This damage was repaired the following summer, the design being altered in a manner that would strengthen the structure in order that it will better withstand high water hazards. The State Game Commission also shared in the completion of this repair.

Coquille River:

Five log jams were removed during the biennium from the north fork of the Coquille River, and three other jams located in the lower section of the stream were cut up in order that they would move out during the winter freshets. This is the start of a general stream improvement program on this river system.

Nestucca River:

A new reinforced concrete fishway has been completed at Upton Falls, located on the Little Nestucca River. The installation of a fishway at this barrier opens to migratory salmon all of the available spawning area of the Little Nestucca River.

Fish Hawk Creek:

An old, privately owned dam on Fish Hawk Creek, a tributary of the Nehalem River, was removed by blasting in the fall of 1948. Approximately twelve miles of stream system above this old barrier is now open to natural propagation.

Rock Creek:

A diversion dam on Rock Creek, a tributary of the North Santiam River, and owned by the Vancouver Plywood Company, was laddered in the summer of 1950. This reopened considerable area for steelhead spawning.

Jordan Creek:

In cooperation with the State Game Commission, several large log jams were removed from Jordan Creek, a tributary of the Wilson River. The removal of these jams was effected by contract and the cost was considerably less than if done with state equipment and personnel.

Herman and Tanner Creeks:

Under the direction of this division and employing the equipment belonging to this department, considerable channel improvement and revetment work has been done on Fish Commission properties on Herman and Tanner Creeks. This work was necessary to protect hatchery property and facilities during high water.

Hood River:

Negotiations with the Pacific Power & Light Company has resulted in the construction of a new concrete fishway at their Powerdale Dam on Hood River. The State Game Commission cooperated with this division in the planning and negotiation for this structure.

Sandy River:

An extensive screen and by-pass project in the Marmot Dam Canal is now nearing completion by the Portland General Electric Company, owners of the dam. At various times during the past years negotiations for a screen in this canal have been carried on, but no satisfactory agreement was reached until 1949. In April of that year this Division joined with the State Game Commission in negotiations and planning with the power company for adequate fingerling protective facilities in this canal. Satisfactory plans for the needed facilities were accepted by the power company, and construction was started on the project in the summer of 1949. With the completion of this project in January, 1951, vast numbers of downstream migrant fingerlings will be prevented from passing through pen stocks of the hydraulic plant located below Roslyn Lake.

Siletz River:

In May, 1950, under a cooperative agreement with the Game Department in which the cost was to be shared equally between that department and the Fish Commission, a fishway project was started at the Valsetz Falls—a 41-foot barrier located in the Siletz River. Because of the remoteness of this project, it was necessary to establish a construction camp near the site of the work. During the seasonal low water period, a crew of ten to twelve men employed on the project were fed and housed at this camp. Completion of this fishway was planned for the fall of 1950, but due to early rains and resulting high water, it was necessary to abandon the project for this season. However, most of the rock excavation was completed, and it is planned to finish the project in the spring of 1951. With the completion of this fishway many miles of the most valuable spawning area of this river system for the first time will be made available to migratory salmon and steelhead.

Nehalem River:

In September, 1950, this division undertook the construction of a new fishway at the Nehalem Falls, located approximately nine miles upstream from the town of Mohler. The rock excavation for this structure was barely completed with the advent of high water, which made it necessary to cease work until the next low water season. In the spring of 1951 concrete deflection and baffle walls will be poured in position to complete this fishway. This facility will then eliminate a barrier that in the past has proved very troublesome to upstream migrant salmon.

DIVISION OF RESEARCH

The conservation and management of the fisheries resource depends upon a complete knowledge of the species under consideration, and in this respect the Commission must depend upon the investigations of the biologists for the basis of its conservation program.

During the past four years active investigation by this Division has resulted in the inception of management programs on most of Oregon's food fishes. All important fisheries are under investigation, but because of the unique position of the salmon as a most important recreational asset as well as the most important food fish resource of the Northwest, the bulk of the efforts of the Research Division has been focused on the various phases of salmon research. Furthermore, man is rapidly changing the fresh-water environment and adversely affecting the salmon runs by exploiting the natural resources, including water and land cover; speedy efforts are necessary to combat these changes.

The people of the United States are beginning to realize that beyond our coastal waters and in the ocean lie important food resources which have heretofore not been harvested at all or only to a very limited extent. Important research is being carried on by the Commission on the ocean fisheries in assembling the data necessary to determine the proper rate of exploitation of the coastal fish and shellfish fisheries.

At the request of the Pacific Marine Fisheries Commission, and in cooperation with the states of California and Washington, British Columbia, and Alaska, cooperative studies are under way to determine what measures are necessary to conserve the ocean fisheries along the Pacific Coast of the United States. Much progress has been made during the past two years, and the knowledge of the ocean fisheries of the Pacific Coast is being greatly increased by this coast wise study of the resources. Of greatest importance to the attainment of maximum harvest of these resources is the realization from biological data that the individual states cannot isolate their own fisheries—neither the harvest of the resources nor the areas fished by their respective fishermen. The fisheries resources recognize no state boundaries and for the most part range far from the shores of any individual state. Some of the fisheries along this coast, such as salmon, pilchard, tuna, and bottom fish, are international in scope, and coordinated research is absolutely essential on an international basis for the proper conservation of these resources. The mechanism for coastwise investigation is now available on an informal basis through the above-mentioned Pacific Marine Fisheries Commission.

Columbia River Salmon Investigations:

Cooperative research is being carried on by the Washington State Department of Fisheries and the Fish Commission on the Columbia River fisheries. These studies are designed to determine whether or not the various species and races of salmon and steelhead of the Columbia River basin are at a high level of abundance and productivity. There are five major problems which are being studied on the Columbia River. First, the productivity of the Columbia River has been reduced by man's constant encroachment both on the spawning and rearing areas as well as the migration paths of the Columbia River salmon. The present spawning areas of all races are being studied, and the exact localities of spawning are being defined with regard to location, time, and magnitude of the escapement.

While carrying out these studies, programs of habitat improvement are being drawn up, and with the help of federal funds great improvements are being made in the lower Columbia River streams which remain available to the Columbia River salmon. This portion of the program is continuing, and although not yet complete, major portions of the spawning and rearing areas of the Columbia River have been evaluated.

Second, the commercial fisheries harvest the Columbia River salmon both in the sea as well as in the river as a factor in the decline of the runs is being studied. Large recrea-

tional fisheries exist on these salmon at the mouth of the river, and recreational fishing continues on up the river even to the spawning grounds of those races spawning in the headwaters of the Salmon River in Idaho. The effect of these fisheries on the stocks of salmon is being studied. No program of management on the Columbia River salmon can be successfully administered without knowing how intensively the fishery is harvesting the stocks; when the various races of each species of salmon migrate through the fishing areas; what proportion of each of these major races is being caught; the speed and path of migration through the river; and what effect the various types of gear now being fished have on the salmon runs. This phase of the problem is being studied and to date important data have been collected and partially analyzed. The general time of migration of the runs is becoming known, and to some extent the time of appearance of the most important runs has been determined.

Third, additional biological knowledge is being attained regarding the growth and survival of the young salmon in its fresh-water environment. It is necessary to know the time and size of downstream migration of the young salmon. For example, to evaluate the effects of pollution on the Willamette River, it has been necessary to know precisely when the migration of young salmon occurs on the Willamette River to understand to what extent pollution is a factor in limiting the runs of spring chinook salmon. Of equal importance is the knowledge of the proper time and size of liberation of young from the hatcheries; this information must be gained from the life history of the naturally produced salmon. The effects of environmental changes such as water flows, temperatures, and pollution are being studied, and certain of the information is now available.

Fourth, the effect of contemplated river development programs on the Columbia River salmon by placing barriers in the normal migration routes of the salmon, as well as changing the fresh-water environment of the salmon radically, is an important factor in the maintenance of the salmon runs. Cooperative studies with other fisheries agencies are proceeding on this problem. Much effort in the past biennium has been expended assisting in the development of the fish passage facilities at McNary Dam, which is now rushing towards completion, and studying the efficiency of Bonneville Dam fish facilities.

Fifth, studies on the sturgeon of the Columbia River reveal a greatly reduced population which is capable of producing many times its present yield. During the past two years, regulations have been adopted reducing the take of both young and mature sturgeon by the sport and commercial fisheries. For the first time in Oregon, a maximum size limit has been placed on a species of fish. It is now illegal in Oregon for a commercial or sport fisherman to take sturgeon over six feet in length. This was designed to protect the few remaining spawning female sturgeon in the Columbia River.

A comprehensive management program of the magnitude necessary on the Columbia River cannot be inaugurated over night. There is still a great deal to learn before detailed regulatory changes can be evolved. However, it is well to note the early successes of recent changes in regulation and management. The Columbia River blueback salmon, almost exterminated by Grand Coulee Dam and other water development projects on the Columbia River and its tributaries, have increased from a low of about 11,000 blueback salmon entering the Columbia River in 1945 to the 1947 blueback run of 330,000 fish. Although the catch data are not yet complete, the 1950 run was well over 100,000 fish. Changes in the blueback fishing regulations on the Columbia during the past two years have assisted materially in increasing the spawning escapement. Cooperation by the Indians at Celilo Falls have also assisted in providing maximum escapement for the blueback.

During the past two years, as a result of studies on the silver salmon runs of the Columbia, further restrictions in the late fall fishing were inaugurated. When it became evident that the escapement of late fall chinook and silver salmon was lagging, a week-end closed period after September 10 and 15 days of closure on the end of the fishing season was placed into effect.

Coastal River Salmon Investigations:

Intensive studies have been carried out on the salmon runs of the rivers of Oregon south of the Columbia during the past two years. Since little was known of the condition of the streams themselves, one of the first problems in the program of salmon management has been to study the fresh-water environment in order to determine its present productive capacity and how the stream habitat of the salmon could be improved. The inventory of these rivers is well under way at the present time, and during the past two years major portions of many of the salmon producing rivers of the Oregon Coast have been surveyed by trained crews. Plans are complete to finish these surveys and inventories during the next two years.

All barriers, both natural falls and man-made obstructions, have been indicated on maps for the areas so far covered and through the Engineering Division detailed programs of stream improvement on the watersheds have been drawn up based on these surveys. Habitat improvement by the Engineering Division has been carried out on many streams, limited only by funds and personnel.

The program under way on the Oregon coastal rivers may be conveniently divided into four parts. First, as mentioned above, a thorough survey and tabulation of known data on important coastal river has been intensively carried on during the past two years. To date the Tillamook Bay rivers have been surveyed quite thoroughly, evaluated, and reported upon. Large portions of the Nehalem, Siletz, Yaquina, Alsea, Yachats, Siuslaw, Umpqua, Coos, and Coquille Rivers have been surveyed and written up in detailed survey reports. This portion of the study will continue until all major salmon producing rivers have been studied and recommendations for stream improvement are complete.

Second, the reports of the Research Division are analyzed by the Engineering Division and stream improvement projects are drawn up. Important stream improvement projects on the Nehalem, Tillamook Bay streams, Nestucca, Siletz, and Coquille Rivers were completed during the past biennium (see report of Engineering Division). Previous improvements were made on many other rivers, such as the Alsea and Umpqua.

Third, after an evaluation of the obstructed stream above specified barriers and the subsequent completion of stream clearance, selected plants of silver salmon and, in certain cases when indications point to favorable survival, chinook salmon fingerling are planted above in this newly available habitat. Thus, new areas, or areas which have not contributed to the productivity of the river system for years are placed back into production. It should be made clear that many assumptions are made which have not yet been proven in placing this program into effect. Many of these transplanted young salmon are marked with an identifying mark which can be recognized when the salmon mature and return to the tributary stream to spawn or is captured in the sea or in the river on its way to the spawning grounds. The success of this approach can and is thus being measured.

Fourth, and by no means of lesser importance than the above-mentioned positive means of salmon rehabilitation, are the studies on the commercial and recreational fisheries. During the past two years important studies have been completed and reported upon which evaluate the various factors affecting the salmon populations. Among others, the commercial fishery has been suspected of being a vital factor in reducing the size of the runs, especially with the reduced productivity of burned-over or logged-off watersheds.

As a result, more drastic and positive regulations have been placed on the commercial river fishery than have ever before been experienced. From studies of the salmon statistics of former years and the size of the escapement in recent years, poundage quotas have been placed on five of the major rivers: the Nehalem, Yaquina, Alsea, Siuslaw, and Coquille. The theory of these regulations is to reduce the yield of the fishery to the point where a surplus spawning escapement will be allowed to ascend the rivers and spawn. Poundage quotas have been set on each of these rivers during the past two years and have brought about material increases in the spawning escapement. However, to increase the spawning

escapement alone is not enough; at least present studies indicate that the productivity of the rivers is low and therefore, may not yet be capable of supporting a greatly increased population of young feeding fingerling progeny from greatly increased escapement of adult salmon. It may be essential to increase the productivity of the rivers or intensify efforts on streams at high productivity. One obvious method in use is to increase the extent of the rearing areas by eliminating obstructions and laddering barriers. With spawning and rearing spread out over the watershed it is believed that the productivity will be increased.

A management program cannot be successful without a thorough study of spawning, time of downstream migration (early life history), and age and growth of the fish. These are all being studied for the coastal salmon populations, and all factors affecting the salmon in fresh and brackish water are now or will be thoroughly investigated in order that the causes of the decline of the coastal salmon runs will be correctly understood. Then proper measures for the rehabilitation of the salmon can be inaugurated with a maximum assurance of success.

In addition to several preliminary reports of progress in the coastal salmon studies which have been completed, two major phases of study were completed and reported on during the past two years. One paper was entitled "Some Factors Influencing the Trends of Salmon Populations in Oregon" by D. L. McKernan, D. R. Johnson, and J. I. Hodges. The other was titled "Salmon Fisheries of the Coastal Rivers of Oregon South of the Columbia" by J. T. Gharrett and J. I. Hodges.

Troll Salmon Investigations:

As mentioned before, there are large salmon fisheries in the ocean, and these fisheries extend from Central Alaska south to San Francisco, California. Through the Pacific Marine Fisheries Commission, cooperative studies have been carried out with California, Washington, British Columbia, and Alaska. A wealth of information has been revealed, much of it during the past two years.

These investigations are designed insofar as is possible to learn the history of the ocean life of the salmon: where they go after leaving the rivers; how fast they grow; how far they migrate; what proportion are taken by the various fisheries; and what other phases of the ocean environment such as ocean conditions, food, and predators affect the survival and well-being of the salmon at sea. Much has been learned, and much still remains to be learned before a coastwise management program can be called complete. Already coordinated regulations have been adopted by California, Oregon, Washington, and Alaska which together reduce the taking of small immature silver and chinook salmon and assist in providing larger escapements to the spawning grounds.

A report of these investigations is now being published under the sponsorship of the Pacific Marine Fisheries Commission ("The Oregon Troll Fishery", by Jack M. Van Hying).

Hatchery Management Studies:

In recent years fisheries agencies have realized that in order to obtain the maximum survival of hatchery reared salmon, longer rearing of the young was necessary. Experiments conducted by this department have shown that as many as four times the survival of silver salmon can be obtained if the young are held in the hatchery until the spring of their second year, which has been found to be the time of natural migration of the young from the streams. This concept of longer hatchery rearing of young salmon has necessitated the development of new and improved hatchery foods. Food costs are rising and where the Fish Commission used 680,400 pounds of food in 1947 at an average cost of \$0.033 per pound, in 1949 the Commission used 804,400 pounds of food, costing \$0.051 per pound.

New and expanded hatcheries are planned throughout the State, and several are now under construction. River development programs are encroaching more and more on the salmon spawning and rearing areas making the dependence upon hatcheries for salmon reproduction greater each year. If present comprehensive river development plans on the Columbia River and Oregon coastal rivers are carried through, very little natural spawning areas will remain. If the salmon runs of the Northwest are to be maintained, within a relatively short time artificial propagation will be obliged to carry the burden. Therefore, it is absolutely assential that improvements be made in hatchery techniques and that proper diets be developed for all species of salmon artificially reared. In the past the basis for most hatchery diets has been condemned beef liver which was available in sufficient quantities for a few cents per pound. Now, however, the available supply is gradually being reduced by greater competition for the liver by fur farmers and expanded needs of fisheries agencies. A cheap substitute for the expensive liver is being sought and nutritional experiments are being carried out at the present time in an attempt to solve this problem. The use of cheap ocean fish, now discarded when landed, and fish offal has been experimented with during the past two years. It is hoped that within the next few years a cheap diet, using little or no scarce, expensive items such as liver, can be developed. It is estimated that within the next five years, with present contemplated hatchery expansion, the hatchery food requirements of the Pacific Coast States will be more than doubled. Therefore, it is imperative that new and cheaper sources of food of a good quality be found within the next few years.

In addition to the studies for better and cheaper hatchery foods, considerable effort has been expended studying the diseases occurring among hatchery fish. A serious bacterial disease has taken a heavy toll in certain hatcheries, but it is believed that this disease is similar to a recently recognized disease found elsewhere on the Pacific Coast. Preliminary studies have shown that the fish respond to certain sulfa compounds, and these are being experimented with when the occasion arises.

Progress has been made on other problems of hatchery management, and studies will continue in an attempt to increase the efficiency of salmon hatcheries in Oregon.

Marine Fisheries:

The marine fisheries of Oregon have become increasingly important in the past few years. During the past war, the bottom fish fishery expanded greatly until it has been harvesting between 20 and 30 millions of pounds of food fish annually. The albacore fishery, which did not start in Oregon until 1935, has yielded from 4 to 23 millions of pounds annually in recent years; in addition to these several millions of pounds of sharks and other species have been captured each year.

Our studies of marine fisheries are headquartered in Astoria. The objectives of these studies are to determine through statistical and biological analyses the condition of the stocks of the various species caught and to devise methods of maintaining the productivity of the fisheries at a high level. Working closely with the other state research agencies, through the Pacific Marine Fisheries Commission, specific programs have been undertaken.

Studies of the size and age of the albacore caught off the Oregon coast have been undertaken. Since the catch varies so widely from year to year, it is important to know what causes this variation and whether or not a larger sustained catch can be brought about through changes in the fishing area, gear, or season. In general, studies during the past two years, when coupled with previous research, indicates that very likely the Oregon fishery is fishing on two and possibly three age classes of young immature albacore. Further, there is considerable basis for believing that this fishery is not fishing on the main stocks of albacore but only on the fringes of the population.

The bottom fish studies have included migration, age and rate of growth, and important studies of the effect of the gear and selectivity of both the gear and fishermen on the stock

of bottom fish. A significant proportion of the yield from this fishery is utilized by the mink farmers, and during certain parts of the year a heavy mink food fishery exists.

A report of the otter trawl fishery and its many ramifications is being prepared and will be made available during the coming year. A report has been prepared of the soupfin shark fishery off the Oregon coast. This work was carried on at the request of the Pacific Marine Fisheries Commission. At the present time a cooperative study of the sablefish (black cod) stocks along the Pacific Coast is being carried out under a directive from the tri-state commission. The migration of the sablefish along the Pacific Coast must be known in order to determine if there is a single, freely intermingling population along the coast or a group of small separate units; this will determine whether management must be done as a unit or by separate geographic locations. This past year over 2,000 sablefish have been tagged off Oregon, and similar tagging has been carried on all along the Pacific Coast. Racial studies of sablefish are also under way, and other features of the sablefish populations will be studied to determine the need for more strict management procedures.

The Shellfish Fisheries:

There are three very important shellfish fisheries on the Oregon Coast. The crab fishery lands in the neighborhood of ten million pounds of crabs each year and is one of the most important fisheries of the State. Studies have been undertaken to determine whether the fishery is being overfished and what type of management procedures are necessary to maintain the high productivity of the resource. Crabs have been tagged both off the coast and within the bays to determine the migration and extent of mixing of the stocks. The life history has likewise been studied. Extensive studies have been made of the molting season when the crabs shed their shells. During this period the crabs become soft and the yield is greatly reduced. In order to protect the crabs during this molting season, closed seasons have been established along various parts of the Coast to prevent their capture during the soft-shelled season.

Investigations of the clam populations of the bays of Oregon have revealed the species of edible clams and their location within the various bays. Studies have been made of the conditions of the clam populations with the view of further management of these clams.

The razor clams of the Clatsop Beaches have also been studied during the past two years and as a result preliminary regulations have been imposed. A report is now being prepared and further management practices will be recommended when sufficient data are available.

There are a number of minor fisheries in Oregon, some of which have received attention during the past biennium. A study was carried out and a report completed concerning the striped bass populations of Coos Bay. These studies were carried on cooperatively with the Game Commission. The findings are being submitted to the forty-sixth legislature. The studies revealed that the bass fishing yields sizeable returns to both the recreational and commercial fisheries. Considerable amounts of young salmon and trout were found to be consumed by the striped bass during the spring months even though the Coos Bay salmon runs are in a greatly depleted state. The striped bass are quite abundant in Coos Bay, and there was no evidence of any depletion of the bass from overfishing.

Studies were also carried out on a limited scale on the shad of the coastal rivers, and also the smelt have been given some attention during the past two years. Considerable more research is needed on almost all the fisheries resources of Oregon, although progress has been made towards conserving the productivity of certain of the major fisheries, especially the salmon. Only through the collection and analyses of factual information of our fisheries resources can we hope to maintain or attain the maximum productivity from our fisheries.

STATEMENT OF RECEIPTS AND DISBURSEMENTS
STATE GENERAL FUND ACCOUNT
 Biennial Period Ending June 30, 1950

RECEIPTS

	Fiscal Year Ending June 30, 1949	Fiscal Year Ending June 30, 1950
Appropriations:		
Unexpended Balance, 1945-1947.....	\$ 53.30	
Unexpended Balance "Fish Commission Free Account," 1945-1947	1,371.49	\$ 1,424.79
Reverted to State General Fund.....		1,424.79
Unexpended Balance, 1947-1949.....	\$ 363,506.15	
Appropriation—Wage Increase, 1947-1949.....	4,735.72	\$368,241.87
Appropriation, 1949-1951	\$1,069,389.65	
Revolving Fund—Ch. 361, Laws 1949.....	5,000.00	\$1,064,389.65
Licenses:		
Fishing	\$ 54,692.00	\$ 58,985.50
Dealers and Processors.....	15,405.00	16,455.00
Total License Receipts.....	\$ 70,097.00	\$ 75,440.50
Other Income:		
Poundage Fees	\$144,370.95	\$ 147,819.67
Fines and Confiscated Property Sales.....	3,804.47	1,981.32
Fish and Crab Tag Sales.....	236.90	371.31
Miscellaneous	1,290.87	1,187.18
Total Other Income.....	\$149,703.19	\$ 151,359.48
Sundry Receipts:		
Land Sale to U. S. Government—North Santiam River.....	\$ 2,884.00	
Fish Commission Emergency Fund Transferred.....		\$ 1,259.55
TOTAL RECEIPTS	\$222,684.19	\$ 228,059.53
TOTAL RECEIPTS AND APPROPRIATIONS.....	\$590,926.06	\$1,292,449.18
Transferred to State General Fund.....	222,684.19	228,059.53
AVAILABLE FOR EXPENDITURE.....	\$368,241.87	\$1,064,389.65

STATEMENT OF RECEIPTS AND DISBURSEMENTS—Continued

STATE GENERAL FUND ACCOUNT

Biennial Period Ending June 30, 1950

DISBURSEMENTS

	Fiscal Year Ending June 30, 1949	Fiscal Year Ending June 30, 1950
Oregon State Police.....	\$ 26,761.50	\$ 28,434.82
Division of Fish Culture—Artificial Propagation:		
Salaries and Wages.....	\$ 89,215.76	\$117,053.56
General, Operating, Maintenance.....	46,803.75	77,718.28
Hatchery Facilities and Equipment—		
Capital Outlays	22,056.71	14,554.61
Total	<u>\$158,076.22</u>	<u>\$209,326.45</u>
Division of Research:		
Salaries and Wages.....	\$ 59,234.92	\$ 85,533.65
General, Operating, Maintenance.....	23,608.90	25,886.40
Research Facilities and Equipment—		
Capital Outlays	7,128.88	10,434.89
Total	<u>\$ 89,972.70</u>	<u>\$121,854.94</u>
Division of Administration:		
Commissioners' Per Diem.....	\$ 1,190.00	\$ 680.00
Commissioners' Expenses.....	658.62	206.28
Office and Miscellaneous—		
Salaries and Wages.....	47,387.41	50,895.94
General, Operating, Maintenance.....	22,434.61	23,430.27
Furniture and Equipment—		
Capital Outlays	1,046.81	4,289.65
Total	<u>\$ 72,717.45</u>	<u>\$ 79,502.14</u>
Division of Engineering:		
Fishways, Stream Survey and Improvement—		
Salaries and Wages.....	\$ 7,458.76	\$ 17,278.13
General, Operating, Maintenance.....	5,557.04	11,293.51
Equipment—Capital Outlays	468.62	6,386.93
Total	<u>\$ 13,484.42</u>	<u>\$ 34,958.57</u>
TOTAL DISBURSEMENTS.....	<u>\$361,012.29</u>	<u>\$474,076.92</u>
Balance at End of Period.....	\$ 7,229.58	\$590,312.73

STATEMENT OF RECEIPTS AND DISBURSEMENTS

SEAL FUND ACCOUNT

Biennial Period Ending June 30, 1950

			Fiscal Year Ending June 30, 1949		Fiscal Year Ending June 30, 1950
Fund Balance at Beginning of Period.....			\$16,794.19		\$19,097.24
Receipts—Sale of Seal Certificates:					
	Rate	Number Issued		Number Issued	
Gillnet	\$2.50	654	\$ 1,635.00	611	\$ 1,527.50
Setnet	2.50	61	152.50	65	162.50
Troll	2.50	57	142.50	66	165.00
Seine	20.00	12	240.00	13	260.00
Trap	10.00	31	310.00	26	260.00
Canner	50.00	16	800.00	14	700.00
TOTAL RECEIPTS		831	\$ 3,280.00	795	\$ 3,075.00
Less 10% Tithing to State General Fund.....			328.00		307.50
			\$ 2,952.00		\$ 2,767.50
Total Beginning Balance and Net Receipts.....			\$19,746.19		\$21,864.74
Disbursements:					
Bounties Paid for Seals Destroyed.....		(63 @ \$10)	\$ 630.00	(58 @ \$10)	\$ 580.00
Administrative Expenses			18.95		
TOTAL DISBURSEMENTS			\$ 648.95		\$ 580.00
Balance at End of Period.....			\$19,097.24		\$21,284.74

STATEMENT OF ALLOTMENTS AND DISBURSEMENTS

FEDERAL AID—LOWER COLUMBIA RIVER SALMON REHABILITATION PROGRAM

Fiscal Year Ending June 30, 1949

Project	Allotted	Disbursed	Balance
Stream Improvement: Clatskanie River.....	\$ 50,503.71	\$ 36,744.61	\$ 13,759.10
Plans and Specifications for Hatcheries: Sandy River, Big Creek, John Day River.....	11,428.70	3,768.10	7,660.60
Plans and Surveys for Stream Improvement: Punch Bowl Falls in Hood River; Fishway at Falls in Little North Fork Santiam River.....	16,172.02	5,584.55	10,587.47
Stream Improvement: Construction of Stream Gaging Stations on Tributaries of Columbia River.....	14,700.00	1,059.74	13,640.26
Stream Improvement: Purchasing Machinery and Equipment to Con- struct Fishways at Punch Bowl Falls in Hood River; Elkhorn Falls in Little North Fork of North Santiam River.....	16,370.00		16,370.00
TOTAL.....	<u>\$109,174.43</u>	<u>\$ 47,157.00</u>	<u>\$ 62,017.43</u>

Fiscal Year Ending June 30, 1950

Project	Balance From Previous Year	Allotted	Disbursed	Balance
Stream Improvement: Clatskanie River.....	\$ 13,759.10		\$ 9,525.47	\$ 4,233.63
Plans and Specifications for Hatcheries: Sandy River, Big Creek, John Day River.....	7,660.60	\$ 7,399.28	12,778.64	2,281.24
Plans and Surveys for Stream Improvement: Punch Bowl Falls in Hood River; Fishway at Falls in Little North Fork of Santiam River.....	10,587.47		8,361.11	2,226.36
Stream Improvement: Construction of Stream Gaging Stations on Tributaries of Columbia River.....	13,640.26		13,525.07	115.19
Stream Improvement: Purchasing Machinery and Equip- ment to Construct Fishways at Punch Bowl Falls in Hood River; Elkhorn Falls in Little North Fork of North Santiam River.....	16,370.00		6,448.07	9,921.93
Stream Improvement: Rental and Maintenance of Equip- ment Warehouse		1,200.00	530.19	669.81
Stream Improvement: Operation and Maintenance of Stream Gaging Stations on Tributaries of Colum- bia River		4,200.00	3,804.46	395.54
Hatchery Feeds: Development.....		1,800.00	1,561.82	238.18
TOTAL.....	<u>\$ 62,017.43</u>	<u>\$ 14,599.28</u>	<u>\$ 56,534.83</u>	<u>\$ 20,081.88</u>

ARRESTS FOR VIOLATION OF COMMERCIAL FISHERIES CODE AND DISPOSITION OF CASES

Fiscal Year Ending June 30, 1949

Fishing and delivering fish without a license.....	21
Fishing prohibited methods.....	16
Fishing closed seasons and closed waters.....	23
Dealing in food or shellfish without a license.....	24
Possession of over-limit of clams.....	36
Unlawful possession of food fish.....	2
Pollution of waters.....	29
Failure to file dealer reports.....	3
Molesting spawning salmon.....	12
Miscellaneous violations.....	9
TOTAL ARRESTS.....	175

County	Number of Arrests	Number of Convictions	Number Pending, Dismissed or Not Guilty	Amount of Fines Imposed	Amount of Fines Suspended or Remitted	Number Paroled or Suspended in Whole or Part
Baker	2	2	---	\$ 70.50	\$ 19.50	1
Benton	1	1	---	100.00	75.00	1
Clackamas	4	4	---	650.00	-----	---
Clatsop	42	41	1	1,083.00	262.50	8
Columbia	3	3	---	525.00	450.00	2
Coos	8	8	---	425.00	25.00	1
Curry	9	7	2	375.00	35.00	2
Deschutes	3	3	---	75.00	24.50	2
Douglas	7	7	---	291.00	104.50	4
Jackson	3	3	---	225.00	100.00	2
Lane	6	5	1	170.50	30.00	2
Lincoln	21	15	6	360.00	164.00	7
Linn	3	2	1	9.50	-----	---
Marion	2	2	---	125.00	105.00	2
Morrow	1	1	---	10.00	-----	---
Multnomah	9	9	---	535.00	430.00	7
Polk	3	3	---	75.00	30.00	3
Tillamook	25	23	2	1,765.00	-----	---
Umatilla	6	6	---	750.00	580.00	5
Union	3	3	---	225.00	-----	---
Wasco	1	1	---	50.00	25.00	1
Washington	1	1	---	25.00	-----	---
Wheeler	5	5	---	400.00	65.00	3
Yamhill	7	1	6	100.00	-----	---
TOTAL.....	175	156	19	\$8,419.50	\$2,525.00	53

**ARRESTS FOR VIOLATION OF COMMERCIAL FISHERIES CODE
AND DISPOSITION OF CASES**

Fiscal Year Ending June 30, 1950

Fishing and delivering fish without a license	24
Fishing prohibited methods	21
Fishing closed seasons and closed waters	16
Dealing in food or shellfish without a license	29
Possession of over-limit of clams	35
Unlawful possession of food fish	3
Pollution of waters	20
Failure to file dealer reports	2
Molesting spawning salmon	3
Miscellaneous violations	9
TOTAL ARRESTS	162

County	Number of Arrests	Number of Convictions	Number Pending, Dismissed or Not Guilty	Amount of Fines Imposed	Amount of Fines Suspended or Remitted	Number Paroled or Suspended in Whole or Part
Baker	1	1	....	\$ 20.50	\$ 15.00	1
Benton	1	1	....	1.00	.....	....
Clatsop	23	22	1	700.00	112.50	7
Columbia	2	2	....	200.00	200.00	2
Coos	14	14	....	700.00	25.00	1
Curry	6	5	1	250.00	80.00	2
Deschutes	2	2	....	50.00	10.00	1
Douglas	14	14	....	384.00	59.00	2
Grant	2	2	....	35.50	35.50	2
Harney	3	3	....	60.00	60.00	3
Jackson	7	7	....	225.00	25.00	1
Jefferson	1	1	....	25.00	15.00	1
Lane	8	8	....	800.00	375.00	6
Lincoln	22	18	4	1,049.00	384.50	10
Marion	5	5	....	230.00	145.00	4
Multnomah	2	2	....	75.00	25.00	1
Polk	2	2	....	95.50	40.00	1
Tillamook	39	38	1	2,074.50	40.50	2
Umatilla	3	3	....	170.50	75.00	1
Union	1	1	....	70.50	.....	....
Wasco	1	1	....	50.00	29.50	1
Washington	1	1	....	1.00	.....	....
Wheeler	1	1	....	10.00	.....	....
Yamhill	1	1	....	100.00	94.50	1
TOTAL	162	155	7	\$7,377.00	\$1,846.00	50

COMPARATIVE STATEMENT OF LICENSES ISSUED

Fiscal Years Ending on June 30th

Licenses	1950	1949	1948	1947	1946	1945
Gillnet	1009	1134	1064	1022	982	874
Setnet	544	610	714	992	1438	1120
Trap	26	31	49	53	59	53
Seine	14	12	18	16	16	17
Troll	79	60	73	73	69	71
Boatpuller			1	280	260	216
Personal	2750	2744	2693			
Retail Fish Dealer and Peddler.....	1690	1600	1442	1295	1306	1118
Wholesale Fish Dealer	204	193	205	180	189	166
Broker	6	7	4	8	4	2
Buyer	81	94	100			
Salmon Canner	25	23	32	32	26	13
Shellfish Canner	14	13	13	12	7	6
Reduction Plant	4	7	6	7	5	9
Bagnet	(f)54	(e)152	(d)155	(c)53	(a)106	(b)341
Carp Permit	11	11	20			
Clam	996	732	601	708	815	514
Crab				288	375	301
Crawfish			1	24	28	21
Crab-Shrimp-Crawfish	217	229	244			
Setline	18	66	81	366	218	200
Bait Net	7	18	10			
Delivery	947	1212	1091	1040	1124	1031
Supplemental to Delivery.....	6	6	10	4	11	20
Oyster Tongers		1				
Total Licenses	8708	8955	8627	6453	7038	6093

(a) Includes 75 issued for Sandy River Smelt.

(b) Includes 238 issued for Sandy River Smelt.

(c) Includes 8 issued for Sandy River Smelt.

(d) Includes 109 issued for Sandy River Smelt.

(e) Includes 64 issued for Sandy River Smelt.

(f) Includes 16 issued for Sandy River Smelt.

COMPARATIVE STATEMENT OF LICENSES ISSUED

License Years Ending on March 31st

Licenses	1950	1949	1948	1947	1946	1945
Alsea Bay and River						
Gillnet	69	90	77	48	41	34
Setnet				153	163	160
Boat Puller			2	3	4	2
Retail Fish Dealer and Peddler	45	35	33	37	50	29
Wholesale Fish Dealer	6	3	4	5	4	5
Clam	11	4	5	12	5	5
Crab			15	26	31	34
Crab-Shrimp-Crawfish	15	16	7			
Salmon Canner	1	1				
Total Alsea Bay and River	147	149	143	284	298	269
Brookings Harbor						
Wholesale Fish Dealer		1	1		2	1
Retail Fish Dealer and Peddler	1					1
Crab					1	
Total Brookings Harbor	1	1	1		3	2
Chetco Bay						
Retail Fish Dealer and Peddler	2	2	3	3	8	3
Wholesale Fish Dealer		1			1	2
Crab					1	
Total Chetco Bay	2	3	3	3	10	5
Clatsop Beaches						
Retail Fish Dealer and Peddler		2			2	1
Shellfish Canner	2	2			3	3
Clam	602	480	589	716	424	242
Crab			2	3	11	19
Wholesale Fish Dealer	1	1	2	1	1	2
Buyer		1	1			
Crab-Shrimp-Crawfish		3				
Total Clatsop Beaches	605	489	594	720	441	267
Columbia River and Tributaries						
Gillnet	629	632	582	566	524	508
Setnet	152	248	251	240	220	177
Trap	35	49	55	54	53	48
Seine	13	15	21	18	17	21
Troll	66	72	65	67	84	64
Boat Puller			78	197	182	162
Retail Fish Dealer and Peddler	1159	1090	1011	954	862	744
Wholesale Fish Dealer	105	100	96	96	88	76
Broker			5	6	2	3
Shellfish Canner	6	7	4	8	1	1
Salmon Canner	16	20	22	19	12	9
Reduction Plant	5	6	5	5	6	4
Bagnet	(f)87	(e)165	(d)101	(c)97	(a)304	(b)107
Clam	2	1		2		
Crab			25	34	20	2
Crawfish			18	25	24	23
Setline	37	52	173	239	186	142
Bait Net		3	1			
Buyer	69	63	45			
Carp Permit	11	14	8			
Crab-Shrimp-Crawfish	42	49	12			
Total Columbia River	2434	2586	2578	2627	2585	2091

(a) Includes 263 issued for Sandy River Smelt.
 (b) Includes 14 issued for Sandy River Smelt.
 (c) Includes 52 issued for Sandy River Smelt.

(d) Includes 62 issued for Sandy River Smelt.
 (e) Includes 107 issued for Sandy River Smelt.
 (f) Includes 52 issued for Sandy River Smelt.

COMPARATIVE STATEMENT OF LICENSES ISSUED—Continued

License Years Ending on March 31st

Licenses	1950	1949	1948	1947	1946	1945
Coos Bay and River						
Gillnet	10	21	34	60	56	37
Setnet	140	179	245	275	161	102
Boat Puller			23	39	15	9
Retail Fish Dealer and Peddler	66	55	53	51	38	25
Wholesale Fish Dealer	23	19	23	16	15	9
Shellfish Canner	2	1	1	2		1
Salmon Canner	1	2	1	1	2	
Clam	22	10	15	28	27	14
Crab			52	100	89	87
Broker				1		
Crawfish				1		
Setline	2	22	35	48		
Buyer	3	3	1			
Bait Net	3	5	3			
Crab-Shrimp-Crawfish	15	57	15			
Total Coos Bay and River	287	374	501	622	403	284
Coquille River						
Gillnet	39	53	47	29	28	38
Setnet	8	11	13	45	43	55
Boat Puller			1	2	2	2
Retail Fish Dealer and Peddler	11	10	13	13	11	16
Wholesale Fish Dealer	4	5	6	4	5	5
Clam	1	1	2			
Crab			1	7	4	4
Buyer	1	1	1			
Crab-Shrimp-Crawfish	2	5	1			
Total Coquille River	66	86	85	100	93	120
Depoe Bay						
Retail Fish Dealer and Peddler	15	12	18	14	11	6
Wholesale Fish Dealer	5	5	4	3	4	2
Crab					8	21
Salmon Canner	1	1	1			
Total Depoe Bay	21	18	23	17	23	29
Lincoln County Beaches						
Clam	11	7	17	7	8	3
Crab-Shrimp-Crawfish	1					
Total Lincoln County Beaches	12	7	17	7	8	3
Nehalem River						
Gillnet	62	71	71	60	52	49
Setnet				127	115	125
Boat Puller				5	3	3
Retail Fish Dealer and Peddler	16	17	17	16	20	14
Wholesale Fish Dealer	5	4	5	9	5	4
Clam	7	3	1		1	
Crab			3	8	10	11
Buyer	2	1	1			
Crab-Shrimp-Crawfish	6	1	1			
Salmon Canner	1					
Total Nehalem River	99	97	99	225	206	206

COMPARATIVE STATEMENT OF LICENSES ISSUED—Continued

License Years Ending on March 31st

Licenses	1950	1949	1948	1947	1946	1945
Nestucca River						
Retail Fish Dealer and Peddler.....	8	6	7	9	6	.....
Clam .....	.....	.....	.....	.....	1	.....
Crab .....	.....	.....	.....	.....	1	.....
Wholesale Fish Dealer.....	2	2	2	.....	1	.....
Salmon Canner	1	1	1	.....	.....	.....
Total Nestucca River.....	11	9	10	9	9	.....
Netarts Bay						
Setnet	9	8	6	4	4	4
Retail Fish Dealer and Peddler.....	5	4	3	5	4	1
Crab .....	.....	.....	6	13	13	4
Wholesale Fish Dealer.....	1	1	1	.....	.....	.....
Crab-Shrimp-Crawfish	3	5	2	.....	.....	.....
Clam	4	1	.....	.....	.....	.....
Total Netarts Bay.....	22	19	18	22	21	9
Port Orford						
Retail Fish Dealer and Peddler.....	13	7	8	2	3	1
Wholesale Fish Dealer.....	7	4	3	1	3	1
Crab .....	.....	.....	4	7	22	20
Salmon Canner	2	.....	1	.....	.....	.....
Crab-Shrimp-Crawfish .....	.....	1	3	.....	.....	.....
Total Port Orford.....	22	12	19	10	28	22
Salmon River						
Gillnet .....	.....	.....	.....	1	2	1
Setnet .....	.....	.....	.....	27	19	18
Boat Puller .....	.....	.....	.....	1	2	1
Retail Fish Dealer and Peddler.....	.....	.....	.....	7	8	5
Wholesale Fish Dealer.....	.....	.....	.....	2	1	2
Total Salmon River.....	.....	.....	.....	38	32	27
Sand Lake						
Setnet	10	10	12	5	5	2
Crab .....	.....	.....	.....	.....	.....	.....
Retail Fish Dealer.....	2	1	1	.....	.....	.....
Total Sand Lake.....	12	11	13	5	5	2
Sandy River						
Retail Fish Dealer and Peddler.....	9	10	4	.....	.....	.....
Wholesale Fish Dealer.....	2	1	.....	.....	.....	.....
Total Sandy River.....	11	11	4	.....	.....	.....
Siletz River						
Gillnet	33	39	35	5	4	3
Setnet .....	.....	.....	.....	100	117	81
Boat Puller .....	.....	.....	.....	1	3	2
Retail Fish Dealer and Peddler.....	29	26	24	25	31	23
Wholesale Fish Dealer.....	4	3	4	6	7	5
Crab-Shrimp-Crawfish	2	.....	.....	.....	.....	2
Total Siletz River.....	68	68	63	137	162	116

COMPARATIVE STATEMENT OF LICENSES ISSUED—Continued

License Years Ending on March 31st

Licenses	1950	1949	1948	1947	1946	1945
Siuslaw River						
Gillnet	30	51	43	35	32	31
Setnet	40	58	64	78	50	30
Boat Puller			2	10	4	7
Retail Fish Dealer and Peddler.....	39	34	29	30	27	16
Wholesale Fish Dealer.....	1	4	5	6	2	2
Clam	13	13	7	8	5	5
Crab			2	8	8	7
Buyer	1	1	1			
Crab-Shrimp-Crawfish		3	1			
Total Siuslaw River.....	124	164	154	175	128	98
Tillamook Bay						
Gillnet	97	106	113	90	82	71
Setnet	159	145	123	216	207	208
Boat Puller				9	8	7
Retail Fish Dealer and Peddler.....	43	48	46	42	31	28
Wholesale Fish Dealer.....	14	17	17	16	11	10
Salmon Canner			2	4	1	
Shellfish Canner	1	1			1	
Clam	43	22	19	20	25	20
Crab			22	39	39	44
Buyer	1	4	2			
Crab-Shrimp-Crawfish	15	25	11			
Oyster Tonger	1					
Bait Net	1					
Total Tillamook Bay.....	375	368	355	436	405	388
Umpqua River						
Gillnet	40	57	85	86	61	53
Setnet (Smith River).....	79	80	99	79	86	79
Troll				2	1	
Boat Puller			2	9	7	4
Retail Fish Dealer and Peddler.....	43	36	31	36	23	24
Wholesale Fish Dealer.....	6	8	7	9	9	6
Salmon Canner	1	1	1	1	1	1
Shellfish Canner						2
Clam	7	6	7	11	12	4
Crab			4	4	2	5
Buyer	3	1	1			
Crab-Shrimp-Crawfish	3	2	3			
Bait Net	4	1				
Total Umpqua River.....	186	192	240	237	202	178

COMPARATIVE STATEMENT OF LICENSES ISSUED—Continued

License Years Ending on March 31st

Licenses	1950	1949	1948	1947	1946	1945
Yaquina Bay and River						
Gillnet	31	30	27	27	21	23
Setnet .....	.....	.....	.....	4	3	2
Boat Puller .....	.....	.....	.....	5	2	3
Retail Fish Dealer and Peddler.....	72	57	50	51	48	34
Wholesale Fish Dealer.....	15	14	11	15	12	7
Clam	20	19	17	29	26	26
Crab .....	.....	.....	13	63	65	70
Setline	5	8	13	25	29	25
Shellfish Canner	2	2	2	2	1	2
Salmon Canner	2	2	2	3	3	1
Reduction Plant	1	1	1	1	1	1
Bait Net	3	4	4	.....	.....	.....
Crab-Shrimp-Crawfish	21	22	28	.....	.....	.....
Buyer	1	.....	.....	.....	.....	.....
Total Yaquina Bay and River.....	173	159	168	225	211	194
Miscellaneous						
Bait Net (Pacific Ocean).....	1	.....	.....	.....	.....	.....
Troll (Pacific Ocean).....	9	3	1	1	1	1
Delivery	1027	1194	1073	1106	1086	930
Supplemental to Delivery.....	7	10	14	5	13	19
Personal	2640	2679	1073	.....	.....	.....
Shrimp-Crawfish-Crab (Pacific Ocean).....	80	47	40	45	.....	.....
Broker	8	4	.....	.....	.....	.....
Clam (Pacific Ocean).....	63	20	.....	.....	.....	.....
Total Miscellaneous.....	3835	3957	2201	1157	1100	950
Grand Totals	8513	8780	7289	7056	6373	5260
Recapitulation						
Gillnet	1040	1150	1114	1007	903	848
Setnet	597	739	813	1353	1193	1043
Trap	35	49	55	54	53	48
Seine	13	15	21	18	17	21
Troll	75	75	66	70	86	65
Boat Puller .....	.....	.....	108	281	232	202
Retail Fish Dealer and Peddler.....	1578	1452	1351	1295	1183	971
Wholesale Fish Dealer.....	201	193	191	189	171	139
Broker	8	4	5	7	2	3
Salmon Canner	26	28	31	28	19	11
Shellfish Canner	13	13	7	12	6	9
Reduction Plant	6	7	6	6	7	5
Bagnet	(f)87	(e)165	(d)101	(c)97	(a)304	(b)107
Clam	806	587	679	833	534	319
Crab .....	.....	.....	189	357	325	330
Crawfish .....	.....	.....	18	26	24	23
Setline	44	82	221	312	215	167
Delivery	1027	1194	1073	1106	1086	930
Supplemental to Delivery.....	7	10	14	5	13	19
Personal	2640	2679	1073	.....	.....	.....
Crab-Shrimp-Crawfish	205	236	84	.....	.....	.....
Buyer	81	75	53	.....	.....	.....
Bait Net	12	13	8	.....	.....	.....
Carp Permit	11	14	8	.....	.....	.....
Oyster Tonger	1	.....	.....	.....	.....	.....
Totals	8513	8780	7289	7056	6373	5260

(a) Includes 263 issued for Sandy River Smelt.
 (b) Includes 14 issued for Sandy River Smelt.
 (c) Includes 52 issued for Sandy River Smelt.

(d) Includes 62 issued for Sandy River Smelt.
 (e) Includes 107 issued for Sandy River Smelt.
 (f) Includes 52 issued for Sandy River Smelt.

EGG TAKE

Number of Eggs Taken at Stations Operated by the Fish Commission

Fiscal Year Ending June 30, 1949

Fisheries Station	Chinook	Silver Salmon	Chum	Total
Alsea		282,572		282,572
Bonneville	14,619,000			14,619,000
Coos		122,833		122,833
Klaskanine	252,395	7,330,360		7,582,755
McKenzie	528,659			528,659
Metolius	239,100			239,100
Nehalem		259,460		259,460
Ox Bow Springs	7,160,000			7,160,000
Sandy	441,000			441,000
North Santiam	896,201			896,201
South Santiam	379,770			379,770
Siletz		847,477		847,477
Tillasqua	692,334	4,586,290	259,200	5,537,824
Trask	1,001,042	1,317,633		2,318,675
Willamette	1,251,384			1,251,384
TOTAL	27,460,885	14,746,625	259,200	42,466,710

Fiscal Year Ending June 30, 1950

Fisheries Station	Chinook	Silver Salmon	Steelhead	Total
Alsea		272,474		272,474
Bonneville	11,502,000	137,204		11,639,204
Coos		113,473		113,473
Klaskanine		3,869,064		3,869,064
McKenzie	527,111			527,111
Metolius	307,020			307,020
Nehalem		197,402		197,402
Ox Bow Springs	7,150,000			7,150,000
North Santiam	728,258			728,258
South Santiam	315,499			315,499
Siletz		561,553	125,164	686,717
Tillasqua	1,214,684	1,179,512		2,394,196
Trask	926,294	171,369		1,097,663
Willamette	1,400,033			1,400,033
TOTAL	24,070,899	6,502,051	125,164	30,698,114

EGG TRANSFERS

Fiscal Year Ending June 30, 1949

FISHERIES STATION		RECEIVING STATION						
Source	Species	Alsea	Coos	Nehalem	Siletz	Metolius	Trask	Bonneville
Bonneville	Chinook	501,775	501,775	501,760	501,775		501,760	
Bonneville	Silver Salmon					250,000		
Klaskanine	Silver Salmon	544,326	1,004,404	524,206				1,202,401
Ox Bow Springs	Chinook							3,660,000
Sandy	Chinook							414,000

Fiscal Year Ending June 30, 1950

FISHERIES STATION		RECEIVING STATION						
Source	Species	Alsea	Coos	Nehalem	Siletz	Klaskanine	Trask	Bonneville
Bonneville	Chinook	514,560	514,560				501,696	
Klaskanine	Silver Salmon	305,139	211,053	101,713	210,050			210,050
Ox Bow Springs	Chinook							3,150,000
Tillasqua	Chinook					500,040		

NUMBER OF FINGERLINGS AND FRY LIBERATED INTO THE WATERS OF THE STATE OF OREGON BY THE FISH COMMISSION

Fiscal Year Ending June 30, 1949

Fisheries Station	Chinook	Silver Salmon	Chum	Blueback	Total	Where Liberated
Alsea.....	185,000	200,000	.....	.....	386,000	Five Rivers R., Trib. Alsea R.
	120,000	50,000	.....	.....	170,000	Alsea R.
	140,000	75,000	.....	.....	215,000	Fall Cr., Trib. Five Rivers R., Trib. Alsea R.
	50,896	.....	.....	.....	50,896	Siuslaw R.
	.....	29,302	.....	.....	29,302	Hatchery Cr., Trib. Alsea R.
Bonneville.....	12,357,346	.....	.....	.....	12,357,346	Tanner Cr., Trib. Columbia R.
	79,600	.....	.....	.....	79,600	Deschutes R., Trib. Columbia R.
	81,400	.....	.....	.....	81,400	Eagle Cr., Trib. Columbia R.
	80,500	.....	.....	.....	80,500	Five Mile Cr., Trib. Columbia R.
	127,000	.....	.....	.....	127,000	Gordon Cr., Trib. Sandy R., Trib. Columbia R.
	284,586	.....	.....	.....	284,586	Sandy R., Trib. Columbia R.
	.....	75,600	.....	.....	75,600	Clear Cr., Trib. Clackamas, Willamette, Columbia R.
	.....	176,688	.....	.....	176,688	West Fork Hood R., Trib. Columbia R.
.....	1,000	.....	.....	1,000	Hood R., Trib. Columbia R.	
Coos.....	51,352	126,204	.....	.....	177,556	Mill Cr., Trib. Umpqua R.
	100,352	.....	.....	.....	100,352	S. Fork Coquille R.
	100,016	114,708	.....	.....	214,724	W. Fork N. Coos R.
	50,008	60,687	.....	.....	110,695	Smith R.
	192,340	725,735	.....	.....	918,075	S. Coos R.
	.....	46,440	.....	.....	46,440	N. Coos R.
	.....	152,810	.....	.....	152,810	Ten Mile Lake, Trib. Ten Mile Cr.
.....	195,038	.....	.....	195,038	N. Coquille R.	
Klaskanine.....	214,757	2,070,991	.....	.....	2,285,748	Klaskanine R., Trib. Columbia R.
	.....	62,469	.....	.....	62,469	Lewis & Clark R.
	.....	31,920	.....	.....	31,920	Fish Hawk Cr., Trib. Nehalem R.
	.....	15,504	.....	.....	15,504	Wilson R.
	.....	30,400	.....	.....	30,400	Rock Cr., Trib. Nehalem R.
	.....	76,912	.....	.....	76,912	Necanicum R.
	.....	17,328	.....	.....	17,328	Nehalem R.
.....	16,112	.....	.....	16,112	Miami R.	
McKenzie.....	317,660	.....	.....	.....	317,660	Cogswell Cr., Trib. McKenzie R.
	375,396	.....	.....	.....	375,396	McKenzie R.
Metolius.....	.....	.....	.....	19,992	19,992	Blue Lake, Trib. Metolius R.
	149,377	224,360	.....	21,168	374,237	Suttle Lake, Trib. Metolius R. Spring Cr., Trib. Metolius R.
Nehalem.....	153,716	606,750	.....	.....	762,466	Foley Cr., Trib. Nehalem R.
	99,544	.....	.....	.....	99,544	Foley Cr. and N. Fork Nehalem R.
Ox Bow Springs.....	3,093,177	.....	.....	.....	3,093,177	Herman Cr., Trib. Columbia R.
	75,000	.....	.....	.....	75,000	Hood R., Trib. Columbia R.
N. Santiam.....	402,400	.....	.....	.....	402,400	Little Sardine, Trib. N. Santiam R.
	405,034	.....	.....	.....	405,034	Canyon Cr., Trib. N. Santiam R.
S. Santiam.....	113,153	.....	.....	.....	113,153	Thistle Cr., Trib. S. Santiam R.
	196,474	.....	.....	.....	196,474	S. Santiam R.
Siletz.....	350,600	762,952	.....	.....	1,112,952	Rock Cr., Trib. Siletz R.
	95,611	62,700	.....	.....	158,311	Yaquina R.
Tillamook.....	576,780	3,108,393	.....	(a)251,450	3,936,623	Tillamook R., Trib. Columbia R.
	.....	126,000	.....	.....	126,000	Clatskanie R., Trib. Columbia R.
	.....	52,500	.....	.....	52,500	Carcus Cr., Trib. Klaskanine R.
Trask.....	275,988	497,126	.....	.....	773,114	Gold Cr., Trib. Trask R.
	129,417	.....	.....	.....	129,417	Wilson R.
	82,689	.....	.....	.....	82,689	Kilchis R.
	359,108	492,121	.....	.....	851,229	S. Fork Trask R.
	57,038	.....	.....	.....	57,038	Little Nestucca R., Trib. Nestucca R.
.....	217,741	.....	.....	677,718	Trask R.	
Willamette.....	1,498,273	.....	.....	.....	1,498,273	Salmon Cr., Trib. Willamette R.
	25,165	.....	.....	.....	25,165	Salt Cr., Trib. Willamette R.
TOTAL	23,509,630	10,501,491	251,450	41,160	34,303,731	

(a) Fry escapement during flood conditions.

NUMBER OF FINGERLINGS AND FRY LIBERATED INTO THE WATERS OF THE STATE OF OREGON BY THE FISH COMMISSION

Fiscal Year Ending June 30, 1950

Fisheries Station	Chinook	Silver Salmon	Blueback	Total	Where Liberated
Alsea	322,492	353,263	.....	675,755	Fall Cr., Trib. Five Rivers R., Trib. Alsea R.
	108,274	.....	.....	108,274	Buck Cr., Trib Alsea R.
	.....	17,555	.....	17,555	Alsea R.
	.....	59,570	.....	59,570	Five Rivers R., Trib. Alsea R.
	.....	96,706	.....	96,706	Scott Cr., Trib. Alsea R.
	.....	44,118	.....	44,118	Hatchery Cr., Trib. Alsea R.
	.....	84,819	.....	84,819	N. Fork Alsea R.
.....	.....	105,435	.....	105,435	S. Fork Alsea R.
Bonneville	13,686,346	644,813	.....	14,331,159	Tanner Cr., Trib. Columbia R.
	1,650	.....	.....	1,650	Hood R., Trib. Columbia R.
	127,500	.....	.....	127,500	Eight Mile Cr., Trib. Columbia R.
	130,050	.....	.....	130,050	Deschutes R., Trib. Columbia R.
Coos	175,848	178,580	.....	354,428	S. Coos R.
	65,473	.....	.....	65,473	S. Coquille R.
	49,105	17,550	.....	66,655	Mill Cr., Trib. Umpqua R.
	49,105	5,690	.....	54,795	Lake Cr., Trib. Siuslaw R.
	49,105	20,100	.....	69,205	Condon Cr., Trib. Coos R.
	65,473	101,616	.....	167,089	N. Coquille R.
	46,985	11,085	.....	58,070	Millacoma R., Trib. Coos R.
	.....	7,500	.....	7,500	Big Creek
	.....	5,025	.....	5,025	McCleod Cr., Trib. N. Fork Siuslaw
	.....	10,050	.....	10,050	Nelson Cr., Trib. Siuslaw R.
	.....	5,025	.....	5,025	Indian Cr., Trib. Siuslaw R.
	.....	7,500	.....	7,500	Sandy Cr., Trib. Coquille R.
.....	49,170	.....	49,170	W. Fork Millacoma R., Trib. Coos R.	
Klaskanine	476,186	1,781,497	.....	2,257,683	Klaskanine R., Trib. Columbia R.
	.....	137,500	.....	137,500	Nehalem R.
	.....	50,000	.....	50,000	Necanicum R.
	.....	50,000	.....	50,000	Kilchis R.
	.....	50,000	.....	50,000	Wilson R.
	.....	50,000	.....	50,000	Tillamook R.
	.....	22,500	.....	22,500	Lewis & Clark R., Trib. Columbia R.
	.....	20,000	.....	20,000	Walluski R., Trib. Columbia R.
.....	15,000	.....	15,000	Cedar Cr., Sandy R., Trib. Columbia R.	
McKenzie	193,170	.....	.....	193,170	McKenzie R.
	1,732	.....	.....	1,732	Row River, Trib. Willamette R.
Metolius	105,510	.....	99,922	205,432	Spring Cr., Trib. Metolius R.
Nehalem	.....	233,502	.....	233,502	Foley Cr., Trib. Nehalem R.
	.....	57,042	.....	57,042	Miami R., Trib. Tillamook Bay
	.....	63,990	.....	63,990	Cronin Cr., Trib. Nehalem R.
	.....	75,698	.....	75,698	Gods Valley Cr., Trib. Nehalem R.
.....	65,710	.....	65,710	Cook Cr., Trib. Nehalem R.	
Ox Bow Springs	3,759,694	.....	.....	3,759,694	Herman Cr., Trib. Columbia R.
N. Santiam	220,204	.....	.....	220,204	N. Santiam R.
S. Santiam	8,241	.....	.....	8,241	S. Santiam R.
	7,604	.....	.....	7,604	Row River, Trib. Willamette R.
	82,337	.....	.....	82,337	Thistle Cr., Trib. S. Santiam R.
Siletz	.....	491,726	.....	491,726	Rock Cr., Trib. Siletz R.
	.....	109,346	.....	109,346	Yaquina R.
	.....	60,571	.....	60,571	Cedar Cr., Trib. Siletz R.
Tillamook	656,500	1,111,518	.....	1,768,018	Tillamook R., Trib Columbia R.
	61,000	.....	.....	61,000	Lewis & Clark R., Trib. Columbia R.
Trask	119,202	.....	.....	119,202	Wilson R.
	95,234	499,704	.....	594,938	Gold Cr., Trib. Trask R.
	521,050	.....	.....	521,050	Upper S. Fork Trask R.
	107,667	25,947	.....	133,614	Kilchis R.
	55,779	.....	.....	55,779	Little Nestucca R., Trib. Nestucca R.
	55,227	.....	.....	55,227	East Cr., Trib. Trask R.
	110,264	32,586	.....	142,850	S. Fork Trask R.
	.....	12,374	.....	12,374	N. Fork Wilson R.
	.....	19,665	.....	19,665	S. Fork Wilson R.
	.....	30,371	.....	30,371	Fawcette Cr., Trib. Trask R.
	.....	22,812	.....	22,812	Beaver Cr., Trib. Nestucca R.
	.....	8,120	.....	8,120	Jackson Cr., Trib. Netarts Bay
	.....	15,754	.....	15,754	Trask R.
Willamette	630,980	.....	.....	630,980	Salmon Cr., Trib. Willamette R.
	272,000	.....	.....	272,000	Willamette R.
TOTAL	22,416,987	6,938,103	99,922	29,455,012	

FINGERLINGS AND FRY ON HAND

June 30, 1949

Fisheries Station	Chinook	Silver Salmon	Blueback	Total
Alsea		811,002		811,002
Bonneville	1,925,636	689,766		2,615,402
Coos		275,112		275,112
Klaskanine		2,074,996		2,074,996
McKenzie	43,163			43,163
Metolius	127,951		104,732	232,683
Nehalem		498,525		498,525
South Santiam	18,500			18,500
Siletz		699,975		699,975
Tillamook		1,259,417		1,259,417
Trask	142,373	718,727		861,100
Willamette	222,185			222,185
TOTAL	2,479,808	7,027,520	104,732	9,612,060

June 30, 1950

Fisheries Station	Chinook	Silver Salmon	Blueback	Steelhead	Total
Alsea		462,082			462,082
Bonneville	364,103	332,749		90,851	787,703
Coos		159,001			159,001
Klaskanine		2,063,900			2,063,900
McKenzie	199,402				199,402
Metolius	265,662		92,362		358,024
Nehalem		261,698			261,698
North Santiam	456,453				456,453
South Santiam	184,454				184,454
Siletz		649,678			649,678
Tillamook		988,367			988,367
Trask	264,261	158,877			423,138
Willamette	557,188				557,188
TOTAL	2,291,523	5,076,352	92,362	90,851	7,551,088

SALMON ESCAPEMENT OVER BONNEVILLE DAM

Years 1938 to 1950

CHINOOK

	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
January.....	*	6	.....	4	1	11	1	6	1	.....	10	.....	.....
February.....	*	12	.....	.....	15	6	2	4	2	2	.....	.....	.....
March.....	*	121	504	1,360	34	43	65	81	25	141	251	5	21
April.....	*	51,410	37,253	51,501	9,506	12,172	15,670	17,148	14,179	83,520	21,205	5,765	6,630
May.....	22,371	25,159	28,621	19,445	30,915	53,268	15,127	26,276	53,313	49,899	20,262	44,304	50,638
June.....	8,221	5,602	7,028	7,013	11,816	5,440	4,363	11,293	30,051	25,502	44,137	24,232	16,667
July.....	6,556	17,845	14,938	9,395	12,821	8,044	8,241	16,327	20,960	13,358	23,100	22,500	32,937
August.....	34,765	32,919	58,643	12,590	27,581	28,985	55,468	32,254	45,421	43,062	35,934	41,500	40,462
September....	197,294	150,851	240,515	351,967	303,995	201,414	139,254	189,675	277,075	260,385	270,238	137,599	205,521
October.....	2,302	2,197	3,765	7,179	4,485	3,354	2,388	4,281	4,521	3,945	3,928	1,571	4,356
November....	263	78	287	866	639	365	164	137	170	526	467	215	.....
December....	27	16	34	134	190	21	20	6	25	36	23	6	.....
Total.....	271,799	286,216	391,588	461,458	401,998	313,123	240,763	297,488	445,743	480,376	419,555	277,697	357,232

STEELHEAD

	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
January.....	*	23	5	37	4	14	50	1,003	63	197	154	1	13
February.....	*	19	96	76	37	18	157	1,078	551	321	119	.....	.....
March.....	*	560	1,688	1,641	256	654	1,019	3,066	3,040	1,968	1,631	1,689	1,156
April.....	*	8,110	4,125	6,392	3,642	3,374	6,142	4,685	9,839	6,889	4,473	3,293	4,537
May.....	6,622	1,587	998	1,518	4,159	4,698	2,227	1,557	5,481	2,025	1,170	1,712	1,667
June.....	2,382	1,490	4,489	994	1,588	1,564	1,169	1,109	3,265	1,595	1,895	1,264	691
July.....	19,455	36,581	61,175	21,940	19,905	7,755	21,868	24,600	20,559	28,134	33,191	34,314	25,142
August.....	29,231	38,062	46,071	29,600	41,973	29,894	24,508	40,483	58,356	40,819	53,621	54,281	53,904
September....	46,618	33,891	64,377	50,542	76,622	41,051	35,907	40,194	38,296	50,025	40,609	20,786	24,226
October.....	2,264	1,264	1,786	3,980	2,411	2,444	6,129	1,925	2,067	2,905	1,742	1,161	1,932
November....	339	216	292	1,063	566	573	1,119	302	262	443	381	686	.....
December....	92	119	59	304	182	92	226	142	769	113	76	98	.....
Total.....	107,003	121,922	185,161	118,087	151,345	92,131	100,521	120,144	142,548	135,434	139,062	119,285	113,268

BLUEBACK

	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
January.....	*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
February.....	*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
March.....	*	.....	.....	.....	.....	.....	1	10	.....	.....	.....	.....	.....
April.....	*	48	.....	299	.....	.....	.....	51	9	.....	.....	.....	.....
May.....	1,025	189	206	1,052	13	9	16	521	67	5	.....	151	.....
June.....	17,811	29,386	59,639	23,536	12,624	4,525	3,098	1,507	7,805	59,378	12,023	9,013	341
July.....	53,864	43,124	85,885	39,193	41,301	33,613	11,171	6,903	64,704	108,175	117,652	41,620	75,784
August.....	2,097	616	3,063	1,615	1,477	1,697	659	498	1,746	3,564	1,850	655	1,826
September....	235	19	11	50	60	1	127	11	23	17	14	10	50
October.....	6	.....	1	.....	.....	.....	.....	1	2	1	4	1	.....
November....	2	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
December....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
Total.....	75,040	73,382	148,805	65,745	55,475	39,845	15,072	9,502	74,356	171,142	131,543	51,450	78,001

* Data not available. Figures for 1938 are from May 7 to December 31, inclusive.
 Figures show number of fish.

U. S. Engineers, Bonneville Division.

SALMON ESCAPEMENT OVER BONNEVILLE DAM—Continued

Years 1938 to 1950

SILVERSIDES

	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
January.....	*	3	3	2	.....	.....	.....	.....	.....	12	1	.....	.....
February.....	*	.....	.....	.....	.....	.....	.....	.....	10	2	.....	.....	.....
March.....	*	.....	.....	.....	.....	.....	.....	.....	4	1	.....	.....	.....
April.....	*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
May.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
June.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
July.....	.....	.....	.....	.....	.....	.....	.....	2	22	.....	11	17	.....
August.....	3,070	1,810	1,451	1,317	1,193	762	1,052	239	227	217	158	270	1,570
September.....	10,995	12,226	10,212	16,061	11,061	1,676	3,021	533	3,609	10,928	3,893	703	8,545
October.....	972	310	213	369	147	89	103	16	1	10	10	5	36
November.....	141	15	33	160	.....	20	29	.....	.....	3	3	8	.....
December.....	7	18	5	2	.....	.....	2	1	24	1	5	1	.....
Total.....	15,185	14,382	11,917	17,911	12,401	2,547	4,207	791	3,897	11,174	4,081	1,004	10,151

CHUMS

	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
January.....	*	2	.....	.....	.....	.....	1	2	.....	.....	.....	.....	1
February.....	*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
March.....	*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
April.....	*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
May.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
June.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
July.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
August.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....
September.....	.....	6	.....	.....	.....	.....	.....	2	1	.....	.....	.....	.....
October.....	1,245	700	860	1,116	700	125	191	118	303	59	192	215	298
November.....	799	411	835	4,130	1,149	623	666	585	809	110	2,966	1,719	.....
December.....	73	49	34	23	16	42	96	20	63	29	478	94	.....
Total.....	2,117	1,168	1,729	5,270	1,865	790	954	727	1,176	199	3,636	2,028	299

TOTAL ESCAPEMENT BY MONTHS

	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
January.....	*	34	8	43	5	25	52	1,011	64	209	165	1	14
February.....	*	31	96	76	52	24	159	1,082	563	325	119	.....	.....
March.....	*	681	2,192	3,001	290	697	1,085	3,157	3,069	2,110	1,882	1,694	1,177
April.....	*	59,568	41,378	58,192	13,148	15,546	21,812	21,884	24,027	90,409	25,678	9,058	11,167
May.....	30,018	26,938	29,825	22,015	35,087	57,975	17,370	28,354	58,861	51,929	21,432	46,167	52,305
June.....	28,414	36,478	71,156	31,543	26,028	11,529	8,630	13,909	41,121	86,475	58,055	34,509	17,699
July.....	79,875	97,550	161,998	70,528	74,027	49,412	41,280	47,832	106,245	149,667	173,954	98,451	133,863
August.....	69,163	73,407	109,228	45,123	72,224	61,338	81,687	73,474	105,750	87,663	91,563	96,706	97,762
September.....	255,142	196,993	315,115	418,620	391,738	244,142	178,309	230,415	319,004	321,355	314,754	159,098	238,342
October.....	6,789	4,471	6,625	12,644	7,743	6,012	8,811	6,341	6,894	6,921	5,876	2,953	6,622
November.....	1,544	720	1,447	6,219	2,354	1,581	1,978	1,024	1,241	1,062	3,817	2,628	.....
December.....	199	202	132	467	388	155	344	169	881	180	582	199	.....
Total.....	471,144	497,073	739,200	668,471	623,084	448,436	361,517	423,652	667,720	798,325	697,877	451,464	558,951

* Data not available. Figures for 1938 are from May 7 to December 31, inclusive. Figures show number of fish.

U. S. Engineers, Bonneville Division.

PACK OF CANNED SALMON ON THE COLUMBIA RIVER FROM THE INCEPTION OF THE INDUSTRY TO 1949

Year	Number of Canneries	Chinook		Blueback		Silverside		Chum or Keta		Steelhead Trout		Total	
		Cases	Value	Cases	Value	Cases	Value	Cases	Value	Cases	Value	Cases	Value
1866	.....											4,000	\$ 64,000
1867	.....											18,000	288,000
1868	.....											28,000	392,000
1869	.....											100,000	1,350,000
1870	.....											150,000	1,800,000
1871	.....											200,000	2,100,000
1872	.....											250,000	2,325,000
1873	.....											250,000	2,250,000
1874	.....											350,000	2,625,000
1875	.....											375,000	2,250,000
1876	.....											450,000	2,475,000
1877	.....											380,000	2,052,000
1878	30											460,000	2,300,000
1879	30											480,000	2,640,000
1880	29											530,000	2,650,000
1881	.....											550,000	2,475,000
1882	.....											541,300	2,600,000
1883	.....											629,400	3,147,000
1884	.....											620,000	2,915,000
1885	.....											553,800	2,500,000
1886	.....											448,500	2,135,000
1887	.....											356,000	2,124,000
1888	28											372,477	2,234,862
1889	21	266,697	\$1,600,182	17,797	\$101,051					25,391	\$108,587	309,885	1,809,820
1890	21	335,604	1,946,087	57,345	290,069					42,825	171,300	435,774	2,407,456
1891	22	353,907	2,038,566	15,482	284,242					29,564	118,156	398,953	2,440,964
1892	24	344,267	1,996,388	66,547	372,909	4,176	\$ 20,880			72,348	288,892	487,338	2,679,069
1893	24	288,773	1,559,374	30,459	152,295	29,107	116,428	2,311	\$ 6,933	65,226	260,904	415,876	2,095,934
1894	24	351,106	1,896,976	43,814	224,430	42,758	171,032			52,422	209,688	490,100	2,501,126
1895	24	444,909	2,428,658	18,015	86,523	99,601	329,683	22,493	62,591	49,678	203,542	634,696	3,110,997
1896	24	370,943	1,804,511	16,983	51,518	44,108	141,145			49,663	198,652	481,697	2,261,826
1897	22	432,753	1,804,221	12,972	51,888	60,850	197,762			46,146	165,440	552,721	2,219,311
1898	23	329,566	1,490,394	66,670	300,015	65,431	222,465			26,277	60,352	487,944	2,073,226
1899	17	255,824	1,458,175	23,969	134,723	29,608	112,055	11,379	33,836	11,994	39,186	332,774	1,777,975
1900	16	262,392	1,821,258	13,162	92,184	44,925	202,163	17,696	63,706	20,597	102,985	358,772	2,282,296
1901	.....											390,183	1,942,660
1902	14	270,580	1,428,743	17,037	86,465	10,532	44,732	10,401	41,604	8,593	42,965	317,143	1,644,509
1903	16	301,762	1,610,614	8,383	42,867	12,181	49,869	10,000	37,500	7,251	36,255	339,577	1,777,105
1904	20	320,378	1,944,690	12,911	78,048	31,254	118,357	20,693	52,691	9,868	48,892	395,104	2,242,678
1905	19	327,106	1,962,636	7,768	46,608	26,826	114,011	25,751	65,206	9,822	49,110	397,273	2,237,571
1906	19	311,334	1,868,007	7,816	54,712	41,446	124,338	27,802	69,505	6,500	32,500	394,898	2,149,062
1907	19	258,433	.....	5,504	.....	31,757	.....	22,556	.....	5,921	.....	324,171	1,763,490
1908	14	210,096	.....	8,581	.....	31,432	.....	16,884	.....	10,726	.....	253,341	1,380,708
1909	15	162,131	1,203,546	27,908	214,561	42,178	185,070	24,542	57,115	17,283	99,796	274,087	1,760,088
1910	15	244,285	1,882,137	6,234	34,287	68,922	363,688	66,538	232,883	5,436	31,203	391,415	2,544,198
1911	15	405,862	2,204,185	5,988	47,904	79,416	549,478	53,471	203,198	8,594	47,399	543,331	3,052,164
1912	15	220,317	1,988,586	8,210	85,384	31,842	177,248	18,699	46,590	6,958	22,108	285,666	2,319,856
1913	15	192,116	1,664,670	11,152	93,677	40,969	175,412	13,303	29,486	8,939	49,142	266,479	2,012,387
1914	17	289,464	2,573,502	35,311	376,924	69,769	380,666	49,285	205,541	10,792	59,356	454,621	3,595,989
1915	19	406,486	3,694,361	5,459	56,707	33,336	173,234	86,530	251,632	26,723	129,358	558,534	4,305,292
1916	20	395,166	3,572,203	3,790	27,288	52,084	335,114	77,766	307,483	18,999	118,987	547,805	4,361,075
1917	20	403,637	5,023,529	7,968	111,552	64,299	700,680	53,659	386,596	23,783	292,538	555,218	6,530,939
1918	20	400,952	5,222,983	37,833	605,328	98,145	1,072,843	29,846	215,669	24,605	350,071	591,381	7,466,924
1919	21	392,125	5,455,550	7,268	145,360	90,728	1,142,767	75,493	541,989	14,414	205,254	580,028	7,490,920
1920	22	420,467	5,661,580	2,617	62,808	27,024	257,806	18,792	99,564	12,645	116,859	481,545	6,198,617
1921	20	267,582	3,761,321	6,045	120,900	34,381	233,372	4,821	19,791	10,142	68,266	323,241	4,203,649
1922	23	237,230	3,724,393	30,743	614,860	90,437	633,935	8,844	47,130	24,920	186,675	392,174	5,206,993
1923	23	289,586	4,967,657	38,309	766,180	101,554	673,954	25,508	135,168	25,968	187,965	490,925	6,730,924
1924	22	293,716	4,508,236	7,366	129,840	112,308	992,865	57,748	303,356	29,734	285,107	500,872	6,219,404
1925	21	350,809	5,423,129	5,650	106,220	113,554	1,488,855	55,812	272,398	14,637	177,866	540,452	7,468,468
1926	21	295,302	4,744,131	21,736	434,720	97,142	1,027,597	32,853	181,216	32,690	356,418	479,723	6,744,064
1927	22	339,446	5,559,202	6,887	147,378	74,879	585,816	68,449	425,240	30,148	311,070	519,809	7,028,705
1928	24	251,404	4,355,218	4,814	100,131	49,136	478,355	124,953	747,619	16,339	222,139	446,646	5,903,462
1929	21	242,938	4,234,214	10,072	181,296	90,684	917,561	54,619	314,928	23,804	257,025	422,117	5,905,024
1930	21	281,346	4,092,810	9,823	194,460	110,430	1,156,042	11,371	43,324	16,535	171,541	429,505	6,558,177
1931	20	294,798	3,754,929	4,125	66,000	39,268	247,878	3,518	11,764	11,990	110,429	353,699	4,191,000
1932	15	216,511	2,023,390	2,795	33,540	46,492	280,853	17,261	44,879	13,132	91,924	296,191	2,474,586
1933	14	251,157	2,719,303	6,921	96,894	36,430	263,190	24,398	107,351	17,805	142,440	336,711	3,329,178
1934	13	251,068	2,630,152	6,869	82,428	65,428	536,731	24,455	92,608	14,901	121,000	362,721	3,462,919
1935	10	205,870	2,479,450	1,302	17,619	95,184	725,868	15,495	59,499	14,888	122,846	322,739	3,405,282
1936	11	220,188	2,964,058	9,837	137,718	36,541	303,263	30,597	110,149	19,282	137,867	316,445	3,833,055
1937	11	291,343	4,256,819	7,526	126,436	69,801	725,996	30,592	138,309	17,568	189,734	416,830	5,437,294
1938	10	173,892	2,707,267	13,889	260,369	67,257	630,364	37,704	143,275	15,248	152,480	307,990	3,893,755
1939	.....	207,595	3,336,209	5,301	102,359	69,082	730,549	15,201	75,416	25,293	421,608	322,472	4,666,141
1940	11	244,570	3,785,681	23,974	471,530	59,737	623,681	25,282	125,420	33,436	373,514	386,999	5,379,826
1941	9	328,609	5,558,254	33,070	661,400	35,727	481,834	83,144	572,994	33,162	453,502	513,712	7,727,984
1942	12	274,750	5,692,929	23,256	625,230	26,541	497,070	118,051	911,538	21,803	429,678	464,401	8,156,445
1943	11	130,373	3,094,505	2,880	77,586	5,707	611,065	12,439	112,421	16,261	323,874	167,660	3,669,451
1944	10	163,047	3,714,591	758	20,342	12,210	137,072	1,525	11,590	19,222	375,838	196,762	4,259,433
1945	8	132,014	3,095,228	112	3,001	22,154	244,060	1,032	8,848	19,314	363,068	(a)175,670	7,323,456
1946	11	159,872	5,940,740	9,726	369,588	6,883	206,490	(b)15,617	247,392	17,373	510,720	(b)209,471	7,274,390
1947	10	250,318	8,613,000	15,079	664,000	42,789	1,278,000	17,121	252,000	21,999	650,000	347,306	11,457,000
1948	12	235,310	9,342,000	3,339	147,000	59,425	1,099,000	26,201	498,000	19,977	615,000	324,252	11,701,000
1949	12	133,347	3,682,000	(c)6,630	225,000	16,740	415,000	12,386	186,000	9,019	221,000	178,122	4,729,000

32,360,424 \$305,968,159

(a) Includes 1,044 cases of Pinks canned from Puget Sound fish.

(b) Includes 1,873 cases of Pinks canned from Puget Sound fish.

(c) Mostly Quinalt River Blueback.

(We are able to show the above table through the courtesy of the Pacific Fisherman)