SECOND

REPORT

OF THE

STATE BOARD OF FISH COMMISSIONERS

TO THE

GOVERNOR OF OREGON.

1888.

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SECOND ANNUAL REPORT

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OREGON FISH COMMISSIONERS

To Sylvester Pennoyer, Governor of Oregon:

Herewith we hand you our second annual report. The past season has been a fairly successful one on the Columbia river, both to fishermen and packers. The price of fresh salmon was somewhat higher than in former years, but the market for canned salmon was also better, and, under these circumstances, twenty-nine of the forty canneries on the river started up during the first part of April and continued to run until the first of August, when all closed in accordance with the law. Each year since the supply of salmon began to decrease there has been a variance between the fishermen and packers in regard to fixing the price to be paid for salmon on the rivers. While this is beyond the control of the commission or even the State, we believe if the latter will make sufficient appropriation each year for the support of a few hatching-stations, that the supply of salmon can thereby be increased to such an extent that fishermen can make better wages at lower prices, and so the cost to the consumers of this valuable food can be greatly reduced. To bear us out in this we will compare the prices paid to fishermen and received by packers during the seasons of 1879 and 1880, with the prices received by each during the past season of 1888. In 1879 and 1880 the fishermen received 50 cents and 60 cents each for salmon and all of them made good wages. The packers received from $4.25 to $4.75 per case, and at these figures made a fair profit on their investment.

During the past season fishermen received $1 and $1.25 each for

salmon, and at these extremely high prices received very poor compensation for their labor. The packers received from $6.25 to $6.80 per case, and at these fabulous prices did not make four per cent. per annum on their investment. The difference in cost between '79 and '80 and '88 is increased more than 4 cents per pound; this, on an average pack of 400,000 cases, amounts to the enormous sum of $768,000 to the consumers, while neither fishermen nor packers are benefitted by it.

This alone should be an inducement to the State and general public to use their influence to secure an increase in the supply of this valuable food.

OPERATIONS AND RESULTS OF THE LAW.

There are serious difficulties to contend with in enforcing the present law, as we mentioned in our first annual report; but the greater part of the packers and fishermen are fully aware of the fact that the salmon industry of the State needs protection, and have observed the law very well during the past season. The few that were disposed to violate the law were watched as closely as they could well be, considering the large field on which they have to operate and our limited means of dealing with them. We had the sheriffs of the different counties along the rivers appoint deputies to look after and arrest all violators; we also hired steamers and patroled the river ourselves several Saturday nights during the season, and made one or two trips a month up the river, besides going whenever and wherever we could hear a word of complaint about the law being violated.

We give the officers of Washington Territory due credit for the able manner in which they assisted in this matter.

The arrests made for violating the close law are as follows:

A complaint was made against the owner of a pound-net in Baker's bay for fishing on Sunday. The party was arrested and taken before a justice of the peace in Astoria, and the evidence taken not being sufficient for conviction, the defendant was discharged.

There were five arrests made of parties fishing for salmon with gill-nets; two of which, while they were caught with their nets in the water on Saturday night after six o'clock, were discharged by the justice, as they had not caught any salmon, there being no penalty under the present law for fishing for salmon. The other

three had actually caught salmon, so they plead guilty, paid their fine, and were discharged.

Early in August, after all fishing was stopped on the lower river, the commissioners proceeded to the Cascades, and finding all fishing suspended for the season in that vicinity, went on to The Dalles, and there also found the close time respected. While there we received information that a wheel at Celilo had been running and catching salmon in August, and complaint had been made against the owner. We went to Celilo by the next train, but on our arrival there the wheel was not running.

The party complained of was arrested the next day, brought to The Dalles and placed under bonds to appear before a justice of the peace the following day for a preliminary examination. Two days having been spent at this place, two of the commissioners were obliged to return, the other member remaining in order to be present at the trial before the justice. The testimony was taken on both sides and the defendant was bound over under the sum of $1000 to appear before the grand jury.

As was mentioned in our last report, Washington Territory in 1881 repealed that part of her law making September a close month, so that as the statutes now stand it is lawful to fish for salmon in Washington Territory during the month of September, and unlawful in Oregon. This makes it difficult to enforce that part of the law, yet we succeeded in doing so this season far better than we anticipated, the only case where an arrest was made being at Celilo. The party was arrested for catching salmon with a fish-wheel during the close month of September. We are unable to give the outcome of this case, as it has not come to trial to our knowledge.

In our last report, under this topic, we stated that the wording of the present law was insufficient to make it operative in all its parts, and at the proper time we would recommend some changes. As the legislature meets this coming winter, we would call your attention to some of these points, and also suggest further necessary and protective legislation.

The law says "it shall be unlawful to take or fish for salmon," etc., but in the clause creating the penalty it omits a part of the above, and makes a person liable to a fine for *catching* salmon only at times forbidden by law.

The law does not prohibit persons from having salmon in their possession during the close times; consequently any one may possess salmon on Sundays, or during the close months of March, August

and September, and all that is necessary for them to do is to swear that they were not caught during the close time.

The law does not prohibit the common carriers in the State from receiving and transporting fresh salmon during the close times; if it did so the law could be more easily enforced.

Again, the different kinds of fish commonly called salmon are not named. No one seems to know if a Steelhead, Blueback or Silverside is a salmon under the law or not. A person may catch any of these varieties during the close times and claim they are not salmon. The courts then must decide if they are or are not, and somebody must pay the costs, which is usually no small item in such cases.

It seems to be the general impression that the fine of $500 or one year in jail in the present law is excessive.

That portion of the present law regulating the size of meshes for gill-nets and seines, and the distances apart for the slats on weirs or fish-traps, was evidently framed to protect the small fish. It is the general belief that all, or nearly all, of the salmon, both large and small, which go up the river die near their spawning grounds. However, it may be well to protect the small ones, as they are of no commercial value; but this could be done as well, or better, by stating the minimum size of each variety to be taken, and all under this size to be returned to the water alive, with a severe penalty for killing.

There are two methods of catching salmon which are not regulated by the present law, viz.: pound-nets, the most of which are in Baker's bay, on the Washington Territory side of the river, and fish-wheels, which are used at or near the Cascades and The Dalles, on both sides of the river. If the suggestion made above is acted on and a law passed stating the minimum size of salmon to be taken, then the size of meshes or openings in the different kinds of fishing gear will not need legislation.

The section of the present law forbidding the throwing of sawdust into the Columbia river or its tributaries is almost useless as it now stands, as it only takes effect below the cascades of the Columbia and the falls of the Willamette, making it local in its character, and by some considered unconstitutional.

To remedy this we would recommend that the law be made general throughout the State, and sawdust dumped on land liable to overflow during high-water periods must be secured in such a manner as to prevent its washing into the rivers.

Many salmon are taken from the streams of this State and sent to

our markets or canneries after their bright silvery sides have turned to a dull gray or almost black, and their red flesh has become nearly white, as always occurs when they near their spawning time. This is a pernicious practice, as a salmon is really as unfit for food when it reaches this stage as any food animal when it nears its parturient state. To remedy this we recommend prohibiting the catching of any variety of salmon from or near their known spawning grounds for any purpose whatever except for artificial propagation.

While we are making suggestions as to laws that should be passed to prevent the royal salmon from being caught and exterminated from our rivers by the devices of man, let us not forget that they have other mortal enemies all along our coasts and in all our rivers. The first and perhaps greatest of these are the seals and sea lions. They begin to prey upon the salmon in the ocean, and follow them into and up all our streams. Hundreds of seals can be seen in the month of July at the dalles of the Columbia river, a distance of two hundred miles from its mouth. It has been estimated after careful observation that one seal will eat or destroy from eight to ten full sized salmon in twenty-four hours, and a sea lion twice that number. When we think of the vast numbers of these creatures that can be seen along our coast and in our rivers, some idea can be formed of the amount of fish that are yearly destroyed by them, and as they are comparatively worthless, some means should be employed to destroy them.

The above-named seals and sea lions prey principally upon full-grown salmon, but the baby salmon, from the time it is large enough to swim until it goes to sea, has its enemies in all our streams.

One of these is the shelldrake, commonly called the fish duck. They live upon small fish, and are found on all our streams. They may be seen at all seasons near the shore, or in shoal water, constantly diving, and scarcely a dive is made without securing a fish. These ducks are not edible, and it would be a great protection to the small fish if they were destroyed.

Another of this family is the cormorant, commonly called shag. They are quite numerous near the mouth of all our rivers and bays, they live entirely upon fish, and take a larger size than the sheldrake. We will not attempt to say how small a fish they will catch, but we do say that they will eat a pretty good sized one, as they have been seen to dive and come up with a fish from six to eight inches in length.

We think it would be well to pass a law giving a small bounty

for the scalps of each of these destructive creatures and thereby try to exterminate them.

We think it would be well to make a longer close time in the spring: say from the first of March to the 15th of April, as this would let more of the large strong fish which come into our rivers during these months go on up to their spawning grounds, either to spawn naturally, or from which to obtain a supply of eggs for artificial hatching. From the experience we have had, and from knowledge gained of the habits of salmon during the past two seasons, we believe far better results can be obtained from the latter than from the former process.

In conclusion under this head we will say that the law regulating the taking of salmon in the State has been observed better than any other of its class during the past two years, notwithstanding the assertion has been made by many intelligent persons that the law could not be enforced.

METHODS OF FISHING AND THE DIFFERENT STREAMS FISHED.

No new methods of taking fish have come to our notice since our last report, and while we think there are enough at present, we must not forget that this is an age of invention and progression, and we see no reason why new or improved methods of catching fish should not be introduced and receive the same protection as the methods now in use.

It is with regret that we mention the fact that there is such a feeling of enmity or jealousy existing between parties using the different kinds of gear for catching salmon in the waters of our State, as this condition of affairs is a great drawback to proper legislation for the protection and preservation of the salmon in our rivers.

All fishing gear should be distinguished by a name in the law, so that there may be no misunderstanding in regard to it; and all parties owning stationary or fixed gear, such as traps, pound-nets, and fish-wheels should be required by law to obtain a registered number from the fish commission, such number to be posted up in a conspicuous place on such gear, and to remain there during the fishing season, so that the owner of any such property may be identified by his number.

THE COLUMBIA.

The streams of Oregon that are fished for salmon are seventeen

in number. The Columbia, which is controlled by Oregon and Washington Territory jointly, stands at the head of the list and is the only stream on the coast, with the exception of Rogue river, where the genuine Chinook salmon are taken. It is fished from the sea to Celilo, a distance of more than two hundred miles, and there is not a month in the year that a good edible salmon could not be taken from its waters.

The royal Chinook have been taken as early as the latter part of January and continued to run until the middle of August with scattering ones into November. A description of this variety is useless, as nearly every one who has been in the State for any length of time has eaten them and knows that a better food fish can not be found.

The Bluebacks, which come in June and continue through July, are a very fine fish for table use or canning, owing to the rich color of its flesh.

The Silversides are a good fish to be eaten fresh or for shipment to Eastern markets on ice. They come about the first of September and run until the first of November.

Then comes the Steelhead. When all the other and better varieties are gone, this is considered a very good fish for table use, and will stand shipping better than any other of the varieties, as its flesh is much firmer. These run all winter, or until after the Chinook makes its appearance again.

NEHALEM.

The next stream of any importance, as you go south from the Columbia, is the Nehalem. This is a small stream, and has one cannery located on it, but it has not been running this season, and all the fish caught here have been taken to Tillamook, a distance of twelve miles.

TILLAMOOK

Comes next, and is one of the largest salmon resorts on our coast. Some seasons large numbers of salmon enter this bay. There are two canneries located here, which in 1886 packed 37,000 cases of salmon. This year the two canneries packed about 15,000 cases, including the fish hauled from the Nehalem. The salmon are of the same size and quality as those found in all the coast streams. They begin to run in the bay about the 15th of August and continue till the 1st of November. There are three good sized

mountain streams emptying into this bay, and if fishing was restricted to the bay alone, none being allowed in these small streams up which the salmon go to spawn, the supply of this fish would last much longer. We think a suitable place for hatching salmon could be found on some of these tributaries, and a small hatchery could be maintained at little expense.

NESTUCCA.

Nestucca is the next stream. There is one cannery located here, which puts up an average pack of about 6000 cases per year.

Then come Salmon river and the Siletz, both of which are quite small streams. Some salmon are caught here and taken to Nestucca or Yaquina.

YAQUINA.

Salmon fishing is carried on in this stream from Elk City to the sea, a distance of twenty-five miles. Much of this distance the river is so narrow that nets and traps can be extended nearly, and in some instances, entirely across the stream, thus virtually preventing all the salmon from reaching their spawning grounds.

Some steps should be taken to prevent this on all small streams. About 60,000 salmon are taken from this stream annually, the value of which may be safely estimated at $25,000. About one hundred tons of these are shipped to the markets fresh, and the balance are divided between the three canneries located on the river.

We were informed while at Yaquina that parties engaged in fishing with seines for flounder and herring bring ashore at every haul large quantities of these young fish that are too small for marketing and leave them on the shore to die. They should be compelled to put them back into the water alive, and thereby help to keep up the supply of these food fishes.

ALSEA.

This stream is fished from its falls to within two miles of the sea, a distance of twelve miles. It has not been fished to any great extent for the past three years, and salmon are still quite plentiful. The people, seeing the decrease in the supply of salmon in the neighboring streams, are anxious to adopt whatever means may be deemed proper for the protection of their salmon interests.

The catch on this stream will be about 50,000 salmon, which are divided between the two canneries located here.

SIUSLAW.

Fishing is done here from near the mouth of the river to the head of tide water, a distance of twenty miles. Owing to falls or rapids at this point fish are unable to ascend in any great numbers until the fall rains come and raise the streams, when they proceed to their spawning grounds as fast as possible. There are three canneries located here, but only one is in operation this year. The fish are caught with gill-nets and seines, the most of which are handled by residents living along its banks, thus giving them employment for a few months at fair wages.

UMPQUA.

This river heads in the Calapooia mountains, and receives in the spring months a good supply of snow water; and judging from this fact, it should have a large spring run of Chinook salmon, as they frequent streams that are well supplied with pure snow water, but the supply of this variety is too small to be of any commercial value.

Owing to the apparently good condition of this stream for this class of salmon, as an experiment, we think it would be well, at some future time, to take a few thousand of the young Chinook hatched at the Clackamas station and turn them out in the head-waters of this stream. The Umpqua has about twenty-five miles of tide water, and is fished for fall salmon for twenty miles of this distance. Owing to its length and width there is probably less danger of fishing this stream out than any of its neighbors, still some means looking to the protection of its salmon may be advisable. There is but one cannery on this river.

COQUILLE.

Salmon fishing is carried on in this stream from near its mouth to Coquille City, a distance of twenty-five miles. It has been fished for a longer period and more extensively than most of the other streams, and some years ago its salt salmon was the standard in the market. It is a slow and sluggish stream for a distance of forty miles from its mouth, and unless there is some legislation to prevent it, fishing will be carried on the above mentioned distance. The people of this section are very anxious to protect their salmon industry, and desire to either establish a hatchery or to procure salmon eggs or young fry from other streams. The average number of salmon taken from this stream annually is about 70,000. There are two canneries located here.

COOS BAY.

This is quite a large bay, having numerous arms and sloughs in which the tide ebbs and flows. The tributaries to the bay are mostly short and narrow, and in most instances quite shoal, with but a small amount of fresh water running into them, consequently the spawning ground for salmon is quite limited. In order to protect the salmon here it will be necessary to prohibit fishing in all these tributaries where they go up to spawn. As in other cases we have mentioned, nets can be set entirely across the stream. We were unable in our short stay at this place to ascertain if there was a suitable location for a hatchery, but we are of the opinion one could be found on some of the tributaries of the bay.

ROGUE RIVER.

This is the only stream on our coast except the Columbia that has a spring run of salmon. They commence running about the 1st of April and continue until the middle of July. They are of excellent quality and command as good prices in the markets as the Chinook of the Columbia. The fall run is the same as in all the other coast streams.

We will give a short history of the fishing industry on Rogue river to show what artificial propagation will do toward keeping up and even increasing the supply of fish in a stream.

In the summer of 1876 Mr. R. D. Hume prospected this river to some extent for salmon, and in the spring of '77 located here and built a cannery at Ellensburg, about one mile above the mouth of the river. He packed during the spring run of that year about 3500 cases, and at this time the supply of fish was abundant in all our streams. During the summer he erected a small hatchery in connection with the cannery, and secured about 100,000 salmon eggs, but being an amateur in the business, did not have the best of success in hatching them. However, he succeeded in turning out about 50,000 young salmon. He has continued, with one or two exceptions, to operate the hatchery each year, putting out annually from 50,000 to 150,000 young fish, and has a fair prospect of putting out 1,500,000 this present year. In consequence his pack has increased from year to year, and for the year 1888 his spring pack amounted to nearly 12,000 cases. You will plainly see that the increase has been quite large on this stream during the past ten years, while on all other streams of the coast the salmon have decreased largely in numbers during the same period.

At the last session of the legislature an appropriation of $2,000 was made for the enlargement and support of the Rogue river hatchery. The money was spent economically and well, under the supervision of Mr. Hume, in constructing another pond in connection with the one already there. This was done by digging and blasting out a cavity 40x60 feet, and nine feet in depth. After the earth and rock were removed the sides and bottom were lined with a solid wall and floor of concrete twelve inches thick; the pond was then covered with a substantial wooden building. This work cost $1,000 more than the sum appropriated.

The other streams which we have not described are all quite small, and are named as follows: The Sixes river, Elk creek, Winchuck and Chetcoe. What few salmon are caught in these rivers are salted, except some of the fish caught in the Chetcoe river, that are taken to a cannery on Smith's river, in California.

The fishing industry of all the streams on our coast is a source of revenue to the different counties in which they are located, and up to the present time has cost neither the State nor counties anything to produce, but unless something be done, and done immediately, to keep up the supply of fish (and the expense to the State will be small in comparison to the income) this source of revenue will cease to be, and then every one will say, why did we allow this industry to be destroyed?

In connection with the above we would recommend that a law be enacted prohibiting any kind of fixed fishing gear from occupying more than one-fourth of the width of the channel of any stream in this State, and also that hatcheries be established on as many of them as may be deemed advisable.

HATCHERY.

We will now call your attention to the Clackamas hatchery. At the close of our last report, or on December 1, 1887, we had in the hatching house about 1,350,000 eggs, and 100,000 young fry. Soon after this we began to turn them out, and continued to do so until the 10th of January, when the extremely cold weather came on and reduced the temperature of the water to so low a degree that all development of the eggs and growth of the young fry was arrested for a period of three weeks or more, and it was only by careful attention and hard work that we managed to keep them from freezing up and so losing them entirely. When the weather moderated and the water began to grow warm again, the eggs and young

fry advanced rapidly, and we were pleased to find that the greatest loss we had sustained was in time. About the 1st of March we turned out the last of the young fish, and soon after began making preparations for the next season's work.

The first and most important thing to be done was to build a rack across the river to prevent the large fish from going up, thus enabling us to catch a greater supply of good fish from which to procure the eggs for the hatchery. We succeeded in having the rack finished about the 20th of March, and found that there were salmon already in the river. From this time they increased very rapidly, and in a few weeks could be seen in great quantities below the rack, and before the 1st of July the whole river for nearly a mile below the rack appeared to be alive with salmon. The fact of their being here so early in the season must banish all doubts from the minds of the most skeptical as to their being the genuine Chinook salmon, despite the very severe remarks made to the contrary during the season of 1887.

In accordance with letters received from Prof. Livingstone Stone and Senator Dolph, copies of which were attached to our last report, we began early in the summer of 1888 to make arrangements with Prof. Stone, general superintendent of the Pacific coast division, to turn the Clackamas station over to the United States commission of fish and fisheries. These arrangements were concluded and the place informally turned over on the 1st of July. We believed this to be for the best interest of the State for two reasons—

First. The amount appropriated in 1887 was not sufficient to establish and maintain the hatchery and pay the salaries of the commission for two years.

Second. We were assured by the United States commission that if they took charge of the place it was sure to be kept up from year to year, while the State legislature might at any time refuse to appropriate money for this purpose.

To make sure that none of the eggs taken at this hatchery would be sent out of the State, we made an agreement with Prof. Stone that the State commission should take charge of the hatchery in November of each year (as long as the State would appropriate money to defray the expenses) and finish hatching the eggs and distributing the fish. To obtain funds to do this we circulated a subscription, as in 1887, among the packers on the Columbia river, and succeeded in raising about $1,500, without which we would have been unable to carry on the place successfully.

There are now in the hatching house about 4,000,000 eggs and

young fry, and about 1,000,000 young fish have been turned out. We are hoping, if we have no drawbacks, such as too cold weather, etc., to have the whole of this season's fish in the river by the 1st of February.

Thus the output from this one station for the two years will be over 6,000,000 young salmon, at a cost to the State of $10,000, or one-sixth of one cent each, and every one of these fish that succeeds in running the gauntlet of its enemies and returns to our river is worth $1, which ought to be considered fair interest on the investment. We hope this will induce our legislators to give this matter due and careful consideration, and make such liberal appropriations as will enable our successors in office to obtain as good, and we hope far better results.

We have spent considerable time and a good part of our salaries, during the past summer, in examining the different tributaries of the Columbia to ascertain if a suitable location could be found for a hatchery, and we regret to say that the results have been very unsatisfactory. While there are several streams on which some salmon eggs could be taken, we have found none that will hold any comparison with the Clackamas, and we doubt if there is another stream in the State tributary to the Columbia where one-tenth as many eggs can be taken as have been obtained at this station.

The Deschutes was said to be a good stream for a hatchery, but on investigation we found it would be necessary to go about one hundred miles above The Dalles, which is the nearest shipping point, and hauling freight and supplies that distance would be too expensive; besides, the supply of good salmon is very limited. The Indians on the Warm Spring reservation, through which this river runs, come over the mountains to the head waters of the Clackamas every season for their winter supply of salmon.

The John Day is quite a large stream, and in former years a large number of salmon ascended it, but within the last few years considerable mining has been done on its head waters, and this keeps the river muddy and the salmon have left it.

After carefully considering the above facts and conditions, we have come to the conclusion that the best thing to be done under the existing circumstances is to prepare a bill to be introduced in and passed by the legislature of Idaho, asking that body to cede jurisdiction to the State of Oregon to hold property within the borders of Idaho. And in connection with this the legislature of Oregon would need to pass a bill allowing the State fish commission to secure a location in the Territory and erect a hatchery thereon.

This proposition may seem out of place at first, but when you consider it for a moment you will see that the loss to the State will be very small, in fact not a loss, as the property and improvements thereon will always be worth their first cost, and the proceeds will go toward increasing the supply of salmon, the greater part of which are taken in Oregon. If this arrangement can be carried out, we would recommend that a location be secured near Salmon Falls, on the Snake river, as great numbers of the finest Chinook salmon go up there annually to spawn.

We might have mentioned the Bruneau river as a good location, but since we were up in that section we have been informed that the settlers have taken nearly all the water from this small stream for irrigating purposes.

EXPENSES INCURRED.

From the time the commission was organized to the 15th of November, 1888, the following expenses have been paid, as per receipts in our hands. You will notice in our report of 1887 we made but two accounts. Under the head of "hatchery expenses" we included labor, legal, mess-house, and salary accounts. In this report we segregate these accounts, giving each a place.

TABLE

Showing the expenses of the commission since its organization to November 15, 1888.

For what expended.	Amount.
Building account, including repairs on buildings, construction of dam, flume, and racks	$ 2,442 82
Hatchery	437 03
Labor	1,651 02
Legal services	30 50
Mess house	817 54
Salaries	4,233 67
Total	$ 9,612 63

Estimate of expenses from November 15, 1888, to February 20, 1889.	Amouut.
Labor	$ 650 00
Mess house	225 00
Salaries	766 33
Total	$ 1,641 33

The above does not include the expenses of enforcing the law, they having been paid from the fund received from the packers.

In connection with the above we will say that if the State cedes jurisdiction of the Clackamas station to the United States, the State will be reimbursed for the amount expended in permanent improvements, such as repairs on buildings, construction of dam and flume, and rack for the season of 1888; also all labor, materials, etc., during the quarter ending June 30, 1888, which will amount in all to about $5,000.

STATISTICS OF THE SALMON-FISHING INDUSTRY OF THE STATE.

We intended to give a full and authentic report on this subject, and with this in view, we sent out circulars early in October to each of the packers for them to fill out giving us the desired information. A few of them only have responded, so a part of the following table is estimated, but in the aggregate is very nearly correct:

TABLE showing the different varieties of salmon taken from the Columbia river and streams wholly within the State, how caught, how and where disposed of, value of the same.

Name of river.	Variety of salmon.	Whole number of each variety taken.	No. caught by gill-nets.	No. caught by pound-nets.	No. caught by traps.	No. caught by seines.	No. caught by fish-wheels.	No. cases canned.	No. of pounds used at home and sent back East. Fresh.	Value.
Columbia	Chinook	1,125,000	475,000	290,000	84,500	225,000	50,000	300,000	2,000,000	$ 2,420,000 00
	Blueback	360,000		110,000	40,000	50,000	160,000	30,000		
	Steelheads	250,000	12,000	29,000	75,000	40,000	94,000	40,000		
	Fall Salmon	30,000	10,000			15,000	5,000	2,000	140,000	14,200 00
Tillamook	do	75,000	50,000			25,000		15,000		75,000 00
Nestucca	do	30,000	30,000					6,000		30,000 00
Yaquina	do	60,000	45,000		5,000	10,000		5,000	200,000	31,000 00
Alsea	do	50,000	30,000			20,000		9,000		45,000 00
Siuslaw	do	70,000	50,000			20,000		14,000		70,000 00
Umpqua	do	40,000	30,000			10,000		7,000		35,000 00
									No. of lbs. salted.	
Coos Bay	do	50,000	40,000			10,000		5,000	120,000	29,800 00
Coquille	do	60,000	50,000			10,000		10,000		50,000 00
Rogue River	Chinook	36,000	20,000			16,000		12,000		78,000 00
	Fall Salmon	50,000	30,000			20,000		8,000		40,000 00
Totals		2,286,000	872,000	429,000	204,500	471,500	309,000	463,000	*2,460,000	$ 2,918,000 00

*Of this amount 986,350 lbs. were sold fresh in Portland markets, 120,000 lbs. salted, and the balance shipped east.

Name of dealer.	No. of lbs. handled	Average No. of lbs. daily for 9 months.	Name of dealer.	No. of lbs. handled	Average No. of lbs. daily for 9 months.
Chas. A. Malarkey	300,000	1,111	L. L. Schuman	169,350	627
Wm. McGuire & Co.	177,000	655½	Richards & Henwood	220,000	814
Heiney & Ervin	120,000	444½			
Totals				986,350	3,652

One large and several small dealers from whom we could not get figures.

It will be seen by the above table that the value of the salmon taken from the Columbia river and streams wholly within the State amounts to nearly $3,000,000. More than two-thirds of this sum is disbursed at home, as the only two articles used which are imported from foreign countries are tin for making cans and twine for making nets. The value of the canning property in the State can safely be estimated at $800,000, and the fishing gear at $1,000,000. This brings a direct revenue to the State of $30,000 annually. It gives employment to about 6000 men during the fishing season, and ranks third in the industries of the State, and with proper care and fostering can be greatly increased.

The total number of cases of salmon packed on the Pacific coast for the season of 1888 will vary but little from the figures given in the following table:

TABLE

Showing the entire salmon pack of the Pacific coast for the year 1888.

Where Packed.	No. of Cases.	Value.
Columbia river	372,000	$2,434,200 00
Streams wholly in Oregon	90,000	483,800 00
Washington Territory	75,000	375,000 00
California	65,000	390,000 00
Alaska	400,000	2,200,000 00
Total	1,002,000	$5,883,000 00
British Columbia	170,000	935,000 00
Grand total	1,172,000	$6,818,000 00

But little, if any, of the British Columbia pack comes to our markets, the most of it going to Australia, Canada and Europe.

Of the salmon packed on the Columbia river, and in the State, about 75,000 cases have been exported, which, at $6.50 per case, will more than pay for all the imported articles used in its production.

On looking at the total number of cases of salmon packed on the Pacific slope of our country, one would scarcely think the demand would equal the supply; but if the number of cases be reduced to pounds, we have 48,096,000, which would only give about two-thirds of a pound a year to each individual in the United States. Looking at this industry from this standpoint, and taking into account the rapid increase in the population of our country, together with the diminution in numbers of this fish in our waters, you will see the impossibility of supplying the demand for this article of food

unless strenuous efforts are made to maintain and increase the salmon in our waters.

With this in view, it now behooves all parties interested in the prosperity of this great industry to do everything in their power to devise means for enlarging the natural spawning grounds, and increasing the facilities for the artificial propagation of these fish, as we believe this to be of the greatest importance in keeping up the supply of salmon.

Thus far we have confined ourselves strictly to the different varieties of salmon, but we have other kinds of good food fish in our waters that have as yet received little or no attention; but with the development of our country and the consequent increase in its population, these varieties will become important.

We will call attention first to the shad, which are becoming more plentiful each year in the Columbia river. They are the offspring of the fish planted in San Francisco bay several years ago by the United States fish commission. They are an excellent food fish, and we would recommend that the small ones receive the same protection as salmon, and a few hundred thousand of these fish be procured and planted in the streams most suitable for them.

Smelts. These fish come into the Columbia river in vast numbers in February. Their stay is short, as they are all gone by the end of March. Thousands of pounds of them are sold daily in our markets during their stay, making a cheap and wholesome food.

Sturgeon. This fish can be found in our markets almost any day in the year, and for the past two seasons parties have come from the East and established stations on the Columbia river, purchasing all of these fish that they could obtain, and have shipped millions of pounds to Eastern markets.

While these last three varieties may seem of little consequence when compared with our salmon, yet they give lucrative employment to some of our fishermen and supply our markets with a variety of food, and before the present generation passes away our legislators will be enacting laws for their protection, as they are now for salmon.

Salmon and brook trout. We have an abundance of these in our streams, in fact far too many for the good of the salmon ova and young fry, and it would be well for these if they were exterminated; but as the taking of them affords fine sport to many of our people who live in towns and cities, and can only take an occasional day of recreation in the country, all we have to say is, "Catch them out as fast as you can, boys."

By request we examined the falls at Oregon City in regard to the construction of a passage-way for salmon and other fish, and we are of the opinion that a fishway can be made, at a small expenditure of money, by blasting a narrow channel, with pools for the fish to rest in, along the east side of the island. This would be of great advantage to the fishing industry of the State by materially increasing the spawning grounds and furnishing the people of the Willamette valley with a better supply of fish.

In conclusion we will say that during our term of office we have visited all the salmon streams on our coast but two, the Nehalem and Nestucca, and have gained all the information possible to obtain from the fishermen and inhabitants along these rivers, and we have endeavored to impart the same to you in a general way in this report. The suggestions we have made for the protection of salmon in any one stream will apply to all of them.

We trust you will give this matter your careful attention, and in your message to the next assembly of the legislature make such recommendations as will be for the best interest of this great industry.

Respectfully submitted,

F. C. REED, President,
R. C. CAMPBELL,
E. P. THOMPSON,
Commissioners.