STATE OF WASHINGTON

DEPARTMENT OF FISHERIES AND GAME

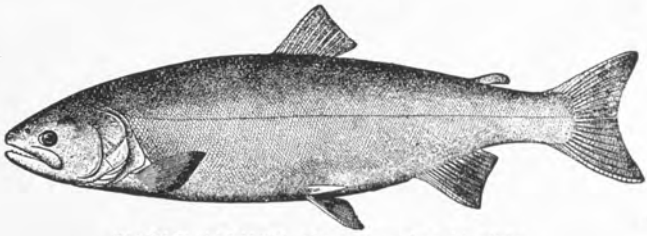
14TH *and* 15TH

ANNUAL REPORT

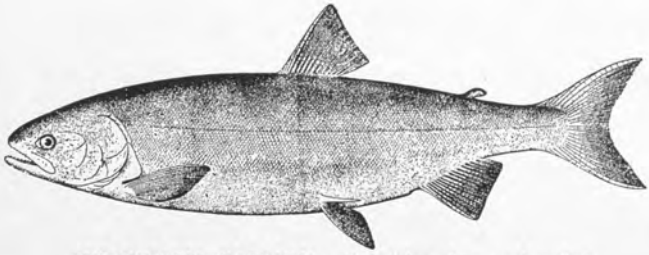
T. R. KERSHAW
Commissioner

BELLINGHAM
WASH.

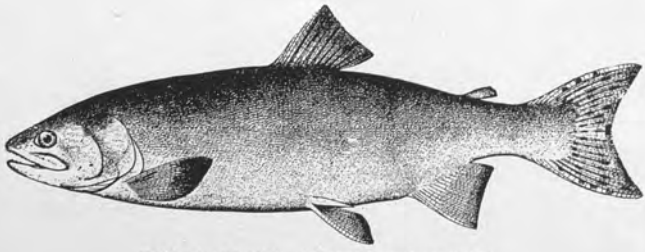
METROPOLITAN PRESS, PRINTERS, SEATTLE



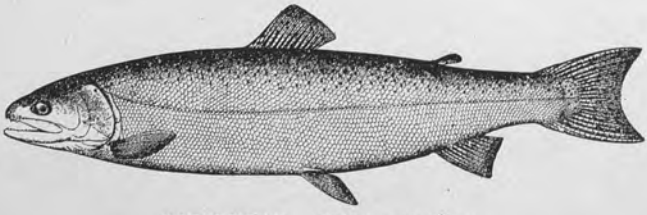
SILVER SALMON, (*Oncorhynchus kisutch*).



HUMPBACK SALMON, (*Oncorhynchus gorbuscha*).



DOG SALMON, (*Oncorhynchus keta*).



STEELHEAD, (*Salmo gairdńeri*).

STATE OF WASHINGTON.

DEPARTMENT OF FISHERIES AND GAME.

14TH AND 15TH ANNUAL REPORT

OF THE

STATE FISH COMMISSIONER

TO THE

GOVERNOR OF THE STATE OF WASHINGTON.

T. R. KERSHAW, COMMISSIONER,
BELLINGHAM, WASH.

1903-4.

SEATTLE, WASH.:
THE METROPOLITAN PRESS, INC.
1904.

BELLINGHAM, WASH., Dec. 1, 1904.

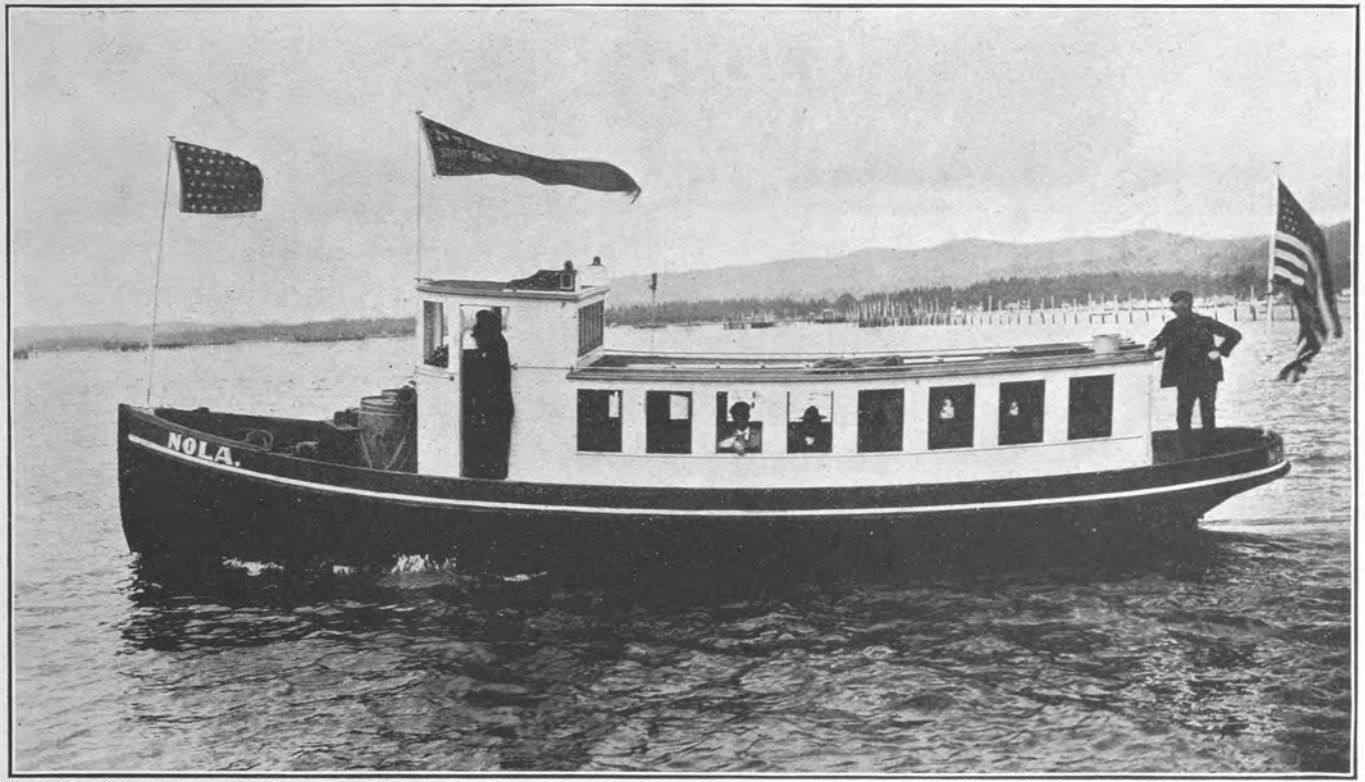
To His Excellency, Henry McBride, Governor of Washington:

Sir—In compliance with the provisions of law requiring the same, I have the honor to submit herewith the fourteenth and fifteenth annual reports of the Department of Fisheries and Game for the years ending November 30th, 1903 and November 30th, 1904 respectively.

Respectfully submitted,

T. R. KERSHAW,

State Fish Commissioner and Game Warden.



FISH COMMISSIONER'S LAUNCH "NOLA" ON COLUMBIA RIVER.

GENERAL REVIEW

My fourteenth annual report transmitted to you as the law directed on December 1st, 1903, being solely statistical, with no provisions for its publication, will be included under separate classification in this report, and inasmuch as there was no general review of the fisheries industry in that report, the various conditions of the fisheries for the last two years will be considered together briefly in this report.

From a commercial standpoint the fisheries of the state fell from $8,729,626 in the year 1901, to $6,731,870 in the year 1902, to $6,516,095 in the year 1903, and have come up again in 1904 to $7,315,921, an increase of $798,826 over 1903.

The great falling of the industry from the year 1901 to the year 1903 was an alarming state of affairs to the ordinary observer, and to the pessimist a conclusion that it was only a question of time when the fisheries would cease to be one of the great industries of the state. But no such apprehension may be feared; with proper fostering and protection, there will be an annual increase in food fishes, and it will always maintain a prominent place among the commercial industries of the state. It is true in the last few years there has been a large falling off from one variety of our commercial fish, the Sockeye, which in many respects is one of the best varieties in our waters. The cause of this will be more fully discussed in subsequent pages of this report; but other varieties of fish, such as Chinook or Spring, Steelhead, Silversides, Humpback and Dog salmon, are constantly on the increase, and the demand is greater and prices are becoming firmer every year. The increase the present year over the last two years is due to improved conditions in the Columbia River and Grays Harbor, and the extensive cod fishing which should be credited to the Puget Sound district.

COLUMBIA RIVER.

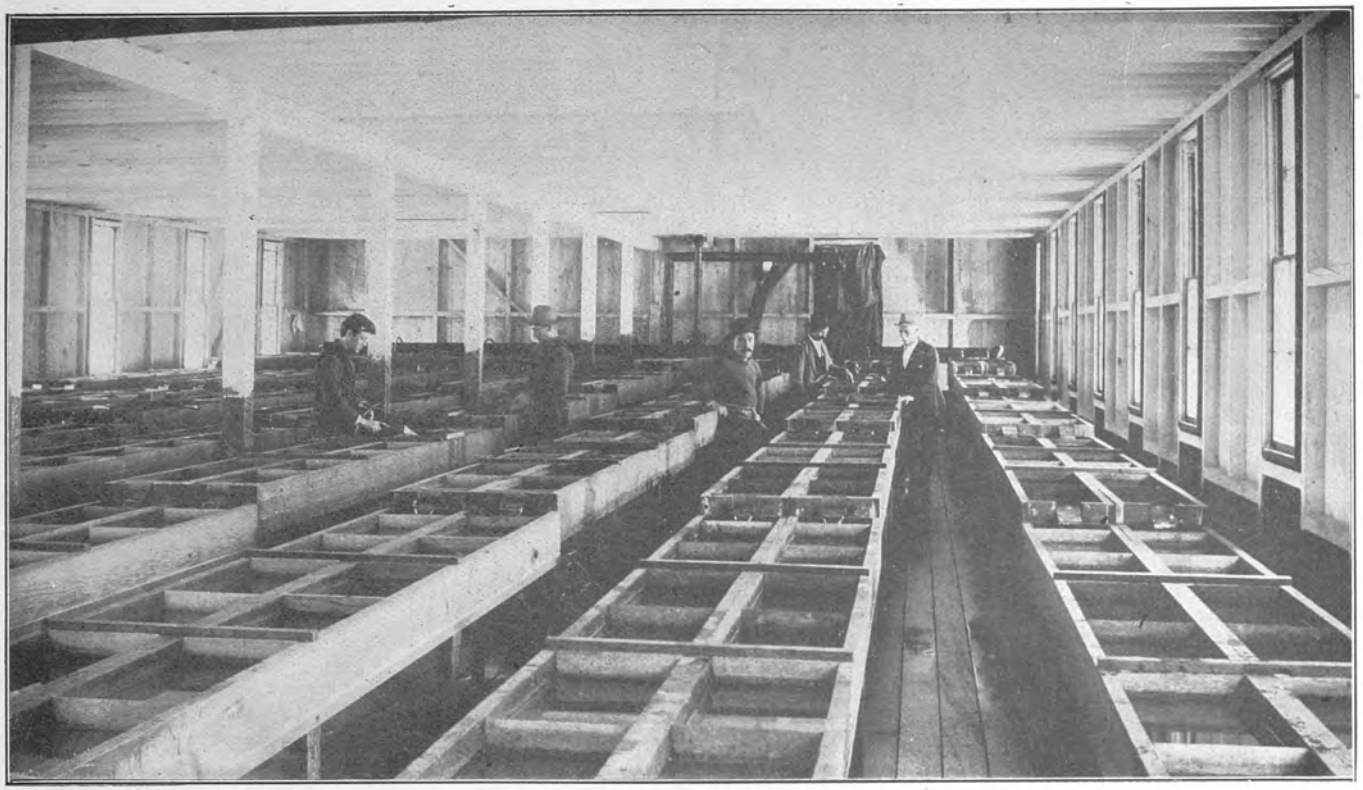
It is with pride that this Department solicits the closest investigation of its work on the Columbia river. While conditions

on the Sound the last few years have caused the cannerymen grave concern, and kept them constantly in a state of perplexity and anxiety, not knowing what sized contracts to enter into, or whether they should make any or not, the cannerymen on the Columbia river have had no such concern. They know each and every year what contracts to make, how many cases they want, and proceed to put them up. This is due to our system of hatcheries on that river. In the year 1895, the state of Washington built its first Chinook hatchery in Pacific county on the Chinook river, and also in 1895 it built the Kalama hatchery on the Kalama river in Cowlitz county. In the year 1899 it built hatcheries on Wind river in Skamania county, the Wenatchee hatchery on the Wenatchee river in Chelan county, and the Twisp hatchery on the Methow river in Okanogan county. These hatcheries are all located on tributaries of the Columbia river, and have all been operated successfully every year, with the exception of the Wenatchee hatchery, which is closed this year.

In addition to this, the United States Government has maintained a hatchery on the Washington side of the river at Little White Salmon since the year 1896, and on the Clackamas river since the year 1894. In addition to this, the state of Oregon has built and had in operation continuously three or four hatcheries for several years.

All these hatcheries have an average capacity of from four to eight million spawn annually. Thus you will see that the United States Government, the states of Oregon and Washington have been turning into the streams tributary to the Columbia river, no less than sixty million young salmon fry for the last seven or eight years, and that to the splendid system of hatcheries on the Columbia river is due the stability and uniformity of the fisheries industry on the Columbia river at the present time, and the uniformity of the fisheries industry on the Columbia river the last few years is not the most conclusive evidence we have of the utility of the hatchery work; that a large number of the young fry liberated from the hatcheries return to the Columbia river in due course of time has been proven beyond a doubt by experimental work conducted at some of the hatcheries.

In the year 1896, the United States Government caused to be marked 5,000 young salmon fry, by cutting off the adipose fin. In



INTERIOR VIEW OF KALAMA HATCHERY.

1900 there were over 400 of these marked fish caught in the Columbia river by trapmen, gill netters and seiners. The state of Washington has also tried some experiments along these lines. The first salmon marked by the Fisheries Department of this state were hatched during the fall of 1898. They were kept in troughs at the Kalama hatchery and fed until March 1st of the following year. The marking was done with a "V" shaped punch, and a few were also marked by cutting the end of the caudal fin, in addition to the "V" mark. The caudal fin was cut into very deeply, so that the end of the "V" came just in contact with the flesh. As fast as the young fish were marked they were returned to the troughs. This was done in order to see what results the marking would have on the mortality of the fish. The loss of the fry was very small; about 5,000 were marked and not more than 150 died from the effects of the marking. When turned out about April 15th, the fish were in good healthy condition, with the "V" mark clearly defined.

During the summer of 1901, the first of these fish were caught in the Columbia river. During that summer a few were taken at the hatchery near Kalama. The marking was well defined and there was not a shadow of a doubt of their being the same fish turned out at the Kalama hatchery. It is a difficult matter to keep track of the salmon taken at the canneries, as most of the cleaning of the fish is done by Chinese, who pay little or no attention to matters of this kind. The cold storage people report most of the marked fish caught, and in some instances have sent the caudal fins to the Fish Commissioner's office.

During the summer of 1902 there were a great many of the marked salmon taken at the Columbia river. In one instance one fisherman caught 12 in one day. P. J. McGowan & Company, at their cannery on the Columbia river, caught a few and sent photographs of them to this Department, and a few more were photographed by the employees of the Fisheries Department.

During the summer of 1903 quite a few marked salmon were taken; most of these were taken near the mouth of the Columbia river, and the shape of the mark seemed to be about the same as those previously taken. During the summer of 1902 there were 163 marked salmon taken at the Kalama hatchery. During the spring of 1901 the superintendent of the Chinook hatchery marked

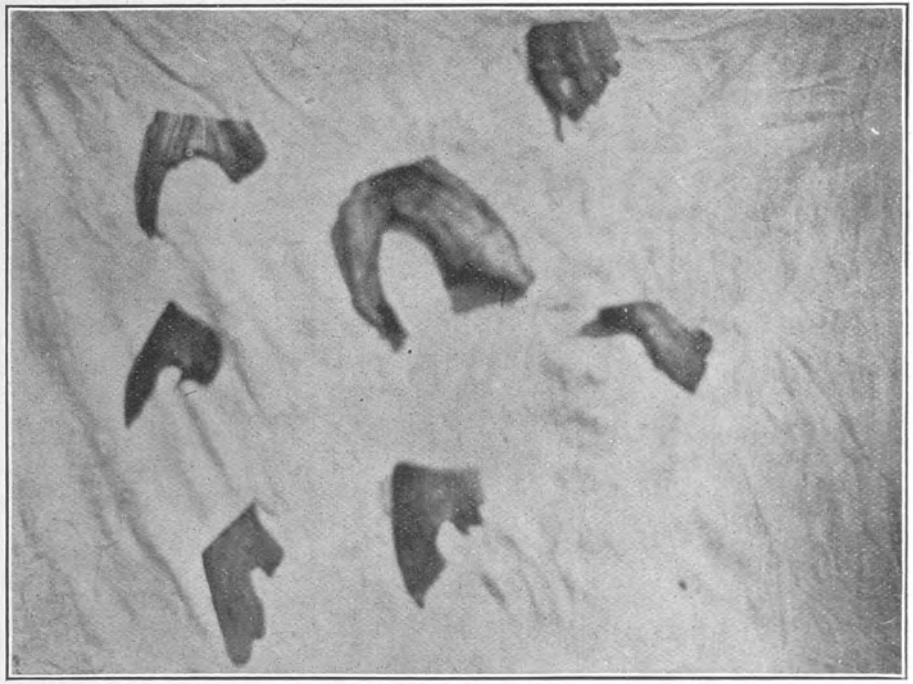
about 3,000 young fry and turned them into the Chinook river, a tributary to the Columbia. These salmon were hatched during the winter of 1900. This marking was done without the knowledge of the Department. The marking was similar to the Kalama hatchery, being "U" shaped when first made. This causes dispute, or rather leaves us in doubt, as to whether the marked salmon taken during the summer of 1903 were fish marked at the Kalama hatchery, or whether a few were Chinook hatchery. The superintendent of the Chinook hatchery thinks that all the fish caught during the summer of 1903 were marked at the Kalama hatchery, but admits that some may be from the Chinook hatchery.

As near as can be determined from these experiments, Chinook salmon return to the Columbia river three to five years after they are hatched. It will be understood that the fish hatched in November of a certain year are kept and fed until the next year. This makes some of the fish three years of age when they they return tc the Columbia river. It is the opinion of this Department that the majority return four years after they are hatched.

While we congratulate the fishing interest on what we believe to be the permanency of the industry on the Columbia river, conditions are changing and the welfare of the industry needs a remodeling of the laws, and a more rigid enforcement of the same, the enactment of concurrent laws by the states of Oregon and Washington, and a better understanding and more cordial feeling between state officials.

BOUNDARY LINE.

One of the most confusing questions that is presented to this Department is the exact location of the boundary line between the states of Oregon and Washington, and one that causes more ill feeling between state officials than any other matter that arises in the Columbia river district. Officials are anxious to collect all the licenses they can for their respective states, and as the channel of the river is constantly shifting, uncertainty arises as to which state should receive the license money, and this often leads to unfriendly feeling between officials, broken friendship between fishermen, law suits between neighbors, and in some cases bloodshed between participants. If it is within the power of the legislature of the states of Oregon and Washington, some steps should be taken at once to permanently settle this much-vexed question.



CAUDAL FINS OF SALMON, MARKED ON COLUMBIA RIVER, CAUGHT AFTER ABSENCE OF FOUR YEARS.

CLOSED SEASON.

The law provides it shall be unlawful to take or fish for salmon in the Columbia river or its tributaries, or within three miles outside of the mouth of said Columbia river, by any means whatever, in any year, between 12 m. the first day of March and 12 m. the 15th day of April, or between 12 p. m. the 15th day of August and 12 m. the 10th day of September. So far as the closed season is concerned, from March 1st to April 15th there is very little, if any complaint, but the closed season from August 15th to September 10th is the law that at the present time is causing the cannerymen and fishermen alike a great deal of concern, and if this law is not repealed, or modified in some form, will throttle the industry on the Columbia river. This law was first enacted in 1895 and amended in a mild form in 1901. There were two primary objects in the passing of the act; one was to allow the fish to ascend to their spawning grounds, and the other was to prevent cannerymen from canning fish after they had deteriorated in flesh and color and thus depreciate the market value of this choice variety of salmon, but the conditions on the Columbia river have changed, and the necessities intended to be reached by the enactment of that law no longer exist to any great extent. Ever since hatchery fish began to appear in the Columbia river, the run has come later and later every year, until it is impossible for the cannerymen to put up their pack within the period prescribed by law. There have been many theories advanced as to the remedy; some suggest taking the closed season off altogether; others, moving it on later in the season; others of shortening it up; but there are objections to all of these plans, and it can only be settled with any degree of satisfaction to all by a joint conference of a committee from the legislatures of the two states, who will thoroughly inquire into all the conditions now existing on the river. My own conclusions are that the best interest of the industry would be served by extending the open season to the 25th day of August, allowing 15 days of closed season for the fish to reach the spawning grounds.

WHY THE LAW WAS NOT ENFORCED.

This year the fish were very late coming into the rivers. I was kept daily informed of the conditions in this district, and as the season advanced they became so critical that on the 10th day

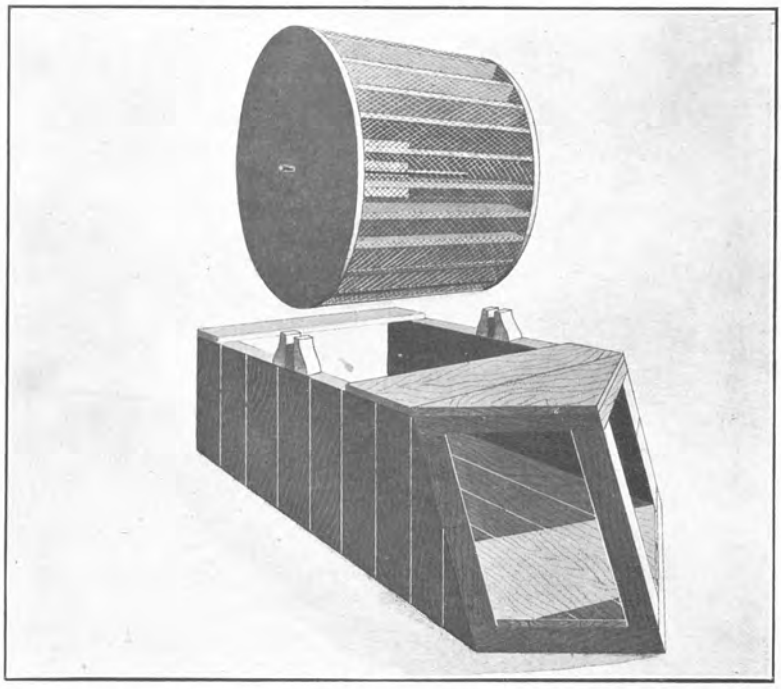
of August I commenced a tour of the Columbia river in the state launch "Nola," and visited every fishing interest in the district, and the situation that confronted me was deplorable. Within four days of the closed season, and in many cases not 10 per cent. of the pack was put up. Dire disaster threatened many of the cannerymen, particularly the smaller concerns, but it was not the cannerymen and cold storages alone that were to suffer,—it was still more far reaching. The gill netters, seiners and trap men were in debt for their gear and supplies, and every branch of mercantile life was largely dependent upon the success of the industry. Large schools of fish were at this time reported at the mouth of the Columbia river, and a few that I examined were in prime condition, and I could see no reason why the fishermen should not be allowed to reap the harvest they had sown, rather than become bankrupts by the enforcement of an unjust law that conditions had made obsolete; and the result was that the cannerymen put up their pack, and the fishermen paid the merchants and the merchants paid their bills, and what might have caused a panic has been turned into a prosperous district by the non-enforcement of an unwise law.

IRRIGATING DITCHES.

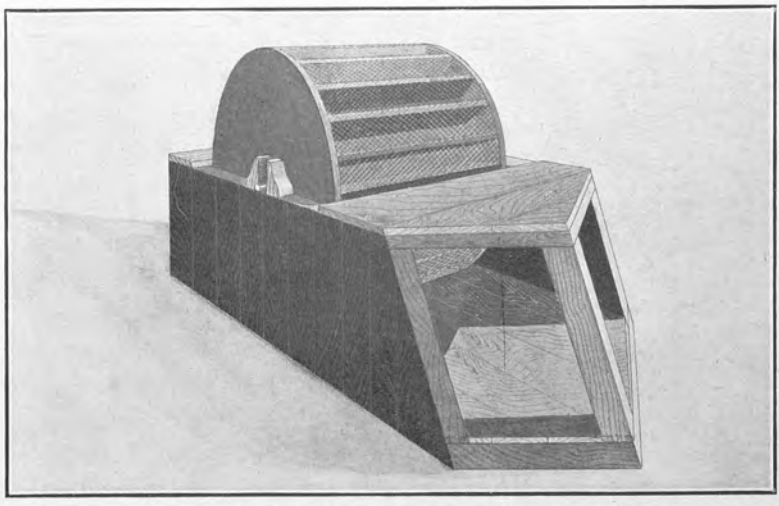
One of the greatest menaces to the successful operation of fish hatcheries east of the mountains and one of the most perplexing problems this Department has to contend with, is the irrigating ditches. These ditches are located at various places on the tributaries of the Columbia, on which some of our hatcheries are located. Some of them extend for miles, irrigating a great deal of territory. The inlets to these ditches are large and a great many young salmon that have been hatched and cared for by this Department at a considerable expense, on being turned out of the hatcheries will make their way into these ditches, or will be drawn therein by the suction and carried out into the fields and lost.

Two years ago I made a trip through Eastern Washington for the express purpose of investigating these conditions, and in many ditches that I visited I found thousands of young salmon that had entered the irrigating ditches and died; in some instances I could have gathered up pails full within a radius of 20 feet.

This proposition causes us a great deal of worry and con-



DEVICE FOR PREVENTING YOUNG FISH FROM ENTERING IRRIGATION DITCHES. WHEEL DETACHED FROM FLUME OR CASING.



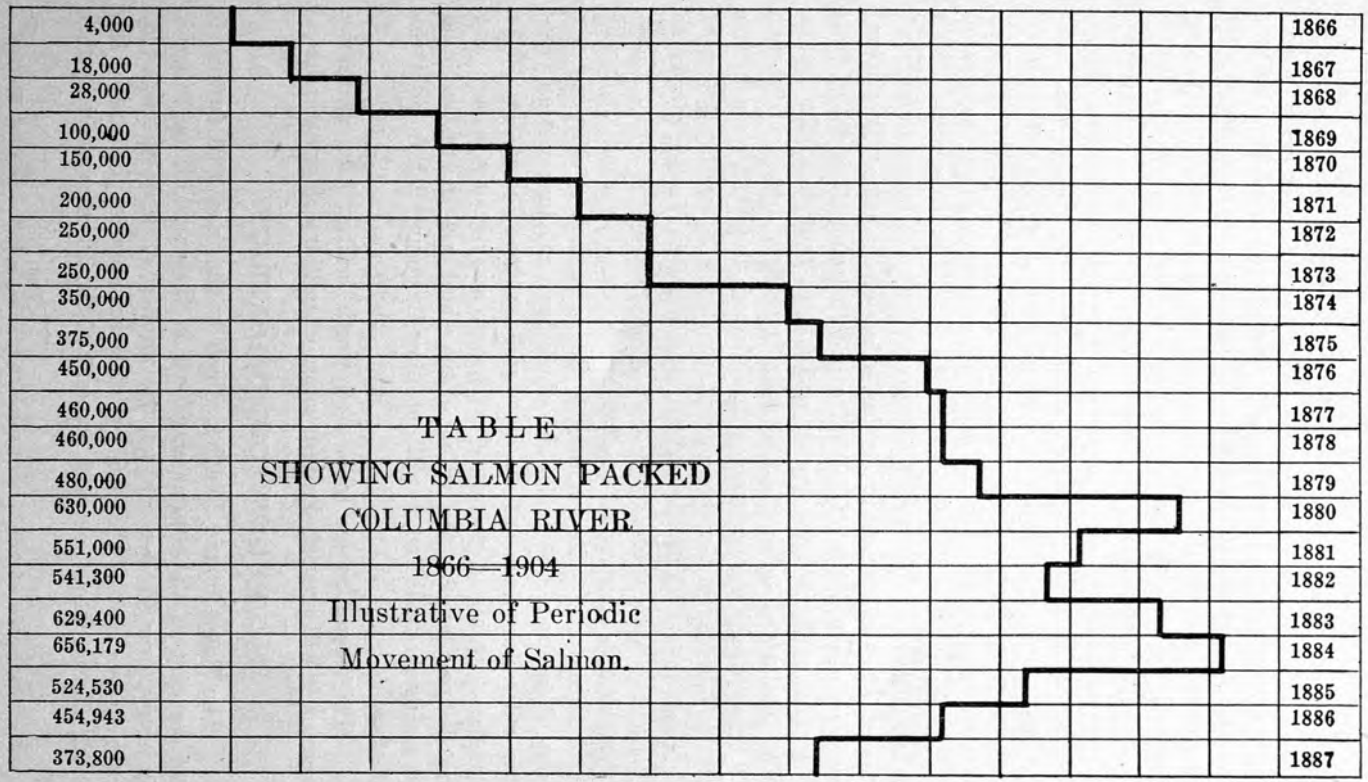
CUT SHOWING WHEEL SET IN FLUME OR CASING.

siderable speculation as to the best way to overcome this difficulty without working a hardship on the owners of the ditches, and the farmers who are benefited by the same. Various schemes and devices have been suggested but rejected as not practicable either on account of the expense attached to them or the non-feasibility of the plans. However, Mr. Frank B. Morse, Game Warden of Walla Walla, Washington, has invented a device, which after careful study of its workings, seems to me to be as near a solution of this difficulty as I could imagine. The device mentioned is a wheel, consisting of cast iron bearings and wooden buckets covered with wire netting, and placed so as to revolve with the current, the size of the wheel to be governed by the size of the intake of the ditch or flume in which it is to be used. This wheel is so constructed as to fit snugly in a casing or flume, and in revolving will almost touch the bottom of the same. In ditches, a casing of wood similar to that used in bracing the sides of tunnels, etc., with an open top or space large enough at the top to allow the wheel to work, and extending for a distance of about 30 feet, should be constructed and the wheel placed close to the intake, The end of the flume or casing should be constructed so as to come to a "V" at the intake, and a guard timber placed at this end to prevent any large drift from entering the flume. This wheel is also constructed so that leaves, moss or small drift will not clog up or stop its workings during a freshet. Sticks or other large debris will simply lift the wheel for a moment and on passing will allow the wheel to drop and continue its motion. The constant turning of the wheel will scare away young salmon and the distance between the bottom of the wheel and that of the flume or casing so small that it will not allow the young fish to enter the ditches.

This seems to me to be well worth looking into, as in my opinion it will prevent the destruction of millions of young salmon.

PUGET SOUND DISTRICT.

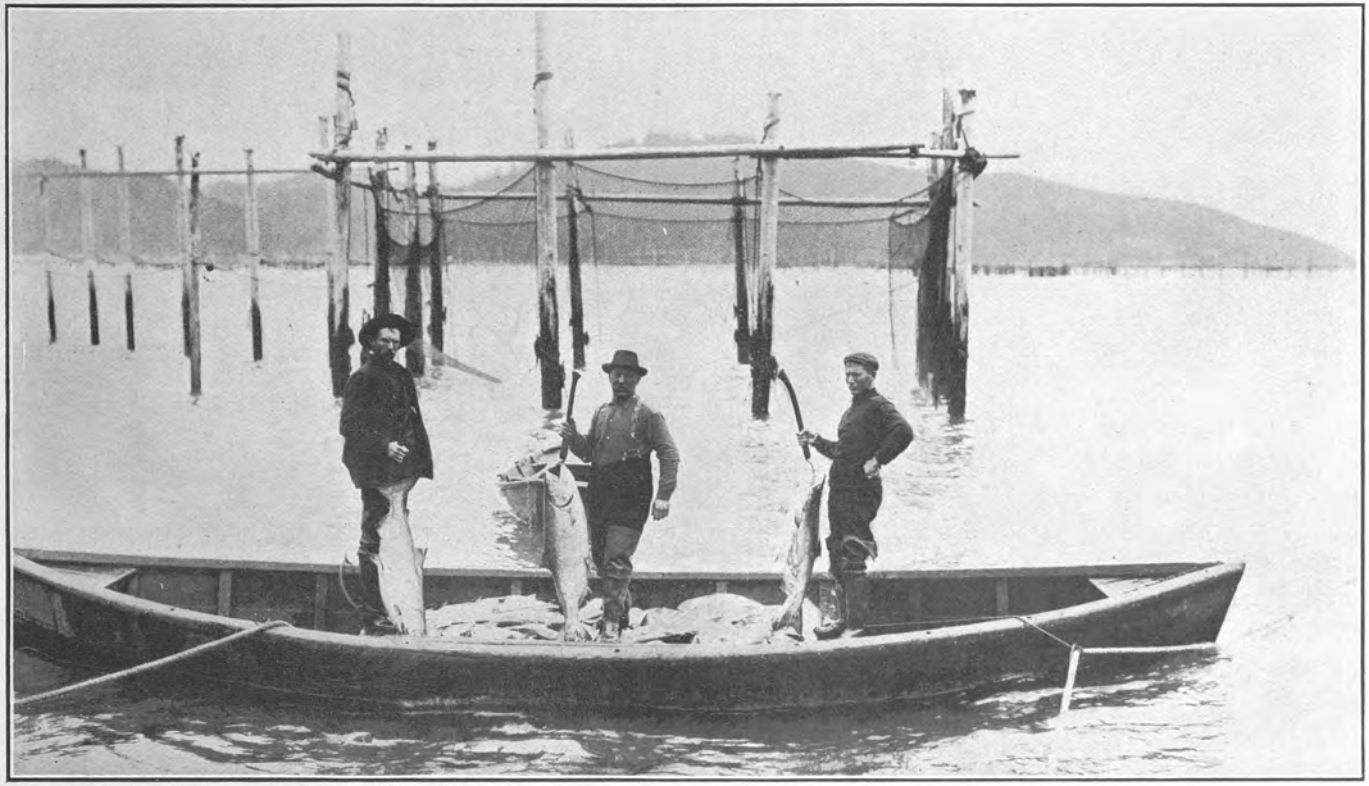
The Puget Sound District, which in the year 1901 furnished 82 per cent of the capital employed in the state in the fisheries industry, over 77 per cent of the number of persons employed, over 79 per cent of the earnings of labor, over 86 per cent of the value of the output, over 85 per cent of the taxes received by this



office, is where the great falling off of the industry has been, and has given such great concern to the fisheries interests of the state. Personally, I can see nothing alarming in the situation, and regard the falling off from the Sockeye variety as a blessing in disguise, as a warning against the great slaughter that has been going on in this district for the last 10 years, without in any way providing adequate protection or assisting nature in its reproduction.

The Sockeye variety of fish is a species that has been most sought after by all those engaged in the industry. It probably is one of the best commercial fish that is found in any of our waters. Its production streams are almost exclusively in the lakes and streams tributary to the Fraser river in British Columbia waters. After the reproduction period the young fry pass down the Fraser river, through the waters of Puget Sound to their feeding grounds in the ocean, where nothing more is seen or heard from them until they reach the age of maturity, when they return through the American waters of Puget Sound to their breeding grounds in British Columbia. While on their run to the spawning grounds in British Columbia, they are intercepted in American waters, principally by purse-seiners and traps, and this has been considered by our Canadian friends such a gross offense against what they claim to be their right to all the fish, that they are unwilling to erect commodious hatcheries for the propagation of the same, or allow the Federal Government or the state of Washington to do it for them. The feeling of the Canadians has become so intense against our methods of catching what they call their fish, that even the provincial officials have become inoculated with it. The Provincial Commissioner of Fisheries for British Columbia, in his 1903 report, says:

"It is well known that the run of salmon in the Fraser river during the past season was the poorest in many years. The scarcity was largely confined to the Sockeye (*O. nerka*) variety, though all varieties showed a marked decline. As the Sockeye is the great commercial salmon of the Fraser, its failure to run as abundantly as usual entailed a great loss upon both fishermen and canners. But what is of far greater importance to the government, the fishermen and canners than the remarkable decrease in the catch, is the fact that the number of Sockeye which reached the spawning grounds on the Fraser this year was so small as to seriously threaten the destruction of this great industry. For I



A COLUMBIA RIVER TRAP.

can positively state from personal observations that the run of Sockeye to the Fraser watershed above the great canyon (which includes the Quesnel, Shuswap and Seton-Anderson Lakes sections) was a failure, and that virtually no spawn to produce a future run was deposited there this year, though, combined, these lake regions constitute what is believed to be 75 per cent. of the natural spawning grounds of the Sockeye of the entire Fraser river watershed. This statement, which may reasonably alarm those interested, is made after a most careful inspection of the spawning grounds during the past three seasons.

"I believe that the decrease in the run and the absence of fish upon the spawning grounds this year is attributable to excessive fishing. An investigation of the conditions existing upon the fishing grounds for the past five years amply demonstrates that to be the cause. And the small catch and the empty spawning beds of the Fraser, this year and last, prove it.

"In my report of last year I had occasion to review in detail the conditions existing upon the fishing and spawning grounds of the Fraser, in which I sought to trace the movements of the Sockeye from the sea to the river, and attempted to show that too great a proportion of the Sockeye was being captured in the poor years, that an insufficient number reached the spawning grounds, and that there was an urgent need of giving greater protection to the fish. In that review I sought to show, as others have done, that the greatest movement of the Sockeye seeking entrance to the Fraser passed through the American channels of Puget Sound, and called attention to the fact that there were no limitations, either of time or method, placed upon the capture of the Sockeye in those waters, and that in consequence all, or most all the fish which attempted to pass through those channels were captured by trap, purse or drag nets. It was also shown that in our waters, though fishing was prohibited until July 1st and that a weekly 36-hour closed season was enforced, and that the fishing was confined to the use of gill nets, there was an excessive number of such nets being used.

"My observations during the past season confirm these predictions. Since that time there has been no improvement in these conditions existing upon the fishing grounds. They remain in the same deplorable state. There is no occasion for surprise that no greater restrictions have been placed upon our fishermen in view of the fact that the whole burden of protection already falls upon them, while the Americans continue to take every fish possible during the entire time they are in their waters. If the decline in this fishery is due to excessive fishing, as I have already asserted, the censure for it rests principally, if not wholly, at the door of the state of Washington, as the unbridled fishing conducted in

her waters is indefensible and unjustifiable, and, if continued, will wipe out the salmon fishery of the Fraser. We are told by some Washington officials that the decrease in the run of salmon is occasioned by the failure to provide adequate hatcheries; that only by their establishment can the run be maintained, and it is even proposed that the people interested in the fishing industry in the state of Washington will, if permitted, construct and operate extensive hatcheries on the Fraser. It may be that the great canning interests of Washington believe this, and are the authors of this movement, and would willingly contribute towards the building and maintenance of extensive hatcheries. They would certainly be justified in doing so, but until they secure the passage of suitable protective legislation governing their own fishing methods, there would seem to be a lack of sincerity in their suggestion that is apparent to any one familiar with the regretable conditions existing there and which so seriously threaten their own interests and ours. No hatchery system, however extensive, can be devised that will maintain the run of Sockeye in the Fraser from eggs obtained from its waters, unless the fishing is so regulated as to permit the free passage of a sufficient number of fish to reach the spawning grounds each year. While it is true that the output of young fish for the season could have been greatly increased had there been an additional hatchery at the head of Lillooet Lake, it is equally true that under present conditions 75 per cent. of the spawning grounds of the Fraser were barren of fish this year. Two of the three hatcheries already established on the Fraser were unable to obtain over 10 per cent. of the eggs they have capacity to handle, and the eggs they did get were, with the exception of three hundred thousand, secured at Shuswap, taken from fish which entered the Fraser after most of the American traps had been removed from the Sound."

A careful analysis of the situation should convince any fair minded person that while the Americans have been derelict in the protection and preservation of the Sockeye fish, the Canadians are not altogether blameless for the unfortunate conditions as they now exist. Quoting from the letter of the Hon. George M. Bowers, United States Fish Commissioner, in his letter of November 25th, 1903, to the Secretary of Commerce and Labor:

"It has been charged that the use of traps or pound nets in the American waters of Puget Sound has proved very destructive to the salmon fisheries to the extent that an undue proportion of the fish are caught before they enter British Columbia waters. This charge is not borne out by the facts. In 1903 there were in operation on the American side 96 Sockeye traps, which offered thirty-five miles of obstruction to the movements of the salmon.

On the British Columbia side there were, in and off the mouth of the Fraser river, not fewer than 3,000 boats, each provided with 110 fathoms of gill netting, making a total obstruction of 375 miles, or more than ten times that offered by the American traps. That these gill nets are effective and that the British Columbia fishermen get a fair proportion of the entire catch, is shown by the fact that from 1896 to 1903, inclusive, the salmon pack in British Columbia exceeded that on Puget Sound by 785,757 cases. Only twice, (in 1899 and 1901) in the history of salmon canning on Puget Sound, has the pack equalled that in British Columbia.

"The fishing regulations in force on the respective sides are about equally inadequate. It is true that there is no weekly closed period on the Washington coast, and that there is in British Columbia a weekly closed time, extending from 6 A. M. Saturday to 6 P. M. Sunday; but it is claimed that this is not effective, for the reason that immediately after its expiration the Fraser river gill net fishermen begin fishing as far up the river as possible or profitable and drift down towards the mouth, thus probably catching all the fish that enter the river during the closed period of thirty-six hours. A weekly closed period should be provided on each side, but should be so adjusted as to give the salmon a better chance to escape. Other regulations and restrictions should be established only after a careful study of the local conditions."

If, as the Provincial Fish Commissioner says, the operation of traps in American waters was the sole cause of his failure to obtain eggs for his hatcheries, how does he explain the fact that the Sockeye pack in British Columbia exceeded the Puget Sound pack in 1903 by 36,968 cases? In his official report he estimated the Fraser river pack as 237,125 cases. This would indicate that at least 2,500,000 fish had run the gauntlet of the Puget Sound traps and were packed by Fraser river cannerymen. If this 2,500,000 fish had not been intercepted by gill nets in and around the mouth of the Fraser river, certainly some would have reached the spawning grounds mentioned in the Provincial Fish Commissioner's report as being so barren. I am not justifying the American fishermen in their excess fishing, or the state of Washington for not enacting protective measures, for I do believe that the Americans should be restrained from excessive fishing, and protective measures adopted. But I cannot agree with our Canadian friends that our people alone are responsible for the depletion of the Sockeye fish. Both Governments should at once enact protective measures that are effective, together with a complete system of hatcheries, and in a few years the fishing industry in the North-

west will once more occupy its important position in the commercial world.

CANNERY ASSOCIATIONS.

The Fraser River Canneries Association and the Puget Sound Salmon Association are two very important associations. The former has been in existence for some time in British Columbia and the latter was organized this summer on the American side. The two associations have held several joint meetings and their deliberations have been productive of much good, are leading to a better feeling among the people on both sides of the line, and will eventually solve the problem of the preservation and perpetuity of the salmon industry on the Sound.

FRASER RIVER HATCHERIES.

In my 13th annual report, I reviewed at some length the efforts of the Department to establish hatcheries on the Fraser river. After publishing my report, I continued negotiations with both the Provincial and Dominion Governments, until I was convinced that all further efforts in that direction would be in vain. I then, through our representative in Congress, sought to interest the Federal Government to the extent that it might take up the matter with the Dominion Government to interest it in the preservation of this great industry, and I herewith append the more important part of the correspondence, that you may understand what progress has been made in that direction.

November 25th, 1902.

MR. T. R. KERSHAW, *State Fish Commissioner,*
Whatcom, Washington:

My Dear Mr. Commissioner:—I regret very much that I did not see you before leaving for the East, as it would have given me much pleasure to have discussed with you the question of an international fish hatchery on the Fraser river, as per your statement to my secretary, Mr. Sammons. I presume that you already realize that this is a rather knotty question, and that we will, necessarily, have to exercise much patience in endeavoring to secure compliance with our wishes. When I first took the matter up with the United States Fish Commissioner, nearly a year ago, I was unable to secure any satisfactory assurance. Later on the matter was taken up with the Secretary of State; and is still under advisement in both departments; that is, in the department of state

and in the department of fisheries. There are international questions involved that render an early solution difficult. However, I believe that it is a subject which is worthy of our very best efforts, and I shall be glad to continue to urge the establishment of the hatchery at the earliest possible date.

Yours very truly,

A. G. FOSTER.

January 2, 1903.

HON. A. G. FOSTER, *Washington, D. C.*

Dear Sir:—I am in receipt of your esteemed favor of Nov. 25th, and am glad to note the interest that you are taking in the Fraser river hatchery.

Since the receipt of your letter, I have had several interviews with British Columbia cannerymen, and they are all extremely anxious that something should be accomplished along these lines. I might say that I have the moral support of the entire fishing interests across the line.

The only obstacle apparently in the way of establishing a hatchery on the Fraser now is the disinclination of the Canadian government to grant us any concessions. I believe, however, if this was properly placed before the Canadian authorities, showing them that it is as much to their interests as it is to ours, and that our interests in this great commerce is common, that they might be induced to make some arrangements whereby we could either establish a hatchery on Canadian soil at our own expense or they could at least join with us on an international one.

I regret exceedingly that I was unable to see you before you departed for Washington and have an opportunity to go over this subject thoroughly with you. For the next two months I will be busy at Olympia with legislation pertaining to my department that will come before the legislature. After that I could spare the time to take a trip to Washington and go over this matter thoroughly and understandingly with you and the department there if you think it advisable for me to do so. I perhaps am in a position to give more intelligent information along these lines than anyone else, as during the last year I have given this Sockeye problem a great deal of study and have worked very diligently along the lines of establishing a hatchery on Canadian soil. I believe it is absolutely necessary to maintain the present commercial standing of our fisheries in this state that this hatchery should be established, and we should exert our utmost efforts along these lines. As I said before, if you think it could be of any possible advantage,

I would willingly make this trip to Washington if anything can be accomplished thereby.

Hoping that I may hear from you at an early date, I remain,

Very sincerely yours,

T. R. KERSHAW, State Fish Commissioner.

December 12, 1902.

MR. T. R. KERSHAW, *State Fish Commissioner,*
Whatcom, Washington,

My Dear Mr. Commissioner:—With reference to the question of securing an international fish hatchery on the Fraser river, I wish to state that the U. S. Fish Commissioner still feels that a movement of this kind probably would result in embarrassing complications. This is the situation and view to which he is giving expression from time to time, but I believe that it yet may be possible to secure a modification of the same and to ultimately provide for the propagation of salmon in sufficient quantities to satisfy all of our cannery interests. This is a subject in which I am much interested and which I propose to continue to investigate in the future as I have in the past.

Yours very truly

A. G. FOSTER.

December 3, 1903.

HON. T. R. KERSHAW, *State Fish Commissioner,*
Whatcom, Washington,

My Dear Mr. Kershaw:—I hand you herewith self-explanatory communication with reference to the proposition of establishing an international fish hatchery on the Fraser river.

It is very gratifying to me to know that the Honorable Secretary of State is now prepared to invite a joint conference between the representatives of the United States Fish Commission, yourself and the representatives of the Marine and Fisheries Department of the Dominion of Canada and of British Columbia.

It seems to me now that this matter is in a position for a successful and satisfactory adjustment.

I am particularly pleased at the conclusion of the Commissioner of Fisheries of the United States and the acquiescence therein by the Secretary of State, to-wit: that a joint conference be held. This is in accordance with and agreeable to the position which I heretofore have taken and which I have urged upon both the Secretary of State and upon the United States Fish Commissioner.

I wish you would please return all the attached correspondence for my files.

Very truly yours,

A. G. FOSTER.

GILL NETTER RETURNING FROM FISHING.

December 1, 1903.

THE HONORABLE A. G. FOSTER,
United States Senate.

Sir:—Referring again to your letter of the 13th ultimo, I have the honor to enclose a copy of a letter of the 25th ultimo from the Secretary of Commerce and Labor, forwarding an expression of the views of the United States Commissioner of Fish and Fisheries, on the subject of regulating salmon propagation and salmon fishing in Puget Sound and adjacent waters.

I venture particularly to call your attention to the last paragraph of Mr. Bowers' letter, suggesting a conference on the subject between representatives of the United States Fish Commission, the Washington State Fish Commission, the Canadian Department of Marine and Fisheries and the Fisheries Department of British Columbia.

If that proposal is agreeable to Mr. Kershaw, the department will take pleasure in bringing the suggestion to the attention of the Canadian government through the British Embassy.

I have the honor to be, Sir,
Your obedient servant,
JOHN HAY.

November 25th, 1903.

Sir:—Referring to your letter of November 17th, 1903, with enclosures, stating that your department would be glad to be favored with an expression of the opinion of the Commissioner of Fisheries relative to the suggested adoption by the State of Washington and the government of Canada of identical regulations regarding the propagation of salmon on the Fraser river and its tributaries in British Columbia, I have the honor to transmit herewith a communication from that official, dated November 25, 1903, concerning the matter.

Respectfully,
GEORGE B. CORTELYOU, Secretary.

The Secretary of State.

November 25, 1903.

THE SECRETARY OF COMMERCE AND LABOR,
Washington, D. C.

Sir:—This bureau acknowledges the letter of the Secretary of State of November 17, with enclosures, referred by you to this office on November 19, in regard to the proposed international arrangement for the propagation of salmon on Fraser river in British Columbia. This subject has been under consideration by this bureau for a number of years, and considerable correspondence thereon has passed between it and the Department of State.

The bureau fully appreciates the vast importance of the Puget Sound and Fraser river salmon fisheries and realize that the danger of their depletion is imminent, the same conditions prevailing there as in Alaska. The catch each year comprises too large a percentage of the total number of fish entering Fraser river and other, less important, salmon streams tributary to Puget Sound and to adjacent British Columbia waters. A proper understanding of the respective rights and responsibilities of the fishermen of British Columbia and the state of Washington necessitates the consideration of certain facts in the life history—namely:

(1) The only species of salmon to which attention should be directed in this connection is the Sockeye, or Blueback. This is the principal salmon of Fraser river, which it enters in immense schools. Limited numbers enter the Skagit, and a few probably run into the Nooksack and Lake Washington, these being apparently the only waters in Washington tributary to Puget Sound in which the species has spawning grounds.

(2) Coming from the sea, the schools migrate chiefly through the Strait of Juan de Fuca, closely hugging the Vancouver shore. Upon reaching the vicinity of San Juan Islands they enter the United States territory. A small part of the run then turns eastward to enter the Skagit river, but the great majority of the fish continue up the coast of Washington, pass Point Roberts, and ascend the Fraser river.

(3) The Sockeye, like all other salmon of the Pacific Coast, spawns but once and then dies. A Sockeye salmon permitted to ascend a stream does not return the second time, and no further opportunity to catch it ever comes to any fisherman. If it is not caught it goes to its spawning bed and dies. The only object, therefore, in letting a salmon escape is that it may spawn and perpetuate the species; and it follows that there is no useful purpose served in letting more salmon escape than are necessary to maintain the species at its maximum numbers. To accomplish this will require very many less breeding fish under artificial methods than the natural reproduction.

Competition among the rival canning companies has been very sharp during recent years, and fishing has been carried on so persistently that a constantly decreasing number of salmon have been permitted to pass up the streams to the spawning grounds. This number now appears to be entirely inadequate, through natural propagation, to keep up the supply. It is believed, however, that with proper fishing regulations, combined with salmon culture, the present catch could not only be maintained but greatly increased. The establishment of hatcheries of large capacity is required essential to the preservation of this fishery as a continuing industry.

It has been charged that the use of traps or pound nets in the American waters of Puget Sound has proved very destructive to the salmon fisheries to the extent that an undue proportion of the fish are caught before they enter British Columbia waters. This charge is not borne out by the facts. In 1903 there were in operation on the American side 96 Sockeye traps, which offered 35 miles of obstruction to the movements of the salmon. On the British Columbia side there were, in and off the mouth of Fraser river, not fewer than 3,000 boats, each provided with 110 fathoms of gill netting, making a total obstrtuction of 375 miles, or more than ten times that offered by American traps. That these gill nets are effective and that the British Columbia fishermen get a fair proportion of the entire catch, is shown by the fact that from 1896 to 1903, inclusive, the salmon pack in British Columbia exceeded that on Puget Sound by 785,757 cases. Only twice (in 1899 and 1901) in the history of salmon canning on Puget Sound has the pack equalled that in British Columbia.

The fishing regulations in force on the respective sides are about equally inadequate. It is true that there is no weekly closed period on the Washington coast, and that there is in British Columbia a weekly closed time extending from 6 A. M. Saturday to 6 P. M. Sunday; but it is claimed that this is not effective, for the reason that immediately after its expiration the Fraser river gill net fishermen begin fishing as far up the river as possible or profitable and drift down toward the mouth, thus probably catching practically all the fish that enter the river during the closed period of 36 hours. A weekly closed period should be provided on each side, but should be so adjusted as to give the salmon that enter the river at its beginning a better chance to escape. Other regulations and restrictions should be established only after a careful study of the local conditions.

Salmon canning began in British Columbia in 1876, but in Puget Sound not until 1891. Although the industry was in progress on Fraser river fourteen years before it began on Puget Sound, comparatively nothing has been done in British Columbia toward artificial propagation of the Sockeye salmon. In 1896 the state of Washington established a Sockeye hatchery at the head waters of the Skagit, and in 1898 this hatchery was purchased by the United States government, which has since operated it each year, the total output to date exceeding 25,800,000.

The United States government has up to this time done its full duty in this matter by acquiring and operating a Blueback salmon hatchery on the only stream in the Puget Sound region which is known to be resorted to by this species for spawning purposes. The Canadians thus have a decided advantage and great responsibilities in the matter of artificial propagation as the possibilities for salmon culture in the Fraser river basin are almost

limitless. The establishment of additional hatcheries by this government should be undertaken only after a thorough investigation of all the Sockeye streams and lakes wholly or partly in the state of Washington, particularly Chilliwack river and the lakes at its head waters. This matter should have careful attention, and it is not improbable that a very successful hatchery might be operated on that stream and in the United States territory. Such an investigation would have to be made in the fall when the fish are on their spawning beds.

This bureau is in thorough accord with the opinion of the Department of State as expressed in the letter of the Secretary of State, to-wit, "that the only mutually satisfactory arrangements relating to the question would be the adoption by the state of Washington and the government of Canada of identical regulations for the Fraser river and its affluents and the establishment by each party of hatcheries on identical scales." The bureau reiterates its belief that the conditions do not demand, and that no special advantages can accrue from, the establishment and operation of a hatchery under joint auspices. Furthermore, it appears from the letter of the Hon. Raymond Prefontaine, Canadian Minister of Marine and Fisheries, that the Dominion government is opposed to such an arrangement; and this bureau is advised that the Provincial government of British Columbia takes the same position. The Fish Commissioner of Washington, referring to the Canadian government in his letter to Senator Foster (of which a copy was transmitted by the Secretary of State) says that "we have their partial consent for an international hatchery now in writing;" but it appears to this office that he has misinterpreted the position of the Minister of Marine and Fisheries, who states in his letter to the Fraser River Cannery Association, "This proposal is a novel one, and * * * appears to savor too much of the suggestion that Canada should lend herself to the enlistment of the services of a foreign government for pecuniary aid in the furtherance of her own national and domestic obligations. The position * * * is not of a character the advocacy of which I should care to undertake, even if deemed practicable."

This bureau desires to do everything possible looking to the preservation of the salmon industry of Puget Sound and Fraser river, and suggests to the department that it might prove beneficial for a representative of the bureau to meet representatives of the Washington State Fish Commission, the Canadian Department of Marine and Fisheries, and the Fisheries Department of British Columbia, for the purpose of exchanging views and determining a line of procedure to be followed by responsible parties.

Respectfully,

GEO. M. BOWERS, Commissioner.

January 2, 1904.

HON. A. G. FOSTER, *Washington, D. C.*

Dear Sir:—Your esteemed favor, with enclosed communication from the State Department of Commerce and Labor, relative to the preliminary steps leading up to a discussion of the proposition to establish a Sockeye hatchery on the Fraser river, was duly received; and the same should have been replied to sooner, but I have been in negotiation for statistics showing the Sockeye pack on Puget Sound for the last fifteen years to the present time. An accurate statement of this, I have not so far been able to obtain, but it is sufficient to say that the pack is being gradually decreased, and at the ratio it is now being depleted, will soon become extinct.

In the year 1901, the Sockeye pack on Puget Sound amounted to 1,220,000 cases; in 1902, it had fallen to 372,301 cases; and at the close of the present year, 1903, it has fallen to 167,211 cases.

Thus the value of the Sockeye industry on Puget Sound has been reduced in three years from an industry aggregating six millions to one aggregating about one million.

There is not much that I could say that would further enlighten you and the department with which you are negotiating relative to this matter, than has been said in the very able communication written by the Honorable Fish Commissioner, George M. Bowers, to the Secretary of Commerce and Labor. He shows an exceedingly thorough knowledge of all the conditions existing on the coast in regard to the fisheries, and has gone into the matter, in my opinion, very thoroughly.

There is one part of his letter, however, which I wish to call your attention to, in which he says:

> "The establishment of additional hatcheries by the Government should be undertaken only after a thorough investigation of all Sockeye streams and lakes of the state of Washington, particularly the Chilliwack river and the lakes at its head waters. This matter should have careful attention. Such an investigation would have to be made in the fall when the fish are on their spawning beds."

In regard to that part of Mr. Bowers' letter to the Secretary of Commerce and Labor, I wish to call your attention to the fact that in 1901 the Commercial Club of the city of Whatcom gave this matter a thorough investigation at an expense of about $500. I herewith enclose a copy of a report made by the committee to the Commercial Club relative thereto.

In regard to the other streams and lakes in the State of Washington, I can only state that they have been thoroughly investigated by myself and assistants since I came into office.

On some twelve or thirteen of the streams emptying their waters into Puget Sound, we already have established hatcheries for the purpose of propagating salmon other than Sockeye, and if Sockeye were inhabiting these streams we certainly would have been aware of it by the operation of our hatcheries. The other streams on which we have no hatcheries have been thoroughly investigated during the proper season, and it is an absolute certainty that there is no stream in the state of Washington, or lake, save Skagit and Baker lake where the government hatchery is now located, where Sockeye salmon can be propagated.

This department fully appreciates the interest you have taken in this matter, and hopes the proposed negotiation between the two governments may be accomplished, and that the result of such conference may be satisfactory to both governments, and insure the building up again of this very important industry in both British Columbia and Puget Sound.

It is unnecessary at this time to discuss what this department or state would be willing to do in the regulation of fisheries, as this is a matter which should be more properly discussed in a conference between the two governments. I am well aware, if that conference is held, that the Dominion government will exact from our state certain restrictions in regard to the fisheries and protection of the same along the lines of closed seasons, and probably various other suggestions tending toward the benefit of the industry.

These are matters which this department will be fully prepared to discuss, and will be willing to meet any reasonable terms. I am confident that any suggestions made by this department to the coming legislature tending to protect and build up the industry, and at the same time state the demands of our Canadian friends, will be willingly enacted into laws.

Thanking you sincerely for all you have done in this matter so far, and hoping that you may be successful in bringing about the desired conference, I am,

Sincerely yours,

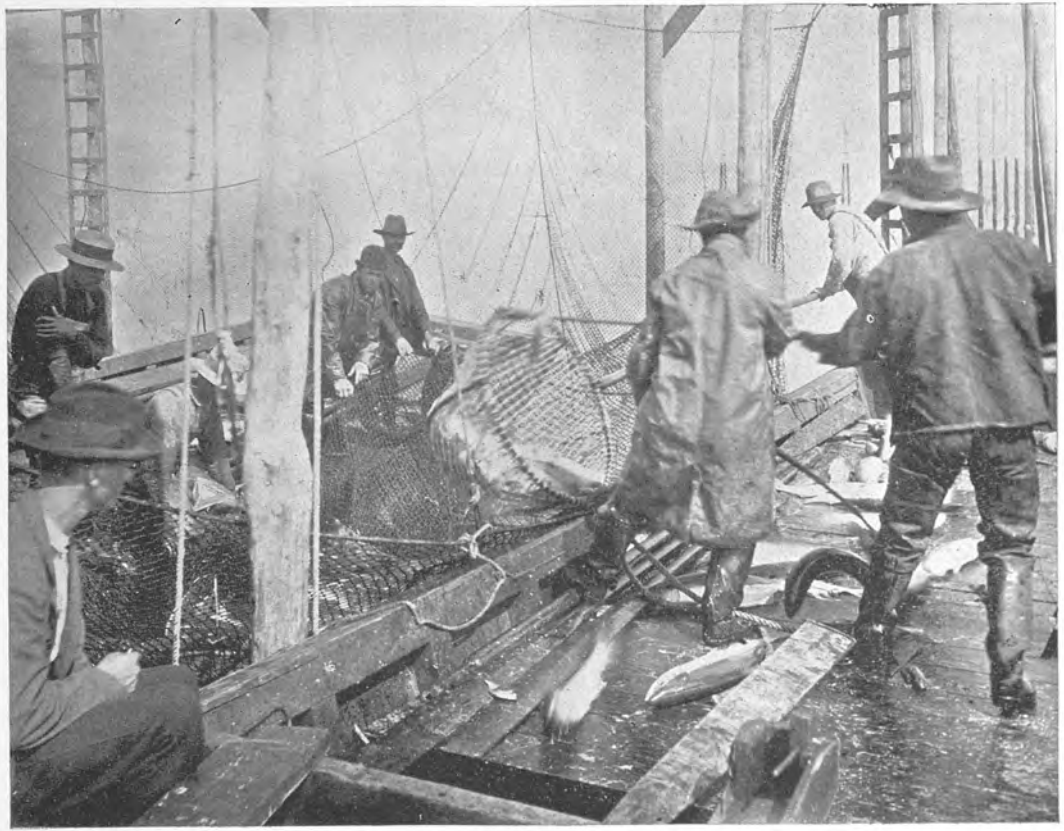
T. R. KERSHAW.

Enclosed find papers returned.

July 2, 1904.

MR. T. R. KERSHAW, *State Fish Commissioner,*
Bellingham, Washington.

Dear Sir:—Hereto I attach self-explanatory letters from the Secretary of State, the Honorable John Hay, and from the British Ambassador, in relation to the question of international fish hatcheries on the Fraser river. As you are aware of the manner in which I have taken this matter up with the State Department at



FISHING A TRAP ON PUGET SOUND.

Washington City, and as you are familiar with the end desired, I will not herein discuss the general question at issue.

You understand fully the difficulties that have been met with in the efforts which have been put forth, both by yourself and your predecessor and by myself as well. It seems, however, that there is good reason to expect an investigation based upon the report made by the Rathbun-Wakeham Commission, a copy of which I will send you under separate cover, with request that you return the same to me, as it is the only copy I have, and as I desire to retain it among my papers in this case.

You will understand from the letters which I attach, and which I also desire returned for my files—and of course you may take copies of them if you so desire—that the state fish officials are expected to express their views on the suggestion of the Canadian Government, that the report of the Rathbun-Wakeham Commission be used as a basis for an adjustment of the question at issue. Therefore, after you have examined the report which I send you, I trust that it will be agreeable to you to file a carefully prepared answer, which I shall be glad to take up with the Honorable Secretary of State at Washington City, together with an independent statement in the premises, which I shall prepare and forward.

Trusting that you will consider this a complete summary of this matter up to the present time, and being an answer in full to all correspondence on the subject heretofore not satisfactorily disposed of, I remain,

Yours very truly,

A. G. FOSTER.

No. 124. Lenox, June 13th, 1904.

Sir:—With reference to your note 54 of April 6, 1 have the honor to inform you that I have received a despatch from the Governor-General of Canada relative to the proposed informal conference between representatives of the United States and Canada to consider the conditions of the salmon industry in the Fraser river and Puget Sound regions.

Lord Minto informs me that the Minister of Marine and Fisheries observes that the matter has already been considered by the Joint Commission appointed in December, 1892, a copy of whose report I have the honour to enclose. This report submitted on December 31, 1896, contains the joint recommendations of Doctor Wakeham, the British representative, and Mr. Richard Rathbun, the representative of the United States.

The Canadian government are of the opinion that these recommendations would appear to furnish suitable basis for correspondence as to what action can be taken, and they suggest that

this would possibly obviate the necessity for the proposed informal conference.

Perhaps you would be disposed to consider this suggestion.

Your most obedieint servant,

M. H. DURAND.

June 17th, 1904.

THE HONORABLE A. G. FOSTER,
United States Senate.

Sir:—Referring to your letter of March 23d last, and to the department's acknowledgement of April 6, on the subject of a proposed informal conference between representatives of the United States and Canada ato consider the condition of the salmon industry in the Fraser river and Puget Sound regions, I have the honor to enclose, for the consideration of the fishery officials of the state of Washington, a copy of a note from the British Ambassador, communicating the opinion of the Canadian government as to what action can be taken. The Department will be pleased to receive the views of the fishery officials of Washington with reference to the suggestions made by the Canadian authorities.

I have the honor to be, sir,

Your obedient servant,

JOHN HAY.

July 28, 1904.

Sir:—I am in receipt of your favor of June 17, last, with enclosed note from the Canadian government relative to the proposed informal conference by representatives of the Dominion, Provincial, Federal and Washington governments to discuss the fisheries industry of the Fraser river and Puget Sound. I note that the Canadian government suggests that this matter has been considered by the joint recommendations of Doctor Wakeham, the British representative, and Mr. Richard Rathbun, the representative of the United States; and that, "The Canadian government are of the opinion that these recommendations would appear to furnish a suitable basis for correspondence as to what action can be taken, and they suggest that this would possibly obviate the necessity for the proposed informal conference."

I am of the opinion that the informal conference, as proposed by you, consisting of the representatives of the two governments, based upon the report of the joint commission composed of Doctor Wakeham and Mr. Richard Rathbun, would be entirely satisfactory to the Puget Sound Salmon Association, but they are not of the opinion that the aforesaid report would obviate the necessity of the proposed informal conference. At a meeting of the Puget Sound Salmon Association, held on July 6 of the present year, I

reviewed to them the whole matter of the proposed informal conference between the two governments, and by resolution unanimously adopted by them I was instructed to urge our representatives in congress to use all honorable means to bring about as speedily as possible the proposed informal conference with the Canadian government.

The joint commission, composed of Doctor Wakeham and Mr. Richard Rathbun, was appointed in 1892, and they filed their report December 31, 1896. It must, therefore, have been at least ten years since they investigated the condition of the Fisheries on the Fraser river and Puget Sound. Since that time conditions have materially changed. Ten years ago, salmon fishing was in its infancy and excessive fishing was not done either on the Fraser or on Puget Sound. But the last decade has brought about marvelous changes in the fisheries industry of the Northwest. Late appliances for the interception of the movements of fish on their way to their spawning grounds, and modern appliances in the many canneries for the preserving of fish, have led to excessive fishing, and have caused too great a strain on Nature to keep up the supply. The last three years have been almost total failures in the fishing industries, both on the Fraser river and on Puget Sound, and unless something is done at once in the way of concurrent legislation between the two governments to allow the fish free access to their spawning grounds and to the hatcheries, this great industry, which aggregated ten million dollars annually to the Northwest a few years ago, will become extinct.

The joint commission say, in Art. 12 of their report:

> "As no evidence of a decrease in the abundance of any of the salmon species has been obtained, we do not feel justified in recommending joint action at present in the matter of their artificial propagation. While we feel confident that the natural supply can best be maintained by early compliance with suitable protective measures, we found it generally admitted that the efforts made by the Canadian government to increase the stock of Sockeye salmon on the Fraser river by fish cultural methods has been beneficial, the annual run of the fish being more constant and the off seasons being improved."

Since that article was written, in the Puget Sound district, the fishermen have never complied with any protective measures, and it is admitted on both sides that the closed season on the Fraser has not been effective. You will observe by article 12 of the report of the commission that they had in mind that in the future joint action between the two governments relative to the fisheries interests would become necessary. In my opinion, and in the opinion of the Puget Sound Salmon Association, the time has now arrived.

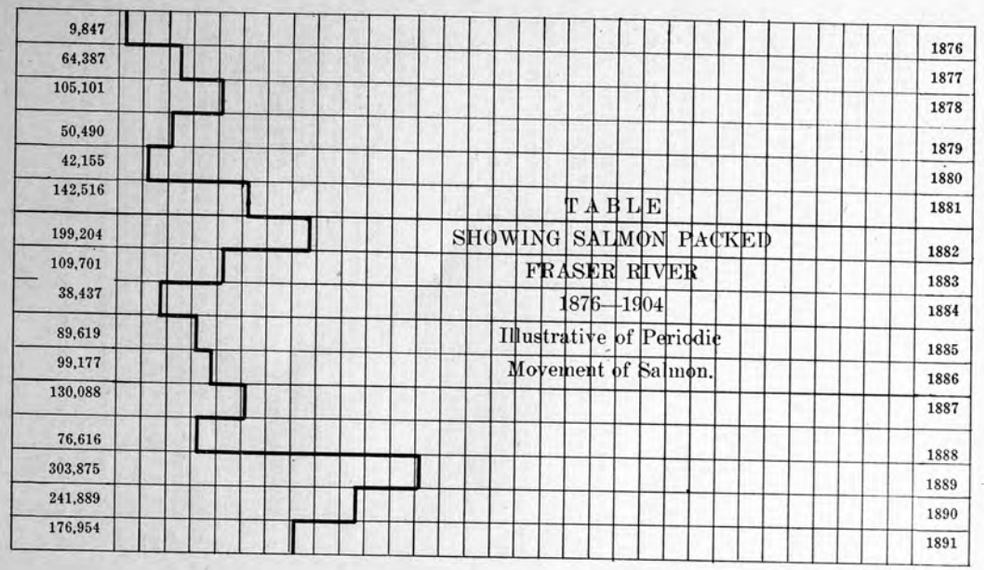
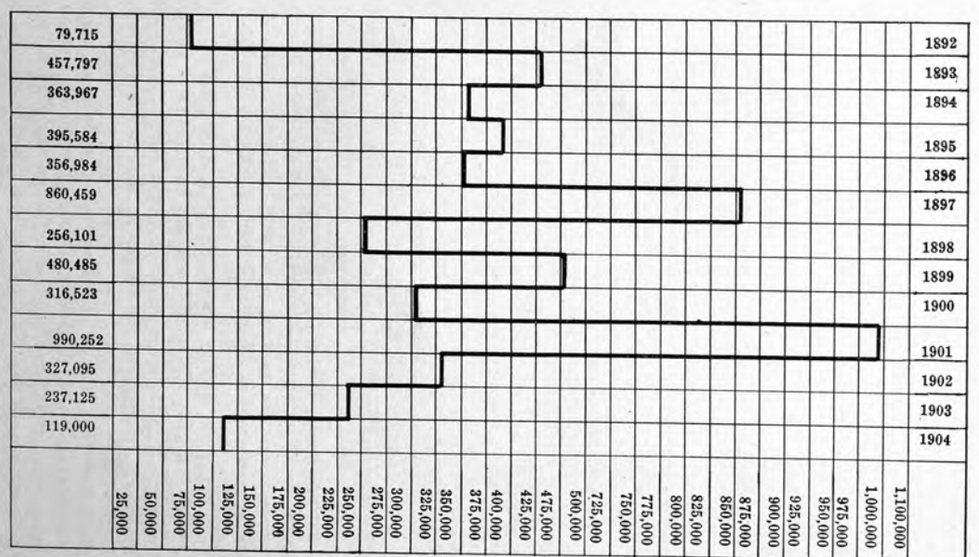


TABLE
SHOWING SALMON PACKED
FRASER RIVER
1876—1904
Illustrative of Periodic
Movement of Salmon.



There is existing at the present time an unnecessary jealousy between the fishing industries of the Canadian and American sides, which, in my opinion, could be eliminated by a better understanding of the conditions on each side, which could be best brought about by an informal conference between the representatives of the different departments.

The commission says on page 134 of its report:

> "The most important fishery problems for international consideration in this region, and the only ones which appear now to demand urgent attention, are presented by the salmon fishery."

The commission says on page 143:

> "The perpetuation of the run of Sockeye, as of the other salmon, depends unquestionably upon a sufficient number of the fish reaching their spawning grounds annually to provide for the quantity withdrawn by the nets. As regards the Sockeye, the material interests of the Fraser river and of the coast of Washington *are identical,* and whatever might affect the fishery disadvantageously on the one would be equally harmful on the other."

I am, therefore, of the opinion that an informal conference as suggested, based upon the report of the joint commission, would result in much good to the fishing industry of the Northwest and create a better feeling among the people engaged in the industry in both countries; that it would lead to the enactment of better laws; and solve the problem of the perpetuity of the salmon.

Respectfully submitted,

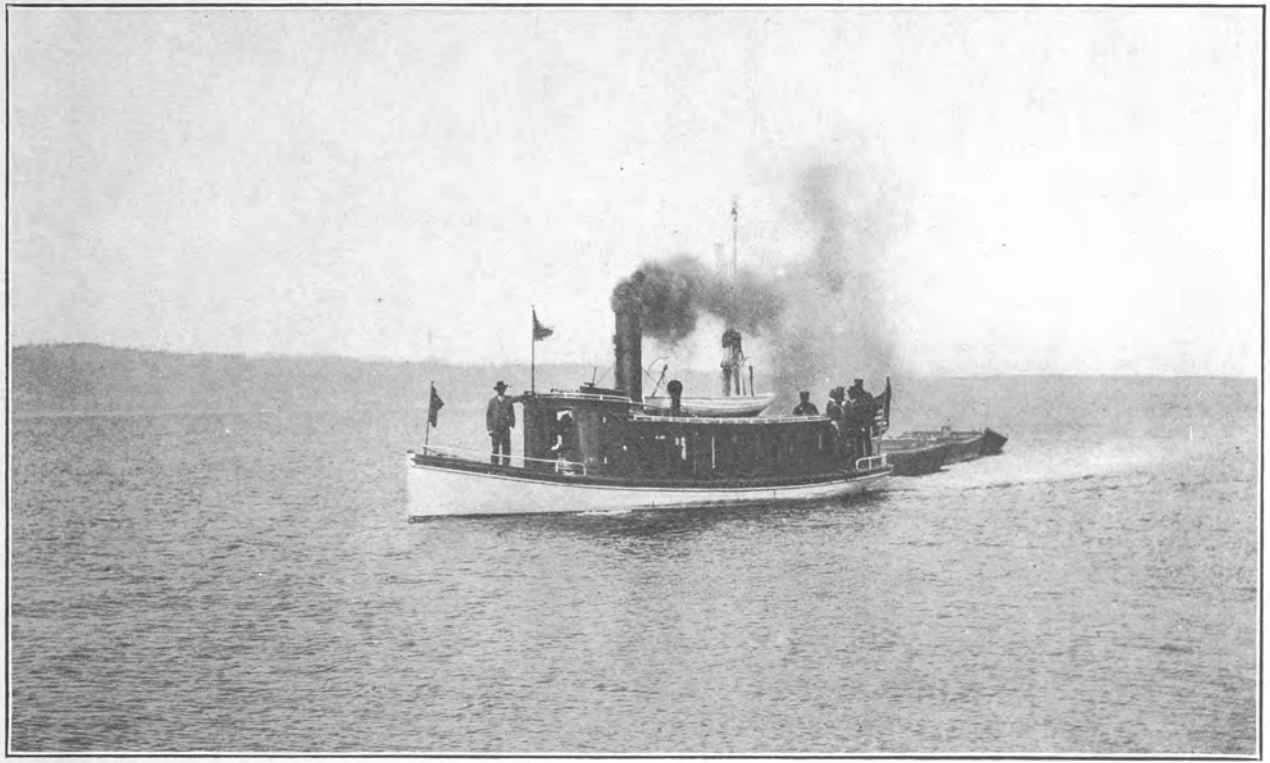
T. R. KERSHAW, State Fish Commissioner.

To HON. A. G. FOSTER.

I believe now, however, that the work of the two associations, the Fraser River Canneries Associations and the Puget Sound Salmon Association, working in harmony, will bring about the desired results without the informal conference above referred to.

SKAGIT RIVER EXPERIMENTAL WORK.

At a suggestion of the Puget Sound Salmon Association, in conjunction with the employees of the United States Fisheries at Baker Lake, I undertook the experiment, the present season, of intercepting the Fraser river Sockeye and diverting its course to the Skagit river. Mr. W. A. Lowman of Anacortes, was very much interested in the experiment and furnished this Department with a crate for the purpose of transporting the fish. On the 15th



FISH COMMISSIONER'S STEAM LAUNCH "BESSIE" ON PUGET SOUND.

of August, Captain J. L. Riseland, F. B. Lippincott, deputy Fish Commissioners and Mr. Kelly, superintendent in charge of the Government hatchery at Baker Lake, proceeded with the state launch "Bessie" to one of the Pacific Packing & Navigation Company's traps on the West coast of Lummi Island, and took from the trap 250 Sockeye fish. After marking each of these distinctly by clipping the caudal fin, they placed them in the crate provided for that purpose, and under a slow bell towed them up the Skagit river to within a few miles of the city of Mount Vernon, being about 75 miles distant from the trap. The rate of loss was about 10 per cent, but those that survived the operation and transportation were apparently in a healthy condition when they were turned loose in the Skagit river. There were 20 hours consumed in transportation, when the fish were liberated about 12 o'clock m on the morning of August 17th.

There were two objects in the experiment; one was to see if Fraser river fish taken from Puget Sound traps could be diverted to the spawning grounds in the Skagit river, and also to arrive at the number of miles a day the fish traveled after entering fresh water. Everything was in perfect shape to intercept these fish at the Baker Lake hatchery, but up to this time, nothing has been heard from them. While this Department was always skeptical about the results, as it believes it is too radical a change to take the fish directly from salt to fresh water, still it is of the opinion that the test was not a fair one. In the first place, there should have been 1,000 fish placed in the river, instead of 200, for had we met with any success, the number was too small to give us the true per cent that would ascend the river. And again, the season was one exceedingly dry, the Skagit river was the lowest it had been for years, and the fish may have spawned and died before reaching Baker Lake. We are in hopes, however, to try the experiment again in the future, under more favorable circumstances.

OTHER FISH.

In case all the efforts of the Federal Government and the State Department, together with the combined efforts of the Fraser River Canneries Association, should fail to bring about protective measures, and the establishment of hatcheries for the perpetuity of the Sockeye industry, we still have other species of salmon in

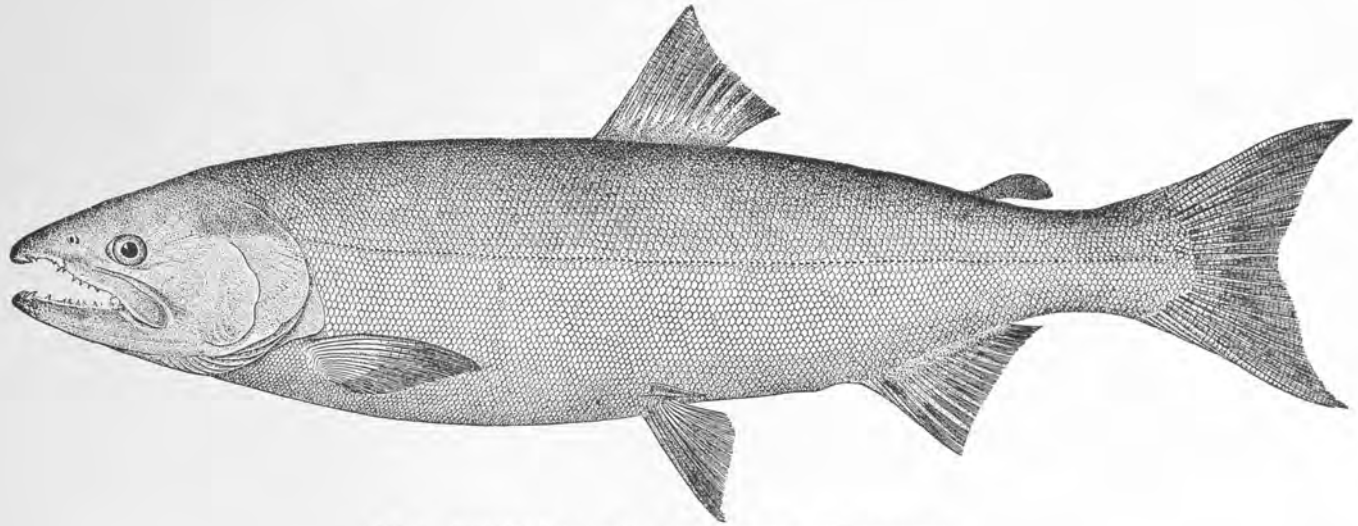
our waters and other aquatic resources that will always give the fisheries a prominent place among our commercial resources. The Chinook, or Spring, and the Cohoes, or Silver, are becoming more plentiful every year in our waters, and the prices are becoming firmer with each succeeding run, and they make up a very material part of our fisheries industry, and the time is not far distant when the Humpbacks and even the Dog variety of salmon will all be salted, packed and preserved by those engaged in the industry. All of these can be successfully propagated in any of our Puget Sound hatcheries, and there is no question about keeping up the supply of any, and all of these varieties of fish, and those who have become alarmed at the decline of the Sockeye fish need have no fear for the stability of the industry is assured by the production of other varieties.

COHOES, OR SILVER SALMON.

Since the year 1900, we have been propagating Silver Salmon at all of our Puget Sound hatcheries, it being one of the best varieties of pink fish, and this year the results of our hatcheries have been felt by one of the largest runs of Silvers that has ever been known in the waters of Puget Sound, but what is of equal satisfaction to the fishermen, the prices have been firmer with each succeeding year, and notwithstanding the large run the present season, the price was uniform at 20 cents during the entire season, as much and even more than has been paid for the Sockeye in years past.

CHINOOK, OR SPRING SALMON.

The hatcheries that were originally built on the Sound were not erected in view of propagating Chinook or Spring Salmon, and as a consequence, this variety of fish has not been extensively propagated in this district. The department has, however, by making some changes and improvements at the Dungeness, Sultan and White River hatcheries, been able to take quite a few of this variety of fish. By another year the department expects to perfect changes that will enable it to turn out no fewer than ten to twenty million of these fish annually from its Puget Sound hatcheries. The importance of this work is of such necessity that I have caused the south fork of the Nooksack and Skagit rivers to be prospected the present season, with a view to establishing



ROYAL CHINOOK SALMON, (*Oncorhynchus tschawytscha*).

Spring Salmon hatcheries on these respective rivers, and I herewith submit the report of the department's investigation thereof.

HON. T. R. KERSHAW, *State Fish Commissioner,*

Dear Sir:—In accordance with your instructions to make an investigation with a view of establishing a Spring salmon hatchery on the south fork of the Nooksack river, I beg leave to submit the following:

I left Bellingham on the 17th of September, arriving on the south fork on the 18th. I investigated the condition there thoroughly for three days, and found conditions to exist as follows:

There are excellent spawning grounds, both in the south fork and its tributaries. I found a number of fish, commonly called Spring salmon, on the riffles in the river and creeks spawning. A number of them were through spawning and in a decaying condition, and still others which had spawned earlier in the season were dead and scattered along the river. Indians caught a large number of these Spring salmon the latter part of August and the first part of Spetember, and were smoking and curing them for their winter's supply.

There are two excellent sites for a hatchery on this branch of the river, namely, Hutchinson's creek and Skookum creek. Skookum creek would be preferable in every respect, except for the fact that a number of the salmon spawn further down, and you would not be able to get as many eggs as you would at the Hutchinson creek, where you could get practically all the fish that run up this branch of the river, and therefore I would recommend the Hutchinson creek for a site in preference to the Skookum creek. You could secure a splendid and very cheap gravity system of water to supply the hatchery at either of these places. The water in the river at this time of the season, namely, during August and September, when the Spring salmon run, is at a very low stage, and can be handled very cheaply. I should say that the racking of the river to catch and hold these fish would not cost to exceed $100 each season.

There are saw and shingle mills in the immediate vicinity and building material can be had very cheaply. I believe that a hatchery, with a capacity of from one and a half to two million, of these Spring salmon eggs, can be built at a cost of $500, or, less, taking troughs, riffle plates and other supplies from other hatcheries which are not now operated. I believe from the investigation I made, it would be a conservative estimate to say that you could secure from one and a half to two million of these Spring salmon eggs each season.

Respectfully submitted,

JOHN L. RISELAND, Deputy State Fish Comm'r.

HON. T. R. KERSHAW, *State Fish Commissioner,*

Dear Sir:—In compliance with your orders to investigate the Skagit river and its tributaries for a suitable site for the location of a Spring salmon hatchery, I would report that on the 25th day of September, I left Bellingham and arrived at Hamilton on the same evening. I remained in Hamilton until four o'clock the next afternoon, for the purpose of making inquiries, etc., of some of the old settlers as to the streams most frequented by this species of salmon.

From Hamilton I went to Rockport, and there ascertained that quite a number of salmon passed by that point. The next morning I proceeded to Marble-mount and began my investigations. I investigated Diobasy creek, Bacon creek and the Cascade river, and found that some Spring salmon spawn in Diobasy creek, but not enough for a good hatchery location. On Bacon creek I found very few signs of any fish spawning in that vicinity. In the Cascade river I found that there were a great many Spring salmon spawn, and that enough spawn could be taken on that stream to supply a good sized hatchery. However, the waters are so swift and deep that it would require a good deal of money to erect racks, etc., to control this stream.

After thoroughly examining this part of the country, I went to the Sauk river. I found that the majority of the Spring salmon that passed up the Skagit river spawned in the Sauk. They begin spawning a few miles from the mouth and spawn all the way up the river for a distance of twenty-five to thirty miles, quite a number going up the Sueattle river. I explored this stream for quite a distance. It is a very rough mountain stream and is also hard to control. However, by building a strong rack near the mouth of the stream, the salmon can be made to change their course to directly up the Sauk. About fifteen miles from the mouth of the Sauk I found a good hatchery site. At this point of the river there are a number of small islands, and in all the channels between these islands I found good spawning grounds. In one channel in particular I saw a number of Spring salmon still spawning. A greater part of the run of this species of salmon spawn during the month of July and early in August. I also found that this season a great many of the Spring salmon spawned in the main Skagit. This was due, to a great extent, to the fact that the waters in this stream have been lower than has ever been known before.

Having investigated all of these spawning streams, I came to the conclusion that the greatest amount of spawn can be taken at the site mentioned on the Sauk. I wish to state, however, that there is a splendid site about fourteen miles further up the river, but of course the same amount of spawn could not be taken, as a

great many of the fish spawn between these two sites. In order to obtain nearly all of the spawn in the Sauk river, it would be necessary to build on the site fifteen miles from the mouth. This would be an expensive plant to construct; buildings and equipments will not be more expensive than at other sites, but controlling the stream with racks, etc., would require quite a sum of money, as they will have to be constructed of very heavy timbers and a great amount of work done in the water. On the site fifteen miles further up the river a hatchery could be built much cheaper, probably for one half the amount it would take to build one on the lower site, but of course it could not be expected to take the amount of spawn. I found plenty of good springs, creeks, etc., for water supply for the hatchery, timber in abundance and everything necessary for the location of a good Spring salmon hatchery.

After having concluded my investigations on the Sauk, I returned to Bellingham.

Respectfully submitted,

JOHN M. CRAWFORD, Supt. of Hatcheries.

The importance of the propagation of this variety of fish cannot be over-estimated. In flavor, color and richness they are equal to the Columbia river Chinook and are of high market value, either smoked, cured, canned or frozen.

CLOSED SEASON.

The law provides that it shall be unlawful to take or fish for salmon in any of the tributaries of Puget Sound during the month of April, and from the 15th day of October to the 15th day of November in each year. In neither instance does the law reach the results the legislature intended it should. The primary object for a closed season in April was a protection for the Steelhead salmon, and whoever drew the bill was unacquainted with the habits of that fish, for it is safe to say that 90 per cent. of the fish have passed up the river before the closed season begins. The Steelhead should have at least two months' protection and that time should be during the months of January and February in each year. The closed season in the fall, from October 15th to November 15th, was for the protection of the Silversides, and while the time may not be out of place, the law is not effective for it does not apply to the Sound as well as to the rivers. During this season many traps are still in operation, as well as purse seines and gill nets, and set netters hug the shore of the Sound in the vi-

cinity of the rivers and intercept the larger amount of fish that are making their way to the spawning grounds. The law should be so amended as to prohibit fishing in all of the waters of the Puget Sound district from October 15th to November 15th of each year.

EXPENSIVE HATCHERIES.

We have today in the state eighteen well-equipped salmon hatcheries, all costing from $1,000 to $4,000 each. In addition to this, each hatchery, with the exception of four, is accomodated with large and commodious residences, costing as much more. The records in this office show that there has been expended the sum of $74,913.93 for the construction and improvement of hatcheries. In my opinion, this large expenditure of the state's finances was wholly unwarranted. To erect commodious hatcheries and palatial residences for the superintendents appears to the department at this time as not being justified by those who had charge of the affairs of this department.. The condition of streams is constantly changing, and what may have been a good hatchery location last year may be a poor one this year. Freshets may and will destroy spawning grounds and a long-continued dry fall, such as we have just experienced, will cause fish to spawn further down the river, and what might have been an ideal hatchery site last year may be removed ten miles distant this year. Therefore, if the legislature thinks it best for this department to erect hatcheries on the south fork of the Skagit and Nooksack rivers, I would suggest that nothing more is necessary than rough board sheds, not to cost over two or three hundred dollars. They will answer all purposes as well as two or three thousand dollar buildings, and the industry will not be much the loser if they should prove failures.

HATCHERIES.

In my thirteenth annual report, I reviewed at some length the condition of each one of the state hatcheries separately. I regarded it necessary at that time that you might be familiar with the titles and condition of the state's holdings. The titles that were defective at that time have since been perfected, with the exception of our water right at the experimental station. The great falling-off in revenue in this department the last two years

SKOKOMISH HATCHERY.

has prevented the operation of all the hatcheries. I have endeavored, however, to keep in operation those hatcheries that produce the best varieties of fish at the least expense. While the people in general regard the department as using its best judgment with the means available, some localities are much disappointed at the closing of what they call their hatchery. This year the Skokomish, Chehalis, Stillaguamish, and Kendall creek hatcheries on the Sound, and the Klickitat, Little Spokane, Colville and Chiwaukum hatcheries on the Columbia river are all closed. The other ten hatcheries are being operated to their full capacity.

SKOKOMISH HATCHERY.

This hatchery was built in 1899 and has been operated continuously ever since. To satisfy the people of Mason county it was kept in operation last year when other and more important hatcheries in the state were closed. It does not produce the best variety of fish, a large per cent of its hatch being Dog salmon, some Silversides but no Spring or Steelheads, and furthermore there is no cannery on Hoods Canal depending upon the output, and for these reasons the department thought it was justified in closing the hatchery for this season, at least, and using the revenue where it would be of more benefit to the industry.

CHEHALIS HATCHERY.

Chehalis hatchery, located on the Chehalis river, in Chehalis county, is another hatchery that is not being operated this year. This hatchery was built in 1897, and was a failure until 1902, when the department caused Satsop river, a tributary of the Chehalis, to be racked about six miles above the hatchery, and succeeded in filling the hatchery for the first time with spawn. In 1903 we again tried the same experiment, but the freshet in the fall carried away our racks, and we only obtained about one million spawn. As the racking of the Satsop costs not less than $600, the department felt the results would not justify the expenditure, but it was not the department's intention to close the hatchery. Arrangements had been made for a superintendent and eggs to be shipped from the Kalama hatchery to supply the same, but the extreme low water in the Kalama river has prevented us from taking spawn enough to carry out our plans. This is the only

hatchery tributary to Grays Harbor; it produces a good variety of fish and it is not the department's intention to close it, except under unavoidable conditions, such as exist the present season.

STILLAGUAMISH HATCHERY.

The Stillaguamish hatchery was built in 1901, is located on the Stillaguamish river in Snohomish county. It has only been operated two years, 1901 and 1902, and then not successfully. The location is not an ideal one, the water system is very poor, there is no place to retain the fish taken, the fishing grounds are very poor and the hatchery is too far down the river. What few fish we have succeeded in getting are mostly all of a very poor variety, and as the department spent over $2,000 last year in improvements on the Sultan hatchery, also located in Snohomish county, we think we were justified in closing this plant.

NOOKSACK HATCHERY.

The Nooksack hatchery has not been operated for the last two years. It is located on Kendall creek, a small tributary of the north fork of the Nooksack river in Whatcom county. It probably is the best equipped hatchery in the state, having two fine residences erected on the grounds, but it is principally a Dog salmon proposition, and as the department needed all available funds in the propagation of better varieties of fish, is the reason it has been closed for the last two years.

WENATCHEE HATCHERY.

The Wenatchee hatchery is another one of the hatcheries that is closed this season. It was built in 1899 and is located on the Wenatchee river, a tributary of the Columbia river in Chelan county, near the summit of the Cascade mountains. The extreme cold in winter, heavy snows, difficulty in controlling the river and the isolation of the plant, makes it a very expensive one to operate, and it is located so far up the river that we cannot secure the best variety of fish. Had it been located below the Tumwater Canyon, further down the river, it would have been less expensive to operate and enable us to secure the early run of Chinook salmon and fulfill the purposes for which it was originally intended, but, located where it is at present, we can only get

an inferior run of Silversides, and as it costs over $6,000 per year to operate it, the department did not think the expense attached to its operation justified the results obtained.

KLICKITAT HATCHERY.

In my thirteenth annual report, the department had this to say:

"This hatchery was built in 1900, but has never been fully completed, and never has been operated. I visited the hatchery in May and fully investigated the condition of the station, and if salmon ever did inhabit this stream, they have long since ceased to make it their spawning ground. The river empties its waters in the Columbia up-stream, making it a very unfavorable condition for the salmon to ascend. I talked with many old settlers and Indians living along the river, and they all informed me that salmon had not been plentiful for years, and for the last few seasons they had become almost extinct. Upon investigation I found that the state had no title to this property, and that it was government land. I immediately notified the Land Commissioner of this fact, and requested him to reserve it as state land, and lease it to this Department for hatchery purposes, but before this was done, someone filed a homestead on the same and cut us off from our good intentions. The state, therefore, has no title to the site upon which this hatchery is located. Early in the season I learned that the Columbia River & Northern Railway Company had located their line through the land and directly across our water line. After considerable correspondence I perfected a settlement with the railroad company for $250 as damages to our water right, but acting under the advice of the Attorney General, he questioned the advisibility of my right to accept the same, and it is doubtful if the state now will ever receive anything, directly or indirectly from this hatchery investment. It is located on the Klickitat river, in Klickitat county, about four miles from the village of Lyle.

LITTLE SPOKANE HATCHERY.

This plant is situated on the Little Spokane river, about ten miles from the City of Spokane, and was built in 1899. The plant has been a failure from the day it was built, and has only been used to hatch out the overplus from the Wenatchee and Kalama hatcheries. It has a capacity of 2,000,000 fry. It was not in operation during the present season, and not enough spawn can be taken at this point to pay for operating the plant. The state

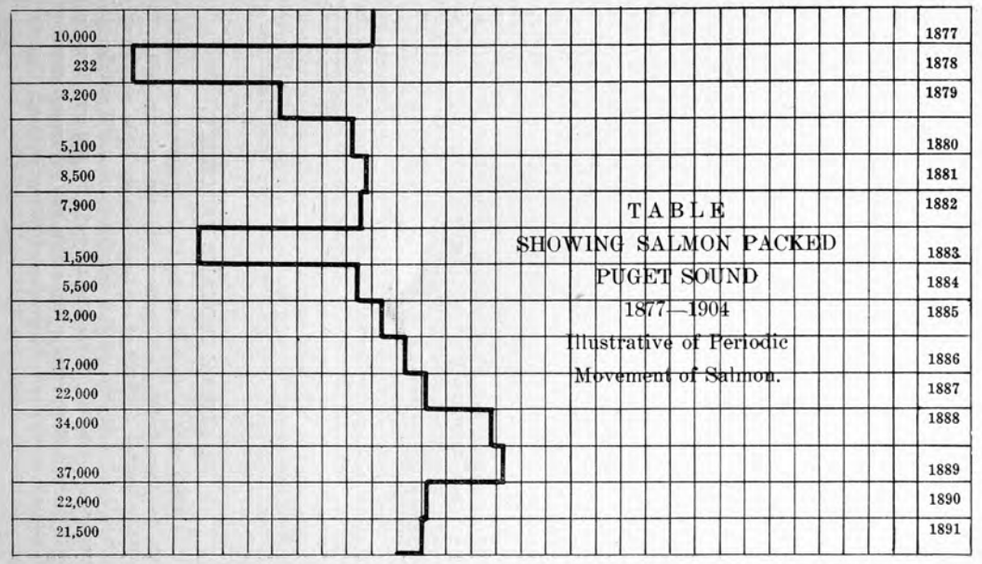
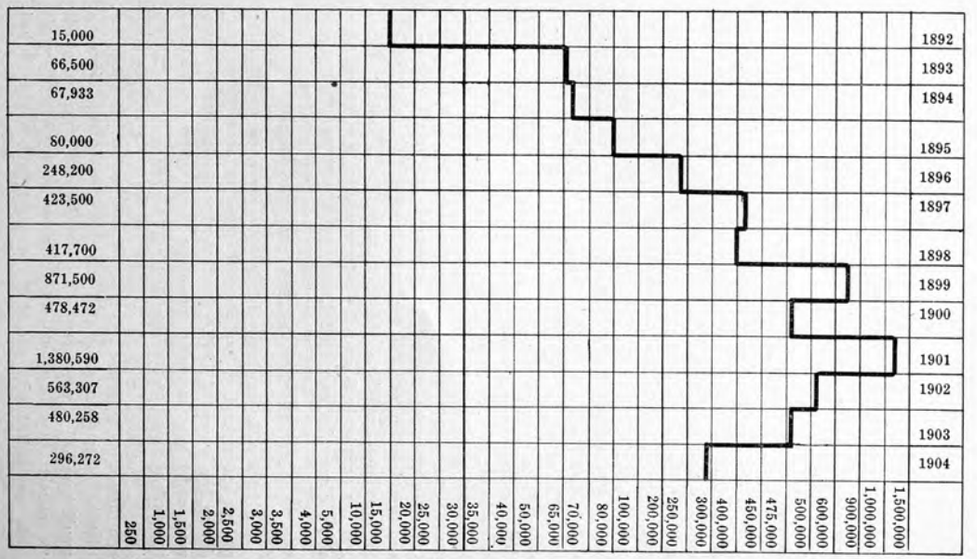


TABLE
SHOWING SALMON PACKED
PUGET SOUND
1877—1904
Illustrative of Periodic
Movement of Salmon.



has a good dwelling house in connection with this hatchery, and has a special warranty deed to 5.18 acres of land, together with a deed to the water right for the supply of the hatchery. I shall endeavor at the coming legislature to make some arrangements to operate it as a trout hatchery.

COLVILLE HATCHERY.

This hatchery was constructed in 1900. It is erected on state land, of which this department has a lease for five years. It is located about one mile from Kettle Falls, on the Colville river, in Stevens county. It was operated in 1901, but only took about 90,000 spawn, and I concluded that the expense of operation would not justify the results obtained, and closed the plant down for the last two seasons. I placed Mr. M. D. Richard in charge, at a nominal salary, with instructions to closely watch the river and report to me the number of salmon that ascended the stream each season, and he reports no salmon so far. I have no doubt that at one time this was a fine salmon stream, but a freshet they had a few years ago changed the entire condition of the river. Instead of emptying its waters down the Columbia, as in former years, it now discharges its waters upstream. The channel of the Columbia river has changed from the east side to the west side, and this, together with the freshet in the Colville river, has left the spawning grounds in the river covered with large boulders, and has completely destroyed whatever natural conditions favorable for spawning ever existed.

HATCHERY WORK IN GENERAL.

All the other hatcheries in the state are being operated the present season, and we had about the same number in operation during the season of 1903. Last year we started our hatchery work under very favorable conditions. Our hatcheries were all in excellent condition and the racks were all placed in the streams in time to intercept any and all fish that made their appearance, and there was the largest run of fish in and around the hatcheries that had ever been seen, and only for climatic conditions we would have had a record breaking season for obtaining spawn, but we no more than fairly got started in our work when the whole state was visited with one of the greatest freshets that it had

experienced for the last ten years. Torrents of water filled every stream and every rack was washed away, and before we could replace them, the fish had passed beyond our control, and where in the beginning of the season the prospects were good for obtaining one hundred million of spawn, we only secured about thirty-eight million. This season it is the reverse of what it was last. Instead of freshets, we have experienced the driest season we have had for years. Streams have been so low that it has been impossible for fish to ascend them, and they have been diverted from their natural spawning streams tributary to the Columbia river to the headwaters of the main river. While our spring and summer hatcheries have done fairly well, our fall hatcheries have been a disappointment to the department. It had been the intention of the department to ship ten to fifteen million eggs from the Columbia river to the Puget Sound hatcheries, and thereby assist in stocking the sound waters with this choice variety of salmon, but the extreme dry season has frustrated our plans in that respect and it will have to be deferred until another year. But the failure of hatchery work for one or even two seasons, need cause no alarm for the industry; these climatic conditions are liable to occur at any time, but neither the Columbia river or Puget Sound districts will be affected materially by disappointed hatchery work for one or two years.

FISHERIES EXPERIMENT STATION.

Why such a Station is Necessary.

It has been but a few years since the fishery resources of our state were thought by many to be practically unlimited. Fish of all kinds, oysters, crabs, shrimp and clams were so abundant that they would be taken in great quantities with the simplest contrivances. As the state became more thickly settled the demand for these things, of course, increased. To meet the demand, more men engaged in the industry, more capital was invested and more specialized methods of fishing were adopted, until today we have hundreds of men with thousands of dollars of capital invested devoting their whole time and energy to catching and marketing the various products of our fisheries.

The demands have been more than a prolific nature could meet. We have found that the supply is not inexhaustible. In

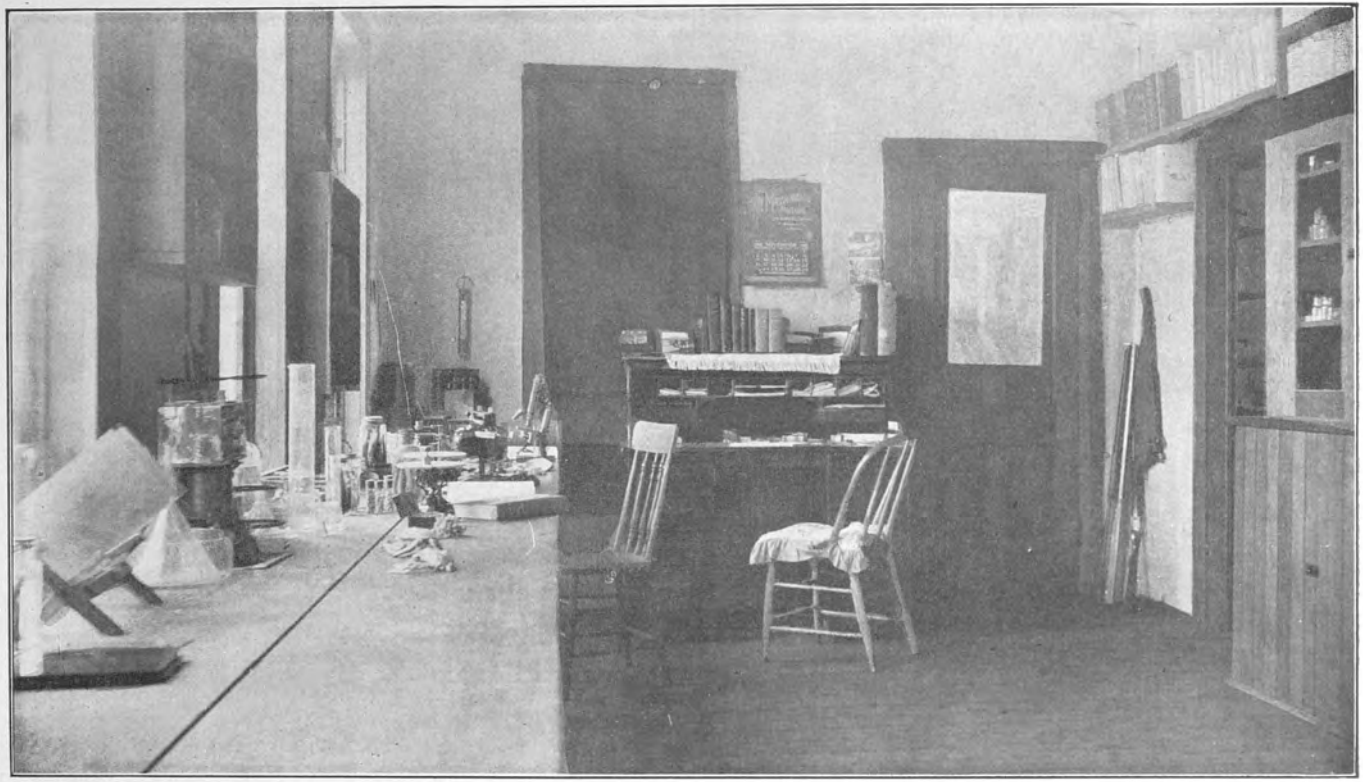
fact we have found that it takes very little of man's interference to so upset the delicate equilibrium that exists throughout nature that a form at one time most abundant may soon be made almost a thing of the past. On Puget Sound the salmon have been steadily decreasing in numbers each year until now even the most optimistic concede that this industry will soon become one of comparatively little importance, unless more active steps are immediately taken to help keep up the supply of fish. Many of the once most productive oyster beds in the state are now barren mud flats, and so all along the line we find that great inroads are being made into this, one of our most important industries.

What is to be done?

There is but one answer. If we wish to continue to reap we must also sow. The wonderful and satisfactory results attending the work of our hatcheries along the Columbia river and other streams shows what may be done along one line of work. The protection given certain oyster beds during important seasons of the year indicates another line, and so we find that the state has already taken the first steps toward the preservation of these industries. But these are only first steps, and, important and satisfactory as they are, must be followed by others if our fisheries are to keep pace with the demands made upon them. As the demands grow greater, the means adopted must be more and more specialized. The methods of yesterday must be supplanted by better ones today if we are to keep up in the race. Each year we learn some new and important things in regard to handling the salmon eggs at our hatcheries, and as fast as may be, these things are incorporated into, or supplant our regular methods of work. But the time of the hatcheryman is too much taken up with the care of the eggs and young fish to allow him much time for study and experiment, and too much depends on his being able to turn out in good condition a large per centage of his season's catch of eggs to allow him to try other than the regularly established methods until new methods shall have been thoroughly tested.

Many important questions regarding the early life history of the salmon still remain unanswered, although it is thought with the answer to some of them will come marked changes in our method of handling the fish.

Experiments already conducted and private enterprise have



INTERIOR VIEW OF LABORATORY AT THE EXPERIMENT STATION.

shown us how our oyster beds may be made to yield more abundant harvests, yet much remains to be done to bring this industry to occupy the place it should among the other industries of the state.

The shrimp, crabs and clams, while seemingly so abundant, are really being sadly over-fished, and there is great need of some definite information in regard to their life and habits in order that they may be afforded proper protection.

These and many other problems of the same nature can only be solved by careful study and experiment, and certainly the wisest, best and cheapest way to solve them is to put them into the hands of trained experts who can devote their whole time and attention to them while working under the most favorable conditions.

THE STATION ESTABLISHED.

Realizing this, the legislature, six years ago, appropriated a small amount to enable the Fish Commissioner to carry on certain investigations in regard to the oyster industry of the state. The results of these investigations were so satisfactory that two years later an experiment station was established where the work with the oysters might be continued and where other problems relating to our fisheries might be taken up and studied. The results obtained during the next two years were deemed so important, that I strongly recommended not only that the work be continued, but that it be extended along important lines as yet untouched. The legislature made an appropriation that would have enabled us, by strict economy, to carry out certain experiments that were then under way, to inaugurate others and to do other work that would have been of great value to the fishery industry and to the state at large. Unfortunately, the governor thought best, in the interest of economy, to suspend the work of the station for two years and then take it up again with renewed energy. How great a mistake this was can only be known by those who were acquainted with the nature of the work that was being done. Had the governor had an opportunity to investigate the matter, we are sure that he would not have vetoed the bill carrying the appropriation for the work.

While much of the work was finished and satisfactory results obtained, many of the experiments were of such a nature that

definite results can be obtained only after two, three or four years of continuous work. As far as possible, however, this gap has been bridged over and we are now prepared to go on with the work again. Further detail of the work as planned with the definite need of it, may be seen by referring to my last report. Briefly indicated, it is as follows:

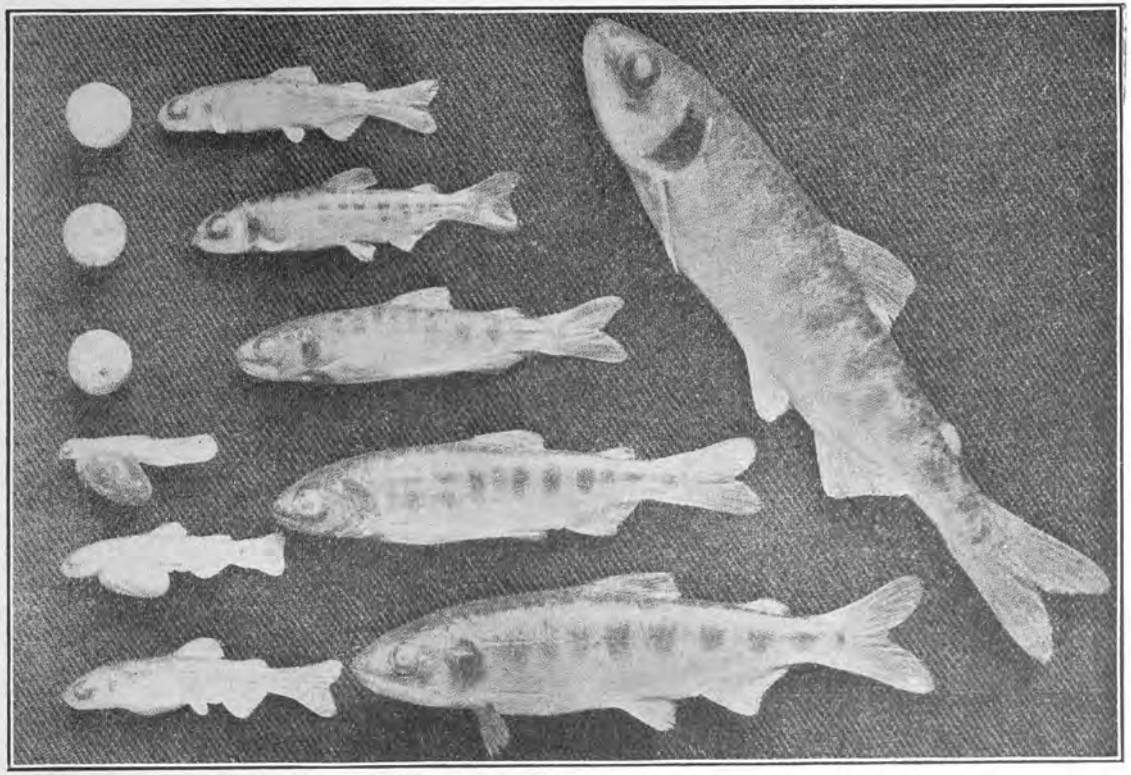
WORK WITH THE SALMON.

STUDY OF THE EGGS—Although with our present methods of work a very large per centage of the eggs taken are hatched, there are still many perplexing and important questions that are constantly confronting the hatcheryman. It is the aim and has been the policy of the experiment station to take up these problems and study them under favorable conditions existing there, and to devise means whereby the results obtained may be made useful to the hatcheryman.

STUDY OF THE YOUNG SALMON—What has been said of the eggs applies quite as well to the young salmon from the time they are hatched until they are ready to begin feeding. The problems that confront the hatcherymen are here more numerous and perhaps more important. The work already accomplished at the station along this line indicate that this field is promising of important results.

Most important of all, however, is the work done on the young fish after they reach the stage where they are ordinarily taken from the hatchery and turned into the streams. Many interesting experiments and observations have been begun that have already thrown much light on this little known but very critical period. The feeding experiments have been very suggestive and the study of the habits and movements in the streams before going down to salt water are helping us to determine how long it is best to keep them at the hatcheries.

HABIT AND FOOD WHILE IN SALT WATER—Little is known of the food or habits of the salmon after they enter salt water until they return to spawn. With the facilities we hope to have at hand during the next few seasons, it is hoped that much may be done along the line of investigation. The subject is a very important one.



DEVELOPMENT OF CHINOOK SALMON.

(1) Egg just fertilized; (2) 30 days after fertilization; (3) 60 days after fertilization; (4) just hatched; (5) 30 days old; (6) 60 days old; (7) fed for 30 days; (8) fed for 60 days; (9) fed for 90 days; (10) fed for 120 days; (11) fed for 150 days; (12) fed for 180 days. Reared and fed in nursery ponds and tanks at the Fisheries Experiment Station. (Slightly reduced.)

OTHER FISH.

Considerable work on other fish of commercial importance has been planned, and some of it is now under way, but the details of this work need not be discussed here.

WORK WITH THE OYSTERS.

The work with the oysters has been the principal work undertaken by the station. We refer again to our last report for the detailed results of this work. Many important points in regard to the life history and habits and methods of handling both the native and eastern oysters have been investigated and established, and the present great interest in the oyster industry is due in a large measure to the work and influence of the station. The industry has developed so rapidly within the last four years that there is urgent need for more definite knowledge concerning the habits, food, etc., of the oyster from the time the egg begins development until the oyster reaches maturity.

EASTERN OYSTERS—The results of the experiments already conducted with the eastern oyster seem to indicate that the temperature of the water during the spawning season is subject to too great and sudden changes for us to expect to get more than an occasional oyster in the open bays. The experiments with more or less closed areas, especially where the temperature can be controlled to some extent, are still promising of good results. It is expected that quite a series of experiments will be conducted along the lines thus indicated. Practically all the seed oysters that have been shipped to this coast have come from Connecticut and Massachussetts. It is proposed to make a series of tests with young oysters from some of the more southern states, and, if possible, from some localities further north, such as Prince Edward Island. These tests should be of direct interest to all engaged in the industry.

JAPANESE OYSTERS—A few more or less successful attempts have been made to introduce the Japanese oyster into our waters. These have been made by private parties or companies who do not care to make the results public. It is believed that with proper handling before shipping and proper care during transit, the seed oysters can be brought from Japan much cheaper than from the

east. The oysters that it is proposed to experiment with attain a good size and shape, and are said to possess an excellent flavor.

NATIVE OYSTERS—Although we have been cultivating, in a way, the native oyster for several years, there are many questions in regard to it that are still unanswered. Why do we get a good set one season and not another? Why is the set good on one bed or in one locality and not good on adjacent beds or other localities? Why are the oysters so poor certain seasons or in certain localities while they are good in others? These and many other questions are of vital interest to the oystermen, and it is of the utmost importance that much work be done towards answering them. The experiments conducted at the station have done much toward working out the life history of the native oyster, and the results are already of great benefit to us in helping to determine the best methods of cultivation to adopt.

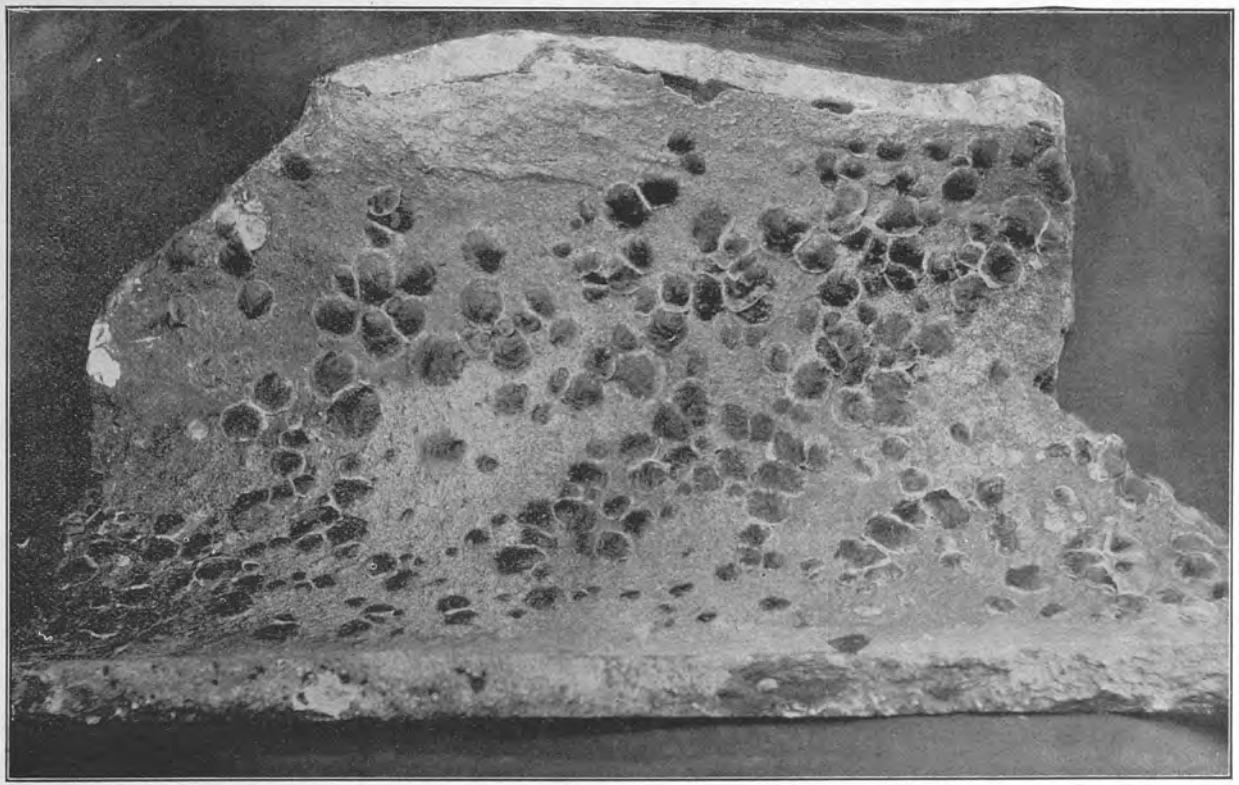
WORK ON OTHER SHELLFISH.

Work with crabs, shrimps and clams must necessarily at first be along the lines of studying their life histories and habits until we learn something more about them; then we can go about experimenting with them and protecting them intelligently. Unless the work is done on them in the near future, we will find these fisheries in a very depleted condition, whereas with proper fostering they can be made of increasing importance.

The United States Fish Commission has signified its willingness to help us in introducing the eastern lobster and other forms into our waters, and it is important that these experiments be carried on under the direction of the experiment station in order that the results may be definitely known.

PROVISIONS FOR VOLUNTARY WORKERS.

The experiment station, located and equipped as it is, offers unusual facilities for work and we have received inquiries from scientific workers, not only on this Coast but from eastern institutions as well, asking if arrangements could not be made so they could come here to carry on their investigations during part of the year. The presence of such workers would undoubtedly be of great value to us, as there is scarcely a subject that they would be likely to take up that would not bear more or less directly on our



NATIVE OYSTERS.

Three months old, attached to piece of whitewashed tile; set and reared in one of the floats at the Fisheries Experiment Station. (About one-third natural size.)

fisheries. The fauna and flora of our waters is so great, and there has been so little work done that there is urgent need for many workers. It is believed that the expense of providing more laboratory room and adding little to the equipment of the station would be but little and the results would be valuable, far-reaching and lasting.

EQUIPMENT AND EXPENSE.

The station is centrally located in a place well adapted to its purpose. The buildings are located on school land which is leased for a term of years and which could be bought for a nominal price. The bay where many of the oyster experiments are conducted is a natural oyster bed and is reserved for the use of the station. The improvements consist of a laboratory and hatchery building, a small cottage, an engine house for the pumping plant, fifteen hundred feet of flume to carry the water to the hatchery and nursery ponds, a series of seven nursery ponds connected by small streams where many of the experiments with the salmon and trout are conducted.

The laboratory is well equipped with microscopes, microtomes, dissecting tools, thermometers, glassware, chemicals and reagents, etc. At present there is nothing like a complete collection of our fish or fishery products to be found in the state. It is proposed to begin at once and in a systematic way the building up of a collection, and in order that it may be properly stored and cared for, a small sum will need to be set aside for purchasing containers, preservatives, etc. Such a collection would be of particular value because of our unusual facilities for collecting.

OYSTER INDUSTRY.

In my last report I made the following statement: "As great as is our fishing interest, the oyster industry, if carefully fostered and protected, will in a few years be the leading industry of the state."

I am now more thoroughly impressed with the correctness of this statement than ever before. The value of inquiries that I have received from every state in the Union, and from every class of people in the last two years, is wonderful the amount of interest that is being developed in this industry. A large number of in-

dividuals, as well as corporations, have recently opened up new oyster farms, and capital is easily obtained for the development of all farms that are being operated by conservative people in a conservative manner. When suitable grounds are located where tides have a direct bearing on the industry, and is handled by men who understand the business, I know of no legitimate enterprise that will yield so large a return for capital invested as oyster culture. There are several cultivated farms in this state that are yielding an annual profit of $1,000 per acre. Of course there are many farms that are not doing so well, and many that are, or will be, total failures, for the reason that the farmer is not acquainted with the business, and is trying to grow oysters on non-productive land. There have been thousands of acres of second class tide lands filed upon under the Oyster Act that never have been, or never will be oyster land, so eager have been the people of this state to secure an interest in this coming industry, and until oyster culture becomes better known to the people at large, there will be a great deal of money lost, as well as made, to those engaging in the enterprise.

There have been a great many corporations formed the last few years for the cultivation of oysters. In most cases. parties will secure a tract of second class tide land and call it oyster land, capitalize the company for fifty or one hundred times the value of the land. It makes a flattering showing of great profits in its prospectus, and with the assistance of plausible agents, have no difficulty in selling small blocks of stock to persons who are unacquainted with the industry, and generally to people who can least afford to lose the money.

Of course there are exceptions; there have been organized and are existing today, legitimate corporations engaged in oyster culture, corporations that have good land, have men at the head of them that understand the business and are not over-capitalized. and people holding stocks in these companies will reap a good dividend for their investments, but so eager have the people become to engage in oyster culture and obtain some hold in the industry, that since the enactment of the law there have been 592 applications to purchase oyster lands received and accepted by the State Land Commissioner, aggregating a total of 19,873.70 acres, of which 9.70 acres are in Chehalis county; 1,253.22 acres are in

Kitsap county; 142.27 acres in King county; 2,836.21 acres in Mason county; 1,707.77 in Thurston county; 9,844.21 in Pacific county; 734.14 acres in Pierce county; 632.77 acres in Jefferson county; 2,628.45 acres in Skagit county and 84.86 acres in San Juan county; and in addition to this there are applications on file in the State Land Commissioner's office aggregating 3,000 acres that have not yet been accepted.

EASTERN OYSTERS.

This industry has been somewhat handicapped the last two years on account of the failure of the oyster set on the Atlantic coast, which has made it very difficult to obtain seed from the eastern market, and what seed was obtained was mostly two years old instead of seedlings, but reports from the eastern states this fall indicate one of the best sets of spat they have had for years, and next year will probably be a record breaking season for the planting of eastern oysters in our waters.

NATIVE OYSTERS.

The outlook for native oysters was never better in the history of the state than it is at the present time. Those engaged in the industry are becoming better acquainted with the condition of their beds with each succeeding year, their beds are becoming more productive, and as the flavor improves with cultivation, the demand becomes greater every season. Reports from all the state reserves and private beds show a large increase in production, and prices remain firm.

STATE RESERVES.

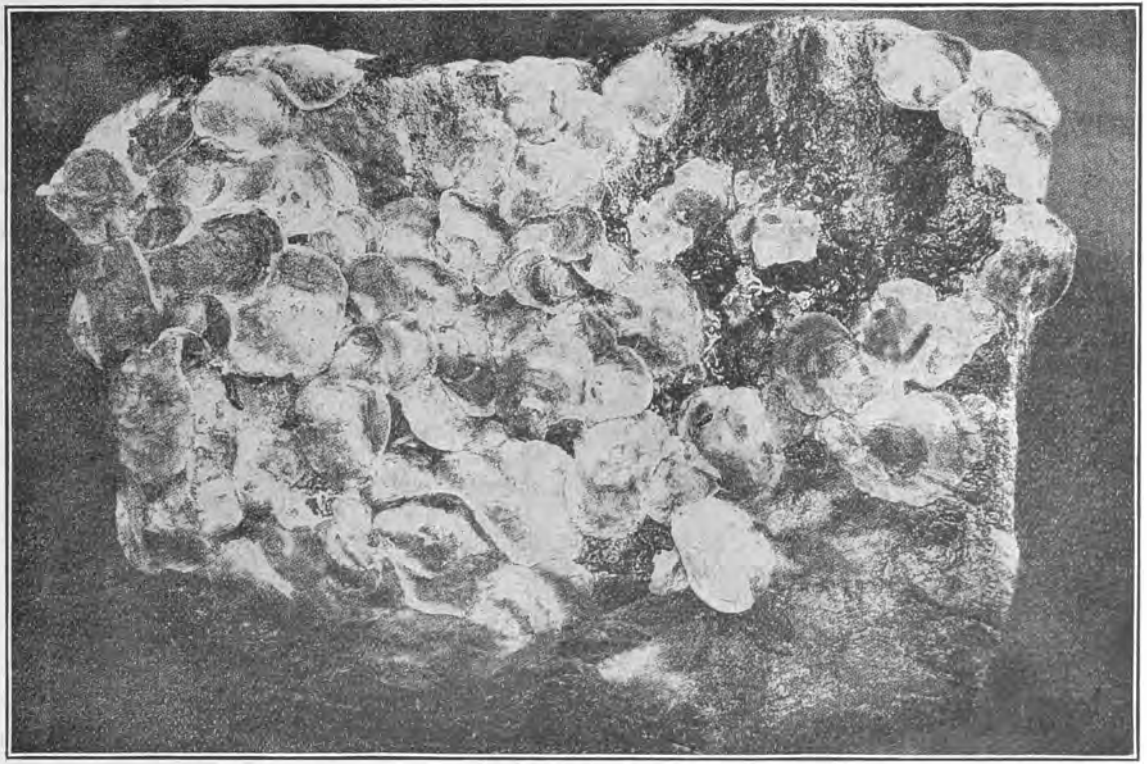
Two years ago the legislature passed a law having in view the improvement and protection of our state reserves. The governor, land commissioner and fish commissioner were constituted a board to carry out the provisions of the act, and in order that the board might be familiar with the condition of our state reserves, the fish commissioner devoted six weeks of his time and personally inspected every reserve belonging to the state, and he found so much difference in the quality of the land and conditions surrounding the same, that he has divided them into three classes. First class reserves are those producing seed oysters; second class

are those that have a few native oysters and can be made productive in a few years by expenditure of a reasonable amount of money; third class, those that have none, or scarcely any oysters on them and cannot be made productive for a long time to come, and then only at a great outlay of money. The following reserves we think properly belong to their respective classes.

Plat.	Name.	County.	Acres.	Class.
139	Hammersley's Inlet	Mason	284,691	First
138½	Cases Inlet	Mason	193,030	First
138	Clifton Reserve (Hoods Canal)	Mason	503,699	First
137	Dewatto Bay (Hoods Canal)	Mason	62,409	Second
133	Lilliwaup (Hoods Canal)	Mason	164,816	Second
98	Cases Inlet (Oak Island)	Mason	23,130	Second
135	Tuhayeh Bay (Hoods Canal)	Mason	31,689	Second
136	Hummaumma River (Hoods Canal)	Mason	44,058	Second
131	Chinion Pt. (Hoods Canal)	Mason	21,046	Second
132	Tuhayeh Bay (Hoods Canal)	Mason	14,530	Third
134	Skokomish River (Hoods Canal)	Mason	22,680	Third
135	Union City (Hoods Canal)	Mason	193,130	Third
90	Dog Fish Bay	Kitsap	92,930	First
87	Pt. Orchard (St. Clairs Inlet)	Kitsap	107,300	First
89	Dog Fish Bay	Kitsap	81,490	Second
59½	Ostrich Bay (Dyes Inlet)	Kitsap	214,821	Second
86	Ostrich Bay (Dyes Inlet)	Kitsap		Second
88	Ostrich Bay (Dyes Inlet)	Kitsap		Second
93	Docewalips River (Hoods Canal)	Jefferson	296,486	First
93	Duckabush River (Hoods Canal)	Jefferson	159,372	Second
93	Jackson Cove (Hoods Canal)	Jefferson	15,250	Second
58	Quilcene Bay (Hoods Canal)	Jefferson	557,860	Second
93	Fulton Creek (Hoods Canal)	Jefferson	80,787	Second
61	Discovery Bay	Jefferson	145,140	Third
58	Dapop Bay (Hoods Canal)	Jefferson	85,450	Third
99	Tottem Inlet (Oyster Bay)	Thurston	951,780	First
102	Eld Inlet (Mud Bay)	Thurston	133,170	Third
	Long Island Slough	Pacific	778,830	Second
	Bay Center	Pacific	254,520	Second
	Willapa River	Pacific	476,500	Second
	Long Island	Pacific	7,046,350	First
	Nemah	Pacific	2,677,000	First
	Total		15,683,944	

RE-SURVEY OF RESERVES.

Among the provisions of the law enacted by the last legislature, was that the Oyster board should, or on before October 1st, 1903, cause a resurvey of all the state reserves, and have the boundary lines well-defined by stone monuments, etc., and for this work and for the salaries of patrolmen and other expenses, they appropriated the sum of $5,000. The time was too short



NATIVE OYSTERS.

One year old, attached to rock; set and reared in one of the floats at the Fisheries Experiment Station. (About two-thirds natural size.)

and the amount appropriated entirely inadequate for the board to do the work contemplated by the legislature. The board thought it important that the productive reserves should be resurveyed and the boundaries defined as the law specified, but the appropriation was exhausted long before the work was completed, and $1,819.65 was drawn from the harbor and area fund to complete the work that the board considered absolutely necessary to be done. Like all other innovations, it was a hard matter at first to make the oyster men see that the ultimate result of enforcing the law was for their own protection. In years gone by, they had been accustomed to take oysters when and where they pleased from the state reserves, and to be restricted by the board from tonging oysters at all times was an innovation which was hard for them at first to understand, but they soon got accustomed to new conditions, and they all adapted themselves to the new state of affairs as peacefully as could be expected.

In the year 1903, there was received by the Department in the Willapa Harbor district for licenses issued and tonging from the state reserves, the sum of $2,373.45, and in 1904 the sum of $2,039.90. From the Puget Sound district in the year 1903, the sum of $213.00, and in the year 1904, $1,423.50, and there is now in the state treasury to the credit of the Oyster fund the sum of $6,049.85 revenue received from issuance of licenses and the sale of seed oysters from our state reserves, together with $3.12 unexpended from the $5,000 appropriated, making a total of $6,052.97 in the state treasury to the credit of the Oyster fund. To come out of this will be $887.40 in deficiency bills, leaving a balance of $5,165.57 in the state treasury, or an excess of $167.57 in the treasury to the credit of the Oyster fund, after returning the $5,000 to the general fund, as the law directs.

If the legislature would extend the time two years in which the board could refund the $5,000 appropriated, it would be a great benefit to the industry and facilitate the board in the prosecution of its labors. The revenue from our state reserves is sure to increase with each succeeding year and the board anticipates no further embarrassments along financial lines.

When the board first took charge of the oyster industry, they found 8,680.816 acres included in the state reserves, of which 4,389.182 acres were in Pacific county; 1,039,285 acres in Jef-

ferson county; 512.347 acres in Kitsap county. The board has, within the last two years, added to this 7,003.128 acres, of which 6,844.118 acres were in Pacific county; 113.710 acres in Mason county and 45.300 acres in Thurston county, making a total acreage of 15,683.944 in the state oyster reserves.

In my thirteenth annual report I recommended that the state sell certain portions of its reserves, and I still think it would be to the best interest of the state and the industry if some of the non-productive beds were sold to parties who could afford to bring them to a state of high cultivation, and the money received from the sale of such land be used to bring our productive beds to a greater state of perfection. The state would thus receive a revenue from direct taxation, and the more improvements put upon the producing beds, the greater the revenue that will be derived from the sale of seed oysters, but the greatest care and most careful discretion should be exercised before any of the land should be offered for sale, and such safe-guards thrown around the transfers as to prevent it from being bought up by speculators or any one person, firm or corporation controlling any large area of the same. If the legislature thinks it wise that any of the state reserves should be sold, I believe it would be to the best interest of the state and industry that the act specifies what reserves are to be sold; then divide the reserves in tracts not to exceed forty acres in area, and provide further that no person, firm or corporation can purchase more than one tract, and that no deed shall be issued for the same until, a certain amount of money has been expended on the land in the way of improvements and a certain number of acres have been actually planted with oysters. This would bring some of our barren reserves under cultivation, and the state would be benefitted in the way of direct taxation and the industry by more productive ground. But in no case should any of the state reserves lying in the Willapa Harbor district or the producing beds in the Puget Sound district be sold, for with proper management the state will, in a few years, receive large revenue from the sale of seed oysters from these producing reserves.

CRABS.

Few, even of those most closely in touch with the fisheries of the state, realize the importance of our crab and shrimp industries.

Several species of our crabs occur in more or less abundance, three reaching a fair size and being used for food. Only one, however, (*cancer magister*) is found on the markets. In former years, very large specimens of this fine species were taken in great numbers, Dungeness becoming famous for its fine crabs, but recently it is becoming more difficult to find specimens there large enough to meet the market requirements, and other places, such as Blaine, Point Roberts, Anacortes, Port Townsend and Willapa Harbor are furnishing most of the supply.

Two or three attempts have been made to can these crabs, but the undertakings have not yet proved a financial success.

Two grades appear on the market, firsts, measuring seven inches and over, and seconds, measuring six inches and over. The proportion of seconds is becoming larger each year, and efforts are being made to put even a smaller crab on the markets. Only males are marketed, the females, being smaller, are thrown back when caught.

Little is known of their life history. The females probably lay their eggs during the summer or fall months and carry them for several months before they hatch. It is very desirable that we know more of their breeding habits and early life history in order that they may be given proper protection at this time. If something is not done to regulate this industry soon, it is sure to suffer even more than it has in the past. With our present knowledge, it is difficult to say just what is best to do. Most of those interested in the industry, however, are agreed that it would be well to pass a law prohibiting the taking of any crabs less than six inches across, either for the market or for canning, and establishing a closed season during the summer months, from June 15 to September 15. During this time the crabs are quite light, and many of them unfit for market, and there is consequently not only a considerable loss of crabs, but both the fisherman and the dealer find it unsatisfactory to handle them at this time. A rest from fishing would undoubtedly have a beneficial effect on the supply, as many of the crabs are breeding at this time.

SHRIMP.

Several species of shrimp are found in our waters but only three or four of the larger and more common forms reach the

market. The largest of these, (*Pandalus platyceros*) known as "spots" is in greatest demand, and has been found most abundantly in Hoods Canal. The smaller and more abundant "pinks" (*Pandalopsis dispar* and *Pandalus borealis*) are found in several places on the Sound, the beds in Hoods Canal furnishing by far the greatest portion of the supply at present. Occasionally the "coon stripes" (*Pandalus danae*) are found in great abundance, a bed recently discovered near Orcas Island furnishing excellent fishing for all the boats for some weeks.

As the shrimp are usually found at a depth of from one hundred to three hundred feet, they are taken with considerable trouble and expense. Beam trawls operated from small steamers is the only method that has been used here on the Sound, although in other sections of the country beach seines or set nets or traps are used almost exclusively.

Little is known of the habits of our shrimp, and practically nothing of their life history. The fishermen find them in schools on beds that may be large or small, according to the locality. Having located a school, the grounds in that vicinity are dragged back and forth many times a day, until the shrimp are nearly all taken, or the school is broken up and scattered, not to appear again in that locality for some time at least. Where only one boat is fishing on a bed, the fisherman may, by using judgment, make the supply last for a considerable time, but where all the boats immediately rush in and begin work on a newly discovered bed, the ground is worked over so often and so indiscriminately that the shrimp are soon gone.

Until we know more about the shrimp but little can be done in the way of regulating the industry. This much seems desirable at this time, however; first, the nets should be made to pay a license the same as other nets. The fishermen themselves have asked for this, as they believe, and rightly, that it will conserve their interests. Second, some arrangement should be made whereby a boat discovering a new bed shall have the exclusive right to fish thereon for a certain length of time. Unless this is done, the work of exploring and seeking new beds rests with one or two of the more progressive boats, the others laying by ready to join in whenever a good bed has been discovered. This would also have the effect of stopping the very great destruction of shrimp due to the fishermen

LOBSTER WITH EGGS.

taking more than they can sell on the market. If a fine bed is discovered, each boat takes as many shrimp as possible ,knowing that if they do not take them, the other boat will. The market is thus flooded, and in an effort to get rid of the catch, the prices are cut until there is not only no profit, but often an actual loss in handling them, and still many have to be thrown away because they cannot be sold. If one boat had the exclusive right of fishing on certain beds, they would only take what they could sell at a profitable rate, and thus the shrimp and the fishermen would both be benefited.

There are several ways in which this might be brought about. A law might be enacted allowing the fisherman to lease any beds that he might desire at a very nominal rental, or the Fish Commissioner might be empowered to issue a special permit to any boat discovering a new bed, giving it the exclusive right of fishing on that bed for a specified length of time.

We believe that some such regulations would be helpful to the industry at this time, and earnestly urge again the necessity of further study being made on the life history and habits of these forms, not only for the sake of the shrimp industry itself, but on account of the very important bearing it has upon our other fisheries as well. It is well known that these small crustaceons form no inconsiderable part of the food of many of our important food fishes, and for this reason, if for no other, a very careful study should be made of them.

LOBSTERS.

We desire to again call your attention to the desirability of introducing this important food fish into our waters. All who are familiar with the conditions here and along the Atlantic coast, express surprise that no further efforts have been made to introduce the eastern lobster into Puget Sound. The experiments made by the United States Fish Commissioner some years ago were not extensive enough to determine any thing definitely. They have not been followed up to find whether they were in any way successful or not. The Commission has, however, expressed a willingness to help us in making other experiments if we will take the initiative. The matter is such an important one, means so much to our fish-

eries, and give such promise of success, that it deserves immediate and earnest attention.

CRAWFISH.

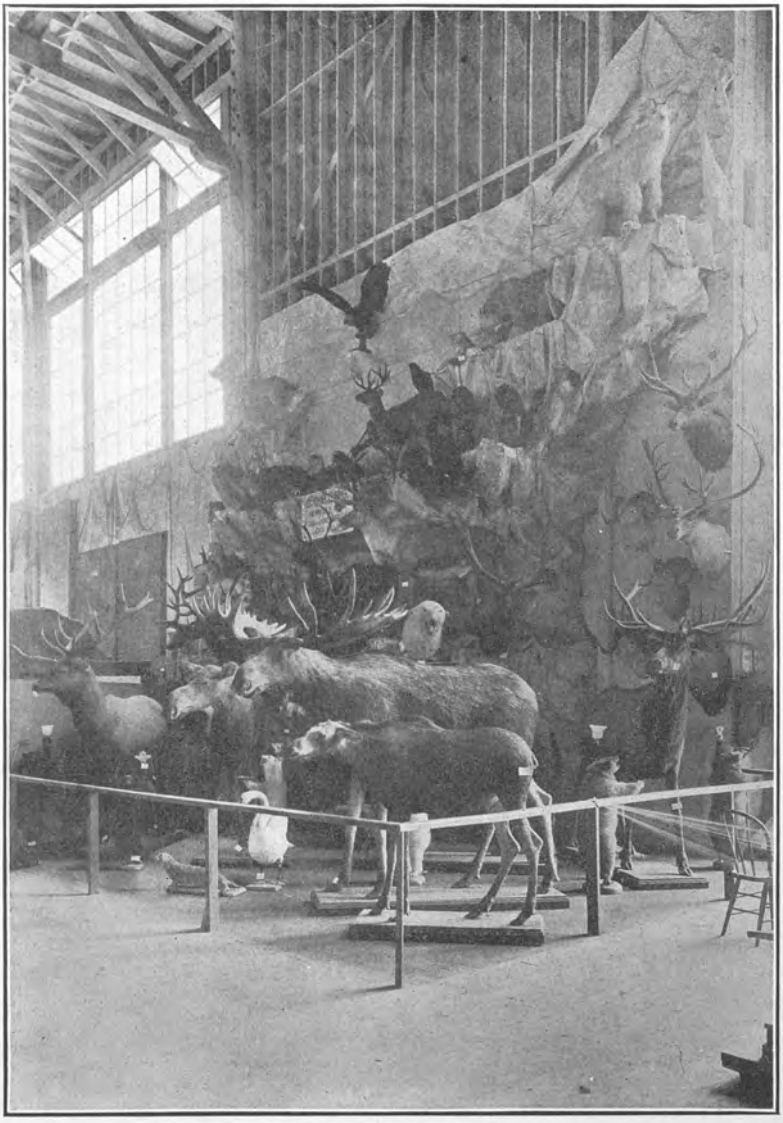
Since introducing the crawfish as noted in our last report, occasional observations have been made to see how they were thriving. While nothing definite can be stated in regard to them, there is every indication that the experiments are going to prove successful, for a number of young specimens have been seen at various times in Island Lake, where some of the shipments were planted.

CLAMS.

Each year the clams are becoming of more importance on our markets. The demand is growing rapidly and the supply is decreasing still more rapidly. In Bellingham, Seattle and Tacoma only the "little neck" or "hard shell" clam is found on the market to any extent. These are dug mostly by the Indians from the gravely beaches and sold to the dealers who pay from $1.00 to $1.25 per sack. One Indian will dig from one to three sacks on a tide.

Around Olympia both the "little neck" and the "butter clam" are used extensively. Many of these are dug by the whites who find this profitable employment. The large "Washington clam," formerly so abundant, is still used very largely by those living near the beaches, but it is not found in the markets and in many places where it was once abundant it is hardly known now. The "Eastern clam" is now found on nearly all our beaches that are adapted to it, and in many places reaches a considerable size. It will sooner or later find a place on our markets. On Willapa Harbor it is used almost to the exclusion of all other clams except the "razor clam." This latter is found along the clean, hard, sandy beaches, and by many is considered the best of all our clams. They are seldom seen on our markets, probably because the shells are so fragile that it is difficult to ship them. They are found on the Portland markets, however, where there is a good demand for them.

The large "geoduck" is fast becoming a thing of the past. In former years, speciments weighing six pounds or more were not uncommon, but only occasionally are specimens of any size found now. We have too long assumed that the supply of clams was in-



STATE OF WASHINGTON GAME EXHIBIT WORLD'S FAIR, ST. LOUIS, MO., 1904.

exhaustible, but where ever the digging has been carried on at all extensively, the fallacy of this assumption is quickly shown. Not only are the "geoduck" and the "Washington clam" fast disappearing, but the "razor clam" is particularly quick to show the effects of over-fishing. Even the abundant "little necks" and "butter clams" are yearly becoming less abundant; many beds that were once wonderfully productive, yielding little or nothing at present.

Unless some protection is afforded this industry, in the near future it will soon be in such a depleted condition that it will take years to bring it back to anything like it should be. On the other hand, if it is properly protected, it will soon rank high among our fisheries.

OTHER SHELLFISH.

With our abundant supply of crabs, shrimp, oyster and clams, but little attention is usually paid to many of the less important of our shell fish, yet some of them are taken quite abundantly and form no inconsiderable part of the food supply of certain classes.

Do not understand that I am taking a pessimistic view of the future of our shell fisheries. This is far from being the case, for I believe we are only beginning to realize the importance of them, and that they are destined to take a still higher rank among our fisheries. I have tried, however, to sound a note of alarm and to point out some of the reasons why these various forms need protection in the way of regulating the fisheries and the need of further knowledge concerning them in order that we may not be working in the dark. Other countries and other states show the results of neglecting these things, but we do not have to go outside our own state for examples to show the result of indiscriminate fishing and destruction of many forms. But our fisheries are comparatively new, and just now is the time that a little work will count for a great deal. After a while, if proper steps are not taken now, it will take hundreds of dollars to do what a few dollars would at the present time.

As I learn of these forms Iam more and more impressed with the dependence one upon the other. Take the case of the shrimp and crabs, for instance; we can hardly realize the important place these occupy in the food supply of many of our food fishes, and if the supply of these is cut off, it cannot but seriously affect other

lines of our fisheries. In this connection I believe that more attention should be given to the indiscriminate destruction of many of our small fish, such as smelt and herring. I have seen the beaches so covered with small herring that the stench arising from their decaying bodies was sickening. They had been hauled high on the beach by the fishermen, where the largest were taken and the rest left to perish, and this year the fishermen are wondering why the herring don't show up. I know these things are difficult to deal with, but it is all the more reason why they should be taken hold of early.

ST. LOUIS FAIR.

In the spring of 1903, this Department was honored with a visit from Mr. E. E. Johnson, Executive Commissioner of this state to the Louisiana Purchase Exposition to be held at St. Louis, Missouri, in the year 1904. The object of that visit was to talk over the installation of a fisheries exhibit at the World's Fair. We consumed some time in discussing the proposition in all its details, and at the conclusion of our conference, the Executive Commissioner was of the opinion that the fisheries exhibit could be installed to better advantage and in a more economic manner by turning the entire proposition over to this Department.

At a meeting of the World's Fair Commission, held in Bellingham in July, 1903, the Commission accepted the recommendation of the Executive Commissioner and appropriated $4,000 for the use of this Department to install its fisheries exhibit. While the Department considered the amount appropriated for this great work entirely inadequate, yet it reluctantly accepted the situation and concluded to do the best it could with the means at its command. I at once placed Perry Baker, superintendent of the Kendall Creek hatchery, in charge of the work, and to his untiring energy and good judgment is largely due the success of the enterprise.

Through the assistance of Mr. Johnson, we were able to make arrangements with Mr. Berg, of Seattle, for all our game and taxedermist display at a very nominal expense, which left us nearly all the appropriation for our fisheries display. It was the intention of the Department to place in the exhibit nearly all of the one hundred and sixty-four varieties of fish that inhabit

STATE OF WASHINGTON FISHERIES' EXHIBIT AT WORLD'S FAIR, ST. LOUIS, MO., 1904.
SHOWING HATCHERY AND SAMPLE CASE OF EGGS AND YOUNG SALMON.

the waters of our State, but the time was too short and the expense too great for such a large exhibit. We did succeed, however, in collecting the most prominent varieties of fish, including practically all shell fishes, congenious to our waters. Over six months was consumed in collecting and preparing the exhibit, the most of which was shipped to St. Louis in January and February of this year, and in March Mr. Baker proceeded to St. Louis for the purpose of installing the same, and while all the shipments went through in most excellent shape, conditions at the Fair were in a deplorable state. Buildings were not completed, labor exceedingly high and hard to obtain, and the incessant rains and impassable streets retarded the progress of all work.

In April, Mr. John M. Crawford, superintendent of State Fish hatcheries, proceeded to St. Louis with a shipment of 100,000 Steelhead salmon eggs for the purpose of installing and putting in operation a minature salmon hatchery, but every concession that had been promised by those in charge of the Fair was either rescinded or in an unfinished state, and after keeping the eggs in cold storage for a short time, they were turned over to the United States Government, which had been more successful in obtaining concessions and completing its work that the State of Washington.

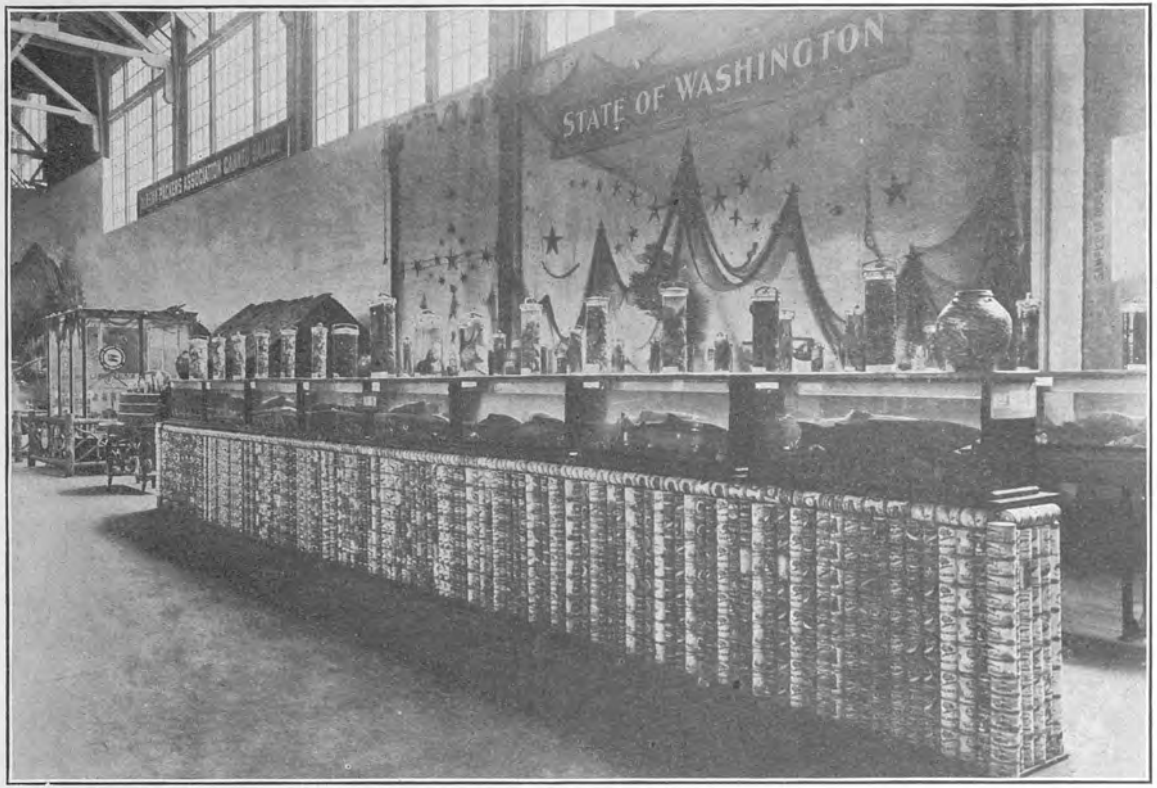
Upon the report of Mr. Crawford to this Department of the existing conditions, I made a trip to St. Louis and found the most discouraging prospects before us. None of the fisheries exhibit was installed, the game exhibit had not arrived, although it had been shipped some three weeks before my departure, labor was demanding $6.00 per day and hard to obtain at that, and discord, almost to the brink of rebellion, existing between heads of departments and subordinates; but with the combined efforts of myself and able assistants, we succeded in restoring harmony among the officials and brought order out of chaos, and in a short time had our exhibit installed. But our hatchery work was again delayed by union strikes, and when these were settled and our plant completed, the ice trust fixed the price of cold storage at a figure that was prohibitive, which caused another delay until this matter could be fairly adjusted, and it was not until August that we succeeded in getting the hatchery in complete operation, and those of our citizens who have had the pleasure of visiting

Washington's fisheries exhibit the last three months, can testify that money and patience have been well spent in the installation of this miniature hatchery.

In the month of September I was at St. Louis for several days, and in the Forest, Fish and Game building, where the fisheries of all states were represented, none attracted the attention that the State of Washington did. At times, day after day, it was impossible to get within 200 feet of our exhibit; the crowd was so dense and the people so eager to learn more about this great industry and the methods of keeping up the supply, that I considered it good business policy to give Mr. Baker another assistant that the people could be informed and posted on one of the State's principal resources,

That the exhibit and hatchery has been a success is conclusive from the fact that the jury awarded to the State of Washington the grand prize for the best fisheries display, a gold medal on its collective exhibit, a gold medal on its methods of fish culture and a gold medal on its exhibit showing the evolution of the salmon, a silver medal on case showing the development of salmon eggs, a silver medal on the game exhibit and a bronze medal on egg shipping tray. But what is more conclusive evidence than gold medals that our enterprise has been a success, and what is of more importance to this Department, is the many compliments and congratulations we have received from many well known scientific people and fish culturists throughout the United States. Such well-known men as Professor Elliott, of the Field Columbia Museum of Chicago, wants our collection for the Chicago museum; the State Fish Commissioner of Pennsylvania would like to obtain it for the Philadelphia Museum; Dr. Walter Hugh, assistant curator of the Smithsonian Institute at Washington, D. C., is very anxious that the exhibit be turned over to the National Museum, and a score of other scientific people have been lavish in their praises and congratulations on our exhibit.

I do not think it practicable or desirable to ship the exhibit back to the State of Washington, for the exhibit that will be installed in Portland next year should be along different lines than that displayed at St. Louis. The heat of the Southern States and the great distance from the base of operation prevented us from adding many attractive features to the St. Louis exhibit



STATE OF WASHINGTON FISHERIES' EXHIBIT WORLD'S FAIR, ST. LOUIS, MO., 1904.

that will be of easy production at Portland. Just what the Department will do with the exhibit at the close of the Fair is yet undecided, but its idea is that it should be presented to some Eastern State or Museum where our State will receive the best results from advertising.

I cannot conclude my remarks on this subject without paying high compliments to Dr. Bean, Chief of the Fish, Forestry and Game building, who at all times was courteous, kind and obliging, always willing and anxious to assist us to the best of his ability and influence in all matters pertaining to our Department, and the success of our enterprise is largely due to his superior knowledge and commanding influence, and the Department at this time and in this public manner, wishes to acknowledge its appreciation of the many kindnesses shown it by him during the entire season.

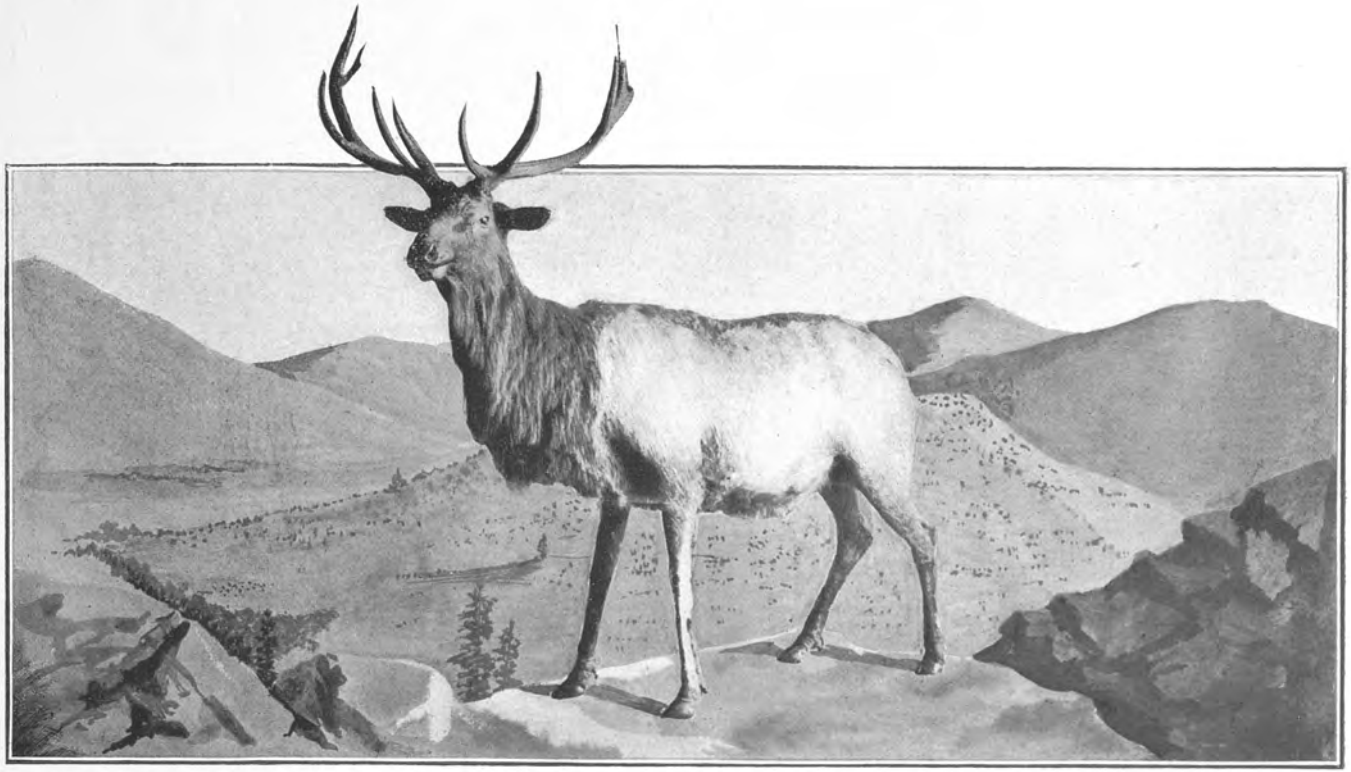
GAME.

When I took charge of the Department of Fisheries and Game, my attention was first called to the rapid inroads being made upon our game and the fast depletion of our mountain streams of their finny tribes. The great prosperity of our State during the last few years had brought within her borders men of wealth, men of leisure, men who do not believe life is made up entirely from a commercial standpoint, men who believe the serious side of life should be brightened by out-door sports, to whom wild game in the forest, the majestic trees, the placid lakes and the bubbling brooks in which wild game and fish abound, appeal to them in all their grandeur and beauty. As we looked with pride upon this great influx of wealth, prosperity and civilization within our State, we realized, with doubtful misgivings, that it was the cause of the disappearance of the Rainbow and the Cutthroat from our mountainous streams, and the deer and elk from the wooded hills; we realized that, if within a few years our game did not become extinct, heroic measures must be adopted, and this led to a conference between a few true sportsmen of the West and myself. The result was that the last Legislature placed a code of laws upon our statute books for the preservation of our game. And while they are not perfect, or as radical as we would have them, still they work very well for a beginning, and we expect

within a few years to make the State of Washington one of the grandest game preserves on this continent.

The law prohibits the killing at any time of any spotted fawn, or more than four deer during the season when it is lawful to kill the same. It prohibits the killing at any time of any female elk, moose, antelope, mountain sheep or goat, and during the season when it is lawful to kill any of the above mentioned animals, only one male of each variety may be killed. No person shall, during the season when it is lawful to hunt the same, kill more than ten prairie chickens, ten grouse, partridges, sage hens, native pheasants, ptamigan, Chinese or Mongolian pheasants, or more than fifteen quail of any variety, twenty-five snipe, ducks, geese or brant in any one day. Deer must not be run with dogs, except for thirty days in some of the counties west of the Cascade Mountains, or fire hunted; ducks and geese cannot be hunted from naphtha or steam launches, or sink boxes. This is the general law, but in many counties, some of the aforementioned game is protected until 1906 and 1908. The sale of all game is prohibited except during the month of November of each year, when ducks, geese, brant, snipe may be sold to the number permitted to be killed in any one day. Hotel keepers, boarding houses, markets, cold storage houses, etc, are prohibited from offering for sale, or keeping, or having in their possession, any of the aforementioned game, excepting ducks, geese, brant and snipe during the month of November. Transportation companies are prohibited from transporting any of the aforementioned game into, out of, or through the State, and the same law applies to all of our game fish, and fish in certain lakes are protected until the year 1908.

Songbirds and their nests are also well protected. Every person who hunts in the State of Washington during the season when it is lawful to hunt, must first procure a license from the County Auditor in the county in which he wishes to hunt, and if he desires to hunt in more than one county, he must obtain a license in each county in which he hunts. The annual license fee is one dollar, and there is no discrimination between resident and non-resident applicants. The fee is placed in the hands of the County Treasurer of each county, and is known as the "Game Protective Fund," and is used for the purpose of employing a county game warden. In any case where the County Commissioners fail to



NATIVE ROOSEVELT ELK.

appoint a game warden, the State Warden has the right to appoint one. I have, during the past year, corresponded with, or personally seen the Board of County Commissioners in most of the counties of the State, and urged upon them the necessity of building up and protecting our game reserves.

COUNTY GAME WARDENS.

Two years ago I was opposed to the system of county game wardens. I advocated the repeal of this law and the enactment of one that would give the State Game Warden the authority to appoint five or six deputies with a salary of $100.00 per month and sufficient traveling expenses so that they could be sent out at any time to any part of the State. I was sincere at that time, but my ambition to build up the game preserves of the State caused me the last two years to study the situation thoroughly. I have compared the laws of other states with ours and have noted the improved conditions of other localities under different systems, and find that the states that are working under the county game warden laws are making the greatest progress in the upbuilding and preservation of game.

During the month of August I sent out a circular letter to every County Auditor in the State, asking the following questions:

1. Number of licenses issued in your county under the State Game Law, from July 1, 1903, to July 1, 1904.

2 What amount of fines for violation of game laws has been paid into the county treasury for your county from July 1, 1903, to July 1, 1904?

3, Have the County commissioners of your county ever appointed a County Game Warden? If so, please give his name and the amount of salary he receives.

4, How much money was there in the treasury of your county to the credit of the Game Protective Fund July 1, 1904?

5. Are the game laws in your county generally observed and enforced?

6. Auy other information or suggestions in regard to the preservation of game in your county would be gladly received.

As a result of these inquiries, I found there has been 14,528 licenses issued during the fiscal year ending June 30th, 1904, or $14,528.00 collected for hunters' licenses during that year, $791.90

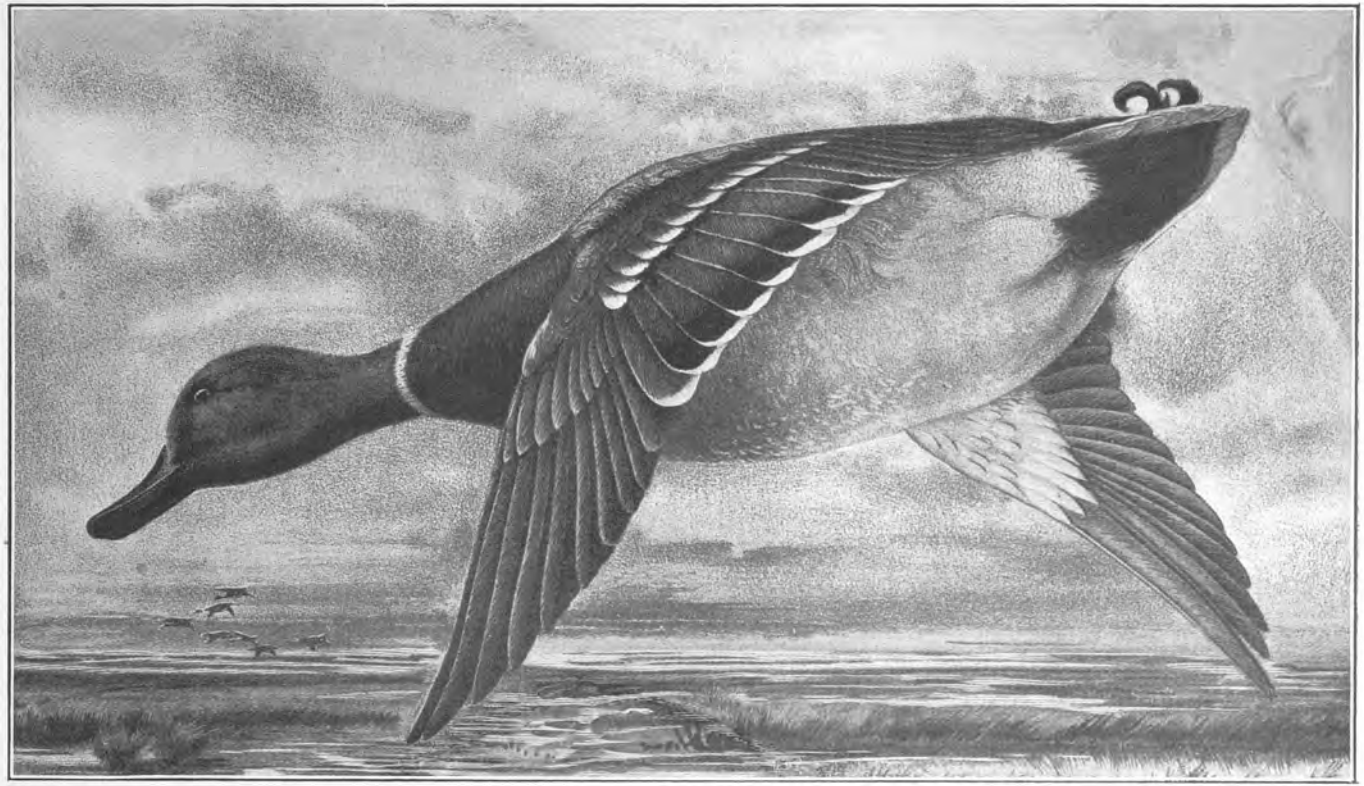
collected in fines, and there was at that time in the county treasuries of the different counties of the State, the sum of $10,466.13 to the credit of the Game Protective Fund.

One of the courts in Spokane County decided that on account of a clerical error in the title of the act, the game law, so far as pertaining to licenses, was invalid, and this prevented a large number of persons in Eastern Washington from taking out licenses. With this deficit remedied, our license fees will never fall below $20,000 per year, and with increase of game and influx of population, there is no telling to what amount it may reach.

Reports come from nearly all of the counties of the State that the law is fairly well respected and game generally on the increase. I believe the State Game Warden should be provided with one chief deputy to look exclusively after the interests of the game in our State. He should be provided with sufficient expense money so that he can travel continually from one county to another and consult and advise with the different county game wardens of the State, and impress upon the County Commissioners the necessity of enforcing the game laws and the building up of our game preserves.

TROUT HATCHERIES.

The first trout hatchery in the State was built last year. It is located on the beautiful Lake Chelan, far up in the Cascade Mountains, and is an ideal spot for the enterprise, as well as a pleasant resort for the tourist. The hatchery is modern in all its details, and is supplied with a complete system of ponds and basins for the rearing of all the choicest varieties of game fish. The hatchery is built in a beautiful grove at the month of the Stehekin river, and we take our water supply from a mountain stream on the south side of the river. This season we hatched out about one million young trout, of which about 300,000 were distributed among the different brooks and lakes throughou the State. At the convening of the Legislature I shall ask for an appropriation for the construction of two more game fish hatcheries; one should be located in the prairie country on the Little Spokane river, about nine miles from the city of Spokane in the eastern part of the State; the other should be located in the western



MALLARD DUCK.

part of the State on Lake Crescent, a most picturesque body of water high up in the Olympic range, and one of the most beautiful places known to man. These hatcheries should likewise be modern in all their equipments, and when complete and in operation, the State will be as well equipped for supplying our streams and lakes with game fish as any State in the Union.

Too much importance cannot be placed upon the desirability of keeping our mountain streams and lakes well supplied with fish, and our forest with game. Indirectly it will be one of our greatest commercial resources. There is no class of people that spend money so freely as those who seek enjoyment along our mountain streams with rod and reel and our wooded hills with dog and gun. Our State is now inhabited by a class of people who can afford and demand this pastime. Not alone should our State be well supplied with trout hatcheries, but each hatchery should be equipped as a game propagating station. This can be done with very little expense; the same superintendent who looks after the fish could also attend to the game. In the State of Oregon there are several game propagating stations, and during the last season I took a trip to our neighboring State for the express purpose of visiting these stations and studying the manners and conditions under which they have been successfully operated. Through the courtesy of J. W. Baker, Game Warden for the State of Oregon, and in company with him, I spent two days visiting the stations and studying the development of wild birds under domestic conditions, and can see no reason why game cannot be as successfully propagated here as in other states.

WASHINGTON STATE GAME LAWS

1903-1904

BAG LIMIT

Grouse, Partridge, Prairie Chicken, Sage Hens, Pheasant, Ptarmigan, 10 birds to a person in one day.
Elk, Moose, Antelope, Caribou, 1 male in open season.
Mt. Sheep, Mt. Goats, 2 males in open season.
Deer, 4 adult animals in open season.
All Waterfowl, Snipe, etc., 25 in one day.
In Kittitas County, chicken limit 5 in one day.

	January	February	March	April	May	June	July	August	September	October	November	December
Deer, Caribou	X	X	X	X	X	X	X	X	X			X
Elk, Moose, Antelope, Mt. Sheep, Mt. Goat	X	X	X	X	X	X	X	X	X		X	X
Quail (east of Cascades), until Sept. 15, 1908	X	X	X	X	X	X	X	X	X			
Grouse, Partridge, Prairie Chickens, Sage Hens, Native Pheasant, Ptarmigan (east of Cascades) (In Kittitas Co., Chickens Sept. 10 to Oct. 1.)	X	X	X	X	X	X	X	X			X	X
Grouse, etc., as above west of Cascades	X	X	X	X	X	X	X	X				
Mongolian Pheasant, Mongolian Quail (Protected absolutely east of the Mountains till 1908; west of Mountains till 1906.	X	X	X	X	X	X	X	X	X	X	X	X
Ducks, Geese, Swan, Brant, Sandhill Crane, Snipe, and other water fowl			X	X	X	X	X	X				
Song Birds (Absolute protection)	X	X	X	X	X	X	X	X	X	X	X	X
Trout in Lakes and Rivers	X	X	X								X	X
Bass, Perch, Croppie, Pike, Pickerel					X	X						

Closed Season thus "X". Open Season White.

WHAT IS ALWAYS UNLAWFUL.

To buy, sell, offer for sale, barter or trade, at any time, any quail, pheasant, grouse, sage hen, plover, or any of the meat or skins of any deer, elk, goat, mountain sheep or moose.

To hunt without a license.

To sell, salt or otherwise preserve above named game fish for market until August 1, 1908.

To transport game or fish for market—except ducks, geese, brant and snipe, in November, and then not over 25 can be sold in one season.

To use any boat other than one propelled by hand in water-fowl shooting.

To use a sneak boat or build any kind of blind or shooting structure.

To use any gun other than one fired from shoulder.

To fire a gun, or use a flashlight on water-fowl feeding grounds, one hour after sunset to one-half hour before sunrise.

To remove or disturb nests or eggs of any birds.

To in any way interfere with song birds or have skins or plumage of same.

To have game in cold storage out of season.

To receive game or birds for shipment except within the State, and then affidavit must be made that they are not shipped for sale or profit.

To kill females of any game animal any time, except deer in open season.

To run deer with dogs, except west of the Cascades in October only.

To fire, hunt, trap or ensnare, or hunt for hide or horns of any protected animal.

To catch or kill game fish by any other means other than hook and line.

To shoot on islands of 500 acres or over, in fresh water lakes.

To take fish in any manner within 300 feet of any fishway.

To pollute any stream frequented by game fish.

To catch salmon less than 10 inches long by other means than hook and line.

To shoot on enclosed land without permission.

To dump sawdust or mill refuse in any waters of the State.

To fish in Green Lake for Trout till July 18, 1905.

$1.00 County License required of all comers, resident or non-resident. Issued by County Auditor. Game Warden empowered to arrest without warrant. Penalties: Fine not less than $10.00 nor more than $500.00 and costs, or imprisonment for violation of game laws. $10.00 to $250.00 for violation of fish laws.

NUMBER OF LICENSES ISSUED IN EACH COUNTY, AMOUNT OF FINES COLLECTED FOR VIOLATION OF GAME LAWS, NAMES OF COUNTY GAME WARDENS, WITH SALARY AND AMOUNT IN COUNTY TREASURY FOR FISCAL YEAR ENDING JULY 1ST, 1904.

COUNTY.	No. of Licenses.	Fines for Violation.	County Game Warden.	Salary.		Amount on hand July 1, '04
Adams	54	$ 20 00	L. E. Poskill	$ 10 00	Per month	
Asotin	12					$20 00
Chehalis	628		H. A. Laramore	25 00	Per month	246 15
Chelan		10 00	F. Bagley			165 00
Clallam	578		F. Snow	25 00	Per month	
Clarke	124					124 00
Columbia	96					96 00
Cowlitz	156		E. E. Huntington	20 00	Per month	90 00
Douglas	13					116 00
Ferry	316	20 00	G. F. Baizley	100 00	Season	89 00
Franklin	5		Sheriff acts			
Garfield	37					40 00
Island	152		Jas. Gillespie	10 00	Per month	312 00
Jefferson	509		M. Wyckoff	50 00	Per month	207 15
King	2,432	22 00	H. Reif	50 00	Per month	3,555 95
Kitsap	923	323 75	P. H. Seay	50 00	Per month	499 77
Kittitas	553	10 00	Jos. Stevenson	50 00	Per month	123 02
Klickitat	169	50 00	R. Ballon	100 00	Season	63 00
Lewis	224					224 00
Lincoln	265		J. C. Martin	5 00	Per month	147 00
Mason	303					198 00
Okanogan	212					
Pacific	101					101 00
Pierce	1,746	70 00	W. W. Thompson	50 00	Per month	1,346 00
San Juan	63	50 00	S. D. Robinson	4 00	Per month	220 00
Skagit	945		C. E. Storrs	50 00	Per month	268 50
Skamania	20		Sheriff acts			20 00
Snohomish	755	11 00	C. M. Chambers	35 00	Per month	220 68
Spokane	787	11 00	J. A. Uhlig	40 00	Per month	376 15
Stevens	347					462 00
Thurston	729	8 00	G. A. Avery	50 00	Per month	364 00
Wahkiakum	41					44 00
Walla Walla	87		F. R. Morse	20 00	Per month	212 00
Whatcom	514	110 00	F. D. Adams	30 00	Per month	162 66
Whitman	157					157 00
Yakima	529	16 15	A. A. Nicols	25 00		196 40
Total	14,528	$761 90				$10,466 13

The following is a tabulated statement of the fish that have been planted in the waters of this state by the United States Government since the year 1895. It is impossible at the present time to give specific information as to the results from fish distributed in our streams, but the general results have been good.

STATEMENT OF FISH AND EGGS FURNISHED THE STATE OF WASHINGTON BY THE UNITED STATES BUREAU OF FISHERIES FOR THE YEARS 1895 TO 1904, INCLUSIVE.

Waters Stocked.	Point of Deposit.	Species.	Number.
1895—			
Twin Lakes	Near Olga	Brook Trout	375
Mountain Lake	Near Olga	Brook Trout	750
Kelley Lake	Sumner	Brook Trout	750
Lake Hooker	Leland	Brook Trout	750
Cranberry Creek	Shelton	Brook Trout	1,150
Johns Creek	Shelton	Brook Trout	1,150
Lake Washington	Lowell	Brook Trout	51
1896—			
Applicant	Robe	Tench	150
Applicant	Spokane	Tench	50
Applicant	Sprague	Tench	200
South Palouse River	Guy	Yellow Perch	200
Loon Lake	Tacoma	Yellow Perch	50
Lake St. Clair	Tacoma	Yellow Perch	100
Silver Lake	Castle Rock	Yellow Perch	100
Loon Lake	Tacoma	Black Bass	100
Lake Cavanough	Seattle Rock	Black Bass	75
Silver Lake	Castle Rock	Black Bass	50
Welty Lake	Northport	Black Bass	100
Lake St. Clair	Tacoma	Black Bass	150
Clear Lake	Bucoda	Black Bass	100
Fish Pond (1897)	Spokane	Black Bass	50
L. White Salmon River	Near Chenowith	Black Bass	1,848,760
Fish Lake (1898)	Cheney	Black Bass	1,000
L. White Salmon River	Near Chenowith	Quinnat Salmon	7,391,886
Spokane River	Spokane	Blackspotted T	5,000
Colville & Little Spokane C.	Spokane	Brook Trout	4,000
Fish Lake	New Whatcom	Brook Trout	3,000
Trout Ponds	Orilla	Brook Trout	4,000
F. H. Cook	Spokane	Brook Trout Eggs	25,000
1899—			
L. White Salmon River	Chenowith	Quinnat Salmon	1,791,056
State Fish Commission	Tacoma	Quinnat Salmon Eggs	500,000
Clear Lake	Near Whatcom	Blackspotted T	1,500
Spring Brook	Yakima	Brook Trout	1,000
Rock Creek	Winona	Brook Trout	3,500
Clear Lake	New Whatcom	Brook Trout	2,500
Lake Cushman	Tacoma	Brook Trout	2,500
Spokane River	Spokane	Brook Trout	1,500
Wilbur Creek	Wilbur	Brook Trout	3,000
Columbia River	Wenatchee	Brook Trout	1,500

Waters Stocked.	Point of Deposit.	Species.	Number.
Little Spokane River	Sciota	Brook Trout	1,500
American Lake	Tacoma	Black Bass	75
Morton Lake	Tacoma	Black Bass	95
Orfutts	Tenino	Black Bass	145
Rock Lake	Winona	Black Bass	365
Applicant for Pond	North Yakima	Black Bass	75
Applicant for Pond	Ellensburg	Black Bass	75
Applicant for Pond	Enumclaw	Black Bass	145
1900—			
L. White Salmon River	Chenowith	Quinnat Salmon	4,791,323
L. White Salmon River	Skamania Co.	Quinnat Salmon	839,624
Dog Creek	Chenowith	Quinnat Salmon	112,000
Columbia River	Skamania Co.	Quinnat Salmon	784,000
Hatchery Creek	Skamania Co.	Quinnat Salmon	100,000
Baker Lake & Stream	Baker Lake	Blueback Salmon	10,683,000
Baker Lake	Baker Lake	Steelhead Trout	26,000
Diamond Lake	Camden	Brook Trout	3,000
Lake Wildwood	New Whatcom	Brook Trout	3,000
L. Spokane River	Spokane	Brook Trout	5,000
Ahtanum River	North Yakima	Brook Trout	1,000
Touchet River	Dayton	Brook Trout	1,000
Chambers Creek	Tacoma	Brook Trout	250
Lake Steilacoom	Tacoma	Brook Trout	250
Camil Lake	Blossburg	Blackspotted T.	3,000
Lake Creek	Harrington	Blackspotted T.	4,000
Little Spokane River	Spokane	Blackspotted T.	10,000
Plugh Creek	Spokane	Blackspotted T.	5,000
Natches River	North Yakima	Blackspotted T.	5,000
Touchet River	Dayton	Blackspotted T.	5,000
Sequllitchew Creek	Tacoma	Blackspotted T.	10,000
Yakima River	Clealum	Blackspotted T.	5,000
American Lake	Tacoma	Blackspotted T.	10,000
Gravelly Lake	Tacoma	Blackspotted T.	10,000
Newman Lake	Hauser	Lake Trout	14,955
Loon Lake	Loonlake	Lake Trout	26,930
Lake Washington	Seattle	Lake Trout	21,985
Lake Whatcom	New Whatcom	Lake Trout	17,822
Fish Pond	Wenatchee	Lake Trout	5,000
Lake Washington	Seattle	Whitefish	160,000
1901—			
Big White Salmon River	White Salmon	Quinnat Salmon	691,000
L. White Salmon River	Little White Salmon	Quinnat Salmon	1,653,000
Dog Creek	Dog Creek	Quinnat Salmon	74,100
Columbia River	Underwoods	Quinnat Salmon	74,000
Columbia River	White Salmon Landing	Quinnat Salmon	150,000
Columbia River	Drano	Quinnat Salmon	96,000
Columbia River	13 Mile Point	Quinnat Salmon	75,000
Columbia River	Walters	Quinnat Salmon	583,000
Columbia River	Olsen Creek	Quinnat Salmon	61,000
Columbia River	Gnat	Quinnat Salmon	40,000
Columbia River	Sprague	Quinnat Salmon	148,000
Rock Creek	Rock Creek	Quinnat Salmon	254,000
Skagit River	Baker Lake	Silver Salmon	172,041
Skagit River	Baker Lake	Blueback Salmon	3,834,453
Bigelow Creek	Spokane	Blackspotted T.	5,000
Little Spokane River	Spokane	Blackspotted T.	5,000

Waters Stocked.	Point of Deposit.	Species.	Number.
Spring Creek	Spokane	Blackspotted T.	10,000
Knester Lake	Milan	Blackspotted T.	10,000
Pend d'Oreille River	Newport	Blackspotted T.	38,500
Fish Pond	Wilbur	Blackspotted T.	1,000
Fern Lake	Seattle	Brook Trout	1,600
Mill Pond	Seattle	Brook Trout	1,600
Bigelow Creek	Spokane	Brook Trout	2,500
Little Spokane River	Spokane	Brook Trout	2,500
Fish Lake	Ellensburg	Brook Trout	2,500
Touchet Pond	Dayton	Brook Trout	1,600
Connowai Creek	Wilbur	Brook Trout	2,500
Fish Pond	Marshall	Brook Trout	1,500
Fish Pond	Winlock	Brook Trout	1,600
Mountain & Cascade Lks.	Newhall	Brook Trout	7,000
D. Marcot	Spokane	Brook Trout Eggs	25,000
Steilacoom Lake	Lake View	Lake Trout	53,366
American Lake	Lake View	Lake Trout	49,875
Gravelly Lake	Lake View	Lake Trout	49,900
American Lake	Lake View	Whitefish	500,000
Gravelly Lake	Lake View	Whitefish	291,295
1902—			
L. White Salmon River	Skamania Co.	Quinnat Salmon	7,650,305
Big White Salmon River	Skamania Co.	Quinnat Salmon	234,000
Columbia River	Skamania Co.	Quinnat Salmon	2,024,390
Columbia River	Mouth of Dog Creek	Quinnat Salmon	432,000
Columbia River	Cooks Landing	Quinnat Salmon	244,000
Columbia River	Underwoods	Quinnat Salmon	72,000
Columbia River	13 Mile Point	Quinnat Salmon	450,000
Eagle Rock	Eagle Rock	Quinnat Salmon	160,000
Eagle Rock	Klickitat Co.	Quinnat Salmon	62,558
Columbia River	Huntsucker Point	Quinnat Salmon	61,600
Dog Creek	Skamania Co.	Quinnat Salmon	37,000
Rock Creek	Skamania Co.	Quinnat Salmon	89,000
Olsen Creek	Skamania Co.	Quinnat Salmon	1,159,276
Wind River	Skamania Co.	Quinnat Salmon	36,000
Hamilton Creek	Skamania Co.	Quinnat Salmon	15,000
Klickitat River	Klickitat Co.	Quinnat Salmon	39,000
Baker Lake	Baker Lake	Quinnat Salmon	50,000
Baker Lake	Baker Lake	Blueback Salmon	3,371,000
Skagit River	Phinney Creek	Steelhead T.	85,000
Skagit River	Quartz Creek	Steelhead T.	25,000
Freeman Lake	Newport	Blackspotted T.	3,000
O'Reilly River	Newport	Blackspotted T.	3,000
Trout Lake	Hood River	Blackspotted T.	7,000
S. Fork Stillaguamish R.	Everett	Blackspotted T.	10,000
Samish Lake	Samish	Blackspotted T.	2,000
Local Trout Creek	Northport	Blackspotted T.	5,000
Lake Alfrea	Blossburg	Brook Trout	2,000
Lake Amelia	Blossburg	Brook Trout	2,000
Lake Leis	Blossburg	Brook Trout	2,000
Lake Perkins	Blossburg	Brook Trout	2,000
Harris Lake	Blossburg	Brook Trout	2,000
Trout Lake	Hood River	Brook Trout	2,000
Washtucna Lake	Washtucna	Brook Trout	2,000
Wilson Creek	Wilbur	Brook Trout	2,000
Crab Creek	Sprague	Brook Trout	5,000
S. Fork Stillaguamish R.	Everett	Brook Trout	1,000

Waters Stocked.	Point of Deposit.	Species.	Number.
Skykomish River	Skykomish	Brook Trout	2,000
Fan Lake	Deer Park	Brook Trout	2,000
Trout Pond	Fairfield	Brook Trout	500
Green Lake	Seattle	Brook Trout	500
Trout Pond	Seattle	Brook Trout	2,000
N. Br. Spokane River	Milan	Brook Trout	2,000
Fish Pond	Tacoma	Brook Trout	250
O'Reilly River	Newport	Brook Trout	10,000
Local Trout Creek	Northport	Brook Trout	3,000
Star Lake	Auburn	Brook Trout	10,000
Clover Creek	Lakeview	Brook Trout	10,000
Lewis Gilbert	Milan	Brook Trout Eggs	20,000
Lake Sequalitchew	Lakeview	Lake Trout	24,950
Lake Sequalitchew	Lakeview	Whitefish	730,000
1903—			
Big White Salmon River	Underwoods	Quinnat Salmon	316,000
Columbia River	Underwoods	Quinnat Salmon	1,470,000
Columbia River	Collins	Quinnat Salmon	300,000
Spring Branch	Underwoods	Quinnat Salmon	2,810,690
L. White Salmon River	Little White Salmon	Quinnat Salmon	3,890,500
Skagit River	Baker Lake	Silver Salmon	81,812
Baker Lake	Baker Lake	Blueback Salmon	3,731,789
Green Lake	Seattle	Steelhead T.	28,200
Phinney Creek	Birdsview	Steelhead T.	150,000
Quartz Creek	Birdsview	Steelhead T.	33,815
Grandy Creek	Birdsview	Steelhead T.	480,000
Owens Lake	Milan	Rainbow Trout	1,900
Skykomish River	Madison	Rainbow Trout	7,499
De Orville Creek	Colville	Blackspotted T.	2,000
Mill Creek	Colville	Blackspotted T.	2,000
Hatch Lake	Colville	Blackspotted T.	1,000
White Lake	Colville	Blackspotted T.	2,000
S. Fork Stillaguamish R.	Everett	Blackspotted T.	10,000
Trout Brook	Milan	Blackspotted T.	1,500
Blake Lake	Milan	Blackspotted T.	2,000
Fish Lakes	Newport	Blackspotted T.	6,500
Blanch Creek	Newport	Blackspotted T.	1,500
Bonanza Creek	Newport	Blackspotted T.	1,500
Lake Chelan	Wenatchee	Blackspotted T.	2,000
Wide Hollar Creek	North Yakima	Blackspotted T.	2,000
Siwash	Tacoma	Blackspotted T.	3,000
Holls Lake	Davenport	Blackspotted T.	4,000
Bead Lake	Newport	Blackspotted T.	5,000
Eagle Lake	Newport	Blackspotted T.	5,000
Jared Lake	Newport	Blackspotted T.	3,000
Columbia River	Newport	Blackspotted T.	3,000
Spring Branch	Walla Walla	Brook Trout	6,497
Natcheese River	North Yakima	Brook Trout	1,500
Spring Branch	North Yakima	Brook Trout	10,997
Nelson Lake	Harrington	Brook Trout	1,500
Black Lake	Belmore	Brook Trout	1,450
Lake Langdon	East Sound	Brook Trout	1,500
Oropochon Creek	Davenport	Brook Trout	1,500
San Poil	Republic	Brook Trout	1,000
Deming	Seattle	Brook Trout	8,364
W. Fork W. Salmon R.	Hood River	Brook Trout	4,998
Trout Creek	Hood River	Brook Trout	4,999

Waters Stocked.	Point of Deposit.	Species.	Number.
Troublesome Creek	Madison	Brook Trout	9,998
Washtucna Lake	Kahlotus	Brook Trout	7,496
Fish Lake	Kanaskat	Brook Trout	2,998
Davidson Creek	Tacoma	Brook Trout	10,000
Benney Creek	Seattle	Lake Trout	7,000
Pierre Lake	Orient	Lake Trout	6,800
American Lake	Lakeview	Whitefish	137,020
Lake Kapowsin	Lake Kapowsin	Whitefish	91,347
Lake Ohod	Lake Kapowsin	Whitefish	45,673
Fish Pond	Newport	Black Bass	200
Total			69,091,468

STATEMENT OF FISH AND EGGS FURNISHED THE STATE OF WASHINGTON BY THE BUREAU OF FISHERIES DURING THE FISCAL YEAR ENDING JUNE 30, 1904.

Waters Stocked.	Point of Deposit.	Species.	Number.
Olsen Creek	Underwood	Quinnat Salmon	1,208,200
Columbia River	Underwood	Quinnat Salmon	4,742,600
Columbia River	Little White Salmon	Quinnat Salmon	4,723,702
L. White Salmon River	Little White Salmon	Quinnat Salmon	5,702,298
Swift Creek	Whatcom Co.	Quinnat Salmon	35,000
Baker Lake	Whatcom Co.	Quinnat Salmon	35,883
Sullivan Lake	Newport	Landlocked Salmon	9,980
Baker Lake	Whatcom Co.	Silver Salmon	2,234,645
Silver Salmon Slough	Whatcom Co.	Silver Salmon	650,000
Lower Baker River	Whatcom Co.	Silver Salmon	1,100,000
Swift Creek	Whatcom Co.	Blueback Salmon	1,730,000
Baker Lake	Whatcom Co.	Blueback Salmon	2,000,000
Lower Baker River	Whatcom Co.	Blueback Salmon	125,000
Runths Spring Branch	Whatcom Co.	Humpback Salmon	50,000
Swift Creek	Whatcom Co.	Humpback Salmon	35,397
Baker Lake	Whatcom Co.	Humpback Salmon	91,200
Phinney & Grandy Creek	Skagit Co.	Steelhead Trout	70,000
Wagner Lake	Wilbur	Rainbow Trout	1,500
Cowichie Creek	North Yakima	Rainbow Trout	2,000
Hidden Lake	North Yakima	Rainbow Trout	1,500
Troublesome Creek	Madison	Rainbow Trout	5,000
Cols Spring	Creston	Rainbow Trout	8,000
Branch Clover Creek	Lake View	Blackspotted T.	14,995
Speller Creek	Northport	Blackspotted T.	5,000
Muskrat Creek	Curlew	Blackspotted T.	8,000
Yakima River	Clealum	Blackspotted T.	10,000
Wagner Lake	Wilbur	Brook Trout	800
Martins Lake	Springdale	Brook Trout	800
San Poil Lake	Republic	Brook Trout	800
Pond & Stream	Newport	Brook Trout	1,000
Spring Branch	North Yakima	Brook Trout	7,500
Jones Lake	North Yakima	Brook Trout	500
Fish Pond	Cheney	Brook Trout	800
Fish Pond	Spokane	Brook Trout	500
Fish Pond	Valley	Brook Trout	500
Bear Ck. & French Lake	Milan	Brook Trout	1,500

Waters Stocked.	Point of Deposit.	Species.	Number.
Spring Brook	Milan	Brook Trout	1,500
Mirror Lake	Meyers Falls	Brook Trout	1,800
Fish Pond	Seattle	Brook Trout	8,000
Spring Brook	Snohomish	Brook Trout	5,000
Summit Lake	Woodinville	Brook Trout	5,000
W. Fork White Salmon R.	Klickitat Co.	Brook Trout	12,000
Crab Creek	Harrington	Brook Trout	10,000
Arkansas Creek	Castle Rock	Brook Trout	10,000
Lake Blackman	Snohomish	Brook Trout	10,000
Trout Lake	Spokane	Brook Trout	8,000
O'Brien Creek	Republic	Brook Trout	15,000
San Poil Creek	Republic	Brook Trout	5,000
Deep Creek Lake	Northport	Lake Trout	2,000
Pierre & Summit Lake	Orient	Lake Trout	19,980
Steilacoom Lake	Lakeview	Lake Trout	40,280
Total			24,768,160

TABULATED REPORT OF FISHING INDUSTRY, PUGET SOUND DISTRICT, YEAR ENDING DECEMBER 1, 1903

VALUE OF CANNERIES AND FACTORIES, FISHING APPLIANCES AND CAPITAL USED IN OPERATION OF SAME.

	No.	Value.
Salmon canneries and factories operated	22	$1,025,000 00
Salmon canneries and factories not operated	4	30,000 00
Crab canneries and factories operated	2	15,000 00
Crab canneries and factories not operated	1	7,000 00
Clam canneries and factories operated	2	15,000 00
Sardine and herring factories and canneries operated	2	25,000 00
Capital used in operating		1,707,500 00
Steamboats	40	315,000 00
Launches	15	35,000 00
Pile drivers	71	140,500 00
Scows	312	184,310 00
Fishing boats and dories	400	22,500 00
Pound nets operated	135	1,200,000 00
Pound net locations not operated	136	30,000 00
Purse seines	94	65,800 00
Drag seines	172	47,300 00
Gill Nets	372	59,520 00
Set Nets	486	24,300 00
Total		$4,948,730 00

LABOR EMPLOYED IN OPERATION OF CANNERIES, FACTORIES, STEAMBOATS, FISHING APPLIANCES, ETC.

How Employed.	Number Men.	Average Season's Earnings.	Total.
Canneries and factories—white labor	1,500	$217 00	$ 325,500 00
Canneries and factories—Chinese and Japanese	1,250	205 00	263,750 00
Canneries and factories—Indians	75	165 00	12,375 00
Steamboats	180	376 00	67,680 00
Launches	40	370 00	14,800 00
Pile drivers	303	223 00	67,569 00
Scows	193	300 00	57,900 00
Fishing boats and dories	200	300 00	60,000 00
Pound nets	720	300 00	216,000 00
Purse seines	770	400 00	308,000 00
Drag seines	380	300 00	114,000 00
Gill nets	740	300 00	222,000 00
Set nets	380	250 00	95,000 00
Fresh fish dealers	100	600 00	60,000 00
Clam and mussel fishing	100	300 00	30,000 00
Crab and shrimp fishing	100	275 00	27,500 00
Oyster industry	520	200 00	104,000 00
Total	7,551		$2,046,074 00

FISH, CRABS AND CLAMS PACKED AND SALTED.

Variety.	No. of Cases.	Value.
Sockeye or blueback	167,211	$1,003,260 00
Chinook or springs	14,500	72,500 00
Silvers	103,450	413,800 00
Chums	12,001	30,002 00
Humpbacks	181,326	407,983 50
Herring and Smelt	8,000	38,000 00
Crabs	10,000	50,000 00
Clams	4,000	24,000 00
Total	500,481	$2,039,545 50

FRESH, SALT AND SMOKED FISH SHIPPED AND CONSUMED LOCALLY.

Variety—	No. of Pounds.	Value.
Salmon, fresh, salt and smoked	20,500,000	$2,050,000 00
Sturgeon	8,000	800 00
Smelt	500,000	40,000 00
Halibut	20,000,000	2,000,000 00
Cod	250,000	20,000 00
Sole	40,000	6,000 00
Flounders	50,000	3,500 00
Trout	25,000	3,750 00
Herring	550,000	27,500 00
Shad	20,000	1,000 00
Catfish	5,000	250 00
Total	41,948,800	$4,152,800 00

SHELL FISH OUTPUT.

Variety—	Output.	Value.
Clams, boxes	30,000	$36,000 00
Crabs, dozens	40,000	40,000 00
Shrimps, pounds	255,000	38,250 00
Total		$114,250 00

GUANO AND OIL OUTPUT.

Three factories—		
Oil, Bbls.	700	$11,500 00
Guano, Sacks	9,550	13,750 00
Total		$25,250 00

OUTPUT NATIVE AND EASTERN OYSTERS, PUGET SOUND DISTRICT.

	Sacks.	Capital Invested.	Value.
Native, sacks	45,000	$70,000 00	$180,000 00
Eastern, pounds	3,000	25,000 00	5,250 00
Total		$95,000 00	$185,250 00

JAPANESE AND EASTERN OYSTERS PLANTED, PUGET SOUND DISTRICT.

	Car Loads.	Value.
Japanese	12	$12,000 00
Eastern	1	1,250 00
Total	13	$13,250 00

CAPITAL EMPLOYED IN OYSTER INDUSTRY, PUGET SOUND DISTRICT.

	Value.
30 plungers (boats)	$30,000 00
7 launches	14,000 00
Capital	95,000 00
Total	$139,000 00

TOTAL VALUE OF OUTPUT FOR 1903, PUGET SOUND DISTRICT.

Salmon packed	$1,927,545 50
Herring and Smelt packed	38,000 00
Crabs packed	50,000 00
Clams packed	24,000 00
Fresh, salt and smoked fish	4,152,800 00
Shell fish	199,500 00
Guano oil	25,250 00
Total	$6,417,095 50

TABULATED REPORT OF FISHING INDUSTRY, COLUMBIA RIVER DISTRICT, YEAR ENDING DECEMBER 1, 1903.

VALUE OF CANNERIES AND FACTORIES, FISHING APPLIANCES AND CAPITAL USED IN OPERATION OF SAME.

	No.	Value.
Canneries and factories operated	6	$165,000 00
Canneries and factories not operated	2	10,000 00
Capital used in operating		225,000 00
Steamboats	2	10,000 00
Launches	11	25,000 00
Pile Drivers	2	2,400 00
Scows	13	8,200 00
Fishing boats and dories	406	40,200 00
Pound nets operated	350	280,000 00
Pound net locations, not operated	16	12,800 00
Wheels	39	11,000 00
Drag Seines	57	9,000 00
Gill Nets	384	60,000 00
Set nets	94	3,900 00
Total		$862,500 00

LABOR EMPLOYED IN OPERATION OF CANNERIES, FACTORIES, STEAMBOATS, FISHING APPLIANCES, ETC.

How Employed.	Number Men.	Average Season's Earnings.	Total.
Canneries and factories, white labor	42	$400 00	$16,800 00
Canneries and factories, Chinese and Japanese	250	160 00	40,000 00
Steamboats	10	300 00	3,000 00
Launches	33	300 00	9,900 00
Pile Drivers	10	150 00	1,500 00
Scows	39	300 00	11,700 00
Pound nets	350	275 00	96,250 00
Wheels	48	250 00	12,000 00
Drag seines	350	200 00	70,000 00
Gill nets	768	300 00	230,400 00
Set nets	94	150 00	14,100 00
Total	1,994		$505,650 00

FISH AND CLAMS PACKED AND SALTED.

	No. of Cases.	Value.
Sockeye or Blueback	4,140	$21,175 00
Chinook or Springs	76,900	411,400 00
Silvers	4,400	19,800 00
Chums	10,000	37,500 00
Total	95,440	$489,875 00

SALT, FRESH AND SMOKED FISH SHIPPED AND CONSUMED LOCALLY.

	Pounds.	Value.
Salmon, fresh	5,400,000	$540,000 00
Salmon, salt and smoked	500,000	50,000 00
Smelt	300,000	18,000 00
Trout of all kinds	24,000	2,400 00
Sturgeon	15,000	1,200 00
Shad	20,000	1,000 00
Cod	10,000	700 00
Catfish	4,000	320 00
All others	10,000	1,000 00
Total	6,283,000	$614,620 00

TOTAL VALUE OF OUTPUT FOR 1903, COLUMBIA RIVER DISTRICT

Salmon packed	$489,875 00
Fresh, salt and smoked fish	614,620 00
Total	$1,104,495 00

NOTE—The output of the Oregon canneries on the Columbia river amounts to 239,371 cases of salmon.

TABULATED REPORT OF FISHING INDUSTRY, WILLAPA DISTRICT, YEAR ENDING DECEMBER 1, 1903.

VALUE OF CANNERIES AND FACTORIES, FISHING APPLIANCES AND CAPITAL USED IN OPERATION OF SAME.

	No.	Value.
Salmon canneries and factories operated	1	$15,000 00
Salmon canneries and factories not operated	2	20,000 00
Clam canneries and factories operated	1	1,000 00
Capital used in operating		20,000 00
Launches	2	2,000 00
Pile drivers	1	300 00
Scows		1,000 00
Fishing boats and dories	29	1,450 00
Pound nets, operated	10	5,000 00
Pound net locations, not operated	5	2,400 00
Gill nets	7	350 00
Set nets	22	550 00
Total		$69,050 00

LABOR EMPLOYED IN OPERATION OF CANNERIES, FACTORIES, STEAMBOATS, FISHING APPLIANCES, ETC.

How Employed.	Number Men.	Average Season's Earnings.	Total.
Salmon canneries and factories, white labor	5	$150 00	750 00
Clam canneries and factories, white labor	4	300 00	1,200 00
Canneries and factories, Chinese	12	160 00	1,920 00
Launches	6	260 00	1,560 00
Pile drivers	5	100 00	500 00
Scows	1	300 00	300 00
Fishing boats and dories	30	150 00	4,500 00
Pound nets	30	200 00	6,000 00
Gill nets	14	300 00	4,200 00
Set nets	20	150 00	3,000 00
	127		$23,930 00

SALMON PACKED.

	No. Cases.	Value.
Chinook	2,300	$13,800 00
Silvers	2,390	10,755 00
Chums	1,200	3,300 00
Total	5,890	$27,855 00

FRESH, SALT AND SMOKED FISH SHIPPED AND CONSUMED LOCALLY.

	Pounds.	Value.
Salmon, fresh, salt and smoked	750,000	$75,000 00
All other kinds	30,000	2,400 00
Total	780,000	$77,400 00

SHELL FISH.

	Value.
Oysters	$95,250 00
Clams	2,250 00
Crabs	2,500 00
Total	$100,000 00

OUTPUT OF NATIVE AND EASTERN OYSTERS, WILLAPA HARBOR DISTRICT.

		Value.
Native, sacks	26,000	$65,000 00
Eastern, boxes	4,000	25,000 00
Total		$90,000 00

EASTERN OYSTERS PLANTED, WILLAPA HARBOR DISTRICT.

		Value.
Eastern	21 car loads	$31,500 00

CAPITAL EMPLOYED IN OYSTER INDUSTRY, WILLAPA HARBOR.

30 Plungers (boats)	$12,000 00
5 Launches	8,000 00
Small boats and other appliances	10,000 00
Total	$30,000 00

	Number Men.	Average Season's Earnings.	Total.
Puget Sound District	450	$540 00	$243,000 00
Willapa Harbor District	300	300 00	162,000 00
Total	750		$405,000 00

TOTAL VALUE OF OUTPUT FOR 1903, WILLAPA DISTRICT.

Salmon packed	$27,855 00
Fresh, salt and smoked fish	77,400 00
Shell fish	100,000 00
Total	$205,255 00

TABULATED REPORT OF FISHING INDUSTRY, GRAYS HARBOR DISTRICT, YEAR ENDING DECEMBER 1, 1903.

VALUE OF CANNERIES AND FACTORIES, FISHING APPLIANCES AND CAPITAL USED IN OPERATION OF SAME.

	No.	Value.
Canneries operated	None	.....
Canneries not operated	1	$10,000 00
Capital used in operating	..	.....
Steamboats	1	2,500 00
Launches	1	2,000 00
Pile Drivers	1	300 00

Scows	1	200 00
Fishing boats and dories	50	2,625 00
Pound nets operated	4	4,000 00
Gill nets	19	3,400 00
Set nets	53	1,590 00
Total		$26,615 00

LABOR EMPLOYED IN OPERATION OF CANNERIES, FACTORIES, STEAMBOATS, FISHING APPLIANCES, ETC.

How Employed.	Number Men.	Average Season's Earnings.	Total.
Canneries and factories, white labor	..	.....	.....
Canneries and factories, Chinese and Japanese	..	.....	.....
Steamboats	3	$250 00	$750 00
Launches	2	250 00	500 00
Pile drivers	5	100 00	500 00
Scows	1	200 00	200 00
Pound nets	34	150 00	5,100 00
Gill nets	40	150 00	6,000 00
Set nets	25	200 00	5,000 00
Total	110		$18,050 00

FRESH, SALT AND SMOKED FISH SHIPPED AND CONSUMED LOCALLY.

	Pounds.	Value.
Salmon, fresh, salt and smoked	800,000	$80,000 00
Sturgeon	2,000	160 00
All other kinds	20,000	1,400 00
Total	822,000	$81,560 00

TOTAL VALUE OF OUTPUT FOR 1903, GRAYS HARBOR DISTRICT.

Salmon packed	None
Fresh, salt and smoked fish	$81,560 00
Total	$81,560 00

TOTAL NUMBER OF SEED OYSTERS TAKEN FROM NATIVE BEDS

Puget Sound District	612	@ 25c	$153 00
Willapa Harbor District	19,784½	@ 10c	1,978 45
Total	20,396½		$2,131 45

NUMBER OF TONGING LICENSES ISSUED DURING 1903, PUGET SOUND AND WILLAPA HARBOR DISTRICTS AND AMOUNT OF SAME.

	No. Licenses		Amount.
Puget Sound	12	@$5 each	$ 60 00
Willapa Harbor	88	@$5 each	440 00
Total			$500 00

TOTAL EXPENDITURE, SURVEYING, PATROL AND OTHER IMPROVEMENTS ON STATE OYSTER RESERVE BEDS, PUGET SOUND AND WILLAPA HARBOR DISTRICTS.

Puget Sound	$2,077 59
Willapa Harbor	2,701 74
Total	$4,779 33

TOTAL OUTPUT OF OYSTERS.

Puget Sound District:			Value.
Native	Sacks	45,000	$180,000 00
Eastern	Pounds	3,000	5,250 00
Willapa Harbor District:			
Native	Sacks	26,000	65,000 00
Eastern	Boxes	4,000	25,000 00
Total			$275,250 00

NUMBER OF LICENSES ISSUED DURING YEAR ENDING NOVEMBER 30, 1903.

Puget Sound Pound Nets.			
270	Pound nets, at $50.00 each	$13,500 00	
1	Pound net, two pots, at $1 each	100 00—	$13,600 00
Columbia River Pound Nets.			
9	Pound nets, first-class, at $20 each	180 00	
10	Pound nets, first-class, at $40 each	400 00	
289	Pound nets, second-class, at $10 each	2,890 00	
58	Pound nets, second-class, at $20 each	1,160 00—	4,636 00
Willapa Harbor Pound Nets.			
15	Pound nets, at $10 each	150 00—	150 00
Grays Harbor Pound Nets.			
4	Pound nets, at $10 each	40 00—	40 00
	Total pound nets		$18,426 00
Columbia River Fish Wheels.			
4	Wheels, first-class, stationary, at $25 each	$ 100 00	
11	Wheels, second-class, stationary, at $10 each.	110 00	
14	Scow wheels, at $15 each	210 00—	$ 420 00
Gill Nets.			
372	Gill nets, Puget Sound District, at $2.50 each	$ 930 00	
384	Gill nets, Columbia River District, at $2.50 each	960 00	
7	Gill nets, Willapa Harbor District, at $2.50 each	17 50	
19	Gill nets, Grays Harbor District, at $2.50 each	47 50—	$1,955 00
Set Nets.			
486	Set nets, Puget Sound, at $2.50 each	$ 1,215 00	
94	Set nets, Columbia River, at $2.50 each	235 00	
22	Set nets, Willapa Harbor, at $2.50 each	55 00	
53	Set nets, Grays Harbor, at $2.50 each	132 50—	$ 1,637 50

Columbia River Seines.

12	Seines, at $2.50 each	$ 30 00		
12	Seines, at $5.00 each	60 00		
12	Seines, at $10.00 each	120 00		
19	Seines, at $15.00 each	285 00		
2	Seines, at $25.00 each	50 00	—$	545 00

Puget Sound Seines.

132	Drag seines, at $2.50 each	$ 330 00		
31	Drag seines, at $5.00 each	155 00		
6	Drag seines, at $10.00 each	60 00		
3	Drag seines, at $15.00 each	45 00		
94	Purse Seines, at $25.00 each	2,350 00	—$	2,940 00

Individuals.

509	Puget Sound District, at $1.00 each	$ 509 00		
81	Columbia River District, at $1.00 each	81 00		
7	Willapa Harbor District, at $1.00 each	7 00		
11	Grays Harbor District, at $1.00 each	11 00	—$	608 00

Cannery Licenses.

7	Puget Sound District, at $150 each	$ 1,050 00		
2	Puget Sound District, at $200 each	400 00		
2	Puget Sound District, at $250 each	500 00		
2	Puget Sound District, at $300 each	600 00		
1	Puget Sound District, at $350 each	350 00		
1	Puget Sound District, at $400 each	400 00		
1	Puget Sound District, at $600 each	600 00		
1	Puget Sound District, at $1,000 each	1,000 00	—$	4,900 00
1	Columbia River District, at $100 each	100 00		
1	Columbia River District, at $150 each	150 00		
2	Columbia River District, at $200 each	400 00		
3	Columbia River District, at $250 each	750 00	—$	1,400 00

Fresh Fish Dealers' Licenses.

76	Puget Sound District, at $2.50 each	$ 190 00		
36	Columbia River District, at $2.50 each	90 00		
5	Grays Harbor District, at $2.50 each	12 50	—$	292 50

Fresh Fish Dealers' Report.

(At 30 cents per ton.)

Puget Sound District	$ 478 35		
Columbia River District	25 70	—$	504 05

Report of Fish Taken in Pound Nets and Wheels.

(At $1.00 per thousand fish.)

Puget Sound District pound nets	$ 3,068 13		
Columbia River Pound nets and wheels	23 20	—$	3,091 33

RECAPITULATION BY DISTRICTS.

Puget Sound District	$27,820 48	
Columbia River District	8,415 90	
Willapa Harbor District	229 50	
Grays Harbor District	243 50	—$36,709 38

GENERAL SUMMARY OF THE FISHERIES OF THE STATE OF WASHINGTON, FOR THE YEAR 1903, CAPITAL AND LABOR EMPLOYED, AND VALUE OF OUTPUT.

CAPITAL EMPLOYED.

Puget Sound	$1,764,725 00
Columbia River	225,000 00
Willapa Harbor	81,500 00
Grays Harbor	
Total	$2,071,225 00

NUMBER OF PERSONS EMPLOYED.

Puget Sound	8,001
Columbia River	1,994
Willapa Harbor	427
Grays Harbor	110
Total	10,532

EARNINGS OF LABOR EMPLOYED.

Puget Sound	$2,294,074 00
Columbia River	505,650 00
Willapa Harbor	185,980 00
Grays Harbor	18,050 00
Total	$3,003,754 00

VALUE OF OUTPUT.

Puget Sound	$3,945,579 50
Columbia River	1,104,495 00
Willapa Harbor	205,255 00
Grays Harbor	81,560 00
Total	$5,336,889 50

NOTE—In the general summary for 1903 there is an error in the total, caused by error in the Puget Sound District. The total should be $6,516,095.

APPROPRIATIONS FOR FISHERIES DEPARTMENT, FOR TWO YEARS ENDING APRIL 1, 1905.

FOR STATE FISH COMMISSIONER'S OFFICE.

Salary of Commissioner at $2,000 per year	$ 4,000 00
Traveling expenses of Commissioner at $1,000 per year	2,000 00

Salary, three deputies, at $1,200 per year	7,200 00	
Traveling expenses of deputies at $600 per year...	3,600 00	
Stenographer and bookkeeper at $1,000 per year ...	2,000 00	
Office rent at $600 per year	1,200 00	
Incidental expenses at $500 per year	1,000 00	
Total		$21,000 00

EXPENDITURES FROM OFFICE APPROPRIATIONS FROM APRIL 1, 1903, TO DECEMBER 1, 1903.

Fish Commissioner's salary, two years .....$	4,000 00	
Expended to date		$ 1,333 32
Balance		2,666 68
	$4,000 00	$ 4,000 00
Fish Commissioner's traveling expenses, two years..$	2,000 00	
Expended to date		$ 390 18
Balance		1,609 82
	$2,000 00	$ 2,000 00
Salary of three deputies at $1,200 per year .....$	7,200 00	
Expended to date		$2,400 00
Balance		4,800 00
	$7,200 00	$ 7,200 00
Traveling expenses of deputies at $600 per year....$	3,600 00	
Expended to date		$ 998 95
Balance		2,601 05
	$ 3,600 00	$ 3,600 00
Salary stenographer two years .....$	2,000 00	
Expended to date		$ 583 31
Balance		1,416 69
	$2,000 00	$ 2,000 00
Office rent, two years, at $600 per year .....$	1,200 00	
Expended to date		$ 450 00
Balance		750 00
	$ 1,200 00	$ 1,200 00
Incidental expenses at $500 per year .....$	1,000 00	
Expended to date		$ 354 60
Balance		645 40
	$ 1,000 00	$ 1,000 00

APPROPRIATIONS FOR ESTABLISHMENT AND MAINTENANCE OF TROUT HATCHERY ON LAKE CHELAN.

Appropriation	$ 3,000 00	
Expended to date		$ 1,065 35
Balance		1,934 65
	$ 3,000 00	$3,000 00

APPROPRIATION FOR OYSTER DEPARTMENT.

Appropriation	$ 5,000 00	
Remitted to treasurer	2,586 45—	$ 7,586 45
Expended to date		4,779 33
Balance		$ 2,807 12
Also expended from harbor and area fund	$ 1,163 15	

APPROPRIATIONS FROM FISH HATCHERIES FUND.

For maintenance of state fish hatcheries	$87,500 00	
For construction of and improvements, state fish hatcheries	21,665 00	
Engineers salary for Puget Sound launch at $900 per year	1,800 00	
Fuel and other expenses for launch at $1,000 per year	2,000 00	
For purchasing launch on the Columbia River	2,500 00	
Operating expenses of launch at $1,000 per year	2,000 00	
Total		$117,465 00

EXPENDITURES FROM FISH HATCHERY FUND FROM APRIL 1, 1903, TO DECEMBER 1, 1903.

Appropriation for purchase of Columbia River launch	$ 2,500 00	
Expended to date		$ 2,500 00
Operating expense, Columbia River launch, at $1,000 per year	$ 2,000 00	
Expended to date		832 76
Balance		1,167 24
	$2,000 00	$ 2,000 00
Engineer's salary, Puget Sound launch, at $900 per year	$ 1,800 00	
Expended to date		700 00
Balance		1,100 00
	$ 1,800 00	$ 1,800 00

Appropriation for fuel and expense of Puget Sound launch at $1,000 per year	$ 2,000 00	
Expended to date		$ 773 76
Balance		1,226 24
	$2,000 00	$ 2,000 00

AMOUNT EXPENDED FOR MAINTENANCE AND IMPROVEMENT OF HATCHERIES FROM APRIL 1, 1903, TO DECEMBER 1, 1903.

Hatchery.	Maintenance.	Improvement.
Kalama	$ 2,517 45	$ 1,480 99
Chinook	1,571 82	668 20
Chehalis	1,171 03	313 80
Wenatchee	2,440 39	476 56
Nooksack	570 98	.....
Skokomish	519 35	.....
Willapa	894 05	.....
Wind River	1,784 15	754 10
Samish	226 55	.....
Snohomish	2,128 95	1,509 04
Little Spokane	.....	.....
White River	1,211 53	118 72
Methow	888 41	48 96
Nisqually	330 10	.....
Klickitat	.....	.....
Stillaguamish	144 65	.....
Colville	16 50	.....
Dungeness	1,269 14	30 05
Dakota Creek	.....	1,435 72
Miscellaneous expense	1,780 05	.....
Total	$18,965 10	$ 6,836 14
Total expenditure for maintenance		$18,965 10
Total expenditure for improvement		6,836 14
Total expenditure for maintenance and improvement		$25,801 24

Appropriation for maintenance hatcheries, two years	$87,500 00	
Expended to date		$23,771 62
Balance		63,728 38
	$87,500 00	$87,500 00
Appropriation for improvements hatcheries, two years	$21,665 00	
Expended to date		$ 6,836 14
Balance		14,828 86
	$21,665 00	$21,665 00

OUTPUT OF THE STATE OF WASHINGTON HATCHERIES, SEASON OF 1903.

COLUMBIA RIVER DISTRICT.

	Chinook.	Steelhead.	Silverside.	Humpback.	
Kalama	6,128,470	.....	.....	.....	
Wind River	2,490,000	.....	.....	.....	
Chinook	2,500,000	.....	.....	.....	
Wenatchee	600,000	.....	3,836,000	.....	
Methow	100,000	.....	2,200,800	.....	—17,855,270

PUGET SOUND DISTRICT.

	Chinook.	Steelhead.	Silverside.	Humpback.	
Dungeness	1,325,000	3,100,840	1,500,000	.....	
Skokomish	.....	.....	3,180,000	.....	
White River	369,500	96,800	528,000	328,000	
Snohomish	300,000	369,000	3,000,000	.....	
Nisqually	.....	265,000	3,000,000	.....	—17,362,140

WILLAPA HARBOR DISTRICT.

	Chinook.	Steelhead.	Silverside.	Humpback.	
Willapa	1,138,200	467,100	.....	.....	— 1,605,300

GRAYS HARBOR DISTRICT.

	Chinook.	Steelhead.	Silverside.	Humpback.	
Chehalis	1,000,000	.....	.....	.....	— 1,000,000
	15,951,170	4,298,740	17,244,800	328,000	37,822,710

TABULATED REPORT OF FISHING INDUSTRY, PUGET SOUND DISTRICT, YEAR ENDING DECEMBER 1, 1904.

VALUE OF CANNERIES AND FACTORIES, FISHING APPLIANCES AND CAPITAL USED IN OPERATION OF SAME.

	No.	Value.
Salmon canneries operated	13	$ 925,000 00
Salmon canneries not operated	7	60,000 00
Cold storage operated	1	10,000 00
Cold storage not operated	1	25,000 00
Fertilizer factories operated	2	20,000 00
Fertilizer factories not operated	0	.....
Crab canneries operated	0	.....
Crab canneries not operated	3	10,000 00
Clam canneries operated	0	.....
Clam canneries not operated	2	7,500 00
Sardine and herring canneries operated	0	.....
Sardine and herring canneries not operated	2	15,000 00
Capital used in operating	..	1,510,000 00
Steamboats	35	290,000 00

Launches	15	35,000 00
Pile drivers	20	80,000 00
Scows	290	150,000 00
Fishing boats and dories	400	22,500 00
Pound nets operated	98	750,000 00
Pound nets not operated	140	35,000 00
Purse seines	72	65,000 00
Drag seines	104	30,000 00
Set nets	611	30,000 00
Gill nets	434	60,760 00
Total		$4,130,760 00

LABOR EMPLOYED IN OPERATION OF CANNERIES, FACTORIES, STEAMBOATS, FISHING APPLIANCES, ETC.

	Average Number Men.	Annual Earnings.	Total.
White labor	1,500	$215 00	$ 322,500 00
Chinese and Japanese	1,100	200 00	220,000 00
Indians	50	150 00	7,500 00
Steamboats	170	375 00	63,750 00
Launches	40	300 00	12,000 00
Pile drivers	210	225 00	47,250 00
Scows	180	225 00	40,500 00
Fishing boats and dories	250	300 00	75,000 00
Pound nets	500	300 00	15,000 00
Purse seines	670	300 00	201,000 00
Drag seines	250	300 00	75,000 00
Gill nets	850	300 00	255,000 00
Set nets	400	325 00	130,000 00
Fresh fish dealers and peddlers	200	600 00	120,000 00
Clam and mussel fishing	100	300 00	30,000 00
Crab and shrimp fishing	150	275 00	41,250 00
Oyster industry	550	250 00	137,500 00
Total	7,170		$1,793,250 00

SALMON PACKED.

Variety.	No. of Cases.	Value.
Sockeye or blueback	107,943	$ 647,658 00
Chinook or springs	17,990	71,960 00
Silversides	117,845	471,380 00
Chums	52,494	131,235 00
Total	296,272	$1,322,233 00

FRESH, SALT AND SMOKED FISH SHIPPED AND CONSUMED LOCALLY.

Variety.	No. of Pounds.	Value.
Salmon, fresh, salted and smoked	30,654,000	$2,452,320 00
Sturgeon	9,000	720 00
Smelt, fresh	500,000	30,000 00
Halibut	15,000,000	1,350,000 00
Cod, salt and fresh	1,806,000	45,150 00
Sole	40,000	4,000 00

Flounders	50,000	3,500 00
Trout	20,000	3,000 00
Herring, salt, smoked and fresh	500,000	25,000 00
Shad	5,000	250 00
Catfish	1,000	50 00
Total	48,585,000	$3,913,990 00

SHELL FISH OUTPUT.

Variety	Output.	Value.
Clams (boxes)	30,000	$36,000 00
Crabs (doz.)	40,000	40,000 00
Shrimps (lbs.)	200,000	30,000 00
Total	270,000	$106,000 00

GUANO AND OIL OUTPUT.

Two factories—		Value.
Oil (gals.)	39,000	$10,175 00
Guano (tons)	225	6,125 00
Total		$16,300 00

TOTAL VALUE OF OUTPUT FOR 1904, PUGET SOUND DISTRICT.

Salmon packed	$1,322,233 00
Fresh, salt and smoked fish	3,913,990 00
Shell fish	106,000 00
Guano, oil	16,300 00
Oysters	200,945 00
Total	$5,559,468 00

OYSTER INDUSTRY 1904, PUGET SOUND DISTRICT.

OUTPUT OF SEED OYSTERS.

Number of sacks tonged, 1904	5314	@ 25	1,328 50
Number of licenses issued, 1904	19	@ $5 00	$95 00
Total receipts Puget Sound District			$1,423 50

NATIVE AND EASTERN OYSTERS MARKETED, PUGET SOUND DISTRICT.

		Value.
Native (sacks)	50,000	$200,000 00
Eastern (boxes)	135	945 00
Total		$200,945 00

		Value.
Eastern	5 Car Loads.	$6,250 00

CAPITAL INVESTED.

30 Plungers	$25,000 00
7 Launches	14,000 00
Total	$45,250 00

NUMBER OF MEN EMPLOYED.

400. Average annual earnings	$500 00	$200,000 00

NUMBER OF ACRES CULTIVATED.

	Value.
500 acres native	$125,000 00
30 acres eastern	60,000 00
Total	$185,000 00

TABULATED REPORT OF FISHING INDUSTRY, COLUMBIA RIVER DISTRICT, YEAR ENDING DECEMBER 1, 1904.

VALUE OF CANNERIES AND FACTORIES, FISHING APPLIANCES AND CAPITAL USED IN OPERATION OF SAME.

	No.	Value.
Canneries and factories operated	10	$208,000 00
Canneries and factories not operated	1	3,000 00
Capital used in operating	..	284,500 00
Steamboats	2	11,000 00
Launches	24	50,000 00
Pile drivers	6	7,200 00
Scows	13	9,600 00
Fishing boats and dories	625	60,000 00
Pound nets operated	363	300,000 00
Pound net locations, not operated	10	9,000 00
Wheels	21	10,000 00
Drag seines	81	12,000 00
Gill nets	567	84,900 00
Set nets	87	3,500 00
Total		$1,052,700 00

LABOR EMPLOYED IN OPERATION OF CANNERIES, FACTORIES, STEAMBOATS, FISHING APPLIANCES, ETC.

How Employed.	Number Men.	Average Season's Earnings.	Total.
Canneries and factories, white labor	77	$400 00	$ 30,800 00
Canneries and factories, Chinese and Japanese	186	160 00	77,760 00
Steamboats	88	300 00	2,400 00
Launches	48	300 00	14,400 00
Pile drivers	24	150 00	3,600 00
Scows	13	300 00	3,900 00
Pound nets	373	275 00	102,435 00
Wheels	40	250 00	10,000 00
Drag seines	810	200 00	162,000 00
Gill nets	1,000	300 00	300,000 00
Set nets	45	150 00	6,750 00
Total	2,708		$714,045 00

SALMON PACKED AND SALTED.

	No. of Cases.	Value.
Sockeye or Blueback	4,227	$ 23,862 00
Chinook or Springs	130,688	760,038 00
Silvers	26,390	96,740 00
Chums	18,508	45,669 00
Total	179,813	$926,309 00

NOTE—The output of the Oregon canneries on the Columbia river amounts to 350,000 cases of salmon.

FRESH, SALT AND SMOKED FISH SHIPPED AND CONSUMED LOCALLY.

	Pounds.	Value.
Salmon, fresh	4,000,000	$400,000 00
Salmon, salted and smoked	424,000	42,400 00
Smelt	300,000	18,000 00
Trout of all kinds	24,000	2,400 00
Sturgeon	40,000	3,600 00
Shad	40,000	1,600 00
Cod	10,000	700 00
Catfish	4,000	320 00
Total	4,824,000	$469,020 00

TOTAL VALUE OF OUTPUT FOR 1904, COLUMBIA RIVER DISTRICT

Salmon packed	$ 926,309 00
Fresh, salt and smoked fish	469,020 00
Total	$1,395,329 00

TABULATED REPORT OF FISHING INDUSTRY, WILLAPA HARBOR DISTRICT, YEAR ENDING DECEMBER 1, 1904.

VALUE OF CANNERIES AND FACTORIES, FISHING APPLIANCES AND CAPITAL USED IN OPERATION OF SAME.

	No.	Value.
Salmon canneries and factories operated	2	$ 30,000 00
Oyster and clam canneries and factories operated	2	5,000 00
Capital used in operating	..	45,000 00
Launches	3	7,500 00
Pile drivers	2	1,000 00
Scows	1	400 00
Fishing boats and dories	22	1,000 00
Pound nets, operated	21	13,500 00
Pound net locations, not operated	6	3,000 00
Gill nets	5	250 00
Set nets	32	800 00
Total		$107,450 00

LABOR EMPLOYED IN OPERATION OF CANNERIES, FACTORIES, STEAMBOATS, FISHING APPLIANCES, ETC.

How Employed.	Number Men.	Average Season's Earnings.	Total.
Salmon canneries and factories, white labor	20	$300 00	$ 6,000 00
Canneries and factories, Chinese and Japanese	77	160 00	12,320 00
Launches	6	260 00	1,560 00
Pile drivers	6	100 00	600 00
Scows	1	300 00	300 00
Fishing boats and dories	22	150 00	3,300 00
Pound nets	40	200 00	8,000 00
Gill nets	7	300 00	2,100 00
Set nets	15	150 00	2,250 00
Total	194		$36,430 00

SALMON PACKED AND SALTED.

	No. of Cases.	Value.
Chinook	3,000	$12,000 00
Silvers	7,500	25,500 00
Chums	15,000	38,560 00
Total	25,500	$76,060 00

FRESH, SALT AND SMOKED FISH SHIPPED AND CONSUMED LOCALLY.

	Pounds.	Value.
Salmon, fresh, salt and smoked	50,000	$5,000 00

OYSTER INDUSTRY 1904, WILLAPA HARBOR DISTRICT.

OUTPUT OF SEED OYSTERS.

Number of licenses issued	49	@ $5 00	$ 245 00
Number of sacks tonged	17,949	@ 10	1,794 90
Total receipts Willapa Harbor District			$2,039 90

NATIVE AND EASTERN OYSTERS MARKETED.

		Value.
Native (sacks)	35,000	$105,000 00
Eastern (boxes)	10,000	70,000 00
Total		$175,000 00

PLANTED.

Eastern	21 car loads	$26,250 00

CAPITAL INVESTED.

30 Plungers	$12,000 00
300 Small boats	12,000 00
9 Launches	18,000 00
Total	$68,250 00

NUMBER OF MEN EMPLOYED.

250. Average annual earnings	$250 00	$62,000 00

NUMBER OF ACRES CULTIVATED.

1,000 acres native	$200,000 00
100 acres eastern	200,000 00
Total	$400,000 00

TOTAL VALUE OF OUTPUT FOR 1904, WILLAPA HARBOR DISTRICT.

Salmon packed	$ 76,060 00
Fresh, salt and smoked fish	5,000 00
Shell fish	175,000 00
Total	$256,060 00

TABULATED REPORT OF FISHING INDUSTRY, GRAYS HARBOR DISTRICT YEAR ENDING DECEMBER 1, 1904.

VALUE OF CANNERIES AND FACTORIES, FISHING APPLIANCES AND CAPITAL USED IN OPERATION OF SAME.

	No.	Value.
Canneries operated	2	$ 27,000 00
Canneries not operated	1	4,000 00
Capital used in operating	..	70,000 00
Steamboats	..	.....
Launches	2	3,000 00
Pile drivers	1	300 00
Scows	3	300 00
Fishing boats and dories	36	1,500 00
Pound nets operated	3	3,000 00
Gill nets	36	3,600 00
Set nets	74	4,000 00
Total		$116,700 00

LABOR EMPLOYED IN OPERATION OF CANNERIES, FACTORIES, STEAMBOATS, FISHING APPLIANCES, ETC.

How Employed.	Number Men.	Average Season's Earnings.	Total.
Canneries and factories, white labor	10	$400 00	$ 4,000 00
Canneries and factories, Chinese and Japanese	75	160 00	12,000 00
Launches	4	250 00	1,000 00
Pile drivers	3	100 00	300 00
Scows	3	200 00	600 00
Pound nets	3	150 00	450 00
Gill nets	72	150 00	8,700 00
Set nets	25	100 00	2,500 00
Total	212		$29,550 00

SALMON PACKED.

	No. of Cases.	Value.
Chinook	4,530	$20,620 00
Silvers	11,570	38,524 00
Chums	10,500	24,400 00
Total	26,000	$83,544 00

FRESH, SALT AND SMOKED FISH SHIPPED AND CONSUMED LOCALLY.

	Pounds.	Value.
Salmon, fresh, salt and smoked	220,000	$19,800 00
Sturgeon	4,000	320 00
All other kinds	20,000	1,400 00
Total	244,000	$21,520 00

TOTAL VALUE OF OUTPUT FOR 1904, GRAYS HARBOR DISTRICT.

	Value.
Salmon packed	$ 83,544 00
Fresh, salt and smoked fish	21,520 00
Total	$105,064 00

GENERAL SUMMARY OF THE FISHERIES OF THE STATE OF WASHINGTON FOR THE YEAR 1904, CAPITAL AND LABOR EMPLOYED AND VALUE OF OUTPUT.

CAPITAL EMPLOYED.

Puget Sound	$1,555,250 00
Columbia river	284,500 00
Willapa harbor	113,250 00
Grays harbor	70,000 00
Total	$2,023,000 00

NUMBER OF PERSONS EMPLOYED.

Puget Sound	7,170
Columbia river	2,708
Willapa harbor	194
Grays harbor	212
Total	10,284

EARNINGS OF LABOR EMPLOYED.

Puget Sound	$1,793,250 00
Columbia river	714,045 00
Willapa harbor	36,430 00
Grays harbor	29,550 00
Total	$2,573,275 00

VALUE OF OUTPUT.

Puget Sound	$5,559,468 00
Columbia river	1,395,329 00
Willapa Harbor	256,060 00
Grays harbor	105,064 00
Total	$7,315,921 00

NUMBER OF LICENSES ISSUED DURING YEAR ENDING NOVEMBER 30, 1904.

Puget Sound Pound Nets.			
238	pound nets, at $50 each	$11,900 00—	$11,900 00
Columbia River Pound Nets.			
12	pound nets, first class, at $20 each	$ 240 00	
9	pound nets, first class, at $40 each	360 00	
294	pound nets, second class, at $10 each	2,940 00	
58	pound nets, second class, at $20 each	1,160 00—	$ 4,700 00
Willapa Harbor Pound Nets.			
30	pound nets, at $10 each	$ 300 00—	$ 300 00
Grays Harbor Pound Nets.			
3	pound nets, at $10 each	$ 30 00—	$ 30 00
	Total pound nets		$16,930 00
Columbia River Fish Wheels.			
4	wheels, first class, stationary, at $25 each	$ 100 00	
9	wheels, second class, stationary, at $10 each	90 00	
8	scow wheels, at $15 each	120 00—	$ 310 00
Gill Nets.			
433	gill nets, Puget Sound District, at $2.50 each	$ 1,082 50	
567	gill nets, Columbia River District, at $2.50 each	1,417 50	
5	gill nets, Willapa Harbor District, at $2.50 each	12 50	
38	gill nets, Grays Harbor District, at $2.50 each	95 00	
Set Nets.			
523	set nets, Puget Sound, at $2.50 each	$ 1,307 50	
87	set nets, Columbia River, at $2.50 each	217 50	
32	set nets, Willapa Harbor, at $2.50 each	80 00	
75	set nets, Grays Harbor, at $2.50 each	187 50—	$ 4,400 00
Columbia River Seines.			
13	seines at $2.50 each	$ 32 50	
15	seines, at $5.00 each	75 00	
19	seines, at $10.00 each	190 00	
29	seines, at $15.00 each	435 00	
4	seines, at $25.00 each	100 00—	$ 832 50
Puget Sound Seines.			
58	drag seines, at $2.50 each	$ 145 00	
40	drag seines, at $5.00 each	200 00	
5	drag seines, at $10.00 each	50 00	
2	drag seines, at $15.00 each	30 00	
72	purse seines at $25.00 each	1,800 00—	$ 2,225 00
Individuals.			
257	Puget Sound District, at $1.00 each	$ 257 00	
77	Columbia River District, at $1.00 each	77 00	
10	Willapa Harbor District, at $1.00 each	10 00	
5	Grays Harbor District, at $1.00 each	5 00—	$ 349 00

Cannery Licenses.

2	Puget Sound District, at $100 each	$ 200 00		
2	Puget Sound District, at $150 each	300 00		
3	Puget Sound District, at $200 each	600 00		
2	Puget Sound District, at $250 each	500 00		
1	Puget Sound District, at $400 each	400 00		
1	Puget Sound District, at $500 each	500 00		
1	Puget Sound District, at $600 each	600 00		$ 3,100 00
2	Columbia River District, at $150 each	300 00		
4	Columbia River District, at $200 each	800 00		
2	Columbia River District, at $250 each	500 00		
1	Columbia River District, at $100 each	100 00		1,700 00
2	Willapa Harbor District, at $100 each	200 00		
1	Willapa Harbor District, at $150 each	150 00		350 00
1	Grays Harbor District, at $100 each	100 00		
1	Grays Harbor District, at $150 each	150 00		250 00
	Total			$ 5,400 00

Fresh Fish Dealers and Peddlers.

43	Dealers' Licenses, Puget Sound District, at $2.50	$ 107 50		
5	Peddlers' Licenses, Puget Sound District, at $2.50	12 50		
63	Dealers' Licenses, Col. River District, at $2.50	157 50		
1	Peddler's License, Col. River District, at $2.50	2 50		
3	Dealers' Licenses, Willapa Hbr. District, at $2.50	7 50		
5	Dealers' Licenses, Grays Harbor District, at $2.50	12 50		
1	Peddler's License, Grays Harbor District, at $2.50	2 50		$ 302 50

Fresh Fish Dealers Reports.
(At 30 cents per ton.)

Puget Sound District	$ 489 40	
Columbia River District	46 50	$ 535 90

Report of Fish Taken in Pound Nets and Wheels.
(At $1.00 per thousand fish.)

Puget Sound District pound nets	$ 2,422 44	
Columbia River pound nets and wheels	9 66	$2,432 10

Recapitulation by Districts.

Puget Sound District	$22,903 84	
Columbia River District	9,470 66	
Willapa Harbor District	660 00	
Grays Harbor District	582 50	$33,617 00

FINANCIAL STATEMENT OF OYSTER INDUSTRY.

Appropriation from general fund		$ 5,000 00
Received, 1903		2,586 45
Received, 1904—Willapa Harbor	$ 2,039 90	
Puget Sound	1,423 50	3,463 40
		$11,049 85
Expended to date		$ 4,996 88
		$6,052 97

CHELAN TROUT HATCHERY.

Appropriation from general fund	$ 3,000 00
Expended to date	2,940 50
Balance	$ 59 50

APPROPRIATIONS FOR FISHERIES DEPARTMENT FOR TWO YEARS ENDING APRIL 1, 1905.

Salary of Commissioner at $2,000.00 per year	$ 4,000 00
Traveling expenses of Commissioner at $1,000.00 per year	2,000 00
Salary, three deputies, at $1,200.00 per year	7,200 00
Traveling expenses of deputies at $600.00 per year	3,600 00
Stenographer and bookkeeper at $1,000.00 per year	2,000 00
Office rent at $600.00 per year	1,200 00
Incidental expenses at $500.00 per year	1,000 00
Total	$21,000 00

EXPENDITURES FROM OFFICE APPROPRIATIONS, FROM APRIL 1, 1903, TO DECEMBER 1, 1904.

Fish Commissioner's salary, two years	$ 4,000 00	
Expended to date		$ 3,333 34
Balance		666 66
	$ 4,000 00	$4,000 00
Fish Commissioner's traveling expenses, two years	$ 2,000 00	
Expended to date		$ 1,609 68
Balance		390 32
	$ 2,000 00	$ 2,000 00
Salary of three deputies at $1,200 per year	$ 7,200 00	
Expended to date		$ 6,000 00
Balance		1,200 00
	$ 7,200 00	$ 7,200 00
Traveling expenses of deputies at $600 per year	$ 3,600 00	
Expended to date		$ 2,604 70
Balance		995 30
	$ 3,600 00	$ 3,600 00
Salary stenographer, two years	$ 2,000 00	
Expended to date		$ 1,497 74
Balance		502 26
	$ 2,000 00	$ 2,000 00

Office rent, two years, at $600 per year	$ 1,200 00	
Expended to date		$ 1,050 00
Balance		150 00
	$ 1,200 00	$ 1,200 00
Incidental expenses at $500 per year	$ 1,000 00	
Expended to date		$ 771 74
Balance		228 26
	$ 1,000 00	$ 1,000 00

APPROPRIATIONS FROM FISH HATCHERY FUND, TWO YEARS.

For maintenance of state fish hatcheries	$87,500 00	
For construction of and improvements, state fish hatcheries	21,665 00	
Engineer's salary for Puget Sound launch, at $900.00 per year	1,800 00	
Fuel and other expenses for launch at $1,000.00 per year	2,000 00	
For purchasing launch on the Columbia River	2,500 00	
Operating expenses of launch at $1,000.00 per year	2,000 00	
Total		$117,465 00

EXPENDITURES FROM FISH HATCHERY FUND, FROM APRIL 1, 1903 TO DECEMBER 1, 1904.

Appropriation for purchase of launch for Columbia River	$ 2,500 00	
Expended to date		$ 2,500 00
Total	$ 2,500 00	$ 2,500 00
Engineer's salary, Puget Sound launch, two years at $900.00 per year	$ 1,800 00	
Expended to date		$ 1,694 75
Balance		105 25
Total	$ 1,800 00	$ 1,800 00
Appropriations for fuel and expenses, Puget Sound launch	$ 2,000 00	
Expended to date		$ 1,900 65
Balance		99 45
Total	$ 2,000 00	$ 2,000 00
Appropriation for operating expenses Columbia River launch	$ 2,000 00	
Expended to date		$ 1,915 40
Balance		84 60
Total	$ 2,000 00	$ 2,000 00

AMOUNT EXPENDED FOR MAINTENANCE AND IMPROVEMENT OF HATCHERIES FROM DECEMBER 1, 1903 TO DECEMBER 1, 1904.

Hatchery.	Maintenance.	Improvement.
Kalama	$ 3,407 34	.....
Chinook	1,231 03	.....
Chehalis	310 35	.....
Wenatchee	1,866 56	.....
Nooksack	25 00	.....
Skokomish	685 35	.....
Willapa	664 28	.....
Wind River	1,346 43	.....
Samish	363 58	.....
Snohomish	3,541 01	.....
White River	1,055 91	.....
Methow	1,284 56	.....
Nisqually	924 87	.....
Colville	29 00	.....
Dungeness	1,813 29	.....
Miscellaneous	2,890 90	.....
Total	$21,449 46	.....

Total expenditure for maintenance, 1903	$18,965 10
Total expenditure for maintenance, 1904	21,449 46
Total	$40,414 56

Appropriation for maintenance hatcheries, two years	$87,500 00	
Expended to date (1903 and 1904)		$40,414 56
Balance		47,085 44
Total	$87,500 00	$87,500 00

Appropriation for improvements hatcheries, two years	$21,665 00	
Expended to date		$ 6,836 14
Balance		14,828 86
Total	$21,665 00	$21,665 00

OUTPUT OF THE STATE OF WASHINGTON HATCHERIES, SEASON OF 1904.

Columbia River District—	Chinook.	Steelhead.	Silversides.	
Kalama	3,000,000	.....	.....	
Wind River	300,000	.....	.....	
Chinook	200,000	.....	150,000	
Methow	.....	.....	35,000	
Wenatchee	Not operated	.....	.....	
Klickitat	Not operated	.....	.....	
Colville	Not operated	.....	.....	
Total for the district	3,500,000	.....	185,000	3,685,000

Puget Sound District—

	Chinook.	Steelhead.	Silversides.	
Dungeness	2,000,100	937,000	2,100,000	
White River	515,000	150,000	1,254,126	
Snohomish	175,100	704,150	2,500,000	
Nesqually	.....	604,000	3,546,200	
Samish	.....	.....	2,000,100	
Skokomish	Not operated	.....	.....	
Stillaguamish	Not operated	.....	.....	
Nooksack	Not operated	.....	.....	
Total for the district	2,690,200	2,395,150	11,400,426	16,485,776

Willapa Harbor District—

	Chinook.	Steelhead.	Silversides.	
Willapa	700,000	320,000	2,000,000	3,020,000

Grays Harbor District—

	Chinook.	Steelhead.	Silversides.	
Chehalis	Not operated	.....	.....	
Grand totals	6,890,200	2,715,150	13,585,426	23,190,776