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REPORT  
OF THE  
COMMISSIONERS OF FISHERIES  
OF THE  
STATE OF CALIFORNIA,  
FOR THE  
YEARS 1881 AND 1882.

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7948



# REPORT.

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*To his Excellency GEORGE STONEMAN, Governor of California:*

The Commissioners of Fisheries of the State of California, appointed under an Act of the Legislature, entitled "An Act to provide for the restoration and preservation of fish in the waters of the State," approved April 2, 1870, respectfully submit their seventh report.

## SACRAMENTO SALMON.

The marked increase in the demand for salmon by the canning establishments, arising from the growth and extension of that important industry, has induced the Commission to endeavor to increase the supply of this valuable fish, in order, if possible, to keep pace with the demand; and we now have the gratification of reporting the successful hatching and distributing, this season, of four millions of salmon in the waters of the State. The success of the artificial breeding of this fish which has attended our former efforts, has led us to believe that the Sacramento River may be made to produce an almost unlimited supply, and with this view of its capabilities, we have this season commenced the experiment of placing in that river and its tributaries double the number heretofore planted. If this large planting should give the same evidence of success in the increase of fish which the planting of former years has exhibited, it will go far towards encouraging the hope that the Sacramento River may be made a great "fish farm," from which may be supplied all the salmon that a largely increased business of the canning interests may require. That the artificial breeding of salmon has largely increased the run of fish in the river, is too clearly demonstrated in the increased production of the canning establishments, to admit of a doubt.

It will be seen, by referring to former reports, that the business of the canning of salmon has been as follows:

For the season ending August 1, 1875.....	5,098,781 pounds.
For the season ending August 1, 1876.....	5,311,423 pounds.
For the season ending August 1, 1877.....	6,493,563 pounds.
For the season ending August 1, 1878.....	6,520,768 pounds.
For the season ending August 1, 1879.....	4,432,250 pounds.

Now we come to the results, as we think reasonably indicated, of the artificial breeding.

It is a well settled fact that the reproduction of the salmon to its full size requires four years; consequently the "output" of 1880 is the first result of former planting. We now have the gratification of registering the increased production as follows:

For the season ending August 1, 1880.....	10,837,400 pounds.
For the season ending August 1, 1881.....	9,600,000 pounds.
For the season ending August 1, 1882.....	9,605,250 pounds.

This increase of production cannot reasonably be credited to an increase in the number of canning establishments, as it is well known that no such sudden and large increase of such facilities has taken place; nor can it fairly be attributed to chance runs of fish into the river. It is too regular and well sustained to be the result of accident.

In addition to the amount of salmon canned for export, it will be seen by the detailed report of transportation, that 6,713,408 pounds of salmon have been taken for home consumption. It may be well here to add that the above statistics are not mere estimates, but reliable information obtained from parties engaged in this business, and from registers of internal transportation.

The Commission has much satisfaction in being able to report that there now appears to exist a more harmonious feeling upon the necessity of preserving the fish in our rivers. During the year last past, from all the information we have, there has been exhibited, on the part of the conductors of the canning business, a fair and earnest desire to enforce the close season, and a commendable realization of the importance of preserving the fish from wasteful destruction, and allowing them to reach their breeding grounds in sufficient numbers. But still there has been a great deal of surreptitious violation of the laws by itinerant fishermen, whose depredations can only be prevented by the people in the immediate neighborhood assisting in enforcing the law; for it may here, we think, be pertinently remarked, that the "American citizen," whilst exhibiting the highest order of natural ability for the making of laws, seems to almost entirely overlook the fact that it is also his privilege and duty, individually, to aid in the enforcement of them. It has been frequently suggested to the Commissioners, that they ask the Legislature for an additional appropriation for the establishment of a "patrol police," to enforce the laws as against these desultory depredations. We cannot see the expediency of such an extravagance, for extravagance it would be. It would cost more to keep it up than any possible benefits derived from it. There is no actual necessity for large expenditure by this Commission, and the simpler and more economically it is conducted, the better will the State be served.

#### STRIPED BASS.

During the last year we have repeated the effort of introducing this valuable fish into the waters of the State, and we may add, this coast, for it is a sea-going fish, as well as an inhabitant of inland waters.

On the Eastern coast of the continent there is no other fish so highly valued. It is exceedingly prolific. It inhabits the fresh waters during all the Spring and Summer months, running in schools and taking the hook readily, and varying in weight from one to five pounds. When it takes on its sea-going form, it becomes a noble fish, reaching in weight from seventy to one hundred pounds, and still at even this great size, never losing its delicious flavor. We subjoin the report of Mr. J. G. Woodbury, the present Superintendent of the State Fishery, who made the trip East during the last Summer especially to bring out the striped bass, and whose success in the difficult task of bringing across the continent fish of so large a size will best illustrate his skill and care in so difficult an undertaking. It is hoped by the Commission that this importation will soon exhibit its results:

## REPORT OF J. G. WOODBURY ON STRIPED BASS.

SAN FRANCISCO, July 31, 1882.

*S. R. Throckmorton, Esq., Chairman California Fish Commission:*

DEAR SIR: In accordance with your instructions to bring from the Atlantic Coast waters a lot of striped bass fry, for the purpose of stocking the waters of the Pacific Coast, I proceeded directly to Red Bank, New Jersey, which is on the Shrewsbury River, a few miles from the ocean, from whose tidal waters it was known that young bass could be conveniently caught, being the same place to which Mr. Livingston Stone had, on a former occasion, been directed by your Commission. I arrived at Red Bank on June twenty-seventh, and, with a letter of introduction, called upon Mr. G. H. Wild, the gentleman with whom you had been communicating in regard to the best season for catching young bass. Mr. Wild, who had previously interested himself in getting a permission from the New Jersey Fish Commissioners allowing the Shrewsbury River to be seined for the young bass we desired to obtain, now heartily lent his aid in securing men, boats, and seine to help catch the young fry. The next thing was to devise some means to keep the young bass in safety, as they were caught from day to day, and where they could be conveniently examined and fed if needful until the proposed number had been caught. For this purpose I adopted the suggestion you made to me before leaving San Francisco, which was to make a cage for them and anchor it in the current of the river. This cage was to be six feet long by three feet square (to suit the width of the wire), the bottom and top to be of boards, and the sides of galvanized wire to permit a free circulation of the water, the top to have a door for easy access. Mr. William E. Cole, a well known merchant of Red Bank, in his kindly interest in the success of our enterprise, insisted upon making this cage himself, which he did in a very satisfactory manner, thus giving me more time to devote to other urgent matters. You had written to Mr. Seth Green, Superintendent of the New York Fish Commission, to send a man experienced in catching and handling fish, and also a seine, to Red Bank, to meet me on my arrival from California. This gentleman (Mr. E. L. Marks), owing to some delay consequent on making a shipment of fish, did not reach Red Bank until the second day after my arrival. The seine which Mr. Green sent was too small to be of much use in the Shrewsbury, while the one I had secured in Red Bank was so much torn that nearly two days were consumed in repairing it. On the fifth day we had gotten the cage into the river and anchored it in a strong current, under the bridge; the seine had been repaired, and we made several hauls, catching about fifty fish. This was so encouraging that it led us to expect that the number of bass desired might be easily caught, although the fish were not so small as I had hoped. I now left Mr. Marks in charge of catching the bass, while I attended to other matters necessary to the success of our enterprise, such as getting cans made for transporting the fish to California, securing transportation passes in the baggage car over the railroads, etc. In New York I ordered made twelve cans like the New York Fish Commissioners' cans for transporting trout. These cans will hold about fourteen gallons each, and are made of the heaviest tin, strongly bound. The cans are so constructed as to give the largest possible air surface to the water, and they will be of good service to the Commission in the future. Three ten-gallon cans were also ordered for carrying extra water; they have wooden jackets, and are the same as those used by the United States Fish Commission in transporting young shad. Also, four strong pails for carrying water. These cans and pails were to be finished at a certain time, but owing to the Fourth of July intervening, and the warm spell which prostrated some of the workmen, they were not ready for delivery until a week after the time promised, consequently we were not able to start on our journey until several days after our fish had all been secured. Through the kindness of Professor Spencer F. Baird, United States Fish Commissioner, and his assistants, I received much practical information in relation to transporting fish on long journeys, and specially such as was pertinent to the trip I was about to begin. Professor Baird also kindly furnished me with free transportation passes for our outfit in the baggage cars over the different railroads.

While at Red Bank I had received a letter from you, with instructions to bring back some large eels for breeding purposes. I therefore went down to the eel-fishing grounds below Highlands, and near the mouth of Shrewsbury River, to make arrangements to have some caught and delivered at Red Bank a day before our departure for California with the striped bass.

As the striped bass was the first consideration, the floor space allotted to our use in the baggage car was all reserved for them. For carrying the eels I therefore proposed light boxes, so that they might be hung to hooks on the walls of the car over the fish cans. These boxes were similar to cheese hoops, with a bottom having holes in it for circulation of air, and a cover also having holes in it, which would drop loosely into the top of the box and find a resting place on lugs about two inches below the top. The two-inch space at the top was reserved for ice, so that, as it melted, the cold water would drip through upon the eels below. To the outer rim of the bottom was suspended a shallow tin dish to catch the dripping water, and so prevent the floor of the car becoming sloppy from this source. I knew that eels would live a long time if put in a cool place and their gills kept moist. With this fact in view, I arranged the boxes as above described, and intended putting the eels in boxes among eel grass, and to keep them moist by pouring over them, every few hours, a dipper full of waste water from the striped bass, and thus obviate the necessity of taking any extra water for the eels. To keep them cool, a small piece of ice placed on the cover to slowly melt and drip through on them would meet the requirements at little expense.

In consequence of the excessive hot weather, all the eels that were put into the cages died before we were ready to start with them. I therefore brought with me but ten eels (as an experiment), which were caught near our bass-fishing grounds on the night before our departure. These were put into a box as above described, and in addition to wetting them down three or four times during each twenty-four hours, and keeping a small piece of ice on the cover, they were every day given a bath for a few minutes in the waste water from the bass, which they seemed to enjoy hugely—the eel-grass being well rinsed and the box washed out. These eels were from twelve to twenty-four inches long. They all came through in fine condition, and were put into the bay near where the striped bass were planted, in water about a foot deep, on the edge of the tules. On being put into the water, they immediately bored straight down into the soft mud, and in a moment were all out of sight.

The weather had been excessively warm, raising the temperature of the water at times, where the fish were caught, to 84° Fahrenheit. When about three hundred had been secured, the fish being much larger than was anticipated, and some of them showing signs of distress on account of close confinement in such warm water, a second cage was built. The men continued fishing until July fourteenth, and, according to their count from day to day, had caught about six hundred, although all of this number were not in the cage when the fishing was discontinued, for some had died from bruises caused by careless handling; the temperature of the water causing the fungus to grow very rapidly where the scales had been rubbed off or discoloration produced from a bruise. Those that had been put into the first cage were supposed to be getting somewhat hungry after going without food for a week, therefore they were fed with some chopped liver, and their desire for food was so much stronger than their instinct of fear, that they eagerly rushed for the food as it was put into the water, even taking it from the hand as tame trout will often do. It was noticed that the bass in the second cage would not take food until they had been several days in confinement.

We now had all the fish we could carry in the space allotted to us in the car, and we only awaited the arrival of the cans from New York, which were promised to be ready for shipment on Saturday morning. Arrangements were made to start for home on Monday afternoon, July seventeenth. Mr. Marks, whom I had engaged to assist me in the care of the fish on the trip to California, was to see that the bass were gotten into the cars all right, so that we might start on the 4:55 p. m. train for Jersey City. While in an endeavor to get some eels to take along, I was obliged to be away until one o'clock of this, to us, important day, on a trip to Seabright and Parkerstown. Thirty-five of the larger bass were put into each of six cans, and forty of the smaller ones into each of the six other cans. These bass were from five to nine inches in length, and would average six and one half inches long. I had been advised by men experienced in handling fish to put no more than twenty-five in each can to take on such a long trip; but I knew that some of the weaker ones, with the best of care, would probably die, and being very anxious to get through with as many bass as possible, we had resolved to give them more than the usual amount of aeration and careful attention. It was decided to take the risk of the cans being somewhat crowded. The warm, brackish water of the Shrewsbury was used to fill the cans, and, after the fish were put in, the water was cooled down with ice. While the water was being cooled down, some of the bass showed signs of distress, and, while at the river bank, some of them died, perhaps twenty. At the railroad station, and before getting the cans on the cars, we lost about as many more. During the excitement of attending to the fish, paying bills, and seeing that all of our traps were put aboard, no one thought of counting the dead fish. Besides the twelve cans of fish, we had three cans of extra water and one box of eels; and with the ice, pails, aerating apparatus, and our own baggage, we took up considerable room in the car. Mr. J. A. Throckmorton, a prominent citizen of Red Bank, who had rendered us much assistance, and to whom I am indebted for many personal favors, also Mr. G. H. Wild, who, from the first, had been unremitting in his assistance, came to the station to wish good luck and bid us good-bye. I am also greatly indebted to Mr. William E. Cole for many kind favors. After the fish were on the train, we gave our whole attention to cooling down and aerating the water, which was soon lowered to about 60° Fahrenheit, at which temperature, a little above or below, we kept it all the way to the Pacific Coast.

On the way to Jersey City, and during a detention there of two hours to connect with the Pacific express train, twelve more of the bass died. During the night, some time after passing Philadelphia, two more were found dead, which made fourteen all told since leaving Red Bank. Most of these had shown signs of distress by occasionally turning on their sides. A considerable number of those picked out had either lost some of their scales or had contusions, and some had the "water-louse" fastened to their gills. These parasites were huge fellows, being about five eighths of an inch long and three eighths of an inch broad, and would no doubt have killed the fish sooner or later. During the next two days no more fish were lost. They appeared strong and lively until early in the morning of our arrival at Council Bluffs. I examined the cans, as had been our custom every few hours, and found the fish very lively in all the cans but one, in which were several dead fish. They were all taken out of the can and the water poured off, when at the bottom of the can was found a greenish-looking substance about the size of a lozenge, which would break like a piece of cheese. I think, perhaps, the fish may have nibbled from this mysterious substance and been poisoned. The next day, on drawing off the water from these fish and filtering it, there was found a soft, greenish, oozy matter, which may have passed through the fish. We could in no way account for this substance being in the can. From this can sixteen fish in all were lost before getting to Council Bluffs. On arriving at Council Bluffs the fish were left in charge of Mr. Marks to bring over

to Omaha on the through train, while I crossed the river on the dummy train to make arrangements for our passes to San Francisco, and also get a requisition for ice at the stations between Omaha and Ogden. While waiting for the train to come along, Mr. Marks gave the fish a change of water from an artesian well. The water was clear and cold, appearing to be of the best quality. The fish soon showed signs of distress, and, with all the aeration he could give the water, ten of them died, and others were occasionally turning on their sides. Some said the water was alkaline; others said the water had been analyzed and no alkali was found. Artesian water is almost destitute of air. I have known carp, after being in it a few minutes, to lie as if dead at the bottom of the can, and after an energetic aeration of the water would become lively again. As soon as the train got over to Omaha, a change of Missouri River water was given them, and with continual aeration they soon showed signs of improvement. In Omaha twenty-five fish were thrown out dead, and during the next eighteen hours thirty-three more died, making the loss of bass, from the time of first putting them into the cans, about one hundred and forty. While at Omaha, I felt that we would be fortunate if we could keep any of the fish alive during the remaining five days of the journey, as, on putting the arm down into the roily water, the fish seemed to be either on their sides at the bottom of the cans or so sick that they would make no effort to escape from the hand. During the remainder of the journey of about three and one half days no more fish were lost; and, although this was the most dangerous part of the trip, on account of the alkaline water at most of the stations, the fish kept in splendid condition all the way through.

I desire here to express my deep sense of obligation to the General Manager of the Union Pacific Railroad at Omaha for his very generous act in furnishing free transportation for the fish over his road, and also for other personal favors extended. The success of our undertaking was largely due to the uniform courtesy of the railroad officials along the entire route.

The striped bass, a little over three hundred in number, were placed in brackish water at 61° Fahrenheit, at Army Point, in Suisun Bay. Mr. B. B. Redding met us at that place and assisted in depositing them into the water.

The water in the Shrewsbury River is brackish, indicating on the salinometer four degrees density. Taking this brackish water with us on the start, Turk Island salt was added to fresh water until about four degrees density, when we renewed the water in the cans. During the first night the salinometer was accidentally broken, and afterwards we had to salt the water to our taste. By some misunderstanding the quantity of salt taken from Red Bank was not what had been intended, and the supply getting short the water gradually became fresh again. In this condition the fish remained twenty days or more. But they seemed to do equally well in either fresh or brackish water. Mr. Marks took great interest in making the enterprise a success, working very faithfully, and cheerfully submitting to the inconvenience of obtaining sleep by short naps across the trunks in the baggage-car, so that we could relieve each other every two hours, and thus give the bass that almost constant attention they required. For aerating the water, which was done every fifteen to twenty minutes, we used an implement contrived by Mr. Munroe Green, of Mumford, New York. This was a cylinder about eighteen inches in length and six in diameter, having the bottom perforated with fine holes, and the top with a lid, and a handle to manipulate it. By letting it fill as it was slowly pushed nearly to the bottom, and then quickly pulling it to the top of the can, it gave it a fine shower of about one and a half gallons of almost perfectly aerated water. By having ice inside this aerator during the operation, we found it admirably adapted for quickly cooling the water. This is just the thing where small fish are being carried, thus avoiding the danger of crushing them by having loose ice in the can. This aerator gave better satisfaction than any other ever used by me.

Very respectfully,

J. G. WOODBURY.

#### CARP.

There has sprung up throughout the State an active interest in the cultivation of the carp, and the Commission has done everything in its power to meet the wishes of those embarking in the business. We are most opportunely aided just at this time by the generous expenditure and active efforts of the United States Fish Commissioner in sending to this coast a special car with a full corps of experts in charge of a large shipment of carp for distribution on this coast, and it gratifies us to be able to say that the arrangements for supplying persons desirous of cultivating and propagating this valuable fish are now in successful operation. The cultivation and propagation of this useful fish seem as yet scarcely understood by many who are disposed to embark in it. The carp is, in fact, to a great extent, a domesticated fish. It requires care and attention, and a proper preparation of conditions artificially. In fact, we are yet to be educated to the successful and cheap mode of propagating them. This will all come with

time, and time only will bring it about, and no extravagant expenditure of money will very much hasten the result.

#### SHAD.

Since our last report we have received from the United States Fish Commissioner two hundred and twenty thousand eastern shad, which were placed in the Sacramento River above Tehama. These fish have doubtless added to the already increasing stock of shad on this coast, and we may now fairly congratulate ourselves upon the establishing of shad as an existing fact. They are now a food fish ready for consumption, and require the protection of the law.

There seems to have been some misinformation in regard to the proper season of taking them, on the part of some persons who have attempted to make laws for their protection.

The Commission has taken pains to correspond with Mr. Seth Green and the Commissions on the eastern coast, and find that the "close season" for shad on this coast should be from June fifteenth to March first, thus making the open season—during which it may be lawful to take them—from March first to June fifteenth in each year; and in addition, the taking should be forbidden at all times from Saturday night to Monday morning.

In presenting this report we must be allowed to state that it is, in some respects, the records of what may be called unfinished business. There is a great deal of matter before the Commission requiring immediate care and attention. The hatching and distributing season is at hand. We have in course of hatching five hundred thousand whitefish presented by the United States Fish Commissioner. These are to be distributed throughout the northern waters of the State.

The hatching and distribution of land-locked salmon and the distribution of carp will require much care and attention of the Commissioners.

In making up the account of receipts and disbursements, we have made, as usual, the close of the fiscal year the first of January. At that time the amount of cash on hand is chargeable with the outstanding amount of the cost of placing of four millions of salmon in the Sacramento River, the bill for which not having come to hand in time to be paid out of the funds on hand at that date. It will amount to the sum of two thousand dollars. This and the current expenses of the hatching-house, and distributions before us, will probably consume the balance of the funds of the Commission by the time the new appropriation will be available.

We hope that we need not now state that the Commissioners have practiced the closest economy in all the details of the business, but the work covers a great deal of ground and must be well and carefully conducted, and always by employes of knowledge and experience in the business. A whole hatching of eggs may be lost in a night, and carloads of fish may perish in a single hour of neglect or ignorance. The work must be done by those trained to it.

In closing this report it is proper to give some reason for the delay which has attended its delivery. In the death of our lamented associate, Mr. B. B. Redding, this Commission shares largely in the loss which the State and the cause of science, education, and development have suffered in the untimely passing away of this truly estimable gentleman. For more than twelve years he gave to the



Commission the fruits of his study and research, and to him, mainly, it is indebted for the standing it had attained amongst the similar associations of the United States.

The death of Mr. W. W. Traylor, soon after his appointment, deprived us of a colleague who bid fair to make an attentive and valuable officer; and the other vacancy, caused by the resignation of Mr. J. D. Farwell, one of the earliest and most useful appointees, have contributed to retard the bringing up to date the affairs of the Commission with more dispatch.

## RECEIPTS AND EXPENDITURES.

The following is an account of receipts and expenditures since our last report:

<i>Receipts.</i>	
January 3, 1881—By cash on hand, as per last report.....	\$4,258 55
November 3, 1881—By cash returned from A. W. Von Schmidt.....	95 00
January 31, 1882—By cash appropriation.....	5,000 00
January 31, 1882—By cash Pit River fish ladder.....	70 50
May 16, 1882—By cash returned freight carp.....	12 00
July 20, 1882—By cash State appropriation.....	5,000 00
	\$14,436 05

<i>Expenditures.</i>	
January 14, 1881—To paid Woodbury.....	\$20 00
January 15, 1881—To paid Marks.....	80 00
January 21, 1881—To paid Wells, Fargo & Co.'s Express on 250,000 whitefish eggs.....	16 70
January 27, 1881—To paid W. N. Lockington, trip to Sacramento and reading proof of report.....	26 00
January 31, 1881—To paid Lockington balance expense proof at Sacramento.....	24 00
February 1, 1881—To paid expressage on 100,000 whitefish eggs.....	16 50
February 1, 1881—To paid stove and pipe for hatching house.....	7 65
February 1, 1881—To paid copper, lock, shingles.....	1 90
February 1, 1881—To paid flannel.....	3 10
February 1, 1881—To paid staples and files.....	50
February 1, 1881—To paid Woodbury, balance labor, January.....	130 00
February 3, 1881—To paid telegram, Michigan and Tulare.....	3 50
February 11, 1881—To paid Richardson, expense of 100,000 whitefish in Donner Lake, and 10,000 in Presidio Lake.....	43 50
February 11, 1881—To paid expressage on 250,000 whitefish eggs, Michigan.....	38 55
February 11, 1881—To paid drayage.....	1 00
February 15, 1881—To paid telegrams, Washington and Michigan.....	5 40
February 15, 1881—To paid Richardson, one month's labor, January.....	100 00
February 15, 1881—To paid expressage on 100,000 whitefish, Donner Lake.....	40 25
February 24, 1881—To paid postage stamps.....	5 00
February 24, 1881—To paid expressage.....	50
March 8, 1881—To paid Hoehn & Co. money advanced for purchase of catfish; expressage on cans and fish, Lathrop and Alameda.....	43 85
March 8, 1881—To paid Woodbury one month's labor.....	150 00
March 8, 1881—To paid food for fish.....	40
March 13, 1881—To paid Wells, Fargo & Co. expressage on whitefish eggs and trout eggs.....	26 05
March 13, 1881—To paid telegram, Watsonville, etc.....	2 25
March 15, 1881—To paid expense of trout, etc., to Alpine County.....	38 30
March 15, 1881—To paid telegram, Woodbury.....	50
March 24, 1881—To paid Stratton expressage on cans and fish.....	9 50
March 24, 1881—To paid expense of distributing trout, etc., Gilroy.....	4 30
March 24, 1881—To paid same, Tahoe.....	53 31
March 24, 1881—To paid two telegrams, Visalia.....	2 00
April 4, 1881—To paid Henry Pither, 100 catfish, San Mateo, and expressage.....	11 75
April 4, 1881—To paid 500 small catfish, San Diego.....	12 40
April 4, 1881—To paid 162 catfish, Alpine.....	16 00
April 4, 1881—To paid Richardson, two months' and four days' labor.....	212 00
April 6, 1881—To paid Richardson, expressage on trout to Tehachapi.....	39 05
April 6, 1881—To paid Richardson, L. L. salmon, San Mateo.....	3 24
April 6, 1881—To paid telegrams.....	1 00
April 8, 1881—To paid Woodbury, labor, one month to April 1.....	150 00
April 8, 1881—To paid milk, feed trout.....	1 25
April 8, 1881—To paid W. J. Stratton, expressage and drayage.....	6 50
April 8, 1881—To paid 425 pounds ice.....	9 25

April 13, 1881—To paid Dunn, expense of trout to Sonoma-----	\$5 50
April 18, 1881—To paid Woodbury, in full for labor to the 15th-----	75 00
April 18, 1881—To paid telegram-----	70
April 18, 1881—To paid Stratton, expressage on cans-----	6 50
April 18, 1881—To paid feed for trout-----	1 60
April 18, 1881—To paid Wells, Fargo & Co., expressage on cans-----	1 95
May 3, 1881—To paid expressage on cans-----	2 80
June 23, 1881—To paid telegrams, Professor Baird-----	3 55
June 27, 1881—To paid John Merryman, witness in Chinese case at San Rafael--	20 00
July 28, 1881—To paid H. C. Marks, services clerk account, 1881-----	100 00
August 16, 1881—To paid expenses of Johnson, witness in Chinese case at San Rafael-----	10 00
August 16, 1881—To paid self-----	1 75
August 8, 1881—To paid Neville & Co., seine for carp, sixty feet-----	35 00
August 8, 1881—To paid Woodbury, expenses of transporting carp from Alameda to Redwood-----	36 30
August 12, 1881—To paid Pither, 250 catfish, Walsh, Cloverdale-----	6 25
August 12, 1881—To paid Pither, 500 catfish, Radcliff, Watsonville-----	11 25
August 12, 1881—To paid Pither, 500 catfish, A. Benson, Beowawe-----	18 25
August 12, 1881—To paid Pither, 500 catfish, Morland, Healdsburg-----	14 00
August 12, 1881—To paid Pither, 400 catfish, Weller, Cascades-----	15 00
August 12, 1881—To paid 500 catfish, Weller, Cascades-----	13 50
August 28, 1881—To paid expressage on cans-----	1 50
August 28, 1881—To paid Woodbridge one month's salary to 22d-----	150 00
September 1, 1881—To paid L. Levy, witness in People vs. Blencke-----	10 50
September 4, 1881—To paid expenses in examination of Pit River fishway-----	70 50
September 22, 1881—To paid J. Caire, wire cloth-----	5 76
September 22, 1881—To paid freight on 200,000 salmon eggs-----	16 00
October 1, 1881—To paid freight on 200,000 salmon eggs-----	7 50
October 15, 1881—To paid Captain Farwell for removing obstruction in Alameda Creek-----	5 00
October 24, 1881—To paid telegram, Professor Baird, whitefish-----	2 00
October 24, 1881—To paid Sturtevant & Gray, food for carp-----	2 45
October 24, 1881—To paid flannel for screen-----	2 10
October 24, 1881—To paid copper wire-----	1 35
October 24, 1881—To paid Stratton, expressage-----	2 00
October 24, 1881—To paid tacks and fare-----	2 10
October 24, 1881—To paid Woodbury, salary to October 19-----	150 00
November 3, 1881—To paid Horton, transporting 20,000 salmon, Donner Lake---	20 00
November 21, 1881—To paid W. G. Gifford, labor and expenses at hatchery, and distribution of salmon-----	54 70
November 21, 1881—To paid tin pipe and work-----	2 50
November 21, 1881—To paid steel, Pacific Saw Factory-----	2 00
November 21, 1881—To paid thermometer, salt, brush-----	1 25
November 21, 1881—To paid labor, drawing carp pond-----	2 25
November 21, 1881—To paid galvanized wire-----	2 53
November 21, 1881—To paid Stratton, express transportation of salmon-----	12 00
November 21, 1881—To paid Woodbury, one month, four days-----	170 00
November 21, 1881—To paid expenses and fare, Gifford, distributing salmon-----	23 85
November 26, 1881—To paid H. D. Dunn, distributing salmon, Pescadero, Redwood, and Russian River-----	10 00
November 29, 1881—To paid H. Pither, catfish, Sierra Valley and Monterey-----	41 50
December 3, 1881—To paid E. F. Preston, attorney for Superior Court, Hey Sing Yet vs. Anderson-----	105 40
December 8, 1881—To paid bill for ice, transporting fish-----	4 00
December 13, 1881—To paid Wells, Fargo & Co., transporting cans-----	2 50
December 19, 1881—To paid Wells, Fargo & Co., freight, trout eggs, New Hampshire-----	11 55
December 31, 1881—To paid L. Stone, 30,000 Eastern trout eggs-----	120 00
December 31, 1881—To paid packing-----	3 25
December 31, 1881—To paid draft-----	35
January 1, 1882—To paid Woodbury, labor half month to date-----	75 00
January 1, 1882—To paid Woodbury, expense to Taylorsville, fish-ladder-----	6 60
January 1, 1882—To paid Stratton, express, fish eggs-----	3 00
January 3, 1882—To paid Wells, Fargo & Co., express, whitefish eggs-----	52 80
January 31, 1882—To paid L. Stone, for hatching 2,000,000 salmon-----	1,000 00
February 2, 1882—To paid express, 250,000 whitefish eggs, Michigan-----	28 00
February 2, 1882—To paid Mullen, to San Leandro for fish-----	2 00
February 8, 1882—To paid half month labor to January 15-----	50 00
February 13, 1882—To paid Knowles & Co., syphon and aerator-----	2 75
February 13, 1882—To paid Stratton, express, fish and cans to January 13-----	11 50
February 13, 1882—To paid Woodbury, expenses with carp to Stockton-----	9 55
February 13, 1882—To paid Woodbury, labor one month to February 1-----	150 00

February 13, 1882—To paid J. Caire, wire cloth.....	\$4 08
February 13, 1882—To paid Richardson, half month labor to February 1.....	50 00
February 13, 1882—To paid Palmer & Sons, 50,000 Eastern trout.....	125 00
February 13, 1882—To paid Pither, 500 catfish and express.....	14 50
February 15, 1882—To paid draft, Palmer Sons.....	50
February 15, 1882—To paid Wells, Fargo & Co., transporting trout and whitefish.....	35 55
February 15, 1882—To paid Wells, Fargo & Co., transporting trout and whitefish.....	40
February 23, 1882—To paid express, transporting 1,000 whitefish, Clear Lake.....	46 10
February 23, 1882—To paid 80,000 whitefish, Donner Lake.....	51 30
February 23, 1882—To paid 60,000 whitefish, Clear Lake.....	31 55
March 2, 1882—To paid dispatch, Carson.....	75
March 2, 1882—To paid express.....	50
March 3, 1882—To paid J. B. Campbell, 15,000 trout eggs.....	60 00
March 6, 1882—To paid Stratton, express, trout eggs.....	3 00
March 6, 1882—To paid express, Mullen, 50 cents; transporting trout, Monterey, \$3 85.....	4 35
March 6, 1882—To paid sheet tin, \$1; Woodbury, labor one month, \$1 50.....	150 00
March 10, 1882 To paid Wells, Fargo & Co., L. L. salmon eggs, Maine.....	10 20
March 10, 1882—To paid Wells, Fargo & Co., San Leandro.....	1 00
March 10, 1882—To paid telegram, Boca.....	50
March 10, 1882—To paid shrimps, etc., fish food, \$2 50; messenger, 50 cents.....	3 00
March 26, 1882—To paid Woodbury, account.....	20 00
April 3, 1882—To paid Stratton, Whitefield and L. L. salmon expressage to cars.....	4 00
April 3, 1882—To paid drawing carp pond labor.....	2 50
April 3, 1882—To paid Woodbury, balance labor, March.....	130 00
April 3, 1882—To paid drayage.....	60
April 9, 1882—To paid McDonald, trout, Prosser Creek.....	3 75
April 15, 1882—To paid Wells, Fargo & Co., expressage on fish cans.....	3 90
April 15, 1882—To paid drayage on cans, etc.....	2 00
April 15, 1882—To paid Richardson, labor, February seventeenth.....	100 00
April 21, 1882—To paid March first, expressage and labor for transportation of 100,000 whitefish to Tahoe via Carson, and 10,000 Eastern trout, and dis- tributing in Truckee, Little Truckee, P. Creek, D. Lake, S. Valley and Cisco.....	60 55
April 21, 1882—To paid April seventh, transportation of 3,000 L. L. salmon and 6,000 Eastern trout to P. Creek and Truckee, and 1,500 Eastern trout and 1,500 California trout to Nevada.....	33 70
April 21, 1882—To paid April seventeenth, transportation of 4,500 Eastern trout, 2,500 L. L. salmon, Blue Lakes, Lake County.....	10 40
April 21, 1882—Richardson, labor, one month.....	100 00
May 1, 1882—To paid Woodbury, expressage, fare, and telegram.....	3 85
May 1, 1882—Fare to Watsonville.....	2 90
May 1, 1882—Fish food.....	2 00
May 1, 1882—Woodbury, labor, one month.....	150 00
May 1, 1882—Stratton, expressage on fish cans.....	8 00
May 3, 1882—To paid Hoehn, ice.....	2 34
May 12, 1882—To paid Wells, Fargo & Co., distributing carp.....	44 25
May 15, 1882—To paid telegram.....	50
May 16, 1882—To paid fare and expense Taylorsville fish-ladder.....	3 20
May 16, 1882—To paid Richardson, labor for April.....	100 00
May 16, 1882—To paid fares to San José and San Leandro.....	4 10
May 20, 1882—To paid telegram, Sacramento.....	60
May 24, 1882—To paid bill of ice for fish.....	12 55
May 25, 1882—To paid H. C. Marks, labor copying notices, writing letters, etc.....	50 00
May 25, 1882—To paid Woodbury, labor.....	50 00
May 25, 1882—To paid telegram.....	50
June 1, 1882—To paid feed for fish, fare to San José, etc.....	8 15
June 1, 1882—To paid Woodbury, balance for labor for May.....	100 00
June 1, 1882—To paid turpentine, wire cloth, etc.....	4 81
June 1, 1882—To paid Stratton, expressage, \$9; Wells, Fargo & Co., \$2 55.....	11 55
June 1, 1882—To paid expense Taylor trial, San Rafael.....	4 60
June 7, 1882—To paid Richardson, labor one month and five days, to June fifth.....	119 00
June 7, 1882—To paid fare, expressage on 15,000 Eastern trout to south fork of Yuba and north fork of American.....	32 95
June 8, 1882—To paid telegram, Woodbury.....	1 00
June 12, 1882—To paid Woodbury, ten days' labor, July.....	50 00
June 12, 1882—To paid for distributing fish, \$3 25; Stratton, expressage, \$3.....	6 25
June 12, 1882—To paid two telegrams.....	1 50
July 21, 1882—To paid Pither, catfish M. Gray, San Diego and Arizona.....	12 50
July 21, 1882—To paid, 1,000, Farwell, Alameda.....	24 50
July 21, 1882—To paid to H. C. Marks, labor copying, writing, etc.....	50 00
June 14, 1882—To paid expense suit People vs. Taylor.....	2 00
June 14, 1882—To paid Wells, Fargo & Co., expressage on eggs from Redding.....	7 70

June 14, 1882—To paid Woodbury, account of striped bass from New Jersey-----		\$800 00
June 14, 1882—To paid S. I. Co., bill ice-----		2 25
July 23, 1882—To paid telegram, Woodbury-----		1 50
July 23, 1882—To paid telegram, Woodbury-----		25
July 23, 1882—To paid telegram, Throckmorton-----		45
July 23, 1882—To paid drayage labor, striped bass-----		2 10
July 26, 1882—To paid Woodbury, account of expressage on striped bass-----		80 00
July 26, 1882—To paid Woodbury, account of expressage on striped bass-----		60 00
July 29, 1882—To paid Woodbury, balance expense of \$946 47, for transportation of striped bass-----		6 47
July 29, 1882—To paid Stratton, expressage on cans-----		2 00
July 31, 1882—To paid H. C. Marks, labor to July first-----		50 00
August 4, 1882—To paid W. A. Gift, expenses of arrest, People vs. J. Benson-----		25 00
August 13, 1882—To paid Hoehn, ice, May third-----		2 34
August 13, 1882—To paid Hoehn, ice, June twenty-third-----		2 25
December 5, 1882—Bill of Stafford & Dugan, for horse and buggy to fish pond, and carp-----		3 00
December 5, 1882—Bill of Tubbs & Co., piece 1½ Manila rope-----		4 00
December 5, 1882—Bill of Thomas Driver, one can paint-----		60
December 5, 1882—Bill of H. C. Marks, clerical services-----		50 00
December 5, 1882—Bill of Wengola, for material and work on seine, 180 feet long-----		35 50
December 5, 1882—Bill of Arnes & Dallam, forty-one pounds of netting-----		32 80
December 5, 1882—Bill of George R. Jackson, for services in making statistics of salmon, sturgeon, etc., transported to San Francisco, Sacramento, and Stock- ton, September 1, 1880, to August 1, 1882-----		67 50
December 5, 1882—Bill of J. G. Woodbury:		
August third, express charges to Washington-----	\$	60
August twenty-second, fare to Oakland-----		90
August twenty-fifth, fare to San Leandro-----		50
August thirtieth, fare to Redwood City-----		50
October twenty-sixth, fare to San Leandro-----		80
Shipping tags-----		10
November first, services for one third of a month-----		50 00
		54 75
December 5, 1882—Bill of J. G. Woodbury:		
November eighteenth and nineteenth, fare to San Leandro-----	\$	50
Hotel expenses-----		50
November twenty-third, Fare to San Leandro-----		80
November twenty-seventh, fare to Redwood City-----	1	85
November twenty-seventh, stage fare to Burr's pond-----		75
November twenty-seventh, expressage on seine-----	1	00
November twenty-seventh, freight, cans, etc-----	1	00
December first, services, November 18 to December 1-----		60 00
		66 40
December 7, 1882—Freight on fish cans-----		1 35
January 3, 1883—Bill of J. G. Woodbury:		
December twenty-fourth, cash for staples for baskets-----	\$	30
January first, salary for one half month to date-----		75 00
		75 30
January 3, 1883—Bill of A. D. Oakley:		
One stencil-----	\$	1 45
One set tags-----		75
Ink and brush-----		50
		2 70
January 3, 1883—Bill of E. M. Derby & Co., for lumber-----		10 13
January 3, 1883—Bill of C. H. Gray, brush, nails, etc-----		1 10
January 3, 1883—Bill of Thomas Driver, one dining table-----		3 75
January 3, 1883—Bill of Smalley & Stratton, for hauling-----		4 00
January 3, 1883—Bill of California Wire Works-----		5 04
January 3, 1883—Bill of Cunningham, Curtiss & Welch, stationery-----		4 25
January 3, 1883—Bill for telegrams-----		15 30
January 3, 1883—Expressage on fish cans-----		6 00
		<hr/>
		\$7,559 51
Cash on hand to balance-----		6,876 54
		<hr/>
		\$14,436 05

The balance on hand of \$6,876 54 stands charged with the outstanding amount of \$2,000, payable for placing four millions of salmon in the Sacramento River, as before stated, after which the remaining

\$4,876 54 will be required and consumed in distributing the productions of the State Hatchery throughout the State, and the importation of Eastern fish.

S. R. THROCKMORTON,  
Chairman of Fish Commission.

## APPENDIX "A."

*Memorandum Statement, showing Fresh Salmon received at San Francisco from September 1, 1880, to August 1, 1882.*

	Boxes.	Loose.
1880—September .....	997	20,244
October .....	621	8,560
November .....	118	3,369
December .....	150	9,621
	1,886	41,794
Boxes will average eight fish per box; total, 56,882 fish. Estimated at 13 pounds each, or say in season, 739,466 pounds.		
1881—January .....	140	4,210
February .....	114	5,823
March .....	138	6,431
April .....	2,965	25,391
May .....	5,384	10,383
June .....	1,939	2,414
July .....	993	3,813
September .....	10,054	60,853
October .....	1,526	2,932
November .....	443	1,086
December .....	577	2,906
	24,273	126,242
Total, 320,426 fish; estimated at 13 pounds each, or say in season, 4,165,538 pounds.		
1882—January .....	579	2,734
February .....	341	4,746
March .....	853	16,576
April .....	2,238	9,708
May .....	2,967	2,247
June .....	1,608	1,876
July .....	1,585	5,128
	10,171	43,015
Total .....	36,320	211,051
Total, 124,383 fish; estimated at 13 pounds each, or say in season, 1,616,979 pounds. Grand total, 501,691 fish.		

*Memorandum Statement, showing amount of Fresh Salmon received at Sacramento from September 1, 1880, to August 1, 1882.*

	Loose.	Boxes.
1880—September .....	203	2
October .....		7
November .....	184	4
December .....	635	1
	<u>1,022</u>	<u>14</u>
Total, 1,134 fish; estimated at 13 pounds each, or say in season, 14,742 pounds.		
1881—January .....	107	3
February .....	42	65
March .....	143	50
April .....	100	53
May .....		10
June .....		
July .....		
August .....		
September .....		
October .....		18
November .....	34	49
December .....	92	39
	<u>518</u>	<u>287</u>
Total, 2,814 fish; estimated at 13 pounds each, or say in season, 36,582 pounds.		
1882—January .....	39	49
February .....	64	28
March .....	168	136
April .....	83	73
May .....	103	776
June .....		214
July .....	130	
	<u>579</u>	<u>1,276</u>
Total, 10,777 fish; estimated at 13 pounds each, or say in season, 140,101 pounds.		

*Memorandum Statement, showing amount of Fresh Sturgeon received at San Francisco from September 1, 1880, to August 1, 1882.*

1880—September .....	588
October .....	237
November .....	160
December .....	433
Total .....	<u>1,418</u>
Estimated at 50 pounds each, or say in season, 70,900 pounds.	
1881—January .....	185
February .....	315
March .....	320
April .....	870
May .....	453
June .....	172
July .....	214
August .....	1,809
September .....	606
October .....	186
November .....	220
December .....	171
Total .....	<u>5,821</u>
Estimated at 50 pounds each, or say in season, 291,050 pounds.	



1882—January .....	146
February .....	356
March .....	846
April .....	409
May .....	70
June .....	102
July .....	875
August .....	2,230
Total .....	5,034

Estimated at 50 pounds each, or say in season, 251,700 pounds.

*Memorandum Statement showing Miscellaneous Receipts of Fish as under at San Francisco from September, 1880, to August, 1882.*

	Baskets.	Barrels.	Mats.	Sacks.
1880—September .....	21	36	1	8
October .....	25	3	1	41
November .....	45	21	-----	33
December .....	200	-----	-----	46
	291	60	2	128
26 boxes smoked salmon, 9,000 pounds.				
1881—January .....	180	61	-----	31
February .....	251	9	-----	4
March .....	84	20	-----	1
April .....	22	16	-----	3
May .....	9	9	-----	-----
June .....	14	6	-----	16
July .....	4	10	-----	-----
August .....	4	14	-----	-----
September .....	31	43	-----	354
October .....	20	14	-----	4
November .....	66	33	-----	18
December .....	201	26	-----	20
	886	261	-----	451
11 boxes smoked salmon, 3,500 pounds.				
1882—January .....	84	5	-----	5
February .....	65	6	-----	1
March .....	169	45	-----	22
April .....	27	32	-----	9
May .....	12	1	-----	-----
June .....	9	3	-----	2
July .....	3	18	-----	-----
	369	110	-----	39
Totals .....	1,546	431	2	618

Barrels are dried fish, and weigh 200 pounds each. Sacks are small fresh fish, and weigh 75 pounds each. Baskets are China and contain both fresh and cured fish, and weigh 100 pounds each.

DISTRIBUTION OF FISH.

January 31, 1880—500 catfish sent to J. B. Still, for Eel, Salt, and Mad Rivers, Humboldt County, California.

February 7, 1880—15,000 Eastern trout, placed by Richardson in Merced and Yosemite.

February 20, 1880—300 catfish sent to J. E. Still, Eureka, Humboldt County.

March 19, 1880—1,000 Eastern trout sent to Almshouse Pond, San Francisco, California.

March 20, 1880—2,000 Eastern trout sent to Donner Lake outlet.

March 20, 1880—6,000 Eastern trout sent to Independence Lake and Little Truckee.  
 March 20, 1880—8,000 Eastern trout sent to South Yuba, Truckee.  
 March 29, 1880—500 Eastern trout sent to Woodward's Gardens.  
 April 2, 1880—1,000 Eastern trout sent to Lagunitas Creek, Marin.  
 April 7, 1880—2,000 McCloud River trout sent to Lagunitas Creek, Marin.  
 April 4, 1880—2,000 Eastern trout, Soda Springs, South Yuba.  
 April 4, 1880—6,000 Eastern trout, Sierra Valley, Feather River.  
 April 12, 1880—10,000 McCloud River trout to Carmel, Monterey, Salinas Valley, and Santa Cruz streams.  
 April 28, 1880—10,000 McCloud River trout sent to Tuolumne and Merced (lost).  
 May 1, 1880—8,000 McCloud River trout sent to streams in San Mateo, Monterey, and Santa Cruz.  
 May 3, 1880—2,000 McCloud River trout sent to streams in Santa Clara.  
 June 7, 1880—500 catfish to Smith & Terry, for Stockton.  
 June 7, 1880—500 catfish to J. K. Vail, for Forbestown.  
 June 7, 1880—2,000 catfish to A. C. Bassett, for Monterey, Pajaro, etc.  
 June 7, 1880—500 catfish to J. W. Wright Johnson, for Bellota.  
 June 12, 1880—1,000 catfish to A. B. Carlock, for Siskiyou (lost).  
 June 21, 1880—500 catfish to J. C. Smith, for Stockton.  
 June 30, 1880—12 carp sent to Commissioner E. R. Calhoun, for Mare Island.  
 July 17, 1880—500 catfish to C. Brown, for Merced.  
 July 17, 1880—1,000 catfish to A. B. Carlock, for Siskiyou (lost).  
 July 21, 1880—500 catfish to J. H. Maynard, for San Mateo Creek.  
 August 2, 1880—500 catfish to W. McLaughlin, for Amador.  
 September 2, 1880—500 catfish (large) to S. B. Weller, Cascade Lakes, Placer.  
 October 21, 1880—500 catfish to E. R. Shinmin, for Eel River (Little Lake).  
 November 1, 1880—500 catfish to Charles Mansfield, Merced, for Sloughs, San Joaquin.  
 November 2, 1880—250 catfish to E. Steele, for Yreka.  
 January 24, 1881—100 catfish to Lux, for San Mateo County.  
 February 5, 1881—100,000 whitefish sent to Tulare Lake.  
 February 11, 1881—10,000 whitefish sent to United States Marine Hospital, Presidio.  
 February 12, 1881—10,000 whitefish sent to Lake Merced.  
 February 12, 1881—10,000 whitefish sent to lakes in Marin County.  
 February 16, 1881—100,000 whitefish deposited in Donner Lake.  
 February 21, 1881—500 catfish sent to Foster, for San Diego County.  
 March 2, 1881—4,000 landlocked salmon to Alpine County.  
 March 2, 1881—162 catfish to Alpine County.  
 March 16, 1881—1,000 McCloud River trout to E. H. Farmer, for Gilroy.  
 March 16, 1881—1,000 McCloud River trout to E. D. Arricks, for Gilroy Hot Springs.  
 March 16, 1881—1,000 McCloud River trout to W. R. Radcliff, for Santa Cruz.  
 March 16, 1881—1,000 landlocked salmon to W. R. Radcliff, for Santa Cruz.  
 March 16, 1881—1,000 McCloud River trout to H. S. Ball, for Salinas.  
 March 16, 1881—1,000 landlocked salmon to H. S. Ball, for Salinas.  
 March 16, 1881—200 catfish to D. Benson, Beowawe.  
 March 18, 1881—200 catfish to Dr. Webber, for Sierra Valley.  
 March 18, 1881—4,000 McCloud River trout to E. D. Parks, Sumner, Tehachapi.  
 March 18, 1881—3,000 McCloud River trout to R. A. Campbell, for Cisco.  
 March 18, 1881—3,000 McCloud River trout to J. B. Brogan, for Prosser Creek.  
 March 18, 1881—5,000 landlocked salmon to J. B. Campbell, for Tahoe City.  
 March 18, 1881—2,000 landlocked salmon to J. F. Moody, for Donner Lake.  
 March 18, 1881—4,000 landlocked salmon to J. B. Brogan, for Prosser Creek.  
 March 18, 1881—2,000 landlocked salmon to Colkins & Sons, for Nevada City.  
 March 25, 1881—300 landlocked salmon to Mt. View Lake, Presidio.  
 March 25, 1881—200 trout to Mt. View Lake, Presidio.  
 March 25, 1881—200 trout to Woodward's Gardens.  
 March 25, 1881—500 whitefish to Shafter, for Marin County.  
 March 25, 1881—100 landlocked salmon to Shafter, for Marin County.  
 March 25, 1881—200 trout to Shafter, for Marin County.  
 March 25, 1881—1,000 trout to E. P. Converse, for Tulare.  
 March 25, 1881—4,000 trout to E. D. Parks, Sumner, for Kern County.  
 April 4, 1881—200 landlocked salmon to San Mateo, San Andreas.  
 April 4, 1881—500 landlocked salmon to Mt. View Lake, San Francisco.  
 April 7, 1881—4,000 trout to Sonoma Creek.  
 October 27, 1881—20,000 salmon to San Leandro, Grass Valley, and creeks in Alameda.  
 November 2, 1881—10,000 salmon to Almshouse, San Francisco.  
 November 3, 1881—15,000 salmon to Pescadero Creek.  
 November 4, 1881—8,500 salmon to Petaluma Sportsmen's Club.  
 November 5, 1881—10,000 salmon for Prosser Creek and Truckee.  
 November 5, 1881—10,000 salmon for Donner Lake.  
 November 6, 1881—15,000 salmon for Russian River.  
 November 9, 1881—15,000 salmon for San Gregorio.  
 November 9, 1881—2,000 salmon for Woodward's Gardens.

- November 14, 1881—15,000 salmon to Skaggs' Springs.  
November 18, 1881—15,000 salmon to Santa Cruz and Monterey.  
November 18, 1881—15,000 salmon to Salinas and Gilroy.  
November 24, 1881—2,270,000 salmon deposited in McCloud, Pit, Sacramento Rivers, and Salt Creek.  
November 26, 1881—500 catfish sent to Monterey.  
November 26, 1881—1,000 catfish sent to Sierra Valley.  
January 7, 1882—39 old carp, 32 young carp of 1881 spawn, deposited with W. L. Overheiser, Stockton, to be bred on shares.  
February 10, 1882—500 catfish sent to C. Warfield, for Fresno.  
December 16, 1882—Completed the placing of four millions of young salmon in the headwaters of the Sacramento River.

## LIST OF FISH COMMISSIONERS.

### DOMINION OF CANADA.

W. F. Witcher, Commissioner ----- Ottawa, Ontario

### PROVINCE OF NEW BRUNSWICK.

W. H. Venning, Inspector of Fisheries ----- St. John

### PROVINCE OF NOVA SCOTIA.

W. H. Rogers, Inspector ----- Amherst

### PROVINCE OF PRINCE EDWARD ISLAND.

J. H. Duvar, Inspector ----- Alberton

### PROVINCE OF BRITISH COLUMBIA.

A. C. Anderson ----- Victoria

### THE UNITED STATES.

Prof. Spencer F. Baird ----- Washington, District of Columbia

### ALABAMA.

C. S. G. Doster ----- Prattville

D. B. Huntley ----- Courtland

### ARIZONA.

John J. Gosper ----- Prescott

Richard Rule ----- Tombstone

Dr. J. H. Taggart, Business Manager ----- Yuma

### ARKANSAS.

John E. Reardon ----- Little Rock

James H. Hornibrook ----- Little Rock

H. H. Rottaken ----- Little Rock

### CALIFORNIA.

S. R. Throckmorton ----- San Francisco

A. B. Dibble ----- Grass Valley, Nevada County

B. H. Buckingham ----- Washington, Yolo

### COLORADO.

Wilson E. Sisty ----- Idaho Springs

### CONNECTICUT.

Dr. Wm. M. Hudson ----- Hartford

Robert G. Pike ----- Middletown

George N. Woodruff ----- Sherman

### DELAWARE.

Enoch Moore, Jr. ----- Wilmington

## GEORGIA.

J. T. Henderson, Commissioner of Agriculture, and ex officio Commissioner of Fish and Fisheries ..... Atlanta  
 Dr. H. H. Cary, Superintendent ..... La Grange

## ILLINOIS.

N. K. Fairbank, President ..... Chicago  
 S. P. Bartlett ..... Quincy  
 S. P. McDoel ..... Aurora

## INDIANA.

Calvin Fletcher ..... Spencer, Owen County

## IOWA.

B. F. Shaw ..... Anamosa  
 A. A. Mosher, Assistant ..... Spirit Lake

## KANSAS.

Hon. D. B. Long ..... Ellsworth

## KENTUCKY.

William Griffith, President ..... Louisville  
 Hon. John A. Steele ..... Versailles  
 Dr. Wm. Van Antwerp ..... Mount Sterling  
 A. H. Goble ..... Catlettsburg  
 Hon. C. J. Walton ..... Munfordville  
 Dr. S. W. Coombs ..... Bowling Green  
 John B. Walker ..... Madisonville  
 P. H. Darby ..... Princeton  
 Hon. J. M. Chambers ..... Independence, Kenton County  
 W. C. Price ..... Danville

## MAINE.

E. M. Stilwell ..... Bangor  
 Henry O. Stanley ..... Dixfield

## MARYLAND.

Thomas Hughlett ..... Easton  
 G. W. Delawder ..... Oakland

## MASSACHUSETTS.

E. A. Brackett ..... Winchester  
 Asa French ..... South Braintree  
 F. W. Putnam ..... Cambridge

## MICHIGAN.

Eli R. Miller ..... Richland  
 A. J. Kellogg ..... Detroit  
 Dr. J. C. Parker ..... Grand Rapids

## MINNESOTA.

First District—Daniel Cameron ..... La Crescent  
 Second District—Dr. Wm. M. Sweney ..... Red Wing  
 Third District—Dr. Robert Ormsby Sweeny ..... St. Paul  
 Fourth District—No appointment until January.  
 Fifth District—No appointment until January.

## MISSOURI.

Dr. J. G. W. Steedman, Chairman ..... 2803 Pine St., St. Louis  
 John Reid ..... Lexington, Lafayette County  
 Dr. J. S. Logan ..... St. Joseph

## NEBRASKA.

W. L. May ..... Fremont  
 R. R. Livingston ..... Plattsmouth  
 B. E. B. Kennedy ..... Omaha

## NEVADA.

Hon. Hubb G. Parker ..... Carson City

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 Albina H. Powers ..... Grantham

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 Theodore Morford ..... Newton

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 Richard U. Sherman ..... New Hartford, Oneida County  
 Eugene G. Blackford ..... Fulton Market, New York City; 809 Bedford Avenue, Brooklyn

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 Halsey C. Post, Secretary ..... Sandusky

## PENNSYLVANIA.

Hon. H. J. Reeder ..... Easton  
 Hon. B. L. Hewitt ..... Hollidaysburg  
 James Duffy ..... Marietta  
 John Hummel ..... Selingsgrove  
 Robert Dalzell ..... Pittsburg  
 G. M. Miller ..... Wilkesbarre

## RHODE ISLAND.

Alfred A. Reed ..... Providence  
 Newton Dexter ..... Providence  
 John H. Barden ..... Rockland

## SOUTH CAROLINA.

A. P. Butler, Commissioner of Agriculture and ex officio of Fish and Fisheries ..... Columbia  
 C. J. Huske, Superintendent ..... Columbia

## TENNESSEE.

W. W. McDowell ..... Memphis  
 H. H. Sneed ..... Chattanooga  
 Edward D. Hicks ..... Nashville

## TEXAS.

R. R. Robertson ..... Austin

## UTAH.

No appointment since the death of Prof. J. L. Barfoot, in April last.

VERMONT.

Hiram A. Cutting ..... Lunenburg, Essex County  
 Herbert Brainerd ..... St. Albans

VIRGINIA.

Col. M. McDonald ..... Berryville

WEST VIRGINIA.

Henry B. Miller, President ..... Wheeling  
 C. S. White, Secretary ..... Romney  
 N. M. Lowry ..... Hinton

WISCONSIN.

The Governor, ex officio ..... Madison  
 Philo Dunning, President ..... Madison  
 C. L. Valentine, Secretary and Treasurer ..... Janesville  
 J. V. Jones ..... Oshkosh  
 John F. Antisdell ..... Milwaukee  
 Mark Douglas ..... Melrose  
 Christopher Hutchinson ..... Beetown

WYOMING TERRITORY.

Dr. M. C. Barkwell, Chairman and Superintendent ..... Cheyenne  
 Otto Gramm, Secretary ..... Laramie  
 Hon. N. L. Andrews ..... Johnson County  
 Hon. E. W. Bennet ..... Carbon County  
 Hon. P. J. Downs ..... Uinta County  
 Hon. T. W. Quinn ..... Sweetwater County