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Natural History

REPORT OF BOARD

OF

ILLINOIS STATE FISH COMMISSIONERS,

TO THE

GOVERNOR OF ILLINOIS.

OCTOBER 1, 1894, TO SEPTEMBER 30, 1896.

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REPORT OF THE COMMISSIONERS.

To His Excellency, JOHN P. ALTGELD, Governor:

We beg leave to submit herewith our report as Board of State Fish Commissioners for the two years ending September 30, 1896.

The last two seasons have each presented peculiar phases, and have materially affected our work of collecting and distributing the native food fishes. The early part of the season of 1895 was one of extreme heat and drought, followed late in summer by excessive rainfall. For a number of years previous, owing to the extremely low water, grasses and weeds had accumulated in the beds of the ponds usually filled with water during the summer months. When these low places again became filled with water, the decaying vegetation, with other causes, polluted the waters not only of these ponds, but of the rivers themselves, to such an extent that fish perished by thousands, and those taken for distribution were in such bad condition that only a small percentage could be used for that purpose. Even in such lakes as Spring Lake, where the water is ordinarily almost pure, the mortality was very great. The season of 1896, on the contrary, was one of unprecedented plenty, so far as concerned the supply of young fishes in the drying pools and lakes, and while we were able to make a good distribution even under the unfavorable conditions of the season of 1895, we have made one of the best distributions during the season of 1896 that has ever been made in the history of the Commission. In the appendix will be found a list of distributions covering the work of both years.

The fish distributed have consisted mainly of the finer varieties, the coarser fish taken at the same time being placed in the nearest deep water. Our methods of work were fully explained in our report for 1893 and 1894.

The work of the Fish Commission in the past has shown the needs of the waters of the State, while the investigations made as to the life habits of the various species of fishes indigenous to those waters have developed a knowledge of the conditions essential to a successful repopulation of the waters, impossible to attain in any other way. We cannot, of course, speak for others, but our own observation has led us to believe that the most economical and practical method of increasing the food supply of our waters lies in the propagation and distribution, chiefly, of the coarser varieties of our fishes, such as the

buffalo and carp, and incidentally of the finer varieties, but these latter in the same proportion as they are produced under natural conditions. Our reasons for this opinion may be thus summarized. It is difficult, even with the most advanced appliances used in artificial propagation, to improve upon nature's methods, and the nearer we can come to natural conditions the greater the probability of successful results. Investigation shows that in most of the waters of our State the coarser varieties greatly outnumber the finer or game fishes. This is partly due, perhaps, to the fact that the warm and muddy waters of most of our streams and lakes produce the food essential to the life and growth of these coarser fishes, and partly, perhaps chiefly, to the difference in the nature and life habits of the two species, the buffalo and carp reproducing their kind in almost fabulous numbers annually, while the finer varieties reproduce only to a very limited number each season, and being of voracious and predatory habits, consume as food not only the spawn and fry of other species, but their own as well. Then, again, the rapid growth of the coarse fishes is an important factor to be considered, when quantity rather than quality is the desideratum. The carp and buffalo will attain a weight of four pounds or more in two years, while it would require many years for a bass to attain equal weight. It seems to us that the work of the Fish Commission should be to produce cheap food from the waters for the supply of the people who most need it, in such quantities and of such kinds as to be easily accessible to the greatest number, not only for the angler, but for the masses who want fish for food, not as a luxury. Statistics are always dry, yet they are vital when the interest they represent is being considered, and the figures will show that our inland waters better produce, and in the greater numbers, the coarser varieties of fishes, thus putting them more readily within the reach of the class whose interests we should protect, the laboring men. We do not want to be understood as favoring, in any sense, the discontinuance of the rearing and distribution of the basses, crappie, and kindred fishes, for we hold that the waters are all the better for their introduction, and that up to a certain limit they thrive and do well. On the contrary, we believe that their propagation and distribution can easily be carried on at the same time the other varieties are being propagated, but we hold that no matter how much money may be spent in the propagation and distribution of the finer fishes, under natural conditions they will never become so plentiful as to be a cheap article of food, but will always remain a luxury, while it is possible to produce such an abundance of the coarser varieties, which are easily propagated, as to plant at or near each hatching station not thousands but millions annually of their young, and that with only a small percentage of the cost incidental to the rearing and distribution of the finer varieties. The artificial propagation of the carp and buffalo has been reduced to such a certainty that at least 90 per cent. of the eggs can be successfully fertilized and hatched, and with the appliances we have already at hand we can make rapid and successful distribution. In fact, our steamboat can be so arranged as to enable us to hatch upon it the varieties named, and distribute them as fast as hatched.

Owing to its location and the character of its waters, our State is so situated as to make the breeding of trout and kindred varieties necessarily a failure, but there is no good reason why we should not avail ourselves of the splendid opportunities offered by the Chicago parks, and establish a hatching house and rearing ponds for white fish and lake trout, and participate in the work of repopulating the great lakes. We say participate in advisedly, as heretofore we have only been lookers-on when that kind of work was being done. The states of Michigan, Ohio, Wisconsin and Minnesota are all doing what they can to increase the product of these waters, while the U. S. Fish Commission adds a very large percentage of the plants. Of this work there can be no criticism. It is of the people and for the people, furnishing employment to large numbers of the fishermen, and to the people of the several states good, substantial food at such prices as to make its consumption very large. Very few people in the State, not directly interested in such matters, have any idea of the amount of fish that daily goes into consumption as food, and cheap food, because in hundreds of cases, it costs merely the labor of the individual in taking it from the water. If the number of people who take perch from Lake Michigan at or near Chicago could be accurately estimated and a record of their catch made, the aggregate would seem incredible. In one day, on one part of the lake front, 2260 people were counted fishing with hook and line. An average catch of three pounds each, and that would not be large, would give nearly 7,000 pounds of good food, easily obtained. At all points along the principal rivers of the State, fishing with hook and line for the purpose of procuring fish for individual consumption is constantly going on, and large numbers of fish are taken. With these facts in view, it seems to be the part of wisdom for those engaged in protecting the fish interests of the people of the State to devote their energies chiefly to such methods as will insure the greatest return for the least amount of cost, and we believe the plans we have in view for the erecting and maintaining of suitable hatching stations for the propagation of the carp, buffalo and other common fishes, and at the same time propagate the finer varieties to such an extent as may be practical, will give to the people of the State many thousands of pounds of good, cheap food, as well as increase the supply of game fishes for the pleasure of the angler and the epicure.

We have a number of places in the State where the establishment of such hatching houses could be easily and cheaply accomplished. At Elgin, on the grounds of the State Hospital for the Insane, are ponds already constructed which could be adapted for the purpose of breeding ponds, and a house built for a summer house is so located and constructed that the lower part or basement could be used for hatching purposes without interfering with its ordinary uses. Besides the practical and economical results to be gained, the plant would form a very attractive feature, and add greatly to the interest and beauty of the grounds. Here millions of carp and buffalo could be propagated and reared until sufficient size to turn into the Fox river, the upper dam on that river being only about twenty miles above the institution. Early in each season, hundreds of thousands

of wall-eyed pike could be successfully hatched and liberated into the river. The eggs of this latter variety could easily be procured by purchase or otherwise, and transported at a nominal cost.

At Kankakee it is probable that equally favorable conditions exist, and we have no doubt but such arrangements could be made with the trustees of these institutions as would enable your Board to make successful hatching plants at both places. However, should it be deemed advisable to establish such plants independent of these institutions, there are various points on the several rivers of the State which offer such advantages as to make the cost of installing plants small in comparison with the results to be obtained. These plants would be operated but for a few months in the season, and the cost for attendants would amount only to a nominal sum.

This work would largely offset the constant drain on the natural resources made by the market fishermen, and it is a matter worthy of careful consideration whether or not propagation can be carried on to an extent sufficient to permit an entire open season for the taking of the coarse fish, with a limitation as to size only. While this work is in progress, the advantages offered for pond culture could be utilized, and the propagation and distribution of bass, crappie and kindred varieties carried on to an extent equal to our present work, and all waters given their natural proportion of the game varieties, which, in turn, would thrive all the better for the increase of the coarse fish. Much has been said by newspaper critics as to the carp and buffalo driving out or destroying the fine fish. To any one who has made even a superficial study of the life habits of the fish mentioned this would seem an unadvised statement, to say the least, and an examination of any of our inland lakes subject to overflow from the river would show the proportion of the two varieties to be about as we have stated. A pond or lake devoted to black bass alone would show a few large fish only, in a short time, while very many more of all sizes and ages would be the result of general pond culture in the same water area.

We believe that the successful fish commissioners of the future will be those who devote their time, money and energies to the propagation of those fishes which will give the greatest and quickest returns in growth and increase for the cost of rearing, and that this result will only be had with the coarse fish. As an illustration of our deductions regarding the relative proportion of the coarse to the fine fish as they are found in the waters of our State under natural conditions, we will cite the catch at a single point on the Illinois river, from July 1, 1895, to December 1, 1895. The table we give below shows the catch of four of the fishing firms at Havana, Illinois, and the fish were all taken from waters near that point, in all kinds of waters, with all kinds of appliances, and represent as fairly as possible an average of all catches.

KIND.	No. Pounds.	Percentage.
Carp.....	151,500	42.41
Buffalo.....	155,457	43.29
Catfish.....	16,112	4.54
Crappie.....	7,405	2.12
Black bass.....	7,852	2.16
Striped bass.....	1,652	0.44
Sunfish.....	14,265	3.74
White perch.....	4,000	1.12
Pike.....	200	0.06
White bass.....	200	0.06
Wall-eyed pike.....	200	0.06
Total.....	358,843	100.00

Considering the carp, buffalo and white perch as coarse fish, they represent 86.82 per cent. of the whole as against 13.28 per cent. of fine fish, consisting of black bass, crappie, striped bass, sunfish, pike, white bass and wall-eyed pike. The same conditions exist all over the State, and figures taken at any point would vary but slightly from above.

FISH LAWS.

Taken as a whole, our fish laws, as they now stand, are too verbose, are not sufficiently explicit, and even seem, in some respects, contradictory, and while it might be out of place here to discuss them section by section, it might be well perhaps to take up a few of the clauses which occasion the greatest difficulty in their enforcement.

One of the principal objections which we have to offer is the fact that, in order to make a case of violation, the parties using the seine, or other device used as a seine, must be taken in the act of taking and killing fish. The difficulty of doing this is apparent, as most of such work is done at night or at such times as it would be extremely unlikely that the commissioners or wardens would be near enough to interfere, and it is very rarely that people locally interested will give such information as would make conviction even probable.

Under these conditions seines of any sized mesh can be used. To make the law operative in this particular, it would seem that the only remedy would be to make the possession of an illegal seine unlawful, and the proven use of it a violation of the law. The possession of a seine of illegal mesh is, generally speaking, an evidence of intent to use it, and should be so construed. Seines or nets so placed as to prevent the free passage of fish at any and all times should, and does, constitute a violation of the law, but the courts that have interpreted and passed upon the clause differ widely as to what constitutes an obstruction. We hold that when nets are set, such as the ordinary bait net, with out-wings or guides to lure the fish to the bait, they are not particularly objectionable, unless these nets are set with long wings or leads which force the fish for the greater part of the stream's width to follow such leads into the net, when it does obstruct the free passage of fish, and we think that such nets should be taken up when found and disposed of under process of law.

The second provision of section 6 reads as follows: "*Provided, however,* that seining shall be lawful and allowed between the first day of July in each year and the first day of April in the following year, with seines the meshes of which shall not be less than two inches square, in such rivers or streams as are used for navigation wholly within the State and not above or beyond any private or corporate dams in said rivers or streams." The original intent of the law was to prevent the use of the seine at any season of the year, but as a compromise this clause was inserted to allowed the use of lawful seines in the portion of the Illinois river (that being about the only river used for navigation wholly within the State) from the mouth of the river to the first dam, which at the time of the passage of the law was at Copperas Creek, 160 miles above the mouth. Since then, however, two other dams have been put in, one at Lagrange, 70 miles below, and one at Kampsville, 100 miles below, which would, in effect, prevent the use of the seine in all waters of the Illinois river above the lower dam. We are informed by members of the former Commission that the law was not enforced on the Illinois river during the stated open season, as, in their opinion, it would have been unjust discrimination to permit the free use of the seine in one-half the river and prevent it in the other. To follow this course of reasoning to the present time, it would seem to be even more unjust to permit the use of the seine in sixty miles of the river and forbid its use in all that portion above. Consequently, your Commission has construed the provision quoted as applying equally to the whole river. This seems only fair, as the fishing industry is one of the large interests of commerce, and the product of the waters should be taken and utilized for the people under proper conditions and restraints. We think that the law should be so revised as to make the close season the same throughout the State, with explicit conditions as to its intent, that power should be given the Commissioners which would enable them to enforce the laws, and that all should be expressed in terms which could easily be understood by every one interested.

There should be a limitation as to size of fish permitted to be taken during the open season. This would, in a measure, offset the temptation to use smaller meshed seines or nets. It is not at all uncommon to see channel cat fish brought into market that would not weigh two ounces when dressed, and crappie and other fine fish of less than a quarter of a pound in weight. These could only have been taken by the use of small meshed seines, nets or baskets. The burden of proof, however, would rest with those enforcing the law, and it would be almost impossible to establish a case. The improper use of these devices has nearly depleted our principal rivers and streams of the buffalo, the greatest of all the fishes of our inland waters, from a commercial standpoint. It is a matter of record that ten or fifteen years ago hundreds of thousands of pounds of these fishes were often taken at a single haul, and millions of pounds were shipped to St. Louis and other markets annually, but there has been a steady decrease each year, not only in the number but in the

average size of those taken, showing conclusively that the drain has been the heaviest on these fishes. Had it not been for the introduction of the carp the coarse fishes, which go most largely into consumption, would be very scarce today. As it is the carp, by its rapid growth and reproduction, has done much to offset the drain.

A very large proportion of the fishes taken from our rivers goes out of the State, buyers for New York, Boston and St. Louis markets taking everything offered, most of the time.

So we might take up each section or part of section and show by various instances the widely varying interpretation of the laws made by different courts, but it is, perhaps, enough to say that the laws should be so revised and enacted that no one could mistake their intent in order that justice may be done alike to those who earn their living by fishing and those who are interested in the protection and increase of fish for food.

DISTRIBUTION.

Although, for reasons given, we have had much to discourage us in our collections during the past two seasons, yet we believe the distribution will average better for the same length of time than that of the two previous seasons. Owing to the extreme heat we were forced to plant locally the greater part of our collections from the drying ponds and the fishes rescued for general distribution had to be carefully selected and handled, so that, while the several plants made may not have been so great, numerically, as those of former seasons, we believe that as to conditions and quality of fish the results were better.

The fishes selected for planting have been chiefly the small and large-mouthed black bass, white bass, striped bass, war-mouth bass, crappies, both kinds, black and light; wall-eyed pike, ring perch, sunfish and perch, with some of the coarser varieties, where the distance was not too great. The distribution is generally directed to public waters, but where the expense was not too great and the service could be conveniently rendered, we have furnished individual applicants with stock for private ponds. If the large number of applicants is any indication, the interest in fish culture in ponds on farms or preserves has greatly increased. The lists in our office are very large, and the efforts to inform applicants as to the conditions and requirements essential to success for cultivation of fishes has entailed an immense volume of correspondence upon us. The larger proportion of applicants want bass and crappie only, and it is difficult for us to make them understand and believe that almost certain failure will result from an effort to raise bass or crappie exclusively in small ponds. To successfully cultivate fish in ponds is in itself difficult, and when an attempt is made to raise only the game or precious varieties the difficulty is greatly increased. The larger bass will make short work of devouring the small ones, if confined to a limited space and without a regular and sufficient supply of other food, and the result will be the survival of a few of the largest and strongest only.

On the other hand, if ponds or limited water spaces are stocked with the coarser varieties of fishes in the majority, and with bass and other game fishes only in their relative proportions numerically, much better results will follow. Instances are numerous throughout the State where such attempts have been made, and we have drawn our conclusions from their results as well as from our own experience. To illustrate this point we will cite one instance in our work: In the early part of the season of 1895 we stored 50,000 young bass in one pond near Havana. These varied in size from one to four inches in length, and were selected from the fishes gathered and reserved for the late distribution. When we were ready to draw upon our stock we found it had diminished to such an extent as to leave us barely 5,000 in the pond. The fish had been fed with live minnows and such artificial food as could be given them, but not sufficiently to prevent them from preying upon each other to the extent given. The reservoir in which they were stored was small, and so did not allow the fish any chance to protect themselves by getting under cover or escaping in other ways. Of course in larger ponds or lakes the loss would not have been nearly so great, yet even then it would have been large, and would increase with the growth of the fish. On the other hand, we could mention a very large number of ponds stocked with a general variety where the best of results have been obtained. We are earnest advocates of general pond culture and would advise those who are sufficiently interested to desire to make a trial to stock their ponds with all the varieties, just as they are found in the lakes and ponds from which our supply is taken, excluding, of course, the worthless fishes, such as dogfish, gars, etc. The gizzard shad, better known, perhaps, as the hickory shad, is a very prolific fish, and while valueless for table use it is invaluable as a food producer for the game fishes. And while on the subject of pond culture we cannot refrain from again reiterating the necessity of giving proper care to the fishes, and of providing suitable water for their home. If success is attained it must be at some expense and work. To simply put fish into a mud hole and look for good results is to waste time and money. For public waters we have already outlined our policy, and the same practice carried out in private ponds will produce the greatest results.

In the Fox river the catfish, once indigenous to its waters, had become practically extinct, owing to the dams which prevented the adult fish from ascending the river at the proper season. This stream was stocked with channel catfish in the first year of our administration, with good results, and many of these fish are now found in the river.

The scarcity of the larger catfish in the Illinois river is marked, and can be attributed to the same cause, viz: the dams preventing the fish from coming up the river. The large ones are taken out by the fishermen and their replenishment prevented by the obstruction

The lists in appendix cover the distribution of all varieties, no effort having been made to keep an accurate count of each variety, but the following list embraces all the varieties planted.

Black bass.
Strawberry bass, or black crappie.
Crappie (light).
Striped bass.
White bass.

War-mouth bass.
Wall-eyed pike.
Sunfish.
Pickerel.
White perch.

In our collection for distribution we endeavor to get fish as early in the season as practicable in order that as many as possible may be carried in each shipment, for as the season advances and the fish increase in size, the numbers carried in shipments necessarily decrease correspondingly.

FISHING CLUBS.

While it would be impracticable for us to attempt to give a list of the clubs that have been formed throughout the State for the protection and propagation of the fish in our various lakes, or to give the names of those who have built ponds for the cultivation of fish, yet we cannot refrain from citing the work of that nature which has been accomplished in one section, viz: that adjacent to Waterloo, Ill., as an instance of what is being done and what might be done throughout the State. We quote from a letter of Dr. Sennott, written in compliance with a request for a summary of the clubs and their work in his neighborhood. The Waterloo people have always been firm supporters of the Commission and its work.

Your request for a brief synopsis of the names and locations of the various lakes and ponds in this vicinity, with a history of the organizations controlling them has been received. I will comply with your request as far as I can. Gilmore's lakes are situated three miles from Columbia and ten miles from Belleville, and are leased by the Belleville people under the name of the Gilmore Lake Fishing Club.

The membership is limited to twenty, and is always full. The lakes are two in number, known as Long Lake and North Lake. Each covers an area of about four and one-half acres. The water varies in depth from one to twenty feet. They are natural lakes, surrounded by forest trees and have been well stocked with black bass, crappies and sunfish. A good club house has been built at the lake. During the past ten years the club has received several consignments of fish from the Illinois State Fish Commission and the best of results have followed. Island Lake, two miles north of Waterloo, is a natural body of water, crystal in its clearness, and was the first lake leased and protected as a resort by the Waterloo sportsmen. It contains a little over four acres of water, and the fish taken from it are noted for their gameness, beautiful color and fine flavor. The Waterloo Hunting and Fishing Club have had this lake under their care for the last twenty years. It is now owned by a private club of Waterloo citizens.

The lake was originally stocked with fish from Macleod Lake and Lake Edwards. During the past twenty years a number of consignments of fish have been received from the State Fish Commission. Carp were placed in the lake with the game fish, and for several years were quite plentiful, some very large ones having been taken at times, but for three years past none have been seen or caught. The water in the lake is from one to nine feet deep, clear and always cool, being fed by springs. Fishing has been good, and fish in satisfactory numbers have been taken, but we need additions to our stock—fresh blood, so to speak, as our present stock is old and no overflow permits the introduction of new fish by any other method than plants by the Commission.

The lake contains black bass, crappie, sunfish, catfish and some coarse fish. Near Island Lake is Catfish Pond, owned by Mr. E. Grosse, and stocked with bass, crappie, catfish and sunfish. It is a natural pond, but not open to the public nor used for club purposes.

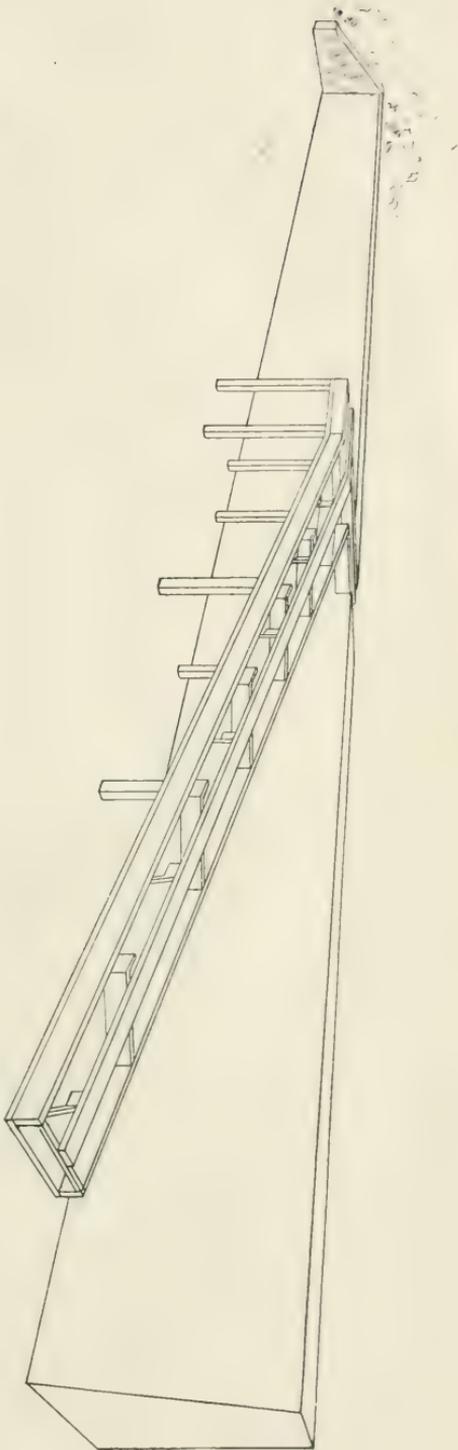
Mr. C. Kolmer, one-half mile north of Waterloo, has a nice artificial pond well stocked with crappie, channel catfish and a few bass. These were placed there by the State Fish Commission and have thrived wonderfully. The channel catfish in the pond take the fly as quickly as do the bass, and put up as good or a better fight.

Mr. J. Herchenroeder, two miles east of Waterloo, has a lake made by damming up a small valley, which is well stocked with a variety of fish. The lake has not yet been opened for fishing. The Nill ponds at Waterloo have been stocked and give promise of fine fishing in a few years. Mr. M. Crowe, five miles east of Waterloo, has an artificial pond on his farm, and it is stocked with black bass and catfish. The pond has been stocked for a number of years, the original stock having been taken from Kid Lake, and since replenished by exchange with Island Lake club. The stock has thrived well, notably the crappie, which has increased wonderfully. Mr. Crowe is liberal in extending the use of his pond to his friends.

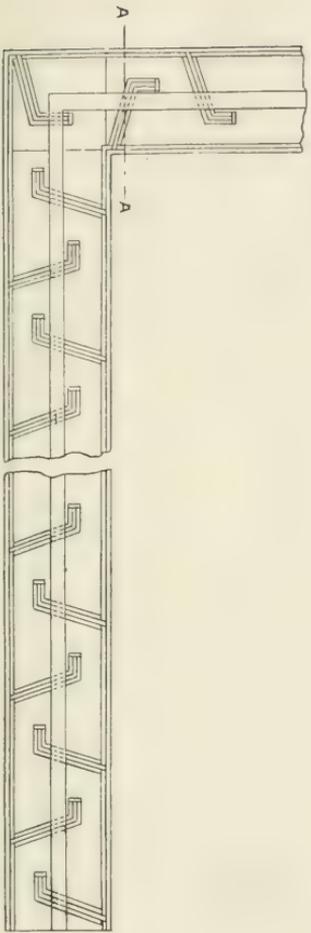
Lake Bartlett is a natural body of water of over four acres in extent, varying in depth from one to twenty-five feet. It is situated four and one-half miles southwest of Waterloo, and is leased by the Lake Bartlett Fishing Club, consisting of ten members.

This lake was stocked six years ago by the Commission with black bass, crappie, channel catfish and sunfish. After the overflow of 1892 the members secured several thousands of black and striped bass from the lowlands and successfully transferred them to the lake. Fishing has been good during the last three years. (No fishing was allowed for the first three years.) The lake and club were named for Hon. S. P. Bartlett, secretary of the State Fish Commission. Dr. C. M. Fike is president, William Coerver secretary and Fred Faber treasurer of the club, all of Waterloo.

Schorr Lake Fishing Club of Waterloo has the largest membership and is the oldest sporting club in existence in this county. It was organized by members of the Waterloo Hunting and Fishing Club, which disbanded when Island Lake passed out of their hands. This



Section at A



PLAN OF FISHWAY.
SCALE $\frac{1}{2}'' = 1'$

PERSPECTIVE VIEW OF FISHWAY.

- PERSPECTIVE VIEW OF FISHWAY
- SHOWING ITS POSITION WITH
- REFERENCE TO DAM WHEN ERECTED.
- RISE ONE FOOT IN FOUR FEET.

club has a beautiful club house at the lake, which is a little over a mile south of Waterloo. The water is supplied by springs that never fail, and the lake is said to be one of the finest artificial ones in the State. This club also controls Beaver Lakes, three lakes situated five and one-half miles south of Waterloo. These lakes were all stocked by the Illinois Fish Commission.

While not in our neighborhood literally, yet near enough to count, is the lake of the Chester Fishing Club, Lake Langford, named for the late secretary of the Illinois State Fish Commission. The club is a stock company, limited to a membership of twenty-five, and was organized in 1891. The lake is an artificial one, fed by springs, and was made by throwing a dam across the ravine. The lake covers about one and one-half acres of ground, and is situated about one mile from the city of Chester. The stock was originally obtained from Bois Brule bottom and the Illinois State Fish Commission. The by-laws of the club restricts the catch as to size of fish, and this rule is rigidly enforced.

The interest in pond culture and the care of our lakes has made fishing very popular, fly casting being the prevailing method. Many of our boys have become quite expert. A size limit as to fish caught is a rule in most of the clubs, and our people are being educated to the necessity of protection of our waters in every way possible.

FISH WAYS.

With each succeeding year the necessity for good practical fishways that will permit the passage of fish up the streams becomes more apparent. The scarcity of the catfish above the locks on the Illinois river would demonstrate this fact without further argument. Large catfish, such as were caught in great quantities every season in former years, are now extremely rare, and the catch is limited to smaller fish. This is true not only of the catfish but of a number of other varieties as well. Since our last report fishways have been put into the government dams at Kampsville and La Grange on the Illinois river, and the government dam on the Wabash river near Mt. Carmel. Major Marshall, in charge of the U. S. Engineering Corps, and having charge of the improvements of rivers and harbors, with headquarters at Chicago, has given us all the assistance in his power, and through his courtesy we have been enabled to open up a part of the Illinois river. We have received several complaints this season regarding dams unprovided with fishways, but we think we shall be able to arrange satisfactorily with all so situated.

We give herewith cuts of fishway in position and perspective views of same. Drawings and specifications are furnished on application to the Commissioners.

NATIVE FISH DISTRIBUTION.

The distribution of fish for the two seasons 1894-5 and 1895-6, has been mainly of the better kinds of food fishes, such as the black bass, crappie, white and striped bass, wall-eyed pike, channel catfish and

ring perch and the pikes. However, a very large number of the coarser varieties, including the carp, buffalo, suckers, white perch, sunfish, etc., have also been distributed. These varieties have chiefly been utilized locally, that is, they have been taken from the drying pools and sloughs and put into the river or nearest deep water. The fish moved in this way aggregate a very large number. No attempt has been made to keep an accurate record, as they were moved mostly during the warmest weather, and no time could be taken for anything else than hurried work from the place from which they were taken to the points of planting, which was frequently a distance of half a mile.

The work of one day opposite Meredosia will fairly exemplify the catch and its disposition at the busiest seasons. From what is known as the Trestle Ponds, which were left by the drawing down of several ponds covering an area of probably 10,000 acres after the river has receded within its banks, we took sixty cans of fish in one day. The cans each held thirty gallons and were filled almost solidly with fish, most of them channel catfish and sunfish. An estimate of 500 to the can would be a conservative one, as several of the gang employed in the work estimated them at double that number. These fish were all put into the Illinois river. But a very small proportion of the fish taken were used for distribution, selections being made to send to the points to be supplied. Only the public waters which were supplied were taken into account here. During the season of 1894 and 1895 we delivered fish to 141 individual owners of ponds, and to 127 during the season of 1895 and 1896. In many instances these plants were made on the application of individuals owning very fine, large artificial or improved lakes and ponds, and a number of them were for large lakes and preserves owned and maintained by clubs. We have endeavored to make our distribution as equitable as possible, and to that end informed ourselves of the needs of each section supplied, so far as we could,

NATIVE FOOD FISHES DISTRIBUTED TO PUBLIC WATERS DURING
SEASON OF 1894 AND 1895.

Stream.	Locality.	Number.
Mackinaw River.....	Near Pekin.....	2,500
Kankakee River.....	" Kankakee.....	3,500
Sangamon River.....	" Springfield.....	3,100
"	" Decatur.....	3,500
"	" Riverton.....	2,600
Crooked Creek.....	" Macomb.....	1,500
Rock River.....	" Dixon.....	2,000
"	" Rock Island.....	1,200
"	" Oregon.....	3,000
Fox River.....	" Aurora.....	500
"	" Elgin.....	3,500
"	" Algonquin.....	3,500
Kaskaskia River.....	" Venedy.....	2,200
Fox River.....	" McHenry.....	2,100
Vermilion River.....	" Potomac.....	1,500
Spoon River.....	" Seville.....	2,600
Iroquois River.....	" Iroquois.....	1,500
Crystal Lake.....	" Crystal Lake.....	2,200
Pistauqua Lake.....	" McHenry.....	1,100
Fox Lake.....	" Lake Villa.....	1,600
Des Plaines River.....	" Riverside.....	3,500
Third and Fourth Lakes.....	Lake County.....	2,500
Lakes in St. Clair Co.....	3,500
DuPage River.....	Naperville.....	2,500
Kankakee River.....	Wilmington.....	2,000
Illinois River.....	Havana.....	9,000
"	Meredosia.....	11,000
Embarass River.....	Charleston.....	4,000

These plants consisted of an assortment of fish, adult and small, a large proportion of them being bass and crappie of the season's production. Owing to limited facilities for transportation, it was impossible to utilize all the fish taken for general distribution, and the residue left after the selections were made for distribution were planted in the Illinois River.

DISTRIBUTION OF NATIVE FOOD FISHES, 1895 AND 1896.

Waters.	Locality.	Number.
Wabash Reservoir.....	Pittsfield Junction.....	300
Lakes in Chicago Parks.....	Chicago.....	2,500
Lakes in Lake Co.....	Near Lake Villa.....	2,500
Lakes in Lake Co.....	2,000
Lakes in Monroe Co.....	2,500
Lakes in St. Clair Co.....	Belleville.....	1,500
Lakes at.....	Waterloo.....	500
Lakes in Pike Co.....	Shepherd.....	1,700
Lakes in Henderson Co.....	Gladstone.....	1,500
Fox Lake.....	McHenry.....	500
Fox River.....	Aurora.....	1,000
".....	Elgin.....	500
".....	McHenry.....	800
Rock River.....	Oregon.....	600
St. Ecarte.....	Hannibal.....	2,000
".....	Clarksville.....	2,500
".....	Rockport.....	1,500
Long Lake.....	Mitchell.....	750
Sangamon River.....	Decatur.....	1,500
".....	Riverton.....	600
Macoupin Creek.....	Macoupin.....	500
Sangamon River.....	Petersburg.....	1,100
Pecan River.....	Oakford.....	1,500
Mackinaw River.....	Pekin.....	1,200
Salt Creek.....	Kennedy.....	800
Apple River.....	Apple River.....	750
Kickapoo Creek.....	Hayworth.....	300
Big Muddy River.....	De Soto.....	1,150
Salt Creek.....	Lincoln.....	600
Macoupin Creek.....	Riverdale.....	1,800
Vermilion River.....	Pontiac.....	1,800
Salt Creek.....	De Witt.....	600
Cahoka Creek.....	Edmundsville.....	500
Embarras River.....	Greenup.....	600
".....	Grayville.....	400
Vermilion River.....	Danville.....	2,000
Kaskaskia River.....	Patoka.....	400
Cone Creek.....	Pana.....	650
Cache.....	Ulm.....	1,500
Salt Creek.....	Clinton.....	1,450
Leaf River.....	Foreston.....	250
Momence River.....	Menominee.....	1,100

COL. GEO. W. LANGFORD.

On September 23, 1896, with the closing of our fiscal year, Col. Geo. W. Langford, Secretary of the Commission, passed away at his home in Havana, Ill., after a lingering illness of nearly a year's duration.

Col. Langford was an active member of the Commission, devoting the greater part of his time to the work, and his extended acquaintance throughout the State did much in popularizing the work.

Few men were better known or more universally liked than he. An enthusiast in his work, a pleasant and genial companion and thoroughly loyal to his chosen friends, we have only pleasant memories of our association with him, and regret at his loss.

ACKNOWLEDGEMENTS.

We are greatly indebted to the various railroad managements of the State for their many favors and courtesies. They have given us transportation and offered us every assistance possible in our work. To their generosity we practically owe the extent of our work, for if we had been compelled to pay ordinary freight charges on the fish carried it would have been a serious drain upon our limited resources.

The following named roads have favored us repeatedly:

Chicago, Burlington & Quincy R. R.	St. Louis, Alton & Terre Haute R. R.
Wabash Railroad.	Wabash, Chester & Western R. R.
Illinois Central R. R.	Chicago & Texas R. R.
Chicago, Peoria & St. Louis R. R.	Elgin, Joliet & Eastern R. R.
Baltimore & Ohio Southwestern R. R.	Fulton County R. R.
Chicago & Northwestern Ry.	Chicago & Eastern Illinois R. R.
Chicago, Milwaukee & St. Paul Ry.	Indianapolis, Decatur & Western R. R.
Chicago, Rock Island & Pacific R. R.	Louisville & Nashville R. R.
Lake Erie & Western R. R.	

While we cannot show a direct and immediate advantage to the railroads of the State in the increase of our fish supply, we think we can assure them that the future will not be without profit to them, even from this source. At any rate, we are under great obligations to them, and we should like very much to see them reap some benefit from our work.

To the press of the State, always liberal, we are under deeper obligations than ever before for bringing our work before the people of our State, and thus educating them not only as to what should be, but what is being done in our line.

To the various fishing clubs we owe acknowledgement of assistance rendered times without number, and generous recognition of our efforts have been frequent and helpful.

SUMMARY.

While we are inclined to the opinion that neither we nor those who preceded us have always worked on the most practical lines, yet it has taken years of the most patient work and study to know just what was needed and how it could best be accomplished, and the work has shown good results, if one may judge by the favorable reports which come to us from all parts of the State of what has been accomplished. From the experience of the past years of the Commission we deduct the conclusions embodied in this report, that the greatest good is to be gained by giving the greatest attention to fish as a food supply, believing that the interests of the sportsman will be subserved at the same time.

And we desire to say here that great credit is due the angling fraternity for having displayed the greatest interest in everything that pertains to fish culture or their preservation and protection. They have been untiring in their efforts to assist in matters of legislation, or pecuniary aid. The interest in fish culture locally has made great strides, and as soon as experience has demonstrated the practicability of raising all the fish necessary for home consumption on the home farm, we confidently expect to see a fish pond on every farm where it is possible to maintain a suitable one. As a food factor the product of these ponds would form a most important item in the economy of the household, by giving variety to the usual bill of fare, and furnishing another form of wholesome and nutritious food.

Taken altogether, we confidently assert that the money invested in the care, protection and propagation of the fishes of the State will yield greater returns to the people than the same amount used in any other direction.

Respectfully submitted,

R. ROE,

HENRY SCHMIDT,

Commissioners.

Appropriation for Personal and Traveling Expenses of the Commissioners, or such Persons as may be authorized by them, in Enforcing the Laws Relative to Fishways over Dams and for Protection of Fish.

BILLS OF PARTICULARS AND SUB-VOUCHERS ON FILE WITH
STATE AUDITOR.

Amount to credit of Commission October 1, 1894.....	\$2,306 53	
Appropriation available July 1, 1895.....	2,500 00	
	<u>\$4,806 53</u>	
By paid legal services, People v. Bridge.....		\$100 00
By expenditures for October, 1894.....		86 55
" November, 1894.....		97 54
" December, 1894.....		194 70
" January, 1895.....		170 05
" February, 1895.....		157 81
" March, 1895.....		85 27
" April, 1895.....		537 02
" May, 1895.....		200 00
" June, 1895.....		197 82
" July, 1895.....		185 85
" August, 1895.....		193 21
" September, 1895.....		169 75
	2,375 57	<u>\$2,375 57</u>
Appropriation available July 1, 1895.....	\$2,430 96	
	2,500 00	
	<u>\$4,930 96</u>	
By expenditures for October, 1895.....		\$185 12
" November, 1895.....		123 68
" December, 1895.....		145 33
" January, 1896.....		149 98
" February, 1896.....		162 78
" March, 1896.....		182 83
" April, 1896.....		
" May, 1896.....		388 24
" June, 1896.....		173 82
" July, 1896.....		207 64
" August, 1896.....		211 90
" September, 1896.....		122 84
	2,654 16	<u>\$2,654 16</u>
Amount to credit of Commission October 1, 1896.....	\$2,876 80	

*Recapitulation of Expenditures by Illinois State Fish Commission
from October 1, 1894, to September 30, 1896.*

BILLS OF PARTICULARS AND SUB-VOUCHERS ON FILE WITH STATE
AUDITOR.

Amount to credit of Commission October 1, 1894.....	\$6,315 19	
Amount appropriation available July 1, 1895	7,500 00	
	<u>\$13,815 19</u>	
By expenditures for October, 1894.....		\$999 15
“ November, 1894.....		712 43
“ December, 1894.....		496 38
“ January, 1895.....		557 65
“ February, 1895.....		368 85
“ March, 1895.....		1,245 05
“ April, 1895.....		361 90
By paid Marine Iron Works, 1895.....		541 81
By expenditures for May, 1895.....		998 26
“ June, 1895.....		1,055 03
“ July, 1895.....		967 53
“ August, 1895.....		886 40
“ September, 1895.....		617 15
	<u>\$9,807 59</u>	<u>\$9,807 59</u>
	<u>\$3,997 60</u>	
Appropriation available July 1, 1896.....	7,500 00	
	<u>\$11,497 60</u>	
By expenditures for October, 1895.....		\$737 56
“ November, 1895.....		761 74
“ December, 1895.....		440 64
“ January, 1896.....		247 1
“ February 11, 1896.....		477 28
“ March, 1896.....		800 75
“ April, 1896.....		
“ May, 1896.....		1,135 71
“ June, 1896.....		650 63
“ July, 1896.....		816 84
“ August, 1896.....		767 17
“ September 1896.....		761 61
	<u>\$7,597 04</u>	<u>\$7,597 04</u>
Amount to credit of Commission October 1, 1896.....	\$3,900 56	

