

TWENTY-FIRST BIENNIAL REPORT

OF THE

STATE BOARD

OF

FISH COMMISSIONERS

FOR CALENDAR YEARS ENDING DECEMBER 31, 1913,
AND DECEMBER 31, 1914.



BY AUTHORITY

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STATE BOARD OF FISH COMMISSIONERS.

COMMISSIONERS.

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To His Excellency, the Governor:

Herewith is submitted the report of the State Board of Fish Commissioners for the biennial period from January 1, 1913, to January 1, 1915.

The production at the several state hatcheries during the biennial period has been nearly up to the limit of producing facilities. Within the limits of these facilities the results have been quite satisfactory. The season of 1914 has been the most successful in the output of black bass, rainbow trout and perch since the work of fish culture was started in Michigan by the commission in the early seventies. Plans for the season of 1915 contemplate a still further enlargement of the work, including a greater production of brook trout, perch and bluegills. The production of black bass at the state's hatcheries in 1914 was far greater than at the hatcheries of any other state, and exceeded the combined output of all the bass hatcheries of the Federal Bureau of Fisheries; but is still far short of meeting the demand.

The commission feels it an obligation to express appreciation for the generous spirit manifested by your Excellency and by the legislature at the 1913 session in its work. The legislative committees of that session, which inspected the services and needs of the commission, went into the subject most thoroughly. Practically all of the increase allowed by the commission's appropriation bill of that session was however, required to pay for neglected repairs at the several hatcheries, and to replace worn out buildings and other property; hence the commission was able to add but little to the producing facilities.

NEW DISTRIBUTING CAR.

Two years ago the legislature appropriated \$5,000.00 for a new distributing car, to replace the old car which had been in use upwards of 25 years, and which was worn out beyond repair. The commission has now a much larger and better car, named the "Wolverine", better than the old one ever was, and the cost of it, fully equipped, was over \$1,000.00 inside the appropriation. To get what was wanted at this moderate outlay, the commission purchased what was originally a Pullman sleeper, 81 feet long, being 19 feet longer than the old car, steel-sheted and of standard construction. For the Pullman company's use, the car had passed out of style. The commission purchased it from the company for \$1,600.00 and sent it to the car shops, where it was overhauled, side doors put in, the floor relaid, lockers built with a capacity for 144 ten gallon cans of fry, there being space outside the lockers for 40 more cans; and hot and cold water provided. Seven of the upper berths were left in and these, with a dayenport in the dining room and one in the office, give sleeping accommodations for a working force of

nine. The car is lighted with Pinksch gas. The total cost for overhauling, for new equipment, furniture, bedding, dishes, all complete, including the purchase price was \$3,878.79.

As a matter of good business policy the commission is convinced that another car of this kind should be provided. The distribution season for carload lots usually is from March 1st, to the middle of July, although occasional car trips are made at other periods. The car now owned makes about 25,000 miles each year. In the rush season it is necessary to rent baggage cars to help out. Necessarily these rented cars are lacking in essentials and conveniences for the safe transportation of fry, but the worst feature of the situation is that baggage cars are not always available for renting. This was the case in the Spring of 1914. Another car could be secured for approximately the same amount as the new car, which went into commission one year ago, and the cost and the expense of operating it would not be materially greater than for rented cars.

The commission acknowledges the courtesies of the railroads of the state, which with a single exception, and that not important, haul its distributing cars free of charge. All the lower peninsula roads, except the one noted, also haul the commission's men employed on the distributing cars free. The upper peninsula roads all haul the distributing cars free of charge and those not interstate lines also do the same for the employees. So, an additional specially equipped car for the commission would not mean additional transportation expense.

IMPROPER PRACTICES AND THE REMEDY.

To some extent the commission has had to contend with improper practices by persons who make application for young fish and in the planting of the fish. Reports have been frequently received that downright deception is resorted to for the purpose of getting more than a fair share of young fish for a particular lake or stream; that planting instructions are not carried out, nor the young fish planted in the waters that it was represented to the commission. The result would be that cans of young fish are left at railway stations or held in wagons for hours without attention; that cans are doubled up beyond safety limits; that applicants who receive young fish have the actual planting done by those who disregard instructions or are concerned only in getting through with it in any way that is the quickest and easiest.

These practices doubtless have resulted in the loss or waste of fry in some instances. They are practices that the fish commission hopes to correct, at least in a large degree. The fish commissions of other states have been encountering the same practices, and, too, are working on remedies.

The capacity of the several Michigan hatcheries being far short of its demands, the commission, in all fairness, feels bound to declare that it has no products of the hatcheries to waste through negligent or improper treatment of the young fish after such fish have been shipped to persons not in the service of the commission, for planting. In behalf of the large majority of applicants for young stock who deal fairly with the commission, it is only right that the different schemes resorted to, in order

to secure an unreasonably large quantity of fish for favorite waters, should be stopped. The commission feels that this situation impels it to use all legal means within its power to end these deceptive practices. At the same time the commission recognizes that until it has a considerably larger revenue so that it can pay the expenses of having a trained employe accompany every shipment and see that it is planted right, we must continue to depend on the applicants themselves to take care of this important part of the work. It follows that we must have the hearty co-operation of all who are as deeply interested in fish culture as the commission itself.

One kind of deception worked in fish planting, while not particularly harmful so far as results are concerned, makes part of our records quite unreliable. This is the practice of persons filing several applications for several bona fide lakes or streams and then placing all of the fry and young fish they receive in a single lake or stream. Where this is done it is not probable that any given water is overstocked, so the fish are not wasted. It may happen and probably has happened that the commission has delivered fish in good faith for a certain water several years in succession with no apparent results, when in fact this water has received no fish, except on paper.

As soon as the change can be put into effect, it is the purpose of the commission to deliver fry and other young fish only to such applicants as have previously agreed to become personally responsible for planting them in the specific waters applied for; and after the planting has been done, strictly as per agreement, will see that the cans are returned to the station agent. New kinds of application forms will hereafter be used and a certificate of planting required. In all this, the sole purpose of the commission is to eliminate abuses, to impress on those who receive fish the importance of acting throughout in good faith, following instructions as closely as conditions will permit, and to get into closer touch with fishing and fish culture conditions in every section of the state where there are waters that can be profitably stocked. With this end in view a state wide canvass is being made, to secure the fullest possible information along these lines, and to get the names and addresses of all persons in the state who are willing to plant fry and other young fish supplied by the commission, and to assume responsibility for planting them right. With every shipment, the applicant will receive plainly printed instructions, which have but to be followed to get the best results attainable.

BEGINNING WITH THE SEASON OF 1915 THE FOLLOWING INSTRUCTIONS WILL BE GIVEN OUT IN PRINTED FORM WITH EACH DELIVERY OF BROOK TROUT.

"The best and most congenial nursery waters for trout fry are the headwaters and smaller tributaries, the creeks and brooks and spring runs. Streams that are sufficiently spring-fed to be free of ice in midwinter are ideal for the introduction of young trout.

Start promptly for the streams where the fish are to be distributed. Do not double up cans at the railroad station unless

It is within twenty minutes' drive of the planting points and then do not put more than two cans into a third one.

Take along dippers that will pass through the neck of a can, also one or more large pails and a small piece of fine netting or screening cloth. Bobnet or two or three folds of mosquito netting will serve the purpose. Don't use wire netting.

Aerate the water frequently, especially on long drives. Dip it up and pour back from a height of two or three feet, eight or ten dipperfuls per can.

On arrival at streams double up two to four cans into a pail of spring or creek water, using the netting to screen the fish. Rinse each can thoroughly to clear it of fish that may lodge in the shoulder when upturned.

Go upstream and down with your pail of trout and a dipper. Scatter a dipperful here and there in the shoal and quiet waters along the banks and slack water corners of bars. Don't put them in a strong or swift current nor in pools and heads where older fish may lurk. If you find spring runs making in, follow them up and give them a light sprinkling of trout. Dip fresh water into your pail as you go along, to keep the fry in good condition.

Drive or go to as many favorable planting points as you can, according to the number of trout to be released. Keep in mind that the more mileage of brooks you spread them in the more food you put before them and the faster they will grow; also that a wide distribution reduces the loss by natural enemies and prevents starving and stunting.

We will make every effort to deliver the trout in the best of condition. It is then up to you. Please remember that a wide distribution in the waters above indicated is the vital point in successful trout planting; and the nearer you can and will do your part as above outlined, the greater the percentage of "savers" that will show up in due time in the deeper waters below."

COMMERCIAL FISHERIES.

For a number of years the commission's biennial reports have been practically silent on the hatching and planting of commercial fish in the waters of the Great Lakes. This has perhaps been one of the contributing causes for a feeling among commercial fishing interests that the commission is disinclined to engage in the propagation of commercial fish, such as whitefish and lake trout. Commercial fishermen have criticised the commission quite strongly for confining its work to inland waters. There can be no more opportune time than here in the commission's twenty-first biennial report to state its position clearly on this matter so that there will be no longer misunderstanding. The commission is in no manner or sense antagonistic, or even unsympathetic, to the interests of the commercial fisheries, nor to again undertaking the work of propagating commercial fish. The commission did this work for many years, and until the legislative session of 1897 refused to appropriate money to continue it longer. There had been a rather bitter controversy over proposed legislation in which the commission, as then constituted, was placed in a hostile light in its relations with the commercial fisher-

men of the Great Lakes. Legislation had been proposed that the commercial fishermen regarded as practically confiscatory, and they retaliated, so that from the 1897 session on, the work of the commission was restricted to the inland waters, the Federal Fisheries Bureau doing all the planting in the Great Lakes. The personnel of the commission changed not long afterwards, and the present commission has entered into the most friendly relations with the commercial fishermen.

At the legislative session of 1913, there was some informal discussion, in a measure, of propagating and planting strictly commercial fish. The discussion was in particular reference to establishing a hatchery in the Saginaw Bay district, for propagating whitefish, lake trout, well-eyed pike and perch, under the direction of the fish commission. A hatchery in this section and for the purpose noted has heretofore been recommended by this commission. It has also been recommended by the State Game and Fish Warden, and by the United State Bureau of Fisheries. The state hatchery at Detroit, and also at the Soo, are both equipped for hatching commercial fish. The hatchery at Detroit, owned by the state has been leased to the United State Bureau of Fisheries since 1898. By the terms of the lease, the commission reserves the right, which is exercised every year, of propagating at the Detroit hatchery, wall-eyed pike and other spring spawning species. The Federal Bureau propagates whitefish at this station, and as whitefish spawn in the Fall and hatch in the Spring, the state work follows that of the Federal Bureau without interference. The arrangements have proven most advantageous and satisfactory to both the state and the general government. The lease requires that the Federal Bureau shall make all repairs to the building and equipment and pay the rental of the land on which the hatchery stands.

As compensation in part for the use of the Detroit and Soo stations for hatching commercial fish, the Federal Bureau agrees to turn over to the state 30,000,000 to 45,000,000 eggs of wall-eyed pike each season, delivery being made early in May. About 50 per cent of these eggs are hatched and delivered from Detroit, 35 per cent from Mill Creek, and 15 per cent from the Soo. Formerly it was the practice to distribute the entire output of pike from the Detroit hatchery, but the season is too short to successfully cover all parts of the state from one shipping point. The Federal Bureau propagates by far more whitefish at the Detroit and Put-in-bay hatcheries than is propagated at all other Great Lake hatcheries combined. The commission formerly had a small hatchery at Charlevoix, but this was abandoned when the commercial work was transferred to the Federal authorities.

The commission does not want to be put in the position of trying to supplant the Federal Bureau in the work of keeping the Great Lakes stocked with commercial fish, at the same time it is entirely willing to undertake a share of this work; and, as to whether it should be financed by direct appropriation, or by a tax on commercial fishing, would of course be for the legislature to say. The commission is as much concerned in perpetuating the commercial fish of the state as it is of perpetuating the game fish, whether the work is carried on under its own supervision or through the use of its commercial hatcheries by the Federal Bureau.

PRODUCING AND REARING FACILITIES.

The producing and rearing facilities at the several hatcheries are ridiculously out of proportion to the requirements. The demand for stock for planting is far beyond the capacity of the hatcheries, and the commission has, up to the present time, been forced to limit production to the kinds of fish best adapted to the present facilities, almost to the exclusion of other species of perhaps equal importance and value. Although the area of the inland waters of Michigan amounts to hundreds of thousands of acres, the area of artificial ponds at the hatcheries for producing black bass, bluegills and other pond culture fish for stocking this vast water field, does not exceed 15 acres. Michigan should have not less than 500 acres for this purpose, and even then would not be as well equipped as, for example, the State of Kansas, which has not to exceed 5 per cent of the area of inland waters that is in Michigan, yet has culture ponds at her hatcheries that cost about \$150,000. One hundred and fifty thousand dollars is about \$30,000 more than the inventory value of all the property Michigan has provided for fish culture of every kind. It is a physical impossibility for the commission to meet all the demands for fry and young fish to plant, with the present capacity of the hatcheries, and the demand is becoming more insistent year by year on account of the increasing number of anglers and the consequent depletion of, not only waters that have been stocked, but of other waters. If the field of propagation in Michigan was given into control of a single corporation, it is a conservative statement to say that the pond hatching facilities, that is, facilities for hatching those species that can be propagated in ponds only, would be capitalized at \$1,000,000. The ova and young of these species are not produced in privately owned ponds; hence cannot be acquired by purchase or exchange, as, for example, can brook trout eggs. Our only source of supply is the very limited pond area at the State's hatcheries.

However, it should be said that these objections do not lie as to brook trout. In the work of the commission any shortage in the amount of brook trout can usually be met by purchasing eggs from private trout hatcheries. Likewise there can be acquired an ample supply of rainbow trout. Therefore, the imperative needs are very much larger expansion of pond culture area at the two hatcheries that now have these ponds; a new pond culture station in the Lower Peninsula, for bluegills, strawberry bass and catfish, and a station in the Upper Peninsula, where there are now no facilities whatever to propagate black bass and the other pond culture species. Michigan has been the leader for many years in the production of black bass in the United States, yet it should have facilities for producing 100 bass for planting, to meet the situation, where it now has facilities for but one.

In particular, perch and bluegills, for which there is always a demand much in excess of the supply, should be hatched in far greater numbers, and the latter advanced to half-fingerling or fingerling size. But this cannot be done on a scale of any magnitude without a large artificial pond area.

ANGLERS' LICENSES.

Two years ago the legislature, upon recommendation of the commission, enacted an angler's license law, but restricted it to non-residents of Michigan. The license fee under this law is three dollars for all kinds of fish, including the trout family, and one dollar for all kinds of fish except the trout family. It is stipulated in the act that all moneys received from anglers' licenses shall be used in the work of fish culture and distribution. The law went into effect January 1, 1914, and the revenues from it for the first 12 months, partly estimated, for the returns are not yet all in, will be approximately \$20,000. Bear in mind that not one penny of this amount was collected from residents of Michigan. It was all paid by residents of other states, a goodly portion by campers and summer resorters, a class that, on account of the extent, the diversity, the attractiveness and the fine fishing in Michigan, equalled by few and unsurpassed by no other, is bound to increase year by year. The commission earnestly recommends that the angler's license act be amended so as to apply to residents as well as non-residents; and, it makes this recommendation with the absolute conviction that if an amendment for this purpose is enacted, the annual revenues from hook and line licenses will be ample to carry on all the work of propagation and distribution, maintenance of hatcheries, in fact, every kind of current and special expenses, without any appropriations by the legislature or direct tax of any sort. The work of this board would then be wholly self-sustaining. This result could be secured by a license fee of one dollar, applying only to male residents over 21 years old, with the fee for non-residents to remain as at present, so that the average for both classes for licenses would be nearly one dollar net. The angler's license law should also apply to all border waters within the jurisdiction of the State.

The purpose of an angler's license law for all adults who fish with hook and line is not to prohibit or restrict fishing, but to require those who enjoy the recreation to contribute something towards the maintenance of the fish supply in our inland waters. It is equally as fair that the angler should contribute something to keep the waters stocked with fish, the taking of which gives him pleasure and food, as that the owner of an automobile should pay an annual license tax, the proceeds of which go for the building and upkeep of the highways he uses.

In 1913 California enacted a hook and line license law which requires a fee of one dollar for resident citizens above the age of 18, and three dollars for non-residents and aliens. The revenue produced the first year was upwards of \$80,000 and Michigan has a larger area of fresh water, the Great Lakes excluded, than California.

IMPORTANCE OF FISH CULTURE IN MICHIGAN CONSIDERED IN LIGHT OF FOOD SUPPLY.

It has been estimated by the scientific observers with the United States Bureau of Fisheries that under favorable conditions an acre of water will produce as much or more life-sustaining food, if devoted to the raising of fish, as will an acre of land. So, right here is a question of large importance to Michigan, inasmuch as it is first among the States in the area of its inland waters, of great importance when con-

sidered in the light of food supply, open to all. The possibilities of fish for not only an occasional but a regular and dependable food staple, is worthy of the most thoughtful consideration. Professor Dyche, curator of mammals, birds and fishes in the University of Kansas and who has charge of the State's fish propagation service, has been indulging in interesting calculations of such possibilities. Applying his method of calculation to Michigan, it is found that if each family in this State could have fish on an average of once a week, it would be an item of large economic importance. Say there are 750,000 families in Michigan. This would mean that about three-quarters of a million messes of fish would be consumed each week. The value of the fish thus consumed, allowing an average of 25 cents for each mess, a low estimate, would amount to \$187,500 for one week, and for the year of 52 weeks, \$9,546,000. If each family ate fish twice a week, the yearly value as a food supply would be \$19,092,000.

In Germany and some other European countries, the raising of fish for food purposes, and for profit, is looked upon in the same light as the rearing of poultry and live stock. In Germany thousands of pieces of land that are swampy and otherwise of little value, have been converted into fish ponds and are now made to yield fish food products.

Though fish are exposed to disease and destructive enemies, as are land animals, authorities say that it is far harder to stock a cover with game than to stock a pond or stream with fish. Here in Michigan we have thousands of lakes and streams that might, if stocked to their production limit, raise thousands of tons of fish for food purposes.

In general the economic value of any species depends not only upon its toothlessness, but with its abundance and the ease with which it can be caught and preserved. Indigeneous to Michigan waters are species that meet this requirement to the fullest extent. Dr. David Starr Jordan, than whom there is no higher living authority on pisciculture, includes among the first 16 species of the finest eating fresh water fish in the northern hemisphere, six that thrive in Michigan waters, namely, whitefish, bass, brook trout, rainbow trout, pike and muscullonge. Sir John Richardson records that one can eat whitefish longer than any other species without the feeling of cloying, and that the North Pacific salmon does not compare with it, for of salmon, however excellent, the stomach becomes tired. Even of our Michigan yellow perch and bluegills, Dr. Jordan says that as pan fish he knows of no better among fresh water fish.

Michigan has the waters, the fish species and all that nature can provide to enable her to rank every other State as a producer of food fishes; not alone the finest of the gamey species, but bluegills, straw-berry bass, perch and other excellent kinds for the table. To give her that position, and primarily to increase by many millions the food products of the State, will require considerable investment for a few years. But there are precedents in abundance that the annual returns would be not only large but permanent, and economically to the advantage of all the people of the State.

PAST AND FUTURE OF MICHIGAN'S FISH SUPPLY.

From the earliest history of Michigan, the abundant natural supply of fish in the waters within her geographical limits has contributed a sub-

stantial part in her development; and during the past 40 years, the State's establishments for fish culture have been a useful and important factor in the further development of the State, and in assisting to solve one of the economic problems which must be met by wholesome food supply. The excellence of the indigeneous fish of Michigan waters, and which, from the beginning of the first settlements until a scant half century since, was believed to be, in supply, so abundant that it would never be materially diminished, is a matter of which permanent record exists. Boise's Gazetteer of Michigan, published in 1835, said of the products of Michigan waters that: "Their quantities are surprising and so apparently inexhaustible as to warrant a belief that were a population of millions to inhabit the lake shores they would furnish ample supplies of this article of food without sensible diminution." As early as 1859 the value of a single season's catch of the Detroit river whitefish was put at \$75,000. Lunan's Red Book of Michigan history estimates the value of the fish products of the State in 1871 at \$1,000,000. The same authority says: "Formerly as many as 8,000 whitefish were taken at a single haul of the seine. At present (1871), 2,000 are considered a big haul."

In 1867, George Clark, of Detroit, a man of large experience and an accurate observer, estimated the season's yield of whitefish in the Detroit river at 500,000, averaging three pounds each. With the introduction of pound nets in Lake Erie in the latter fifties, catches for a decade or thereabouts increased two-fold or more. There was sounded for the first time a warning cry that unless the State engaged in the artificial propagation of food fishes the day would surely come when the unsurpassedly fine edible fish of Michigan waters, and the wonderful abundance would be only a memory.

Whitefish was one of the first species that an attempt was made in Michigan to propagate. It was in 1869, by N. W. Clark, of Clarkston, Oakland county, and the first experiments were attended with enough success to induce him to repeat the next year. In 1871, having improved his appliances and learned that, in temperature of water, he must come as near as practical to natural conditions, he impregnated about 500,000 eggs, and hatched in healthy condition about 50 per cent. In 1875 he hatched about 1,000,000, of which 25 per cent were shipped to California, for the United States Bureau of Fisheries. In 1875 leading commercial fishermen tried, on their own account, to propagate fish, only to be convinced that the work must be undertaken, if at all, by the State, to be successful. Their solicitude and efforts afforded the best demonstration that could be made that the fisheries were declining and resort to artificial aid was required to preserve the stock of fish. They urged legislation, and during the session of 1873, the act was passed creating the Michigan Fish Commission.

During the first year of the commission's work and later the United States Bureau gave a considerable allotment of ova of Atlantic and California salmon, which were hatched at the State hatchery, then at Pokagon, Cass county. However, the effort to establish these salt-water species into fresh water proved a failure, as it did in other states.

In 1875 the commission started whitefish work at the Detroit hatchery, and nearly 1,000,000 eggs were laid in that Fall. At the end of the first decade the State had a whitefish capacity of about 70,000,000,

which exceeded in amount that of any other state; and later this was increased to about 200,000,000.

Brook trout propagating was conducted at the Pokagon hatchery until 1880, when the property was given up, the water supply being too small, and a new location was made at Paris, Mecosta county. Even at this early period there was abundance of evidence of trout serving two desirable purposes for the people; to vary the monotony of farm fare, as well as affording opportunities for healthful recreation; and secondly, in attracting visitors to localities for fishing, whose expenditures of money help the business of a community.

In a paper on the fishing in Michigan, and fish culture, prepared by John H. Bissell, of Detroit, in 1886, covering the first half century since the commonwealth's admission to statehood, Mr. Bissell, at the time he wrote, being a member of the State Board of Fish Commissioners, said: "The value of the fish products of Michigan in 1885 was \$800,000. If, in 1859, there had been the same efficiency of apparatus for taking fish as in 1885, the value of one year's catch in Michigan waters in 1885 could not have been less than \$12,000,000 to \$15,000,000.

Thirty years ago, enough was known scientifically and experimentally to place the practicability of fish culture beyond the domain of curious research. The apprehensions that were publicly expressed when the commission was created lest the steady depletion of the fish in Michigan might eventually result in an irretrievable loss, do not now exist. The science of fish culture has advanced much in the last generation, and no one that has even a superficial knowledge of the subject fears that Michigan is going to lose her place as first, or one of the first, in the quantity and quality of her food fishes. A rational and liberal policy in supporting the State's board which has to do with the propagation of fish and stocking and restocking of waters as conditions from year to year arise, is a sure guarantee that she cannot only retain this position, but that the supply of fish as a food factor for all classes can be largely increased.

INVENTORY AND EXAMINATION OF INLAND WATERS.

In connection with the use of public waters and the conservation of fish life therein, we desire to quote the following from our report of two years ago:

A map of the State shows that seventy-seven of its eighty-three counties are dotted with lakes or threaded with streams, or both. As this multitude of water courses and basins cannot be displaced to any extent in the sense that forests give way to agriculture, the State's title to these waters, or control thereof, is perhaps the most valuable and permanent public asset that remains from a vast array of vanished and vanishing natural resources. The State, therefore, is or should be deeply concerned in so conserving and utilizing its public waters as to insure and maintain the fullest measure of their present and potential value. The use of this important feature of the public domain for power purposes and to meet the necessities of growing urban centers need not be detrimental to fishing interests. Indeed, if properly safeguarded as to purity, the creation of reserve or artificial storage areas

tends rather to enlarge than to diminish fishery resources and fish cultural opportunities.

Although specially interested in water life and in the multiplication thereof as a factor of great economic importance this board realizes that water areas have other public interests to serve. We do not claim that fishery rights take precedence over all other water values but we do insist that it should be a fixed policy of the State to surrender no part of its jurisdiction over present water holdings, to resist to the utmost all efforts to weaken its control thereof, to go to the limit of its constitutional powers in the prevention of impurities, and to render substantial aid in the protection and propagation of the more valuable forms of water life."

It would be of great value to the propagation service for inland waters, if a complete survey or inventory of such waters were made. California, next to Michigan, leads all the other states in the number of miles of coast line, has made a survey of almost every stream and lake; and, one of the conditions revealed is that hundreds of square miles of water have passed from the public control to private owners. In general, the practical results of a survey of all Michigan waters would be accurate descriptions of all waters, the size of every lake and stream, the inlets and outlets, the character of the water, accessibility to the public, and much other data that would be of permanent value; in short, to determine scientifically what kinds of fish and vegetable and animal life should be introduced, as well as what should be eliminated.

Another important point that should be determined is, what are public waters and what are private waters, so far as fishing rights are concerned. The line between public and private ownership should be clearly drawn.

GENERAL PURPOSE FISHES.

There is a rapidly increasing demand for common or general purpose run of native fish—perch, bluegills, strawberry or calico bass, catfish and such like. The demand for planting stock of perch and bluegills far exceeds the supply, and always has, and we have not commenced to hatch the other kinds. Perch are universally recognized as a most excellent fresh water fish. They can be hatched artificially in large numbers, but bluegills, strawberry bass and catfish are essentially pond culture species. Perch can be easily grown to fingerling size in ponds, but it is more profitable to hatch them in much larger numbers and distribute them as fry. The other general purposes species herein referred to are also easily grown, but a large area of ponds is necessary to produce fingerlings in effective numbers.

The strawberry or calico bass is not only a fine food fish but is worthy of the attention of sportsmen who have a light rod, a fine line, a small hook and the feelings and sentiment of an angler. Professor Dyche reports that 14,600 were raised in an acre pond at one of the Kansas hatcheries in 1910. So far as known they are not cannibistic in their nature and it is fair to presume that they will not eat their own kind, at least in waters where it is possible to get other food. The

strawberry bass eats minnows and great numbers of insects, both land and water. It adapts itself to various waters and climatic conditions, and must be considered among the very best general purposes fishes.

From the United States Bureau of Fisheries we learn that "both commercial fishermen and anglers throughout the country are showing increased interest in catfishes, and requests for stocking public and private waters have recently been very numerous." Dr. David Starr Jordan says the catfish "is a very delicate food fish, with tender white flesh of excellent quality." The catfish eats a great variety of food stuff, including vegetable matter, minnows and young fish of other species, and insects. When hooked it is a good fighter, some anglers think equally as good as black bass of equal size.

The commission has not undertaken to hatch strawberry bass or catfish at the hatcheries because of lack of facilities to do so, but as there is a steady increase in the demand, facilities for their production should be provided. The commission recommends that these facilities be provided, and also recommends the propagation of perch and bluegills on a very much larger scale than heretofore. These species are pre-eminently popular and will thrive in all ponds and lakes in the State. They satisfy the wants of a larger number of anglers than perhaps all other kinds of fish combined, being free biters and easily caught with inexpensive tackle.

The commission further recommends a protective law for these several species and that the minimum limit as to size that can legally be taken shall be determined by length instead of weight, and that a limit be fixed on the daily catch.

RAINBOW OR STEELHEAD TROUT.

Rainbow or steelhead trout—some scientists agree that the rainbow and steelhead are the same, the latter being merely lake run rainbows—belong distinctively to the game fish class, as with equal distinctiveness German carp are non-game fish. They are as unlike as a thoroughbred trotter and the plodding plow horse; in fact they may be aptly compared the one species to the thoroughbred and the other to the draft beast that is immune to every emotion. It is of passing interest to mention that rainbow trout and German carp are the only two species, not indigenous to Michigan waters that have multiplied prodigiously, in fact so well as to cause some measure of alarm lest they deplete the water supply of certain kinds of the desirable native species. It is estimated that during the Spring of 1914, at least a million ponds of rainbow trout headed up stream in six rivers between Grand Traverse Bay and Muskegon.

The rainbow is equally as gamey as the brook trout and to some extent drives them away, but clearing the banks and beds of brook trout streams also causes them to seek other waters, for it deprives them of shade and other indispensable essentials for keeping them voluntarily within specified waters.

The rapid rise of the rainbow presents a rather knotty problem for legislative action. The situation would be greatly simplified if special or local laws were permissible, for the appearance of rainbows in extraordinary numbers is limited to a comparatively few and fairly well

defined waters. Local control is therefore clearly indicated, but it is an open question whether local laws would be constitutional.

The advisability has been suggested of dealing with the situation as the federal government does with the salmon run in Alaska rivers, viz.: permit the taking of fish as they are ascending the streams to spawn, under such restrictions and regulations as will insure a good run of breeding fish to their spawning grounds and thus guarantee the future against depletion or diminution in the supply. An open season for netting and spearing rainbows in Michigan has been advocated, but state-wide spearing and netting of any kind of fish in brook trout waters would soon ruin them for the angler. On this point the commission submits the following paragraph from its twentieth report, which if local laws may be enacted, it here again endorses:

"Many believe that a much safer and a more effective plan of holding the rainbows within proper bounds is to extend the open season for hook and line fishing to October 15th or perhaps November 1st, for rainbows waters only. They spawn in the spring and hence are not at their best until August and during the Fall. On the other hand brook trout spawn in the Fall and grow more and more indifferent to lure of every kind as the breeding season advances. It is believed by many who have studied the situation from various angles that this plan would reduce the rainbow surplus and at the same time work less harm to brook trout than would result from the use of spears and nets in the Spring; in short that it is the most rational and effective way to establish and maintain a proper balance between these species yet proposed."

Though not regarded as the equal of brook trout, rainbow trout are nevertheless an excellent food fish, and many anglers consider it unsurpassed among species of its size for putting up a game fight. A veteran angler, from Cleveland, Ohio, said last May, to the officer in charge of spawning operations on the Pine River:

"I have fished for game fish in Maine and on the coasts of Florida and California, but when I want real sport I come to Michigan and fish exclusively for rainbow trout."

FRY AND FINGERLINGS.

In fish culture everything is called fry when hatched and advanced fry after that, when held and fed on natural or artificial food, until they are one inch in length. From that stage to the time when the young fish are four or five inches in length they are called fingerlings. In a general way the average length of fingerlings are nearly the same as the fingers of one's hand. As to which is the most profitable plan, planting fry or fingerlings, is a pertinent and frequently asked question. A strictly correct answer is that there are conditions where one method is the more successful, and different conditions where the other method should be followed. The right way must be determined not only by conditions but by the kind of fish that are to be planted. The planting of both brook trout fry and rainbow trout fry has been highly success-

ful in Michigan, as well as in the neighboring state of Wisconsin; in this State being demonstrated by the fact that most of the brook trout waters in the lower peninsula contained no brook trout naturally, but have been stocked with fry exclusively. Likewise, for the rainbow, a non-native species, the stocking has been almost entirely with fry. The much greater number of fry produced and delivered for a given cost is believed to more than offset any advantage in favor of retaining the fry at the hatcheries until fingerling size before planting. At the hatcheries the young trout advanced to fingerling size on artificial food are graded as to size and bunched in narrow quarters, hence lose fear of natural enemies and the instinct to seek food, so they are more or less helpless when released in wild conditions. Fingerlings also have enemies, they being more eagerly sought by larger fish than are the fry. Fry if properly scattered in rivulets and brooks, have practically no fish enemies except wild trout of about the same age and size, hence are on an equal footing to compete with fry hatched in the wild state.

The main objection to planting trout as fry applies only to early hatchings, when it may be difficult to reach the streams. There may be delays in reaching the designated waters. The roads may be unusually bad, or snow so heavy as to impede travel. The first hatchings of brook trout are ready to leave the hatcheries about February 25th to March 1st. It may be advisable to provide for feeding them artificially until the roads are settled, but it is not profitable after that time. Another point in favor of planting trout fry in preference to fingerlings is that they are more readily and safely transported from March to May and require but a small measure of oxygen and ice. The delivery of fingerling trout in warm weather is far more difficult than it is to transport fry in the spring, for they then require refrigeration and more aeration. The great danger of loss after the delivery of fingerling trout to applicants is that the applicants are not provided with the necessary facilities to keep the young fish in good condition until they can be released. In a word the losses between the railroad station where delivery is made, and the waters to be stocked, are certain to be much greater than with fry.

This objection applies however far less to bass fingerlings, which retain their normally healthy condition in a higher temperature than trout. Furthermore, black bass, bluegills, perch and strawberry bass planted as fry or advanced fry in the inland lakes and rivers encounter more enemies in the way of minnows and various kinds of fish, therefore, the greater proportion of young advanced to fingerling size the better. The species here particularly referred to being developed on natural food in ponds, a far larger pond area than the several hatcheries now have would therefore be necessary to produce fingerlings in the large numbers that to meet the demand, could be profitably planted. Not having this pond area it is necessary to distribute a considerable surplus in the fry stage. Ponds will grow only a certain number of fingerlings to the square acre of surface, so that even with the situation as it is, the surplus of fry is clear gain in any event.

The diminution of brook trout in some streams is charged by some to the practice of planting fry instead of fingerlings, when other causes are in reality responsible. To have brook trout in abundance in any stream requires shade, places for hiding, pools, overhanging banks and

branches and debris generally, also areas of gravel or stony bottom for spawning. When the banks and watershed of trout waters are cleaned and cultivated, and logs and debris are removed from streams, surface water fills the holes with sand and covers the spawning grounds with silt and sediment. Removing the shade raises the temperature of the water and converts a rippling stream into a flat and shallow drainage channel and the trout disappear or retreat to headwaters; and planting either fry or fingerlings will not restore the supply. The clearing away of brush and debris also affects the breeding grounds of the natural food for brook trout, such as the larvae of insects, usually attached to stones, submerged limbs, logs and the like; with rainbow trout also a lesser contributing factor.

PRIVATE PONDS FOR FOOD FISHERS.

Small fish ponds owned individually contain possibilities as a source of food that is already receiving consideration in some of our sister states. Michigan's opportunities in this respect are second to no other state, and plans for development along this line might most profitably be taken. It has been demonstrated that ponds of an acre or a little more in area can be equipped so as to provide profitable quantities of excellent food fishes at a cost within the means of any farmer of the class that is commonly spoken of as being in comfortable circumstances. It might be either a natural pond fed by springs or otherwise; or artificial ponds made by constructing a dike or dam across a draw or piece of sloping ground that can be supplied with water; or, even on level ground where it is possible to lead water to it from a mill creek, or lake or other source of supply. Artificial ponds under complete control as to supply and drainage are far more productive than natural ponds that cannot be drained.

There are some essentials about private ponds for fish culture that it is timely to mention. They should have some part or parts not less than six feet deep, affording cooler water in hot weather and a retreat in cold weather or when the pond is covered with ice. Fish bedded either from necessity or from accident in shallow water one or two feet deep and frozen over, become numb and nearly frozen, so to speak, and either die from want of air, or else in this weakened condition seem to be more susceptible to disease. Fish live in water and breathe the air that is held in small bubbles in mechanical mixture with the water. They breathe by passing the water through the gills (their lungs) and by this operation gather the oxygen from the particles of air the water contains in the form of minute bubbles. If the source of supply for the common fishes is spring water, it will be much improved and supplied with food and air by carrying it some distance from its sources before entering the ponds.

There are many sections of Michigan inadequately supplied with fish food which could be produced locally by pond cultivation. The fish commissions of several states are making efforts at pond culture for the benefit of farming communities, and notably in Kansas. In 1910 a pond of a small fraction over one acre in area was stocked at a Kansas hatchery with several kinds of fish—black bass, calico bass, bluegills, sunfish, catfish, carp, bullheads and a few more species. The pond was not

fished until three years later, or in April, 1913. From the 26th to the 30th of that month it was practically drained and there was taken from it 12,000 yearling black and calico bass and bluegills, and 6,750 pounds of other fish averaging from one to eight pounds. The estimated weight of the 16,000 young fish planted in this pond three years before was 700 pounds. This pond has a soft mud bottom covered with a little sand and gravel, and contained various kinds of mosses, several patches of water lilies, and most of the food supply was produced in the pond, the small portion of artificial food being liver, chopped up fish and cracked corn. This pond was tried out as an experiment and the large results were secured without the exercise of skilled knowledge. In fact it was conducted by a person who had no knowledge whatever of pond fish culture other than simple elementary instruction from the fish commission.

As a means of encouraging fish culture in private ponds in Michigan, it would be well if the commission was given the means and authority so it could supply the common fishes for cultivation in private waters.

IMPORTANCE AND NEED OF SCIENTIFIC WORK.

Intelligent and scientific work always shows to better advantage when compared with haphazard methods. This is self-evident truth and its application is strikingly fitting to the industry of fish culture. The commission is thoroughly convinced that if a scientist were employed permanently to work on problems which continually confront and puzzle the non-scientific man, the results, measured from the financial standpoint alone, would far more than offset the expense. The conclusion is fully justified by experience in other states and countries, as well as by conditions here in Michigan.

To illustrate: Plant walleyed pike in one inland lake and fine results will be obtained. Plant identically the same kind of fry, at the same time, and under precisely the same conditions, in another lake in the same township, and but a negligible portion, if indeed any, will survive and grow to be big enough to catch and eat. Why the reason of this? There have been all kinds of suggestions on the subject. One lake may contain forms of minute life essential for food for the fry which the other does not. There may be destructive parasites in one lake that are not found in the other. Again there may be certain kinds of vegetation in one, essential for fish food, but not present in the other. These points should be scientifically determined. And it is not alone in planting walleyed pike that these conditions are encountered. There are a number of scientific or semi-scientific problems to be solved.

Then the natural enemies of fish in many inland lakes of small area cannot be overlooked. A few old large fish may eat up nearly everything in the lake, or there may be so many fish of nearly equal size that are not real cannibals that will get poor, and for want of food, develop a disease and die. Almost any kind of carnivorous fish will eat, in waters where other food becomes scarce, many times its own weight in other fish each year. A given body of water that has been properly stocked would produce a certain amount of fish for food, as a given amount of pasture would naturally produce a certain amount of mutton, pork or beef. The same body of water, or the same amount of pasture, properly

and scientifically stocked and cared for, could be made to produce much greater and more satisfactory returns. Experience has shown that ponds and other waters with no plants growing is a poor place to plant fish. There is little food and almost no protection in such waters for the young fish. When too many fish are planted in waters where there are few or no plants, one of two things usually happens—the fish either eat each other or owing to their impoverished condition, they become stunted and are liable to contract disease and die.

Several years ago, Prof. Reighard, of the University of Michigan, at the Mill Creek Hatchery, made an exhaustive investigation into the breeding habits, development and propagation of the black bass. His report, published as a bulletin of the commission has a large and permanent value here in Michigan. Prof. Fasten, of the University of Wisconsin, last summer, for the Wisconsin State Fish Commission, made an investigation into the history of the development and structure of a parasite of brook trout, with a view of discovering means of getting rid of it and preventing further loss from infection. He has reported that the fry as well as the adult fish becomes infected, that many ultimately die deprived of nourishment and literally starved to death, that the part mostly affected is the gills, and that the parasitized fish are most numerous in congested waters and that there is little evidence of the parasite where the trout have reasonably rapid flowing water and plenty of room to move. Writing to the commission on this particular subject one veteran Michigan angler who has fished the trout streams for many years says:

"Why has the North Branch of the Au Sable failed as a trout stream? One theory is that in the old days it was flooded and the moss and algae was swept down stream. Now, it is not flooded. The woods have been cut off. Several miles of the upper part of it was so choked in August that the fish could not get up, and what fish you do find have the black parasite, and the spawning beds are destroyed. Another thing in this stream is that about 70 per cent of the trout you catch have a folded gill, a short gill, as it is called, but the entire gill is there if you unfold it. This malformation is gradually increasing. Ten or twelve years ago it was practically unknown in that stream. There must be a reason for it."

The matters herein mentioned, as well as many others that it is hardly necessary to take the time to go into, reveal the large and useful services that a scientist could render by devoting his entire time to experimental work and in solving new and varied fish culture problems.

CARP.

No species of fish seems to be so generally despised by sportsmen as the carp, yet when properly fed and rightly cooked, the carp is a pretty good fish food. It is a most prolific producer, thrives under conditions belief is unfavorable to many other species; and contrary to popular belief, is neither predacious nor is it a scavenger. In some respects it is the greatest pond fish in the world. Not only is it a good fish for human food, but its young is exceedingly valuable as food for bass, grass pike, muscullonge and others of the many gamey species. It lives chiefly on vegetable matter, sucking up soft material from bottoms that contain

animal and plant life. After holding this material for a time in its mouth the carp blows it out with sufficient force to throw the muddy stream twelve to eighteen inches from its mouth. It seems able to extract certain food material out of the stuff taken into its mouth and then cast or blow the waste parts away. It converts a vast amount of vegetable growths found in lakes and ponds into fish flesh. It is nutritious for human food, is, when taken from good waters, valuable in the markets of the world; and, considered from the standpoint of the number of pounds that can be produced in an acre of water it exceeds five to ten fold most other species. That the carp is not a predacious fish feeding on the eggs of other fish is now a pretty well established fact. Prof. Dyche reports that an examination by him of the stomachs of over 1,200 carp did not show a single little fish or minnow, and no spawn or fish eggs were discovered except in a few instances where a small number of carp eggs were found in the food contents of some of the stomachs, and these there is reason to believe had been snoked up with other food while the fish were feeding near their own spawning beds. As many as from 1,000 to 5,000 seeds of weeds and other vegetable growths were found in the stomach of a single carp. Prof. Dyche, after an exhaustive investigation found no evidence that the carp eats the spawn of other fish. Still there is no reason why it might not eat the eggs of other fish. A lot of carp might drive a bass from its nest if they persisted in their attack to devour the eggs; but trained observers report that one small-sized bass of from one and a half to two pounds can put to flight carp larger than itself that may approach the spawning bed of the bass.

As stated, the carp is perhaps the greatest pond fish in the world. In Germany over 200,000 acres of water is given to carp cultivation alone, almost to the exclusion of other varieties of fish. It was brought to this country from Europe about 40 years ago and is now quite common throughout the United States. It is essentially a food, not a game fish; and judging from statistics, may become one of the leading, if not the leading, food fish produced in our own country. Henry T. Finck, author of Food and Flavor, Century Publishing Company, 1913, says that the carp are a very good fish to eat, especially when they have been artificially fed and fattened with rice, potatoes, fish-meal or dairy products. Dr. Forbes, of the Biological Survey, says that the carp is the most abundant fish in the Illinois river, yielding an income of \$412,000 in 1908, while all other fishes together yielded but \$369,000. And, according to the United States Census Bureau, the annual product of black bass from the Illinois river increased from \$11,000 in 1899 to \$58,000 in 1908. So, it would appear that the black bass increased at the same time and in the same waters where the carp increased. This is explained on the theory that carp is food for black bass.

The carp is one of the hardest as well as the heaviest of our fresh water fishes. Its flesh, so far as scientists have been able to discover, is practically free from fish parasites that are more or less common in many other fishes, especially parasitic worms. It furnishes a cheap and wholesome food for a great many people who are unable to pay the high market prices that most of the choice varieties of fish command. If some people do not care to eat it they should not forget that carp is and can be made a much larger food factor here in Michigan to tens of thou-

sands of people in modest circumstances. One popular objection to carp is that they naturally propagate so rapidly that they may monopolize the waters where they are introduced. But, there are in Michigan a great number of small lakes and ponds unconnected with rivers and other bodies of water, and in which the fishing is negligible; stocked with carp these isolated lakes and ponds could be made to produce many tons of wholesome food annually.

Mr. F. C. Holder, of Millersburg, Presque Isle County, who believes that carp should be introduced in certain waters of that section, writes as follows:

"I am of the opinion that it would be well to plant the inland waters of this section, that are in no way connected with rivers and lakes except by subterranean gravel stratas, with carp, on account of the predominance of the foreign element such as Germans, Poles, etc. That class of our citizens seem to understand best how to serve carp and are keen for them. It occurs to me that with the small inland lakes, as above described, stocked with carp, it would tend to draw that class of citizens to them and thus leave more of the so-called better fish for we Yankees. There is no question but that carp would thrive in these small lakes and prove of great value to the inhabitants."

MILL CREEK HATCHERY.

With the special appropriation of \$4,000 given by the legislature two years ago, a new building for hatching perch and wall-eyed pike has been built. The lower story is brick veneer and the upper stucco, making it the handsomest building at any of the State's fish culture stations. This hatchery now has a capacity of approximately 25,000,000 wall-eyed pike annually, and 40,000,000 perch. Additional springs were leased which have more than doubled the available supply of spring water. Also, there has been built during the biennial period just closed, a new ice house and fish food house, and piping laid to bring the additional spring water to where it is needed. One pond that was partly under way at the beginning of 1913, has been completed and two new ponds built. Some of the wood flumes or outlets have been replaced with concrete. In fact for all the new flumes and reconstructed flumes at all the hatcheries concrete is now used exclusively.

PAUIS HATCHERY.

The large pond north of the hatchery has been rebuilt, with stone and concrete walls, and the waste canal east of the railroad has also been rebuilt of the same material. All of the ponds east of the railroad have been reconstructed. A new barn and coal house was erected and the building for housing the new distributing car enlarged. Then too, there were some repairs to the overseer's residence and some of the other buildings.

DRAYTON PLAINS HATCHERY.

There was built at this station a new intake pipe for a direct and independent supply to the ponds, sewer pipe laid to take care of the floods from Judd's Creek, and electric equipment installed for lighting all buildings. The current, supplied by a power company, is to be

used to operate the hatchery pumps. Two new ponds were built and an addition made to the barn. The hatchery has been equipped for hatching perch and wall-eyed pike.

HARJETA HATCHERY.

Floods in the spring of 1913 washed out the valley ponds at this station. These have all been rebuilt. The new ponds are on higher ground than were the old ones and are not exposed to danger of floods; also there were rebuilt two ponds south of the hatchery. An addition to the hatchery building was erected for use mainly for ice, for storage, for fish food and an office. Then too, there was dug a waste drain for turning the flood water from north of the railroad track that formerly came down through east of the hatchery and into the spring water canal. During the past season the creek channel north of the highway was changed and the old creek bed converted into ponds.

SAVIT STE. MARIE HATCHERY.

A new roof was put on the hatchery and a 200-barrel tank built, for a reserve water supply. Four additional, double hatching troughs were added, also a coal bin.

Numerous minor repairs were made to all the hatcheries, but the improvements herein mentioned comprise those for which special appropriations were made at the 1913 legislative session, in addition to the purchase of 500 cans and a new distributing car.

SPECIAL RECOMMENDATIONS.

Provide a pond culture station in the Upper Peninsula for propagating species that can be hatched only in ponds, such as black bass, calico or strawberry bass, bluegills, etc., and add a far larger area of ponds for the same species at the two pond culture stations already established in the Lower Peninsula.

Continuous scientific work and the employment of field agents, to keep the commission informed as to results in every unit of water where stock is planted, so that where results are unsatisfactory the cause may be ascertained and the troubles corrected, if they can be; also as a medium through which the commission may keep in close touch with the fishing conditions and desires of every community, and the needs and possibilities of every lake and stream throughout the State.

A clear understanding as to what waters or class of waters are public in a fishing sense, subject to State control and open to lawful fishing by the public, regardless of the ownership or control of underlying or bordering lands, that both public and private fishing rights may be determined definitely, and respected, and that such steps as are necessary may be taken to prevent the further surrender of public fishing rights in all waters where such rights are now vested in the State.

More effective laws against water pollution.
A length and daily catch limit for perch, bluegills, sunfish, calico bass and white bass.

No protection or mercy for such enemies of fish as kingfishers, mer-

gansers or fish ducks, ospreys, or fish hawks, cranes, heron, mink and PISH HOGS.

A liberal interpretation and more extensive operation of the obnoxious fish law, that high grade food and game fish may be protected by destroying worthless and destructive species that are their enemies or food competitors.

Transfer all authority to issue permits to the warden's department, provided that the State Board of Fish Commissioners and the United States Bureau of Fisheries shall have full authority to issue permits to take fish at any time or in any manner, as required for fish-cultural, scientific or exhibition purposes under their direction and control.

A more liberal policy in providing revenue for the warden's department, through license fees, appropriations or in such ways as may be deemed best, that the protective and other important duties of that department may not be handicapped for lack of funds.

Whether conducted under federal or state authority, or both, the propagation of more kinds of commercial fish for border waters, and in far greater numbers, with such changes in the fishing laws as are necessary to thus increase this service, are strongly indicated and recommended.

Abolish appropriations for the propagation and distribution of angling species, and provide the necessary revenue for this service by means of an angler's license applying to every male person over twenty-one years of age.

Respectfully submitted,

FRED POSTAL,
WALTER J. HUNSAKER,
JOHN C. MANN,

Commissioners.

SEYMOUR BOWER,
Superintendent.

CONTRIBUTED.

The following paper on conservation is taken from a report recently published by the State of Kansas. The author is Prof. L. L. Dyoble, of the University of Kansas, also in charge of the Kansas Department of Fish and Game.

WATER-STORAGE POSSIBILITIES AND SOIL FERTILITY.

NATURAL RESOURCES.

Water is a natural resource and, in Kansas, as essential to life as the light and heat of the sun. The general need of water for agriculture and domestic purposes is universally recognized; this need gradually increases with the growth and development of a country. While the land area and natural water supply of any country or locality remain practically constant, yet it is a proposition easy to demonstrate that the demands made upon both constantly increase with the growth and development of civilized ideas in any community. While it is true that the stock of water received directly from rain and snow, for any given country or locality, remains constant for given periods of time, it is also true that man, in his development of the country, makes many special uses of water, decreasing or augmenting the local supply, and making it solve or help solve many problems in the interests of mankind.

Good sunshine, good air, good soil and good water may be considered four of the most important things in the world, and they may also be considered the four primary natural resources that constitute the only foundation upon which a good country with good institutions, controlled by good citizens, living in good homes, can be founded.

In a known acreage of fertile land, with a definite supply of water, a vast heritage has come to us from nature; do not the laws of nature and humanity make it incumbent upon us to determine its possibilities by intelligent forethought and scientific investigation? In taking charge of this heritage, should we not remember that it was not intended for this generation alone, but for the generations that are to come as well; should we not take thought in this matter, lest by our improvidence we commit sins that will be visited upon our children for many generations to come?

In the general treatment of this subject we desire to base our conclusion upon facts ascertained by investigation, so far as it is possible to do so; in some cases where scientific work and investigation has not been carried on extensively it has been necessary to draw conclusions based upon our knowledge of conditions as we found them.

KANSAS' WATER SUPPLY.

Almost the sole source of water supply for the state of Kansas comes from the snow and rain that fall on the prairies and woodlands of our

own state. The Arkansas and Republican rivers are the only streams of any size that bring waters from other states within our borders and the amount actually received from these sources is comparatively small.

SOURCE AND DISPOSITION OF WATER SUPPLY.

Using as data a number of calculations that have been made, based upon the best information obtainable, of a rainfall that is well known over an area drained by certain well-known rivers and the amount of water discharged by these rivers, we have roughly calculated that about two-sixths, or one-third of the water that falls on Kansas soil is carried out of the state by creeks and rivers; about one-sixth is directly evaporated within a few days after it falls, either from surface water or from water-soaked soils, and about three-sixths, or one-half, soaks into the earth, to be given up more slowly for the continuous growth of vegetation and for the supplying of the deeper strata of earth and rocks. It is from this latter source that springs and wells draw their supply of water.

NATURE'S METHODS.

By carefully studying nature's water system and the laws by which it is governed man has not only been able to make many special uses of the system, but has adapted it to his purposes in developing many human interests and industries. Man as an agriculturist soon learned that when the soil was properly loosened up and cultivated it would hold more moisture and give it up more slowly, two things essential to a good growth of vegetation, and when considered together constitute the basis of a good agricultural system. This idea, when properly developed and put into execution, will give a system of agriculture that would conserve much of the water that was formerly not only allowed to evaporate rapidly, but to run off the lands in their uncultivated condition.

It is one of the objects of this paper to show how much of the rainfall and snowfall water that now runs out of the country can be retained in ponds, lakes and reservoirs and be used afterward for various purposes at times when most needed. While collecting material for the bulletin before mentioned it was necessary for the writer to study water conditions in the State, giving attention to the subject of water in creeks, lakes, rivers and ponds, and especial attention to the water-storage possibilities of artificial ponds. Different parts of the State were visited in order that all the information available on the subject might be collected directly from the owners and builders of ponds; every published article on ponds and kindred subjects that could be gotten hold of was read and considered. From this study of ponds we learned a number of things; and the one thing that especially impressed us was that every owner of a pond, with few exceptions, was not only enthusiastic about its use and value, but was, as a rule, either figuring on improving it by making it larger and better or was planning to build more ponds.

Our primary interest in the study of ponds was their value and adaptability for fish-culture purposes. However, we find that ponds may have a permanent value, not only to their individual owners, but to a

people and a country, aside from their ability to produce fish, which in itself would make them paying propositions.

In the preparation of Part I of the bulletin before mentioned we had occasion to consider the possibilities of water conservation by storage in artificial ponds on farms and ranches, not taking into account, however, what might be done by the building of large reservoirs for general storage, for irrigation and other purposes. After examining a number of ponds on ranches and farms that were considered not only valuable by their owners, but an almost indispensable part of the farm or ranch, we made some calculations as regards the water-storage possibilities of ponds and lakes that might be constructed on farms and ranches in the State.

A POND ON EVERY FARM.

If there were a pond or a lake of the average size of an acre on each square mile or section of land in the state of Kansas, it would amount to 82,144 acres of water. If there were a pond or a lake of the average size of an acre on each quarter section, it would amount to 328,576 acres of water. If there were, on the average, an acre pond on each forty-acre tract of land in the State it would in the aggregate amount to 1,314,302 acres of water, or on an average of four acres of water for each quarter section of land—enough water to cover 2,000 sections or over 8,000 bodies, would be equal to a lake 400 miles long and over five miles wide—West; a body of water with a surface area five times as large as that of the Dead Sea and as large as Great Salt Lake. By figuring the volume of water that one acre would conserve at an average depth of three feet, which would amount to 130,680 cubic feet, it is easy to estimate the quantity of water—157,270,400,000 cubic feet, or about one-twentieth of the rainfall of the entire State for one year—that it would be possible to hold in the State if ponds of the average size of one acre could be conserved on each forty-acre tract of land. This amount of water would just about equal a rainfall of one inch over the entire State. Of course, there can not be an acre pond on each 40 acres or on each 160 acres, yet it does not seem unreasonable to consider this proportion as among the possibilities of the future development of parts of the State, particularly in the central and western areas, where the contour of the gradually sloping land makes it possible to build ponds and reservoirs for holding surface water at no great expense, and that too in a section of the State where the soil is very rich and productive and where the influence of permanent sheets of water would be to the advantage of the country in various ways.

If such an amount of water could be stored in ponds and reservoirs it would undoubtedly, in connection with the planting of trees and the cultivation of the soil, do a great deal to modify and regulate both flood and general water conditions. The evaporation from these bodies of water would surely exert a more or less beneficial influence on atmospheric and climatic conditions in general, and the amount thus stored and evaporated would equal from one-sixth to one-third of the amount annually carried out of the State by the Kansas river.

ADVANTAGES OF A FARM POND.

These small lakes and ponds would be of value in a number of ways to the farmer, who, in a new country, is not only an agriculturist but frequently a horticulturist and stock raiser as well. Groves of both forest and fruit-bearing trees might be planted around them. These would serve various purposes, and while serving as windbreaks and furnishing shade, would grow into trees that would produce wood, posts, and even lumber. Groves around bodies of water always attract flocks of song and insect-eating birds. Many of these birds would remain throughout the summer season, not only enlivening the spot with their songs and bright plumage, but also rearing their young and waging a perpetual warfare on the injurious insects of the neighborhood.

Again, these ponds could be made to supply the stock of the farm with water; and in many places where the water supply was sufficient could be used to irrigate gardens, berry patches, and orchards. The shady groves about the ponds, where song birds live and where the wild flowers bloom, might be made a source of much pleasure for family gatherings and neighborhood picnics. If the pond or lake were an acre or more in size, there might be an ice-house near the shore where a supply of ice sufficient to last through the summer season could be put up at a small expense. A boat could be kept on the water, and a small building might be constructed in a grove near the shore, where the boat and such articles as fishing tackle, bathing suits, skates, etc., could be housed for protection and safekeeping. Such an arrangement of things would add much to the interest, enjoyment and value of everyday life on the farm and help materially to solve the problem that we are all trying to work out.

With such a system of ponds and with the streams cleaned, improved and put in good condition for sanitary, industrial and economic purposes, the fish products of the State might become of great value, and the benefits realized from the conservation of water could hardly be measured in dollars and cents.

HIGH PRICE OF MEATS AND THE VALUE OF FISH FLESH AS A FOOD PRODUCT.

Why should we be concerned about water conservation and food products? Because the present high prices that all the staple kinds of meat products command make it necessary for the great mass of the people to look not only for a cheaper meat food, but for more economic methods of producing it than have heretofore been devised. Even now men who are working for a wage of from \$1.35 to \$2.00 per day and who have families to support can scarce afford to eat beef, pork or mutton once a day. It takes the best of grass and hay and the best of grain to produce good meats and as the amount of land capable of producing the best of food materials is limited, and as the number of people is constantly increasing, there is little hope that good meat products will ever be much, if any, cheaper. Many people, and we might say the mass of the people, must have something that will in a measure take the place of, or at least answer in part as a substitute for, high-priced beef, pork and mutton. The possibility and value of fish as a good and wholesome food product for the people of Kansas should receive more serious consideration than has heretofore been given to it. If each family in the

state could have fish on an average of once a week, it would not only be a most pleasing and satisfactory change in the regular bill of fare, but it would be an item of large economic importance. As there are over 300,000 families in the state it would mean that over 300,000 messes of fish would be consumed each week. The value of the fish thus consumed, allowing an average of twenty-five cents, or about one-half of its actual value, for the mess of fish consumed by each family each week, would amount to \$75,000 for one week and 52 times \$75,000 or \$3,900,000 for one year. If fish were eaten twice a week, the value of the amount consumed would be \$7,800,000 per year. And if the fish were placed at their true value the amount consumed would be worth more than ten million dollars. The above figures are only suggestive, but furnish some idea of what might be done in localities where fish can be raised.

WITH STREAMS IMPROVED AND PONDS CONSTRUCTED.

Is it not possible, in connection with the future development of Kansas, to bring about results in many parts of the state as great as those indicated, by improving our natural streams and ponds for fish-culture purposes, and more especially by the building of artificial ponds and reservoirs adapted for the rearing of food fishes? At the present time our rivers, streams and creeks are much abused. Little or no care is given to them and it is a most lamentable fact that many of them are used for sewage purposes. At present all kinds of filth is either thrown into the streams or allowed unheeded to run into them.

ROBBING OUR OWN FIELDS.

As a people we are skimming the cream from our fields, taking all we can get in corn, wheat and alfalfa, and returning almost nothing to the soil. The time will come when it will be necessary to put fertilizer on what are now known as the most productive soils; the time will come when the sewage and garbage that is now being poured into the streams will be badly needed as a fertilizer for the impoverished farm lands; the time will come when every stream in the State will be badly needed for water supply and fish-culture purposes; the time will come when it will be unlawful to pollute any public stream with sewage and garbage; the time will come, and ought to be here now, when the waste age, sewage and garbage that now go into streams will be converted into a fertilizer that will be indispensable for the production of crops. The ponds and streams of the State, instead of being foul mudholes and sewer channels, bearing all kinds of disease germs, should and will be improved and made to become a source of pleasure and great profit.

A FISH POND ON EVERY FARM.

In order to give some idea of the value of a small pond to a farmer, especially in central and western Kansas, we desire to give a brief account of one described on page 32 of the bulletin before mentioned as "The Sam Bailey Pond." Mr. Samuel Bailey lives on the uplands north of the valley of the Ninnescah, one-half mile northeast of the State Fish Hatchery grounds. He has built a pond almost on a hilltop and its

sole supply of water is from a well. We have visited this pond a number of times, and have given it more than usual attention. It is such a complete success, considering the purpose for which it was constructed, that we desire to give special account of it, believing that the information may be of value to many persons who may be in a position to build small ponds for irrigating, fish and other purposes. This pond covers an area of less than one-fourth of an acre, and is circular in shape. It was built by Mr. Bailey at an expense, allowing fair wages for labor, of not to exceed a cost of \$25, or from five to seven days' labor for a man with a good team, plow and scraper. Of course this does not include the cost of a good pump and windmill, which were installed at a cost of \$95, making a total cost of \$120. The windmill that supplies the water for this pond works a pump with an eight-inch stroke in a tubular well with a three-inch casing and a two-inch point. The water is lifted thirty-five feet, from a well that is seventy feet deep. The water in the well usually stands within about thirty-two feet of the surface. For five years Mr. Bailey has irrigated a three or four-acre garden patch from this pond. The water supply seems to be ample, for during a considerable portion of the time, even during a hot, dry summer like the past one (1910), the pond was full of water, and the mill was running only a part of the time. Unfortunately, Mr. Bailey has not kept an exact account of the amount of garden stuff raised and sold, and its value. This spring, from March 28th to May 15th, he sold over \$100 worth of rhubarb from a patch of five rows, each 230 feet in length, and only a part of the crop was marketed. Better and finer rhubarb we have never seen anywhere. The hills were from twelve to twenty inches in diameter, and contained when examined from fifteen to forty good stalks each. Mr. Bailey gave us a half dozen stalks pulled from one of the first hills we came to. One of the stalks, stripped of its elephant-ear leaf, weighed fourteen ounces. There were other stalks in the patch that would undoubtedly have weighed a pound or two or more.

A bed of asparagus, three times as large as the rhubarb patch, furnished an abundance of one of the best early vegetables that can be grown in any country, both for private table use and for the market.

In this garden we saw sweet potatoes growing at their best. Mr. Bailey dug a hill for us September 2 that contained fifteen potatoes; another hill dug a week later contained twenty-one potatoes that weighed eleven pounds; and one hill, dug about the middle of October, contained thirty potatoes—a third of a bushel—that weighed eighteen pounds.

Grapes, berry patches, and fruit trees that had been planted around the edge of the garden in order that they too might be irrigated when water could be spared, were all doing well. Judging from Mr. Bailey's experience with his garden, and his own estimates of its money value, it is reasonable to suppose that such an irrigated garden patch would easily make returns of from three to five hundred dollars per year, if properly cared for besides furnishing an abundance of fresh vegetables and fruits for family use. Mr. Bailey says that it takes some time to care for the pond and garden. Admitting that it does take some time, it surely pays to have one of the best vegetable gardens in the country, and that, too, in a locality where little or no garden stuff can be raised

without irrigation. Such a garden is possible for any one who can secure a good well near a piece of fertile ground that has grade sufficient to admit of irrigation.

Mr. Bailey has recently stocked his pond with crappie and Bull-pout catfish, two of the best varieties of pond fish in the country. They are doing well, as several schools of hundreds of the young fish have been seen feeding near the shore.

We believe that we speak advisedly when we say that the products raised this year on Mr. Bailey's small irrigated garden patch would have sold, if placed on the market, for more money than was received for the crops raised on some of the near-by eighty-acre tracts of land that were farmed in the usual manner, or, in fact, almost any eighty-acre farm in the adjoining country that was not sown to either wheat or alfalfa.

EVAPORATION OF RUN-OFF WATERS.

We have already called attention to the fact that in the storing of these small bodies of water the State at large would derive many advantages in addition to those directly employed by the individual owners of the ponds. The amount of water evaporated from these ponds would probably equal or exceed the amount that was stored each year, and the amount that would naturally be carried out of the country during flood-water periods would be diminished by this amount. Heavy rain-storms cause the water to flow freely over sloping grounds; to form creeks and rivers. These creeks and rivers carry thousands of tons of rich soil that have been eroded from the fields, as well as a great amount of rich fertilizing material that has been leached from the soils by the water soaking through them. By storing flood and storm waters in ponds and reservoirs, not only would flood conditions be reduced, but much of the soil erosion and leaching which damage the country beyond all reasonable calculation could be prevented. All material washing into the ponds could from time to time be restored to the fields by draining and cleaning the pond basins.

FLOOD WATERS.

To make what has already been said more apparent, during the past few years Kansas has suffered great losses by the destruction of crops, buildings, bridges, live stock, fences and other visible property by means of uncontrolled flood-waters; and yet if all the damage done in these lines could be figured in dollars and cents it would be but a small item, a drop in the bucket as compared with the much more serious damage done by the erosion and leaching of rich soils and the consequent loss of fertility. Thousands of tons of the best soils, rich in fertilizing material have been carried by the flood-waters into the creeks and rivers, to be floated away and forever lost to the state of Kansas. As an evidence of the truth of this statement we would call your attention to certain small protected fields that had flood-water sediment deposited upon them. They were enriched even to a degree beyond their original fertility.

POOR SOIL THE HOME OF POOR PEOPLE.

Why so much concern, we are asked, about the conservation of water and soil fertility? Because a study of the history of agricultural conditions in the world, both past and present, goes to show that a poor soil produces a poor people, and both are found in the same localities; and further, because poorly fed, poorly clothed and poorly housed people have always been ruled or dominated over by the well-fed races, and in many cases reduced to conditions that we, as an American people, have always fought against and hope in the future to avoid.

CONSERVATION OF NATURAL RESOURCES.

Thinking men and students of economic conditions tell us that we should immediately take steps to preserve for proper use for the whole people what remains of the billions of tons of coal, the great forests, the waterpower and other natural resources, lest private interests and corporate greed, linked with our extravagant, wasteful and most destructive methods, may produce conditions that will make poverty not a condition but a dire necessity for our descendants.

WHAT THE RECORDS SHOW.

Again we ask, why so much concern about the conservation of soil fertility? We read, and have been reading for some time, in the national and state agricultural reports that the land area in the United States specially adapted to the growing of cereals, and wheat in particular, has rapidly marched from the Atlantic to the Pacific; and that the acres adapted to the production of food in our country are well known; and that many of our fields are already showing signs of decreased soil fertility by yielding crops reduced in yield per acreage. On the other hand, recent census tabulations go to show that the population of our country is rapidly increasing, and men, wise in business calculations, including the railroad magnate, Mr. J. J. Hill, tell us that within fifty years the population of the United States will reach 200,000,000. This seems possible, as the increase during the past ten years has been more than 16,000,000.

Why so much concern about conservation and soil fertility? By examining the above-mentioned reports further, we learn that there is a great waste in soil fertility to the state and country, partly due to natural causes, but largely to the imprudent methods employed in connection with agricultural pursuits.

COST OF PRODUCTS MEASURED IN FERTILIZING MATERIALS.

It costs to produce 20 bushels of wheat \$5.79 worth of fertilizer—nitrogen, phosphorus and potassium. To produce the ton of straw on which this wheat grew \$3.66 worth of fertilizer is used, or a total of \$9.45 for the wheat and straw. To produce 65 bushels of corn, a good acre yield, it costs in fertilizer \$9.38, and \$9.32 to produce the 3,000 pounds of stalks on which the corn grew, or a total of \$18.70 in fertilizer for what might be taken from a single acre of ground in corn products. Again, four tons of alfalfa removes from an acre of ground 13.75 pounds of

phosphorus, worth \$1.10; 200.80 pounds of potassium, worth \$12.09, and \$5.44 pounds of calcium, worth 42 cents, or a total of 300 pounds of fertilizer, worth \$13.19. The removal of the phosphorus is most damaging, as it is an element rare even in good soils the world over, and should be conserved in farm lands, as it will be difficult and expensive to replace when once exhausted.

CROP ROTATION AND SOIL FERTILITY.

The idea of crop rotation so much advertised and advised in agricultural journals and societies is a good one. By this means, through the agency of bacteria, nitrogen can be restored to the fields; but no amount of crop rotation will restore phosphorus. Once removed from the fields, this element can be returned to the soil only by some mechanical means, and the same thing is true of potassium and other mineral matters. The idea held by many persons that the growing of alfalfa on ground enriches it is an erroneous one; while the growing of alfalfa, clover and other such plants, adds to the nitrogenous compounds, it robs the soil of the very mineral elements that constitute a good part of its crop-producing substances.

SPECIAL VALUE OF FERTILIZERS.

We are told that the wheat crop of 1909—in round numbers 82 million bushels—took from the Kansas fields 160 million pounds of rich fertilizer which would cost over 25 million dollars if it had to be purchased in the market and restored to the fields. The straw, 4,500,000 tons—that produced this wheat, represents over \$16,000,000 worth of fertilizer in nitrogen, phosphorus and potassium alone. In view of this fact it seems uncommonly strange that an article, a half column or so in length given out by a city farmer, we are told, should appear in our leading newspapers, advising farmers to burn or dispose of their straw stacks and raise a few more grains of wheat on the ground where the straw stacks stood. By such an operation the wheat farmers would not only destroy or lose thousands of tons of fertilizer, but in the case of burning the straw on the ground would bake the latter to a cinder, rendering it unfit to produce crops for years to come unless fertilizers should be added.

This reminds one of Horace Greeley's definition of an agriculturist and a farmer. An agriculturist, Mr. Greeley said, was a person who lived in the city, and who out of his city business could make money enough to enable him to own and operate a farm and incidentally, had time enough to advise the country farmers in general how to operate and manage farms. On the other hand, a farmer, Mr. Greeley said, was a man who lived in the country on his farm and run and managed it successfully enough to enable him to support himself and family and incidentally to produce surplus enough to support the city.

In 1909 Kansas produced 147,065,120 bushels of corn at a cost of about the same number of pounds of fertilizer, worth in the market over 21 million dollars. The stalks that produced this corn contained about the same amount of fertilizer as the corn itself and was worth about the same amount of money, 21 million, or a total of over 40 million dollars worth of fertilizer.

It takes \$3.25 worth of fertilizer to produce a ton of alfalfa hay, each ton taking from the soil over fifty pounds of phosphorus and potassium. Figuring on this basis, it would take eleven and a half million dollars' worth of fertilizer to produce the three and a half million tons of alfalfa raised in Kansas last year (1910).

From the same bulletin, referred to above, we get figures showing the value of the wastes from domestic animals to be as follows:

Wastes from a horse for one year.....	\$28 86
Wastes from a cow for one year.....	40 49
Wastes from a sheep for one year.....	2 58
Wastes from a pig for one year.....	3 34

In view of the above facts it is hard to explain why so many barns and stockyards are built on sloping grounds that permit the water from every rain to wash the fertilizing materials into ravines and creeks, to be carried away and to be lost forever to the farm.

CROPS AND SOIL FERTILITY IN OTHER COUNTRIES.

Why so much concern about the conservation of soil fertility? And that, too, in a new country, when other nations that depend upon soil fertility have existed for centuries?

Time forbids the discussion of this interesting subject except to glance at it for a moment. By examining some recently published statistics we learn that the average yield of wheat per acre in Germany for a number of years past has been 29 bushels, and in England for the past ten years it has been 31.39 bushels, while in Kansas it has been less than 15 bushels. But what has Germany been doing, asks the statistician? She has been importing wheat and other grains rich in fertilizing material and exporting articles like sugar, which takes little or nothing out of the country except sunshine with carbon and water gathered for the most part through plants from the air. England is importing foods and feeds rich in fertilizers from various countries. In England, throughout the agricultural districts, every particle of fertilizing material is not only saved, but carefully stored and put in proper condition to be spread on the cultivated fields at the proper time.

Some published statistics also go to show that Denmark imports wheat, corn, oil cake and bran, but exports such materials as butter, bacon and eggs. In 1909 the butter alone that Denmark sent to the United Kingdom amounted to 197,571,124 pounds, and valued at 30 cents per pound was worth \$59,271,307.20. And this \$59,000,000 worth of butter carried fertilizing elements that would impoverish the soil of Denmark less than the removal of one thousand tons of Kansas hay would impoverish Kansas soil, which hay, valued at \$12 per ton, would amount in comparison from \$3 to \$5 worth of fertilizer per ton from the soil, and the kind that is being shipped from Kansas farms by the thousands of carloads every year.

WHY SHOULD WE BE CONCERNED ABOUT THE CONSERVATION OF SOIL FERTILITY?

Because the mass of the people are indifferent and apathetic and do not seem to realize when or where their own interests are at stake

and this too, in the face of the fact that the United States Department of Agriculture, and all the state departments of agriculture, and the experiment stations, as well as thousands of writers in the newspapers and magazines, including scientists and agriculturists of great ability, are continually giving out information concerning the vital importance of conserving the fertility of the soil. The above-quoted facts, which all point in the same direction, and teach that any soil, no difference how rich, may be depleted, of its productive qualities and eventually become almost worthless—a thing that has happened in many parts of the old world and in some places in the eastern parts of our own country—do not seem to have made any very serious impression on the minds of our people, or at least to have received the intelligent attention and consideration of the majority of the people that till the soil in our State, especially in the central western parts of it. This is all the more strange and difficult to understand when we consider that Kansas farmers, as a class, are the best informed people in the country.

There seems to be a tremendous and almost inherent temptation for farmers in a new country to become placer or surface miners and to make themselves rich by stripping the soil of its most valuable materials by the quickest methods known to agriculturists and in the shortest time possible.

Why this concern about conservation of soil fertility? Because we are forced to admit that we as a people are somewhat extravagant, somewhat careless, somewhat indifferent, and not altogether unselfish. We need to be watched and we need to watch ourselves, lest we forget the history of the past and take not sufficient thought for the future.

Of late we have been noticing the reports that are gradually being published concerning the census returns. Every state, city and village in the Union is losing no time, if the returns justify it, in boasting of its increase in population and its consequent growth and development. Why this tremendous and almost insane interest in the increase of population? Is it a deep-rooted desire to do something to improve the mental strength, moral soundness and religious condition of humanity, or is it an interest with no broader or deeper foundation than commercialism—the getting of dollars and cents? The sum and substance of twenty answers from business and professional men living in cities would indicate something like this: More population, more city; more city, more business; more dollars and cents; more dollars and cents, more business; more business, more dollars and cents; more dollars and cents, more business. The sum and substance of twenty answers collected from rural districts would indicate the same tendency of thought and spirit. Seventeen answers referred to the value of land, and a summary would run like this: More population, more valuable becomes both land and land products; hence more money and more business; more valuable the land and land products, more money and more business.

After having visited the oil, gas, and coal fields in Southern Kansas, we were thoroughly convinced that all the oil, gas and coal in the state would be taken out of the earth in a comparatively short period of time, if the prices only justified the action. Double the price and triple the profits on oil and gas and coal and thousands of men would hasten to convert material on which the happiness and comfort of our people largely depend, and which it has taken nature's forces many centuries to prepare—and that, too, presumably, for the special use of

mankind—into money, an absolutely worthless thing when it cannot be exchanged for bread, or when compared with the mental, moral and religious worth in human life.

Why this concern about conservation and soil fertility? We are concerned in the conservation of soil fertility because it is the greatest natural resource and the most important heritage nature has bestowed upon her children. While considering the natural resources of the country, President Taft in a former message expressed our sentiments when he said: "The feature that transcends all others, including woods, waters, materials, are the soils of the country—their productive powers should have the attention of our scientists, that we may conserve the new soils, improve the old soils, levee river overflow soils, grow trees on thin soils, pasture hillside soils, rotate crops on all soils, discover methods for cropping dry-land soils, find grasses and legumes for all soils, feed grains and mill feeds on the farms where they originate, that the soils from which they come may be enriched."

This quotation covers the ground so completely that we desire to add but one thought, namely, that every bushel of Kansas wheat should be ground in Kansas mills, and every pound of by-products or mill feeds resulting therefrom, together with every ton of Kansas hay, should be fed to Kansas animals on Kansas lands and all wastage returned to Kansas fields, that the soils from which they came may not be impoverished.

We are concerned in water storage and soil fertility because we believe that it is incumbent upon us to encourage by every available means the conservation of both water and soil, the two things more than any others on which depends health—riches more to be enjoyed and more conducive to happiness than any other form of wealth.

We are concerned in soil fertility because we desire to elevate the standard of living of the masses of the people by making the necessities and comforts of life cheaper and better, the minds and hearts of the people larger and more charitable, and by this means promote good citizenship and good government. We are concerned in soil fertility because it is the basis of the future of human life in our country, and we not only have hopes, but a serious care, in our minds and hearts for the boys and girls, our sons and daughters, who are to be the men and women of the future.

We are concerned in soil fertility because many of us believe that there is something in life, and in business, too, beyond the ever-greedy and selfish spirit of financial gain, a something that will produce a national strength and greatness based on the good that is being developed in human life. And further, we are concerned in soil fertility because we desire to be temperate in our dealings with nature, and conserve all the natural resources necessary, not only for the development, but for the preservation of the most precious thing in the world—human life—be- lieving, as most of us do, in the creative power of the universe, and in a life beyond that dependent upon material things.

PART TWO
DISTRIBUTION OF FISH, INVENTORY STATEMENT AND
FINANCIAL STATEMENT.

County and name of water.	Township.	Name of depositor.	Date.	Number.
Alcona county:				
Mill Creek	Harrisville	A. L. Noyes, Harrisville	Mar. 10	8,000
Black River	Alcona	C. W. Luce, East Tawas	Mar. 10	14,000
Mitchell Creek	Alcona	C. W. Edwards, Alpena	Mar. 18	3,000
Little Glichrist Creek	Caledonia	R. E. Ellsworth, Alpena	Mar. 18	4,500
Muskrat Creek	Millen	Richard Collins, Alpena	Mar. 18	3,000
Wildcat Creek	Caledonia	Jas. Brisselden, Alpena	Mar. 18	3,000
West Branch	Caledonia	W. A. Blackburn, Alpena	Mar. 18	3,000
Comstock Creek	Caledonia	W. A. Blackburn, Alpena	Mar. 18	3,000
Little North Branch	Caledonia	W. A. Blackburn, Alpena	Mar. 17	4,500
Silver Creek	Caledonia	D. D. Hanover, Alpena	Mar. 18	3,000
Little Wolf Creek	Cumers	D. D. Hanover, Alpena	Mar. 18	7,500
Snecker Creek	Alcona	Oscar Larson, Spruce	Mar. 18	4,500
Newton Brook	Alcona	Chase Benjamin Gun Club, Alpena	Mar. 18	6,000
Wildcat Stream	Caledonia	Allen M. Fletcher, Alpena	Mar. 22	10,000
Antrim county:				
Morman Creek	Crystal Lake	W. H. Upthegrove, Central Lake	Mar. 6	1,500
Bartholomew Creek	Echo	Carl Stroebel, East Jordan	Mar. 6	3,000
Gould Creek	Jordan	H. S. Finney, East Jordan	Mar. 19	15,000
Jordan River	Jordan	Carl Stroebel, East Jordan	Mar. 19	15,000
St. Clair Creek	Banks	L. Van Skiver, Ellsworth	Mar. 15	4,500
Ore Creek	Banks and Marion	L. Van Skiver, Ellsworth	Mar. 15	3,000
Bosses Creek	Banks	Henry Strink, Ellsworth	Mar. 15	3,000
Noyes Creek	Banks	W. A. Boss, Ellsworth	Mar. 15	1,500
Ogletree Creek	Banks and Central Lake	W. E. Carpenter, Central Lake	Mar. 15	3,000
Wilkinson Creek	Banks and Central Lake	W. S. Richardson, Central Lake	Mar. 15	3,000
Town Line Creek	Banks	Dr. L. M. Newman, Central Lake	Mar. 15	3,000
Cedar Creek	Kcoony	A. B. Wooten, Bellaire	Mar. 15	3,000
Cold Creek	Custer	A. B. Wooten, Bellaire	Mar. 15	3,000
Shanty Creek	Helena	Chas. H. Coy, Aldan	Mar. 15	1,500
Spencer Creek	Near Deward	Win. Brower, Mancelona	Mar. 15	3,000
Little Manistee River	Mancelona	C. L. Bradley, Mancelona	Mar. 15	12,000
Headwaters of Cedar River	Custer	J. W. Verdier, Mancelona	Mar. 15	1,500
Finch Creek	Custer and Helena	J. W. Verdier, Mancelona	Mar. 15	3,000
Racket River	Chestonia	A. A. Strickland, Alba	Mar. 15	3,000
Jordan River	Chestonia	Wm. Weaver & Son, Elmira	Mar. 12	7,500
Green River	Chestonia	R. C. Bennett, Alba	Mar. 12	6,000
Cascade River	Chestonia	Orville W. Wiltse, Alba	Mar. 12	4,000
Jordan River	Chestonia	F. M. Parker, Alba	Mar. 12	10,000
Green River	Chestonia	W. C. Young, Mancelona	Mar. 12	10,500

TWENTY-FIRST REPORT—STATE FISHERIES.

Alcona county:				
Hartney's Creek	Munising	Doe Lake Club, Munising	May 1	7,500
Red Jack's Springs and Creek	Munising	Doe Lake Club, Munising	May 1	5,000
Bull Creek	Munising	Doe Lake Club, Munising	May 1	5,000
Big Indian River	Antrim and Munising	Doe Lake Club, Munising	May 1	5,000
Indian River	Severel	Jas. G. Gibson, Munising	May 1	2,500
Robinson Creek	Au Train	Doe Lake Club, Munising	May 1	7,500
Stutt's Creek	Au Train	H. A. St. John, Marquette	May 1	2,500
Au Train River	Rock River	H. A. St. John, Marquette	May 21	5,000
Slapneek Creek	Rock River	H. R. Harris, Marquette	May 21	25,000
Little Indian River	Rock River	H. R. Harris, Marquette	May 21	10,000
Miner's Run	Rock River	Geo. Willey, Detroit	May 1	7,500
Anna River	Munising	H. A. St. John, Marquette	April 21	5,000
Braches of North Manistique	Manistique	H. A. St. John, Marquette	April 21	15,000
Bohemian Creek	Rock River	H. A. St. John, Marquette	April 21	10,000
Furnace Creek	Munising	H. A. St. John, Marquette	April 21	7,500
Buck Creek	Munising	H. A. St. John, Marquette	April 21	5,000
Allegan county:				
Silver Creek	Gun Plains	E. J. Anderson, Plainwell	Feb. 24	4,500
Laraway Creek	Wayland	Geo. N. Dean, Shelbyville	Mar. 10	3,000
Rogers Creek	Allegan	H. H. Menery, Allegan	Feb. 23	3,000
Dowd's Creek	Heath and Valley	Chas. E. Bond, Allegan	Feb. 23	4,500
Sand Creek	Moutray and Heath	L. F. Strich, Allegan	Feb. 23	3,000
Bear Creek	Watson	Herbert Baker, Allegan	Feb. 23	4,500
Adst Creek	Valley	Allen Dunfield, Otsego	Feb. 23	1,500
Swan Creek	Manilus	A. L. Whitbeck, Fennville	Feb. 23	3,000
Manu's Creek	Ganges	W. H. Whitbeck, Fennville	Feb. 23	3,000
Flummer Creek	Gun Plains	N. G. Nelson, Fennville	Feb. 23	3,000
Delano's, Neely's and Duncan's Creek	Gun Plains	Wm. Crispe, Plainwell	Feb. 24	6,000
Arenac county:				
Dead Branch	Arenac and Deep River	C. D. Brooks, Omer	Mar. 10	10,000
Butternut or Big Creek	Clayton, Mason and Au Gres	C. D. Brooks, Omer	Mar. 10	10,000
Cedar Creek	Turner and Mason	R. J. Spofford, Turner	Mar. 10	6,000
Cedar Creek	Mason	Jas. Oliver, Twining	Mar. 10	8,000
Town Line Creek	Clayton	C. D. Brooks, Omer	Mar. 10	10,000
Warner Creek	Deep River	Francis Avery, Standish	Feb. 19	4,000
Cooler Creek	Deep River	Francis Avery, Standish	Feb. 19	2,000
South Omer Creek	Heads in Deep River	Francis Avery, Standish	Feb. 19	4,000
Deep River	Maple Ridge	Francis Avery, Standish	Feb. 19	6,000
Tributary of Deep River	Gibson	Francis Avery, Standish	Feb. 19	4,000
North Branch of Deep River	Arenac	Francis Avery, Standish	Feb. 19	4,000
Demno Creek	Standish	Francis Avery, Standish	Feb. 19	2,000
South Omer Creek	Sterling	Francis Avery, Standish	Feb. 19	4,000
Cooper Creek	Deep River	Francis Avery, Standish	Feb. 19	4,000
Parmales Creek	Deep River	Jas. R. Adams, Sterling	Feb. 19	2,000
Miles Creek	Deep River	Francis Avery, Standish	Feb. 19	4,000
Lindy Creek	Arenac	Francis Avery, Standish	Feb. 19	4,000

TWENTY-FIRST REPORT—STATE FISHERIES.

County and name of water.	Township.	Name of depositor.	Date.	Number.
Alpena county:				
Godfrey Creek	Green	R. H. Rayburn, Alpena	Mar. 18	3,000
Kelley Creek	Ossineke	C. W. Edwards, Alpena	Mar. 18	3,000
Scott Creek	Ossineke	Chase Benjamin Gnn Club, Alpena	Mar. 18	3,000
Berlinski Creek	Sarborn and Ossineke	R. E. Ellsworth, Alpena	Mar. 18	4,500
Davis Creek	Ossineke	R. E. Ellsworth, Alpena	Mar. 18	4,500
No Name	Long Rapids	John Nixon, Leer	Mar. 11	4,500
Berlinski Creek	Sarborn	R. E. Ellsworth, Alpena	Mar. 18	6,000
Widner Creek	Ossineke and Caledonia	R. Collins, Alpena	Mar. 18	6,000
Beaver Creek	Ossineke	C. W. Lnce, East Tawas	Mar. 18	7,500
Baraga county:				
Laterall's Creek	Covington	J. B. Abbey, Nestoria	May 4	2,500
Coles Creek	L'Anse	Silver River R. and G. Club, L'Anse	May 4	2,500
Clear Creek	Baraga	Silver River R. and G. Club, L'Anse	May 4	2,500
Beandos Creek	L'Anse	Silver River R. and G. Club, L'Anse	May 4	5,000
Gamache Creek	L'Anse and Baraga	Silver River R. and G. Club, L'Anse	May 4	6,000
Duck Creek	L'Anse	Silver River R. and G. Club, L'Anse	May 4	5,000
Steinback Creek	Baraga	Silver River R. and G. Club, L'Anse	May 4	6,000
Meadow Brook	L'Anse	Silver River R. and G. Club, L'Anse	May 4	4,000
Huron River	Arvon and others	Silver River R. and G. Club, L'Anse	May 4	7,500
Rock River	Covington and Baraga	Silver River R. and G. Club, L'Anse	May 4	7,500
Sturgeon River or N. E. Branch of same headwaters	Covington	J. B. Abbey, Nestoria	May 4	7,500
Nestoria Creek	Covington and Spurr	J. B. Abbey, Nestoria	May 4	2,500
Toga Creek	Covington	J. B. Abbey, Nestoria	May 4	2,500
Sturgeon River	Baraga	O. B. Wood, Ludington	May 4	10,000
Canal Creek	Spurr	Peter Trudell, Jr., Negaunee	May 1	5,000
Nestoria Creek	Spurr	Peter Trudell, Jr., Negaunee	May 1	2,000
Outlet of Three Lakes	Spurr	Peter Trudell, Jr., Negaunee	May 1	5,000
Outlet of Trout Lakes	Spurr	Peter Trudell, Jr., Negaunee	May 1	2,000
Cliff Creek	Spurr	Peter Trudell, Jr., Negaunee	May 1	2,500
McDonald Creek	Spurr	Peter Trudell, Jr., Negaunee	May 1	5,000
Fall River	L'Anse	Silver River R. and G. Club, L'Anse	May 4	7,500
Slate River	Arvon and Spurr	Silver River R. and G. Club, L'Anse	May 4	7,500
Silver River	L'Anse	Silver River R. and G. Club, L'Anse	May 4	7,500
Ravine River	Arvon	Silver River R. and G. Club, L'Anse	May 4	7,500
Barry county:				
Tributaries to Wanandogor Creek	Assyria	Hugh S. Jones, Bellevue	Feb. 26	3,000
Ellis Brook	Assyria	Hugh S. Jones, Bellevue	Feb. 26	3,000
Three tributaries to Thornapple River	Thornapple	A. C. Hindman, Grand Rapids	Feb. 26	4,500
Tamarac Creek	Baltimore	C. W. Mixer, Hastings	Feb. 26	3,000
Upper Cedar Creek	Baltimore	C. W. Mixer, Hastings	Feb. 26	6,000
Kelley Creek	Baltimore	C. W. Mixer, Hastings	Feb. 26	1,500
McCullum Creek	Hope	C. W. Mixer, Hastings	Feb. 26	1,500
West Creek	Rutland and Hastings	C. W. Mixer, Hastings	Feb. 26	3,000
Quaker Creek	Maple Grove	L. Z. Slosson, Charlotte	Feb. 26	3,000
Benzie county:				
Carter Creek	Inland and Homestead	N. J. Rovick, Thompsonville	Mar. 5	6,000
Betsey River	Lake	F. A. Mitchell, Manistee	Mar. 13	30,000
Otter Creek	Platte	Fred Baltz, Honor	Mar. 13	2,000
Platte River tributaries	Platte	Fred Baltz, Honor	Mar. 13	2,000
Silver Creek	Homestead	W. B. Covey, Honor	Mar. 13	2,000
Coloson Creek	Homestead	W. B. Covey, Honor	Mar. 13	2,000
Silver Creek	Homestead	W. B. Covey, Honor	Mar. 13	4,000
North Branch and Platte River	Platte	L. H. Stacey, Honor	Mar. 13	2,000
South Branch	Platte	L. H. Stacey, Honor	Mar. 13	3,000
Brundage Creek	Platte	L. H. Stacey, Honor	Mar. 13	2,000
Colton Creek	Inland	L. H. Stacey, Honor	Mar. 13	2,000
Platte River	Homestead	L. H. Stacey, Honor	Mar. 13	2,000
Tributaries of Platte River	Inland, Homestead and Benzonia	E. A. Mitchell, Manistee	Mar. 13	20,000
Miner Creek	Benzonia	D. H. Fowler, Empire	Mar. 13	32,000
Brenzofsky Creek	Benzonia	W. B. Covey, Honor	Mar. 13	4,000
Platte River	Benzonia	W. B. Covey, Honor	Mar. 13	2,000
Black Creek	Homestead, etc.	W. B. Covey, Honor	Mar. 13	16,000
Aux Besc Scies of Betsey River	Platte	Fred Baltz, Honor	Mar. 13	2,000
	Werdon and Colfax	W. J. Fish, Thompsonville	Mar. 28	30,000
Berrien county:				
Peterbaugh Creek	Byron	J. G. Murdock, Berrien Springs	Mar. 11	1,500
Love Creek	Byron	J. G. Murdock, Berrien Springs	Mar. 11	1,500
Hidd Creek	Byron	J. G. Murdock, Berrien Springs	Mar. 11	3,000
Lemon Creek	Oronoko	J. G. Murdock, Berrien Springs	Mar. 11	3,000
Edison Creek	Oronoko	J. G. Murdock, Berrien Springs	Mar. 11	3,000
Buckhorn Creek	Royalton	J. G. Murdock, Berrien Springs	Mar. 11	3,000
Townsend Creek	Berrien	J. G. Murdock, Berrien Springs	Mar. 11	3,000
Katie and Crystal Springs	Benton	D. B. Wallace, Benton Harbor	Feb. 28	4,500
Mill Creek	Watervliet	E. A. Sweeting, Watervliet	Feb. 28	4,500
Koohoone Creek	Pipestone	S. M. Clawson, Eau Clair	Feb. 28	3,000
Collins Creek	Pipestone	S. M. Clawson, Eau Clair	Feb. 28	3,000
Blue Creek	Bainbridge	John Tample, Benton Harbor	Feb. 28	3,000
Sand Creek	Bainbridge	Clyde H. Chrest, St. Joseph	Feb. 28	4,000
Walton Creek	Niles	A. L. Molford, St. Joseph	Feb. 28	1,500
Edson Creek	Royalton	A. T. Vail, St. Joseph	Feb. 28	10,500
Granger Creek	Lake	A. T. Vail, St. Joseph	Feb. 28	3,000
Townsend Creek	Berrien	Tadge Nowey, St. Joseph	Feb. 28	3,000
Pokagon Creek	Berrien	Jos. Endres, St. Joseph	Feb. 28	3,000
Pipestone Creek	Pipestone and Sodus	F. Anderson, St. Joseph	Feb. 28	3,000
Dickinson Creek	St. Joseph	Dr. E. J. Witt, St. Joseph	Feb. 28	4,500
Brewer Creek	Benton	Judge R. Barr, St. Joseph	Feb. 28	3,000
Peavine Creek	Berrien	H. G. Hughson, St. Joseph	Feb. 28	3,000
Peester Creek	Buchanan	H. S. Ensen, St. Joseph	Feb. 28	3,000
Smith Creek	Pipestone	J. W. Isbell, St. Joseph	Feb. 28	3,000
Howard Creek	Pipestone	J. W. Isbell, St. Joseph	Feb. 28	3,000
Pearl Creek	Pipestone	J. W. Isbell, St. Joseph	Feb. 28	4,500
Morlock Creek	Pipestone	J. W. Isbell, St. Joseph	Feb. 28	1,500
Putnam Creek	Benton	J. W. Isbell, St. Joseph	Feb. 28	1,500
Hess Creek	Oronoko	J. W. Isbell, St. Joseph	Feb. 28	1,500
Burton Creek	Oronoko	Ed. Gast, St. Joseph	Feb. 28	1,500
Farmer Creek	Sodus	Ed. Gast, St. Joseph	Feb. 28	3,000
Mill Creek	Watervliet	Ed. Gast, St. Joseph	Feb. 28	4,500

County and name of water.	Township.	Name of depositor.	Date.	Number.
Berrien county—Con.				
Longfellow Creek	Royalton	Ed. Gast, St. Joseph	Feb. 28	1,500
Woodleys Creek	Benton	C. A. Woodley, Benton Harbor	Feb. 28	3,000
Sutton Creek	Berrien	Fred Herring, St. Joseph	Feb. 28	3,000
Hog Creek	Benton	Fred Herring, St. Joseph	Feb. 28	4,500
Long Branch of Blue Creek		A. F. Herring, St. Joseph	Feb. 28	3,000
Graham Creek	Lincoln	A. F. Herring, St. Joseph	Feb. 28	3,000
Tabor Creek	Sodns	A. F. Herring, St. Joseph	Feb. 28	3,000
Schafer Creek	Lake	Mark Herring, St. Joseph	Feb. 28	3,000
Shedd Creek	Three Oaks	Claude Herring, St. Joseph	Feb. 28	6,000
Summit Creek	Lincoln	J. W. Isbell, St. Joseph	Feb. 28	3,000
Kelsey Creek	Buchanan	Jas. E. Scott, Buchanan	Feb. 24	3,000
Zerbe Creek	Buchanan and Cronoko	Jas. E. Scott, Buchanan	Feb. 24	1,500
Estos Creek	Buchanan	Jas. E. Scott, Buchanan	Feb. 24	1,500
Clare county:				
Elm Creek	Surrey	F. N. Fuller, Farwell	Feb. 21	3,000
Wood Creek	Surrey	Archie Cuville, Farwell	Feb. 21	3,000
Thirteen Creek	Surrey	R. Updegrove, Farwell	Feb. 21	3,000
Five Lake Creek	Grant	Wm. Lage, Clare	Feb. 21	3,000
Littlefield Creek	Surrey	Wm. Brushton, Farwell	Feb. 21	3,000
Pond Creek	Surrey	J. Palmer, Farwell	Feb. 21	3,000
Tobacco River and tributaries	Arthur and Hatton	Wm. C. Cornell, Saginaw	Feb. 21	7,500
Clear Creek	Arthur	H. D. Kratz, Clare	Feb. 21	3,000
Lowrey Creek	Grant	C. A. Reading, Clare	Feb. 21	1,500
Chord Creek	Grant	F. C. Sanford, M. D., Clare	Feb. 21	3,000
McKinley Creek	Grant	J. E. Felghner, Clare	Feb. 21	3,000
McKinley Creek	Grant	F. C. Sanford, Clare	Feb. 21	3,000
South Branch Tobacco River	Surrey	Alfred W. Herrick, Clare	Feb. 21	4,500
McEwen Creek	Grant	E. A. Anderson, Clare	Feb. 21	3,000
Number 4 Creek	Hatton	David McFall, Clare	Feb. 21	3,000
Holbrook Creek	Surrey	Ira W. Badger, Farwell	Feb. 21	3,000
Halsted Creek		J. M. Davis, Clare	Feb. 21	3,000
Halsted Creek	Grant	D. W. Canfield, Clare	Feb. 21	3,000
Pump House Creek	Hatton	Ed. Hawse, Clare	Feb. 21	1,500
Mater Creek	Grant and Sheridan	C. A. Reading, Clare	Feb. 21	3,000
Middle Branch	Arthur	A. E. Maynard, Clare	Feb. 21	4,500
Green and Gishwash Creeks	Reading	W. Blue, Temple	Mar. 12	18,000
Charlevoix county:				
Dear Creek		Chas. Galster, Boyne Falls	Mar. 12	12,000
Warner Creek	Wilson and Warner	Terry S. Barber, Boyne City	Mar. 18	4,500
Deerlick Creek	Boyne Valley	Terry S. Barber, Boyne City	Mar. 18	3,000
Collins Creek	Boyne Valley	Terry S. Barber, Boyne City	Mar. 18	3,000
North and South Boyne River	Boyne Valley	Chas. C. Galster, Boyne Falls	Mar. 12	20,000
Finley Creek	Boyne Valley	Chas. C. Galster, Boyne Falls	Mar. 12	4,000
Healey Creek	Wilson	W. F. Empey, East Jordan	Mar. 19	3,000
Todd Creek				
Porter Creek	South Arm	Abe W. Carson, East Jordan	Mar. 19	3,000
Dear Creek	South Arm and Wilson	W. F. Empey, East Jordan	Mar. 19	6,000
Boyne River	Wilson	Carl Stroebel, East Jordan	Mar. 19	6,000
Ranney, Cooper and Liskum	Boyne Valley	Wm. Weaver & Son, Elmira	Mar. 12	6,000
Brown's Creek	South Arm	L. O. Isman, Ellsworth	Mar. 8	12,000
Murry Creek	South Arm	Carl Stroebel, East Jordan	Mar. 6	6,000
West Branch of Sturgeon River	South Arm	W. A. Stroebel, East Jordan	Mar. 6	3,000
No Name	Hudson	C. F. Hoffman, Vanderbilt	Mar. 26	10,000
Nigger Creek	Beaugrand	J. A. McGregor, Cheboygan	Mar. 12	3,000
Stinson Brook	Burt and Monroe	E. A. Riggs, Topinabee	Mar. 12	7,500
Cedar Creek		E. R. Pierce, Mackinaw City	Mar. 12	6,000
Stoney Creek		J. W. Lester, Indian River	Feb. 19	4,000
	Tuscarora and Littlefield	J. W. Lester, Indian River	Feb. 19	6,000
	Walker and Koehler			
Crawford county:				
Manistee River Headwaters	T. 28, R. 4 W	B. E. Jones, Alba	Mar. 15	40,000
South Branch of Au Sable River	South Branch	P. C. Floeter, Bay City	Feb. 19	24,000
South Branch of Au Sable River and tributaries	Several	Orlando F. Barnes, Roscommon	Feb. 19	28,000
Beaver Creek		Geo. H. Boyd, Atlanta, Ga.	Feb. 19	4,000
East Branch of Au Sable River	Grayling	J. C. Burton, Grayling	Feb. 17	14,000
Au Sable River	Grayling	J. C. Burton, Grayling	Feb. 17	40,000
Au Sable River	Grayling	F. B. Dickerson, Detroit	Feb. 17	40,000
Big Creek	Several	T. E. Douglas, Lovells	Feb. 17	12,000
North Branch of Au Sable River	Maple Forest	W. B. Mershou, Saginaw	Feb. 17	36,000
North Branch of Au Sable River	Chester and Forest	P. F. H. Morley, Saginaw	Feb. 17	36,000
Cass county:				
Glenwood Creek	Wayne	Fred Phillips, Dowagiac	Mar. 10	4,500
Carman Creek	Wayne	Fred Phillips, Dowagiac	Mar. 10	1,500
Kenny Creek	Wayne	Fred Phillips, Dowagiac	Mar. 10	1,500
Starrett Creek	Wayne	Fred Phillips, Dowagiac	Mar. 10	1,500
Broadhurst Creek	Wayne	Fred Phillips, Dowagiac	Mar. 10	1,500
Silver Creek	Silver Creek	Fred Phillips, Dowagiac	Mar. 10	1,500
Clendenen Creek	Silver Creek	Fred Phillips, Dowagiac	Mar. 10	3,000
Anthony Creek	Silver Creek	Fred Phillips, Dowagiac	Mar. 10	1,500
McOmber Creek	Silver Creek	Fred Phillips, Dowagiac	Mar. 10	1,500
Yaw Creek	Silver Creek	Fred Phillips, Dowagiac	Mar. 10	1,500
Miller Creek	Silver Creek	Fred Phillips, Dowagiac	Mar. 10	1,500
Pokagon Creek	Pokagon	Fred Phillips, Dowagiac	Mar. 10	1,500
McKinney Creek	Pokagon	Fred Phillips, Dowagiac	Mar. 10	1,500
Peavine Creek	Pokagon	Fred Phillips, Dowagiac	Mar. 10	3,000
Hadsell Creek	Pokagon	Fred Phillips, Dowagiac	Mar. 10	3,000
Centennial Mill Pond	Jefferson	C. H. Kimmerle, Cassopolis	Feb. 24	3,000
Thorp Creek	La Grange	C. H. Kimmerle, Cassopolis	Feb. 24	3,000
	Jefferson	C. H. Kimmerle, Cassopolis	Feb. 24	1,500
Calhoun county:				
Shaunon Creek	Leroy	Ray Newman, East Leroy	Feb. 26	1,500
Gould Creek	Leroy	Thos. O'Leran, East Leroy	Feb. 26	1,500
Pine Creek	Leroy	Rollo Hawkins, East Leroy	Feb. 26	1,500
The Seven Mile Creek	Bedford	A. S. Robinson, Battle Creek	Feb. 26	3,000
Corey Creek	Leroy	M. S. Emmons, East Leroy	Feb. 26	3,000
Service Creek	Leroy	M. S. Emmons, East Leroy	Feb. 26	3,000
Seven Mile Brook	Leroy	M. S. Emmons, East Leroy	Feb. 26	3,000
		W. H. Skinner, Battle Creek	Feb. 26	3,000

County and name of water.	Township.	Name of depositor.	Date.	Number.
Calhoun county—Con.:				
Silver Creek	Battle Creek	L. H. Tower, M. D., Battle Creek	Feb. 26	4,500
Pidgeon Creek	Marshall	R. R. Hicks, Battle Creek	Feb. 26	3,000
Lowell Creek	Leroy	Fred S. Hall, East Leroy	Feb. 26	1,500
Bascon Creek	Bedford	L. M. Turner, Battle Creek	Feb. 26	3,000
Putnam Creek	Athens	F. G. Woodruff, Athens	Feb. 26	1,500
Dickinson Creek	Marshall	E. D. Allen, Battle Creek	Feb. 26	3,000
Helmer's Brook	Battle Creek	Geo. H. Williams, Battle Creek	Feb. 26	3,000
Gulf Creek	Emmett	E. R. Newman, Battle Creek	Feb. 26	1,500
Kesler's Creek		Walter Judd, Battle Creek	Feb. 26	3,000
Minges Brook		S. J. Rathbun, Battle Creek	Feb. 26	3,000
Harper Creek	Emmett	C. E. Kessler, Battle Creek	Feb. 26	6,000
Cheboygan county:				
Mill Creek	Mackinaw	E. R. Pierce, Mackinaw	Mar. 18	4,500
Little Sturgeon River	Tuscarora, Koehler and Ellis	F. E. Martin, Indian River	Feb. 19	4,000
Myers Creek	Benton	D. Armour, Cheboygan	Feb. 19	4,000
Bowen Creek	Tower	S. M. Brining, Tower	Mar. 18	15,000
Welsh Creek	Forest	S. M. Brining, Tower	Mar. 18	7,500
Church Creek	Forest	S. M. Brining, Tower	Mar. 18	7,500
Gillis Creek	Forest	S. M. Brining, Tower	Mar. 18	7,500
Little Black Creek	Beaugrand	W. H. Barrow, Cheboygan	Feb. 19	4,000
Elliott Creek	Benton	Geo. A. Barber, Cheboygan	Feb. 19	4,000
Little Black Creek	Beaugrand	C. T. Snowden, Cheboygan	Feb. 19	4,000
Grass Bay Stream	Benton	A. T. McClinch, Cheboygan	Feb. 19	4,000
Little Milligan Creek	Benton	B. C. Paquette, Cheboygan	Feb. 19	4,000
Lower Little Pigeon	Koehler	J. W. Lester, Indian River	Feb. 19	6,000
Spring Brook	Tuscarora	Gerald King, Indian River	Feb. 19	6,000
Big Pigeon River	Tuscarora	Clyde King, Indian River	Feb. 19	2,000
Little Pigeon River	Koehler	Clyde King, Indian River	Feb. 19	12,000
East Branch of Little Sturgeon	Koehler	Clyde King, Indian River	Feb. 19	6,000
West Branch of Lower Little Pigeon River	Koehler	Clyde King, Indian River	Feb. 19	4,000
Carp Creek	Koehler and Walker	Clyde King, Indian River	Feb. 19	8,000
Elliott Stream	Munro and Burt	Edwin A. Riggs	Feb. 19	4,000
Laparell Creek	Benton	August Frobelkorn, Cheboygan	Feb. 19	4,000
	Inverness	Yakima Club, Cheboygan	Feb. 19	4,000
Cass county:				
Glenwood Creek	Wayne	Fred Phillips, Dowagiac	Mar. 10	4,500
Carman Creek	Wayne	Fred Phillips, Dowagiac	Mar. 10	1,500
Kenny Creek	Wayne	Fred Phillips, Dowagiac	Mar. 10	1,500
Starrett Creek	Wayne	Fred Phillips, Dowagiac	Mar. 10	1,500
Broadhurst Creek	Wayne	Fred Phillips, Dowagiac	Mar. 10	1,500
Silver Creek	Silver Creek	Fred Phillips, Dowagiac	Mar. 10	3,000
Clendenen Creek	Silver Creek	Fred Phillips, Dowagiac	Mar. 10	1,500
Anthony Creek	Silver Creek	Fred Phillips, Dowagiac	Mar. 10	1,500
McOmber Creek	Silver Creek	Fred Phillips, Dowagiac	Mar. 10	1,500
Delta county:				
Yaw Creek	Silver Creek	Fred Phillips, Dowagiac	Mar. 10	1,500
Miller Creek	Pokagon	Fred Phillips, Dowagiac	Mar. 10	1,500
Pokagon Creek	Pokagon	Fred Phillips, Dowagiac	Mar. 10	3,000
McKinney Creek	Pokagon	Fred Phillips, Dowagiac	Mar. 10	3,000
Peavine Creek	Pokagon	Fred Phillips, Dowagiac	Mar. 10	3,000
Hadsell Creek	Pokagon	Fred Phillips, Dowagiac	Mar. 10	1,500
Centennial Mill Creek	Jefferson	C. H. Kimmerle, Cassopolis	Feb. 24	3,000
Thorp Creek	La Grange	C. H. Kimmerle, Cassopolis	Feb. 24	3,000
Shaw's Creek	Jefferson	C. H. Kimmerle, Cassopolis	Feb. 24	1,500
Thorp Creek	Jefferson and Harvard	C. H. Kimmerle, Cassopolis	Feb. 24	3,000
McNab's or Jones Creeks	Jefferson	G. E. Harmon, Cassopolis	Feb. 24	3,000
	La Grange and Penn.	C. H. Kimmerle, Cassopolis	Feb. 24	3,000
Dickinson county:				
Thompson River	Several	W. R. Calloway, Minneapolis, Ind.	Mar. 27	12,500
Scott's Creek	Several	W. R. Calloway, Minneapolis, Ind.	Mar. 27	20,000
Ognotz River	Several	W. R. Calloway, Minneapolis, Ind.	Mar. 27	20,000
Carr Creek	Garden	Lewis Cannon, Uno	May 1	2,500
Cass Creek	Garden	Lewis Cannon, Uno	May 1	2,500
Kilpeaker Creek	Garden	F. I. Cannon, Uno	May 1	2,500
Hunter's Brook	Cornell	Timothy Killian, Escanaba	Mar. 24	5,000
10 Mile Creek	Escanaba and Ford River	Timothy Killian, Escanaba	Mar. 24	7,500
Branch of Sturgeon River	Nahma	Timothy Killian, Escanaba	Mar. 24	12,500
Fish Dam River	Nahma	Timothy Killian, Escanaba	Mar. 24	12,500
Snell Brook	Masonville	Timothy Killian, Escanaba	Mar. 24	5,000
Tacoosh and Inman Creeks	Masonville	Timothy Killian, Escanaba	Mar. 24	7,500
Purman Brook	Masonville	Timothy Killian, Escanaba	Mar. 24	7,500
Day's River	Baldwin	Timothy Killian, Escanaba	Mar. 24	10,000
Bark River	Bark River	Timothy Killian, Escanaba	Mar. 24	12,500
Rapid River	Bark River	Timothy Killian, Escanaba	Mar. 24	12,500
Big Brook	Maple Ridge	Timothy Killian, Escanaba	Mar. 24	5,000
Squaw Creek	Maple Ridge	Timothy Killian, Escanaba	Mar. 24	7,500
Banks Brook	Cornell and Baldwin	Timothy Killian, Escanaba	Mar. 24	5,000
Walker Creek	Wells	Timothy Killian, Escanaba	Mar. 24	5,000
Day's River tributaries	Wells	Timothy Killian, Escanaba	Mar. 24	5,000
	Brampton and Masonville	W. H. Wellsted, Sr., Brampton	Mar. 28	15,000
Dickinson county:				
Big Brook	Norway	T. Killian, Escanaba	Mar. 24	7,500
Waterworks Creek	Norway	A. B. Brackett, Norway	Mar. 25	10,000
Mitchell's Creek	Sagola	Thos. M. Brady, Channing	Mar. 25	10,000
Black or Wobber's Creek	Sagola	R. E. Boll, Channing	Mar. 28	7,500
Blueberry Creek	Sagola	R. E. Boll, Channing	Mar. 28	2,500
Squaw Creek	Sagola	R. E. Boll, Channing	Mar. 28	2,500
Outlet from Sawyer Lake	Sagola	R. E. Boll, Channing	Mar. 28	2,500
Ford River	Sagola	Geo. Morgan, Channing	Mar. 28	2,500
Smith Creek	Sagola	H. M. Boll, Channing	Mar. 28	2,500
Ford River Headwaters	Sagola	Ed. Kurth, Channing	Mar. 28	5,000
Campbell Brook	West Branch	Timothy Killian, Escanaba	Mar. 24	5,000
Ford River	Sagola	Chas. Gustafson, Channing	Mar. 24	5,000
Fern Creek	Norway	A. F. Brackett, Norway	Mar. 25	5,000
Hancock Creek	Waucesah	A. F. Brackett, Norway	Mar. 25	5,000
Crystal Creek	Norway	A. F. Brackett, Norway	Mar. 25	5,000
Brown's Creek	Norway	A. F. Brackett, Norway	Mar. 25	5,000
Merriman Creek	Waucesah	A. F. Brackett, Norway	Mar. 25	5,000
	Breitung	Jos. W. Comie, Iron Mountain	Mar. 25	7,500

County and name of water.	Township.	Name of depositor.	Date.	Number.
Dickinson county—Cont.				
Pine Creek	Several	A. E. Larsen, Quinnesec	Mar. 25	10,000
Quinnesec Creek	Bretting	Harry Larsen, Quinnesec	Mar. 25	5,000
Bad Water Creek	Bretting	J. E. Quarnstrom, Iron Mountain	Mar. 28	5,000
Alberta Creek	Norway	J. E. Quarnstrom, Iron Mountain	Mar. 28	5,000
North Branch Cassidy Creek	Norway	A. F. Brackett, Norway	Mar. 28	7,500
Benton's Creek	Norway	A. F. Brackett, Norway	Mar. 28	5,000
Breen Creek	Norway and Waucedah	W. F. Dody, Norway	Mar. 25	7,500
Bear and Breen Creeks	Waucedah	Herman Vielmette, Loretto	Mar. 25	5,000
Black Creek	Waucedah	A. J. Werline, Loretto	Mar. 25	12,500
Sturgeon Creek	Waucedah	C. Baxter, Loretto	Mar. 25	5,000
Beaver Creek	Waucedah	Dan Vanitvelt, Waucedah	Mar. 25	5,000
Cassidy Creek	Waucedah	Dan Vanitvelt, Waucedah	Mar. 25	5,000
Hay and Red Dam Creeks	Waucedah	W. J. Turner, Vulcan	Mar. 25	5,000
Pine Creek	Norway	W. J. Turner, Vulcan	Mar. 25	2,500
No Name	Waucedah	W. J. Turner, Vulcan	Mar. 25	2,500
Fitzgerald Creek	Waucedah	W. J. Turner, Vulcan	Mar. 25	2,500
Emmett county:				
Carp River	Carp Lake	E. R. Pierce, Mackinaw	Mar. 18	7,500
Heber Creek	Little Trance	Wm. L. Curtis, Mackinaw	Mar. 18	3,000
Curtis Creek	Littlefield	Wm. L. Curtis, Mackinaw	Mar. 18	4,500
No Name	Friendship	Wm. L. Curtis, Mackinaw	Mar. 18	3,000
Tannery Creek	Bear Creek	Benj. Whittaker, Jr., Harbor Springs	Mar. 18	4,500
Carp River	Carp Lake	O. C. Cope, Carp Lake	Mar. 12	10,000
Maple River and tributaries	Several	J. W. Hunter, Grand Rapids	Mar. 12	20,000
Goodrich Creek	Littlefield	C. E. Ruggles, Oden	Mar. 12	4,900
Bear Creek	Littlefield	Geo. C. Brown, Petnskey	Mar. 12	20,000
Gogebic county:				
Deilies Creek	Watersmeet	N. D. Murphy, Watersmeet	Mar. 28	5,000
Wolf Lake Creek	Watersmeet	J. F. Johnson, Watersmeet	Mar. 28	12,500
Henderson Creek	Watersmeet	Geo. Wenz, Watersmeet	Mar. 28	12,500
Morrison Creek	Carlson	B. H. Saring, Watersmeet	Mar. 28	12,500
Bass Lake Creek	Carlson	J. H. McCloskey, Watersmeet	Mar. 28	5,000
Spring Creek	Watersmeet	Wm. Kelly, Watersmeet	Mar. 28	7,500
Montreal River	Erwin	Henry Hogan, Ironwood	April 4	22,500
Wright Creek	Marenisco	L. L. Wright, Gogebic	April 4	9,000
Trout Brook	Marenisco	L. L. Wright, Gogebic	April 4	13,500
Spring Creek	Bessemer	J. A. Vogtlin, Bessemer	April 4	4,500
Hill Creek	Bessemer	J. A. Vogtlin, Bessemer	April 4	4,500
Clear Creek	Bessemer	J. A. Vogtlin, Bessemer	April 4	9,000
Eight Mile Creek	Bessemer	J. A. Vogtlin, Bessemer	April 4	9,000
Vogtlin's Creek	Bessemer	J. A. Vogtlin, Bessemer	April 4	4,500
Six Mile Creek	Bessemer	J. A. Vogtlin, Bessemer	April 4	9,000
Sand Island Creek	Bessemer	J. A. Vogtlin, Bessemer	April 4	9,000
Nymen's Creek	Ironwood	Fred W. Roberts, Bessemer	April 4	4,500

TWENTY-FIRST REPORT—STATE FISHERIES.

Black River	Bessemer	J. S. Rummage, Ramsay	April 4	4,500
Spring Brook	Marenisco	E. A. Ormes, Marenisco	April 4	4,500
Gimlet Creek	Marenisco	C. A. Pratt, Marenisco	April 4	9,000
No Name	Marenisco	C. A. Curtis, Marenisco	April 4	4,500
Pelton Creek	Marenisco	J. McLeod, Marenisco	April 4	9,000
Black Creek	Marenisco	J. B. Nichols, Marenisco	April 4	4,500
Rapid Brook	Marenisco	F. C. Louissel, Marenisco	April 4	9,000
Six Mile Creek	Marenisco	Frank Louissel, Marenisco	April 4	9,000
Meadow Brook	Marenisco	Chas. Anderson, Marenisco	April 4	4,500
Lilly Creek	Marenisco	A. R. McLeod, Marenisco	April 4	4,500
No Name	Marenisco	Lewis Owens, Marenisco	April 4	4,500
Cornell Creek	Marenisco	Green Siding Club, Ironwood	April 25	2,500
McKinney Creek	Bessemer	Green Siding Club, Ironwood	April 25	2,500
Lemon Creek	Marenisco	Green Siding Club, Ironwood	April 25	2,500
Pigeon Creek	Marenisco	Green Siding Club, Ironwood	April 25	2,500
May's Brook	Marenisco	Green Siding Club, Ironwood	April 25	2,500
Slippery Elm Creek	Marenisco	Green Siding Club, Ironwood	April 25	2,500
Weazel Creek	Marenisco	Green Siding Club, Ironwood	April 25	2,500
Nine Mile Creek	Bessemer	O. F. Stabler, Ironwood	April 25	2,500
Alder Creek	Marenisco	Green Siding Club, Ironwood	April 25	2,500
Sampson's Creek	Marenisco	Green Siding Club, Ironwood	April 25	2,500
Jimmie Thomas Brook	Marenisco	Green Siding Club, Ironwood	April 25	2,500
Fox Creek	Marenisco	Green Siding Club, Ironwood	April 25	2,500
Honey Moon Creek	Ironwood	Green Siding Club, Ironwood	April 25	2,500
Lum Creek	Marenisco	Green Siding Club, Ironwood	April 25	2,500
Hazel Creek	Marenisco	Green Siding Club, Ironwood	April 25	2,500
Barrs Creek	Marenisco	Green Siding Club, Ironwood	April 25	2,500
Little Spring Creek	Ironwood	O. F. Stabler, Ironwood	April 25	12,500
Fin Creek	Ironwood	O. F. Stabler, Ironwood	April 25	2,500
Sutherland Creek	Ironwood	O. F. Stabler, Ironwood	April 25	2,500
Birch Creek	Ironwood	O. F. Stabler, Ironwood	April 25	2,500
Cedar Creek	Ironwood	O. F. Stabler, Ironwood	April 25	2,500
Jones Brook	Erwin	Mat Fitzsimmons, Ironwood	April 25	2,500
Beaver Creek	Ironwood	D. E. Sutherland, Ironwood	April 25	5,000
Rowes Creek	Ironwood	D. E. Sutherland, Ironwood	April 25	2,500
Hoffman's Creek	Ironwood	D. E. Sutherland, Ironwood	April 25	2,500
Black River	Bessemer	Alfred Kallander, Wakefield	April 25	7,500
Black River, Branch	Bessemer	Alfred Kallander, Wakefield	April 25	5,000
Branch of Black River	Bessemer	Alfred Kallander, Wakefield	April 25	5,000
Branch of Black River	Bessemer	Alfred Kallander, Wakefield	April 25	5,000
Slate River	Marenisco	L. L. Wright, Gogebic	April 25	5,000
Sucker Lake	Carlson	Peter Reis, Bonifas	April 25	2,500
Bass Lake Creek	Carlson	Frank Burto, Bonifas	April 25	2,500
Jackson Creek	Carlson	Wm. Bonifas, Bonifas	April 25	2,500
Sisco Brook	Watersmeet	Thayer H. and F. Club, Ironwood	April 25	2,500
Maple Brook	Watersmeet	Thayer H. & F. Club, Ironwood	April 25	2,500
Hemlock Brook	Watersmeet	Thayer H. and F. Club, Ironwood	April 25	2,500
Cedar Creek	Watersmeet	Thayer H. and F. Club, Ironwood	April 25	2,500
Rat Creek	Watersmeet	Thayer H. and F. Club, Ironwood	April 25	2,500
Ryan's Brook	Marenisco	Green Siding Club, Ironwood	April 25	2,500
Clover Creek	Marenisco	Green Siding Club, Ironwood	April 25	2,500

TWENTY-FIRST REPORT—STATE FISHERIES.

County and name of water.	Township.	Name of depositor.	Date.	Number.
Gogebic county—Con.:				
Little Presque Isle River	Severell	M. M. Riley, Milwaukee, Wis.	Mar. 1	5,000
Big Presque Isle River	Severell	M. M. Riley, Milwaukee, Wis.	Mar. 1	7,500
Cherry Creek	Severell	M. M. Riley, Milwaukee, Wis.	Mar. 1	5,000
Lula Creek	Wakefield	M. M. Riley, Milwaukee, Wis.	Mar. 1	5,000
Mud Creek	Wakefield and Marenisco	M. M. Riley, Milwaukee, Wis.	Mar. 1	5,000
Duck Creek	Wakefield and Watersmeet	Patrick Kelley, Watersmeet	Mar. 28	5,000
Duck Creek	Watersmeet	B. H. Darling, Watersmeet	Mar. 28	5,000
Headwaters of Ontonagon River, Main Branch	T. 44 R. 41 W.	Marvin Hughitt, Jr., Chicago, Ill.	Mar. 28	12,500
Landford Creek	T. 44 R. 41 W.	Marvin Hughitt, Jr., Chicago, Ill.	Mar. 28	7,500
Clear Water Creek	T. 44 R. 41 W.	Marvin Hughitt, Jr., Chicago, Ill.	Mar. 28	7,500
✓ Camp No. 2 Creek	Watersmeet	J. D. Vantwood, Watersmeet	Mar. 28	7,500
E. Branch of Ontonagon River	Watersmeet	T. W. Koebane, Watersmeet	Mar. 28	2,500
✓ Crooked Creek	Watersmeet	A. D. Johnston, Watersmeet	Mar. 28	7,500
Lower Deer River	Crystal Falls	Arvid Bjork, Crystal Falls	Mar. 29	12,500
✓ Ontonagon River	Watersmeet	J. L. Kelley, Watersmeet	Mar. 28	12,500
Beaver Creek	Watersmeet	John McQuade, Watersmeet	Mar. 28	7,500
Bluff Creek	Carlson and Hale	Jas. Rock, Watersmeet	Mar. 28	7,500
Sucker Creek	Carlson and Hale	Amos Reed, Watersmeet	Mar. 28	7,500
✓ Tamarack Creek	Carlson	L. A. Brownell, Watersmeet	Mar. 28	7,500
Harson or Six Mile Creek	Watersmeet	A. C. Brownell, Watersmeet	Mar. 28	7,500
Grand Traverse county:				
Potter Creek	Paradise	Earl J. Case, Kingsley	Mar. 14	4,500
Tributaries to East and Twenty-second Creek	Paradise	D. H. Power, Kingsley	Mar. 14	30,000
East Creek	Paradise	Kingsley Sportsmen's Club, Kingsley	Mar. 14	4,500
Arthur Creek	Paradise and Pife Lake	Kingsley Sportsmen's Club, Kingsley	Mar. 14	7,500
Sands Creek	Paradise	Kingsley Sportsmen's Club, Kingsley	Mar. 14	3,000
Mayfield Brook	Paradise	Kingsley Sportsmen's Club, Kingsley	Mar. 14	4,500
Sparling Creek	Pife Lake and Paradise	Kingsley Sportsmen's Club, Kingsley	Mar. 14	4,500
Twenty-second Creek	Pife Lake	Kingsley Sportsmen's Club, Kingsley	Mar. 14	4,500
Anderson Creek	Mayfield and Blair	Kingsley Sportsmen's Club, Kingsley	Mar. 14	4,500
Nickerson Creek	Severell	Kingsley Sportsmen's Club, Kingsley	Mar. 14	4,500
Boardman River	Severell	R. S. Hastings, Traverse City	Mar. 14	30,000
Williamsburg Creek	Severell	R. S. Hastings, Traverse City	Mar. 14	9,000
Acme Creek	Acme	Ed. Gilbert, Traverse City	Mar. 14	6,000
Mitchell's Creek	East Bay	Ed. Gilbert, Traverse City	Mar. 14	6,000
Beaver Creek	East Bay	Ed. Gilbert, Traverse City	Mar. 14	21,000
Outlet Creek	Pife Lake	R. E. Walters, Traverse City	Mar. 22	10,000
Battle Creek	Whitewater	Elk Rapids G. and A. Club, Elk Rapids	Mar. 4	7,500
Yube Creek	Acme	Elk Rapids G. and A. Club, Elk Rapids	Mar. 4	9,000
Follett's Creek	Whitewater	Elk Rapids G. and A. Club, Elk Rapids	Mar. 4	6,000
Hillsdale county:				
Egg Creek	Fayette	Jonesville R. and G. Club, Jonesville	Feb. 21	3,000
Boe Bee Creek	Fayette	Jonesville R. and G. Club, Jonesville	Feb. 21	3,000
Hodges Brook	Scipio	Jonesville R. and G. Club, Jonesville	Feb. 21	1,500
Wicks Brook	Fayette	Jonesville R. and G. Club, Jonesville	Feb. 21	3,000
Douglas Creek	Wheatland	J. D. Douglas, Pittsford	Feb. 21	3,000
Lovell Creek	Scipio	Jonesville R. and G. Club, Jonesville	Feb. 21	4,500
Sand Creek	Litchfield and Scipio	L. H. Feigener, Litchfield	Feb. 21	1,500
Houghton county:				
Sturgeon River	Chassell, Portage, etc.	Silver River R. and G. Club, L'Anse	May 4	10,000
Otter River	Adams and Portage	Houghton R. and G. Club, Houghton	May 4	12,500
Santee River	48-25	Houghton R. and G. Club, Houghton	May 4	12,500
Sturgeon River, small branches	Stanton	Houghton R. and G. Club, Houghton	May 4	12,500
Cole's Creek	Stanton	Houghton R. and G. Club, Houghton	May 4	5,000
Slock's Creek	Stanton and Adams	Houghton R. and G. Club, Houghton	May 4	10,000
Gravered Creek	Portage and Chassell	Houghton R. and G. Club, Houghton	May 4	7,500
Pilgrim River	Bohemia and Elm River	Houghton R. and G. Club, Houghton	May 4	7,500
Pike River	Stanton and Adams	Houghton R. and G. Club, Houghton	May 4	5,000
Misery River	Elm River and Stanton	Houghton R. and G. Club, Houghton	May 4	12,000
Salmon Trout River	Elm River and Stanton	Houghton R. and G. Club, Houghton	May 4	7,500
Elm River	Elm River and Stanton	Houghton R. and G. Club, Houghton	May 4	12,500
No Name	48-52	Mrs. B. T. Barry, Houghton	May 4	5,000
Sturgeon River, small branches	48-52	Jeff Alexander, Houghton	May 4	5,000
Sturgeon River, branches	48-52	John T. McCall, Houghton	May 4	12,500
Little Salmon Trout River	Adams	F. J. Bolles, Houghton	May 4	12,500
Beaver Dam Creek	Elm River	F. J. Bolles, Houghton	May 4	7,500
Eber's Creek	Portage	F. J. Bolles, Houghton	May 4	5,000
Eleven Mile Creek	Elm River	J. C. Campbell, Chassell	May 4	5,000
Shanty Creek	Portage	F. R. Bolles, Houghton	May 4	5,000
Potter's	Chassell	Wm. Hollapa, Chassell	May 4	5,000
Beaver Creek	Portage	S. Hollapa, Chassell	May 4	5,000
Bear Creek	Portage	Ed. Hollapa, Chassell	May 4	5,000
Branch of Otter River	Portage	Claude F. Hancock, Chassell	May 4	2,500
Otter River	Portage	Peter Larsen, Chassell	May 4	2,500
Bart Creek	Chassell	E. W. Danielson, Chassell	May 4	2,500
Jumbo Creek	Portage	Wm. O. Misslitz, Chassell	May 4	7,500
Greenyear Creek	Dnnken	O. H. Losey, Trout Creek	May 4	2,500
Friday's Creek	Laird	Leo A. Barry, Alston	May 1	5,000
Silver Creek	Laird	Leo A. Barry, Alston	May 1	2,500
McGunn's Creek	Laird	Leo A. Barry, Alston	May 1	5,000
Trap Rock River	Calumet	Chas. O. Jacobs, Calumet	May 1	2,500
Hills Creek	Calumet and Osceola	Geo. Williams, Calumet	May 1	2,500
Hungarian Creek	Allouez	F. R. Chynowitt, Phoenix	May 1	12,500
Sawmill Creek	Osceola	A. J. Vine, Lake Linden	May 1	7,500
No Name	Schoolcraft	A. J. Vine, Lake Linden	May 1	7,500
Traverse River	Schoolcraft	A. J. Vine, Lake Linden	May 1	5,000
Sawmill Creek	Schoolcraft	A. J. Vine, Lake Linden	May 1	5,000
Silver Creek	Schoolcraft	John Shields, Lake Linden	May 1	20,000
Hungarian River	Schoolcraft	John Shields, Lake Linden	May 1	5,000
Little Traverse	Osceola and Torch Lake	W. C. Weidenhofer, Hubbell	May 1	5,000
	Schoolcraft	H. Nathansen, Lake Linden	May 1	20,000
			May 1	12,500

County and name of water.	Township.	Name of depositor.	Date.	Number.
Houghton county—Con:				
Tributaries to Rice Lake	Schoolcraft	A. G. Mogk, Lake Linden	May 1	5,000
McCallum Creek	Torch Lake	John Nester, Jr., Lake Linden	May 1	5,000
Traprock River	Schoolcraft	Willard E. Gray, Lake Linden	May 1	12,500
West Branch of Sturgeon River	Laird	Leo A. Barry, Alston	May 1	5,000
Iron county:				
Iron River	Iron	J. R. Lyons, Iron River	Mar. 28	12,500
Chicagoan Creek	Stambagh	R. F. Gibbs & Son, Iron River	April 4	4,500
North Paint River	Iron River	John Rowett, Bessemer	April 4	13,500
Ionia county:				
No Name	Ronald	Eliot A. Mellard, Ionia	Mar. 8	1,500
Warner Creek	Orleans	E. E. Brown, Shiloh	Mar. 8	1,500
Spencer Creek	Orleans	M. B. Spanogle, Greenville	Mar. 8	1,500
Spring Brook	Orange	John Coon, Ionia	Mar. 8	1,500
Spar Creek	Muir	E. T. Ammon, Ionia	Mar. 8	3,000
Spaulding Creek	Ionia	E. T. Ammon, Ionia	Mar. 8	1,500
Timberland Creek	Schewa and Ionia	A. J. Kling, Ionia	Mar. 8	7,500
Fish Creek and tributaries	Easton	Synder & Wortman, Ionia	Mar. 8	6,000
Ludwick Creek	Gun Plains	A. E. Clark, Hubbardston	Feb. 28	9,000
	Ronald	Theo. A. Huss, Muir	Feb. 28	1,500
Ingham county:				
Sycamore Creek	Vevay	Walter Hayner, Mason	Mar. 22	6,000
Iosco county:				
Buchanan Creek	Burleigh	Henry Jacques, Whittemore	Mar. 10	2,000
Whitney Creek	Burleigh	Henry Jacques, Whittemore	Mar. 10	10,000
Cold Creek	Grant and Tawas	C. W. Luce, East Tawas	Mar. 10	12,000
Silver Creek	Wilbur and Baldwin	C. W. Luce, East Tawas	Mar. 10	16,000
Pickett Creek	Plainfield	C. W. Luce, East Tawas	Mar. 10	6,000
Vaughan Creek	Plainfield	C. W. Luce, East Tawas	Mar. 10	8,000
Gates Creek	Tawas and Baldwin	C. W. Luce, East Tawas	Mar. 10	6,000
Ginley Creek	Grant	C. W. Luce, East Tawas	Mar. 10	10,000
Johnson Creek	Burleigh	H. J. Jacques, Whittemore	Mar. 10	14,000
Isabella county:				
Loomis or Little Salt Creek	Wise	C. A. Allen, Loomis	Feb. 22	6,000
Herscy Creek	Wise and Vernon	C. A. Allen, Loomis	Feb. 22	3,000
Gilmore Creek	Gilmore	Almond Powell, Farwell	Feb. 21	4,500
Delo Creek	Freemont	John Underwood, Winn	Mar. 8	1,500
Fuller Creek	Freemont	John Underwood, Winn	Mar. 8	3,000
Chippewa Creek	Gilmore	A. R. Muesel, Clare	Feb. 21	4,500
Willey Creek	Wise	C. Allen, Loomis	Feb. 22	3,000
Walker Creek	Sherman and Coldwater	Miles A. Drallett, Weidman	Feb. 25	6,000
Potter Creek	Chippewa, Coe and Union	J. E. Meyer, Shepherd	Feb. 26	6,000

TWENTY-FIRST REPORT—STATE FISHERIES.

Stony Creek	Deerfield	Geo. L. Granger, Mt. Pleasant	Mar. 7	1,500
Zucker Creek	Deerfield	Geo. L. Granger, Mt. Pleasant	Mar. 7	3,000
Labun Creek	Nottawa	Geo. L. Granger, Mt. Pleasant	Mar. 7	3,000
Fnsman Creek	Nottawa	Geo. L. Granger, Mt. Pleasant	Mar. 7	3,000
Tupman Creek	Nottawa	Geo. L. Granger, Mt. Pleasant	Mar. 7	3,000
Thelsen Creek	Nottawa	Geo. L. Granger, Mt. Pleasant	Mar. 7	3,000
Chippipe Brook	Deerfield	Geo. L. Granger, Mt. Pleasant	Mar. 7	3,000
Coomer Brook	Deerfield	Geo. L. Granger, Mt. Pleasant	Mar. 7	1,500
Simmons Creek	Deerfield	Geo. L. Granger, Mt. Pleasant	Mar. 7	3,000
Campan Creek	Deerfield	Geo. L. Granger, Mt. Pleasant	Mar. 7	1,500
Hebron Creek	Deerfield	Geo. L. Granger, Mt. Pleasant	Mar. 7	1,500
Ingler Creek	Deerfield	Geo. L. Granger, Mt. Pleasant	Mar. 7	3,000
Seymore Creek	Gilmore	Geo. L. Granger, Mt. Pleasant	Mar. 7	1,500
Wood's Creek	Gilmore	Geo. L. Granger, Mt. Pleasant	Mar. 7	3,000
Perry Creek	Gilmore	Geo. L. Granger, Mt. Pleasant	Mar. 7	3,000
Jackson county:				
Greenshaw and Ramsdell Creek	Hanover	G. T. Greenshaw, Hanover	Feb. 26	1,500
Skinner Creek	Hanover	W. C. Burdett, Hanover	Feb. 26	1,500
Branch of North Branch of Kalamazoo River	Hanover	F. W. McKenzie, Concord	Feb. 24	3,000
Thayer Creek	Norvell	B. F. Burgess, Norvell	Feb. 26	3,000
No Name	Springport	Wm. M. Carroll, Onondaga	Feb. 26	1,500
Headwaters of Grand River	Liberty	Geo. E. Beebe, Jackson	Feb. 26	3,000
Sandstone Creek	Sandstone and Blackman	Geo. E. Beebe, Jackson	Feb. 26	6,000
Wade Creek	Tompkins	Geo. E. Beebe, Jackson	Feb. 26	3,000
Four Mile Creek	Blackman	Geo. E. Beebe, Jackson	Feb. 26	3,000
Rives Junction	Rives	Geo. E. Beebe, Jackson	Feb. 26	3,000
Dew Brook	Horton	Geo. E. Beebe, Jackson	Feb. 26	1,500
West Branch of Kalamazoo River	Hillsdale	Geo. E. Beebe, Jackson	Feb. 26	3,000
Snyder's Creek	Spring Arbor	Geo. E. Beebe, Jackson	Feb. 26	4,500
Crouch Creek	Summit	Geo. E. Beebe, Jackson	Feb. 26	3,000
Rice Creek	Parma	Geo. E. Beebe, Jackson	Feb. 26	3,000
Inlet to Brill's Lake	Parma	Geo. E. Beebe, Jackson	Feb. 26	6,000
Inlet to Mud Lake	Leoni	H. B. Davis, Jackson	Feb. 26	1,500
Grass Lake Creek	Leoni	H. B. Davis, Jackson	Feb. 26	1,500
Cutter's Creek	Grass Lake	Chester R. Smith, Grass Lake	Feb. 26	3,000
Needham Creek	Spring Arbor and Concord	D. F. Moe, Parma	Feb. 26	3,000
Wilcox Creek	Parma	Jos. Needham, Parma	Feb. 26	3,000
Keeler Creek	Concord	H. D. Abbott, Parma	Feb. 26	1,500
Johnson's Creek	Parma	Frank D. Bailey, Parma	Feb. 26	1,500
Showeman Brook	Parma	S. H. Barsdale, Parma	Feb. 26	3,000
Mackey Brook	Parma	S. H. Barsdale, Parma	Feb. 26	1,500
Barber Brook	Parma	S. H. Barsdale, Parma	Feb. 26	1,500
Winegar Creek	Parma	Mark B. Hawes, Parma	Feb. 26	1,500
Skinner Creek	Concord	Mark B. Hawes, Parma	Feb. 26	1,500
Deering Creek	Sandstone	Jay King, Parma	Feb. 26	1,500
Beaver Creek	Sandstone	G. L. Hutin, Parma	Feb. 26	3,000
Kent county:				
Finley Creek	Tyrone	C. L. Gold, Bailey	Mar. 5	3,000
English Creek	Tyrone	R. Headley, Bailey	Mar. 5	3,000
Barber's, Snow	Tyrone	C. S. Puelis, Kent City	Mar. 5	9,000
Dutchman Creeks				

TWENTY-FIRST REPORT—STATE FISHERIES.

County and name of water.	Township.	Name of depositor.	Date.	Number.
Kent county—Con.:				
Clear Creek	Algoma	Dr. H. L. Miller, Kent City	Mar. 5	1,500
Post's Creek	Tyrone	Arthur Miller, Bailey	Mar. 5	1,500
Maston Creek	Spencer	D. M. Bose, Sand Lake	Mar. 5	3,000
Duke Creek	Nelson, Solon, etc.	F. E. Shattuck, Sand Lake	Mar. 5	6,000
Zoppa Creek	Nelson	Earl Rasco, Sand Lake	Mar. 5	1,500
Spring Creek	Solon	Earl Rasco, Sand Lake	Mar. 5	1,500
Jordan Creek	Nelson	Earl Rasco, Sand Lake	Mar. 5	1,500
Stegman Creek	Courtland	R. B. Cawthorpe, Cedar Springs	Mar. 6	1,500
Big Cedar Creek	Nelson, Solon and Algoma	R. B. Cawthorpe, Cedar Springs	Mar. 6	7,500
Little Cedar Creek	Nelson, Solon and Algoma	R. B. Cawthorpe, Cedar Springs	Mar. 6	3,000
Spring Creek	Solon	R. B. Cawthorpe, Cedar Springs	Mar. 6	3,000
Dock Creek	Solon	Boyd Cawthorpe, Cedar Springs	Mar. 6	4,500
Waddell Creek	Cannon	W. J. Solomon, Belmont	Mar. 6	3,000
Whitney Brook	Plainfield	Floyd C. Steed, Grand Rapids	Mar. 6	3,000
Honey Creek	Vergennes and Ada	Wm. P. Stonebreaker, Ada	Mar. 6	4,500
Indian Mill Creek	Alpine and Walker	A. T. Edison, Grand Rapids	Mar. 6	6,000
Honey Creek	Ada	H. G. Thompson, Ada	Feb. 28	4,500
Spring Brook	Lowell	U. B. Williams, Lowell	Feb. 28	1,500
Baird Creek	Vergennes	U. B. Williams, Lowell	Feb. 28	3,000
Koph Creek	Lowell	U. B. Williams, Lowell	Feb. 28	3,000
Kinyon Creek	Lowell	U. B. Williams, Lowell	Feb. 28	3,000
Wright Creek	Vergennes	U. B. Williams, Lowell	Feb. 28	3,000
Cherry Creek	Vergennes and Lowell	U. B. Williams, Lowell	Feb. 28	3,000
Buck Creek	Wyoming	W. H. Zylstra, Grand Rapids	Mar. 3	7,500
Keweenaw county:				
Eagle Creek	Houghton	Wm. Long, Sr., Eagle River	May 7	5,000
Garden City River	Houghton	A. Bammerl, Phoenix	May 7	12,500
Trap Rock River	Allouez	Geo. F. Foley, Mohawk	May 7	5,000
Montreal River	Grant	H. S. Winter, Mohawk	May 7	5,000
Buffalo Creek	Houghton	Thos. Uret, Mohawk	May 7	7,500
Tobacco River	Sherman	Andrew Jaxon, Gay	May 7	5,000
Traverse River	Sherman	Andrew Jaxon, Gay	May 7	5,000
Old Cliff Meadow	Houghton	Henry Long, Eagle River	May 7	5,000
Bailey Creek	Eagle Harbor	Mike Smith, Eagle River	May 7	2,500
Garden City Dam	Houghton	Wm. Long, Eagle River	May 7	7,500
Yendon's Pond	Houghton	Wm. Long, Eagle River	May 7	5,000
East Branch of Tobacco River	Houghton	Amos Bammerl, Phoenix	May 7	12,500
White Birch River	Grant	Samuel Jenkin, Mandan	May 7	12,500
Gratiot River	Allouez	Keweenaw R. and G. Club, Mohawk	May 7	5,000
Mosquito Creek	Grant	J. M. Shields, Phoenix	May 7	5,000
Betsy River	Grant and Sherman	C. L. Webb, Laurium	May 7	5,000
Silver Creek	Allouez	Thos. Wilcox, Calumet	May 7	2,500
Black Creek	Allouez	Thos. Wilcox, Calumet	May 7	5,000
Gratiot River	Allouez	Geo. Williams, Calumet	May 7	12,500
The White Birch	Grant	Frank Buschell, Lake Linden	May 7	4,000
Kalamazoo county:				
Mosquito Creek	Grant	H. Klaesner, Calumet	May 7	5,000
Montreal River	Several	Johnson Vivian, Laurium	May 7	7,500
Tobacco River	Schoolcraft	Johnson Vivian, Laurium	May 7	12,500
Montreal River	Grant and Sherman	H. E. Langster, Laurium	May 7	2,500
Upper waters of Montreal River	Grant	W. B. Vivian, Laurium	May 7	7,500
Kalkaska county:				
Rapid River	Several	A. J. Davidson, Mancelona	Mar. 15	10,500
Rapid River	Several	J. D. Armstrong, Rapid City	Mar. 6	7,500
Rapid River	Several	Elk Rapids G. and A. Club, Elk Rapids	Mar. 4	15,000
Little Cannon Creek	Springfield or 24-6	Ransom Thornton, Stittsville	Feb. 27	10,000
Kalamazoo county:				
Three small brooks in East Cooper	Cooper	J. A. Bussard, Plainwell	Feb. 24	4,500
Chart Creek	Alamo, Gun Plains and Otsego	J. C. Powell, Plainwell	Feb. 24	4,500
Arcadia Creek	Kalamazoo	Wm. A. Drake, Kalamazoo	Feb. 24	3,000
East Branch of Kalamazoo River	Kalamazoo	A. B. Sanderson, Hanover	Mar. 22	4,500
Stony Brook	Kalamazoo	F. H. Skinner, Battle Creek	Feb. 20	4,500
Hopkins Spring Brook	Alamo	Foster L. Deal, Williams	Feb. 26	1,500
Dobbin Spring Brook	Alamo	E. E. Cavanaugh, Williams	Feb. 26	1,500
Albertson's Creek	Cooper	Wm. Murray, Kalamazoo	Feb. 24	1,500
Axtel Creek	Kalamazoo	Henry Hobbs, Kalamazoo	Feb. 24	1,500
Portage Creek	Texas, Portage and Kalamazoo	Henry Hobbs, Kalamazoo	Feb. 24	1,500
Davis Creek	Pavilion and Kalamazoo	Henry Hobbs, Kalamazoo	Feb. 24	6,000
Campbell's Creek	Williams, etc	Chas. A. Wise, Kalamazoo	Feb. 24	3,000
Hall's Spring Brook	Alamo	Chas. A. Wise, Kalamazoo	Feb. 24	3,000
Portage Creek	Portage	Chas. A. Wise, Kalamazoo	Feb. 24	3,000
Abram Creek	Mostly Otsego	Chas. A. Wise, Kalamazoo	Feb. 24	3,000
Frank's Run	Schoolcraft	Wm. Crispe, Plainwell	Feb. 24	3,000
Portage Creek	Kalamazoo	E. O. Goldsmith, Vicksburg	Feb. 24	3,000
Henton Brook	Charleston	Wm. Monday, Kalamazoo	Feb. 24	6,000
Leelanau county:				
Atkisson Pond and stream	Empire	D. H. Day, Glen Haven	Mar. 13	6,000
Knox Creek	Empire	Jas. Daly, Emoire	Mar. 13	2,000
Mosse's Creek	Suttons Bay	D. H. Power, Suttons Bay	Mar. 14	6,000
Lapeer county:				
Carpenter Creek	Mayfield	E. J. Thresher, Lapeer	Feb. 22	3,000
Headwaters of Mill Creek	Attica, Arcadia and Goodland	E. J. Thresher, Lapeer	Feb. 22	6,000
Miller Creek	Deerfield and Rich	E. J. Thresher, Lapeer	Feb. 22	4,500
Hunter's Creek	Metamora and Lapeer	G. H. Whitaker, Lapeer	Mar. 13	4,500
Pine Creek	Attica and Lapeer	G. H. Whitaker, Lapeer	Mar. 13	10,500
Belle River	Dryden	S. E. Miller, Oxford	Feb. 22	4,500
Lake county:				
Bloody Run (Headwaters of Big Sable River)	Elk	Wm. Utter, Peacock	Mar. 5	16,000
Little Manistee River	Webber	Hon. H. D. Jewell, Grand Rapids	Mar. 5	46,000
Bowman Creek	Webber	Jas. B. Peters, Saginaw	Mar. 0	3,000
Pine and Little Manistee River	Webber	H. W. Marsh, Manistee	Mar. 1	60,000
P. M. River and tributaries	Webber	W. B. Mershon, Saginaw	Mar. 6	22,500
Cedar Creek (Big South Branch)	Webber	Geo. M. Brown, Detroit	Mar. 6	15,000
Sauble River	Elk, Freeoul and Sheridan	C. Hagerman, Ludington	Mar. 6	12,000

County and name of water.	Township.	Name of depositor.	Date.	Number.
Lake county—Con.:				
Sweetwater Creek	Lake.	C. Hagerman, Ludington	Mar. 6	3,000
Middle Branch of Marquette River	Cherry Valley	G. W. Baylis, Mt. Pleasant	Mar. 6	12,000
Sanborn or Farnsworth Creek	Severall	C. A. Kantz, Nirvana	Mar. 6	6,000
Loree Creek	Cherry Valley	P. M. Trout Club, Mt. Pleasant	Mar. 6	3,000
Baker Creek	Cherry Valley	P. M. Trout Club, Mt. Pleasant	Mar. 6	4,500
Middle Branch of P. M. River and tributary of Blood's Creek	Severall	C. Hagerman, Ludington	Mar. 6	9,000
Jumbo Creek	Pleasant Plains	Wm. Keyser, Baldwin	Mar. 6	3,000
Baldwin Creek or North Branch of P. M. River	Severall	H. W. Davis, Baldwin	Mar. 6	12,000
Sanborn Creek	Pleasant Plains	H. W. Davis, Baldwin	Mar. 6	15,000
Danaher Creek		J. B. Morley, Saginaw	Mar. 6	6,000
P. M. River		W. R. Humphrey, Saginaw	Mar. 6	18,000
Sauble River	Elk, Fressoil and Sheridan	H. W. Marsh, Manistee	Mar. 1	40,000
Pine and Little Manistee	Ellsworth, Newark and Dover	Geo. Cutler, Luther	Mar. 1	50,000
Middle Branch of P. M. River	Chase	Thos. F. Bray, Reed City	Mar. 1	7,500
Pine River	Dover	Geo. B. Sawrey, Luther	Mar. 1	20,000
Luce county:				
East Branch of Sage River, tributary to Tahquamenon River	Portland	D. M. McLeod, Rexton	April 3	13,500
West Branch of Sage River	Columbus	Wm. Hansen, Rexton	April 3	20,000
East Creek	Columbus	H. J. Skinner, Rexton	April 22	2,500
Laketon Creek	Columbus and Laketon	H. J. Skinner, Rexton	April 22	5,000
Two Heart Creek	McMillan	R. C. Bradley, Newberry	April 22	12,500
Cyphone Creek	Columbus	H. A. Heidebrecht, McMillan	April 22	5,000
Headwaters of Tahquamenon River	Columbus	H. A. Heidebrecht, McMillan	April 22	2,500
Mackinac county:				
Milakakia River	Newton	Guy D. Welton, Hunts Spurr	Mar. 27	7,500
Small Brevoort River	Moran	Wm. Massey, Allendale	April 22	7,500
South Branch of Carp River	Moran	J. L. McCleskey, St. Ignace	April 8	7,500
Branch of the North Branch of Carp River	Moran and Brevoort	O. C. Boynton, St. Ignace	April 8	7,500
Silver Creek	Brevoort and St. Ignace	Fred Kruger, St. Ignace	April 8	12,500
Carp River	St. Ignace and Brevoort	Fred Kruger, St. Ignace	April 8	7,500
North Branch of Carp River		Fred Kruger, St. Ignace	April 8	7,500
Manistee county:				
Bear Creek		Traverse City Fly Casting Club, Traverse City	Mar. 5	12,000
Bear Creek	Severall	F. A. Mitchell, Manistee	Mar. 13	30,000
Hatch's Creek	Cleon and Springfield	F. A. Mitchell, Manistee	Mar. 13	12,000
Pine Creek	Stronach and Brown	T. G. Trimble, Manistee	Mar. 13	10,000
Beaver Creek	Maple Grove	T. G. Trimble, Manistee	Mar. 13	6,000
Kaiser Creek	Bear Lake and Maple Grove	T. G. Trimble, Manistee	Mar. 13	6,000
Chicken Creek	Maple Grove	J. H. Werle, Bear Lake	Mar. 5	2,000
Bond's Creek	Maple Grove	J. H. Werle, Bear Lake	Mar. 5	2,000
Macomb county:				
Bair's Creek	Maple Grove	J. H. Werle, Bear Lake	Mar. 5	2,000
Cedar Creek	Springdale and Maple Grove	J. H. Werle, Bear Lake	Mar. 5	6,000
Cedar Creek	Marilla, Maple Grove and Brown	T. G. Trimble, Manistee	Mar. 13	6,000
Little Bear Creek	Bear Lake R. and G. Club, Bear Lake	Bear Lake R. and G. Club, Bear Lake	Mar. 13	6,000
Pine Creek	Springdale	Bear Lake R. and G. Club, Bear Lake	Mar. 13	2,000
Big Bear Creek	Springdale, Cleon, Maple Grove and Brown	Bear Lake R. and G. Club, Bear Lake	Mar. 13	20,000
Green's Creek	Springdale	Bear Lake R. and G. Club, Bear Lake	Mar. 13	4,000
Bowett's Creek	Pleasanton and Arcadia	Bear Lake R. and G. Club, Bear Lake	Mar. 13	4,000
Third Creek	Marilla and Cleon	Willard Smith, Copemish	Mar. 13	4,000
Johnson's Creek	Brown, Bear Lake and Onekama	Ira J. Mathews & Son, Norwalk	Mar. 13	4,000
Wilson Creek	Brown	Frank Schneider, Chief	Mar. 13	4,000
Chief Creek	Brown	Frank Schneider, Chief	Mar. 13	4,000
Rockwell Creek	Maple Grove	J. H. Werle, Bear Lake	Mar. 13	2,000
No Name	Manistee	Frank Richalski, Manistee	Mar. 13	4,000
Tributary to Bear Creek	Manistee	P. C. Chombesond, Arcadia	Mar. 13	4,000
Well's Creek	Springdale	Bear Lake R. and G. Club, Bear Lake	Mar. 13	2,000
Marquette county:				
Smith's Creek	Severall	F. Gillespie, Romeo	Feb. 28	3,000
Stony Creek	Avon	F. Gillespie, Romeo	Feb. 28	4,500
Silver Creek	Bruce	F. Gillespie, Romeo	Feb. 28	3,000
Hilton's Creek	Washington	H. W. Bradley, Romeo	Feb. 28	1,500
Hosner's Brook	Bruce	H. W. Bradley, Romeo	Feb. 28	1,500
Marquette county:				
South Branch of Wilson Creek		H. A. St. John, Marquette	April 21	5,000
Hunter's Brook		E. C. Voght, Escanaba	April 3	13,500
Little Dead River	41 and 42 R. 24	H. A. St. John, Marquette	April 21	7,500
Big Creek	Ishpeming and Ely	H. A. St. John, Marquette	April 21	7,500
West Branch of Laughing Whitefish	Marquette	H. A. St. John, Marquette	April 21	5,000
Branch of Dead River	Marquette	H. A. St. John, Marquette	April 21	10,000
Yellow Dog and branches	Marquette	H. A. St. John, Marquette	April 21	15,000
Whitefish River	Skandia	H. A. St. John, Marquette	April 21	15,000
Bear Creek	Powell	H. A. St. John, Marquette	April 21	5,000
Cherry Creek	Marquette	H. A. St. John, Marquette	April 21	7,500
Silver Creek	Marquette	H. A. St. John, Marquette	April 21	7,500
Reany Creek	Marquette	H. A. St. John, Marquette	April 21	7,500
Pickere Lake	Marquette	H. A. St. John, Marquette	April 21	5,000
Garlic River	Marquette	H. A. St. John, Marquette	April 21	5,000
Alder Creek	Powell	H. R. Harris, Marquette	April 21	12,500
Wilson Creek	Powell	H. R. Harris, Marquette	April 21	5,000
The Pup	Powell	H. R. Harris, Marquette	April 21	7,500
East Branch, tributary to Escanaba River	Forsyth	H. R. Harris, Marquette	April 21	5,000
Big West, tributary to Escanaba River	Forsyth	G. R. Jackson, Princeton	April 21	5,000
Little West, tributary to Escanaba River	Forsyth	J. R. Reighart, Princeton	April 21	5,000
Bob's Creek, tributary to Escanaba River	Forsyth	Peter Koski, Gwinn	April 21	5,000
Chandler's Brook, tributary to Escanaba River	Forsyth	Peter Koski, Gwinn	April 21	2,500
Link's Creek	Forsyth	T. I. Keltou, Princeton	April 21	2,500
Halfway Creek, tributary to Escanaba River	Forsyth	T. I. Keltou, Princeton	April 21	2,500
Silver Creek	Choccolay and Sands	J. I. Keltou, Princeton	April 21	5,000
Cherry Creek	Choccolay	W. S. Ewing, Harvey	April 21	12,500

County and name of water.	Township.	Name of depositor.	Date.	Number.
Marquette county—Con.				
Chocoley River and branches.	West Branch.	H. R. Harris, Marquette.	April 21	25,000
Green Creek, tributary to Escanaba River.	Forsyth.	G. R. Jackson, Princeton.	April 21	5,000
Bear Creek, tributary to Escanaba River.	Republic.	C. W. Munson, Republic.	May 1	2,500
Midway Creek.	Republic.	C. W. Munson, Republic.	May 1	2,500
Bear Creek.	Republic.	C. W. Munson, Republic.	May 1	5,000
Michigan River.	Republic.	C. W. Munson, Republic.	May 1	5,000
Spruce River.	Ely.	C. W. Munson, Republic.	May 1	7,500
West Branch of Escanaba River.	Humboldt and Republic.	C. W. Munson, Republic.	May 1	5,000
Black River.	Republic.	C. W. Munson, Republic.	May 1	2,500
Gramat Creek.	Humboldt and Ely.	J. D. Spitzer, Ishpeming.	May 1	7,500
West Branch of the West Branch of Escanaba.	Ishpeming.	Fred H. Berg, Ishpeming.	May 1	5,000
Deer Creek.	Several.	Geo. A. Newett, Ishpeming.	May 1	12,500
Escanaba River.	Ishpeming.	Geo. A. Newett, Ishpeming.	May 1	7,500
Wablanan's Creek.	Ishpeming.	Geo. A. Newett, Ishpeming.	May 1	7,500
Mullin's Creek.	Ishpeming and Ely.	Geo. A. Newett, Ishpeming.	May 1	7,500
Ropes Creek.	Ishpeming.	Geo. A. Newett, Ishpeming.	May 1	7,500
Deer Creek.	Negaunee.	Geo. A. Newett, Ishpeming.	May 1	7,500
Morgan Creek.	Negaunee.	Geo. A. Newett, Ishpeming.	May 1	4,000
Tributaries to Section Twenty-one Lake.	Negaunee.	Negaunee R. and G. Club, Negaunee.	May 1	5,000
Schwartz Creek.	Negaunee.	Negaunee R. and G. Club, Negaunee.	May 1	5,000
Teal Lake Inlets.	Negaunee.	Negaunee R. and G. Club, Negaunee.	May 1	2,500
Tributaries to Horseshoe Lake.	Negaunee.	Negaunee R. and G. Club, Negaunee.	May 1	2,500
Carp River.	Negaunee and Ishpeming.	Negaunee R. and G. Club, Negaunee.	May 1	7,500
Fence River.	Michigan, Ishpeming and Republic.	C. F. Sundstrom, Michigan.	May 1	5,000
Spruce River.	Michigan and Republic.	C. F. Sundstrom, Michigan.	May 1	7,500
Spruce River.	Michigan and Spurr.	Peter Dolf, Michigan.	May 1	5,000
Peshekee River.	Michigan.	E. M. Stensrud, Michigan.	May 1	5,000
Rainey Creek.	Marquette.	E. D. Mosher, Marquette.	May 10	25,000
Mason county:				
Quinn Creek.	Summit and Rushton.	C. F. Lewis, Pentwater.	Mar. 3	3,000
Nickerson Creek.	Summit and Riverton.	C. F. Lewis, Pentwater.	Mar. 3	3,000
Reicher's Creek.	Freesoil.	Dr. C. M. Spencer, Freesoil.	Mar. 6	4,500
Saubie River.	Several.	Thos. S. Stephens, Freesoil.	Mar. 6	12,000
South Lincoln River.	Victory and Sherman.	D. S. Betka, Scottville.	Mar. 6	10,500
Swan Creek.	Eden and Riverton.	D. S. Betka, Scottville.	Mar. 6	6,000
Mecosta county:				
Black Creek.	Millbrook.	Fred Phillips, Blanchard.	Mar. 8	1,500
Little Muskegon River.	Millbrook.	R. B. Tilton, Mecosta.	Mar. 8	6,000
Beachs Creek.	Morton.	F. H. Beach, Mecosta.	Mar. 8	1,500
Blodgett Creek.	Graut.	Paul Spitzer, Paris.	Mar. 22	6,000
Bamber Creek.	Sheridan.	Milo Gingrich, Remus.	Feb. 25	3,000
Tanner Creek.	Sheridan.	W. S. Laffin, Barryton.	Feb. 25	3,000
Benjamin Creek.	Sheridan.	W. S. Laffin, Barryton.	Feb. 25	3,000
	Fork.	W. S. Laffin, Barryton.	Feb. 25	3,000
	Fork.	W. S. Laffin, Barryton.	Feb. 25	3,000
	Fork.	W. S. Laffin, Barryton.	Feb. 25	3,000
	Hinton.	Andy Helms, Morley.	Feb. 17	4,500
	Derfield.	Ira Helms, Morley.	Feb. 17	4,500
	Colfax.	W. H. Redman, Big Rapids.	Feb. 19	9,000
	Deerfield.	Isaac Laird, Morley.	Feb. 6	3,000
	Millbrook.	Geo. A. Colgrove, Remus.	Feb. 8	3,000
	Wheatland and Sherman.	T. O. Pattison, Millbrook.	Feb. 8	18,000
	Morton.	Geo. Colgrove, Remus.	Feb. 8	3,000
	Hinton.	F. H. Beach, Mecosta.	Feb. 8	3,000
	Morton and Martiny.	M. Carmen, Mecosta.	Feb. 8	4,500
	Hinton.	Ray Carman, Mecosta.	Feb. 8	3,000
	Morton.	F. O. Redick, Mecosta.	Feb. 8	3,000
Menominee county:				
Holmes Creek.	Holmes.	Martin Farrel, Faithorn.	Mar. 27	5,000
East Branch of Shaky River.	Holmes and Stephenson.	F. H. Schmidt, Swanson.	Mar. 27	10,000
Ten Mile Creek.	Harris and Spaulding.	Clarence Frezatts, La Blanche.	Mar. 27	10,000
Hay Creek.	Spaulding.	Irving Bruin, Powers.	Mar. 27	5,000
Quade Creek.	Spaulding.	Chas. J. Quade, Powers.	Mar. 27	12,500
Wheeler Creek.	Spaulding.	B. Wheeler, Powers.	Mar. 27	7,500
Spaulding Cedar River.	Spaulding.	B. Wheeler, Powers.	Mar. 27	7,500
Big Brook.	Stephenson.	C. G. Walton, Daggett.	Mar. 27	5,000
Durkman's Creek.	Spaulding.	Johnson Kell, Daggett.	Mar. 27	5,000
Reed's Creek.	Spaulding.	Ed. Ehrns, Daggett.	Mar. 27	5,000
Hay Creek.	Holmes.	Geo. Kroehke, Vulcan.	Mar. 27	5,000
West Branch Ellwood Creek.	Stephenson.	Chas. C. Durrow, Stephenson.	Mar. 27	7,500
Little Trout Creek.	Harris and Spaulding.	Clarence Frezatts, La Blanche.	Mar. 27	10,000
Montmorency county:				
Royston Creek.	Montmorency.	Wm. A. Cannon, Royston.	Mar. 10	6,000
Thunder Bay River tributaries.	Hillman.	Austin Rea, Hillman.	Mar. 10	10,000
Sucker Creek.	Hillman.	Austin Rea, Hillman.	Mar. 10	4,000
Bullock Creek.	Rust 29-4 E.	W. E. Carr, Alpena.	Mar. 18	4,500
Hunt Creek.	Albert and Rust.	Geo. Sachs, Lewiston.	Feb. 17	6,000
Sheridan Creek.	Albert.	Geo. Sachs, Lewiston.	Feb. 17	4,000
Montcalm county:				
Black Creek.	Belvidere and Millbrook.	Roswell Fleck, Six Lakes.	Mar. 8	3,000
Middle Branch of Fish Creek.	Douglas.	Robt. Evans, Fishville.	Mar. 8	6,000
Cedar Creek.	Douglas.	C. B. Rarden, Stanton.	Mar. 8	3,000
Bachman Creek.	Douglas.	C. B. Rarden, Stanton.	Mar. 8	3,000
Fish Creek.	Ferris.	C. B. Rarden, Stanton.	Mar. 8	3,000
West Branch of Fish Creek.	Douglas.	C. B. Rarden, Stanton.	Mar. 8	3,000
Hooker Creek.	Day.	Geo. E. Dakin, Stanton.	Mar. 8	3,000
Deer's Creek.	Bushnell.	Freeman Taylor, Sheridan.	Mar. 8	3,000
Bennet Creek.	Bushnell.	Geo. Kast, Fenwick.	Mar. 8	3,000
Hunter's Creek.	Bushnell.	H. Edwards, Fenwick.	Mar. 8	1,500
Prairie Creek.	Bushnell.	B. L. Goodsell, Vickeryville.	Mar. 8	7,500
Channel Creek.	Belvidere.	Mrs. Sarah Randall, Edmore.	Mar. 8	1,500
South Branch Pine River.	Richland.	F. E. Curtis, Edmore.	Mar. 8	7,500
Sackett's Creek.	Home.	F. E. Curtis, Edmore.	Mar. 8	4,500

TWENTY-FIRST REPORT—STATE FISHERIES.

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County and name of water.	Township.	Name of depositor.	Date.	Number.
Montcalm county—Con.:				
Wolf Creek	Highland and Home	F. E. Curtis, Edmore	Mar. 8	7,500
South Branch Pine River	Richland and Home	M. J. Briggs, Vestaburg	Mar. 8	4,500
Inlet to Mud Lake	Ferris	Alfred Johnson, Riverdale	Mar. 8	1,000
Chapin Creek	Ferris	J. W. Johnson, Elmhall	Mar. 8	3,000
Inlet to Muscallonge Lake	Maple Valley	Jensen Bros., Trufant	Mar. 8	3,000
Horton Creek	Montcalm	Henry Paulson, Gowen	Mar. 8	1,500
Horton Creek	Montcalm	Geo. C. Bower, Greenville	Mar. 8	1,500
Grant Creek	Pierson	John B. Grant, Sand Lake	Mar. 8	3,000
Berridge's Creek	Fairplains	E. A. Kemp, Greenville	Mar. 8	1,500
Tank Lake Creek	Montcalm	E. A. Kemp, Greenville	Mar. 8	3,000
Black Creek	Severel	F. E. Shattuck, Sand Lake	Mar. 17	10,500
Whitefish Creek	Reynolds	J. G. Buck, Howard City	Mar. 15	3,000
Ryan Creek	Croton	W. H. Lovely, Howard City	Mar. 15	3,000
Little Mnskegon River	Reynolds	W. H. Lovely, Howard City	Mar. 15	6,000
Rice Creek	Pierson and Reynolds	W. H. Lovely, Howard City	Mar. 15	3,000
Handy and Fosai Creeks	Winfield and Reynolds	W. H. Lovely, Howard City	Mar. 15	6,000
Bruce Creek	Winfield	Grant V. Fulms, Howard City	Mar. 15	6,000
Chnrch Creek	Winfield	J. A. Collins, Howard City	Mar. 15	3,000
Indian Creek	Reynolds	Wm. H. Collins, Howard City	Mar. 15	3,000
Missaukee county:				
Hopkins Creek	Forest and Caldwell	Chas. Luce, Lake City	Feb. 27	6,000
Taylor Creek	Liberty and Caldwell	Frank Stanford, Lake City	Feb. 27	4,000
Chase Creek	Caldwell	Chas. H. Bostick, Manton	Mar. 15	4,500
Morse Creek	Caldwell	Chas. H. Bostick, Manton	Mar. 15	4,500
Golden Creek	Caldwell and Bloomfield	Chas. H. Bostick, Manton	Mar. 15	3,000
Hopkins Creek	Lake and Reeder	Riley Hull, Lake City	Mar. 15	7,500
Clam River	Caldwell, Bloomingdale and others	C. W. McBride, Lake City	Mar. 15	8,000
Filer Creek	Bloomfield	Fred Rose, Lake City	Mar. 15	6,000
Hain Creek	Pioneer	Warren Jones, Lake City	Mar. 15	2,000
Little Carman Creek	Forest and Branch	Warren Jones, Lake City	Mar. 15	2,000
Willow Creek	Butterfield	F. D. McGregor, Lake City	Mar. 15	8,000
West Branch Muskegon River	Riverside, Clam and Union	B. M. Grice, Lake City	Mar. 15	4,000
Stick Creek	Reeder	Arthur M. Smith, Lake City	Mar. 15	6,000
Mosquito Creek	Reeder	E. A. Benthien, Lake City	Mar. 15	2,000
Home Creek	Reeder	C. Milligan, Lake City	Mar. 15	2,000
Little Butterfield Creek	Clam and Union	Hiram Schepers, Vogel Center	Mar. 18	3,000
No Name	Riverside and others	Hon. C. A. Bratt, South Boardman	Mar. 18	12,000
Clam River	Clam and Union	Hiram Schepers, Vogel Center	Mar. 18	3,000
Cranberry Creek	Clam and Union	Hon. C. A. Bratt, South Boardman	Mar. 18	12,000
Muskegon county:				
Lamford Creek	Montague	Chas. Howel, Montague	Mar. 3	3,000
Miller Creek	Casnovia and Ashland	A. Miller, Bailey	Mar. 5	1,500
Comstock Creek	Casnovia	C. L. Gold, Bailey	Mar. 5	3,000
Lake Creek	Casnovia	Theo. W. Owen, Bailey	Mar. 5	4,500

TWENTY-FIRST REPORT—STATE FISHERIES.

Cedar Creek	Holtan and Cedar	E. D. Magoon, Muskegon	Mar. 20	7,500
Mud Creek	Blue Lake	Richard Hall, Montague	Mar. 3	3,000
Cranberry Creek	Ravenna	Geo. K. Hermit, Ravenna	Mar. 3	3,000
Olson Creek	Montague	Elden Tallans, Montague	Mar. 3	3,000
Coon Creek	Montague	Leo Keopl, Montague	Mar. 3	3,000
Reo Grande River	Ravenna	W. A. Bartholomew, Montague	Mar. 3	3,000
Silver Creek	Muskegon	J. W. Steffe, Whitehall	Mar. 3	3,000
Wild Cat Creek	Fruitland	J. W. Steffe, Whitehall	Mar. 20	4,500
Berlins Creek	Whitehall	J. W. Steffe, Whitehall	Mar. 20	1,500
Titatute Creek	Ravenna	A. H. Moore, Whitehall	Mar. 20	1,500
Morris Creek	Sullivan	F. Scheringer, Sullivan	Mar. 3	1,500
Morris Creek	Ravenna, Sullivan and Fruitland	F. Scheringer, Sullivan	Mar. 3	4,500
Cleveland Creek	Blue Lake	E. D. Magoon, Muskegon	Mar. 3	7,500
Big Black Creek	Muskegon	E. D. Magoon, Muskegon	Mar. 3	9,000
Silver Creek	Blue Lake and Mitchell	E. D. Magoon, Muskegon	Mar. 3	7,500
Ryerson Creek	Muskegon	E. D. Magoon, Muskegon	Mar. 3	4,500
Little Black Creek	Muskegon	E. D. Magoon, Muskegon	Mar. 3	3,000
Mosquito Creek	Muskegon	E. D. Magoon, Muskegon	Mar. 3	4,500
Green's Creek	Eggleston	E. D. Magoon, Muskegon	Mar. 3	6,000
Klett's Stream	Fruitland and Laketon	E. D. Magoon, Muskegon	Mar. 3	4,500
Smith's Creek	Montague	C. C. Smith, Montague	Mar. 3	3,000
Sand Creek	Montague	Wm. Paulie, Montague	Mar. 3	3,000
Carleton Creek	Grant and Montague	Allen J. Casselman, Montague	Mar. 3	3,000
Flower Creek	Grant and Montague	Allen J. Casselman, Montague	Mar. 3	9,000
Carleton Creek	White River	J. B. Aveline, Montague	Mar. 3	6,000
Little Flower Creek	White River	Paul G. Kling, Montague	Mar. 3	4,500
Mill Creek	White River	Will Lacombe, Jr., Montague	Mar. 3	6,000
Big Flower Creek	Montague	Carl N. Cashal, Montague	Mar. 3	3,000
Cedar Creek	Severel	Chas. Hansen, Montague	Mar. 3	3,000
Newaygo county:				
Brown Creek	Hilton and Cedar Creek	H. A. O'Connor, Holtan	Mar. 3	4,500
Foxville Creek	Big Prairie and Croton	C. Sixby, Newaygo	Mar. 19	4,500
Norton Creek	Monroe	J. W. Orth, Woodville	Mar. 3	1,500
Engleright Creek	Goodwell	Glenn Bullman, Woodville	Mar. 3	4,500
Isehant Creek	Ensley	Ed. Strayer, Sand Lake	Mar. 3	1,500
Ashland Creek	Ashland	C. L. Gold, Bailey	Mar. 5	1,500
Post's Baroum, Barnman and Isehant Creeks	Ashland and Casnovia	C. L. Gold, Bailey	Mar. 5	1,500
Tank Creek	Grant and Ashland	Allen J. Titus, Grant	Mar. 5	1,500
South Braoch P. M. River	Lilley	P. Christiansen, Bitely	Mar. 5	6,000
Clay Creek	Lilley	P. Christiansen, Bitely	Mar. 5	6,000
Big Brooks	Grant	P. Christiansen, Bitely	Mar. 5	4,000
Biglow and Coolbrough Creeks	Brooks	M. H. Whitmore, Newaygo	Mar. 5	10,000
Penoyer Creek	Brooks and East	M. H. Whitmore, Newaygo	Mar. 5	3,000
White River	Brooks and East	S. D. Thompson, Newaygo	Mar. 5	3,000
Flinton Creek	Wilcox and Lincoln	S. D. Thompson, Newaygo	Mar. 5	9,000
Mulren Creek	Everett and Wilcox	Branch Bros., White Cloud	Mar. 5	4,500
Five Mile Creek	Wilcox	Branch Bros., White Cloud	Mar. 5	16,000
Mullen Creek	Wilcox	Branch Bros., White Cloud	Mar. 5	6,000
Schott Creek	Wilcox	Branch Bros., White Cloud	Mar. 5	4,500
Mattison Creek	Lincoln	R. C. Ensley, Fremont	Mar. 5	4,500
White River	Wilcox	Fred Schott, White Cloud	Mar. 5	3,000
Kinney Creek	Wilcox	Geo. E. Whitman, Newaygo	Mar. 5	1,500
Little South Branch of P. M. River	Monroe	W. D. Hopkinson, Big Rapids	Mar. 5	9,000
	Home	Wm. Kimball, White Cloud	Mar. 5	3,000
		Michigan Fish Commission	Feb. 18	40,000

TWENTY-FIRST REPORT—STATE FISHERIES.

County and name of water.	Township.	Name of depositor.	Date.	Number.
Ontonagon county:				
Firesteel River	51-52	H. W. Grams, Houghton	May 4	12,500
West Branch Misery River	Elm River	F. R. Bolles, Houghton	May 4	7,500
McGinty Creek		C. C. Ellsworth, Watersmeet	Mar. 28	7,500
Bingham Creek	Matchwood	L. L. Wright, Gogebic	April 4	9,000
Bonifas Creek	Carlson	E. L. Neman, Bonifas	April 25	2,500
No Name	Carlson and Knight	J. Kauffman, Bonifas	April 25	2,500
Davey's Creek	Rockland	John Kahn, Rockland	May 1	3,000
Clear Creek	Rockland	John Kahn, Rockland	May 1	3,000
Spring Creek	Rockland	W. P. Vogtlin, Rockland	May 1	2,500
Vogtlin Creek	Rockland	W. P. Vogtlin, Rockland	May 1	3,000
Trout Creek	Interior	O. H. Losey, Trout Creek	May 1	5,000
Pine Creek	Haight	P. J. Taylor, Roselawn	May 1	2,500
Trackert's Creek	Stannard	C. S. Brown, Bruce's Crossing	May 1	2,500
The Baltimore	Severel	J. N. Howlett, Bruce's Crossing	May 1	5,000
Clear Creek	Stannard and Haight	L. G. Steusser, Bruce's Crossing	May 1	5,000
Silver Creek	Stannard and Haight	Alex. Turner, Bruce's Crossing	May 1	2,500
Preger Creek	Stannard and Haight	Lewis Johnson, Bruce's Crossing	May 1	2,500
Oakland county:				
Sherwood Creek	Milford	H. A. Stephens, Milford	Mar. 13	1,500
Field Creek	Commerce	H. A. Stephens, Milford	Mar. 13	3,000
Paint Creek and tributaries	Avon and Oakland	W. C. Chapman, Rochester	Feb. 22	6,000
Oceana county:				
Clark's Lake	Leavitt	I. C. Manning, Walkerville	Mar. 3	3,000
Hobby Creek	Shelby and Benona	C. E. Ellis, Shelby	Mar. 3	4,500
Swinton Creek	Ferry and Elbridge	Dell Swinton, Shelby	Mar. 3	4,500
Sand Creek	Otto	Adam Born, Montague	Mar. 3	4,500
Carleton Creek	Montague and Rothbury	John Rutledge, Montague	Mar. 3	7,500
Charlton Creek	Grant	Frank P. Monroe, Rothbury	Mar. 3	7,500
Little Carleton Creek		Chas. Howell, Montague	Mar. 3	1,500
Faber Creek	Ferry	Dell Swinton, Shelby	Mar. 3	3,000
North Branch Beaver Creek	Leavitt	I. C. Manning, Walkerville	Mar. 3	3,000
Tributary to Beaver Creek	Leavitt	E. L. Bunting, Walkerville	Mar. 3	3,000
Freeman Creek	Colfax	E. L. Bunting, Walkerville	Mar. 3	3,000
Tributary to Beaver Creek	Colfax	E. L. Bunting, Walkerville	Mar. 3	1,500
Tributary to Beaver Creek	Colfax	E. L. Bunting, Walkerville	Mar. 3	1,500
Shigley's Creek	Hart	W. R. Roach, Hart	Mar. 3	19,500
Duman Creek	Weare	C. F. Lewis, Pentwater	Mar. 3	3,000
Webb Creek	Weare and Hart	C. F. Lewis, Pentwater	Mar. 3	3,000
Amily Creek	Weare	C. F. Lewis, Pentwater	Mar. 3	1,500
Mears Creek	Weare	C. F. Lewis, Pentwater	Mar. 3	1,500
South Branch Central Lake	Weare and Crystal	C. F. Lewis, Pentwater	Mar. 3	4,500
South Branch of Cedar Creek	Weare and Crystal	C. F. Lewis, Pentwater	Mar. 3	3,000
Crystal Creek	Weare and Crystal	C. F. Lewis, Pentwater	Mar. 3	3,000
Cedar Creek	Weare and Crystal	C. F. Lewis, Pentwater	Mar. 3	4,000
Oscoda county:				
Upper South Branch of Thunder Bay		J. D. Hawks, Detroit	Mar. 18	54,000
Middle Branch		Geo. F. Sachs, Lewiston	Feb. 17	10,000
East Branch		Geo. F. Sachs, Lewiston	Feb. 17	12,000
Otsego county:				
Pigeon River	Elmerton			
Sturgeon River	31, 32, 33, 34, 1 and 2 W.	D. M. Sly, Vanderbilt	Mar. 26	10,000
North Branch of Upper Au Sable Upper Waters	32 N. 2 W.	D. M. Sly, Vanderbilt	Mar. 26	30,000
	Chester	Arnold Boutill, Saginaw	Feb. 17	36,000
Osceola county:				
Twin Creek	Evart, Osceola and Cedar	Wm. Ramsey, Evart	Feb. 21	6,000
Cat Creek	Hersey	L. A. Moody, Evart	Feb. 21	4,500
Follock Creek	Hersey	Frank Proctor, Hersey	Feb. 21	1,500
Dueslers Creek	Hersey	Lewis Woodward, Hersey	Feb. 21	3,000
Hersey Creek	Hersey	Fred Jacobi, Hersey	Feb. 21	6,000
Coe Creek	Burdell and Dover	J. M. Perry, Tustin	Mar. 14	4,500
McGovern Creek	Burdell	E. Pullman, Tustin	Mar. 14	3,000
Johnson's Creek	Burdell	E. Pullman, Tustin	Mar. 14	4,500
Myer's Creek	Burdell	T. F. Pettie, Tustin	Mar. 14	1,500
Edgett's Creek	Burdell	W. M. Budge, Tustin	Mar. 14	4,500
Beaver Creek	Burdell	G. A. Swanson, Tustin	Mar. 14	3,000
Hoover Creek	Burdell	W. C. Kidder, Tustin	Mar. 14	1,500
Nigger Creek	Burdell	E. Harmer, Tustin	Mar. 14	6,000
Watson's Creek	Sherman and Burdell	J. J. Rainey, Tustin	Mar. 14	4,500
East Branch of Hersey Creek	Lincoln	J. W. Patterson, Reed City	Mar. 15	6,000
Headwaters of Middle P. M. River		W. J. Cornell, Reed City	Mar. 15	15,000
Baker Creek	Leroy	W. J. Cornell, Reed City	Mar. 15	6,000
Beaver Creek	Richmond	Geo. W. Kellogg, Leroy	Mar. 15	7,500
Hersey River	Hersey	Wm. Foist, Reed City	Mar. 15	7,500
Two Mile Creek	Richmond	Carl McKinley, Hersey	Feb. 21	6,000
Sweet Creek	Hersey	Henry Foist, Reed City	Feb. 21	1,500
Cat Creek	Hersey	Clark Rawson, Hersey	Feb. 21	3,000
Grindstone Creek	Sylvan	C. W. Foster, Evart	Feb. 21	4,500
Frantz Creek	Highland	C. W. Graves, Dighton	Mar. 1	6,000
Middle Branch of Muskegon	Highland or Marion	C. W. Graves, Dighton	Mar. 1	20,000
Highland Creek	Highland	C. W. Graves, Dighton	Mar. 1	6,000
West Branch of Clam River	Marion and Winterfield	Chas. Sanford, Marion	Mar. 12	6,000
Highland Creek	Highland	Geo. Baird, Marion	Mar. 22	4,500
Presque Isle county:				
Rogers Creek	North Allis	J. M. Clark, Onaway	Mar. 18	1,500
Stony Creek	North Allis and Allis	J. M. Clark, Onaway	Mar. 18	4,500
Main Rainy River	Allis	J. M. Clark, Onaway	Mar. 18	6,000
Little Rainy River	Allis	J. M. Clark, Onaway	Mar. 18	3,000
East Branch Rainey River	Allis and Forest	J. M. Clark, Onaway	Mar. 18	3,000
Gray's Creek	Metz	H. Horwitz, Hawks	Mar. 18	1,500
No Name	Bismarck and Belknap	H. Horwitz, Hawks	Mar. 18	3,000
Tributary to Ooqueoc River	Metz	H. Horwitz, Hawks	Mar. 18	3,000
Queen Creek	Metz T. 33 N. R. 5 E.	Theo. C. Hardies, Metz	Mar. 18	6,000

County and name of water.	Township.	Name of depositor.	Date.	Number.
Roscommon county: Robinson Creek.....	Higgins.....	W. H. Phelps, Highland Park.....	Mar. 26	6,000
Schoolcraft county: Stutt's Creek.....	Harrietta and Harrison.....	Benj. Gero, Manistique.....	April 3	27,000
Main Fox River.....	Several.....	John Johnson, Seney.....	April 22	5,000
West Branch Fox River.....	Seney.....	Chas. Duval, Seney.....	April 22	2,500
Fox River.....	Seney.....	E. A. Grandin, Seney.....	April 22	2,500
No Name.....	Seney.....	Philip Grandin, Seney.....	April 22	2,500
Clear Creek.....	Seney.....	Michael Ryan, Seney.....	April 22	5,000
East Branch of Fox Creek.....	Seney.....	R. E. Dahlbury, Seney.....	April 22	2,500
Clear Creek.....	Seney.....	John C. Grandin, Seney.....	April 22	2,500
St. Joseph county: Zitties Creek.....	Fabius.....	Chas. T. Mallo, Three Rivers.....	Feb. 24	1,500
No Name.....	Fabius.....	C. R. Johnson, Three Rivers.....	Mar. 22	3,000
Gemberling Creek.....	Fabius.....	Warren Klocke, Three Rivers.....	Feb. 24	1,500
No Name.....	Lockport.....	Perry L. Turner, Elkhart.....	Feb. 24	1,500
Spring Creek.....	Lockport.....	Amon Ives, Three Rivers.....	Feb. 24	1,500
Shermie's Creek.....	Lockport.....	Amon Ives, Three Rivers.....	Feb. 24	1,500
Sanilac county: Lewis or Brngess Lake.....	Sanilac.....	Geo. A. Burgess, Port Sanilac.....	Feb. 22	3,000
Tuscola county: Chapel Creek.....	Jnanita.....	Wm. Vandecar, Caro.....	Feb. 22	3,000
Van Buren county: Campbell's Creek.....	Alamo.....	J. H. Sligar, Kalamazoo.....	Mar. 10	4,500
Scott's Creek.....	Waverly.....	Waite L. Scott, Bloomingdale.....	Feb. 26	1,500
Spice Bush Creek.....	Geneva, Lee and Casco.....	J. A. Gibson, Lacota.....	Feb. 26	4,500
No Name.....	.....	G. E. M. Pratt, Coloma.....	Feb. 28	3,000
Lake Creek.....	.....	G. J. Shand, Kalamazoo.....	Feb. 28	1,500
Bagles Creek.....	.....	Claud Crest, St. Joseph.....	Feb. 28	1,500
Sawmill Creek.....	.....	G. J. Shand, Kalamazoo.....	Feb. 21	1,500
Hall Spring Brook.....	Almena.....	Wm. Monday, Kalamazoo.....	Feb. 21	4,500
Williams Creek.....	Almena.....	David W. Osborne, Kalamazoo.....	Feb. 21	3,000
Washtenaw county: Williams Creek.....	Manchester and Shannon.....	Wm. Stoneway, Manchester.....	Feb. 26	3,000
Iron Creek.....	Manchester.....	A. J. Waters, Manchester.....	Feb. 26	4,500
Young's Creek.....	Lyndon.....	Dr. I. T. Clark, Jackson.....	Feb. 26	1,500
No Name.....	Lyndon.....	Dr. I. T. Clark, Jackson.....	Feb. 26	3,000
Clark's Creek.....	Lyndon.....	Dr. I. T. Clark, Jackson.....	Feb. 26	1,500
Green's Creek.....	Lyndon.....	Dr. I. T. Clark, Jackson.....	Feb. 26	1,500

TWENTY-FIRST REPORT—STATE FISHERIES.

Van Buren county: Campbell's Creek.....	Van Buren and Ypsilanti.....	Lnman Seamans, Belleville.....	Mar. 26	8,000
Van Buren county: Silver Creek.....	Greenwood.....	Kingsley Sportsmen's Club, Kingsley.....	Mar. 14	6,000
Big Filer Creek.....	Greenwood.....	Kingsley Sportsmen's Club, Kingsley.....	Mar. 14	4,500
Buttermilk Creek.....	Greenwood.....	Kingsley Sportsmen's Club, Kingsley.....	Mar. 14	6,000
Filer Creek.....	Greenwood.....	C. H. Tyler, Manton.....	Mar. 15	6,000
Uwék Creek.....	Greenwood.....	C. H. Tyler, Manton.....	Mar. 15	4,500
No Name.....	Hanover.....	W. M. Spidell, Manton.....	Mar. 15	3,000
Underground Creek.....	Hanover.....	W. Rozell, Manton.....	Mar. 15	4,500
Soper Creek.....	Greenwood and Colfax.....	Henry Briggs, Summit City.....	Mar. 15	4,500
Whitmore Creek.....	Greenwood.....	Henry Briggs, Summit City.....	Mar. 15	4,500
Taylor Creek.....	Greenwood and Hanover.....	Samuel Boyd, Summit City.....	Mar. 14	4,500
Cedar Creek.....	Liberty.....	Chas. H. Bostick, Summit City.....	Mar. 14	1,500
Slagle River.....	Liberty and Cedar Creek.....	Chas. H. Bostick, Summit City.....	Mar. 14	1,500
Bear Creek.....	Boon and Wexford.....	Chas. H. Bostick, Summit City.....	Mar. 14	6,000
Clam River.....	Slagle.....	Harvey McCreary, Harrietta.....	Mar. 26	15,000
Slagle River.....	Lake.....	C. W. Barry, Harrietta.....	April 2	9,000
Bear Creek.....	Boon.....	Chas. Peterson, Lucas.....	Mar. 18	9,000
	Slagle.....	D. W. Sperbeck, Harrietta.....	Mar. 28	25,000
		Michigan Fish Commission, Detroit.....	April 2	3,000
Total.....				6,508,000

TWENTY-FIRST REPORT—STATE FISHERIES.

RAINBOW TROUT PLANTS, 1913.

FRY AND ADVANCED FRY.

County and name of water.	Township.	Name of depositor.	Date.	Number.
Alger county:				
Kill Buck River.....	Burt.....	Chas. F. Hickok, Grand Marais.....	June 7	5,000
Robda River.....	Burt.....	Chas. F. Hickok, Grand Marais.....	June 7	5,000
Alpena county:				
Wolf Creek.....	Ossineke.....	Dr. J. L. Jackson, Alpena.....	June 4	12,000
Upper South Branch Thunder Bay River, also River South.....		Hon. R. H. Rayburn, Alpena.....	June 4	32,000
Beaver Lake Inlets.....		H. W. Smith, Spratt.....	June 4	8,000
Allegan county:				
Inlets to Gun Lake.....		Hon. F. Chamberlain, Wayland.....	June 4	10,000
Antrim county:				
Inlets to Rainbow Lake.....	Mancelona.....	P. A. Doyle, Mancelona.....	June 19	6,000
Arenac county:				
Mansfield Creek.....	Clayton.....	Henry Zeran, Prescott.....	June 4	6,000
Baraga county:				
Small Branch Sturgeon River.....	Baraga.....	I. N. Haas, Houghton.....	June 17	5,000
Sturgeon River.....	Laird.....	Chas. A. Mills, Houghton.....	June 17	12,500
Small Branch of Sturgeon River.....	Baraga.....	Jno. C. Pryor, Houghton.....	June 17	5,000
Clear Creek.....	Baraga.....	H. L. Swift, Houghton.....	June 17	5,000
Sterks Creek.....	L'Anse.....	Silver River R. and G. Club, J. J. O'Connor, Pres., L'Anse.....	June 17	10,000
Three Lakes Outlet.....	Spurr.....	Peter Trudell, Jr., Negaunee.....	June 17	2,500
McDonald Creek.....	Spurr.....	Peter Trudell, Jr., Negaunee.....	June 17	2,500
Canal Creek.....	Spurr.....	Peter Trudell, Jr., Negaunee.....	June 17	2,500
Nestoria Creek.....	Spurr.....	Peter Trudell, Jr., Negaunee.....	June 17	2,500
Cliff Creek.....	Spurr.....	Peter Trudell, Jr., Negaunee.....	June 17	2,500
Benzie county:				
Crystal Lake Inlet.....	Benzois.....	David E. Burns, Beulah.....	June 20	10,000
Barry county:				
Adam Lake Creek.....	Prairieville.....	Fay Nichols, Doster.....	June 21	4,000
Berrien county:				
Jackaway Creek.....	Buchanan and Oronoko.....	Jas. E. Scott, Buchanan.....	June 3	4,000
McCoy's Creek.....	Buchanan and Bertrand.....	Jas. E. Scott, Buchanan.....	June 3	4,000
Sampson Creek.....	Buchanan and Bertrand.....	Jas. E. Scott, Buchanan.....	June 3	4,000
Wilson Creek.....	Oronoko.....	J. G. Murdock, Berrien Springs.....	June 3	4,000
Gray Creek.....	Oronoko.....	J. G. Murdock, Berrien Springs.....	June 3	4,000

TWENTY-FIRST REPORT—STATE FISHERIES.

Townsend Creek.....	Berrien.....	J. G. Murdock, Berrien Springs.....	June 3	4,000
Leman Creek.....	Oronoko.....	Ed. A. Gast, St. Joseph.....	June 20	6,000
Pipestone Creek.....	Bainbridge.....	Ed. A. Gast, St. Joseph.....	June 20	6,000
Yellow Creek.....	Royalton.....	Claud H. Chrest, St. Joseph.....	June 20	4,000
Edeson Creek.....		Claud H. Chrest, St. Joseph.....	June 20	2,000
Crystal Springs Creek.....	Benton.....	Claud H. Chrest, St. Joseph.....	June 20	2,000
Hickory Creek.....	St. Joseph.....	A. F. Herring, St. Joseph.....	June 20	8,000
Tributaries to St. Joseph River.....	Severall.....	A. F. Herring, St. Joseph.....	June 20	8,000
Love Creek.....	Berrien.....	A. F. Herring, St. Joseph.....	June 20	4,000
Foot Palm Creek.....	Berrien.....	A. F. Herring, St. Joseph.....	June 20	4,000
Loree Creek.....	Oronoko.....	A. F. Herring, St. Joseph.....	June 20	4,000
Branch county:				
Coldwater River.....	Quincy, etc.....	A. F. Herring, St. Joseph.....	June 16	8,000
Spencer Brook.....	Sherwood.....	Leo E. Wood, Athens.....	June 3	2,000
Cass county:				
Glenwood Creek.....	Wayne.....	Fred Phillips, Dowagiac.....	June 3	2,000
Hampton Creek.....	Wayne.....	Fred Phillips, Dowagiac.....	June 3	2,000
Hampton Creek.....	Wayne.....	Fred Phillips, Dowagiac.....	June 3	2,000
Pine Lake Creek.....	Wayne and Silver Creek.....	Fred Phillips, Dowagiac.....	June 3	2,000
Carmen Creek.....	Wayne.....	Fred Phillips, Dowagiac.....	June 3	2,000
Broadhurst Creek.....	Wayne.....	Fred Phillips, Dowagiac.....	June 3	2,000
Tryon Creek.....	Wayne and Silver Creek.....	Fred Phillips, Dowagiac.....	June 3	2,000
Kenny Creek.....	Wayne.....	Fred Phillips, Dowagiac.....	June 3	2,000
Gage Creek.....	Wayne.....	Fred Phillips, Dowagiac.....	June 3	2,000
Hatch Creek.....	Wayne.....	Fred Phillips, Dowagiac.....	June 3	2,000
Ireland Creek.....	Silver Creek.....	Fred Phillips, Dowagiac.....	June 3	2,000
McOmber Creek.....	Silver Creek.....	Fred Phillips, Dowagiac.....	June 3	2,000
Lyle Creek.....	Silver Creek.....	Fred Phillips, Dowagiac.....	June 3	2,000
Silver Creek.....	Silver Creek.....	Fred Phillips, Dowagiac.....	June 3	2,000
South Branch Dowagiac Creek.....	Severall.....	Fred Phillips, Dowagiac.....	June 3	8,000
Little Dowagiac Creek.....	Severall.....	Fred Phillips, Dowagiac.....	June 3	8,000
Miller Creek.....	Pokagon.....	Fred Phillips, Dowagiac.....	June 3	2,000
Pokagon Creek.....	Pokagon.....	Fred Phillips, Dowagiac.....	June 3	4,000
Big Dowagiac Creek.....	Severall.....	Fred Phillips, Dowagiac.....	June 3	8,000
Kenzie Creek.....	Jefferson.....	Fred Phillips, Dowagiac.....	June 3	2,000
Peavine Creek.....	Pokagon.....	Fred Phillips, Dowagiac.....	June 3	2,000
Conklin Stream.....	Mostly Marcellus.....	B. F. Mickel, Marcellus.....	June 3	4,000
Spring Run.....	Marcellus.....	A. L. Maxam, Marcellus.....	June 3	2,000
Centennial Mill Pond.....	L. Grange and Jefferson.....	C. H. Kimmerle, Cassopolis.....	June 3	4,000
Shaw Creek.....	Jefferson and Howard.....	C. H. Kimmerle, Cassopolis.....	June 3	6,000
Calhoun county:				
Wilder Creek.....	Merengo.....	W. J. Clayborne, Marshall.....	June 3	6,000
Rice Creek.....	Marshall.....	W. J. Clayborne, Marshall.....	June 3	10,000
Bascou Creek.....	Severall.....	W. A. Skellioger, Battle Creek.....	June 3	8,000
Nottawa Creek.....	Athens and Newton.....	F. G. Woodruff, Athens.....	June 3	4,000
Charlevoix county:				
Inlets to Pige Lake.....		Hon. Fred W. Mayne, Charlevoix.....	June 18	10,000

TWENTY-FIRST REPORT—STATE FISHERIES.

County and name of water.	Township.	Name of depositor.	Date.	Number.
Chiboygan county:				
West Branch Big Sturgeon River	Tuscarora	Clyde Kiog, Indian River	May 31	20,000
Sturgeon River		F. E. Martin, Indian River	May 31	20,000
Chippewa county:				
Little Munuskong River	Pickford	Dr. J. A. Cameron, Pickford	June 3	12,500
St. Mary's River at Falls	Several	Michigan Fish Commission, Detroit	June 2	40,000
Clare county:				
Crooked Lake Creek	Garfield	Wm. Scott, Lake	June 4	8,000
Middle Branch	Arthur and Hation	E. A. Anderson, Clare	June 4	8,000
Tobacco River above Clare Dam	Surrey and Grant	A. T. Stevens, Clare	June 4	8,000
Lowery Creek	Grant	Wm. Lange, Clare	June 4	4,000
Clinton county:				
School Creek	Esser	H. M. Fan, Maple Rapids	June 19	4,000
Little Maple River	Ovid and Victor	J. D. Cleveland, Shepardsville	June 19	10,000
Delta county:				
Portage Creek and Cedar Brook	Ford River and Wells	Timothy Killian, Escanaba	June 6	10,000
Dickinson county:				
Hamilton Creek	Waucedah	Dan Vanitvelt, Waucedah	June 13	2,500
Pine Creek	Waucedah	Herman Vielmette, Loreto	June 13	7,500
Ford River	Sagola	W. T. Stevens, Channing	June 10	12,500
Outlet of Sawyer Lake	Sagola	R. E. Boll, Channing	June 10	2,500
Headwaters of Ford River	Sagola	R. E. Boll, Channing	June 13	12,500
Squaw Creek	Sagola	J. T. Dunwoodie, Channing	June 13	5,000
Michigan River	Sagola	J. T. Dunwoodie, Channing	June 13	10,000
Five Mile Creek	Sagola	Rolland Ames, Channing	June 13	7,500
Ford River	Dickinson	W. W. Pritchard, Channing	June 13	12,500
Waterworks Creek	Norway	Wm. H. Weber, Norway	June 13	2,500
Eaton county:				
Sandstone Creek	Oneida	Fred L. Berry, Grand Ledge	June 7	16,000
Gogebic county:				
Middle Branch Ontonagon River	Watersmeet	M. Hughatt, Jr., Chicago, Ill.	June 13	12,500
Camp Two Creek	Watersmeet	M. Hughatt, Jr., Chicago, Ill.	June 13	5,000
Dellies Creek	Watersmeet	M. Hughatt, Jr., Chicago, Ill.	June 13	2,500
Morrison Creek	Watersmeet	A. D. Johnson, Bessemer	June 13	5,000
Wolf Lake Outlet	Watersmeet	A. D. Johnson, Bessemer	June 13	2,500
Thomas Island Lake Inlets	Watersmeet	A. D. Johnson, Bessemer	June 13	5,000
No Name	Wakefield	G. S. Barber, Bessemer	June 13	2,500
Sand Island Creek	Bessemer and Wakefield	W. P. Kulascuzec, Bessemer	June 13	2,500
Swamp Creek	Bessemer	Chas. M. Fraser, Bessemer	June 13	5,000
Rock Creek	Bessemer	J. A. Vogtlin, Bessemer	June 13	7,500
Maple Creek	Bessemer	J. A. Vogtlin, Bessemer	June 13	7,500
Hill Creek	Bessemer	J. A. Vogtlin, Bessemer	June 13	7,500
Rainbow Creek	Bessemer	J. A. Vogtlin, Bessemer	June 13	5,000
Pine Creek	Bessemer	J. A. Vogtlin, Bessemer	June 13	7,500
Sargents Creek	Watersmeet	Lee Taylor, Watersmeet	June 13	5,000
Outlet of Beaton's Lake	Watersmeet	C. M. McDonald, Watersmeet	June 13	5,000
Outlet of Tenderfoot Creek	Watersmeet	C. M. McDonald, Watersmeet	June 13	5,000
Duck Creek	Watersmeet	M. Hughatt, Jr., Chicago, Ill.	June 13	7,500
Sargent's Creek	Watersmeet	M. Hughatt, Jr., Chicago, Ill.	June 13	5,000
Henderson's Creek	Watersmeet	M. Hughatt, Jr., Chicago, Ill.	June 13	5,000
No Name	Wakefield	C. E. Holly, Bessemer	June 13	2,500
No Name	48-46	Tony Trier, Bessemer	June 13	5,000
Grand Traverse county:				
Bietner Creek	Blair	Chas. T. Cedersten, Traverse City	June 9	8,000
Boardman River	Blair	Chas. T. Cedersten, Traverse City	June 9	20,000
Boardman River	Blair	Chas. T. Cedersten, Traverse City	June 9	28,000
Carpenter Creek	Fife Lake	Fred E. Miller, Fife Lake	June 18	8,000
Houghton county:				
Graverod Creek	Stanton and Adams	Houghton R. and G. Club, Houghton	June 17	27,500
Small Branch of Sturgeon River	Laird	Paul D. Swift, Houghton	June 17	12,500
Huron county:				
Allen Creek	Segel and Sand Beach	G. G. Scranton, Harbor Beach	June 11	16,000
Ionia county:				
Dickson Creek	Otisco	Brinton F. Hall, Belding	June 7	12,000
Bellamy Creek	Easton	C. A. Snyder, Ionia	June 7	14,000
Morrison Lake Creek	Boston	John Wallington, Saranac	June 19	2,000
Dexter Creek	Easton	John Wallington, Saranac	June 19	4,000
Fish Creek	North Plains	E. A. Clark, Hubbardston	June 19	10,000
Fish Creek and tributaries	North Plains and Bloomer	E. A. Clark, Hubbardston	June 19	10,000
Iosco county:				
Hope Creek	Reoo	H. J. Jacques, Whittemore	June 4	6,000
Van Ettan Creek	Oscoda	J. H. McGillivray, Oscoda	June 4	14,000
Iron county:				
Michigamme River	Crystal Falls	W. W. Pritchard, Channing	June 13	12,500
Lower Paint River	Crystal Falls and others	Arvid Bjork, Crystal Falls	June 13	12,500
Paint River	Crystal Falls and others	Arvid Bjork, Crystal Falls	June 13	12,500
Section Thirty-three Creek	Iron River	Belmont Waples, Ironwood	June 13	5,000
Isabella county:				
Chippewa Creek	Gilmore	A. R. Mnsel, Clare	June 4	6,000
Chippewa Creek	Mt. Pleasant	Geo. A. Chatterton, Mt. Pleasant	June 20	10,000
Kalamazoo county:				
Stony Brook		W. R. Skellinger, Battle Creek	June 3	6,000
Earl Creek	Comstock	H. D. Streater, Galesburg	June 3	2,000
Hinton Creek	Charleston	H. D. Streater, Galesburg	June 3	4,000
Franks Creek	Schoolcraft	A. M. Fellows, Schoolcraft	June 3	4,000

County and name of water.	Township.	Name of depositor.	Date.	Number.
Kalamazoo county—Con.:				
Balch Creek	Kalamazoo and Portage	Peter de Bruyn, Kalamazoo	June 3	4,000
Lower Portage Creek	Kalamazoo	Peter de Bruyn, Kalamazoo	June 3	4,000
Upper Portage Creek	Kalamazoo and Portage	Peter de Bruyn, Kalamazoo	June 3	4,000
Carson Creek	Portage	Neil De Kam, Kalamazoo	June 3	2,000
Kent county:				
Munn Creek	Courtland and Algoma	Geo. E. Rector, Edgerton	June 21	4,000
Harding Creek	Algoma and Courtland	Geo. E. Rector, Edgerton	June 21	2,000
Mill Creek	Algoma and Courtland	Geo. E. Rector, Edgerton	June 21	20,000
Buck Creek	Wyoming	W. H. Zylstra, Grand Rapids	June 21	10,000
Keweenaw county:				
Gratiot River	Allouez	J. M. Harrington, Phoenix	June 17	20,000
Silver River	Allouez	Andrew McGurkin, Mandan	June 17	17,500
Upper Montreal River	Grant, Houghton and Eagle Harbor	P. L. Prousi	June 18	17,500
Lapeer county:				
Borsig Creek	Metanora and Dryden	P. B. Glaspie, Oxford	June 10	4,000
North Branch of Clinton River	Several	W. H. Bradley, Romeo	June 14	10,000
Leelanau county:				
No Name	Leland	F. H. Blackledge, Leland	June 9	4,000
Peter's Run	Leland	F. H. Blackledge, Leland	June 9	4,000
One of the Ponds on Knox Creek and Knox Creek	Leland	Jas. Daly, Empire	June 17	6,000
Luce county:				
Tahquamenon River	Columbus, McMillan and Superior	Wm. S. Linton, Saginaw	June 5	20,000
South Branch of Tahquamenon River	Columbus	F. H. Rickerd, Laketon	June 17	5,000
Tahquamenon River	Columbus	F. H. Rickerd, Laketon	June 17	10,000
Mackinaw county:				
Black River	Several	W. R. Callaway, Minneapolis, Minn.	June 12	25,000
Macomb county:				
Silver Creek	Bruce	F. Gillespie, Romeo	June 14	6,000
Manistee county:				
Tributary to Bar Creek	Arcadia	P. C. Chombeslond, Arcadia	June 17	4,000
Bar Creek	Arcadia	Willis Paquette, Arcadia	June 17	4,000
Marquette county:				
Small Creek, running from chain of lakes	Tilden	August F. Fagerburg, Gwinn	June 16	10,000
Baldy Creek	Powell	H. A. St. John, Marquette	June 16	7,500
Sand Hill Creek	Marquette	H. A. St. John, Marquette	June 16	10,000
Pine Hill Creek	Negaunee	H. A. St. John, Marquette	June 16	7,500
Morris Creek	Negaunee	H. A. St. John, Marquette	June 16	7,500
Peep O'Day Creek	Powell	H. A. St. John, Marquette	June 16	7,500
Hills Dam Creek	Negaunee	H. A. St. John, Marquette	June 16	7,500
Antler's Creek	Powell	H. A. St. John, Marquette	June 16	7,500
Bystrom's Creek	Powell	H. A. St. John, Marquette	June 16	10,000
Spruce River	Republic	H. A. St. John, Marquette	June 16	7,500
Dishro Creek	Republic	H. A. St. John, Marquette	June 16	7,500
Big Pike River	Champion	E. M. Munson, Republic	June 17	7,500
Escanaba River and branches	Michigan	P. Van Riper, M. D., Champion	June 17	5,000
Black River	Ely and Tilden	Geo. A. Newett, Ishpeming	June 17	7,500
West Branch Escanaba River	Republic and Humboldt	C. W. Munson, Republic	June 17	15,500
Bruce Creek	Ely	C. W. Munson, Republic	June 17	7,500
Trout Falls Creek	Republic	C. W. Munson, Republic	June 17	5,000
Michigan River	Republic	C. W. Munson, Republic	June 17	5,000
Captain's Creek	Republic	B. Bengston, Republic	June 17	5,000
Nilson's Creek	Republic	C. W. Munson, Republic	June 17	5,000
Spruce River	Humboldt	D. F. Morgan, Republic	June 17	12,500
Mulvey's Pond Inlets	Humboldt	H. R. Gamble, Republic	June 17	5,000
Outlet of Horseshoe Lake	Michigan	J. B. Treado, Michigan	June 17	5,000
Inlets to Teal Lake	Negaunee	Negaunee R. and G. Club, Negaunee	June 17	7,500
Connor's Creek	Negaunee	Negaunee R. and G. Club, Negaunee	June 17	5,000
Dead and Escanaba Rivers	Champion	Negaunee R. and G. Club, Negaunee	June 17	5,000
Peshekee River	Ely and Ishpeming	L. N. Toutloff, Ishpeming	June 17	5,000
	Michigan	Geo. A. Newett, Ishpeming	June 17	15,000
	Michigan	Geo. A. Newett, Ishpeming	June 17	12,500
Mecosta county:				
Blodgett Creek	Grant	L. P. Speger, Paris	June 10	12,000
Chippewa River	Sherman	Miles A. Drallette, Weidman	June 7	16,000
Poney Creek	Wheatland and Bloomfield	P. J. Theisen, Remus	June 7	10,000
Butts Creek	Fork	W. S. Laffin, Barryton	June 19	6,000
Farmer Creek	Sheridan	W. S. Laffin, Barryton	June 19	4,000
Brown Creek	Fork	W. S. Laffin, Barryton	June 19	2,000
Benjamin Creek	Fork	W. S. Laffin, Barryton	June 19	4,000
Rattail Creek	Fork	W. S. Laffin, Barryton	June 19	4,000
South Branch Chippewa River	Sheridan and Fork	W. S. Laffin, Barryton	June 19	4,000
North Branch Chippewa River	Prnk	O. S. Wood, Barryton	June 19	10,000
Menominee county:				
Ten Mile Creek	Spalding	Wm. Frazer, Powers	June 7	5,000
Quade Creek	Spalding	Chas. J. Quade, Powers	June 7	12,500
Cedar River	Spalding	Anthony P. Gillis, Powers	June 7	10,000
West Branch of Cedar Creek	Spalding	James McKibbin, Powers	June 7	7,500
West Branch of Little Cedar River	Spalding	James McKibbin, Powers	June 7	5,000
Spalding Main River	Spalding	Antoine Giguire, Powers	June 7	10,000
Missaukee county:				
Butterfield Creek	Reeder and Butterfield	Matt Malooe, Lake City	June 21	6,000
Clam River	Lake Reeder and Riverside	F. H. Reeder, Lake City	June 21	12,000

County and name of water.	Township.	Name of depositor.	Date.	Number.
Montcalm county:				
Chapin Creek	Evergreen	C. B. Rarden, Stanton	June 7	4,000
Fish Creek	Several	C. B. Rarden, Stanton	June 7	12,000
Fish Creek	Crystal	W. H. Everest, Stanton	June 7	16,000
Ghofin Creek	Ferris	Verne E. Johnson, Vestaburg	June 7	4,000
Inlets to Deaner Lake	Richland	Wm. Caris, Vestaburg	June 7	10,000
Fish Creek	Several	A. B. Goodwin, Carson	June 7	4,000
Broderick Creek	Pine	F. D. Briggs, Langston	June 7	4,000
West Branch Creek	Pine	F. D. Briggs, Langston	June 7	4,000
West Lake Creek	Pine	F. D. Briggs, Langston	June 7	4,000
Flat River	Montcalm	H. Paulson, Gowen	June 7	12,000
Horton Creek	Montcalm	R. Finch, Gowen	June 7	8,000
Wabasis Creek	Montcalm	Brinton F. Hall, Belding	June 7	10,000
Kortez Creek	Pine	F. D. Briggs, Langston	June 7	4,000
Offnear Creek	Home	L. D. Curtis, Edmore	June 7	4,000
Tamarack Creek	Cato, etc.	John E. Seat, Lakeview	June 7	16,000
Outlet to Muscalonge Lake	Maple Valley and Spencer	Jensen Bros., Trufant	June 7	8,000
Ellsworth Creek	Pine	Fred D. Briggs, Greenville	June 7	4,000
Montmorency county:				
North Branch Thunder Bay River	Montmorency	Chas. Hudson, Hillman	June 5	20,000
Miller Creek	Rust and Hillman	Austin Rea, Hillman	June 5	8,000
Brush Creek	Hillman	Austin Rea, Hillman	June 5	8,000
Muskegon county:				
Lake Creek	Casnovia	Fred Boarss, Bailey	June 9	4,000
Trent's Pond	Casnovia	F. J. Reister, Casnovia	June 9	2,000
North Crockerly Creek	Casnovia	Geo. J. Ulmer, Casnovia	June 9	2,000
Titatute Creek	Ravenna	A. E. Young, Ravenna	June 13	4,000
Cranberry Creek	Ravenna	C. A. Stauffer, Ravenna	June 13	10,000
Cranberry Creek	Moorland	S. L. Albert, Ravenna	June 13	4,000
South Branch Crockerly Creek	Ravenna	E. Bartholomew, Ravenna	June 13	6,000
Newaygo county:				
Crockery Creek	Ashland and Grant	A. J. Titus, Grant	June 9	14,000
White River	Wilcox	W. S. Barton, White Cloud	June 9	16,000
Robinson's Lake Outlet	Sherman	Chas. Streichhirsch, White Cloud	June 9	2,000
Upper Cold Creek	Lincoln	Branch Bros., White Cloud	June 9	4,000
Lower Cold Creek	Lincoln	Branch Bros., White Cloud	June 9	4,000
Crockery Creek and small tributaries	Casnovia	C. L. Gold, Bailey	June 9	12,000
Brookesser Creek	Bridgeton and Sheridan	Floyd Mathews, Twin Lake	June 9	22,000
Williams Creek	Sheridan	W. D. Sargeant, Fremont	June 9	6,000
Martin Creek	Deuver	W. D. Sargeant, Fremont	June 9	16,000
White River	Several	W. D. Sargeant, Fremont	June 9	6,000
Little South Branch of P. M. River	Several	Michigan Fish Commission, Detroit	June 22	40,000
Oakland county:				
Hummer Creek	Orion	Philo Ensley, Oxford	June 10	4,000
Thurston Creek	Orion	A. A. Bellaire, Oxford	June 10	4,000
Lanning Creek	Oxford	Robt. Marshall, Oxford	June 10	2,000
Tanner's Creek	Oxford and Orion	C. L. Randall, Oxford	June 10	12,000
Paint Creek	Oxford	Albert Marshall, Oxford	June 10	4,000
McIntyre Creek	Brandon	Jas. Staples, Orionville	June 10	4,000
Stoney Creek	Several	H. W. Bradley, Romeo	June 10	4,000
Pettibone Creek	Milford and Highland	R. S. Fotts, Milford	June 14	10,000
Sherwood Creek	Milford	R. S. Potts, Milford	June 4	4,000
Huron River and tributaries	Commerce and Milford	T. H. Padley, Milford	June 4	2,000
Field Creek	White Lake and Commerce	Thos. Forbes, Milford	June 4	12,000
Upper Pettibone Creek	Highland	Frank Bailey, Milford	June 4	8,000
Oceana county:				
Cedar Creek	Elbridge	Ralph De Vries, Hart	June 13	6,000
Saud Creek	Otto	M. N. Elsenon, Rothbury	June 13	8,000
Gene Rouse Creek	Hart	L. B. Mitchell, Hart	June 13	4,000
Pentwater River	Severat	Rufus Skeels, Hart	June 13	6,000
Pentwater River	Pentwater and Weare	S. D. Montgomery, Grand Rapids	June 13	10,000
Ogemaw county:				
Silver Creek	Richland	Henry Zeran, Prescott	June 4	8,000
Eddy Creek	Richland	Henry Zeran, Prescott	June 4	6,000
Wood's Creek	West Branch	John Tolfree, West Branch	May 31	4,000
Eddy Creek	21 W. R. 2 E. and 21 W. R. 3 E.	John Tolfree, West Branch	May 31	8,000
East Branch Tittabawasee River	Horton and T. 21 W. R. 3 E.	John Tolfree, West Branch	May 31	8,000
Peach Lake Creek	West Branch	John Tolfree, West Branch	May 31	8,000
Inlet of Campbell Lake	Edwards	John Tolfree, West Branch	May 31	4,000
Rifle River	Churchill	J. A. Priddy, West Branch	May 31	10,000
Prior and Klacking Creeks	Churchill and Cummings	Geo. Peter, Selkirk	May 31	12,000
Detrick Creek	Churchill	Casclien Bros., Selkirk	May 31	12,000
East Branch of the Tittabawasee River	Commerce and Selkirk	Ed. Struble, Selkirk	May 31	6,000
Rifle River	Horton and Bourrett	M. A. McCoy, Alger	May 31	20,000
	Richland	M. A. McCoy, Alger	May 31	20,000
Osceola county:				
Middle Branch of the Muskegon River	Marion	C. W. Graves, Dighton	June 18	20,000
Norton Creek	Middle Branch	Geo. Baird, Marion	June 20	4,000
Aldrich Creek	Marion	Geo. Baird, Marion	June 20	4,000
Oscego county:				
Sturgeon River tributaries	Corwith and Livingston	D. M. Sly estate, per M. Viner, Vanderbilt	May 31	20,000
Ottawa county:				
Rnsh Creek	Georgetown	A. T. Walker, Jenison	June 16	12,000
Roscommon county:				
Spring Creek	T. 21 W. R. 11 W. and T. 21 W. R. 1 E.	C. P. Mickelson, Mason	May 31	6,000
Chapman Creek		John Tolfree, West Branch	May 31	16,000
Schoolcraft county:				
Hughes Lake	Harrison	Abraham Hughes, Stanton	June 6	5,000
Murphy Creek and Indian River	Mostly Harrison	Benjamin Gero, Manistique	June 6	12,500

Rainbow Trout Plants, 1913.—Continued.

County and name of water.	Township.	Name of depositor.	Date.	Number.
St. Clair county: Belle River.....	China and Castleton.....	C. J. Du Chene, Marine City.....	June 11	16,000
St. Joseph county: Klinger Lake Inlets.....	Burr Oak.....	Perry L. Turner, Elkhart, Ind.....	June 16	4,000
Hog Creek.....	Constantine.....	Geo. E. Lewis, Burr Oak.....	June 16	4,000
Mill Creek.....	Constantine.....	W. N. Harvey, Constantine.....	June 3	8,000
Fawn River.....	Constantine.....	W. N. Harvey, Constantine.....	June 3	8,000
Shiawassee county: Big Maple River.....	Ovid.....	F. D. Cleveland, Shepardsville.....	June 19	10,000
Van Buren county: East Branch Paw Paw River.....	Antwerp and Porter.....	R. D. Loveland, Paw Paw.....	June 3	10,000
North Branch Big Dowagiac Creek.....	Several.....	Fred Phillips, Dowagiac.....	June 3	10,000
Wexford county: Buttermilk Creek.....	Liberty and Greenwood.....	C. A. Zimmerman, Manton.....	June 14	8,000
Total.....				2,259,000

RAINBOW TROUT PLANTS, 1913.

FINGERLINGS.

County and name of water.	Township.	Name of depositor.	Date.	Number.
Arenac county: Demno Creek.....	Arenac.....	Francis Avery, Standish.....	May 31	6,000
North Branch of Deep River, South Omer.....	Gibson.....	Francis Avery, Standish.....	May 31	4,000
Cooler Creek.....	Deep River.....	Francis Avery, Standish.....	May 31	4,000
South Omer Creek.....	Deep River.....	Francis Avery, Staodish.....	May 31	6,000
Barry county: Thornapple River and tributaries.....	Rutland.....	Luther B. Hills, Irving.....	May 12	6,000
Glass Creek.....	Thornapple.....	C. H. Osborn, Hastings.....	May 12	14,000
Hill Creek.....	Hastings and Baltimore.....	C. H. Osborn, Hastings.....	May 12	4,000
Cedar Creek.....	Hastings and Baltimore.....	C. H. Osborn, Hastings.....	May 12	6,000
Charlevoix county: West Branch of Sturgeon River.....	Hudson.....	C. F. Hoffman, Vanderbilt.....	May 31	2,000
Genesee county: Swartz Creek.....	Fenton.....	Genesee County Fish and Game Assn., Flint.....	Dec. 3	1,500
Upper Waters of Kearsley Creek.....	Atlas.....	Genesee County Fish and Game Assn., Flint.....	Dec. 3	1,500
Hillsdale county: Silver Creek.....	Cambria.....	W. J. French, Hillsdale.....	May 12	6,000
No Name.....	Somerset and Wheatland.....	Frank Carney, Jerome.....	May 12	4,000
Branch of Raisin River.....	Somerset.....	Wm. Bickford, Jerome.....	May 12	2,000
Branch of Raisin River.....	Somerset.....	Wm. Bickford, Jerome.....	May 12	4,000
Sand Creek.....	Somerset.....	L. C. Feighner, Litchfield.....	May 12	6,000
Ingham county: Sycamore River.....	Vevay and Aurelius.....	C. P. Mickelson, Mason.....	May 12	8,000
Willow Creek.....	Alaledon.....	C. P. Mickelson, Mason.....	May 12	6,000
Mud Creek.....	Onondaga.....	C. P. Mickelson, Mason.....	May 12	6,000
Champe Creek.....	Onondaga.....	Wm. M. Carroll, Onondaga.....	May 12	4,000
Jackson county: Whitman Creek.....	Springport and Clarence.....	Guy N. Lininger.....	May 12	4,000
Thayer's Creek.....	Norvell.....	H. S. Schofield, Norvell.....	May 12	4,000
South Branch Kalamazoo River.....	Hanover and Scipio.....	Levi Strait, Hanover.....	May 12	4,000
Ramsdell Creek.....	Hanover.....	G. T. Greenshaw, Hanover.....	May 12	2,000
East Branch Kalamazoo River.....	Hanover.....	W. Ray Reed, Hanover.....	May 12	6,000
Tributary to Kalamazoo River.....	Hanover and Concord.....	Frank W. McKenzie, Concord.....	May 12	4,000
Wilcox and Fuller Creeks.....	Springport.....	Wm. M. McCarroll, Onondaga.....	May 12	4,000
Headwaters of Kalamazoo River.....	Several.....	Geo. E. Beebe, Jackson.....	May 12	4,000
Willow Creek.....	Hanover.....	Geo. E. Beebe, Jackson.....	May 12	4,000

County and name of water.	Township.	Name of depositor.	Date.	Number.
Jackson county—Con.:				
Cutler Creek.....	Concord.....	Geo. E. Beebe, Jackson.....	May 12	4,000
Dew Brook.....	Horton.....	Geo. E. Beebe, Jackson.....	May 12	4,000
West Branch Kalamazoo River.....	Hillsdale.....	Geo. E. Beebe, Jackson.....	May 12	8,000
Four Mile Creek.....	Blackman.....	Geo. E. Beebe, Jackson.....	May 12	6,000
Headwaters of Grand River.....	Liberty.....	Geo. E. Beebe, Jackson.....	May 12	6,000
Leoni Creek.....	Leoni.....	Geo. E. Beebe, Jackson.....	May 12	2,000
Snyder's Creek.....	Spring Arbor.....	Geo. E. Beebe, Jackson.....	May 12	4,000
Rice Creek.....	Parma.....	Geo. E. Beebe, Jackson.....	May 12	8,000
Crouch Creek.....	Summit.....	Geo. E. Beebe, Jackson.....	May 12	4,000
Sandstone Creek.....	Sandstone and Blackman.....	Geo. E. Beebe, Jackson.....	May 12	8,000
Rives Junction Creek.....	Rives.....	Geo. E. Beebe, Jackson.....	May 12	2,000
Lake county:				
Sauborn Creek.....	Pleasant Plains and Webber.....	R. J. Matthews, Baldwin.....	May 29	10,000
Middle Branch P. M. River.....	Pleasant Plains.....	Parson, Dennis & Co., Detroit.....	May 29	10,000
P. M. River.....	Several.....	Geo. M. Brown, Detroit.....	May 29	20,000
P. M. River.....	Several.....	Geo. M. Brown, Detroit.....	May 29	36,000
P. M. River.....	Several.....	Geo. Grant, Saginaw.....	May 29	20,000
Sauble River.....	Several.....	C. Hagerman, Ludington.....	May 29	50,000
Lenawee county:				
Evans Creek.....	Franklin.....	Jewett Whelan, Tipton.....	May 12	12,000
Mason county:				
P. M. River.....	Scottville.....	John Grey, Scottville.....	May 29	16,000
Lincoln River.....	Sherman.....	Fountain Gun & Rod Clnb, Fountain.....	May 29	20,000
Otsego county:				
Headwaters of Sturgeon River.....	Several.....	R. H. L'Hommedieu, Detroit.....	May 31	50,000
St. Joseph county:				
Keers Creek.....	Fabius.....	Amon Ives, Three Rivers.....	May 12	2,000
Rockey River.....	Several.....	A. J. Snyder, Three Rivers.....	May 12	10,000
Prairie River.....	Lockport.....	Geo. O. Jackson, Three Rivers.....	May 12	4,000
Portage River and tributaries.....	Lockport.....	A. R. Jackson, Three Rivers.....	May 12	10,000
Washtenaw county:				
Huron River and Mill Creek.....	.....	L. D. Alley, Dexter.....	May 12	12,000
South Branch Paint or Clawson's Creek.....	.....	Fred Phillips, Dowagiac.....	May 16	8,000
Packard Creek.....	Salem.....	Chas. W. Austin, Salem.....	Dec. 6	1,500
Total.....				484,500

TWENTY-FIRST REPORT—STATE FISHERIES.

BROWN TROUT PLANTS, 1913.

County and name of water.	Township.	Name of depositor.	Date.	Number.
Alpena county:				
Sucker Creek and Lower and Upper South Branch of Thunder Bay River.....	.....	Robt. H. Rayburn, Alpena.....	Mar. 22	30,000
Charlevoix county:				
North Boyne River.....	Boyne Valley.....	Chas. Galster, Boyne Falls.....	Mar. 12	30,000
Clare county:				
West Branch Tobacco River.....	Surrey.....	C. E. Belden, Farwell.....	Mar. 13	12,000
Pond Creek.....	Surrey.....	Elias Sias, Farwell.....	Mar. 13	12,000
Grass Creek.....	Surrey and Garfield.....	Dou A. Rowe, Farwell.....	Mar. 13	12,000
Mecosta county:				
Paris Creek.....	Green.....	Michigan Fish Commission, Detroit.....	April 7	50,000
Muskegon River.....	Green.....	Michigan Fish Commission, Detroit.....	April 7	51,000
Little Muskegon River.....	Morton.....	Ray Carman, Mecosta.....	April 8	40,000
Newaygo county:				
Cedar Creek.....	Several.....	Wm. Pomeroy, Holton.....	Mar. 20	30,000
Little South Branch of P. M. River.....	Several.....	Michigan Fish Commission, Detroit.....	Feb. 18	40,000
Ogemaw county:				
Rifle River.....	Richland.....	Henry Zerán, Prescott.....	Mar. 10	36,000
Oscoda county:				
Hersey River.....	Richmond and Lincoln.....	J. G. Ruppert, Reed City.....	Mar. 15	30,000
Hersey River.....	Richmond and Lincoln.....	Alex. Peppler, Reed City.....	Mar. 15	30,000
Hersey River and branches.....	Richmond and Lincoln.....	W. J. Cornell, Reed City.....	Mar. 15	6,000
Total.....				409,000

TWENTY-FIRST REPORT—STATE FISHERIES.

County and name of water.	Township.	Name of depositor.	Date.	Number.
Dickinson county:				
Lake Hamburg.....	Norway.....	Frank F. Lenz, Norway.....	May 30	6,000
Mary's Lake.....	Norway and Waucedah.....	W. J. Turner, Vulcan.....	May 30	6,000
Hamilton Lake.....	Waucedah.....	W. J. Turner, Vulcan.....	May 30	6,000
Louis Lake.....	Waucedah.....	W. J. Turner, Vulcan.....	May 30	6,000
New York Farm Lake.....	Norway.....	Raymond Turner, Norway.....	May 30	6,000
Gogebic county:				
Lake Gogebic.....	Matchwood and Marenisco.....	L. L. Wright, Gogebic.....	May 30	27,000
Lake Gogebic.....	Marenisco and Ontonagon.....	Henry B. Roney, Gogebic.....	May 30	27,000
Iron county:				
Holmes Lake.....	Crystal Falls.....	Arvid Bjork, Crystal Falls.....	May 30	6,000
Mackinaw county:				
Brevoort Lake.....	Brevoort and Moran.....	Massey Brothers, Allenville.....	May 31	90,000
Ontonagon county:				
Lake Gogebic.....	Matchwood and Gogebic.....	Johnson & Erickson, Bergland.....	May 27	90,000
Lake Huron.....		Michigan Fish Commission, Detroit.....	May 15	1,000,000
Lake Superior.....		Michigan Fish Commission, Detroit.....	May 15	1,000,000
St. Mary's River.....		Michigan Fish Commission, Detroit.....	May 15	500,000
Total.....				2,770,000

SMALL MOUTH BASS PLANTS, 1913.

ADVANCED FRY.

County and name of water.	Township.	Name of depositor.	Date.	Number.
Allegan county:				
Penner Lake.....	Martin.....	Wm. McLeod, Martin.....	June 3	6,000
Upper Scott Lake.....	Lee.....	Chas. Horn, Pullman.....	June 10	6,000
Berrien county:				
Paw Paw Lake.....	New Buffalo.....	A. S. Miles, Benton Harbor.....	June 10	6,000
Gallen River.....	Watervliet.....	Wm. Schermack, New Buffalo.....	June 10	14,000
Paw Paw Lake.....	Buchanan.....	E. E. Rowland, Watervliet.....	June 10	6,000
Weaver Lake.....	Buchanan.....	Jas. E. Scott, Buchanan.....	June 6	4,000
Wilson Lake.....	Bertrand.....	Jas. E. Scott, Buchanan.....	June 6	4,000
Pike Lake.....	Bertrand.....	Jas. E. Scott, Buchanan.....	June 6	4,000
Madron Lake.....	Buchanan.....	Jas. E. Scott, Buchanan.....	June 6	4,000
Clear Creek.....	Buchanan.....	Jas. E. Scott, Buchanan.....	June 6	4,000
Paw Paw Lake.....	Watervliet.....	Hon. Leon D. Case, Lansing.....	June 6	8,000
Benzie county:				
Crystal Lake.....	Benzonia.....	J. F. Munro, Beulah.....	June 10	12,000
Long Lake.....	Lake.....	Albert Haley, Frankfort.....	June 10	6,000
Herring Lake.....	Blaine.....	Roy Collins, Frankfort.....	June 10	6,000
Barry county:				
Wall Lake.....		S. C. Greusel, Kalamazoo.....	June 11	6,000
Long Lake.....		S. C. Greusel, Kalamazoo.....	June 11	6,000
Middle Lake.....	Hastings.....	Chas. Wood, Hastings.....	June 5	6,000
Podunk Lake.....	Rutland.....	Chas. Wood, Hastings.....	June 5	6,000
Head Lake.....	Hope.....	Ray Pierce, Schultz.....	June 5	8,000
Pine Lake.....	Hope.....	Will A. Andrews, Schultz.....	June 5	6,000
Horseshoe Lake.....	Hope.....	Fred Gibson, Cloverdale.....	June 5	8,000
Bowker Lake.....	Hope.....	Elmer Payne, Cloverdale.....	June 5	8,000
Twenty-one Lake.....	Hope.....	Peter Kingsbury, Cloverdale.....	June 5	6,000
Fish Lake.....	Orangeville.....	C. H. Osborn, Hastings.....	June 5	6,000
Calhoun county:				
Turtle Lake.....	Burlington.....	E. R. Sullivan, Union City.....	June 4	6,000
Lee Lake.....	Newtina.....	H. E. Kimmel, Union City.....	June 4	6,000
Cass county:				
Magician Lake.....	Silver Creek and Keeler.....	Fred Phillips, Dowagiac.....	June 6	10,000
Birch Lake.....	Porter.....	C. A. King, Vandalia.....	June 4	4,000
Grand Traverse county:				
Green Lake.....	Green Lake.....	H. H. Olds, Beadon.....	June 6	8,000

County and name of water.	Township.	Name of depositor.	Date.	Number.
Ionia county:				
Juffer Lake.....	Odessa.....	Edwin Shellhorn, Lake Odessa.....	June 7	6,000
Jordan Lake.....	Odessa and Woodland.....	Edwin Shellhorn, Lake Odessa.....	June 7	8,000
Municipal Lighting Plant Pond.....	Portland.....	John B. Hecox, Portland.....	June 7	8,000
Grand River.....	Portland.....	W. E. Porter, Portland.....	June 7	6,000
Looking Glass River.....	Portland.....	W. E. Porter, Portland.....	June 7	6,000
Looking Glass Pond.....	Portland.....	C. L. Hale, Portland.....	June 7	6,000
Grand River.....	Portland.....	Jos. Patterson, Portland.....	June 7	6,000
Kalamazoo county:				
White's Lake.....	Kalamazoo.....	A. L. Waldo and H. R. Berry, Kalamazoo.....	June 5	4,000
West Lake.....	Portage.....	John E. Crose, Kalamazoo.....	June 5	6,000
Long Lake.....	Portage.....	Henry Waruf, Kalamazoo.....	June 5	6,000
Austin Lake.....	Portage.....	J. W. Van Brook, Kalamazoo.....	June 5	6,000
Sherman Lake.....	Ross.....	H. D. Streater, Galesburg.....	June 3	6,000
Middle Three Lakes.....	Richland.....	H. D. Streater, Galesburg.....	June 3	6,000
Kent county:				
Crandall Lake.....	Solon.....	Earl Rasco, Sand Lake.....	June 7	4,000
Middle or Spring Lake.....	Solon.....	Earl Rasco, Sand Lake.....	June 7	4,000
Au Sable Power Company Pond.....	Vergennes.....	Wm. F. Smith, Lowell.....	June 10	6,000
Murry Lake.....	Vergennes and Grattan.....	Wm. F. Smith, Lowell.....	June 10	6,000
Wabasis Lake.....	Oakfield.....	Wabasis Club, Belding.....	June 10	8,000
Big Bostwick Lake.....	Cannon.....	Will Kilroy, Rockford.....	June 19	6,000
Sand Lake.....	Nielson and Pierson.....	Chas. W. Williams, Sand Lake.....	June 10	4,000
Reed's Lake.....	Grand Rapids.....	L. J. De La Marter, Grand Rapids.....	June 23	4,000
Lake county:				
Big Star Lake.....	Lake.....	E. A. Smith, Baldwin.....	June 6	8,000
Missaukee county:				
Missaukee Lake.....	Lake and Reuder.....	F. D. McGregor, Lake City.....	June 7	8,000
Dyer Lake.....	Caldwell.....	Chas. Luce, Lake City.....	June 7	6,000
Long Lake.....	Caldwell.....	Wm. McVeigh, Lake City.....	June 7	6,000
Montcalm county:				
Loon Lake.....	Crystal.....	W. H. Everest, Stanton.....	June 10	6,000
Manistee county:				
Pioce Lake.....	Norman.....	T. G. Trimble, Manistee.....	June 21	8,000

TWENTY-FIRST REPORT—STATE FISHERIES.

Newaygo county:				
Ingelright Lake.....	Ensley.....	Earl Rasco, Sand Lake.....	June 7	4,000
Sand Lake.....	Ashland.....	Ellwood Williams, Grant.....	June 6	6,000
White Cloud Mill Pond.....	Wilcox.....	Branch Brothers, White Cloud.....	June 6	6,000
Diamond Lake.....	Lincoln.....	Branch Brothers, White Cloud.....	June 6	6,000
Blue Lake.....	Monroe.....	Wm. F. Gardner, Otis.....	June 6	6,000
Brookings Lake.....	Monroe.....	Frank Coombs, Bitely.....	June 6	6,000
Nichols Lake.....	Lilley.....	Wm. Revait, Bitely.....	June 6	6,000
Toncray Lake.....	Lilley.....	Jos. Toncray, Lilley.....	June 6	6,000
Osceola county:				
Osceola Lake.....	Richmond.....	J. C. Holden, Reed City.....	June 7	6,000
Hewett Lake.....	Burdell.....	E. Harner, Tustin.....	June 7	6,000
Rose Lake.....	Rose Lake.....	V. E. Pullman, Tustin.....	June 7	6,000
St. Joseph county:				
Sand Lake.....	Nottawa.....	M. Bowersox, Nottawa.....	June 5	6,000
Long Lake.....	Colon.....	Yance Livermore, Burr Oak.....	June 5	6,000
Fish, Hog and Pepper Lakes.....	Burr Oak.....	Jas. R. Smith, Burr Oak.....	June 5	16,000
Hog Creek.....	Lockport.....	Martin J. Bowersox, Three Rivers.....	June 4	4,000
Pleasant Lake.....	Fabius.....	Geo. O. Jackson, Three Rivers.....	June 4	6,000
Rock River and Pond.....	Park and Lockport.....	C. L. Fry, Three Rivers.....	June 4	6,000
St. Joseph River.....	Lockport.....	E. B. Mead, Three Rivers.....	June 4	6,000
St. Joseph Pond.....	Lockport.....	E. V. Jackson, Three Rivers.....	June 4	6,000
Portage River.....	Lockport.....	Amon Ives, Three Rivers.....	June 4	6,000
Corey Lake.....	Fabius.....	Arthur L. Jones, Three Rivers.....	June 4	6,000
Long Lake.....	Fabius.....	M. P. Rikerb, Corey.....	June 4	6,000
St. Joseph River.....	Several.....	Wallace N. Harvey, Constantine.....	June 19	6,000
Klinger Lake.....	White Pigeon.....	Walter Kennard, Coldwater.....	June 19	6,000
Panorack Lake.....	Sherman.....	Walter Kennard, Coldwater.....	June 19	4,000
Thompson's Lake.....	Sherman.....	Walter Kennard, Coldwater.....	June 19	4,000
Van Buren county:				
Cedar Lake.....	Porter.....	Chas. S. Mohoney, Lawton.....	June 6	6,000
Bankson Lake.....	Porter.....	V. B. Finch, Lawton.....	June 6	6,000
Hersey Lake.....	Porter.....	V. B. Finch, Lawton.....	June 6	6,000
Huzzy Lake.....	Porter.....	J. K. Mowry, Lawton.....	June 6	4,000
Eagle Lake.....	Paw Paw.....	C. E. Criffield, Lawton.....	June 6	10,000
Sister Lake.....	Silver Creek.....	D. B. Wallace, Benton Harbor.....	June 6	8,000
Little Bear Creek.....	Columbia.....	E. B. Eddy, Grand Junction.....	June 6	6,000
Van Aukeo Lake.....	Bangor.....	Jeremiah Welker, Bangor.....	June 6	6,000
Total.....				504,000

TWENTY-FIRST REPORT—STATE FISHERIES.

SMALL MOUTH BLACK BASS PLANTS, 1913.

FINGERLINGS.

County and name of water.	Township.	Name of depositor.	Date.	Number.
Alpena county:				
Long Lake		H. E. Fletcher, Alpena.	July 19	1,000
Long Lake		J. W. Fitzgerald, Alpena.	July 19	1,000
Antrim county:				
Torch Lake	Forest Home, etc.	F. B. Dickerson, Detroit.	July 22	1,000
Mud Lake	Banks	W. A. Boss, Ellsworth.	July 22	1,000
Barry county:				
Thornapple Lake	Castleton	Fred Habersaat, Morgan.	July 3	1,500
Benzie county:				
Big Platts Lake	Benzonis and Lake	L. V. Stacey, Honor.	July 3	1,500
Small Platte Lake	Benzonis and Lake	Jas. L. Baker, Honor.	July 3	1,500
Crystal Lake		J. F. Monroe, Beulah.	Oct. 9	400
Berrien county:				
Lake Chapin	Several	John G. Murdock, Berrien Springs.	Aug. 8	300
Branch county:				
Gregg, Morrison, North, South and Messenger Lakes	Coldwater and Girard	F. T. Tappan, Coldwater.	July 12	1,200
Coldwater River	Ovid and Coldwater	F. T. Tappan, Coldwater.	July 12	1,200
Coldwater Lake	Ovid	F. T. Tappan, Coldwater.	July 12	1,200
Calhoun county:				
Beadle Lake	Emmett	Chas. E. Kistler, Battle Creek.	Aug. 9	750
Goguae Lake	Battle Creek	Goguae Resort Assn., Battle Creek.	Aug. 9	750
Crawford county:				
Portage Lake		C. P. Mickelson, Masou.	July 23	1,000
Shoepack Lake		Fred L. Burgess, Detroit.	July 23	800
Cass county:				
Stone Lake	La Grange	C. H. Kimmnerle, Cassopolis.	July 24	600
Hutchings Lake	Newburg	Fred Marsh, Cassopolis.	July 24	600
Lilly Lake	Newburg	Fred Marsh, Cassopolis.	July 24	600
Shavehead Lake	Foster	Arthur Sears, Jones.	July 24	800
Diamond Lake	Several	Jas. O. Hain, Cassopolis.	July 19	1,000
Dewey Lake	Silver Creek	F. E. Tarrant, Chicago, Ill.	Aug. 8	300
Clinton county:				
Park Lake	Bath	A. S. Fairfield, Bath.	July 17	750
Park Lake	Bath	R. H. Loving, Bath.	July 17	750

TWENTY-FIRST REPORT—STATE FISHERIES.

Clare county:				
Eight Point Lake	Garfield	S. F. Postal, Ewart.	July 12	1,500
Chippewa county:				
Hulbert Lake	Superior	Harvey W. Agnew.	June 26	2,000
Charlevoix county:				
Deer Lake	Boyne Valley	Wm. J. Pierson, Boyne Falls.	July 10	1,200
South Arm of Pine Lake		Judge Frederick W. Mayne, Charlevoix.	July 22	1,000
South Arm of Pine Lake		Carl M. Stroebel, East Jordan.	July 22	1,000
Cheboygan county:				
Douglas Lake	Munro	A. M. Narrow, Pellston.	July 10	1,200
Mullett Lake	Several	Yakima Club, Cheboygan.	July 19	1,500
Delta county:				
South River Bay	Fairbanks	T. Killian, Escanaba.	June 27	2,000
Crane Lake	Nahma	Rufus F. Skeels, Hart.	July 8	1,500
Eaton county:				
Pine Lake	Walton	L. Cook & Son, Olivet.	July 19	1,000
Emmet county:				
Round Lake	Bear Creek	Henry Lindig, Petoskey.	July 10	1,000
Little Traverse Bay		Michigan Fish Commission.	July 22	1,250
Gladwin county:				
Cedar and Tobacco River	Beaverton	Hon. Henry Croll, Jr., Beaverton.	July 11	1,500
Grand Traverse county:				
Cedar Hedge Lake	Green Lake	Wm. Saunders, Traverse City.	June 26	3,000
Silver Lake	Garfield	Wm. Saunders, Traverse City.	July 2	3,000
Houghton county:				
Lake Eva	Adams	Houghton R. and G. Club, Houghton.	July 10	1,000
Lake Gerald	Elm River	Houghton R. and G. Club, Houghton.	July 10	1,000
Pine Lake	Adams	Houghton R. and G. Club, Houghton.	July 10	1,000
Lake Roland	Elm River	Houghton R. and G. Club, Houghton.	July 10	1,000
Jackson county:				
Clark's Lake	Columbia	John E. Pinegar, Jackson.	July 17	1,000
Stony Lake	Napoleon	M. E. Russell, Napoleon.	Aug. 6	600
Kalamazoo county:				
Eagle Lake	Texas	Geo. Bolinger, Oshtemo.	Aug. 9	600
Kent county:				
Silver and Sunfish Lakes	Cannon	F. L. Adams, Grand Rapids.	Oct. 22	600
Lake county:				
Sauble Lakes, (4 connected)	Elk	Wm. Utter, Peacock.	June 26	3,000
Big Bass Lake	Elk	Wm. C. Jones, Peacock.	June 26	3,000

TWENTY-FIRST REPORT—STATE FISHERIES.

County and name of water.	Township.	Name of depositor.	Date.	Number.
Lapeer county: Pleasant Lake.....	Lapeer.....	E. C. Rumer; Flint.....	July 15	2,000
Leelanau county: Lake Leelanau or Carp Lake..... Glen Lake.....	Solon..... Glen Arbor and Kasson.....	R. E. McManus, Traverse City..... D. H. Day, Glen Haven.....	July 3 Aug. 21	3,000 100
Lenawee county: Round Lake..... River Raisin.....	Rollin.....	W. E. Alchin, Townley..... Hon. Verne C. Amberson, Blissfield.....	July 17 Aug. 6	1,000 1,000
Mackinac county: Brevoort Lake..... Manistique Lake.....	Brevoort..... Portage.....	Wm. Massey, Jr., Allenville..... Dent Hurd, Curtis.....	June 28 July 8	2,500 2,000
Marquette county: No Name.....		Huron Mountain Club, Big Bay.....	July 9	5,000
Manistee county: Glover's Lake.....	Pleasanton.....	F. L. Glover, Bear Lake.....	July 22	750
Mecosta county: Minger Lake..... Blue Lake.....	Fork..... Morton.....	Frank Malmstone, Barryton..... F. H. Beach, Mecosta.....	July 18 July 18	1,000 1,000
Muskegon county: Big Blue Lake.....	Blue Lake.....	Hon. F. J. Russell, Hart.....	July 25	1,000
Monroe county: River Raisin.....		C. W. Künmerling, Monroe.....	July 17	1,000
Montcalm county: Muscallonge Lake.....		Jensen Bros., Trufant.....	Oct. 3	100
Newaygo county: Croton Dam Pond.....	Croton.....	Geo. L. Erwin, Grand Rapids.....	June 27	4,000
Oakland county: Crawford Lake..... Pine Lake..... Middle Straits Lake..... Lower Sylvan Lake.....	Bloomfield..... Oxford..... West Bloomfield..... Waterford.....	Hngh Chalmers, Detroit..... H. J. Barber, Detroit..... N. E. Forbush, Walled Lake..... Edward Russell, Hamtramack.....	July 15 July 15 Aug. 5 Aug. 5	5,000 2,000 800 1,000
Oceana county: Crystal Lake..... Pentwater Lake..... School Section Lake.....	Hart..... Pentwater..... Colfax.....	W. R. Rosch, Hart..... W. R. Rosch, Hart..... I. C. Manning, Walkerville.....	July 25 July 25 July 25	8,000 1,000 800
Ogemaw county: Au Sable Lake.....	Goodar.....	Eugene Becker, Elllake.....	July 19	1,000
Ottawa county: Black Lake or Macatawa Bay.....	Holland and Lake.....	Macatawa Resort Co., Macatawa.....	Aug. 7	400
St. Joseph county: Ayerses Lake.....	Flowerfield.....	Clifford Hice, Marcellus.....	July 19	500
Shiawassee county: Shiawassee River.....		Van. R. Pond, Owosso.....	July 15	1,500
Schoolcraft county: Indian Lake.....	Thompson.....	H. B. Witter, Manistique.....	June 27	2,000
Van Buren county: Base Line Lake..... Three Mile Lake.....	Geneva..... Paw Paw.....	W. E. Grimes, South Haven..... Wm. M. Kirkwood, Paw Paw.....	June 28 June 30	3,000 3,000
Washtenaw county: 3 Silver Lakes..... Whitmore Lake..... Barton Pond.....	Dexter..... Northfield.....	L. D. Alley, Dexter..... H. Earle, Whitmore Lake..... Eastern Mich. Edison Co., Ann Arbor.....	July 17 July 17 Aug. 14	1,000 1,000 900
Wexford county: Cadillac Lake..... Lake Mitchell.....	Clam Lake..... Cherry Grove.....	N. V. Gerrish, Cadillac..... N. V. Gerrish, Cadillac.....	July 2 July 2	1,500 1,500
Total.....				119,300

LARGE MOUTH BLACK BASS PLANTS, 1913.

ADVANCED FRY.

County and name of water.	Township.	Name of depositor.	Date.	Number.
Alpena county:				
Long Lake		John Beck, Alpena	June 19	12,000
Long Lake		D. D. Hanover, Alpena	June 19	12,000
Long Lake		Richard Lagatska, Alpena	June 19	12,000
Beaver Lake		Robt. H. Rayburo, Alpena	June 19	10,000
Allegan county:				
Sheffer Lake	Trowbridge	Wm. W. Truax, Allegan	June 19	4,000
Ellinger Lake	Hopkins	Wm. Tiefenthal, Hopkins	June 19	4,000
Three Cornered Lake	Hopkins	Wm. Tiefenthal, Hopkins	June 19	4,000
Fenner Lake	Martin	Wm. McLeod, Martin	June 14	6,000
Antrim county:				
Grass Lake	Severl	Samuel Adams, Bellaire	June 14	8,000
Intermediate Lake	Central Lake	Chas. Briggs, Central Lake	June 14	8,000
Liman Lake	Banks	L. VanSkiver, Ellsworth	June 14	6,000
Toad Lake	Banks	L. VanSkiver, Ellsworth	June 14	6,000
Barry county:				
Clear Lake	Baltimore	J. L. Ormsbe, Dowling	June 12	6,000
Lower Lake	Carlton	D. Barnuse, Hastings	June 12	6,000
Clear Lake	Baltimore	J. R. Patterson, Union City	June 12	6,000
Gun Lake	Severl	Wm. F. Chamberlain, Wayland	June 14	12,000
Thornapple Lake	Castleton	Jas. Howard, Morgan	June 25	8,000
Wall Lake	Hope	J. M. Payne, Hastings	June 21	6,000
Ashby Lake	Hope	J. M. Payne, Hastings	June 21	6,000
Fish Lake	Orangeville	C. H. Osborn, Hastings	June 21	6,000
Wilkinson Lake	Hope	Henry Moorhus, Delton	June 21	6,000
Mud Lake	Hope	Jesse Newton, Cloverdale	June 21	6,000
Little Long Lake	Prairieville	S. C. Greusel, Kalamazoo	June 21	6,000
Crooked Lake	Prairieville	S. C. Greusel, Kalamazoo	June 21	8,000
Hoiccnib Lake	Prairieville	S. C. Greusel, Kalamazoo	June 21	6,000
Gurnsey Lake	Yankee Springs	C. Greusel, Kalamazoo	June 21	6,000
Long Lake	Hope	B. Dickinson, Hastings	June 21	6,000
Benzie county:				
Big Platte Lake	Lake	Geo. Weaver, Honor	June 20	8,000
Loon Lake	Lake	W. B. Covey, Honor	June 20	8,000
Little Platte Lake	Lake and Platte	W. B. Covey, Honor	June 20	8,000
Calhoun county:				
Waubesaun Lake	Bedford	S. E. Felch, Battle Creek	June 17	8,000
Gogunc Lake	Battle Creek	Gogunc Resort Assn., Battle Creek	June 17	10,000
Barnum and Graham Lakes	Leroy	P. F. Muir, Battle Creek	June 17	8,000
Cass county:				
Corey Lake	Porter	Geo. Knowles, Corey	June 20	10,000
Blaik Lake	Porter	R. C. King, Jones	June 20	8,000
Buck Lake	Porter	C. A. King, Vandalia	June 20	6,000
Elbow Lake	Porter	C. A. King, Vandalia	June 20	6,000
Shavehead Lake	Porter	C. A. King, Vandalia	June 20	8,000
Driskell Lake	Newberry	R. C. King, Jones	June 20	4,000
Driskell Lake	Newberry	A. P. Beeman, Jones	June 20	4,000
Harwood Lake	Newberry	A. P. Beeman, Jones	June 20	6,000
Wood Lake	Porter	Bruce Hoffman, Constantine	June 19	6,000
Long Lake	Porter	L. Q. Hitchcock, Bristol, Ind.	June 19	6,000
Baldwin Lake	Porter	L. Q. Hitchcock, Bristol, Ind.	June 19	6,000
Clare county:				
Bailey Lake	Arthur	David McPhall, Clare	June 30	5,000
Dewey Lake	Grant	F. C. Sanford, M. D., Clare	June 30	4,000
South Lake	Grant	Wm. Lange, Clare	June 30	4,000
East Lake	Grant	C. A. Reading, Clare	June 30	4,000
Loon Lake	Hatton	Alfred W. Herrick, Clare	June 30	4,000
Gut Lake	Hatton	D. W. Canfield, Clare	June 30	5,000
Crooked Lake	Garfield	P. M. R. R. Station Agent, Lake	June 20	8,000
Clinton county:				
Round Lake	Victor	T. G. Decker, Laingsburg	June 25	8,000
Charlevoix county:				
Walloon Lake	Meirose and Evangeline	J. W. Hunter, Grand Rapids	June 20	10,000
Harwood Lake	Ncrwood	Geo. S. Parsons, Charlevoix	June 14	8,000
Eaton county:				
Narrow Lake	Vernontville	Ezra Huber, Charlotte	June 12	6,000
Round Lake	Vernontville	Ralph Wetherbee, Vermontville	June 12	6,000
Emmet county:				
Round Lake	Bear Creek	Henry Lindig, Petoskey	June 20	8,000
Grand Traverse county:				
Cedar Hedge Lake	Green Lake	Wm. Saunders, Traverse City	June 26	8,000
Boardman Lake	Traverse	Traverse City Fly Casting Club, Traverse City	June 26	6,000
Bass Lake	Long Lake, Bear and Green Lake	G. E. Potrafke, Traverse City	June 26	8,000
Fife Lake	Fife Lake	G. E. Hodges, Fife Lake	June 20	6,000
Bass Lake	Union	Kingsley Sportsmen's Club, Kingsley	June 18	6,000
Duck Lake	Green Lake	Kingsley Sportsmen's Club, Kingsley	June 18	6,000
Little Unicorn Lake	Union	Kingsley Sportsmen's Club, Kingsley	June 18	6,000
Spider Lake	Union	Kingsley Sportsmen's Club, Kingsley	June 18	8,000
Island Lake	Union	Kingsley Sportsmen's Club, Kingsley	June 18	6,000
Brewster Lake	Mayfield	A. B. Stimson, Kingsley	June 18	8,000
Green Lake	Green Lake	Kingsley Sportsmen's Club, Kingsley	June 18	8,000
Hogsback Lake	East Bay	Kingsley Sportsmen's Club, Kingsley	June 18	8,000
Little Traverse Bay	Green Lake	Michigan Fish Commission	June 14	8,000
Green Lake	Green Lake	B. B. Reynolds, Bendon	June 13	10,000

TWENTY-FIRST REPORT—STATE FISHERIES.

TWENTY-FIRST REPORT—STATE FISHERIES.

County and name of water.	Township.	Name of depositor.	Date.	Number.
Ionia county: Tupper Lake.....	Odessa.....	Edwin Shellhorn, Lake Odessa.....	June 28	6,000
Ingham county: Park Lake.....	Meridian.....	Myles F. Gray, Lansing.....	June 25	10,000
Jackson county: Michigan Center Mill Pond.....	Columbia.....	Albert M. White, Jackson.....	June 12	8,000
Clark's Lake.....	City of Jackson.....	H. A. Reece, Jackson.....	June 12	8,000
Wolf Lake.....	City of Jackson.....	Geo. H. Lumley, Jackson.....	June 12	8,000
Lagoon in Loomis Park.....	Liberty.....	Wm. W. Todd, Jackson.....	June 12	6,000
Crispell Lake.....	Napoleon.....	Chas. Adams, Clark's Lake.....	June 25	8,000
Stoney Lake.....	Napoleon.....	Wm. McGraw, Napoleon.....	June 25	10,000
Kalamazoo county: Howard's Lake.....	Kalamazoo.....	A. H. Snook, Kalamazoo.....	June 14	4,000
Sherman Lake.....	Kalamazoo.....	O. A. Van Deusen, Battle Creek.....	June 17	8,000
Limekill Lake.....	Kalamazoo.....	Gaddie Philipp, Kalamazoo.....	June 14	4,000
Pike's Pond.....	Kalamazoo.....	Louis Rosenbaum, Kalamazoo.....	June 14	4,000
Rawson Lake.....	Schoolcraft.....	J. C. Fisher, Vicksburg.....	June 17	6,000
Howard Lake.....	Schoolcraft.....	Orley W. Holmes, Vicksburg.....	June 17	6,000
Uptogrove Lake.....	Schoolcraft.....	C. C. Riggs, Vicksburg.....	June 17	4,000
Eagle Lake.....	Charleston.....	Geo. H. Williams, Battle Creek.....	June 17	8,000
Little Rawson Lake.....	Schoolcraft.....	Frank S. Colter, Vicksburg.....	June 17	4,000
Hoghead Lake.....	Portage.....	G. W. Pearman, Vicksburg.....	June 17	4,000
Gourdneck Lake.....	Portage.....	J. F. Follmer, Vicksburg.....	June 17	6,000
Kimble Lake.....	Schoolcraft.....	C. H. Leigner, Vicksburg.....	June 17	4,000
Black Lake.....	Schoolcraft.....	F. W. Rapp, Vicksburg.....	June 17	4,000
Sunset Lake.....	Schoolcraft.....	Jas. Burgess, Vicksburg.....	June 17	4,000
Little Indian Lake.....	Brady.....	C. Z. Robinson, Vicksburg.....	June 17	4,000
Pickered Lake.....	Pavilion.....	I. C. VanTassel, Vicksburg.....	June 17	6,000
Indian Lake.....	Brady.....	E. O. Goldsmith, Vicksburg.....	June 17	6,000
Thrall's Lake.....	Brady.....	W. J. Smith, Vicksburg.....	June 17	6,000
Kalkaska county: Long Lake.....	Springfield and Lake.....	D. R. Hulls, M. D., Fife Lake.....	June 20	6,000
Kettle Lake.....	Kalkaska.....	Claud Pangborn, Kalkaska.....	June 20	6,000
Guernsey Lake.....	Wilson.....	M. B. Darby, Kalkaska.....	June 20	8,000
Island Lake.....	Wilson.....	W. G. Grovener, Kalkaska.....	June 20	6,000
Rainbow Lake.....	Cold Spring.....	P. A. Doyle, Mancelona.....	June 20	6,000
Dowling's Lake.....	Wilson.....	F. A. Dowling, Williamsburg.....	June 20	4,000
Kent county: Reed's Lake.....	Grand Rapids.....	L. J. De Lamarter, Grand Rapids.....	June 23	8,000
Pine Island Lake.....	Plainfield.....	J. W. Fitzsimmons, Grand Rapids.....	June 15	10,000
Lake county: Sable Lakes, 4 connected.....	Elk.....	Wm. Utter, Peacock.....	June 26	6,000
Little Bass Lake.....	Elk.....	W. P. Jones, Peacock.....	June 26	6,000
Nat-ah-ki Lake.....	Elk.....	Henry Matson, Peacock.....	June 13	8,000
Perch Lake.....	Elk and Sweetwater.....	Robt. Dougall, Wingetson.....	June 21	6,000
Lapeer county: Big Fish Lake.....	Hadley.....	Frank Miller, Lapeer.....	June 20	8,000
Five Lakes.....	Hadley.....	J. B. Haganan, North Branch.....	June 20	14,000
Miller Lake.....	Deerfield.....	J. B. Haganan, North Branch.....	June 20	8,000
Davis Lake.....	Oregon.....	G. H. Whitaker, Lapeer.....	June 13	6,000
Bronson Lake.....	Oregon.....	G. H. Whitaker, Lapeer.....	June 13	6,000
Bass Lake.....	Arcadia.....	Imlay City F. and G. Club, Imlay City.....	June 13	6,000
Elk Lake.....	Attica.....	Imlay City F. and G. Club, Imlay City.....	June 13	8,000
Long Lake.....	Attica.....	Imlay City F. and G. Club, Imlay City.....	June 13	6,000
Lake Pleasant.....	Attica.....	Imlay City F. and G. Club, Imlay City.....	June 13	8,000
Leelanau county: Davis Lake.....	Kasson.....	Wm. Sattler, Maple City.....	June 20	6,000
Armstrong Lake.....	Kasson.....	Wm. Sattler, Maple City.....	June 20	6,000
Livingston county: Zuke Lake.....	Hamburg.....	Ed. Colburn, Lakeland.....	June 17	12,000
Bruin Lake.....	Woodville and Lyndon.....	Hon. E. Farmer, Stockbridge.....	June 17	10,000
Manistee county: Bear Lake.....	Bear Lake and Pleasanton.....	J. H. Werle, Bear Lake.....	June 20	8,000
Portage Lake.....	Oneskama.....	Hans A. Weudel, Oneskama.....	June 20	8,000
Little Manistee.....	Manistee.....	F. G. Trimble, Manistee.....	June 20	8,000
Mason county: Hoag's Lake.....	Freesoil.....	Dr. C. M. Spencer, Freesoil.....	June 21	8,000
Stone Lake.....	Sheridan.....	N. G. Nelson, Fountain.....	June 21	6,000
Long Lake.....	Branch.....	Clark M. Gray, Fountain.....	June 21	6,000
Emerson Lake.....	Branch.....	Ernest Jaser, Walhalla.....	June 21	6,000
Tallman Lake.....	Branch and Sheridan.....	Ernest Jaser, Walhalla.....	June 21	6,000
Blue Lake.....	Sheridan.....	L. L. Bell, Tallman.....	June 21	6,000
Mecosta county: Clear Lake.....	Colfax.....	J. H. Tauch, Fountain.....	June 21	6,000
Muskegon county: Wolf Lake.....	Eggleston.....	H. J. Ward, Big Rapids.....	June 25	6,000
Little Blue Lake.....	Muskegon and Laketon.....	Carl A. Stauffer, Ravenna.....	June 18	8,000
Bear Lake.....	Muskegon and Laketon.....	E. D. Magoon, Muskegon.....	June 18	6,000
Mona Lake.....	Muskegon and Laketon.....	E. D. Magoon, Muskegon.....	June 18	8,000
Stewart Lake.....	Nortnu.....	E. D. Magoon, Muskegon.....	June 18	8,000
Little Black Lake.....	Cedar Creek.....	E. D. Magoon, Muskegon.....	June 18	6,000
	Norton and Spring Lake.....	E. D. Magoon, Muskegon.....	June 18	8,000

County and name of water.	Township.	Name of depositor.	Date.	Number.
Newaygo county: Crooked Lake or Brookings Lake.....	Beaver and Monroe.....	M. B. Draper, Grand Rapids.....	June 26	8,000
Oakland county:				
Pine Lake.....	Oxford.....	H. J. Barber, Detroit.....	June 20	8,000
Middle Straits Lake.....	West Bloomfield.....	N. E. Forbush, Walled Lake.....	June 17	10,000
Walled Lake.....	Novi and Commerce.....	M. A. Porter, Northville.....	June 17	12,000
Orchard Lake.....	West Bloomfield.....	F. S. Campbell, Detroit.....	June 17	14,000
Cass Lake.....	West Bloomfield.....	T. J. Frye, Pontiac.....	June 14	12,000
Johnson Lake.....	Groveland.....	Frank L. Becker, Pontiac.....	June 30	2,000
Watkins Lake.....	Waterford.....	R. F. Monroe, Pontiac.....	June 28	7,000
Ottawa county:				
Pigeon Lake.....	Olive.....	W. G. Brummeler, Grand Rapids.....	June 18	8,000
Crockery Creek.....	Chester.....	Philo F. Bettis, Ravenna.....	June 18	8,000
Presque Isle county:				
Lake of the Woods.....	Presque Isle.....	Roht. E. Ellsworth, Alpena.....	June 24	9,000
Grand Lake.....	Presque Isle and Krakow.....	Jas. E. Kauffman, Presque Isle.....	June 24	15,000
Lake Nettle.....	Bismarck.....	H. Horwitz, Hawks.....	June 24	7,500
Lost Lake.....	Bismarck.....	H. Horwitz, Hawks.....	June 24	6,000
Lake Ella.....	Belknap.....	H. Horwitz, Hawks.....	June 24	6,000
Saginaw county: Saginaw River.....		W. J. Hunsaker, Saginaw.....	June 26	18,000
St. Joseph county:				
Long Lake.....	Fabius.....	G. H. Pixley, Corey.....	June 20	8,000
Portage Lake.....	Werdon.....	Warren Yates, Vicksburg.....	June 17	6,000
Thompson's Lake.....	Sherman.....	Walter Kennard, Coldwater.....	June 19	4,000
Tamarack Creek.....	Sherman.....	Walter Kennard, Coldwater.....	June 19	4,000
Klinger Creek.....	White Pigeon.....	Walter Kennard, Coldwater.....	June 19	6,000
Tuscola county: North Lake.....	Watertown.....	Hon. A. J. Sherman, Fostoria.....	June 27	5,000
Van Buren county:				
Gravel Lake.....	Porter.....	R. F. Thornica, Lawton.....	June 14	6,000
Hersey Lake.....	Porter.....	Mark Henion, Lawton.....	June 14	8,000
Bankson Lake.....	Porter.....	Rev. M. A. Quinian, Notre Dame, Ind.....	June 14	8,000
Fish Lake.....	Porter.....	Frank Wright, Oshtemo.....	June 17	10,000
Silver Lake.....	Porter.....	W. H. Williams, Grand Junction.....	June 17	10,000
Washtenaw county:				
Mirror Lake.....	Lyndon.....	Hon. John Kalmbach, Chelsea.....	June 21	4,500
Long Lake.....	Lyndon.....	Hon. John Kalmbach, Chelsea.....	June 21	6,000
Cassidy Lake.....	Lyndon.....	Hon. John Kalmbach, Chelsea.....	June 21	6,000
Cavanaugh Lake.....	Sylvan.....	Hon. John Kalmbach, Chelsea.....	June 21	6,000
Barton Pond.....	Lyndon.....	Eastern Mich. Edison Co., Ann Arbor.....	June 21	10,500
Blind Lake.....	Lyndon.....	Chas. Huber, Chelsea.....	June 21	6,000
Total.....				1,214,500

LARGE MOUTH BASS PLANTS, 1913.

FINGERLINGS.

County and name of water.	Township.	Name of depositor.	Date.	Number.
Alger county:				
Doe Lake.....	Munising.....	H. Malott, Detroit.....	June 26	3,000
Reddy's Lake.....	Au Train.....	Doe Lake Club, Wetmore.....	June 26	5,000
Mirror Lake.....	Au Train.....	Doe Lake Club, Wetmore.....	June 26	5,000
Half Moon Lake.....	Munising.....	Doe Lake Club, Wetmore.....	June 26	4,000
Allegan county:				
Lower Scott Lake.....	Lee.....	Mark Maw, Pullman.....	June 28	3,000
Osterhout Lake.....	Lee.....	Walter E. Sheffer.....	June 28	3,000
Barry county:				
Fine Lake.....	Johnstown.....	Willard A. Knight, Battle Creek.....	July 3	2,500
Benzie county:				
Crystal Lake.....		J. F. Monroe, Beulah.....	Oct. 9	300
Berrieo county:				
Mill Creek Pond.....		E. E. Rowland, Watervliet.....	June 28	3,000
Dayton Lake.....	Bertrand.....	Leo R. Arnold, Dayton.....	Aug. 9	600
Branch county:				
Coldwater Lake.....	Ovid.....	F. J. Tappan, Coldwater.....	June 24	4,000
Gregg, Morrison, North, & South and Messenger Lakes.....	Coldwater and Girard.....	F. J. Tappan, Coldwater.....	June 24	5,000
Coldwater River.....	Ovid and Coldwater.....	F. J. Tappan, Coldwater.....	June 24	4,000
Snead and Carry Lakes.....	Batavia.....	F. J. Tappan, Coldwater.....	June 24	4,000
Calloun county:				
Ackerley Lake.....	Convis.....	C. E. Ackerley, Bellevue.....	July 19	2,000
Cass county:				
Pine Lake.....	Jefferson and Howard.....	C. H. Kimmnerle, Cassopolis.....	July 24	600
Gray Lake.....	Jefferson.....	C. H. Kimmnerle, Cassopolis.....	July 24	1,500
Birch Lake.....	Foster.....	Arthur Sears, Jones.....	July 24	800
Cheboygan county:				
Maplewood Lake.....	Nunda.....	E. W. Moore, Wolverine.....	July 23	600
Chippewa county:				
Durbart Lake.....	Trout Lake.....	Geo. A. Osborn, Sault Ste. Marie.....	June 26	4,000
Crawford county:				
Portage Lake.....		Marius Hansoo, Grayling.....	July 23	1,400
Section One Lake.....	Maple Forest.....	Wm. S. Chalker, Grayling.....	July 23	800

TWENTY-FIRST REPORT—STATE FISHERIES.

Delta county:				
Crane Lake.....	Nahma.....	Rufus S. Skeels, Hart.....	July 8	3,000
Moss Lake.....	Nahma.....	Timothy Killian, Escanaba.....	June 27	9,000
Eaton county:				
Narrow Lake.....		Ezra Huber, Charlotte.....	July 3	1,500
Grand Traverse county:				
Dyers Lake.....	Long Lake.....	D. J. Dyer, Traverse City.....	July 2	3,000
Silver Lake.....	Garfield.....	Ed. Gilbert, Traverse City.....	July 2	5,000
Truax Lake.....	Whitewater.....	G. C. Pray, Mabel.....	July 2	3,000
Hillsdale county:				
Perch Lake.....	Somerset.....	Henry Long, Somerset Center.....	July 3	2,000
Snyder Lake.....	Cambria.....	Chas. D. Snyder, Hillsdale.....	July 3	1,000
Mosherville Lake.....	Scipio.....	Don Daykin, Mosherville.....	July 3	1,500
First Sand Lake.....	Hillsdale.....	Jonesville R. and G. Club, Jonesville.....	July 3	1,500
Hastings Lake.....	Scipio.....	Jonesville R. and G. Club, Jonesville.....	July 3	2,000
Gray's Lake.....	Fayette.....	Jonesville R. and G. Club, Jonesville.....	July 3	1,500
Courtright Lake.....	Fayette.....	Jonesville R. and G. Club, Jonesville.....	July 3	2,000
Ionia county:				
Long Lake.....	Orleans.....	Hon. W. F. Bucker, Belding.....	July 11	1,000
Jackson county:				
Wampler's Lake.....	Norvell and Cambridge.....	Geo. J. Nisle, Norvell.....	June 24	6,000
Mud Lake.....	Norvell.....	Geo. J. Nisle, Norvell.....	June 24	7,000
Portage Lake.....	Waterloo and Henriette.....	Geo. E. Beebe, Jackson.....	Aug. 18	250
Kent county:				
Ratigan's of Bell Lake.....	Cannan and Grattan.....	Wm. P. Stonebreaker, Ada.....	July 3	1,800
Leelanau county:				
Lake Leelanau.....	Leland.....	Frank H. Black, Lake Leland.....	July 3	6,000
Leg Lake.....	Leelanau.....	H. E. Ashely, Chicago, Ill.....	July 2	3,000
Glen Lake.....	Glen Arbor and Kasson.....	D. H. Day, Glen Haven.....	Aug. 26	600
Luce county:				
Wolf Lake.....	McMillan.....	W. G. Fretz, Newberry.....	June 27	3,000
Hamilton Lake.....	Pentland.....	R. C. Bradley, Newberry.....	June 27	3,000
Dollarville Lake.....	46 N. 10 W.....	E. C. Underwood, Dollarville.....	June 27	3,000
North Manistique or Pond Lake.....	Lakefield.....	Harry J. Skinner, McMillan.....	June 27	4,000
Manistee county:				
Perch Lake and No Name.....		Harry D. Jewell, Grand Rapids.....	June 27	4,000
Mecosta county:				
Perch Lake.....	Martiney.....	Ray Carmo, Mecosta.....	July 11	1,000
Long Lake.....	Morton.....	F. H. Beach, Mecosta.....	July 18	2,000

TWENTY-FIRST REPORT—STATE FISHERIES.

County and name of water.	Township.	Name of depositor.	Date.	Number.
Montcalm county:				
Loon Lake.....	Fairplains.....	T. I. Phelps, Greenville.....	Oct. 15	200
Baldwin Lake.....	Eureka.....	T. I. Phelps, Greenville.....	Oct. 15	300
Muscullonge Lake.....	Maple Valley.....	Jeosen Bros., Trufant.....	Oct. 15	150
Montcalm county:				
Whitefish Lake.....	Piersee.....	B. S. Davenport, Grand Rapids.....	July 2	3,000
Buttermilk Lake.....	Piersee.....	E. S. Davenport, Grand Rapids.....	July 2	2,000
Clifford Lake.....	Douglas.....	E. J. Hammersley, Stanton.....	July 11	1,000
Bass Lake.....	Richland.....	J. W. Pfeiffer, Edmore.....	July 11	1,000
Tamerack Lake.....	Cato.....	C. W. Vining, Lakeview.....	July 18	1,500
Muskegon county:				
Big Blue Lake.....	Blue Lake.....	Hon. F. J. Russell.....	July 25	1,000
Newaygo county:				
Bobtist Lake.....	Grove.....	B. S. Davenport, Piersee.....	July 2	2,000
Croton Dam Pond.....	Croton.....	G. L. Erwin, Grand Rapids.....	June 27	4,000
Long and Round Lakes.....	Solon.....	A. H. Sauer, Kent City.....	June 27	3,000
Pickereel Lake.....	Garfield.....	S. D. Thompson, Newaygo.....	June 27	4,000
Kimball and Mari Lakes.....	Brooks and Garfield.....	S. D. Thompson, Newaygo.....	June 27	5,000
Twin Lake.....	Home.....	Jos. Horner, Grand Rapids.....	June 27	4,000
Diamond Lake.....	Liocoln.....	Jos. Horner, Grand Rapids.....	June 27	4,000
Oakland county:				
Loon Lake.....	Waterford.....	J. Byron Judd, Pontiac.....	Aug. 14	600
Lotus, Huntoon and Maccday Lakes.....	Waterford.....	C. C. Craigie, Clarkston.....	Aug. 1	1,600
Burns Lake.....	Holly.....	David Mackey, Holly.....	July 15	500
Marsh Lake.....	Holly.....	David Mackey, Holly.....	July 15	750
Crawford Lake.....	Bloomfield.....	Hugh Chalmers, Detroit.....	July 8	4,800
Angelus or Three Mile Lake.....	Pontiac and Waterford.....	J. Warren Jenkins, Kansas City.....	Aug. 21	600
Mirror Lake.....	Pontiac and Waterford.....	Hugh Chalmers, Detroit.....	Aug. 21	1,000
Lake Angelus.....	Waterford.....	J. Walter Drake, Pontiac.....	Aug. 21	800
Elizabeth Lake.....	Waterford.....	A. L. Moore, Pontiac.....	Sept. 13	600
Crescent Lake.....	Waterford.....	Ward Hammond, Pontiac.....	Sept. 13	400
Oceana county:				
Fa-Da-Ma Lake.....	Leavitt.....	I. C. Manning, Walkerville.....	July 25	750
Pentwater Lake.....	Pentwater.....	C. F. Lewis, Pentwater.....	July 25	1,000
Osceola county:				
Hersey Mill Pond.....	Hersey.....	Ed. French, Hersey.....	July 16	1,000
Big Lake.....	Orient.....	S. F. Postal, Evart.....	July 16	2,500
Otsego county:				
Otsego Lake.....		Hon. E. B. Bolton, Gaylord.....	Aug. 27	1,200
Ottawa county:				
Core Lake.....	Robinson.....	Walter H. Clark, Grand Haven.....	July 3	2,500
Roscommon county:				
Houghton Lake.....	Roscommon.....	Jas. H. Ostrander, Houghton Lake.....	Sept. 24	300
Higgins Lake.....	Gerrish.....	W. H. Phelps, Roscommon.....	Aug. 27	1,200
St. Joseph county:				
Lewis Lake.....	Flowerfield and Marcellus.....	S. D. Gillett, Marcellus.....	July 10	1,000
Tuscola county:				
Harmon Lake.....	Dayton.....	Marshall I. Lewis, Mayville.....	July 15	1,250
Vau Buren county:				
Lake George.....	Lawrence.....	E. C. Douglas, Lawrence.....	June 30	3,000
Lake Cora.....	Paw Paw.....	Otto Hing, Kalamazoo.....	June 30	3,000
Three Mile Lake.....	Paw Paw.....	Wm. M. Kirkwood, Paw Paw.....	June 30	4,000
Saddle Lake.....	Columbia.....	W. H. Crause, Grand Junction.....	June 30	4,000
Scott Lake.....	Arlington.....	J. L. & W. S. Mitchell, Bloomingdale.....	June 28	3,000
Washtenaw county:				
Whitmore Lake.....	Northfield and Green Oak.....	Jay G. Pray, Whitmore Lake.....	Aug. 14	900
Big and Little Portage Lake connected.....	Dexter and Putnam.....	Portage Lake Land Co., Ypsilanti.....	Aug. 14	1,200
Total.....				219,350

County and name of water.	Township.	Name of depositor.	Date.	Number.
Alcona county:				
Crooked Lake	Mitchell	Stephen Evans, Hardy	May 23	160,000
McPhee Lake	Mitchell	Stephen Evans, Hardy	May 23	160,000
Sand Lake	Mitchell	Stephen Evans, Hardy	May 23	160,000
Allegan county:				
Allegan Lake	Hopkins	Wm. Tiefenthal, Hopkins	May 24	120,000
Bensley Pond	Hopkins	Wm. Tiefenthal, Hopkins	May 24	80,000
Three Cornered Lake	Hopkins	Wm. Tiefenthal, Hopkins	May 24	80,000
Round Lake	Leighton	E. S. Allen, Moline	May 26	80,000
Green Lake	Leighton	J. B. Rose & Son, Moline	May 26	160,000
Boot Lake	Wayland	Geo. M. Dean, Shelbyville	May 26	120,000
Schanable Lake	Watson	Allen Dunfield, Otsego	May 24	120,000
Upper Scott Lake	Lee	Chas. Horn, Pullman	May 24	120,000
Lower Scott Lake	Lee	Mark Maw, Pullman	May 24	120,000
Barry county:				
Gun Lake	Severall	Frank Chamberlin, Wayland	May 20	240,000
Clear Lake	Baltimore	John L. Ormsbee, Dowling	June 5	120,000
Saw Mill Lake	Johnstown	Wm. B. Wandell, Bedford	June 5	160,000
Mud Lake	Johnstown	D. H. Beardsley, Battle Creek	May 21	120,000
Fine Lake	Johnstown	Hon. Willard A. Knight, Battle Creek	May 21	240,000
Benzie county:				
Big Platte Lake	Lake and Benzonia	L. V. Stacey, Honor	July 3	120,000
Walker Creek		H. N. Johnson, Benzonia	July 3	120,000
Berrien county:				
Paw Paw Lake	Watervliet	Carmody Bros., Watervliet	May 23	160,000
Long Lake	Berrien	F. D. Layman, Berrien Center	May 23	120,000
Little Indian Lake	Berrien	Otto Radewald, Niles	May 23	120,000
Weaver Lake	Buchanan	Jas. E. Scott, Buchanan	May 23	120,000
Fike Lake	Bertrand	Jas. E. Scott, Buchanan	May 23	120,000
Clear Lake	Buchanan	Jas. E. Scott, Buchanan	May 23	120,000
Wilson Lake	Bertrand	Jas. E. Scott, Buchanan	May 23	120,000
Wadron Lake	Buchanan	Jas. E. Scott, Buchanan	May 23	120,000
Calhoun county:				
Somona Lake	East Leroy	Ray Venton, Battle Creek	May 21	120,000
Graham Lake	Leroy	F. L. Hoffman, M. D., Battle Creek	May 21	120,000
Mill Lake	Leroy	F. L. Hoffman, M. D., Battle Creek	May 21	120,000
Waubesaon Lake	Bedford	S. E. Felch, Battle Creek	May 21	120,000
Goguaac Lake	Battle Creek	Bauer & Hamilton, Battle Creek	May 21	120,000
Hart's Lake	Battle Creek	Earl M. Billington, Battle Creek	May 21	160,000
St. Mary's Lake	Bedford	H. H. Warner, Battle Creek	May 21	120,000

TWENTY-FIRST REPORT—STATE FISHERIES.

Cass county:				
Wood Lake	Porter	Bruce Hoffman, Constantine	May 24	160,000
Magician Lake	Silver Creek and Keeler	Fred Phillips, Dowagiac	May 21	160,000
Diamond Lake	La Grange and Jefferson	Jas. O. Hain, Cassopolis	May 20	120,000
Spring Lake	Marcellus	Clifford Hice, Marcellus	May 20	80,000
Diamond Lake	Severall	Jas. O. Hain, Cassopolis	May 20	120,000
Delta county:				
Crane Lake	Nahma	Rufus F. Skeels, Hart	July 10	120,000
Eaton county:				
Grand River	Windsor	Freeman G. French, Dimondale	May 20	200,000
Gladwin county:				
Ross Pond	Beaverton	Hon. Henry Croll, Jr., Beaverton	May 21	200,000
Grand Traverse county:				
Rennie Lake	Uninn	Kingsley Sportsmen's Club, Kingsley	July 2	80,000
Hillsdale county:				
Lake Pleasant	Jefferson	H. D. Tyler, Osseo	May 22	200,000
Snyder's Lake	Cambria	Chas. D. Snyder, Hillsdale	May 22	120,000
Courtright Lake	Fayette	Jonesville R. and G. Club, Jonesville	May 22	120,000
Gray's Lake	Fayette	Jonesville R. and G. Club, Jonesville	May 22	80,000
Hastings Lake	Fayette	Jonesville R. and G. Club, Jonesville	May 22	120,000
Ackerley Lake	Fayette	Jonesville R. and G. Club, Jonesville	May 22	80,000
Half Moon Lake	Fayette	Jonesville R. and G. Club, Jonesville	May 22	80,000
First Sand Lake	Hillsdale	Jonesville R. and G. Club, Jonesville	May 22	200,000
King Lake	Hillsdale	Jonesville R. and G. Club, Jonesville	May 22	200,000
Ionia county:				
Wardward Lake	Ronald	Ira Conkey, Shiloh	May 16	160,000
Morrison Lake	Boston	John Wallington, Saranac	May 15	120,000
Jordan Lake	Odessa and Woodland	Edwin Shellhorn, Lake Odessa	June 7	160,000
Tupper Lake	Odessa	Edwin Shellhorn, Lake Odessa	June 7	120,000
Jackson county:				
Timms Lake	Grass Lake	Alvin Hatt, Grass Lake	July 8	120,000
Gillets Lake	Leoni	Geo. E. Beebe, Jackson	July 8	80,000
Vandercook's Lake	Summit	Geo. E. Beebe, Jackson	July 8	80,000
Grass Lake	Grass Lake	Geo. E. Beebe, Jackson	July 8	80,000
Clark's Lake	Columbia	H. A. Reece, Jackson	July 8	80,000
Clark's Lake	Columbia	Jno. E. Pinegar, Jackson	July 8	120,000
Olcott's, Big Wolf and Little Wolf Lakes	Severall	Wm. W. Todd, Jackson	July 8	120,000
Lagoon in Loomis Park	City of Jackson	Wm. W. Todd, Jackson	July 8	200,000
Crispell Lake	Liberty	Wm. W. Todd, Jackson	July 8	120,000
Michigan Center Pond and Wolf Lake	Leoni and Napoleon	Chas. Adams, Clark's Lake	May 22	200,000
		Geo. H. Lumley, Michigan Center	May 22	400,000

TWENTY-FIRST REPORT—STATE FISHERIES.

County and name of water.	Township.	Name of depositor.	Date.	Number.
Kalamazoo county:				
West Lake	Portage	J. E. Crose, Kalamazoo	May 26	120,000
Austin Lake	Portage	J. E. Crose, Kalamazoo	May 26	160,000
Sherman Lake	Rees	O. A. Van Duesen, Battle Creek	June 5	160,000
Middle Three Lakes	Richland	H. D. Streator, Galesburg	June 5	120,000
Lyon's Lake	Comstock	E. F. O'Brien, Kalamazoo	June 5	160,000
Kent county:				
Camp Lake	Algoma	Albert Batterly, Sparta	May 16	120,000
Long and Ronnd Lakes	Solon	A. H. Sour, Kent City	May 16	120,000
Reed's Lake	Grand Rapids	L. J. De Lamarier, Grand Rapids	May 12	120,000
Lapeer county:				
Schlegels Lake	Lapeer	E. J. Thrasher, Lapeer	May 20	80,000
Squaw Lake	Rich	E. J. Thrasher, Lapeer	May 20	200,000
Nepissing Lake	Elba	E. J. Thrasher, Lapeer	May 20	160,000
Rood's Lake	Mayfield	E. J. Thrasher, Lapeer	May 20	120,000
Bronson Lake	Oregon	E. J. Thrasher, Lapeer	May 20	160,000
Fish Lake	Mayfield	E. J. Thrasher, Lapeer	May 20	160,000
Long Lake	Attica	Imlay City F. and G. Club, Imlay City	May 20	160,000
Bass Lake	Arcadia	Imlay City F. and G. Club, Imlay City	May 20	200,000
Pleasant Lake	Attica	Imlay City F. and G. Club, Imlay City	May 20	200,000
Elk Lake	Attica	Imlay City F. and G. Club, Imlay City	May 20	200,000
Leelanau county:				
Glan Lake	Glen Arbor, Kasson and Empire	D. H. Day, Glen Haven	July 3	160,000
Leuawee county:				
Brownell Lake	Rollin	Fred A. Binns, Addison	May 22	120,000
Mecosta county:				
Minegar Lake	Fork	O. S. Wood, Barryton	May 16	120,000
Mill Pond at Barryton	Fork	O. S. Wood, Barryton	May 16	120,000
Moiles Lake	Sheridan	W. S. Laffin, Barryton	May 16	120,000
Montcalm county:				
Loon Lake	Fairplains	T. I. Phelps, Greenville	May 23	240,000
Clifford Lake	Douglas	Wm. Chase, Greenville	May 23	160,000
Town Line Lake	Cato and Belvidere	E. B. Root, Lakeview	May 23	120,000
Bass Lake		E. B. Root, Lakeview	May 23	520,000
Big Spruce Lake	Maple Valley	J. A. Freeman, Coral	May 16	160,000
Gody Lake	Maple Valley	J. A. Freeman, Coral	May 16	160,000
Duck Pond	Maple Valley	J. A. Freeman, Coral	May 16	120,000
Newaygo county:				
Twin Lake	Home	Jos. Horner, Grand Rapids	May 23	120,000
Manby Lake	Lilley	S. Shingledecker, Bitely	May 21	80,000

TWENTY-FIRST REPORT—STATE FISHERIES.

Oakland county:				
Huron River	Milford	T. H. Padley, Milford	May 15	120,000
Kent Lake	Milford and Lyons	T. H. Padley, Milford	May 15	120,000
Hubbard Pond	Milford	T. H. Padley, Milford	May 15	200,000
Long Lake	White Lake	T. H. Padley, Milford	May 15	80,000
Bass Lake	Commerce	T. H. Padley, Milford	May 15	120,000
Loon Lake	Commerce	A. Lingham, Milford	May 15	200,000
Norton Creek	Several	A. Lingham, Milford	May 15	120,000
Chain of Lakes, Morrison, Prowd's, and Sand Lakes	Commerce	A. Lingham, Milford	May 15	120,000
Upper and Lower Mill Ponds	Milford	Thos. Forbes, Milford	May 15	120,000
Row Lake	Milford and Highland	Chas. Dever, Milford	May 15	120,000
Teeples Hill Lake	Commerce	Thos. Forbes, Milford	May 15	120,000
Round Lake	Highland	R. S. Potts, Milford	May 15	80,000
Lion Lake	Milford	Chas. Dever, Milford	May 15	120,000
Lake Orion	Orion	Lake Orion Summer Homes Co., Detroit	May 15	320,000
Marsh Lake	Holly	David Mackey, Holly	May 16	160,000
Austin Lake	Milford	R. S. Potts, Milford	May 16	80,000
Ogemaw county:				
Rifle Lake	Hill	John O'Connor, Lupton	May 24	160,000
Spring Lake	Hill	John O'Connor, Lupton	May 24	160,000
Little Au Sable Lake	Goodar	F. G. Wood, Maltby	May 24	200,000
Osceola county:				
Park Lake	Highland	Glenn West, Park Lake	June 10	120,000
St. Joseph county:				
Adams Lake	Burr Oak	Anthony Bros., Sturgis	May 26	120,000
Cranberry Lake	Flowerfield	Clifford Hice, Marcellus	May 20	120,000
Howardsville Mill Pond	Flowerfield and Marcellus	Clifford Hice, Marcellus	May 20	160,000
Rock River	Flowerfield	Clifford Hice, Marcellus	May 20	120,000
Ayerses Lake	Flowerfield	Clifford Hice, Marcellus	May 20	80,000
Lake Four	Fabius	Clifford Hice, Marcellus	May 20	80,000
Lewis Lake	Flowerfield and Marcellus	S. D. Gillett, Marcellus	May 20	80,000
Fish, Hog and Pepper Lakes	Burr Oak	Jas. B. Smith, Burr Oak	May 20	200,000
Long Lake	Celon	Jas. B. Smith, Burr Oak	May 20	80,000
Van Buren county:				
North Lake	Almena	Frank Wright, Oshtemo	May 24	160,000
Fish Lake	Almena	Frank Wright, Oshtemo	May 24	160,000
Little Bear Lake	Columbus	E. B. Eddy, Grand Junction	May 23	120,000
Van Auken Lake	Bangor	Geo. Mutchler, Hartford	May 21	120,000
Keeler Lake	Keeler	Wm. Hoffman, Hartford	May 21	80,000
Hersey Lake	Porter	Ralph Van Vleck, Lawton	May 21	120,000
Bankson Lake	Porter	R. W. Mitchell, Lawton	May 21	120,000
Gravel Lake	Porter	R. F. Thornton, Lawton	May 21	120,000
Washtenaw county:				
Blind Lake	Lyndon	Chas. Hieber, Chelsea	July 8	120,000
Big and Little Portage Lakes	Dexter and Putnam	Portage Lake Land Co., R. H. Killian, Ypsilanti	July 8	160,000
Total				19,360,000

TWENTY-FIRST REPORT—STATE FISHERIES.

PERCH PLANTS, 1913.

FINGERLINGS.

County and name of water.	Township.	Name of depositor.	Date.	Number.
Calhoun county:				
Gogiac Lake.....	Battle Creek.....	Gogiac Resort Assn., Battle Creek.....	Sept. 2	1,250
Lyon Lake.....	Fredonia.....	E. B. Stuart, Marshall.....	Aug. 27	600
Cass county:				
Lewis Lake.....	Penn and Newberg.....	J. C. English, Vandalia.....	July 24	600
Leelanau county:				
Glen Lake.....		D. H. Day, Empire.....	Aug. 26	800
Newaygo county:				
Twini Lake.....	Home.....	Jos. Horner, Grand Rapids.....	July 29	750
Total.....				4,000

PERCH PLANTS, 1913.

YEARLINGS.

County and name of water.	Township.	Name of depositor.	Date.	Number.
Barry county:				
Pine Lake.....	Hope.....	Will Andrews, Shultz.....	June 7	120
Bowker Lake.....	Hope.....	Elmer Payne, Cloverdale.....	June 7	120
Long Lake.....	Hope.....	B. Dickinson, Hastings.....	June 7	160
Horseshoe Lake.....	Hope.....	Fred Gibson, Cloverdale.....	June 7	120
Little Long Lake.....	Hope.....	Mrs. M. Jones, Cloverdale.....	June 7	120
Twenty-one Lake.....	Hope.....	Pete Kingsbury, Cloverdale.....	June 7	120
Mud Lake.....	Hope.....	Ovid Chamberlain, Cloverdale.....	June 7	120
Wall Lake.....	Hope.....	C. H. Osborn, Hastings.....	June 7	160
Fine Lake.....	Johnstown.....	Hon. W. A. Knight, Battle Creek.....	Sept. 2	250
Eaton county:				
Ronnd Lake.....	Vermontville.....	W. L. Freemire, Vermontville.....	June 7	120
Jackson county:				
Portage Lake.....	Waterloo and Napoleon.....	Geo. E. Beebe, Jackson.....	Sept. 2	100
Michigan Center Mill Pond.....	Leoni.....	Geo. E. Beebe, Jackson.....	Sept. 2	100
Okcott's, Big and Little Wolf Lake.....	Several.....	Wm. W. Todd, Jackson.....	Sept. 2	250
Wolf Lake.....	Leoni.....	Geo. E. Beebe, Jackson.....	Sept. 2	100
Montcalm county:				
Loon Lake.....		F. I. Phelps, Greenville.....	Oct. 15	200
Total.....				2,160

WALL-EYED PIKE PLANTS, 1913.

County and name of water.	Township.	Name of depositor.	Date.	Number.
Allegan county:				
Ellinger Lake	Hopkins	Wm. F. Tiefenthal, Hopkins	May 15	75,000
East Lake	Hopkins	Wm. F. Tiefenthal, Hopkins	May 15	75,000
Three Cornered Lake	Hopkins	Wm. F. Tiefenthal, Hopkins	May 15	75,000
Linsley Lake	Hopkins	Wm. F. Tiefenthal, Hopkins	May 15	75,000
Miter Lake	Allegan and Hopkins	Ora P. Gordon, Hopkins	May 15	100,000
Sheffer Lake	Trowbridge	Win. W. Truax, Hopkins	May 15	75,000
School Section Lake	Watson	Allen Dunfield, Otsego	May 15	75,000
Upper Scott Lake	Lee	Chas. Horn, Pullman	May 13	100,000
Osterhout Lake	Lee	Walter E. Sheffer, Grand Junction	May 13	100,000
Alger county:				
Sweed Lake	Munising	F. E. Marsh, Wetmore	May 26	75,000
Half Moon Lake	Munising	Doe Lake Club, Wetmore	May 26	75,000
Minnr Lake	Au Train	Doe Lake Club, Wetmore	May 26	75,000
Reddy's Lake	Au Train	Doe Lake Club, Wetmore	May 26	75,000
Bass Lake	Munising	Victor E. Cox, Wetmore	May 26	75,000
Cookson Lake	Au Train	Victor E. Cox, Wetmore	May 26	35,000
Harris Lake	Munising	W. B. Mc Combs, Marquette	May 26	60,000
Doe Lake	Munising	W. B. Mc Combs, Marquette	May 26	45,000
Au Train Lake	Au Train	Carlson & Doucette, Jr., Au Train	May 26	150,000
Field's Lake	Au Train	H. A. St. John, Marquette	May 26	120,000
16 Mile Lake	Au Train	H. A. St. John, Marquette	May 26	120,000
Section 4-45-22	Au Train	H. A. St. John, Marquette	May 26	75,000
Antrim county:				
Intermediate Lake	Severel	I. E. Dickinson, Bellaire	May 24	180,000
Thayer's Lake	Helena	O. P. Anderson, Bellaire	May 24	75,000
Barry county:				
Head Lake	Hope	Fay F. Pierce, Shultz	May 19	125,000
Pine Lake	Hope	Will Andrews, Shultz	May 19	125,000
Mud Lake	Hope	Pete Kingsbury, Cloverdale	May 19	125,000
Guernsey Lake	Hope	Ovid Chamberlin, Cloverdale	May 19	125,000
Holcomb Lake	Yankee Springs	Jesse Newton, Cloverdale	May 19	125,000
Guilkey Lake	Prairieville	Glenn Wise, Delton	May 20	75,000
Ashby Lake	Barry	Add Pennock, Delton	May 20	100,000
Podunk Lake	Hope	J. M. Payne, Hastings	May 20	75,000
Middle Lake	Rutland	Chas. Wood, Hastings	May 20	100,000
Gun Lake	Hastings	Chas. Wood, Hastings	May 20	100,000
Thornapple Lake	Yankee Springs	A. A. Anderson, Hastings	May 20	150,000
Thornapple Lake	Castleton	J. W. Shaffer, Morgan	May 20	100,000
Payne Lake	Castleton	Wm. Springer, Irving	May 20	100,000
Leach, Carter and Long Lakes	Yankee Springs	W. E. Streeter, Middleville	May 14	100,000
Middle Lake	Carlton, Hastings and Rutland	C. W. Miker, Hastings	May 14	100,000
Bates Lake	Carlton	H. D. Bennett, Hastings	May 14	100,000
	Rutland	W. D. Reed, Hastings	May 14	75,000
Dowd Lake				
Dowd Lake	Rutland	Wm. F. Clary, Hastings	May 14	75,000
Lower Lake	Rutland	W. D. Abbott, Hastings	May 14	100,000
Leach Lake	Carlton	H. A. Newton, Hastings	May 14	125,000
Pleasant and Crooked Lakes	Hope and Barry	C. H. Osborn, Hastings	May 26	210,000
Wall Lake	Hope	J. M. Payne, Hastings	May 26	120,000
Long Lake	Hope	B. Dickinson, Hastings	May 26	120,000
Baraga county:				
Nelligou Lake	Spurr	Peter Dolf, Michigamme	May 26	120,000
Lake No. 2 or Lake George	T. 48 R. 31	E. W. McPharran, Marquette	May 26	45,000
Lake No. 1 of Three Lakes or Lake Ruth	T. 48 R. 31	E. W. McPharran, Marquette	May 26	45,000
Beaufort Lake	Spurr	Peter Trudell, Jr., Negaunee	May 26	75,000
St. John's Lake	Spurr	C. W. Munson, Republic	May 26	75,000
Benzie county:				
Otter Lake	Lake	L. B. Fast, M. D., Hour	May 16	100,000
Crystal Lake	Benzonia	J. F. Munro, Beulah	May 17	150,000
Long Lake	Lake	Albery Haley, Frankfort	May 17	225,000
Big Platte Lake	Lake and Benzonia	Jas. L. Barker, Honor	June 2	150,000
Round Lake and Long Lake	Lake	David E. Burns, Beulah	June 2	225,000
Turtle Lake	Inland	Wm. Reimer, Thompsonville	June 2	75,000
Branch county:				
Ritter's Pond	Bethel	Phiney Ritter, Bronson	May 14	45,000
Goodrich Lake	Sherwood	A. Blackman, Sherwood	May 14	75,000
Lower Lake	Sherwood	Harry G. Lewis, Athens	May 17	120,000
Lower Lake	Sherwood	Harry G. Lewis, Athens	May 17	120,000
Kenyou Lake	Sherwood	Leo E. Wood, Athens	May 17	120,000
Berrien county:				
Paw Paw Lake	Watersmeet	A. S. Miles, Benton Harbor	May 31	150,000
Long Lake	Berrien	F. D. Layman, Berrien Centre	May 31	90,000
Paw Paw Lake	Watervliet	E. E. Rowland, Watervliet	May 13	125,000
Calhoun county:				
Ceresco Pond, Cedar Lake, Warner and Hyde Lakes	Marshall, Fredonia and Newton	Howard K. Culver, Ceresco	May 20	250,000
Wabascon Lake	Bedford	Weickgenannt & Coe, Battle Creek	May 16	150,000
St. Mary's Lake	Peufield	Frank Van Nocken, Battle Creek	May 16	150,000
Lake of the Woods	Lee	Will O. Rundle, Marshall	May 16	90,000
Goguae Lake	Battle Creek	Goguae Resort Assn., Battle Creek	May 17	180,000
Prairie Lake	Clarence	W. H. Riever, Albion	May 17	60,000
Turtle Lake	Burlington	E. R. Sullivan, Union City	May 17	135,000
Keasler Lakes	Albion	D. S. Howe, Homer	May 17	75,000
Homer Lake	Homer	Chas. Blashfield, Homer	May 17	135,000
Turtle Lake	Burlington	E. R. Sullivan, Union City	May 23	75,000
Lee Lake	Newton	H. E. Kimmel, Union City	May 23	75,000
Warner Lake	Burlington	P. E. Ganson, Union City	May 23	75,000
Cass county:				
Finch Lake	Marcellus	A. E. Lawrence, Marcellus	May 17	100,000
Bunker Lake	Volinia	Floyd Brown, Marcellus	May 17	150,000
Dewey Lake	Silver Creek	Geo. Feruham, Dowagiac	May 16	120,000
Magician Lake	Silver and Keeler	Fred Phillips, Dowagiac	May 16	240,000

County and name of water.	Township.	Name of depositor.	Date.	Number.
Cass county—Con.:				
Buck Creek	Porter	C. A. Lyons, Vandalia	May 23	45,000
Birch Lake	Porter	C. A. Lyons, Vandalia	May 23	60,000
Harwood Lake	Newberry	A. P. Beeman, Jones	May 23	45,000
Diamond Lake	Several	C. A. Russ, Cassopolis	May 14	-210,000
Hutchings Lake	Newberry	Fred Marsh, Cassopolis	May 14	-150,000
Stone Lake	La Grange	A. P. Beeman, Jones	May 14	-150,000
Harwood Lake	Newberg	A. P. Beeman, Jones	May 14	-120,000
Bcgart Lake	Newberg	A. P. Beeman, Jones	May 14	75,000
Corey Lake	Newberg	A. P. Beeman, Jones	May 14	120,000
Crawford county:				
Shoepack Lake	Maple Forest	J. E. Douglas, Lowell	May 30	75,000
Howe's Lake	Frederic	Marius Hanson, Grayling	May 30	75,000
Chippewa county:				
Hulbert Lake	Superior	Harvey W. Agnew, Soo Junction	May 26	75,000
Clinton county:				
Round Lake	Victor	Fred Decker, Laingsburg	May 14	120,000
Park Lake	Bath	A. S. Fairfield, Bath	May 14	120,000
Cheboygan county:				
Burt Lake	Tuscarora	Clyde King, Indian River	May 19	150,000
Mullet Lake	Tuscarora	Gerald King, Indian River	May 19	150,000
Burt Lake	Tuscarora	F. E. Martin, Indian River	May 19	120,000
Long Lake	Grant and Benton	Fred S. Burgess, Detroit	May 19	195,000
Clare county:				
Windover Lake	Freeman	Chas. Lyon, North Star	May 17	100,000
Silver Lake	Freeman	John Ferwerda, Falmouth	May 17	75,000
Mud Lake	Lincoln	Anton Billgren, Lake George	May 17	75,000
Lake George	Lincoln	G. M. Bierly, Lake George	May 17	125,000
Dewey Lake	Grant	C. C. Sanford, Clare	May 21	60,000
Fisher's Lake	Hatton	C. A. Klemman, Chicago, Ill.	May 21	45,000
Budd Lake	Hatton	P. B. Seitz, Harrison	May 21	45,000
Lake Arnold	Hayes	Hughes Bros. Co., Harrison	May 21	45,000
Deer Lake	Hayes and Frost	Patrick Dobson, Harrison	May 21	45,000
Long Lake	Hayes	Hughes Bros. Co., Harrison	May 21	45,000
Ronnock Lake	Hatton	C. A. Klemman, Chicago, Ill.	May 21	45,000
Bass Lake	Hatton	C. A. Klemman, Chicago, Ill.	May 21	45,000
Gut Lake	Hatton	D. W. Canfield, Clare	May 21	60,000
South Lake	Hatton	Wm. Lange, Clare	May 21	60,000
Farwell Mill Pond	Grant	Fuller & Harris, Farwell	May 21	60,000
Sand Lake	Surrey	Floyd E. Oliver, Farwell	May 21	60,000
Sand Lake	Surrey	W. C. Fuller, Harris	May 21	60,000
Crooked Lake	Surrey	Wm. Scott, Lake	May 21	60,000
Eight Point Lake	Garfield	F. S. Postal, Evart	May 21	60,000

Eaton county:				
Pine Lake	Walton	L. Cook & Son, Olivet	May 17	125,000
Looking Glass River	Oneida	Bruce B. Douglas, Waucousta	May 20	45,000
Emmet county:				
Round Lake	Bear Creek	Henry Lindig, Petoskey	May 14	125,000
Crooked Lake	Littlefield	Sheldon Cole, Oden	May 14	175,000
Carp Lake	Carp Lake and Hebron	O. C. Cope, Carp Lake	May 14	150,000
Pickeral Lake	Littlefield	Rufus L. Myers, Alanson	May 14	125,000
Gladwin county:				
Lake Four	Butman	R. J. McMillan, Bntman	May 19	45,000
Genesee county:				
Potter Lake	Davison	Wm. E. Briggs, Davison	May 23	75,000
Grand Traverse county:				
Silver Lake	Garfield and Blair	G. E. Potrafke, Traverse City	May 24	90,000
Ellis Lake	Green Lake	Wm. Saunders, Traverse City	May 24	45,000
Trux Lake	Whitewater	G. E. Pray, Marshall	May 24	105,000
Duck Lake	Green Lake	Kingsley Sportsmen's Club, Kingsley	May 24	105,000
Island Lake	Union	R. B. De France, Kingsley	May 24	75,000
Spider Lake	East Bay	R. B. De France, Kingsley	May 24	105,000
Bass Lake	East Bay	R. B. De France, Kingsley	May 24	45,000
Big Umicic Lake	Union	R. B. De France, Kingsley	May 24	30,000
Little Umicic Lake	Union	Kingsley Sportsmen's Club, Kingsley	May 24	105,000
Hogsback Lake	East Bay	Kingsley Sportsmen's Club, Kingsley	May 24	75,000
Rennie Lake	Union	Kingsley Sportsmen's Club, Kingsley	May 24	75,000
Green Lake	Green Lake	Trav. City Fly Casting Club, Trav. City	May 24	120,000
Long Lake	Garfield	Trav. City Fly Casting Club, Trav. City	May 24	90,000
Boardman Lake	Traverse	Trav. City Fly Casting Club, Trav. City	May 24	75,000
Silver Lake	Garfield	R. S. Hastings, Traverse City	May 24	60,000
Hogsback or Crooked Lake	Mayfield and East Branch	J. S. Hodges, Fife Lake	May 24	45,000
Fife Lake	Fife	R. B. De France, Kingsley	June 3	90,000
Rennie Lake	Union	R. B. De France, Kingsley	June 3	90,000
Hogsback Lake	East Bay	R. B. De France, Kingsley	June 3	30,000
Spider Lake	East Bay	R. B. De France, Kingsley	June 3	30,000
Bass Lake	East Bay	R. B. De France, Kingsley	June 3	30,000
Big Union Lake	Union	R. B. De France, Kingsley	June 3	30,000
Little Union Lake	Union	R. B. De France, Kingsley	June 3	30,000
Ingham county:				
Park Lake	Meridian	Myles F. Gray, Lansing	June 3	150,000
Ionia county:				
Hubbardston Mill Pond on Fish Creek	North Plains	A. E. Clark, Hubbardston	May 15	125,000
Long Lake	Orleans	E. D. Lambertson, Beiding	May 16	75,000
Mud Lake	Orleans	E. E. Brown, Shiloh	May 16	75,000
Owl Lake	Orleans	Frank Allen, Shiloh	May 16	120,000
Municipal Power Pond	Orleans	C. D. Lakin, Portland	May 16	60,000
Morrison Lake	Boston and Campbell	E. A. Rising, Clarksville	May 16	90,000
Jordan Lake	Odessa and Woodland	Edwin Shellhorn, Lake Odessa	May 16	90,000
Tupper Lake	Odessa	Edwin Shellhorn, Lake Odessa	May 16	45,000

County and name of water.	Township.	Name of depositor.	Date.	Number.
Jackson county:				
Stoney Lake	Napoleon	M. E. Russell, Napoleon	May 24	75,000
Stoney Lake	Napoleon	Wm. McGraw, Napoleon	May 24	75,000
Mud Lake	Norvell	Geo. J. Nisle, Norvell	May 24	75,000
Stony Lake	Napoleon	M. E. Russell, Napoleon	May 24	75,000
Wampler's Lake	Norvell and Cambridge	Geo. J. Nisle, Norvell	May 24	120,000
Mud Lake	Norvell	Geo. J. Nisle, Norvell	May 24	75,000
Clark's Lake	Columbia	Jno. E. Pregar, Jackson	May 17	180,000
Vandercook's Lake	Leoni	Geo. E. Beebe, Jackson	May 17	150,000
Portage Lake	Waterloo and Leoni	Geo. E. Beebe, Jackson	May 17	150,000
Ackerson Lake	Napoleon	Geo. E. Beebe, Jackson	May 17	150,000
Wolf Lake	Napoleon and Grass Lake	Geo. E. Beebe, Jackson	May 17	150,000
Michigan Center Mill Pond and Wolf Lake	Leoni and Napoleon	Geo. H. Lunley, Michigan Center	May 18	270,000
Kalamazoo county:				
Gull Lake	Ross	F. S. Kenfield, Augusta	May 20	200,000
Hampton Lake	Portage	E. R. Conrad, Vicksburg	May 20	75,000
Austin Lake	Portage	E. R. Conrad, Vicksburg	May 20	100,000
Gourdneck Lake	Portage and Schoolcraft	E. R. Conrad, Vicksburg	May 20	125,000
West Lake	Portage	E. R. Conrad, Vicksburg	May 20	100,000
Long Lake	Portage	Henry Warup, Kalamazoo	May 17	125,000
Limehill Lake	Kalamazoo	Gardie Phillips, Kalamazoo	May 16	90,000
Lyon Lake	Comstock	E. F. O'Brien, Kalamazoo	May 16	120,000
Kalkaska county:				
Wellman's Mill Pond	Boardman	Geo. M. Stone, South Boardman	May 24	30,000
Guernsey Lake	Wilson	L. D. Musser, South Boardman	May 24	60,000
Kent county:				
Grand River	Oakfield	W. F. Smith, Lowell	June 2	300,000
Sandy Bottom Lake	Grand Rapids	Glenn Ginnup, Harvard	May 16	100,000
Reed's Lake	Vergennes and Grattan	L. J. De Lamar, Grand Rapids	May 12	125,000
Murry Lake	Solon and Enstey	L. D. Church, Lowell	May 12	125,000
County Line or Baldwin Lake	Courtland	Ross Mulligan, Sand Lake	May 12	150,000
Stone Lake	Nelson	J. E. Ward, Rockford	May 12	100,000
Five Lake	Solon	Jesse E. Beardslee, Cedar Springs	May 12	75,000
Crandall Lake	Solon	Wesley Brown, Cedar Springs	May 12	125,000
Middle or Spring Lake	Solon	Earl Rasco, Sand Lake	May 12	100,000
Sand Lake	Nielson and McCollum	Wm. W. Williamson, Sand Lake	May 12	75,000
Merry Lake	Vergennes and Grattan	Wm. Smith, Lowell	May 26	150,000
Au Sable Power Co. Pond	Vergennes	Wm. Smith, Lowell	May 20	150,000
Lapeer county:				
Pleasant Lake	Lapeer	E. C. Rumer, Flint	May 21	75,000
Long Lake	Attica	John G. Donaldson, Attica	May 20	75,000
Petz Lake	Imlay	Jesse Burger, Capac	May 20	45,000
Barnes Lake	Deerfield	K. M. Barbour, North Branch	May 21	45,000
Five Lakes	Deerfield	J. B. Hagaman, North Branch	May 21	60,000
Miller Lake	Deerfield	J. B. Hagaman, North Branch	May 21	60,000
Seven Ponds	Dryden	Marsden C. Miller, Dryden	May 21	60,000
Livingston county:				
Reeves Mill Pond	Putman	Elmer C. Glenn, Pinckney	May 15	75,000
Wheatland Lake	Hartland	Robt. Mc Call, Milford	May 21	45,000
Long Lake	Hartland	W. C. Brown, Milford	May 21	45,000
Round Lake	Osceola and Genoa	Roy K. Brown, Howell	May 21	75,000
Lenawee county:				
Raisin River		C. F. Greenfield, Deerfield	May 24	75,000
Raisin River		Hon. Verne C. Amberson, Blissfield	May 17	75,000
River Raisin		C. F. Greenfield, Deerfield	May 14	75,000
Brownell's Lake	Rollin	Fred A. Binns, Addison	May 15	75,000
Leelanau county:				
Shald's Lake		John Kawood, Cedar River	June 2	225,000
Lake Leelanau or Carp Lake	Leland	Frank H. Blackledge, Indianapolis, Ind	June 2	225,000
Mackinaw county:				
Brevort Lake	Brevort	Wm. Massey, Jr., Allenville	May 26	150,000
Marquette county:				
Porterfield Lake	Humboldt	Hiram R. Gamble, Republic	May 26	75,000
Allen Lake	Humboldt	Hiram R. Gamble, Republic	May 26	75,000
Milwaukee Lake	Republic	B. Bengston, Republic	May 26	45,000
Granite Lake	Republic	C. W. Munson, Republic	May 28	45,000
Lake Laurie	Ely	Wm. Leiminger, Ishpeming	May 26	45,000
Lake Michigamme	Michigamme	Geo. A. Newett, Ishpeming	May 26	150,000
Michigamme Lake	Michigamme	J. B. Treado, Ishpeming	May 26	150,000
Black River	Republic	John Hyry, Beacon	May 26	45,000
Lake Hattie	Humboldt	John Hyry, Beacon	May 26	45,000
Missaukee county:				
Dyer Lake	Clam Union	John Kormerly, Prosper	June 2	75,000
Section Ten Lake	Lake	F. L. Decker, Lake City	May 2	105,000
Goose Lake	Caldwell	Jas. Boyer, Lake City	May 2	75,000
Lake Missaukee	Lake	Fred H. Reeder, Lake City	May 2	105,000
Long Lake	Lake	Jos. Wolfinger, Lake City	May 2	75,000
Mason county:				
Bass Lake	Summit and Pentwater	C. F. Lewis, Pentwater	May 20	100,000
North Orbow Lake	Riverton	C. F. Lewis, Pentwater	May 20	75,000
Long Lake	Branch	Ernest Jaser, Walhalla	May 21	75,000
Emmerson Lake	Branch	Ernest Jaser, Walhalla	May 21	75,000
Hamlin Lake	Hamlin and Victory	O. J. Wanger, Ludington	May 21	225,000
Lincoln Lake	Lincoln	Elvin Swarthout, Ludington	May 21	240,000
Manistee county:				
Bear Lake	Arcadia	A. H. Stockman, Arcadia	May 16	100,000
Bear Lake	Bear Lake and Pleasanton	Bear Lake R. and C. Club, Bear Lake	May 16	175,000
Portage Lake	Onkama	Hans A. Wandel, Onkama	May 16	175,000
Perch Lake	Dickinson	Rudolph Smith, Brethren	May 16	50,000