DEPARTMENT OF COMMERCE AND LABOR

BUREAU OF FISHERIES.

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CONDITION OF THE MUSSEL FISHERY OF THE ILLINOIS RIVER IN 1912.[1]

The Illinois River was investigated by the Bureau of Fisheries during the summer of 1912 with reference to its mussel resources. This circular is a preliminary report of the conditions existing at that time, and is intended principally for the benefit of those engaged in the pearl-button industry either as manufacturers or mussel fishermen or otherwise interested in the development of mussel resources.

THE UPPER RIVER.

The Illinois River, formed by the junction of the Kankakee and Des Plaines Rivers and emptying into the Mississippi at Grafton, Ill., is about 273 miles in length. Besides draining 29,000 square miles of fine farm land in Illinois, Indiana, and Wisconsin, it is the outlet of the Chicago Drainage Canal, with a discharge of several thousand cubic feet per second. It consequently carries an enormous amount of sewage from Chicago and the cities and manufacturing plants along its course.

From its origin to Utica, a distance of 43 miles, it has a sandstone bed covered with large blocks of sandstone and bowlders. The water is clear, but has a very decided odor, and is more directly affected by the drainage canal than are the lower stretches. The organic matter of the sewage abstracts the dissolved oxygen of the water and renders it unfit for aquatic life. It is practically destitute of mussels and forms an impassable barrier for fish, at least during the summer months.

Below Starved Rock, at Utica, the river flows over a bottom composed mostly of mud or of mud and sand, which, except in a few localities, is characteristic from that point to the mouth.

At Peoria the river broadens into a lake-like expanse, with a length of about 20 miles and a varying width of a few hundred yards to

[1] By Ernest Danglade, whose complete report will be published by the Bureau later.

...e current is very slow, and the depth and bottom ...ere are many fine mussel beds and an enormous quan...ities, making this at present probably one of the best mussel-...ucing districts in the United States. It is especially suited to ...e blue-point or washboard (*Quadrula*) group of mussels, although ...veral other genera also occur in small quantities. The principal ...mmercial species found here are blue-points, three-ridges, wash-...ards, pimple-backs, pig-toes, and muckets.

There are at present about 50 camps in operation in this district, ...nd 600 tons of good button shells have been shipped so far this year (July 23). The price paid is $12 to $13 per ton.

THE DIP NET.

Until 1911 no good method of taking Peoria lake shells had been ...vised, oyster tongs, rakes, and the ordinary mussel bar with ...ow-foot hooks proving unsatisfactory. The dip net has been lately ...troduced, and is now used almost exclusively, as it is simple and ...expensive and can be used successfully on soft mud bottoms free ...om logs and hang-ups. It consists of a heavy, flattish iron hoop, ...omewhat triangular in form, with two of its sides curved and fas...ened to a handle 16 to 18 feet long. The third side is straight, about ...8 inches long, and provided with coarse teeth along its edge. A net ...of 2-inch mesh, made of small chain or no. 96 trot-line, and holding ...about a bushel, is fastened to the hoop and trails behind it. A short ...rope or bridle, attached to the two curved sides of the hoop, leads to ...a single rope secured to the bow of the boat. The boat, driven by a ...gasoline engine of 4 to 20 horsepower, draws the dip net through the ...water along the bottom, the operator steering and at the same time ...bearing down on the handle of the net. The teeth on the lower edge ...of the hoop dig up the mussels, which roll into the net. By this ...method two men or a man and a boy can easily dig 1,500 to 1,800 ...pounds of shells in half a day.

THE LOWER RIVER.

Between Peoria and the Government Locks at Kampsville, a dis...tance of 130 miles, the mussel supply is very poor as compared with ...the output two or three years ago and the camps are much fewer. ...While many tons of shells are still being taken, the river shows marks ...of depletion. At Havana there are only five or six camps, and the ...output is very small. About 30 tons were on shore, some of which ...were taken in 1911. Bath formerly was a great mussel center, and ...many carloads of fine shells were shipped. There are now about 50 ...tons on shore awaiting shipment, and only 6 camps in operation. ...Matanza Bay, just above Bath, is being worked with fair output, ...mostly blue-points. The beds at Beardstown have been extensively ...worked. Five hundred pounds of shells per day of 10 hours labor

...with a gasoline b... 15 to 20 boats wo... shells of the locals ...local beds, produci... about 600 tons of ... hands of local bu... on the mussel beds ... this year. Three y... but the conditions ...tories are anxious ...

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The Illinois ... back river, and th... general character ... development of the ...tities than are all ... upper limits of siz... size usually found ... Beardstown, parti... smaller, although ...

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There have been ... and its principal ... button making, alth... to be of practical ...

The washboard ... found throughout

with a gasoline boat is considered a good day's catch. There are 15 to 20 boats working there, and the five button factories use the shells of the locality. Meredosia has about 30 men working on the local beds, producing daily 200 to 300 pounds per man. There were about 600 tons of good shells at the two button factories and in the hands of local buyers. At Pearl there are about 30 men at work on the mussel beds, and 10 to 12 carloads of shells have been gathered this year. Three years ago there were 300 boats shelling at this place, but the conditions have so changed that some of the local button factories are anxious for new territory.

The pearls and slugs found at Beardstown and Meredosia, as well as at other places in this stretch, are sufficient to induce work even after shelling has ceased to be profitable.

From below the locks (the last in the river) at Kampsville to near the mouth at Grafton, a distance of 30 miles, the mussel conditions are much better, and the river is yielding greater quantities of shells than in any other portion, excepting the Peoria Lake region. There are about 130 boats at work, with a daily yield of from 500 to 700 pounds of shells per man. The shells found are the same kinds found in the upper portions of the river, but much smaller.

The Illinois is distinctively a blue-point, washboard, and pimpleback river, and the conditions of the bottom, the current, and the general character of the river are well suited to the growth and development of these species. These shells are found in greater quantities than are all the other commercial kinds combined. From the upper limits of shell production to Beardstown the shells are of the size usually found in other rivers of the Mississippi basin, but below Beardstown, particularly in the Hardin district, they are much smaller, although the quality is as good if not better.

This river has been the most productive stream per mile of any in the country, and it has been reliably stated that only two or three years ago more than 2,600 boats were engaged in the mussel fishery between Peru and Grafton. It appears that the total number now engaged would not exceed 400, and even this number is largely maintained by the new dip-net method in use at Peoria and the new field opened up in the lower district. For fishing to be profitable in a river like the Illinois, where the shells are not of the kind to command the highest prices, the yield must be relatively abundant.

THE IMPORTANT SHELLS.

There have been recorded 63 species of mussels from the Illinois and its principal tributaries. About 20 of these are suitable for button making, although only 5 or 6 are found in sufficient quantities to be of practical worth.

The washboard (*Quadrula heros*) is the most common species found throughout the entire river. In the upper portions it is large

and often much spotted, but it is a good button shell, particularly in the lower half of the river, where it is much smaller, flatter, of fair luster, and often entirely free from spots. Very small washboards 2 to 3 inches long are taken and make good buttons, but they should be thrown back and allowed to mature.

The blue point (*Quadrula undulata*) is very abundant. It is rather flattish, of good size and luster, and regarded by the button men as a desirable shell.

The three-ridge (*Quadrula plicata*) is much less abundant and not so valuable as the above. It is much more convex, heavier at the beaks, and leaves more waste after the blanks are cut.

The pimple-back (*Quadrula pustulosa*) is considered a good button shell. It is often classed next to the niggerhead, although it is thin at the tips, and in old specimens very heavy at the beaks.

The pig-toe (*Quadrula trigona*) is found in small quantities in all of the mussel beds. It is usually small, but is a good button shell.

The niggerhead (*Quadrula ebena*) is very rare in the Illinois River. In the upper portions only two or three examples are found in a ton, but in the lower third the number may run as high as 2 to 3 per cent. This, of all fresh-water shells, is the best for buttons. It was formerly abundant in many beds in the Illinois, but is now practically extinct.

The muckets (*Lampsilis ligamentina* and *luteola*) occur in small quantities throughout the entire river, but are more plentiful in Peoria Lake than elsewhere. They are usually smaller and thinner than those of the Kankakee and Fox Rivers, but are regarded as first-class commercial shells and command a good price.

The yellow sand-shell (*Lampsilis anodontoides*) is found sparingly at the different camps, but is fairly abundant in the Hardin district, where it is in sufficient quantity to be sorted out and sold separately at an advanced price. It is employed generally in the manufacture of novelties.

The slough sand-shell (*Lampsilis fallaciosa*) is found in considerable quantity, particularly along shores having mud banks and slow currents. In Peoria Lake the shells are beautifully rayed, and when of sufficient size and thickness are classed with the yellow sand-shell.

The ladyfinger, or spike-shell (*Unio gibbosus*), is not now a commercial shell unless it be white, which is seldom. It occurs in great quantities along the river, some beds having a very large percentage. At Meredosia there is a driveway leading from the river to the bank above which is covered with about 60 tons of these shells. It is to be hoped that a method will be devised whereby this shell can be used and a demand created for it.