

INSTITUTE FOR FISHERIES RESEARCH

DIVISION OF FISHERIES
MICHIGAN DEPARTMENT OF CONSERVATION
COOPERATING WITH THE
UNIVERSITY OF MICHIGAN

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September 11, 1942

ADDRESS
UNIVERSITY MUSEUMS ANNEX
ANN ARBOR, MICHIGAN

REPORT NO. 819

SURVEY OF MUSSEL INDUSTRY IN GRAND RIVER NEAR IONIA ON

SEPTEMBER 2 AND 3, 1942

by

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Table 1
Series taken in Grand River, about 8 miles west
of Ionia, Ionia County, Michigan

Species	Number	Weight	Percentage catch
Short term breeder			
<u>AMBLEMA COSTATA</u> (THREE-RIDGE)	11	4 lb. 6 oz.	36.1
<u>Quadrula pustulosa</u> (Warty-back)	4	... 10 oz.	5.2
<u>Elliptio dilatatus</u> (Lady-finger)	4	... 8 oz.	4.0
<u>Fusconaia flava</u> (Pig-toe)	2	... 6 oz.	3.0
<u>Pleurobema cordatum coccineum</u> (Flat niggerhead) 5 oz.	2.0
Long term breeders			
<u>ACTINONAIAS CARINATA</u> (MUCKET)	13	5 lb. 2 oz.	42.3
<u>LAMPSILIS VENTRICOSA</u> (POCKETBOOK)	3	... 13 oz.	6.7
	37	12 lb. 2 oz.	99.3

The above collection was made with the use of equipment belonging to a clammer, Mr. MacDonald of Ionia County. Eight drags were made with his boat and crowfoot bar. We were aided by two of the MacDonald youngsters who informed us that we were dragging some of the better beds used by their father to obtain his usual catch of mussels for the pearl-button industry. The scarcity of mussels on this supposedly productive bed is clearly shown in the totals given above, as well as in the record for each drag given in the following enumeration:

- Drag 1: East side of the river; depth about 4 to 5 feet; pulled about eighth mile. 4 Three-ribs.
- Drag 2: Same region as Drag 1 and about the same distance.
1 Mucket, 1 Pocketbook, 2 Warty-backs, and 1 Three-rib.

- Drag 3: Just above Saranac bridge; shallow water; pulled about eighth mile.
6 Muckets, 1 Lady-finger, and 1 Three-rib.
- Drag 4: Same region as Drag 3 and about same distance.
1 Pocketbook, 1 Lady-finger, and 1 Warty-back.
- Drag 5: About 1 mile below MacDonalds; depth 4 to 5 feet; just above riffle.
4 Muckets, 2 Three-ribs, and 2 Lady-fingers.
- Drag 6: Same as 5; dragged about 100 yards; shoal supposedly one of best.
1 Mucket, 1 Pocketbook, 1 Three-rib, and 1 Flat niggerhead.
- Drag 7: Same as 5; dragged about 100 yards.
1 Mucket and 1 Warty-back.
- Drag 8: Same as 5; dragged another 100 yards.
2 Three-ribs and 1 Pig-toe.

The data tabulated show that only twelve pounds of shell were taken by the use of the usual clamming gear from beds which are among the best in that region of the river. Muckets made up less than half of this quantity. It took two men two hours of dragging to get twelve pounds of shell and only a portion of that amount is usable for the button industry. Furthermore, of the 13 muckets taken 8 were in a gravid state. All three pocketbooks taken were gravid. The spawn-bearing condition in both species was well advanced so that in most specimens the larvae must have developed as early as the middle of August. We may conclude, therefore, that muckets and pocketbooks are comparatively scarce in the lower Grand River this year; also, that taking them during August and September would tend to leave all too few females for spawning in the spring.

On September 3, 1942, Mr. Louis Kahl and I visited a fine riffle in the Grand River about 4 miles by river above Ionia. We were informed by an old and experienced clammer, Mr. Robert Austin, that hand-picking was the usual method employed in getting the mussels from that portion of the stream. Mr. Austin also told us that gathering shells there in recent years was so unproductive that it hardly paid to spend time at it. To get a check on abundance by this method of collecting, Mr. Kahl and I spent two hours at hand-picking on this large bed. The following table gives the result of our work:

Table 2
 Mussels taken in Grand River, 4 miles (by river)
 above Ionia; September 3, 1942

Species	Number	Weight	Percentage catch by weight
Short term breeders			
<u>AMBLEMA COSTATA</u> (THREE-RIDGE)	19	7 lb. ...	18.3
<u>Cyclonaias tuberculata</u> (Purple Warty-back)	2	... 8 oz.	1.3
<u>Pleurobema cordatum coccineum</u> (Flat Niggerhead)	6	1 lb. 6 oz.	3.6
<u>Fusconaia flava</u> (Pig-toe)	24	3 lb. 13 oz.	9.9
<u>Quadrula pustulosa</u> (Warty-back)	26	4 lb. ...	10.4
<u>Elliptio dilatatus</u> (Lady-finger)	60	7 lb. 7 oz.	19.4
Long term breeders			
<u>Anodontoides ferussacianus</u>	1	... 0.5 oz.	0.1
<u>Alasmidonta marginata</u> (Elk-toe)	23	2 lb. 2 oz.	5.5
<u>Lasmigona costata</u> (Fluted shell)	3	1 lb. 7 oz.	3.8
<u>Strophitus rugosus</u> (Squaw-foot)	7	... 14 oz.	2.3
<u>ACTINONAIAS CARINATA</u> (MUCKET)	13	7 lb. 4 oz.	18.9
<u>LAMPSILIS VENTRICOSA</u> (POCKETBOOK)	8	1 lb. 13 oz.	4.7
<u>Ligumia recta latissima</u> (Honest John)	1	... 9 oz.	1.5
<u>Dysnomia triquetra</u>	2	... 3 oz.	0.5
Totals	195	39 lb. 6 oz.	100.2

From this table we note that by hand-picking it took two men about two hours to get approximately 40 pounds of shell. Only about half or 20 pounds of this material is of use in the pearl button industry. The bulk of the usable shells were muckets and three-ridge. The latter are short term breeders so that the portion of an open season included in August and September does not materially influence their spawning. However, it is quite the opposite in the case of the muckets. Of the thirteen muckets taken, ten were gravid specimens. Pocketbooks were very scarce. Of the eight taken only four were adults. Three of these were gravid. It is obvious from this that shells of commercial importance are relatively scarce in this formerly rich bed above Ionia; also, that the gravid condition of the muckets and pocketbooks during late August and September suggests that it may be detrimental to the bed to remove them during those months.

Mr. Kahl suggested that there was a commercially productive bed of mussels in the lower portion of the Maple River. We visited that stream and collected specimens by hand-picking in a shallow zone just below a riffle. Both of us worked steadily for about an hour. The following table presents the number, weight and percentage of each species taken by us in that portion of the Maple River.

Table 3
Mussels taken from the Maple River, about 3 miles
above mouth, Ionia County.

Species	Number	Weight	Percentage catch by weight
Short term breeders			
<u>AMBLEMA COSTATA</u> (THREE-RIDGE)	1	... 3 oz.	1.5
<u>Quadrula pustulosa</u> (Warty-back)	8	1 lb. 6 oz.	10.7
<u>Pleurobema cordatum coccineum</u> (Flat Niggerhead)	5	1 lb. 7 oz.	11.2
<u>Fusconaia flava</u> (Pig-toe)	9	1 lb. 4 oz.	9.7
<u>Elliptio dilatatus</u> (Lady-finger)	27	4 lb. 5 oz.	33.6
Long term breeders			
<u>Anodonta grandis</u> (Floater)	2	... 4 oz.	1.9
<u>Strophitus rugosus</u> (Squaw foot)	2	... 3 oz.	1.5
<u>Lasmigona costata</u> (Fluted-shell)	2	... 14 oz.	6.8
<u>ACTINONATAS CARINATA</u> (MUCKET)	4	1 lb. 13 oz.	14.1
<u>LAMPSILIS VENTRICOSA</u> (POCKETBOOK)	2	... 8 oz.	3.7
<u>Lampsilis siliquoidea</u> (Fat Mucket)	2	... 10 oz.	4.9
Totals	64	12 lb. 13 oz.	99.6

Of the thirteen (approximately) pounds of shell taken, only half that quantity is of use in the button industry. Three of the muckets, when examined for spawn, were found gravid. Also, both pocketbooks and one of the fat muckets were carrying a heavy load of young in their gills.

An examination of these three potentially rich mussel gathering zones in the Grand River drainage gives us information which permits the following conclusions: (1) That mussels such as the valuable muckets and pocketbooks are relatively scarce in the Grand River at the present time. (2) That these two species are so predominantly gravid during late August and September that it may be harmful to gather them during those months. (3) That the three-ridge mussels in the main stream make up a sizeable proportion of the catch. (4) That, in regions permitting it, hand-picking is, at the present time, more productive than the use of the crow-foot bar. (5) That, according to the opinion of Mr. Austin and Mr. Kahl, mussels in recent years are not so definitely confined to beds but are found far more scattered than they were when the mussel industry was at its height.

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