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ANNAPOLIS ABOIDEAU FISH PASSAGE STUDIES-1961

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Halifax, N.S.

PRELIMINARY REPORT

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ANNAPOLIS ABOIDEAU FISH PASSAGE STUDIES - 1961

by

K. R. R. SMITH

During the summer of 1961, studies begun in 1960 were continued at the Annapolis aboideau to determine the extent of delay or stoppage to migratory fish, particularly salmon, shad and striped bass.

In order to check on any possible delay, a tagging and recapture program was set up. Fish were tagged at a trapsite located immediately below the aboideau, and released nearby. These fish had a choice of two routes to use in passing the aboideau.

1. The main fishway - located in an artificial channel, adjacent to the control gates of the aboideau. This fishway is simply a rectangular opening, 10 feet wide and 2 $\frac{1}{2}$ feet high. Also, during relatively slack tidal flows, and when one or both of the control gates are open, fish in the area may actually pass through the gates

2. The auxiliary fishway - This fishway consists of a four foot diameter corrugated steel pipe, connecting the headpond and tailrace at mean sea level. This pipe is located in the old river channel, near the true right shore and several hundred yards from the main fishway.

1961 TAGGING

Below are listed the numbers of fish caught in the lower basin float trap and the numbers and percentages of fish tagged and released. Although sturgeon were not of primary interest in this study, a few were tagged and released, with a view to picking up a little extra data, on fish movements in the area.

Fish Caught and Tagged at Lower Basin Float Trap

Species	Number Caught	Number Tagged	Percentage Tagged
Striped bass	306	279	91.2
Shad	77.5	438	5.7
Salmon	77	72	93.5
Sturgeon	46	42	91.3

TRAP RECOVERY OF TAGGED FISH

A second trap site, located about one mile above the aboideau, was set up in an attempt to recover as many as possible of the tagged fish. Because of a poor recovery trap site, and the late date on which it started to operate, very few tagged fish were taken; the total being only 4 striped bass and one sturgeon. Thus, little information was gained regarding the extent of any possible delay at the aboideau. A Miramichi "picket trap" was used in this recovery site from June 2 to September 8.

Later in the season, the lower basin float trap was removed and reset near the site of the picket trap.

It was fished in this location from September 22 to October 18, and took much better catches than did the picket trap. The catch during this period included 5 tagged salmon and 1 tagged shad. These fish were taken a considerable length of time after being tagged. However, this does not necessarily mean that they were delayed at the aboideau. Salmon had been observed jumping in the upper basin throughout most of the summer. Therefore, these fish could have ascended the aboideau much earlier, with little or no delay, and remained in the upper basin area until fall, before moving on upriver to spawn.

Another trap was installed on the upper end of the auxiliary fishway and operated from May 26 until early October. This trap was used to check the percentages of the various species using this route to ascend the aboideau. However, during its operation only a very small number of fish were found to be using this route, most of these being flounders and sculpins. No definite recoveries were made of fish tagged at the lower basin float trap. However, two of the four striped bass taken in the pipe trap had been tagged. But it was impossible to determine whether they had been tagged in 1961 or 1960, since the tag on one had been torn out and the other fish escaped before the tag could be checked.

Other fish ascending this fishway included two untagged shad and 16 untagged sturgeon. No salmon were taken here during the entire season. Therefore, it appears that practically all of the fish, in which we were primarily interested, ascended by means of the main fishway or the adjacent control gates.

However, one particular 37 inch sturgeon seemed to show a preference to the auxiliary fishway. This fish was tagged at the pipe trap and released into the headpond on June 18. The fish then descended, either by the main fishway or the control gates, and was again found in the pipe trap on June 19, just one day later. This was the only fish, tagged in 1961, to be checked at this trap.

Recovery by Anglers and Commercial Fishermen

Recoveries of fish tagged in 1961, by anglers and commercial fishermen, are shown in the table below.

Species	No. Taken Below Causeway	No. Taken Above Causeway	Totals
Striped bass	46	2	48
Shad	6	0	6
Salmon	3	1	4
Sturgeon	3	0	3

This table shows that only a very small percentage of the tagged fish recoveries were made above the aboideau. As far as the bass are concerned, it is not too surprising that most recoveries were made below the aboideau, since many of them were tagged after the main spawning run into the river. This would also be expected because of the greater fishing effort below the aboideau, both by anglers and the commercial fishery, which is completely limited to areas below.

Also, as regards the salmon, the small angling catch is not too hard to understand. This may have been due to the fact that many or most of the early run salmon had already passed the aboideau before tagging operations began. Also, since most of the salmon angling above is confined to the Round Hill River, which is fished mostly early, there were few tagged salmon available at this time.

However, one tagged salmon appears to have passed the aboideau with little or no delay. This was one tagged below the causeway on May 1 and angled in the Round Hill River, 7 to 8 miles above, on May 18.

The two striped bass, angled above the causeway, had been released much earlier in the season, one 106 days previously and the other 73 days. However, this may not mean these fish were delayed by the causeway. It is more likely that they were not migrating at this time, but rather resident fish just remaining in the near area.

The large catch below the aboideau may indicate that many of the tagged fish dropped back downriver after being handled. Because of the tendency of fish to drop back downriver after being handled and tagged, the actual delay caused by the aboideau would very likely be somewhat less than indicated by any elapsed times between tagging and recovery.

RECOVERY OF FISH TAGGED IN 1960

A number of striped bass, tagged at Tupperville in 1960, were also recovered by anglers and commercial fishermen in 1961. These fish were tagged and released in the Annapolis River about 10 miles above the aboideau, and were recovered both above and below. This shows that these fish also descend safely through the aboideau, but again does not give any information as to the extent of any possible delay.

However, observations of bass in very fast water near the main fishway and control gates seem to indicate that they do move through with little or no delay.

In fact, several bass have been angled in this area.

A few fish tagged in 1960 were also taken in the lower basin float trap in 1961, and one was taken in the trap on the auxiliary fishway.

CONCLUSIONS AND RECOMMENDATIONS

Although no definite information is available as to the extent of any possible delay to migratory fish at the Annapolis abutment, it appears that the fish move quite freely past the obstruction, both upriver and down. This is indicated by the upriver recovery of fish tagged below and vice versa, both by Departmentally operated traps and by the angling and commercial fishery.

Present plans call for a continuation of fish passage studies in the area for 1962. With a more efficient float trap as a recovery station in the upper basin, more definite information should be forthcoming.

The lower basin float trap will again be operated as in 1961, as a tagging station. Also, the trap on the auxiliary pipe fishway will again be in operation as a recovery station and to check on the percentages of the fish using this route as opposed to the main fishway. It is recommended that in 1962 both the tagging and recovering stations should be in operation at an earlier date.

In order to obtain the most information possible as to delay, more fish should be tagged early in the season, while their urge to ascend the river to the spawning areas is at its peak. In the future, tagging of bass and shad through the mid-summer season, probably should be discontinued, since the fish at this season are not likely to be so anxious to travel upriver. Many of the bass and most of the shad, previously tagged through the mid-summer season, were probably fish that had already spawned.

However, in regard to the salmon, it is recommended that all should be tagged, because of the relatively small number likely to be caught. A special effort should be made to tag as many as possible of the early run salmon, especially in April, which have a strong urge to ascend to the river above. Throughout the mid-summer season, salmon movements past the aboideau are apt to be more sporadic, with the fish being in no great hurry to reach the spawning areas. Again in the late fall, there is likely to be an increase in salmon movements as they begin to leave the lower reaches of the river and move upward to the spawning grounds.

Therefore, most of the information relating to any possible delay to salmon will probably be obtained either from the early run tagged fish or those tagged in the fall during their spawning run.

October 27, 1961

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