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Title

Smelt Movements, 1944-45 tagging, Miranichi Bay

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SMELT MOVEMENTS, 1944 - 45 TAGGING, MIRAMICHI BAY.

On January 12th and 13th, 1945, 500 medium, 500 no. 1 and about 50 extra grade smelt were tagged and released off Oak Point.

During the first 2 weeks following the release 129 medium, 107 no. 1 and 14 extra were recaptured mostly along the north side of the Bay between Oak point and Burnt Church though a good number were retaken in the point Cheval to Black river region of the south side. Only about 6 were taken farther east than this along the south side as far as Hardwicke.

In the 3rd. and 4th weeks after the tagging, 72 medium 101 no. 1 and 15 extra were recaptured from almost exactly the same area as previously mentioned. The only variation was a slight increase in recaptures in the more easterly part of baie du Vin.

From February 11 to 28 about 77 more medium, 100 no. 1, and 6 extra were recaptured in the same regions as mentioned above.

Differences between the movements of the various grades of fish tagged at this location were very slight. No difference is readily seen between the medium and no. 1 grade but the extra grade did not spread out from the point of release to quite such an extent as the two smaller grades. None of the various grades were recaptured in the outer parts of the Bay or outside of it.

Considering all the sizes tagged at this location 332 or about 54% were retaken along the north side of the Bay from Oak point to Burnt Church, an area about $7\frac{1}{2}$ miles long and varying from a mile wide off Oak point to 2 miles wide off Burnt Church. The other 46% or 288, was retaken along the south side of the Bay from point Cheval to approximately the "head" (inner) end of Baie du Vin island. Only 10 recaptures were made east of this point, the farthest east being 1 just east of Hardwicke wharf.

On the whole, thus, these Oak point tagged smelt remained in the inner half of Miramichi bay spreading out along both sides. None left the Bay at all.

On January 19th. and 20th a similar set of taggings was carried out in the south western part of Tabusintac lagoon.

In the 2 weeks following the tagging 178 medium, 224 no. 1 and 3 extra were retaken, all but 3 of them being in Tabusintac lagoon. Of these, 2 were medium grade (1 in Malpeque bay, 1 off Grand Dune) and 1 a no. 1 taken off Rocky Point.

Between February 4 and 17th, the 3rd and 4th weeks following the tagging, 158 medium, 161 no. 1 and 2 extra were retaken. These recaptures also were, with the exception of 8, all from Tabusintac lagoon. None of the exceptions were extra, 7 were no. 1 (6 along the north side of Miranichi bay from Malpeque bay to Oak point, 1 off the west end of Baie du Vin island) and 1 was a medium recaptured off Rocky Point.

From February 17th to the end of the month, about 17 more medium 22 more no. 1 and 1 extra were recaptured. These also were mostly from Tabusintac lagoon except 2 medium from off Grand Dune, 6 no. 1 from the north side of the Bay between Neguac and Grand Dune and 1 no. 1 from baie Ste. Anne.

All told about 765 of this tagging were retaken and all but 20 of them from Tabusintac lagoon. None of these 20 were extra, 15 were no. 1 and 5 medium. Here again it is seen that the extra did not move about as did the other grades but this time there is an indication that the medium were also somewhat like the extra in this respect. No movement by any grade was shown towards the north eastward along the coast nor to the south eastward across the mouth of the Miranichi. All but 2 of the 20 were retaken along the north side of Miranichi bay as far inwards as Oak point, while the remaining 2 were recought off the "head" of Baie du Vin island and Ste. Anne bay respectively.

Contrary to expectations based on the pre-season 1943-44 tagging none of these Tabusintac taggings went northeastward along the coast. Even the mid-season 1943-44 tagging showed 2 fish going from the Bay to Tabusintac. However, in 1944-45 what movement away from Tabusintac there was, was all into the Bay not out of it.

About January 24th another set of taggings was carried out in the central outer part of baie du Vin. Here, however, about 200 extra instead of a dozen or so, were tagged. During the first 2 weeks following the tagging 40 medium, 69 no. 1 and 35 extra were recaptured, almost all of them being from baie du Vin, though about 5 tags came from eastward along the south shore of Miranichi bay as far out as Hardsicks. Only 3 crossed to the north side of the Bay off Grand Dune, 2 of these were extra and 1 a no. 1.

From February 11 to 24, 60 more medium, 82 no. 1 and 44 extra were recaptured. These came from the same south shore region as before with distinctly more from the north side of the Bay between Oak point and Burnt Church.

During the last week of February, (the end of the fishing season) about 20 more medium, 35 no. 1 and 16 extra were recaptured from exactly the same districts as previously.

No difference between the movements of the 3 sizes of fish tagged at this location was readily discernible.

Considering all the recaptures from the taggings at this location it is found that only 39 (or 10%) of the 401 recaptures were made along the north side of the Bay and these all from Oak point to Burnt Church or directly opposite the mouth of Baie du Vin. The majority of the others were recaptured in or about the mouth of Baie du Vin. Only 2 were from as far up-river as point Cheval and 3 as far down-river as Hardwicke. None at all left the Bay.

Late in January another set of taggings was partially completed off the north side of Baie du Vin island.

Here during the first 2 weeks following tagging 65 medium, 90 no. 1 and 10 extra were recaptured. In all cases most of these were made around Baie du Vin island with some from all the various parts of baie du Vin as well as the point Cheval, Oak point, Grand Dame to point au Car area. None were retaken farther out along the north side but several were taken in the Hardwicke region.

From February 11 to 24th another 85 medium, 102 no. 1 and 9 extra were recaptured. A somewhat higher proportion of these was retaken in baie du Vin and off Grand Dame than during the previous 2 weeks. A little movement farther out along the north side is also shown to have taken place but aside from this the area of recapture was the same.

During the last week of the fishing season 29 more medium, 50 more no. 1 and 2 more extra were retaken within the same bounds as described above except for 1 extra which was recaptured in Tabusintac river.

Aside from the foregoing exception the movements of the 3 grades in this case were very much alike, but here the extra did show 1 fish moving not only considerably farther than the other grades but to a point outside the Bay as well - the only 1 to do so from all the 1944-45 taggings inside the Bay.

Altogether 92 or about 21% of the recaptures from this tagging were taken along the north shore of the Bay from Burnt Church inwards. The remainder were distributed along the south shore of the Bay, chiefly in and at the mouth of Baie du Vin. On the whole the picture of the recaptures from this tagging and that in Baie du Vin are almost identical in distribution with an added 10% being taken along the north side. This indicates that as the smelt move up the Bay they spread out along both shores and the farther up the Bay they go the more definite the association with one side or the other. If on entering between Portage and Fox island they veer to the north as over Horse Shoe Shoal the majority then seen to go along the north side of the Bay (see tagging #4), but if they veer a bit to the south enough to go along just north of Baie du Vin island then the majority eventually distribute themselves along the south side of the Bay.

On the whole, the fish tagged during the middle of the 1944-45 season did not move about as much as those tagged during 1943-44. Tagging north of Baie du Vin island was much like #4 of the previous season in that

it showed the fish moving on up the Bay to spread out along the inner parts of both the north and south side of the Bay. Being nearer to the southern side than #4, the recaptures were somewhat more numerous on, and spread a bit farther out along, the south side than were those from #4 tagging which were more numerous along the inner part of the north shore of the Bay. The Tabasintac lagoon tagging showed the fish to have but little tendency to move into Miramichi bay from that quarter but on the other hand they did not show any movement to the north eastward along the coast. The 1943-44 pattern showed to some extent at least a movement out of the Bay to the northeast along the coast from the northern part of the Bay.

The tagging off Oak point follows that off Grand Dune in 1943-44, but the movement along and out both the north and south sides was not quite as extensive as in the previous season when actually more recaptures were made around Baie du Vin island and from Rocky point out along the north shore from 500 tagged fish than in 1944-45 from 1053.

In both seasons the recaptures from the tagging in the central outer part of Baie du Vin were mostly along the southern side of Miramichi bay, but in 1943-44 (#9) more of them were from a little farther inwards and also a little farther outwards along this side than in 1944-45 (#17, 18, 19). In both years too, some recaptures were made along the north shore of the Bay from Oak point to Bay island but in 1943-44 there were 79 retaken there from 500 tagged fish and in 1944-45 there were only 39 from 1056 tagged fish.

This 1944-45 tagging corresponded with the results of the previous season in that, first, only 1 fish went out of the Bay from this mid-season tagging, and this in a north easterly direction, second, none went outside and to the south eastward, third, tagged fish went farther into the Bay from the region of the passage into the lower central part of Miramichi bay, and fourth, there was a definite crossing back and forth from the two sides of the inner parts of Miramichi bay.

Any differences found in the migrations from the two years' taggings were a matter of degree rather than completely new pictures.

Differences in movements between the various sizes were very slight (only several hundred of the largest size were tagged compared to about eighteen hundred of each of the other two sizes) but there is some evidence that the larger fish move about less than the smaller ones, though it's a recognized fact among the fishermen that in the autumn open water fishing the larger fish are always found farther up the rivers and nearer the head of tide than the smaller ones.

One fish tagged with design #19 in the outer part of Baie du Vin, Jan. 24 and 25, 1945, was retaken May 21/45 in the mouth of Hamilton brook. More tagged fish mistaken for injured fish are reported to have been seen along with this one, but were released. It was reported that there were "12 to 15 of them".

DISTRIBUTION OF RECAPTURES.

ABOUT MIRAMICHI BAY.
(Returns to April /45)

	<u>North Side</u>	<u>South Side</u>	<u>Outside</u>	<u>Total</u>
<u>Oak Point</u>	332	288	0	620
<u>Tabusintac</u>	755 (Tabusintac lagoon)	0	20	765
<u>Baie du Vin</u>	39	362	0	401
<u>Baie du Vin Is.</u>	92	349	1	442
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July 24/45