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The return of tagged sea trout to the
Carpathian affluent of the Vistula

by

S. Zarnecki

Dept. of Fisheries,
College of Agriculture,
Al. Mickiewicza 24
Cracow, Poland.

The last Polish tagging experiments conducted in the Dept. of Fisheries, College of Agriculture, Cracow, by Dr Skrochowska and Mr Pałka, present an interesting example of the ability of the Sea Trout to return not only to the main stream of a long river system but also to this affluent in which it was released.

Two relatively large Carpathian tributaries of the Vistula, namely: Dunajec river and Raba river were destined for the experiments. The first flows into the Vistula at a distance of 781 km from the Baltic coast, the second one at a distance of 806 km. This is shown on the enclosed map /fig.1./

1. Tagging experiments in the Dunajec river.

/unpublished data of Mr.W.Pałka/

The following number of tagged two year old Sea Trout, 17-27cm long, was liberated by Mr Pałka into the Dunajec river below the last dam in Czchów:

May,	1964	-	4.000 specimens
May, 3 - 5,	1965	-	3.800 "
April, 21 - 22,	1966	-	3.100 "

From this quantity 998 adult fish were recaptured up to date in the Baltic Sea and in the main stream of the Vistula. In Dunajec, the river of release, during spawning period were recaptured in the year:

1966	-	2 females and 1 male /released in 1964/
1967	-	8 females and 3 males /released in 1964 - and in 1965 -

No recapture from any of the Baltic rivers besides the Vistula was stated.

Within the Vistula system a return of adult fish was observed in Dunajec only.

2. Tagging experiments in the Raba river.

/paper of Dr. Skrochowska /Miss/ under
press 1, Pol. Arch. Hydr./

The experiments of Dr. Skrochowska are much more complicated as those of Mr. Palka because she used as material for tagging not only the Vistula Sea Trout originating from pond reared parents of I-IV generation /stopped in their downstream migrations/, but also from crosses between the above mentioned Sea Trout from different generations and pond reared Brown Trout. The detailed composition of groups and individuals liberated by this author only into the middle part of the Raba river in the period 1951-1959 is listed in the Table.1.

Tab.1.

I.	/S x S/	-	951
II.	/S x S/	-	5583
III.	/S x S/	-	4093
IV.	/S x S/	-	833
I.	/B x S/	-	1023
II.	/B x S/	-	1601
III.	/B x S/	-	1417
IV.	/B x S/	-	100
I.	/S x B/	-	1395
II.	/S x B/	-	2018
	/B x B/	-	1677
			20729

* I, II, III, IV = first, second, third, fourth generation of spawners reared in ponds.

S = Sea Trout, B = Brown Trout
/in the first place in the brackets = female/

From this quantity 1062 adult fishes were recaptured, viz.: 703 in the sea and 366 during return /upstream/ migrations in the rivers.

These 366 individuals were recaptured in fresh water in the following places:

- 1 in the river Ina /one strayed individual/
- 325 in the main stream of the Vistula river
- 41 in the Raba - river of their release.

The 41 spawners recaptured in the Raba originated from groups listed in the Tab.2.

Tab.2.

Group	Number of recaptured specimens	Date of release in Raba river	Date of recapture
II /B x S/	1	Dec. 1954	Oct. 1958
III /B x S/	2	Nov. 1952 March 1958	Nov. 1955 Nov. 1960
I /B x S/	1	March 1956	Nov. 1958
II /B x S/	1	Dec. 1951	Nov. 1954
III /B x S/	2	March 1956 March 1958	Nov. 1958 Aug. 1960
II /S x B/	2	Dec. 1957 Dec. 1957	June 1960 Oct. 1960
not known	2	-	-

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On the basis of these few facts presented in the Tab.2./which are the first known in the literature/ it is possible to conclude that ability of the Sea Trout of returning to places of their release into tributaries within a long river system also exists:

1/ in the offspring of this species reared in ponds for three generations,

2/ in crosses: a/ Sea Trout female x Brown Trout male

b/ Brown Trout female x Sea Trout male

also in the offspring of two relatively three generations reared in ponds.

Some aspects connected with "imprinting"

I.

Tagged specimen of Sea Trout released in the Dunajec river were reared during two years before liberation in two places:

- hatching and first summer in Lopuszna, situated in the upper part of the Dunajec river,
- first winter, second summer and second winter in Czotkowice situated in the basin of the Rudawa river, a small left affluent, flowing into the Vistula in Cracow.

All recaptures were stated in the Dunajec, no specimens returned to the Rudawa river.

II.

Tagged individuals of the cited, pond reared, generations of Sea Trout and crosses between Sea Trout and Brown Trout, liberated by Dr. Skrochowska in the Raba river only, were reared during two or three years in the Mydlniki Experimental Station of the Dept. of Fisheries, College of Agriculture in Cracow, situated similarly as Czatkowice in the basin of Rudawa river.

Also here all recaptures were noted in the river of release /Raba river/ but no individual returned to the Rudawa river.

These circumstances confirm once more the known thesis that the anadromous Sea Trout return like true Salmon to the places of their release in spite of the very short period lasting some days or some weeks in which they stay in the stream of their liberation. The period of two or three years of life in another water body does not influence the return to the water of their breeding.

This demonstrates that the "imprinting" processes are active in a very short period immediately before starting to the downstream migration. The start to this migration depends on many factors from which smoltification is doubtless a very important one. Therefore one can suppose that a relationship between these two physiological phenomena : "imprinting" and smoltification exists.

Baltic Sea

Edynia
Gulf of Danzig

Bzda

Vistula

Warsaw

Krakow

Poznan

Cracow

Vistula



1:2500000
1cm = 25km



Place where smolts were released