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International Council for the  
Exploration of the Sea

C M 1973/M:17  
Anadromous and Catadromous  
Fish Committee

The Stock of Salmon in the Gulf of Finland

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As regards the origin of the salmon fished in the Gulf of Finland, it may be noted that it is very exceptional for fish to migrate to these waters from the rivers draining into the Gulf of Bothnia and the Baltic east of Sweden. This has been shown by extensive taggings performed in Sweden (Carlin 1966) and Finland (Halme 1964). For example, the salmon coming from the streams emptying into the Bothnian Bay reach the southern part of the Bothnian Sea in the following summer and autumn and continue on their feeding migration to the south of the Baltic proper, where they remain until the commencement of their spawning migration. The evidence of these taggings indicates that the salmon of the Gulf of Finland form a separate stock, which does not originate from the rivers draining into the Gulf of Bothnia. Since the destruction of the salmon population of the Kymijoki in the 1940's, Finland has not contributed any smolts to the stock of the Gulf of Finland. It must thus be assumed that the salmon in the Gulf of Finland come from the Soviet Union.

Old observations indicate that the migration of salmon from the Gulf of Finland to the Baltic proper is rather restricted. When spawners were tagged in the Kymijoki in the years 1903-1913

(Järvi 1931), the majority of the tag returns came from the waters outside the mouth of the river. One salmon had migrated to the east of the Gulf of Finland and another was found in the south of the Baltic, off Memel. When the natural smolt population was tagged in the River Narva in the years 1932-1937 (Reinwaldt & Järvi 1938, Järvi 1943), five tag recoveries were made in the Gulf of Finland: two in the Bay of Kronstat, in the east of the gulf, and the other three off the coast of Finland, outside the towns of Hamina, Kotka and Loviisa. However, one of the tagged fish had reached the north of the Bothnian Sea. On the other hand, Järvi (1935) observed that hooks used on Bornholm and in the south of the Baltic were found fairly often in salmon caught in the Bothnian Bay, but were rather rare in fish spawning in the Kymijoki. For example, only one of the salmon obtained during the years 1925-1934 from the fishing-grounds at Langinkoski had a hook originating from the southern Baltic in its jaw.

In spring 1964, smolts were tagged with the object of elucidating the migration behaviour of fish of the Bothnian Bay stock introduced into the Gulf of Finland (Fig. 1). The smolts had been raised in the Oulujoki and were introduced into the mouth of the Kymijoki, below the power station at Ahvenkoski. The results showed clearly that the fish migrated to the south of the Baltic. Only six recoveries were made in the Gulf of Finland, and five of these were grilse caught the following summer in the Bay of Ahvenkoski on their spawning migration.

The majority of the tag recoveries (18) were made in the southern Baltic.

At present the annual Finnish catch of salmon in the Gulf of Finland is ca. 120 tons (average for the years 1966-1970). The fish are caught almost exclusively with long lines and

the vessels used are comparatively small; in 1972, 43 % of the catch was obtained with boats which had not been registered, their length being under 10 metres. Fishing is most intensive in the east of the gulf, where, in addition to their private fishing waters and the Finnish territorial waters, Finnish fishermen can also use three areas rented from the Soviet Union. The salmon stock appears to be comparatively sparse; according to information gathered from the fishermen, in autumn and winter 1972, the average catch was 4.8 fish per thousand hooks. The corresponding figure given, for example, by Danish fishermen for the fishing season 1967-1968 in the Baltic proper was 19.1 fish (Christensen 1968).

A rather large proportion of the salmon caught in the Gulf of Finland lack the adipose fin, having been marked in the Soviet Union. Inquiries were made among Finnish fishermen regarding the proportion of the catch for autumn and winter 1972 that had been marked in this way. Of 1139 salmon caught in the east of the Gulf of Finland, 472, or 41.5 %, were marked. Marked fish constituted 19 % of the catch obtained by one fisherman from the middle of the Gulf of Finland, and 42 % of the catch of another from the mouth of the gulf. Fishermen on Ahvenanmaa estimated that marked fish represented 5-7 % of their catch from the Baltic waters south of Ahvenanmaa. Thus the majority of the Neva salmon introduced into the Gulf of Finland seem to remain in these waters.

The average weight of the salmon caught in the fishing-grounds east of the Gulf of Finland in 1972 was 3.96 kg. In the autumn season of 1972 a notably large proportion of the catch belonged to the age class A.2+. The collection of scale samples was begun in autumn 1972, but the material is still so restricted that the growth of these fish cannot be compared with, for example, that of the salmon in the Baltic proper. However, in this connection attention may be drawn to the extensive material

published by Järvi (1938) in respect of the growth of spawners in the various Finnish salmon rivers. The size of fish in the age class A.1+ was fairly clearly greater in the Kymijoki than that of grilse in the rivers draining into the Bothnian Bay (the Tornionjoki, Kemijoki and Oulujoki). The situation was the opposite in the age classes A.2+ and A.3+, the salmon of the rivers emptying into the Bothnian Bay being notably larger than those of the Kymijoki.

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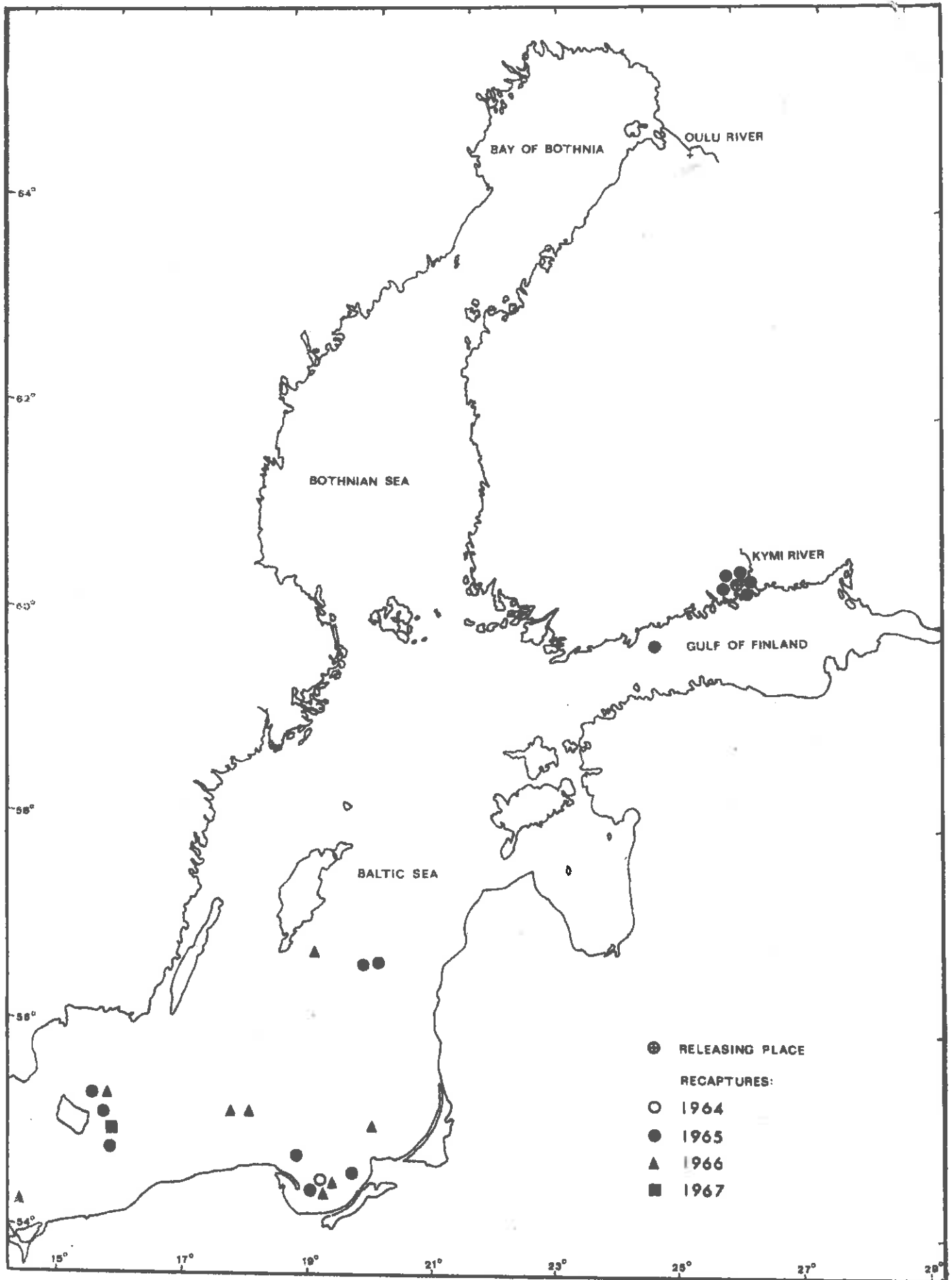


Fig. 1. Recaptures from tagging experiments with salmon originating from Oulu River and released in the mouth of Kymi River.