

Council

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***Russian Studies of Distribution and By-Catch of Atlantic Salmon Post-Smolts
in the Norwegian Sea in 2005***

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Introduction

In 2002 the Russian Federation started a programme to study the distribution of post-smolts and their potential by-catch in the Russian mackerel fishery in the Norwegian Sea. The research has shown that occurrence of post-smolts and adult salmon in commercial catches is insignificant (ICES, 2003). In 2005 the programme was continued and, as in previous years, it consisted of both the pelagic fish survey conducted by research vessel and the screening of commercial catches by observers.

Pelagic Fish Survey

In June-July 2005 the Russian Research Vessel (RV) "Fridtjof Nansen" participated in the annual international Atlanto-scandian herring survey in the Norwegian Sea (Figure 1). As in previous years, one of the objectives of this survey was to collect data on post-smolts in the Norwegian Sea. Hauls were taken by pelagic research trawl according to standard methods. The trawl was not rigged with additional floats. A headline was towed at depths of 1-50 m (81 hauls), 50-100 m (8 hauls), 100-200 m (7 hauls), 200-300 m (4 hauls) and more than 300 m (1 haul). In total, 101 pelagic hauls were made (Table 1). Towing speeds varied from 2.1 to 5.1 knots (average 4 knots), with a standard duration of 30-60 minutes. The whole catch was screened and each fish was identified and handled individually.

Three hauls were taken at the beginning of June in the northern part of the Norwegian Sea in the Norwegian EEZ between 71-74°N (Figure 1). One adult salmon among 1 tonne of herring was found (Table 2).

During another 20 days in June RV "Fridtjof Nansen" was operated in the southern part of the Norwegian Sea between 61-64°N and 43 hauls were taken. Catches varied from 1 to 4,000 kg and consisted of blue whiting, mackerel and herring. No salmon were caught (Figure 1). At the end of June, 6 hauls were again made in the northern part of the Norwegian Sea. No salmon were caught.

In July, RV "Fridtjof Nansen" surveyed the central part of the Norwegian Sea between 65-71°N, where 49 hauls were made. The catches of different pelagic species varied from 1 to 1,650 kg. One adult salmon among herring (375 kg) and mackerel (15 kg) (Table 2) was found in the Jan-Mayen EEZ (Figure 1).

Screening of Commercial Catches

In 2005 the programme to assess by-catch of adult and post-smolt Atlantic salmon was carried out in the Norwegian Sea by FV "Persey-4" during commercial pelagic fishing for mackerel, blue whiting and herring from 24 June to 27 August.

The data were collected in the area from 64° to 74°N, between 03°30'W and 14°30'E in the Norwegian Sea. Samples of pelagic species were taken from commercial hauls by pelagic trawl. The mesh size in the cod-end was 125 mm, and 40 mm in the trawl blinder. Trawl parameters were: vertical opening 35-65 m, distance between doors 58-65 m. The trawl was

not rigged with additional floats. A headline was towed at depths of 1-350 m. Trawling speed varied from 3.9 to 4.7 knots for blue whiting and herring and to 5.2 knots for mackerel. In total, 182 pelagic hauls were made (Table 3) during the cruise in the Norwegian Sea. 20,777 fish were measured, 3,259 were examined, and the age sample contained 559 fish of various species. All fish biology studies were undertaken in accordance with methodologies adopted by PINRO.

From 24 June to 6 July fishing for mackerel took place in the international waters of the Norwegian Sea from 65°17' to 66°16'N, between 03°17'E and 00°50'W (Figure 2). The total catch of pelagic fish was 274 t. Neither post-smolts nor adult salmon were found.

From 6 July to 1 August fishing for mackerel took place in a strip of waters adjacent to the 200-mile limits of the Faroe Islands and Norway, from 64° to 65°25'N, between 00°30' and 04°W (Figure 2). The total catch of pelagic fish was 575 t. Neither post-smolts nor adult salmon were found.

From 1 to 13 August fishing for blue whiting took place in the international waters of the Norwegian Sea from 64°30' to 69°20'N, between 04°10'W and 03°E (Figure 2). The total catch of pelagic fish was about 328 t. Neither post-smolts nor adult salmon were found.

From 16 to 27 August fishing for Atlanto-scandian herring took place in the northern part of the Norwegian Sea from 71°30'N to 74°00', between 09° and 14°30'E (Figure 2). The total catch of herring and blue whiting was 354 t. Post-smolts of Atlantic salmon occurred as by-catch in the period from 17 to 20 August, when near-surface aggregations of herring (depth interval 5-100 m) were fished in the Bear Island-Svalbard area from 73°49' to 72°55'N, between 14°21' and 12°20'E. In total, 9 post-smolts were taken (Table 4). The catch of herring and blue whiting in this period was 23 t.

Conclusion

Low by-catch in both Russian surveys conducted in 2005 could, apparently, be explained by the fact that neither the commercial pelagic trawl nor the Russian research pelagic trawl can capture any significant numbers of adult Atlantic salmon or post-smolts swimming near the sea surface, which can be attributed to both specific features of the trawl designs and fishing techniques.

It should be noted that Atlantic salmon by-catches (single instances) have been reported in other fisheries in the Norwegian and Barents Seas (e.g. cod fishery). These by-catches seem to be uncommon and probably occur when the trawl is in the near-surface position when retrieving.

So, with the traditional pelagic trawl design and trawl rigging used by Russian vessels in the pelagic fisheries in the Norwegian Sea, it is unlikely that there is a by-catch of adult salmon or post-smolts in significant numbers. They are only accidentally captured in the course of trawl retrieval on board, when the netting is positioned near the sea surface for a short time.

References

ICES. Report of the Working Group on North Atlantic Salmon. ICES CM 2003/ASFM:19. – 2003. – 310 pp.

Table 1. Details of hauls taken by RV “Fridtjof Nansen” in 2005

Month	Number of hauls	Catch, t			Salmon by-catch
		Herring	Mackerel	Blue whiting	
June	52	11.1	1.5	6.1	1 adult
July	49	5.5	6.1	0.1	1 adult
Total	101	16.6	7.6	6.2	2 adults

Table 2. Details from screening of catches by RV “Fridtjof Nansen”

Date	Headline depth, m	Catch, t			Salmon by-catch
		Herring	Mackerel	Blue whiting	
05.06.2005	0-2	1.1	-	-	1 adult
08.07.2005	0-2	0.4	0.02	-	1 adult

Table 3. Details of hauls done by FV “Persey-4” in 2005

Month	Number of hauls	Catch, t			Salmon by-catch
		Herring	Mackerel	Blue whiting	
June	18	0.3	0.01	-	-
July	95	83.3	6.2	13.8	-
August	69	292.5	20.6	359.4	9 post-smolts
Total	182	376.1	26.8	373.2	9 post-smolts

Table 4. Details from screening of catches by FV “Persey-4”

Date	Headline depth, m	Catch, t			Salmon by-catch
		Herring	Mackerel	Blue whiting	
17.08.2005	30	-	-	3.7	1 post-smolt
19.08.2005	15	5.1	-	2.5	3 post-smolts
20.08.2005	15	5.4	-	2.1	5 post-smolts

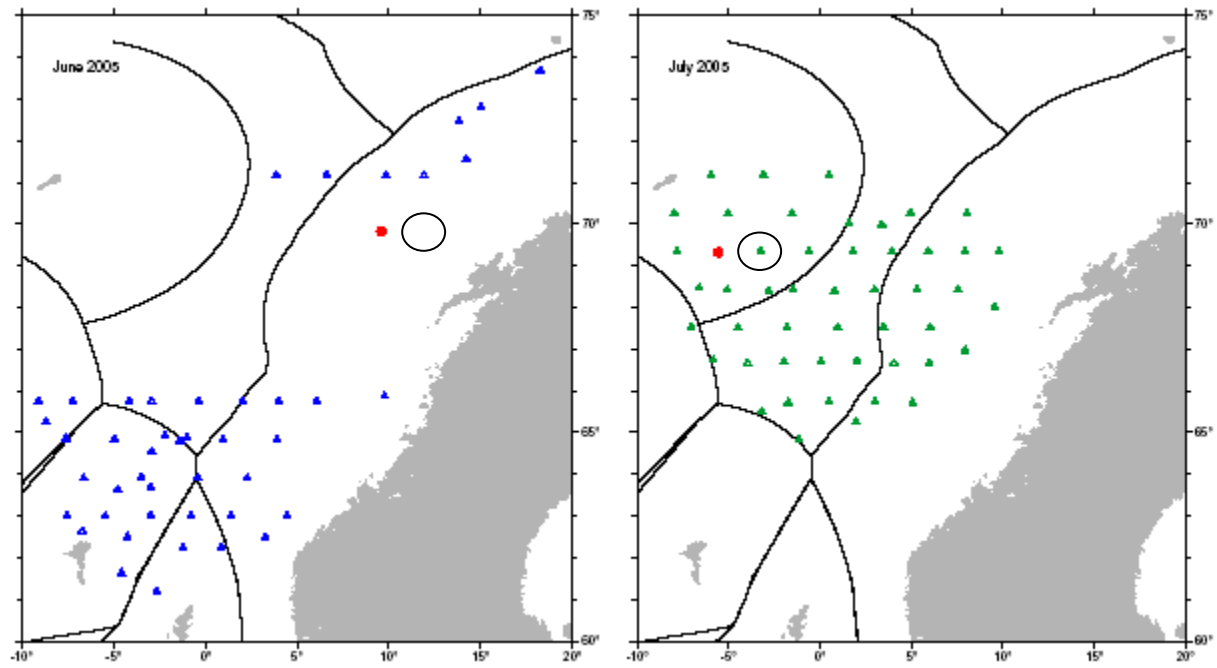


Figure 1. Positions of pelagic trawl hauls in herring survey conducted by RV “Fridtjof Nansen” in June - July 2005. Circles indicate Atlantic salmon in catch.

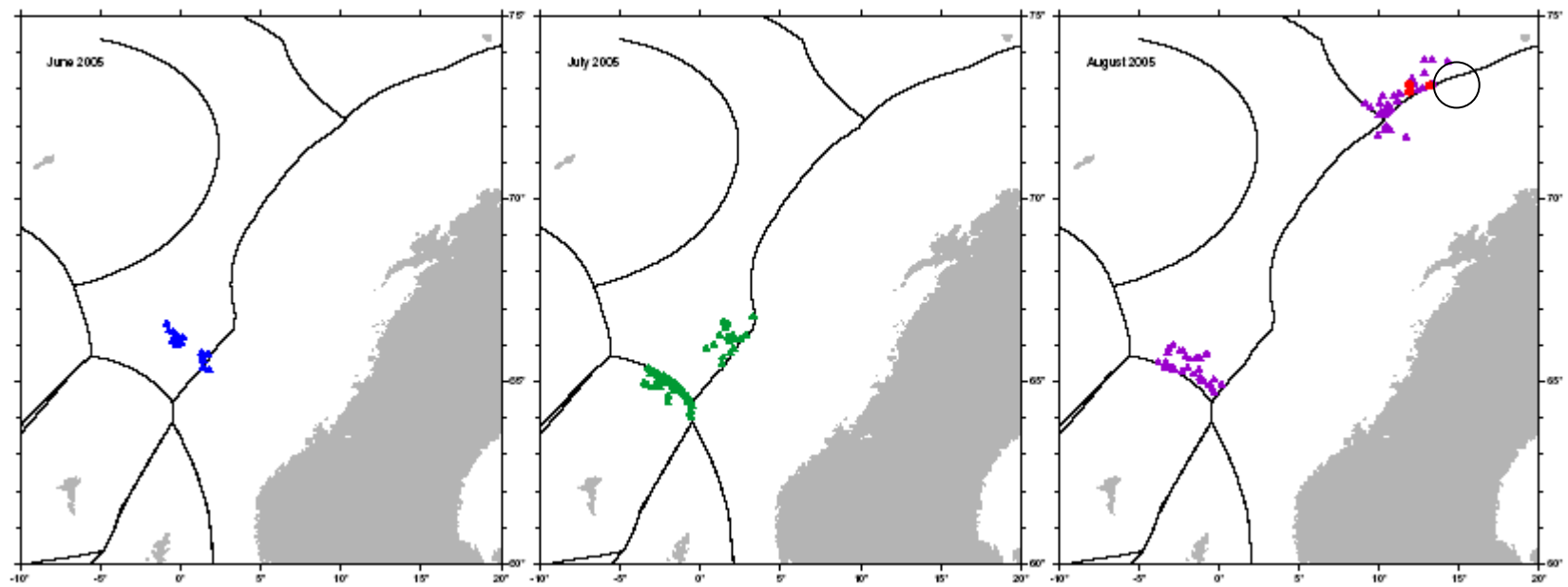


Figure 2. Positions of pelagic trawl hauls taken by FV “Persey-4” in June - August 2005. Circles indicate Atlantic salmon post-smolts in catch.