

SALMON IN RIVER VATNSDALSA

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INTRODUCTION

The River Vatnsdalsá is one of half a dozen big salmon rivers in the north-west of Iceland. Situated to the west of the town of Blönduós in a long and beautiful farming valley, it has a long history of good salmon runs. Arctic char also occur in abundance and brown trout are common in the system. The management of the river is in the hands of the farmers through whose land the river winds its way into the cold North Atlantic. For over fifty years the fishery association of farmers has seen to the development and protection of this natural resource.

Since 1984 the staff of the Icelandic Institute of Freshwater Fisheries has undertaken research in the river at the request of and with the cooperation of the fishery association. Annually the natural juvenile populations have been surveyed, the release of hatchery reared salmon juveniles and smolts has been monitored and catches of adult salmon have been followed closely in the search for tagged (marked) fish. Recommendations based on this research have been submitted to the fishery association and a close working relationship has been established between the two bodies.

Some of the research depends on the cooperation of anglers in the search for more information and clearly it is hoped that those who will benefit the most from the river studies are the anglers themselves as the goal of maintaining good, steady salmon runs is approached.

In this short article, some facts and findings so far are shared with anglers.

RESEARCH FINDINGS

Natural stocks

The juvenile salmon prefer gravelly and rocky substrates, where the current is generally swift. The arctic char prefers quieter waters and is generally found where the substrate is fine gravel, even sand or mud. The juvenile brown trout are more dependent on overhead cover than the other salmonids and are therefore mainly found close to the banks and in small tributaries.

The distribution of adult salmonids reflects that of their nursery areas. The best nursery area for juvenile salmon is below the outlet of Flóðið. There the substrate is ideal and

the water rich in food and nutrients. The salmon is also abundant in the upper reaches where the gradient is steeper. The production in these areas vary. At the moment conditions are favourable and indications are that the smolt run in 1987 was good.

The maturing salmon are at sea for one to three years before returning to their river to spawn. Grilse, fish which spend only one winter in the sea, are usually 5-7 pounds and are mostly males. Those returning after two winters are predominantly females and individuals are about 10-14 pounds. A small percentage have a three year growing period in the ocean and on return can be 20 pounds or more. Most adults only spawn once.

Hatchery juveniles

For many years the fishery association has released hatchery produced Atlantic salmon juveniles and smolts into the river. The juveniles are placed in suitable habitats above impassable falls. The juveniles are about 4-6 cm when released in June and may reach 6-9 cm by the end of their first summer, a length comparable to a two year old wild juvenile in the natural salmon producing areas. After two winters most of the hatchery fish migrate as smolts out of the rivers, whereas natural smolts have spent three to five years in the river.

The difference in growth between natural and hatchery fish is reflected in the pattern of rings on the scales of the salmon. By analyzing scale patterns, we can determine if a particular salmon originated from natural reproduction in the river or from the release program. Based on 167 samples of scales collected from the anglers' catch in 1987, one third of the grilse and one quarter of the older salmon were from hatchery releases. Other calculations have shown that 1-2% of released juveniles eventually get caught as adults.

In 1987 a new phase of the research started, when 847 smolts were trapped when migrating out of Hólkotskvísl, a small tributary which provides a good nursery area for released juveniles. Of these 258 were microtagged and the rest had their right pelvic fins removed. This tagging experiment will be continued in the summer of 1988 and will yield further information on the return rates and distribution in the catch of hatchery juveniles.

Hatchery smolts

In recent years, with the exception of 1987, 5000 smolts have been released annually in Vatnsdalsá. These are tagged with a small magnetic coded wire which is lodged in the cartilage of their snout. This tagging is part of a nationwide program carried out by the Institute of Freshwater Fisheries every spring. The adipose fin of these fish is also removed for quick identification. The recapture rate of these smolts

have been disappointing, varying from 0% to 1.5%, but slowly increasing with time. Undoubtedly not all tags are returned by anglers, but even so it seems that hatchery smolt returns are low.

Adult runs and stocking density

The nursery areas in River Vatnsdalsá are limited and when the spawning stock is large, too many juveniles will compete for the available food and shelter. The outcome is a reduced growth rate and increased mortality rate among juveniles, and eventually a decrease in the adult salmon run. The severity of these effects depends on the density in the nursery areas and on climatic factors. Adverse climatic conditions have a greater impact at times of high juvenile density.

The larger the runs, the lower the proportion of the run caught by anglers. To reduce spawning stocks which are too large for the accessible nursery areas, some adult salmon are removed from the river by seining parts of it when the angling season is over. The fish caught are then used in the stocking program. Only River Vatnsdalsá stock is used for these purposes.

CONCLUSIONS

Natural production in River Vatnsdalsá is good at present, but the records show large fluctuations in the size of the runs. It is important to monitor closely the population characteristics and assess new propagation methods. We have in the past had good cooperation between the fishery association, the Institute and anglers in the undertaking of research on the river. We hope that this continues as anglers enjoy long summer hours on the banks of the River Vatnsdalsá.

Hólar í Hjaltadal
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