



The Changing Abundance of Spring Salmon



Early-running or 'spring' salmon

Salmon run Scotland's rivers all year round. Net fisheries operate from February and, in some rivers, angling takes place from January onwards. In the past, early-running or 'spring salmon' made a major contribution to the Scottish fisheries, and particularly to those of the east-coast and its rivers. More recently, the abundance of early-running salmon has declined, and to examine the changes that have taken place Fisheries Research Services (FRS) has conducted an investigation of catch data for coastal, estuarine and river fisheries.

Investigating the decline in spring salmon

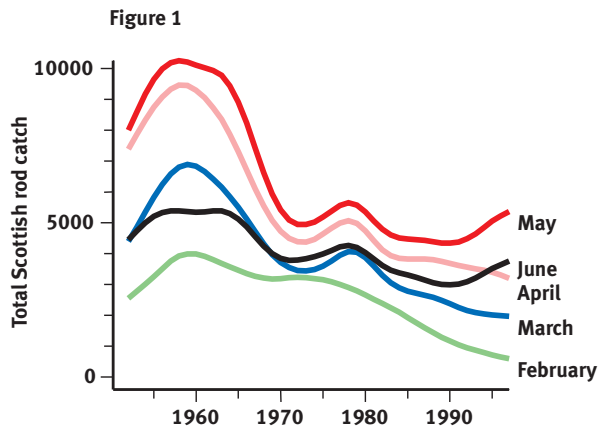
Every year, the owners or operators of salmon fisheries are obliged to provide details of their season's catch. Figures are provided separately for each month. The catch returns are collated by FRS and form the basis of the Statistical Bulletin that is published each year by the Scottish Executive Environment and Rural Affairs Department. The official reporting system has been in place since 1952.

Catches were examined separately for each of the largest east-coast rivers. These rivers have consistently provided the greater part of the Scottish rod catch of early-running fish, over the years. The five months between February and June were examined. (The analysis covered the period 1952-97).

Catches in rivers

Each year, the monthly catch varied in a similar way for all the rivers examined – good or poor years tended to be good or poor everywhere. The main factors that affect catches have not been identified but, whatever they are, they must act on quite a broad scale and are not due to the vagaries of the rivers themselves.

Looking at the Scottish rod catch as a whole (Figure 1), it can be seen that, for each month, catches peaked about 1960. The subsequent declines have persisted for February, March and April, although catches for May and June show recent signs of recovery.



The effect of the prior net fisheries.

In order to understand changes in the rod fisheries, it is necessary to consider the net fisheries, as well. The net fisheries operate earlier on in the migration of salmon. The activity of the netmen therefore determines how many fish enter rivers where they may, or may not, be caught by anglers.

We can gain some idea of the number of fish approaching the Scottish coast each month before they reach the net fisheries. Each year, we can add the monthly net catch to the rod catch. First, however, we must make an adjustment to the rod catch to account for the fish that are not captured and go on to spawn. The total abundance values shown below (Figure 2) are based on the assumption that anglers catch 30% of the early-running salmon that reach the rivers.

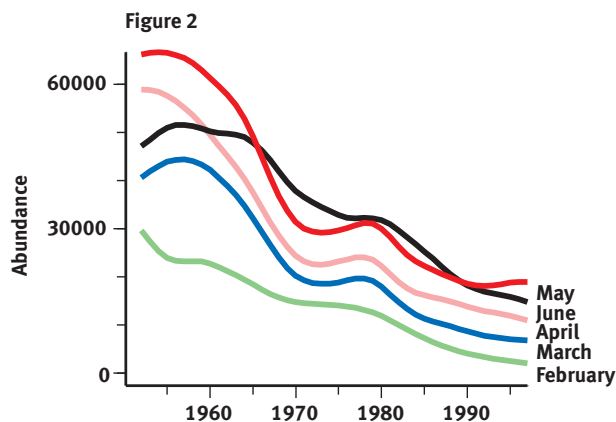


Figure 2 shows that the trends for abundance that underlie the fisheries have declined for every month in the period from February to June. Viewed in this new light, the recent improvement of the rod fisheries in May and June can be seen to be somewhat illusory. The relative stability of the rod fisheries is based on a transfer of catches from the net to the rod fisheries and it is due to decreasing netting effort. The gain is one-off and the effects of the transfer will prove temporary if the underlying trends continue to develop as they have done over the past few decades.

The reasons for these declines are not well understood. However, there can be no expectation for a quick reversal in the trends. The seemingly inexorable declines suggest that current management problems will become even more pressing in future. If the established trends continue to develop, the acute problems that currently beset the earlier part of the spring rod season are likely to extend to the later part, as well.

Summary

- Rod catches of salmon have declined markedly for February, March and April but May and June catches show recent signs of improvement.
- However underlying abundance has fallen for all the months in the February to June period.
- All the components of the spring fishery require special management support.

For further information see:

A.F. Youngson, J.C. MacLean and R.J. Fryer. 2002. Declining trends in the abundance of early running two-sea-winter Atlantic salmon, *Salmo salar*, in Scottish rivers. ICES Journal of Marine Science. Vol. 59, 836-849.

A.F. Youngson, W.C. Jordan, E. Verspoor, P. McGinity, T. Cross, and A. Ferguson. 2002. Management of salmonid fisheries in the British Isles: towards a practical approach based on population genetics. Fisheries Research. *In press*.