



Catches of Summer and Autumn Salmon in Scotland



Since 1952, the owner of every net and rod fishery in Scotland has been required to report the numbers of salmon caught in their nets or on their stretch of river. Catches are reported on a month-by-month basis. Potentially, the data provide a record of salmon abundance stretching back half a century. Changes in the abundance of 'early-running' or spring salmon are discussed in a separate leaflet*. Here we consider the summer and autumn catches.

Salmon and grilse

After one or two (or occasionally more) winters at sea, salmon return to their natal rivers to spawn. Catch forms require that one-sea winter (1SW) 'grilse' and multi-sea

winter (MSW) 'salmon' be reported separately. However, accurate discrimination of 1SW and MSW fish requires a trained eye or a detailed inspection of scale patterns. Not surprisingly, anglers frequently make mistakes. As it has not, so far, proved possible to compensate for these errors, we consider the total number of fish caught.

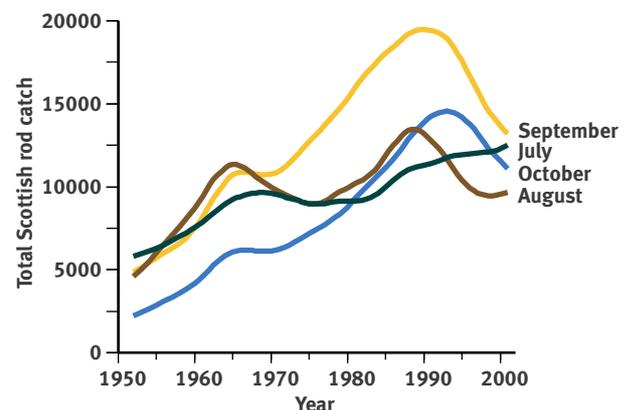
Changes in catchability, efficiency or effort?

The total number of salmon caught by rod and line depends on the number of returning salmon. It also depends on three other factors: the ease with which the salmon can be caught (their catchability); the time anglers spend fishing (effort); and the anglers' ability (efficiency). Changes in all three factors undoubtedly affect the rod catch particularly at the local scale: on single beats, for example.

However, at wider scales, good (or poor) months or good (or poor) years, tend to be experienced on all rivers. These wide-scale changes in the rod catch can only be explained by changes in salmon abundance.

Changing rod catches

Figure 1. Trends in monthly reported rod catches of salmon for all Scottish rivers (1952-2001)



*The Changing Abundance of Spring Salmon



Each line in Figure 1 represents the long-term trend for that month with the year-to-year variation 'averaged' out. The rod catches for all summer and autumn months have increased markedly since the 1950s, although the months of August, September and October show recent downturns. Since average lines give greatest weight to the most recent data points, the real size and duration of these declines will become clearer in a few years time. Nonetheless, the declines are real.

Changing net catches

Changes in the rod catch cannot be related to overall salmon abundance without taking the catches from the coastal and estuary net fisheries into account. In the 1960s, for example, an average of almost 400,000 salmon were caught by netsmen each year. Over the last few decades, netting effort has fallen dramatically, which should have allowed many more fish to enter the rivers.

Changing abundance

The total number of salmon entering rivers in the summer and autumn months can be estimated by multiplying the rod catch by ten, i.e., by assuming that one-tenth of the fish are caught by anglers. This figure is based on a number of studies in which salmon were tagged and their fortunes followed. The total number of salmon returning to the coast can then be estimated by adding the net catch.

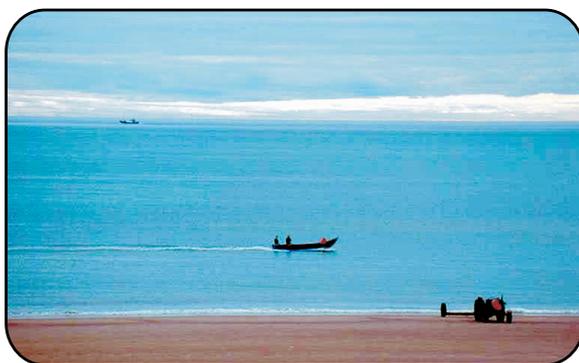
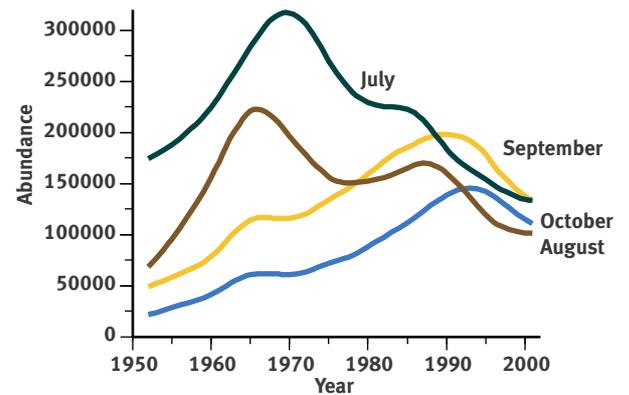


Figure 2. Trends in monthly estimated abundance of Scottish salmon (1952-2001)



Several features of Figure 2 are particularly noteworthy. Summer salmon (July and August) were most abundant in the late 1960s and have, with the exception of a slight upturn in the late 1980s, been falling ever since. Autumn salmon (September and October), in contrast, did not reach their zenith until the early 1990s. Since then, they too have been in decline. Although the exact shape of the lines depends upon the assumption that anglers catch 10% of the salmon entering the rivers, the general patterns described do not.

Summary

- From about 1970 to 1990, the summer rod catches were driven upwards by declines in the netting industry. Although overall abundance was falling at the time, rod anglers caught more salmon because more fish were reaching the rivers.
- Netting activity has now largely ceased and the continuing downward trends in overall abundance are beginning to affect the rod catch.
- The trends described are for Scotland as a whole and represent an average picture. Some rivers may be performing better than the average; equally, some may be performing worse.