



Rod Capture Rates of Salmon on the River Spey



The River Spey at Castle Grant. Photograph © Ian Neale.

Introduction

In order to make the best decisions, local fishery managers need to know the percentage of the salmon running their river that are caught by anglers. Usually the number of salmon entering a river is unknown and so the rod capture rate must be estimated in other ways. Here we describe a study that estimates rod capture rates from angling data. The Spey Fishery Board, in collaboration with the Fisheries Research Services (FRS) Freshwater Laboratory, conducted the study.

Catch, tag and release

During the 2000–2002 fishing seasons, 862 rod-caught salmon (a mixture of multi-sea winter fish and grilse) were marked using individually identifiable tags and returned to the river. Some of the fish were caught again, days or weeks later. Figure 1 shows the number of fish that were tagged and released in each month. Figure 2 shows the percentage of fish from each month that were caught again before the end of the season (30th September). The most striking finding was that, whereas more than 20% of the fish tagged early in the spring were caught again, only 1% of the fish tagged in the summer were re-caught.

Figure 1. The number of salmon tagged and released in each month.

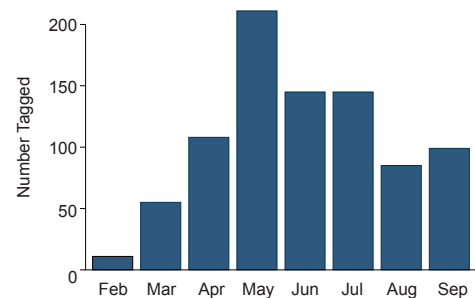
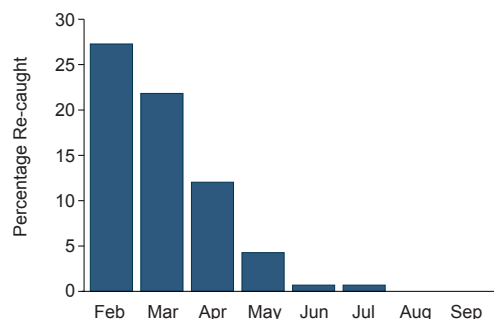


Figure 2. The percentage of salmon tagged and released in each month that were caught again.



Capture versus recapture

There is a number of reasons why the recapture rate might be different from the original capture rate. Firstly, some fish may shed their tags or die. Secondly, capture may reduce the chances of subsequent capture – through, for example, altering the fishes' tendency to take a fly or lure. Thirdly, if fish become less catchable with time in the river, then the recapture rate will be correspondingly lower. Given these effects, the recapture rates shown in Figure 2 probably underestimate the original capture rates of Spey fish.



Recapture of spring fish

Figure 2 shows that fish returning early in the year experience much higher recapture rates, and by inference capture rates, than later-running fish. Is this because fish tagged earlier in the year have longer to be re-caught? Figure 3, which shows the distribution of recaptures over time for salmon tagged in March and May, answers this question. Figure 3 shows that within 60 days of tagging, 20% of the March fish, but only 3% of the May fish, had been caught for a second time. It can therefore be concluded that the difference in recapture rates is not because earlier running fish have longer to be recaptured. Rather, fish tagged and released earlier in the year appear to be inherently more catchable.

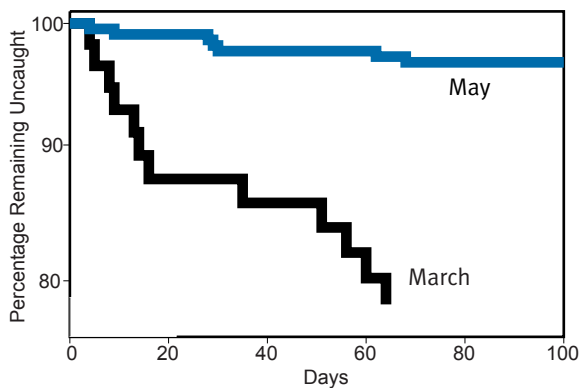


Figure 3. The percentage of salmon remaining uncaught by days from tagging and release.

Management implications

On the River Spey, a high proportion of the salmon returning in the spring are caught by anglers. Radio-tracking and counter studies suggest that spring salmon entering some other Scottish rivers may also be heavily exploited. Each fish that is caught by an angler and killed reduces the number of fish available to spawn. Due to the recent fall in the number of returning spring fish, many anglers now practise catch-and-release during the early part of the season. The potential for anglers to catch a large percentage of the spring salmon entering a river highlights the importance of catch and release as a conservation measure.

Indeed, based on this study's findings, the Spey Fishery Board introduced a new Salmon Conservation Policy. As

a result, 63% of the salmon caught on the Spey before the end of June 2003 were released. In 2004 this figure increased to 68%.



A rod-caught fish being released on the River Spey. Photograph © James Butler.

Summary

- The recapture rate of salmon caught, tagged and released is highest early in the year.
- The recapture rate probably underestimates the original capture rate.
- Spring salmon are highly susceptible to exploitation by anglers.
- The potential impact of angling on the numbers of spring salmon underlines the importance of catch and release.

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This leaflet was produced in collaboration with the Spey Fishery Board.



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