Why and how we do Juvenile surveys

Why we do juvenile surveys?

To check the health of the river

Without a good understanding of the status of the juvenile stocks, management would be impossible.

To identify areas that need help

If we can identify areas of the catchment where stocks are reduced from historical norms then remedial action, for instance the installation of a fish pass, or re-stocking from the hatchery can be undertaken.

To provide robust scientific evidence to regulators and others

Regulators such as Marine Scotland need evidence for stocking applications. SEPA used our data to help assess that the Spey Dam was a barrier to fish.

The Spey's long record of electrofishing surveys has been invaluable for measuring the impact of natural events like severe storms, or pollution incidents, which have resulted in fish kills.

To ensure that developments are not harming the river

The juvenile information is also vital for protecting the health of the river from developments such as wind farms. Our unrivalled knowledge of the Spey means that our services are in demand by developers and consultants.

To meet Government requirements for Conservation Regulations

In 2018 we completed 30 surveys at randomly located sites for the new National Electrofishing Programme. Scotland. These surveys will complement the adult stock component of the Conservation Regulations.

How we do juvenile surveys?

The two main techniques best-suited to the range of habitat that salmon and trout use in the Spey are timed and area-based surveys.

Timed surveys

Spey is one of the few rivers to systematically attempt to monitor the salmon population in the mainstem. This type of survey is done in shallow, fast-flowing water by a three person team with the electrofisher, a banner net and a bucket. For consistency we try to do these surveys at the same time each year, if river levels are suitable.

There is no national classification scheme for timed surveys, so our results are based on 442 Spey surveys taken between 2012 and 2016. The highest counts are 129.7 fry per minute (the Fiddich, 2014), and 41.6 parr per minute (the Dulnain, 2018).

Salmon fry	Timed Classification	Salmon parr
0.0	Absent	0.0
Up to 5.0	Very low	Up to 1.0
>5.0 to 10.9	Low	> 1.0 to 1.9
11.0 to 17.3	Moderate	2.0 to 3.9
17.4 to 28.0	Good	>4.0 to 6.9
>28.0 to 100	Excellent	7.0 to 33.3

Area based surveys

This type of survey is suitable for the smaller rivers or burns. The identified survey area is fished thoroughly by systematically working from one bank to the other. The team then take a step or two upstream and work back across, repeating the process until the entire site has been surveyed, up to three times in succession.

The thresholds in the Moray Firth region, the classification used for the Spey, are amongst the highest of any region in Scotland. The table below shows salmon fry and parr in streams of 4 to 6 metres wide for the Moray Firth. Similar tables are available for trout and for other stream widths.

Density/100m^2

Salmon fry	Classification	Salmon parr
0.0	Absent	0.0
1.0 to <7.7	Very Low	1.0 to <3.7
>7.7 to <27.5	Low	>3.7 to <10.8
>27.5 to <42.6	Moderate	>10.8 to <18.4
>42.6 to <77.3	Good	>18.4 to <25.3
77.3+	Excellent	25.3+

Why aren't all sites in the top category you may ask? The ability of different tributaries to support juvenile fish – its 'carrying capacity' - varies hugely.

Equipment

The Spey was one of the first fishery boards in Scotland to purchase state-of-the-art electrofishing equipment, with an inbuilt timer and 500-volt capacity. Electrofishing is a harmless technique when done properly.

Electrofishing works by delivering a high voltage electrical field around the anode - a metal ring fixed to a pole. The cathode - a length of copper braid attached to a cable - is trailed behind. When the anode is switched on, fish in the electrical field of 1 to 2 metres, are drawn towards the surface and netted into a bucket.

The inbuilt timer makes the timed surveys more consistent. We use 3 minutes actual fishing time for the salmon fry index surveys.

How do todays result compare to historical?

Electrofishing only became widely used in the 1990s. Our timed mainstem surveys began in 2003, even later in the larger tributaries. The results are as accurate as possible for the time, with equipment becoming increasingly efficient. In recent years we have found that whilst there is considerable variation in juvenile densities, there is no apparent downward trend.

For instance, 2018's results showed much higher numbers than the previous few years, particularly for parr in the middle and upper reaches of tributaries.

Can I help?

If you would like to assist us with electrofishing surveys or join us, please contact the Spey Fishery Board using the details below.

Spey Fishery Board, 1 Nether Borlum, Knockando, Moray AB38 7SD Tel: 01340 810841 www.speyfisheryboard.com - www.facebook.com/SpeyFishery/ - Twitter @SpeyFishery