

## Brown trout in the Falkland Islands: ecology, population structure and genetic diversity

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First published 30th July 2018

Brown trout were introduced to the Falklands in the 40's and 50's for recreational fishing, since brown trout have spread from their original sites of introduction, and there has been a decline in the presence of the native fish species, zebra trout and Falklands minnow. The aim of my PhD research is to determine the distribution of both brown trout and the native galaxiids, assess the population structure of brown trout and determine levels of gene flow between brown trout populations and their impacts on native galaxiids. I also aim to determine how brown trout have spread and moved around the Falkland Islands. Any findings may allow us to protect areas with native fauna that brown trout have not as yet exploited.

To achieve these aims I will use a variety of techniques such as environmental DNA (eDNA), stable isotope analysis, electrofishing and tagging. For eDNA I will collect water samples from ponds and rivers around the Falklands, from these water samples I will be able to detect any fish DNA present in the water, hence detecting the presence/absence of brown trout and native galaxiids in rivers and ponds.

I will also carry out electrofishing and seine netting surveys to assess the health and reproductive status of brown trout populations. During these surveys I will take a small clip of the adipose fin, this will allow me to determine if there are any genetic differences between brown trout in populations. These fin clips will also provide me with the opportunity to assess the level of competition between brown trout, zebra trout and minnows, and determine if brown trout are outcompeting zebra trout.

I also plan to tag fish with acoustic transponders, allowing me to track their movements in/out of a variety of estuaries, in conjunction with the acoustic



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tags I aim to start a catch and release study with the aid of local fishermen. To implement this, I will tag any brown trout I catch during my surveys with a small PIT tag, I would like to train a few fishermen to PIT tag fish. These fishermen will be provided with scanners, allowing them to scan a fish for a PIT tag to determine if it has previously been tagged, and if so ID the fish. From this I can build a database of information on individual fish movements, this will aid in determining the movement of brown trout around the Falklands and the level of gene flow between populations.



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