

Status Report:

The Falkland Islands Zebra Trout *Aplochiton zebra*

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Darwin's Discovery

When the H.M.S. Beagle, with Charles Darwin aboard, was anchored in Berkeley Sound, in northeastern East Falkland, in the late 1830s, a fish specimen was collected, preserved, and taken back to Great Britain for description. British biologist Leonard Jenyns called it *Aplochiton zebra*, the use of 'zebra' being an allusion to bold, dark vertical stripes across the sides of the fish, and the common name 'zebra trout' has achieved wide and general usage around the Islands. Where Darwin's specimen was collected from is unrecorded, apart from the fact that it came from a lake, but quite possibly it was Magellan Pond, near Johnsons Harbour in Berkeley Sound, though this is speculative. Darwin and some others from the crew of the Beagle walked south and west as far as Goose Green and would have passed

several ponds and lakes on this trip, where zebra trout could also have been collected.

A Once Common Fish in Decline?

Over the years since the fish was collected it has been repeatedly recorded from the Falklands, as well as from Patagonian South America. The fish has been an item of food for Falklanders, no doubt welcomed, and there are stories of fish being caught and cooked on a shovel held over a fire fuelled by diddle-dee – a tasty morsel for a cold, hungry shepherd. Zebra trout were widespread, common, and easy to catch, and even in recent decades there are reliable stories of dozens of fish being caught in a day. However, there have been persistent suggestions that numbers of zebra trout have recently been in serious decline, and that the fish is no longer to be found in some river systems where it was formerly known. Decline in abundance and range of zebra trout has been blamed on the

introduction and establishment of European

brown trout, *Salmo trutta*, in Falkland Islands streams, though this connection has never been confirmed (and it would be very difficult to do so in a rigorous way).

A Wide-ranging Survey Undertaken

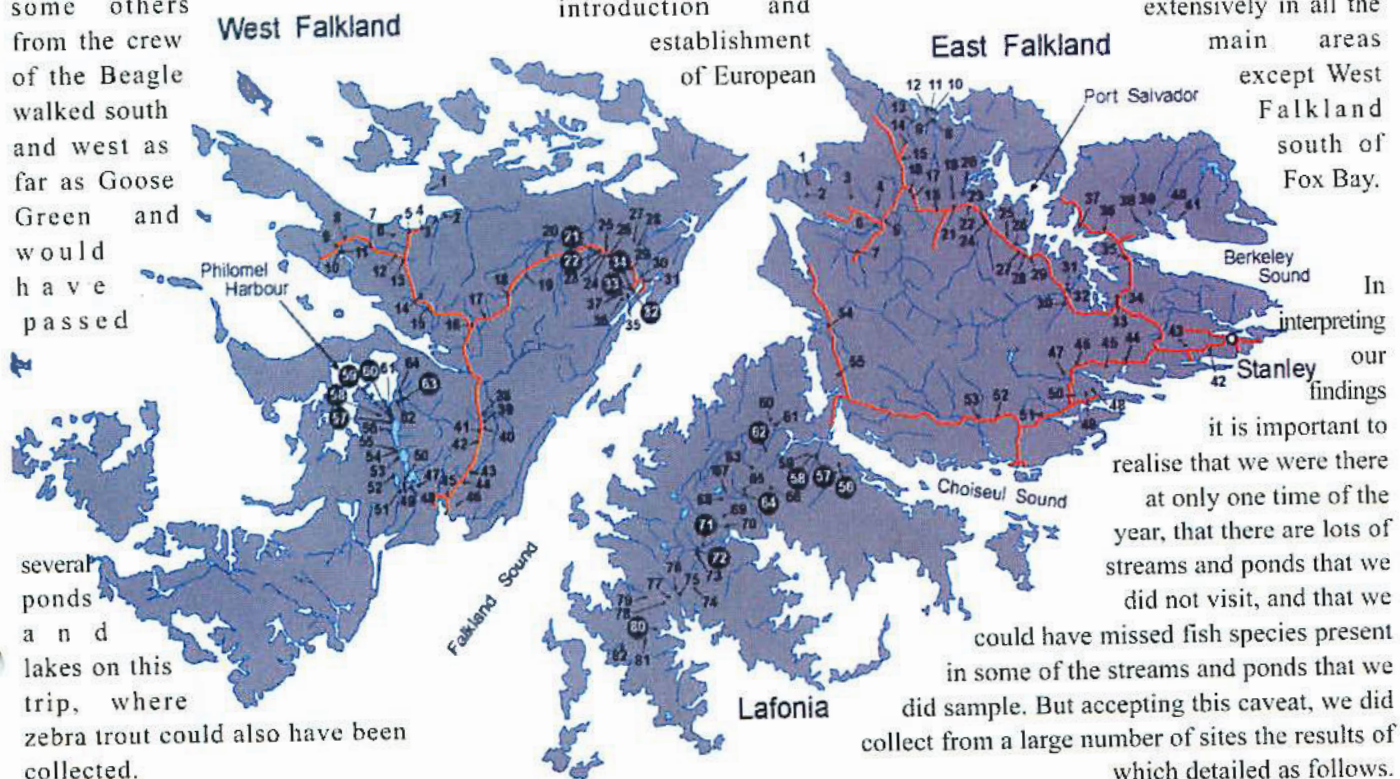
With these points in mind, in the company of two further New Zealand fish biologists (Richard Allibone and Lindsay Chadderton), I undertook a wide-ranging survey of Falkland Islands streams during November 1999 (with funding support from the National Geographic Society, Washington, the Shackleton Scholarship Fund, and some New Zealand funding sources). During three weeks, using a variety of fishing techniques, including traps, nets and electric fishing equipment, we sampled 146 sites widely across the two main islands (see Fig. 1), working extensively in all the

main areas except West Falkland south of Fox Bay.

In interpreting our findings

it is important to realise that we were there at only one time of the year, that there are lots of streams and ponds that we did not visit, and that we

could have missed fish species present in some of the streams and ponds that we did sample. But accepting this caveat, we did collect from a large number of sites the results of which detailed as follows.





Red Pond, where zebra trout are still abundant. Photo: R McDowall.

Survey Results

Amongst the 146 sites, there were no fish at 16 sites; of the remaining 130 sites, the native minnow, *Galaxias maculatus*, was the only species present at 57 sites, the introduced brown trout was the only species at 45 sites, only zebra trout occurred at 3 sites, minnows plus zebra trout were found at 13 sites, minnows and brown trout at 10 sites, and all three species at only 2 sites (and at both of the latter we collected only 1 zebra trout). The general lack of zebra trout at sites where brown trout were found is particularly telling, and consistent with suggestions that the introduction of brown trout has had a damaging effect on zebra trout distribution and abundance.

Zebra trout were found to be reasonably widespread and abundant in two areas:

On East Falkland we found them across Lafonia, and this interestingly is an area that the brown trout has scarcely invaded - though a few have been found recently in at least one of the rivers along the northeastern coast of Lafonia;

On West Falkland, zebra trout are widespread in streams and lakes draining

into Philomel Harbour in the west, and interestingly, this is an area where brown trout are presently unknown, perhaps because the sea-migratory brown trout present on the Falklands have yet to find their way through the rather narrow entrance to the harbour.

In addition, zebra trout were found to be abundant in Red Pond, a small lake on Port Howard Farm. Red Pond has no outlet, so that the population of zebra trout must be landlocked in the pond (unlike other populations where there is almost certainly a sea-migratory stage in the species' life history). Thus, in Red Pond (as mostly elsewhere), zebra trout were found in a place where brown trout have not yet become established. Although we have not been able to demonstrate any causal connection between the distribution and abundance of zebra trout and the presence of the introduced brown trout, our data are certainly consistent with the quite widely expressed view that brown trout are causing the decline in zebra trout.

What of the future for zebra trout?

There seems no obvious reason why, eventually, brown trout will not spread more widely into unoccupied Lafonia stream systems, and also find their way into Philomel Harbour and the river systems that drain into it. If so, the future for zebra trout looks bleak. This really emphasises the importance of the population in Red Pond, as this is the only known population where trout cannot gain natural access. There may be other undiscovered landlocked populations of zebra trout in lakes, e.g. we were told that they occurred in both Magellan Pond and Lorenzo Pond, but did not find any there. And we netted several of the lakes in the series north of Fox Bay and found only minnows. While landlocked populations like that in Red Pond are certainly better than nothing, they do represent somewhat 'minimalised' stocks of a fish that would normally undertake migrations to and from the sea. Recent moves to introduce regulations that prohibit the capture of zebra trout are certainly commendable, but whether they are enough to ensure the species' survival only time will tell. Loss of this fish from the already very sparse Falkland Islands freshwater fish fauna would be a tragedy.