

# **Cobden wetlands inanga habitat assessment and recommendations for future management**

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May 2017.

## **Introduction**

This short report describes an assessment of the Cobden river floodplain area and Aromahana Lagoon shoreline, carried out in the company of Henk Stengs, Ranger, Department of Conservation, Greymouth on 1 and 2 May 2017.

## **Methods**

1. Searching for inanga eggs in artificial channels and margin of Cobden Lagoon
2. Assess progress and suitability of inanga habitats
3. Salinity measurements
4. Record findings, matters discussed and recommendations. These are listed below.

## **Findings and matters discussed**

1. The project has hugely increased the length of river/channel bank available for spawning by 7 km, with few comparable sites in New Zealand. For example, Christchurch has spawning sites spread along 15 km of river banks. Those along the Manawatu River are spread along 3.5 km.
2. It is more difficult to tell where spawning might occur in Cobden wetlands than in normal river systems because of the complex maze of channels with their multiple entry and exit points for tidal water, as well as their sheer length. This is unlike single channel rivers where it is much easier to narrow down where to search for eggs.
3. No eggs were found beside the artificial channels but they cover a sufficiently large area to provide confidence that egg laying will be occurring somewhere alongside them.
4. Information about peak water levels is lacking. This could be rectified by installing 6-8 monitors comprised of pegs with lengths of a tape measure attached to them. Recording water heights from these enables observers to get their eye in and make it easier to narrow down the vertical zone in which to search for eggs.
5. Issues associated with only limited DOC staff time available for monitoring water levels and undertaking spawning surveys could be offset by setting up a community-based monitoring program.
6. Other useful monitoring information would be to obtain data on shoaling fish in the area, including numbers, fish lengths and girths, and behaviour, as well as birds. Collecting this would suit community volunteer activities.
7. Peak spawning month is likely to be in March or April but can only be ascertained by repeat surveys through the spawning season (e.g. February to May).
8. The bankside vegetation that has developed both naturally and because of planting is of high quality, with the right species present. Growth of flax for shelter is progressing nicely but there is a lack of in-channel cover for juvenile fish. This could be rectified by adding some large pieces of heavy driftwood so that it forms log jams.
9. Such log jams would provide protection from predators and boost the fish population over and above the already good numbers of resident fish present.

10. Resident fish seen were generally of sub-adult length. They may spawn in winter.
11. The large natural channel entering the island from opposite the cranes has a high sediment load because of strong currents and sudden tidal surges. Its margins are of limited suitability for spawning. However, side channels have high potential because they generally consist of clear water, are stable and protected from strong currents, yet they remain tidal and most of them retain water at low tide.
12. The area beside the channels is remarkably free of weeds such as gorse, broom, invasive willows and blackberry, although they are still present.
13. The size of the restored area and extent of channels are such that resilience to flooding and sedimentation is assured. Similarly, its geographic spread is such that it caters for natural fluctuations in locations of the saltwater wedge.
14. Channels have been correctly positioned in relation to the saline-fresh water gradient.
15. The search for eggs on Cobden Island at the place where milt was observed on 30 March was unsuccessful. It is very likely that any resulting eggs would have already hatched.
16. Most channels retain water at low tide. This greatly enhances their habitat value for maturing adults.
17. Surveys in late February-early March 1990 yielded two spawning sites on Cobden Island (Taylor, Buckland and Kelly 1992). The northernmost of those was searched but no eggs were found.
18. Salinity is within the range suitable for inanga spawning (Figure 1).



**Figure 1.** Bottom (maximum) salinity measurements recorded 1 May 2017 on the tidal peak (3.2m high tide @ 3.11pm)

### **Spawning sites at Aromahana Lagoon**

Eggs were found immediately upstream of its outlet under the road, on both left and right banks. These are new records and although small in area are likely to see repeat use. They will be also be good demonstration sites to engage the public and should be monitored to ensure the condition of the vegetation is suitable. A search along the west side of Cobden Lagoon, where there have been reports of spawning in the past, yielded no eggs. That may have been because the vegetation was in poor condition due to having been trimmed and through application of herbicide.

### **Site photographs**

Site 1



Site 2



### **Recommendations**

1. Continue volunteer-based plantings and weed control.
2. Install a series of water height monitors and mark tidal levels during spring tides.
3. Initiate a community-based monitoring program covering spawning surveys, fish size, shoal sizes, spawning behaviour and birds.
4. Boost habitat diversity by installing artificial log jams.