

STANDARD OPERATION PROCEDURE

Reception and Traceability of
Lumpfish Broodstock





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Reception and Traceability of Lumpfish Broodstock– Standard
Operation Procedures 7, Version 4, Centre for Sustainable Aquatic
Research, 6 pages.

NEED

Parasitic sea-lice are the biggest threat facing sustainable salmon production in the world with an annual cost to industry of £500 million.

Using lumpfish as cleaner fish offers an attractive alternative to the use of chemicals or medicines.

As lumpfish are being cultured for deployment it is important that robust quarantine procedures are in place. Additionally it is important that broodstock can be traced throughout stripping and egg production, and that the parents of resultant larvae are known.

Therefore there is a need to receive lumpfish into a quarantine facility, and ensure that broodstock are traceable throughout the season.

NOVELTY

CSAR are the only facility in the UK involved in the collection of lumpfish broodstock to harvest fresh milt and eggs for incubation. Therefore, no SOP exists which can guide the growing industry on best practice for receiving lumpfish broodstock into a facility and tracing individual broodstock throughout a season.

This SOP guides the user on the best practice methods for receiving lumpfish into a quarantine facility, and ensuring traceability broodstock during the season.

EQUIPMENT USED

- Disposable gloves, aprons & oversleeves
- 2-Phenoxyethanol & beaker
- PIT tags, implanter and reader
- Sharp scissors and tweezers
- 2 ml vials with ethanol & storage boxes
- 70% Ethanol
- Lab coat
- Record sheets
- Measuring board
- Cool boxes
- Weighing scale
- Overshoes

PROCEDURE

Please ensure that all the following work is carried out in quarantine upon arrival and before fish are stripped or transferred to the tanks.

Prior to arrival

- Ensure that all equipment listed above is available.
- Ensure a freshwater bath is prepared for removing lice from new arrivals. The temperature of this bath needs to match that of the transport water.
- Prepare an anaesthetic bath. Fill a cool box (or suitably sized container) with 30 litres of system water of a similar temperature to that of the transport water. Add 9ml of 2-phenoxyethanol (0.3ml/litre) to a beaker of the same water and stir well to ensure it is well mixed. Add this to the cool box and aerate the water.
- Prepare a recovery bath. Fill a cool box (or suitably sized container) with 30 litres of system water of a similar temperature to that of the transport water.

Arrival

1. Check temperature of transport water is within 2°C above or below that of the Quarantine room to avoid thermal shock.
2. Place one fish at a time into the freshwater bath and leave for two minutes. Gently brush lice off the fish with a gloved hand. Lice may need to be physically picked off with forceps.
3. Transfer the fish to the anaesthetic bath and monitor throughout.
4. Check the fish is appropriately anaesthetised by gently tilting it on its side. If it is slow to right itself it is ready to be measured.

Measuring and sampling for traceability

5. Lift fish from the anaesthetic bath and allow excess water to run off the fish.
6. Place on measuring board on a tared balance and record total length (to the tip of the tail (mm), weight (g) and sex (based on external characters).
7. Select a PIT tag and check it works with the scanner.

8. Insert the PIT tag into the individual in the marked **X** on the diagram on the left flank. **Please note that the applicator needle should be inserted at an angle of ~25 degrees.**
9. Check the tag has been secured inside and that the tag can be identified by the reader. The tag number should be noted and recorded on the record sheet.
10. Half fill a screw-cap 2ml vial with ethanol and ensure it is labelled with the **correct tag number (use self-adhesive barcode label that comes with PIT tag).**
11. A fin clip (with sharp scissors) should be removed from the top end of the caudal fin (marked on the diagram ****). The clip should be 2 – 3 mm wide and 5 -10 mm long, cutting across 1 fin ray and surrounding material.
12. If the caudal fin is not present, a fin clip can be taken from the dorsal or anal fin; ensure to note where the fin clip has been taken on the record sheet.
13. Place fin clip in the tube containing ethanol and place in the storage box.
14. If females are gravid they should be stripped of eggs at this point, **see SOP – Lumpfish stripping and fertilisation.** If not stripped proceed to step 14.
15. Place fish in a darkened recovery tank for 10 – 15 minutes to recover.
16. Once the fish is able to hold its own body position and is clearly pumping water through its gills it can be stocked into the appropriate quarantine tank (Q1 – Q5) and record the destination tank number to complete the record sheet.

NOTE: any fish that are already present in Quarantine and have tested negative for any notifiable diseases should be kept separate from any new unscreened arrivals.

17. All fin clip samples should be stored in the designated lumpfish freezer.

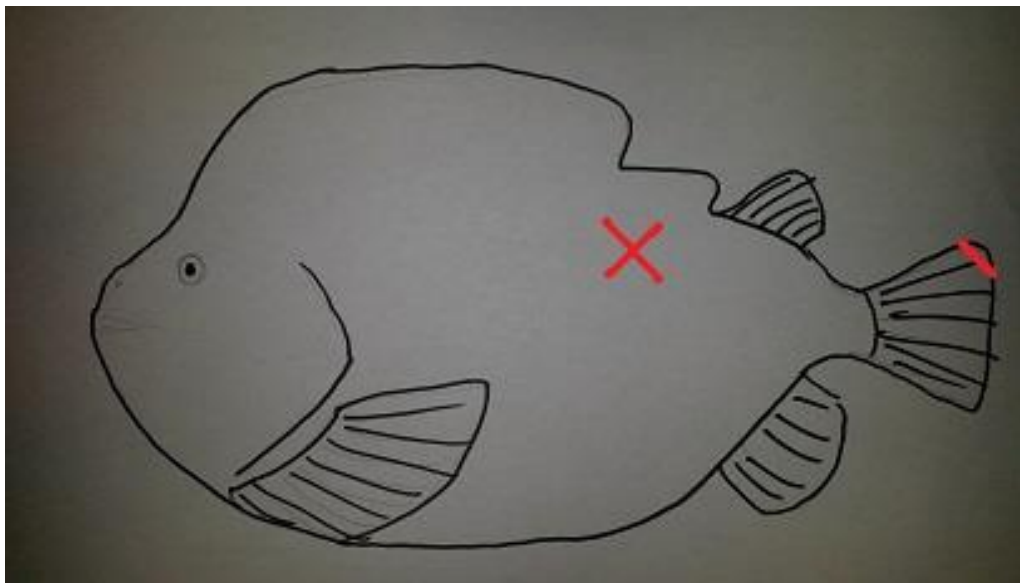


Diagram showing positions for inserting the tag and taking a fin clip.

Biosecurity measures

Strict biosecurity measures must be followed when dealing with new arrivals. This needs to be maintained whilst they remain in the Quarantine facility and even if the results reveal that they are free from any notifiable diseases these measures should remain in place.

Please see the **SOP – Lumpfish Broodstock Biosecurity**

This document was supported by SMARTAQUA:
aquaculture beyond food.

*SMARTAQUA is supported by the Welsh
Government and the European Regional
Development Fund*

