

*30th June 2017*



**MACQUARIE HARBOUR**  
**TRIAL WASTE**  
**CAPTURE SYSTEM**  
**RESULTS**

# Waste Capture System (WCS)

- Tassal initially trialled a single prototype Waste Capture System (WCS) to test the concept was fit for purpose; several design inadequacies were identified through the testing of prototype **I**.
- Design changes were made between prototype **I** of the WCS and prototype **II** of the WCS. Design improvements were focused on reducing negative impacts to the structure of the net, improving the sump design for maximum solids extraction and refining pumping design.
- Tassal subsequently installed three trial WCSs to ascertain key information, which has enabled the efficacy of the WCSs to be measured. Existing in-house expertise on liner construction and deployment from fresh water bathing operations, together with Recirculating Aquaculture System (RAS) waste management expertise were utilised and adapted to aid in the development of the WCS.

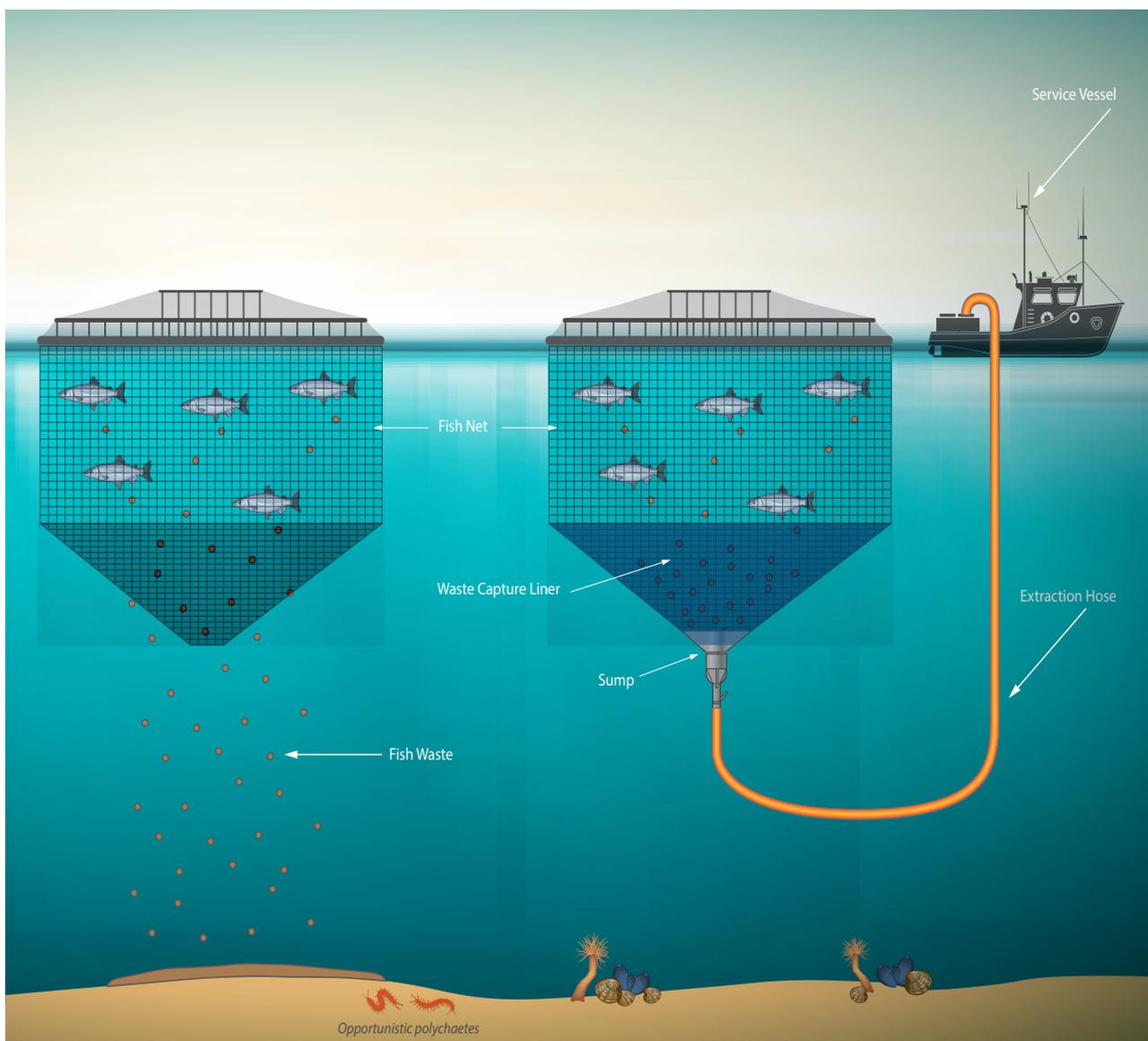


Figure 1 Waste capture system concept.

- Tassal undertook a comparative analysis of captured waste in relation to published salmon faecal characteristics and volumes. This analysis was further informed by Tassal specific diet and feed management information.
- Current literature states that solid dry particle faecal excrement from Atlantic Salmon is on average equivalent to 12% of total feed fed. The literature also identifies uneaten feed wastage is in the range of 1% to 5%, Tassal has conducted measurements of captured feed from the WCS which confirmed an average of 1% uneaten feed.
- The combination of 12% of feed fed becoming dry solid particulate faecal waste and 1% waste feed results in 13% of feed fed becoming dry solid particulate waste.
- A typical commercial salmon diet was initially fed to the salmon in the WCS trial. Although waste was successfully captured using a typical salmon diet, Tassal has found the use of a faecal binder additive to the fish food improved capture rates and extraction efficiency.
- Tassal is implementing WCSs sufficient to 150% of the biomass in excess of 3640 tonne.
- WCSs have been inspected in adverse weather conditions to ascertain if the system behaves similar to a sea anchor or causes pluming of fish waste. The adverse surface weather conditions had little to no impact to the WCS integrity.
- All waste removed from the WCSs is currently being disposed of at an approved WWTP, no waste is discharged back into MH.
- 13 tonnes per hectare = 12,000 tonne whole of harbour biomass limit. Tassal will be capturing waste from all of the cages that represent biomass in excess of 13 tonnes per hectare, together with capturing waste from a portion of cages below 13 tonnes per hectare. For example, at Tassal's peak stocking levels for the 2016 salmon input year, all cages in excess of 8 tonnes a hectare will have WCSs installed. This effectively demonstrates the equivalent of a significant biomass reduction.

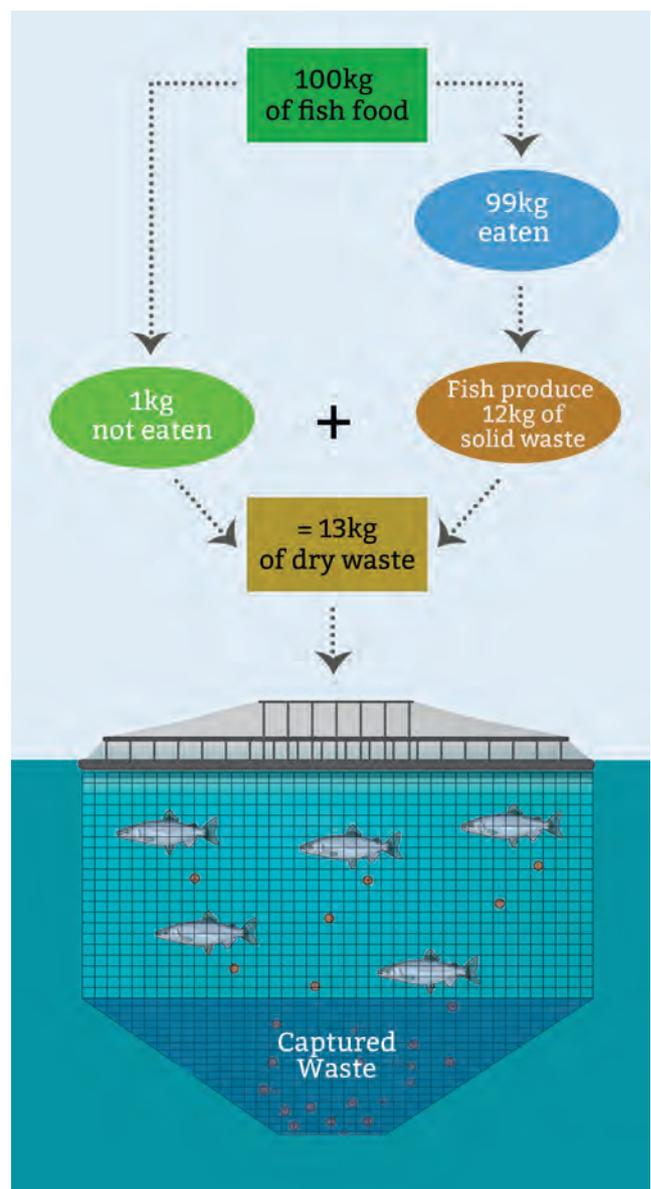


Figure 2 Trial results