



## BY-PRODUCT – REUSE/DISPOSAL

- At Huon, we have a whole-of-fish philosophy which drives our work in the by-product innovation area. Diverting by-products from landfill is a great way to improve the sustainability of fish farming while also opening up new and potentially lucrative income streams.
- A by-product is what is produced during the various farming and processing stages – essentially, the leftover materials from first-grade products, as well as non-organic materials that are no longer usable.
- These include (but are not limited to) salmon skins, viscera, salmon heads and frames, offcuts, graded-off smolt and fry, hatchery water and sludge (left over post-water filtration).
- By-products also include farming equipment such as old ropes, pipes and nets.
- While recognising by-products is one thing, finding a use for them is where innovation comes in.
- In late 2020, Huon launched the *Omega Treats* range; a line which takes graded off smolt, parr from our hatcheries and salmon skins from our processing plant and through freeze drying, turns them into shelf-stable treats for dogs and cats. Due to the preservation method, no chemicals or preservatives are added which makes these products great for pets with allergies.

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## BY-PRODUCT INNOVATION

While by-product innovation is done in-house wherever possible, it also involves discussions and agreements with third-party manufacturers.

An example of third-party collaborations is a pet food supply chain who are taking our salmon heads and frames and turning them into nutritious, high-end pet food.

Our Forest Home hatchery by-product, irrigation water, is an excellent example of not just re-use of by-products but also collaboration among farmers. The farmland on which the hatchery is located received organic certification from the National Association for Sustainable Agriculture Australia (October 2019). Huon leases the land to Bruny Island Cheese (BIC) for harvesting grass as silage and hay as well as grazing calves and dry cows. Now that this land has also been certified organic, BIC can label all outputs (i.e. cheese, milk) as organic. In addition to re-using the Forest Home wastewater, all of the solids that the fish produce at this site are collected, dried and used in compost. This makes Forest Home a fully closed-loop system.

The same waste-capture technology and subsequent composting/reuse of fish waste is also in place at Whale Point. In the Spring of 2020, we announced our partnership with Cherries Tasmania whereby fish by-product (which looks a little bit like brown putty) is added to CT's house-made compost, and then spread over the base of cherry trees.

Adding the salmon waste to the compost has meant an almost exponential improvement in biological diversity. The fish waste enriches the compost by providing calcium, phosphorus and nitrogen while also improving the soil's microbial diversity. Lower ammonia, sodium and chloride levels in the finished compost are also some of the benefits of using fish waste over other animal-based manures. A better microbial diversity in the soil is the greater benefit.



Fish and fish products have been shown to be beneficial for soil health—a result that has been confirmed through extensive trials conducted by our stakeholders with the relevant permits and authorisations.

At non-closed loop sites, by-products are disposed of safely and in accordance with relevant guidelines and legislation at authorised K100 compost facilities at Interlaken and Plenty. A K100 facility is one which is licensed to handle animal effluent and residues and fish processing waste.

## PROCESSING BY-PRODUCT

A variety of by-products are created during processing. This includes fat, heads and frames, viscera and blood water (water in which the freshly harvested fish are transported in). Some of these by-products are disposed of at Interlaken or Plenty, with blood water being taken to Dulverton as it is a salty product.

Through the filleting process, we end up with excess heads and frames. Instead of sending these for composting, we collect them and send them to a pet food company for inclusion in their range of raw and freeze-dried lines.

## PET TREATS

Using products that would otherwise go to landfill, Huon developed a healthy pet treat product line using freeze-dried fingerlings, smolt (graded off at our Forest Home hatchery) and salmon skins (from Parramatta Creek processing facility) – released to the market in Spring 2020.

Salmon is known to be beneficial for pets due to its healthy fats and Omega-3. It is also good for fussy pets and those who have allergies to overly processed foods. The treats are freeze-dried, which removes the water making the products shelf-stable, leaving out the need for refrigeration or preservatives.

## SMOLT GRADINGS AND MORTALITIES

To ensure that the highest-quality stock is transferred to sea, we conduct smolt grading and culling. We cull in line with our *Veterinary Health Plan* and RSPCA guidelines.

The volume of culled smolt is collected on site and placed in a bin to be sent to an approved K100 compost facility. Any smolt mortalities experienced in the hatchery are also disposed of in the same way.

Just like with any farmed animal population, mortalities are an expected part of farming.

Our Fortress Pens are designed with an inner net in the shape of a cone. This allows mortalities to sink to the bottom in one central spot which are remotely pumped onto a feed barge where they are macerated (autopsies may occur before this process to determine the cause of death). This allows us to quickly remove the mortalities which reduces the potential for the development and spread of disease. Once ensiled, the mortalities are brought back to shore in enclosed containers and taken via tanker to an authorised K100 compost facility.

