



## OUR FEED SYSTEM

- Huon has long been a pioneer of salmon feeding methods and technology. We are continually learning and inventing new ways to feed our fish with a combined focus on fish performance, minimising feed wastage, keeping staff safe, and reducing our environmental footprint.
- We feed our fish to appetite which means that the fish eat to satiation. In this way, we allow the fish's natural behaviour to determine when and how much they eat. Similarly, our feed system spreads the feed pellets in a way that allows all fish to feed at the same time, allowing less dominant fish equal access to feed.
- Our locally-built feed barges are at the centre of our feeding system – the barges are moored on our leases and are remotely controlled from our Hobart office. The barges contain high-tech feed systems such as pellet-recognition software to determine when the fish are hungry and when they are full, which means less wastage and a reduced environmental impact
- Another component of our feeding system is the Control Room based in our Hobart office. From this room, we can remotely feed fish at any of our sites ensuring employee safety when the weather is too rough to operate from a feed barge. Investing in remote feed systems has enabled Huon to move to offshore farming without compromising employee safety.
- The final component is our feed spinners, developed in-house, which evenly distribute feed across entire pens. After many years of using water-propelled feed spinners, in early 2021, Huon transitioned to air-propelled spinners reducing the amount of water pipe (estimate of total 20+kms removed) across the leases.
- The introduction of unmanned feed barges moored onsite and automated feeding has also reduced the number of vessel movements and time employees spend on water, particularly at high-energy sites.
- Every Huon pen has two continuous footage cameras, an underwater camera that can rotate in all directions and can remotely be winched back and forth through the pen and also winched up and down through the water column which is used to look at fish behaviour and monitor feeding, and an above water camera to monitor feed spreads, weather conditions and safety checks for on-water staff.
- The cameras are connected to a control box on each pen which has its own radio which then transmits through 5Gb Wi-Fi (not to be confused with the 5G network) which sends the signal back to an access point (radio tower) on its nearest feed barge. The servers on the feed barge then compress the signal to lower the bandwidth which then sends that signal to a land based tower. That signal is then sent through fibre on the Tasmanet network back to our Control Room, where a team of operators can control everything from the cameras and winches to the feed system and machinery on each feed barge.
- [AI breakthrough in Tassie salmon farming - Food & Beverage Industry News \(foodmag.com.au\)](https://www.foodmag.com.au)



## FEED BARGES

A feed barge is a specially-designed heavy-set vessel that we moor in the centre of a lease to deliver feed to the pens through a series of air pressurised pipes.

These vessels are remotely controlled, so our team of feeders in Hobart can control the flow of feed and turn it off when the fish have eaten to appetite. This reduces feed wastage which is good for the environment.

Feed barges provide a safe work environment and allow experienced fish feeders to focus on feeding the fish (each barge can feed up to 12 pens simultaneously). The remotely controlled on-board systems allow our experienced feeders the ability to switch on feed to particular pens, monitor feeding using a series of underwater cameras and pellet detection software, and to switch the feed off when the fish are no longer hungry. The real-time video footage captured by the system also allows for extensive monitoring between feed times.

Huon has invested more than \$45M in our fleet of seven operational feed barges.

Huon's first feed barge, aptly named 'Huon', was launched in June 2014 and represented the first of five 320-tonne feed barges that would be integrated into Huon's operations in the coming three to four years. Huon is proud to support local businesses in the creation of new technologies and infrastructure, which is why all five 320-tonne feed barges (not to mention the two 600 tonne feed barges) were built in Tasmania by Tasmanian-based company Crisp Bros. & Haywards at their Margate shipyard. It takes 15 companies, 187 people and 22,000 work hours to build one 320 tonne feed barge.

Huon's suite of 320 tonne feed barges (39m long/12m wide) are the Huon, Hibbs, Hope, Hippolyte and Heron.

The 600-tonne *Hogan* is the largest feed barge in the southern-hemisphere, measuring at 37 metres long and 12 metres wide. The feed barge's 600 tonne capacity allows the vessel to store two weeks' worth of fish feed, supplying 12 pens in Huon's high-energy Storm Bay sites. Designed by Huon in collaboration with AKVA and Crisp Bros. & Haywards, *Hogan* was officially launched in December 2018, costing an estimated \$10.5M. A collaboration of approximately 100 employees and contractors were involved in the project, with the barge taking approximately 82,000 hours or 30 man-years to build, with the coatings alone taking 4.25 man-years to apply. The second 600-tonne barge, *Hulk* was launched in mid-2020.

The vessels have feed stores built into the well into which feed-delivery boats load feed pellets. From these stores, feed is pumped into a series of pipes which exit from the hull. These pipes deliver feed directly into the centre of our pens where it gets spread by a feed spinner at approximately 400-revolutions per minutes using high-pressure air.

## CONTROL ROOM

Our remote feed system uses a combination of industrial automation and artificial intelligence (AI) to autonomously control feed rates in offshore fish farms by identifying and tracking feed pellets in the water column using machine vision and machine learning.

This system means that at any one time, just four people are remotely feeding (from Hobart) every one of our fish regardless of location (Huon River/Channel, Storm Bay or Macquarie Harbour), which also creates a safer working environment particularly when the weather is too rough to operate from a feed barge.

Through the Control Room, the feed system remotely switches on and off feed to particular pens, and monitors feeding using a series of underwater cameras and pellet detection software that sends real-time footage and data (via the barge) back to Hobart. By carefully monitoring how much the fish are eating, we are able to prevent feed wastage and reduce our environmental impact.

By utilising remote operations Huon can also inspect nets and other infrastructure, remove mortalities, and monitor the environment remotely from our Hobart office. Feed barges also allow us to monitor wave actions and current buoys, as well as capture live video feeds of the weather conditions.

