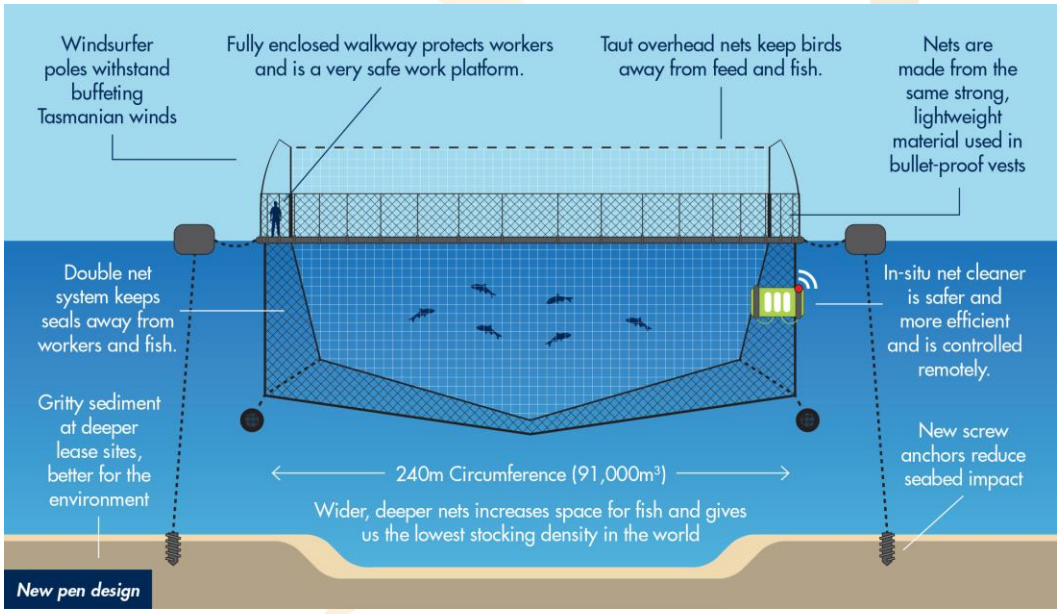
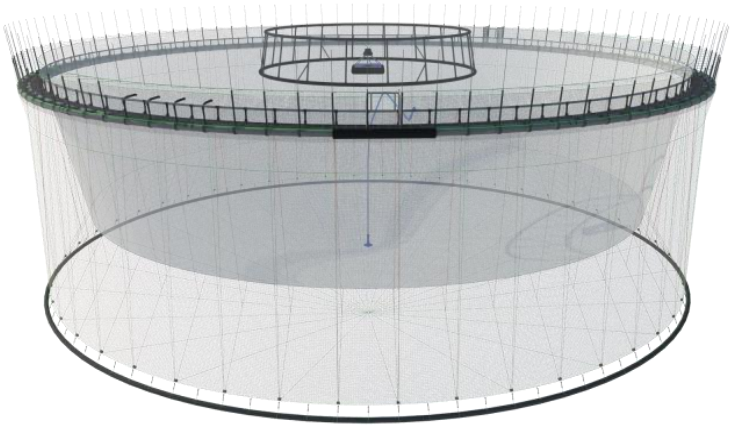
FORTRESS PENS

- At Huon, we have pioneered global industry leading technologies including our double-netted patented Fortress Pens, which have been integral to the successful expansion of our farming operations into offshore waters such as Storm Bay, Tasmania (this site is high energy, exposed and frequently receiving storms swells and gale force winds).
- When introduced (in February 2013) our Fortress Pens were a world first; a fully enclosed walkway, nets made out of the same material used to make bullet proof vests, a two-net design to keep seals away from the fish, and fish away from the seals. The design included elements of windsurfer technology to withstand the buffeting Tasmanian winds as well as accommodate cutting edge, in-situ net cleaning technology.
- In terms of fish performance, the light-weight, super-strong nets allow excellent water flow, reducing drag and improving in-pen dissolved oxygen levels. Keeping seals, sharks and birds away from the fish allows them to grow without disturbance while nets are optimised for use with (mort) collectors installed, so any dead fish can be automatically retrieved through our back to barge connection (without the need for divers to enter the pen).
- The mooring systems are also a critical component of the success of our Fortress Pens; the 240m pens generate up to 35 tonnes of load on longitudinal grid ropes so we need to make sure all mooring components can hold up in the wildest of weathers!





WILDLIFE INTERACTIONS

Like all farming operations we work hard to keep both our fish, as well as the local wildlife, safe. We believe the solution to this is good barrier technology and our industry-leading Fortress Pens and nets protect seals and birds by restricting access to the pens above and below the water line.

SEALS

- Seals are one of the oceans natural inhabitants and we have a responsibility to minimise any impact we have on them. The best way to protect them and keep them safe is by preventing them from entering our pens in the first place. Seals are very intelligent and naturally curious. Before the Fortress Pens were implemented, the seals could see the fish through the nets so it was commonplace for seals to climb up the above-water pen wall to gain entry. They were also known to ram the nets in an

attempt to create a hole to swim through (and bearing in mind that male seals can weigh upwards of 450kg they can create big holes!).

- The nets are made from Dyneema, the same material used in bullet-proof vests, and are the strongest developed and used in fish farming worldwide. The pen design hinders easy access by seals to the walkways, reducing the likelihood of aggressive seals interacting with employees.
- One of the key features of the Fortress Pens is a patented, wide-style stanchion with flexible seal fence posts in an angled socket to allow an outer predator net to be set around the inner net while keeping a two metre and seven metre separation between the nets. This outer predator net is connected directly to the sinker tube to reduce rigging and keep it tensioned at all times and in all weather; in essence it provides a barrier to keep predators away from the fish.
- Our Fortress Pens were instrumental in Huon being able to cease relocating seals in August 2016, more than a year before the State Government banned the practice (September 2017).

BIRDS

- In the minds of sea and coastal birds, salmon farms are an attractive place to perch and source food—both the fish and the fish-feed. The birds commonly found at our farms include cormorants (black-faced, great and pied), seagulls (Pacific, silver and kelp), eagles (mostly sea but occasionally wedge-tailed), and the occasional penguin, petrel and short-tailed shearwater.
- Preventing birds from becoming entangled or drowning inside our pens is a high priority for Huon and was a driver in the development of our Fortress Pens. Designed in-house, the pens have customised nets and barriers developed to avoid bird entries and entanglement. The Fortress Pen net designs include higher, more taught nets, differing mesh sizes and net weights (depending on where the net is located on the pen), and diamond shaped net holes (to increase stress capability). All these features are designed to prevent net holes and bird entries/entanglements while staying well above the water to ensure birds can't access the water through the nets.
- By denying birds the opportunity to perch and access to both fish and feed, they are discouraged from viewing our pens as a place to rest and as a source of food.
- In the unlikely event a bird enters a Fortress Pen, we have installed custom-designed escape hatches to ensure birds are not trapped. The custom bird escape hatches were invented in 2014 by an employee and further designed and developed in-house by our on-water crew. The innovative escape hatches feature a perching bar (to attract birds) and a one-way bird-sized hatch that guarantees a bird cannot re-enter once it has gone through the gridded hatch. As seabirds prefer to take flight into the wind, each pen has two escape hatches to maximise their opportunities to escape.
- To minimise the chance of birds re-entering through the escape hatches, it is designed so the birds must walk through it and not fly. In order to encourage the birds to use them, there is a landing platform on the inside of the pen hatch where the birds can land, walk through, and fly away. However, there is no perch/landing platform on the outside of the hatch, therefore the birds find it difficult to land, walk or fly in from that side. If the pen is free of birds, the hatches can also be manually closed, further decreasing the chance of birds entering.

Read more about the design and development process of Huon's Fortress Pens here https://www.huonaqua.com.au/wp-content/uploads/2017/08/Huon-Fortress-Brochure.pdf