Transcription details:

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| Date: | 6-Apr-2016 |
| Input sound file: | Salmon Farming in Tasmania |

Transcription results:

**0:00 (instrumental music)**

0:07 Well, welcome to Huon Aquaculture.

0:09 My name's David Whyte.

0:10 I'm the Group Technical Manager here

0:12 at our operations base here at Hideaway Bay.

0:14 I've been working here for around ten years.

0:16 (instrumental music)

0:22 Well, we farm fish to feed the growing world population.

0:25 In 2012, we had 7 billion people in the world.

0:29 We then look at that and say that of that proportion

0:32 1.2 billion have seafood as a primary source of protein,

0:36 and that equates to 17.2 kilos per person.

0:41 That's the amount of seafood that we need

0:42 on an annual basis.

0:44 (instrumental music)

0:47 So this is a life cycle of a salmon.

0:49 The eggs are incubated.

0:51 After a certain amount of degree days,

0:53 which is around 250 days, the eggs will hatch out.

0:56 They're alevins.

0:57 They have their own yolk sac.

0:59 They then transfer to sea water

1:01 for the sea water part of their life cycle.

1:02 So up until now they're in freshwater,

1:04 then they go to sea water.

1:05 They will grow up for a couple of years with us.

1:07 They will then be stripped

1:09 so they'll have the eggs and the sperm taken from them.

1:11 That will fertilize the egg

1:13 which then goes through this process again.

1:14 So we talk about closing the cycle in aquaculture

1:17 which means we can take eggs, grow them all the way around

1:20 to parent fish, and then get another generation.

1:23 That's called vertical integration

1:25 when you can go from eggs all the way back around.

1:28 It means that you're vertically integrated.

1:30 It also is a term we use for explaining

1:33 that we go all the way from egg to plate in aquaculture.

1:36 (instrumental music)

1:41 We have a world fish supply which is constrained

1:43 around 117 to 120 million ton.

1:46 45% at that point, which is 2012,

1:49 was supplied by aquaculture.

1:51 Now it's closer to 50% so we've got to the point

1:54 where we're farming more than we're catching.

1:57 So 100 kilos of feed produces 13 kilos of pork,

2:00 20 kilos of chicken, but a whopping 65 kilos of salmon.

2:06 How does that compare in terms of efficiency?

2:09 You can only retain 47% of sheep after you kill it,

2:11 72% of a pig, 66% of a chicken,

2:15 and 86% of a fish.

2:17 Once again, our salmon are looking pretty good.

2:20 It takes seven kilos of wild fish to grow a five kilo salmon

2:24 out there on the farm.

2:25 How many kilos do you think it takes for a wild salmon

2:28 to grow to five kilos in weight?

2:30 The answers 50.

2:32 So wild salmon are a lot less sustainable

2:33 in terms of the use of marine resources

2:35 than farm salmon are.

2:37 Each 4 kilos of wild fish becomes one kilo of fishmeal.

2:41 Each kilo of fishmeal, we need 210 grams of it

2:46 or we needed 210 grams of it to make our kilo of fish feed.

2:50 So of the fish feed, we need 1.4 kilos to make a kilo salmon

2:53 so that's how we get up to our numbers.

2:57 Over my shoulder are our research and development panes.

3:00 Huon are pretty unique in that we have 34 small panes,

3:03 which are exact copies of full scale production panes.

3:07 They have the nets.

3:08 They have the flotation collars,

3:09 and they also have the center-mounted feeders.

3:13 So in those panes, we can run a small number of fish

3:15 between 200 and 500.

3:16 We can do lots of trials on things

3:18 like different feed ingredients,

3:19 different feed energy levels, different folates,

3:22 how long the day length is that the fish are experiencing.

3:25 We've even done vaccine trials,

3:27 and we've done all sorts of other things to.

3:29 It allows us to try some pretty new things

3:32 in a very, very controlled environment

3:33 with good scientific replication

3:35 without putting full production panes

3:37 under that kind of stress so it's the key

3:39 to our success here is being able to try things

3:41 before we do them.

3:43 First thing you have to do as a fish farmer

3:45 is you have to keep your fish alive.

3:47 The second thing you have to do as a fish farmer

3:48 is keep them in one place.

3:49 Behind me is one of our production panes,

3:52 it's a 168 meter pane.

3:54 That's the circumference of the pane.

3:56 That's how we measure our panes and how we categorize them.

3:59 So what we're gonna do is we're gonna have a look

4:00 at this pane.

4:01 We're gonna see what the challenges are

4:02 that we've tried to solve with this design,

4:04 and then we're gonna try and give you a little bit

4:06 of insight into the important things for us

4:08 so that if you were redesigning one of these panes

4:10 what you might have to take into consideration.

4:13 The panes made up of three main components.

4:15 First component is the flotation collar.

4:18 That's what keeps the whole rig on the surface.

4:20 Then we have the net which contains the fish,

4:23 and also protects the fish from external predators.

4:25 Then we have the bird net which goes over top of the net,

4:28 which again protects the fish from birds,

4:30 and out in the middle is a floating hopper.

4:32 That floating hopper is computer controlled,

4:34 and it basically feeds the fish when they want to be fed.

4:36 So it's an integral part of the pane.

4:38 It holds up the bird net, but it also carries the feed

4:40 that we need to feed the fish.

4:42 Predators are trying to eat fish.

4:44 They're trying to interrupt the fishes normal behaviors

4:47 in order to eat them.

4:48 The challenge for us a few years ago was to have very tight,

4:53 high fences that the seals couldn't jump over.

4:56 But despite our best efforts,

4:58 the seals would pull the net down.

5:00 They'd try and get up the inside of the net.

5:03 They would target any weakness.

5:04 They'll learn very quickly from each other

5:07 so very, very inventive and very, very persistent animals.

5:12 So this is state of the art or was state of the art

5:14 probably around four years ago,

5:16 but it's clear that improvements have to be made.

5:18 So one of the things that we'd like you guys to think about

5:21 is how would you make those improvements.

5:23 How would you keep the fish as far away from the seals

5:26 as you possibly could?

5:27 How would you prevent them from climbing over,

5:29 and how would you make the whole thing

5:31 a safer working environment for people who work here?

5:35 So that's the challenge, and it's the challenge

5:37 we face every day.

5:38 (instrumental music)