Potential Relocation of Salmon Farms in the Marlborough Sounds

Comments to hearing panel from: Marlborough Environment Centre (MEC)

Speaker: Bev Doole

Date: May 2, 2017

Introduction

1. The Marlborough Environment Centre (MEC) is an incorporated society, established in 1989 to promote awareness and protect the environment through education and engagement with resource management decision-making.

2. MEC took part in developing the Marlborough Sounds Resource Management Plan (MSRMP) that was notified in 1995 and introduced CMZ1 and CMZ2. MEC has submitted on marine farming resource consent applications and strives to protect the ecology, recreational enjoyment and landscape values of the Marlborough Sounds.

3. MEC has a representative on the Marlborough Landscape Group, a community and industry organisation that advises Council on how to protect and enhance Marlborough's landscape. MEC is also a trustee on the Cawthron Marlborough Environment Awards Trust.

4. The MEC's comments to this panel, submitted in March, covered eight issues:

    i. Undemocratic process: Over-riding decisions of Supreme Court and Board of Inquiry. Decision-making taken away from the District Council.

    ii. Inequitable use of government funds: Government funding of at least $1m for MPI to develop this proposal for NZ King Salmon. There was no government funding for members of the public to develop their responses.

iii. Lack of consideration of alternatives: No expert reports or cost-benefit analysis of offshore or land-based salmon farming.

iv. Need for a precautionary approach: Let's see if NZKS can manage its five existing high-flow sites within the benthic guidelines before putting in new farms

v. Increased stocking and nitrogen discharge: Four-fold increase in feed is proposed, which means an equivalent increase in nitrogen pollution

vi. Threat to king shag: new farms are in the feeding area of the nationally endangered king shag

vii. Landscape and cumulative effects: Degradation of outstanding natural landscapes and high natural character values of the Waitata Reach

viii. Poor consultation: Lack of time and opportunity to source independent reports or interrogate those provided by NZ King Salmon. Failure to establish social licence

5. I will focus on four of these today. But first some background.

[PowerPoint photos]

Relocation proposal

6. On the screen are pictures of the Waitata Reach, an area that was extensively considered by the Board of Inquiry. Special areas like the Waitata Reach are off limits to salmon farms under the Marlborough District Council Sounds Plan to safeguard the marine ecosystems, landscape values and recreational enjoyment of the Sounds.

7. In his media release to announce the relocation proposal in January, Minister for Primary Industries Nathan Guy said: "This proposal is about making better use of existing aquaculture space."

8. However we are not talking about existing aquaculture space. We are talking about PROHIBITED aquaculture space. And it is prohibited because the Marlborough District Council and the community negotiated the Sounds Plan so there are still areas that can be enjoyed by all as a natural experience, not an industrial one.

9. These matters were thrashed out at the Board of Inquiry in 2012 and then right up to the Supreme Court. It was a gruelling process for those who care

about the Sounds, with thousands of volunteer hours going into submissions and presentations. But people made the effort because they felt the need to defend the significant values in the Marlborough Sounds… the values that don't show up on a financial balance sheet.

10. They included bach owners, yachties, recreational fishers, kai moana gatherers, kaykers, divers and eco-tourism operators. And they talked about the beauty of wide open stretches of water, views through bush to the untouched bays below, king shags roosting and dolphins jumping, special spots for gathering seafood, and underwater ecosystems that need clean water the same way we need clean air.

11. These are the values that attract people from throughout New Zealand and around the world to visit and enjoy the Marlborough Sounds. They all recognise that the Marlborough Sounds is a unique and special place. It needs careful management and a long-term view.

12. The predicted economic gains of this relocation proposal must be balanced against the long-term costs of lost biodiversity, despoiled landscapes and reduced recreational enjoyment. There could also be economic damage to the tourism industry and, if nutrients released by farmed salmon contribute to increased toxic algal blooms, the mussel industry.

13. The Board of Inquiry decision identified the threshold number of salmon farms for Waitata Reach as TWO – Waitata and Richmond – and turned down three others because of the cumulative effects on landscape, natural character, King shag feeding and tangata whenua values. Yet this relocation proposal is proposing FIVE more in this area, additional to the two granted by the BOI. It is hard to see this as anything but an arrogant and greedy grab for water space.

14. NZ King Salmon has finally admitted their polluted low-flow farms are not sustainable. They say the relocation of the salmon farms is about improving the environment. But let's be clear…it is actually about producing more fish to sell. The Sounds environment is not going to be improved by increasing fish stocking levels, increasing current feed levels by a factor of four and increasing pollution levels in the sea.

15. NZ King Salmon want to shift their farms to increase their production… and that's because they can't make enough money farming within the environmental limits of their current locations. Producing more fish to sell is a perfectly valid approach for a commercial company. And it also fits with the government's Business Growth Agenda of a $1bn aquaculture industry by 2025.

16. However this relocation proposal must be balanced against the effect on the environment and the effect on other users of the Marlborough Sounds.

17. As a land-based comparison, it's not OK for a dairy farmer who has been pulled up for discharging too much effluent into a slow stream… to then be rewarded with a bigger herd and allowed to discharge significantly more effluent into a faster stream.

18. Dilution as a way to deal with effluent is the same principle that dairy farmers relied on for years as they intensified their land use – until we found rivers that are polluted and no longer swimmable, and previously iconic lakes like Rotorua and Ellesmere are now known for their high levels of eutrophication. The lessons are clear from the dairy industry: dilution can not be relied on to protect our waterways; and the push for economic growth must not be at the expense of the environment.

19. So, in speaking up for the Sounds environment, MEC has a counter proposal….

    The three new high flow sites granted by the BOI at Ngamahau, Waitata and Richmond/Kopaua are only just coming on stream. It would be prudent and precautionary to wait until monitoring shows the NZ King Salmon can operate these sites, and their two other high flow sites, to comply with the Benthic Guidelines before considering more new farms.

    This is supported by Policy 3 of the NZCPS and the BOI decision [179]:
    "[The precautionary approach] provides for ongoing monitoring of the effects of an activity in order to promote careful and informed environmental decision-making, on the best information available."

20. The three new high flow farms granted by the Board of Inquiry are expected to double production for NZKS, if they are managed properly. That would be an increase from 6000T a year to about 12,000T. So don't not be greedy. Let's see how they are going first, before making another assault into prohibited areas of the Marlborough Sounds.

21. MEC submits that these five farms need to be at maximum feed levels, for at least three years. [This is consistent with BOI Condition of Consent 44a] This also gives time to monitor the wider environmental effects of the increased nutrients discharged from the three new high flow farms as well as time to see evidence of promised jobs actually being created and sustained.

22. Looking into the future, there is an opportunity here for New Zealand to be demonstrating best practice by pursuing alternative farming methods. Rather than pushing this relocation proposal for areas prohibited to aquaculture, MPI and the industry should be leading the way to find open sea or land-based alternatives that move salmon farms out of the Sounds.

I will now look at four issues in more detail.

[Note to panel – I will expand on these bullet points at the presentation]

23. **1. Alternatives farming methods**

The NZKS Supreme Court 2014 decision ruled there was an obligation to consider alternatives under the NZ Coastal Policy Statement and Section 32 of the RMA. "Particularly where the applicant for a plan change is seeking exclusive use of a public resource for private gain." [SC 172-173]

- The relocation proposal has no information about what is happening in other countries and no cost-benefit analysis about alternatives.
- Examples of off-shore and landbased initiatives overseas (Appendix 1)
- Huon Aquaculture, Tasmania, (Appendix 2)
- Mitigate rising sea temperatures (Appendix 3) map of marginal areas
- 10 years is not a long time to wait for the technology to be developed
- Sustainable and future-proofed for the industry

24. **2. Undemocratic Process**

- Central Govt intervening in regional planning process on behalf of one company. Coming in over the top of the new Marlborough Environment Plan.
- Whole of Government approach – where is the voice of the Department of Conservation?
- Government funding, ie the taxpayer, provides at least $1m for MPI to develop this proposal for NZ King Salmon, (that is NOT including the salaries of MPI staff). $250K set aside by the Government to defend this process through judicial review.
- Government funding of ZERO for community groups to develop

responses and challenge the process through judicial review. (Section 360A process does not qualify for Government-funded Environmental Legal Assistance.)

25. **3. Consultation/Social licence**

[Refer to flow chart, Appendix 4, Whole of Govt presentation by Dan Lees of MPI, April 10.]

- Farms moved away from populated bays - Appendix 5 and 6
- Coastal Occupancy Charges, Appendix 7
- What would it take for improved community confidence?
- Trust and social licence Appendix 8

26. **4. Precautionary approach**

Rather than creating more high-flow farms, MEC advocates a precautionary approach - do not consider more space in prohibited areas until NZKS proves it can manage its five existing high-flow sites within environmental limits and create the jobs as promised.

The community needs to see that NZKS can:

- Operate its five high-flow farms within the benthic guidelines at maximum feed levels
- Keep fish mortalities to an acceptable level
- Provide monitoring that shows what effect farm waste is having on the water column and embayments
- Report in a transparent way, with easy access to monitoring results on MDC and NZKS websites

27. MEC submits that these five farms need to be at maximum feed levels, for at least three years. [This is consistent with BOI Condition of Consent 44a]

28. This would show due respect to the Supreme Court and Board of Inquiry's rulings. It would also allow the Marlborough community their opportunity to negotiate the proposed Marlborough Environment Plan, including the aquaculture section.

Conclusion

29. The Marlborough Environment Centre advocates a precautionary approach: do not consider any new farms until New Zealand King Salmon (NZKS) proves it can manage its five existing high flow sites - Waitata, Kopaua, Clay

Point, Te Pangu and Ngamahau - within the Benthic Guidelines at maximum feed levels.

30. MEC urges New Zealand King Salmon (NZKS) to reduce the feed and stocking rates at its low flow sites to meet the Benthic Guidelines.

31. Rather than promoting this relocation proposal for areas in the Sounds prohibited to aquaculture, MPI and the industry should invest in researching alternatives to expedite offshore and/or land-based farming as future-proofed alternatives.

32. **Desired outcome: The Minister does not recommend the proposed regulations.**

Relief sought:

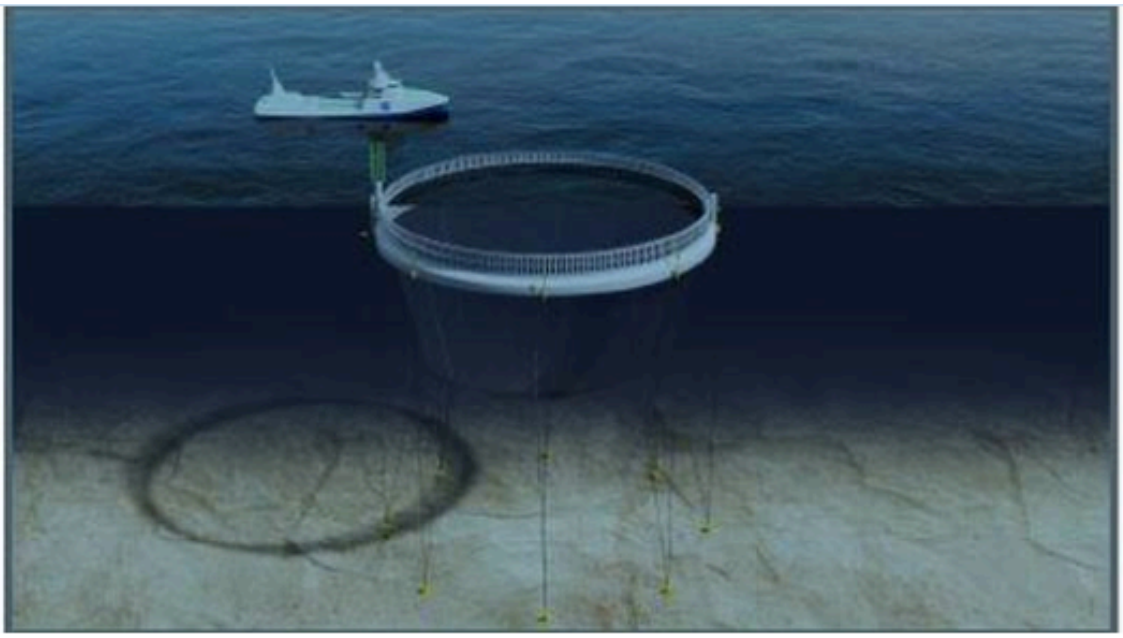
33. If any part of this relocation proposal is approved by the Minister, the Marlborough Environment Centre seeks the following:

- Consents for a maximum of 10 years, or earlier, as offshore technology comes on stream.

- NZKS to lodge an Environmental bond of $2 million with MDC. If annual monitoring shows benthic guidelines are not being met by any farm, $200,000 from the bond goes to environmental groups working to restore and protect the Sounds - recipients to be determined by the MDC.

- NZKS to lodge a Jobs Bond of $1 million with MDC to hold NZKS to their claims of jobs created. The number of people employed by NZKS to be audited each year. If the jobs are not created as claimed in this proposal, $200,000 from the Jobs Bond goes towards environmental groups working to restore and protect the Sounds - recipients to be determined by the MDC.

Waitata Reach, looking north, 2012



Grieg seeks licenses for new offshore salmon farming concept

Company applies for 10 development licenses.

REDAKSJONEN, INTRAFISH MEDIA

November 21st, 2016 09:09 GMT

Norwegian salmon farmer Grieg Seafood applied for 10 development permits for farming sites to implement the company's new offshore technology, the company announced at its third-quarter results.

The technology opens up new farming areas. and could be completed by 2025, said the company.

The new concrete, offshore structures using technology developed in the oil and gas sector, have a diameter of 130 meters, while the ring structure has a height of 16 meters.

The construction is built with wind and wave resistance and double floating collars.

Company applies to farm fish on board vessels

Price tag for the project is around NOK 3.3 billion.

ANDERS FURUSET

November 4th, 2016 13:12 GMT

Norwegian company Pure Atlantic has applied for 46 development licenses for farmed fish production on board a ship outside Norway's territorial waters, according to the Norwegian Directorate of Fisheries' overview of applications for development licenses.

IntraFish previously reported the Haugesund-based company had plans to apply for 45 licenses.

The price tag for the construction of the ship is around NOK 3.3 billion (€362.6 million/$403 million).

"This is the only offshore marine farming installation operating outside the 12-nautical mile limit," said Founder and Investor Kaare Jostein Larsen.

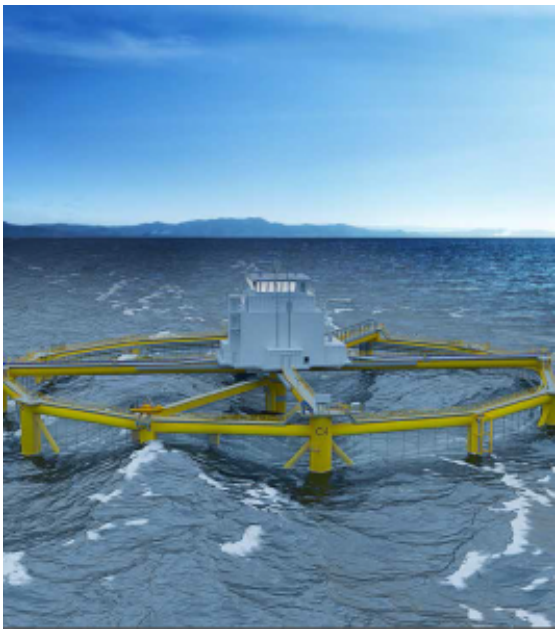
"The ship will be anchored out to sea at 1,000 – 2.000 meters depth." It will hold 1 million cubic meters of water.

Applications for 320 licenses

Including the application from Pure Atlantic, there are 36 applications for development licenses currently being considered by the Norwegian Directorate of Fisheries.

undercurrentnews
seafood business news from beneath the surface

Norwegian salmon farmers scramble for offshore licenses



Representation of SalMar's offshore project, from its 2014 annual report.

April 22, 2016, 8:13 am

Ross Davies

It was perhaps only a matter of a time before the Norwegian aquaculture sector followed in the footsteps of the country's oil industry and started weighing up its options offshore.

The interest in farming fish further from the shoreline has grown exponentially of late, with some of Norway's biggest salmon players vying to put their money where their mouths are, and applying for technology development licenses from the government.

Theoretically speaking, going offshore could provide salmon farmers with a golden opportunity to mitigate the risk of their longstanding bete noire: sea lice.

In the last week alone, the Norwegian Directorate of Fisheries has received four applications for a total of 27 development licenses, according to the agency's website.

Marine Harvest, the world's largest salmon farmer, has applied for eight licenses for the testing and development of a new type of closed-cage technology, known as the "marine donut".

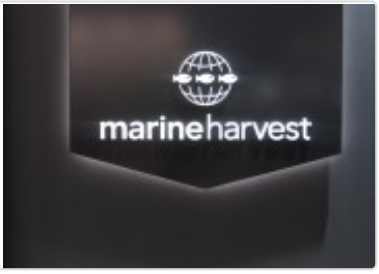
Created by the OPD Group, the technology is based on a ring-shaped, fully enclosed and escape-proof fish cage, which the group said has the ability to produce fish offshore from three kilograms to slaughter – the stage in production when fish are normally most susceptible to sea lice.

The Bergen-based company hopes to begin construction of the cage this autumn, with the view to having it ready to stock fish by autumn 2017.

On April 20, Leroy Seafood Group also announced it was hoping to secure nine R&D permits to develop its "Pipe Farm" concept, a closed floating farming pipe.

Read also

Marine Harvest hopes to farm salmon offshore in 'marine donut' ›



The group has applied for total production capacity of 7,020 metric tons, which according to Stig Nilsen, executive vice president for farming, will cost in the region of NOK 650- 700 million ($79.9m-$86m), as reported by *kyst.co*.

There is palpable evidence to suggest an innovation shift is taking place in Norwegian aquaculture circles, as Salman Alam, an analyst with Carnegie, told *Undercurrent News*.

"I believe the fish farming industry in general is looking for new ways to farm fish, mainly for two reasons," said Alam.

"One is to better exploit the sea area outside just the nearby fjords and lakes, and second, to reduce the biological pressure of today's farming methods, and possibly elude some of the biological issues encountered by today's production, such as sea lice and ISA [infectious salmon anemia]."

This has resulted in the fisheries directorate being inundated with submissions. Across a provisional list of 16 applicants – which also includes Norway Royal Salmon, Aker and SalMar – "around 190,000t of theoretical capacity has been applied for by Norwegian farmers", according to Carnegie research.

So far, though, SalMar is the only group to have its offshore bid officially ratified by authorities.

In March, SalMar subsidiary Ocean Farming received the first eight development licenses to develop an ocean farm based on offshore technology.

"Around 190,000t of theoretical capacity has been applied for by Norwegian farmers"

The company is set to invest NOK 690m in a full-scale pilot project, based on an open-cage design. The licenses are valid for seven years.

Remaining applications are pending approval, including another Marine Harvest bid for 14 licenses to test and develop a new closed farm technology, based on the "egg" concept – a construction shaped thereof, which has a height of 44 meters, and is 33 meters in width.

With 90% of the construction submerged under water, each "egg" has the capacity to accommodate 1,000t of salmon, while combatting lice outbreaks and escapes.

"Our performance in this area in 2015 was not acceptable," said the group in its latest annual report. "The egg potentially offers many advantages to conventional salmon farming methods such as cost reductions from reduced sea lice treatment, reduced fish escapes and better feeding control."

Read also

NRS, Aker join Norway offshore salmon farming trend with joint plans

The next step will be to conduct trials of the egg in 2016 and 2017 with salmon in pilot and prototype structures. Then, in 2018, Marine Harvest hopes to deploy ten units to a seawater site.

So far, Masoval Fiskeoppdrett is the only farmer to have had its tender denied for three R&D licenses. The directorate rejected the concept – a de-licing technology called "Helixir" – on the grounds that it was underdeveloped.

"I think this shows that the Norwegian government is setting the bar pretty high for what they accept, and this is evident by the fact that every approved concept must bring a new type of technology to the table," said Alam.

As Masoval goes about launching a formal appeal to the ruling, the government will continue to have its work cut out in identifying projects, which they deem to be beneficial to the long-term, sustainable growth of Norwegian aquaculture.

"It will be very interesting to see how the government plans to distinguish between the projects, and how many they will actually award," said Alex Aukner, an analyst with DNB Markets.

"Rejections will likely be tried in court as the rationale for rejecting needs to be pretty solid. For example, why should SalMar get acceptance for their offshore rig, and not the rest?"

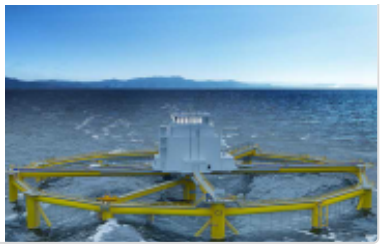
"Rejections will likely be tried in court as the rationale for rejecting needs to be pretty solid. For example, why should SalMar get acceptance for their offshore rig, and not the rest?"

What appears to be universally accepted is that going offshore will not be cheap, and will require high levels of capital expenditure.

According to Aukner, "we have seen, on average, capex estimates of about NOK 60m per applied license, suggesting an investment need of around NOK 8 billion before working capital build".

Read also

SalMar to invest $80m in open ocean salmon farming project ›



Such ballpark figures are unlikely to deter Norway's salmon farmers, believes Alam.

"These new projects will naturally increase the companies' capex levels," he said.

"However, we are not too concerned about this as the companies currently are and will continue to generate heaps of cash flow from operations in 2016-17, and will also be able to partly debt finance these projects."

However, given the infancy of offshore farming – still in the realm of theory, rather than practice – mapping out production costs of these R&D projects is a much harder undertaking.

"The production cost levels of these new projects are still highly uncertain and are likely to be variable between the projects," said Alam.

"Also, one should probably expect a higher production costs from these R&D projects in the first part of their lifetime, especially before they are commercialized."

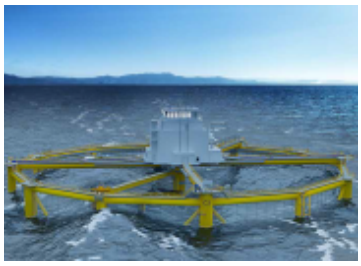
"But, given that the current production cost from traditional salmon farming in Norway is currently at NOK 30-31 per kilogram, I would expect the cost levels from offshore farming to be higher than this in the initial testing phase."

Large costs, aside, can going offshore really arm farmers with the magic bullet and consign the longstanding battle with sea lice to history?

It's not a given, according to Arne Fredheim, research director at SINTEF Fisheries and Aquaculture.

Addressing delegates – including *Undercurrent* -- at a sea lice workshop at this year's North Atlantic Seafood Forum in Bergen, Fredheim said there were still challenges and factors to be considered.

Spotlight



Offshore farming is increasingly being explored as a more sustainable method to farm fish

Read more

For instance, the further one goes offshore, the heavier the equipment needed to deal with larger volumes of fish. Farmers might also have to contend with stronger waves and currents in more remote spots.

Risk management strategies – commonplace now in the offshore oil and gas sector – are still relatively underdeveloped, too, he added.

"We need to know more about behavior and characteristics of sea lice before we can say, without doubt, that offshore is best."

However, if the current crop of R&D projects are deemed to be viable, volume outputs are likely to come in 2019/20, said Aukner.

In the meantime, competition among Norway's salmon farmers to obtain hallowed development licenses is only set to intensify.

As one analyst – who wished to remain anonymous – put it: "This whole R&D business is awfully reminiscent of trying to build the most impressive spaghetti tower at the school's science fair."

Related articles:

- Marine Harvest hopes to farm salmon offshore in 'marine donut'
- Sea lice control, R&D top Marine Harvest farming agenda
- NRS, Aker join Norway offshore salmon farming trend with joint plans
- SalMar to invest $80m in open ocean salmon farming project
- Five new Norway Royal Salmon sites gain ASC

https://www.undercurrentnews.com/2016/04/22/norwegian-salmon-farmers-scramble-for-offshore-licenses/

SalMar to invest $80m in open ocean salmon farming project

By Undercurrent News

Mar 01, 2016 10:20 GMT

Representation of SalMar's offshore project, from its 2014 annual report.

Ocean Farming, a company owned by Norwegian salmon farmer SalMar, has received the first eight development licenses to develop an ocean farm based on offshore technology.

The company will invest NOK 690m ($79.61m) in this full-scale pilot project. The licenses are valid for seven years, according to a statement from the Norwegian government.

Using design principles from the oil sector, combined with knowledge from aquaculture, Ocean Farming has developed a whole new type of aquaculture site which "represents significant innovation", said the Norwegian government.

Back in August, Leif Inge Nordhammer, CEO of SalMar, told *Undercurrent News* as much as 8,000 metric tons of salmon farmed in the open ocean cage could be ready for the market by 2018, if all goes to plan.

The cage is a new design that combines the best of existing technology and solutions from the Norwegian fish farming industry and the offshore oil and gas sector. It is expected to be extremely escape-proof, even in extreme weather, while its siting in more exposed areas of ocean should reduce

biological challenges posed by diseases and sea lice.

The circular unit is planned at 110 meters across, 67m tall, and containing 245,000 cubic meters. It will house a control room, feed silos and living quarters for an on-site team of between two and four people.

Future growth in salmon farming

Future growth in salmon farming through traditional farming at sea or with new technology on land? Currently the traditional salmon farmers around the world face the following facts:
22.09.2015

19.04.2017
Feeding the future with AKVA

12.04.2017
AquaME Exhibition Dubai

23.02.2017
4Q: High market activity - gro

16.02.2017
Vikahav satisfied with FNC8

13.02.2017
AKVA group signs agency con
Island EHF

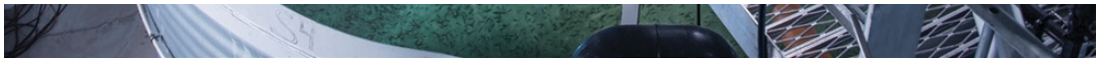
10.02.2017
Partnership between AKVA gr
Systems

23.01.2017
Huge feed barge to Iceland

01.12.2016
AKVA group doubles boat pro

30.11.2016
Breakthrough for Atlantis

11.11.2016
AKVA group at Korea Sea Far



- Prices are high
- Demand is good
- Fish health is driving production cost
- Increasing feed prices drives production cost
- Growth is limited due to strict regulations and biological challenges

Taking Norway as an example, the government has stopped all calls for new production licenses until the Norwegian aquaculture industry can control its sea lice challenges. The only available growth offered, comes with strict regulations - growth of 5% with a demand of a maximum level of 0,2 mature female salmon lice per fish and maximum 2 medicamental treatments per production period.

In these circumstances, development of new technology for both treatment and preventive measures against sea lice are ever increasing and different research and industry projects have achieved promising results. However, despite significant efforts, none of these have so far been able to solve the biological challenges, only to a certain extent mediated them.

It is this reality, combined with a steady improvement of RAS technology and production experience, a constant push towards a new paradigm: post smolt and land based farming, has arrived. Classic arguments against land based farming have been too high investment and energy costs and not enough available land area.

Through detailed calculations, Deloitte disagree with these argruments. We have looked at the production and investment cost for both traditional open pen farming and land based farming in RAS. The calculations shows an estimated production cost per kilo at 26,50 NOK for the traditional production regime with smolts transferred to sea at 100 grams. The interesting result is that the estimated production cost on land is nearly the same, at 26,75 NOK per kilo.

With regards to investments, a production of 5000 metric tons of salmon in open pen cages at sea, the cost is in the range of 325-400 million Norwegian Kroner. This includes four licenses with a market price of 60-80 million Norwegian Kroner. Looking at land based farming – where we assume that the licenses will be free – the investment cost of a correspon-ding production volume is estimated to be in the range of 300-450 million Norwegian Kroner.

With these figures in mind, prepare for an increase in the worlds salmon production, not at sea but on land.

By Anders Milde Gjendemsjø, PhD
Head of Seafood
Deloitte AS

Why are investors so excited about land-based salmon farming?

Explore one of salmon farming's hottest innovations and investment opportunities at the upcoming **IntraFish Seafood Investor Forum** in New York City.

INTRAFISH MEDIA

April 21st, 2017 13:08 GMT

Once pooh-poohed, land-based salmon farming is emerging as one of today's hottest aquaculture trends.

In a recent report, Norwegian bank DnB estimated that production costs for land-based farmed salmon could soon average NOK 37 (€4.10/$4.40)/kilo as volumes increase. Current conventional farmed salmon production in Norway is estimated at around NOK 36 (€4/$4.30)/kilo.

Interest growing fast for land-based salmon farming

Read more

"Our findings show that technology has progressed further than generally believed, and that setting up a full-scale land-based business can -- under certain conditions -- provide acceptable returns," the report said.
Akva Group is one of the world's leading suppliers of recirculating aquaculture systems for farmed salmon, and its CEO Hallvard Muri, will present the latest update on land-based aquaculture at the May 23 Intrafish Seafood Investor Forum in New York City.

FARM FOCUS: Huon prepares for a future offshore

Technological innovations are allowing Australia's second largest salmon farmer to create a new vision of the future for its farms.

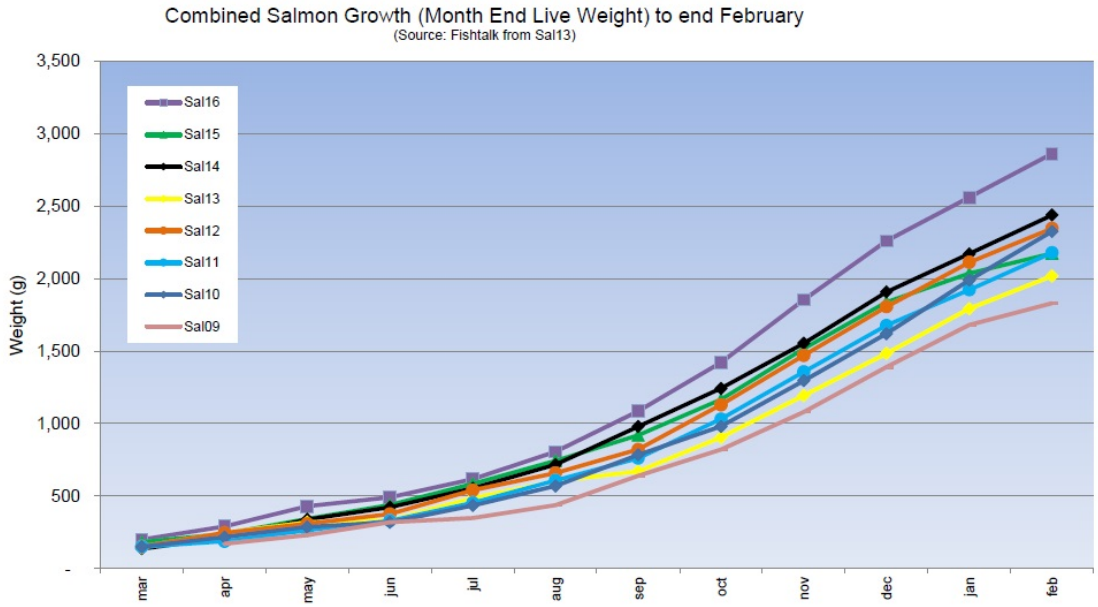
by **Rachel Mutter**

An isolated island state off Australia's south coast, Tasmania is known for its rugged environment. Such a seascape brings as many, if not more, challenges as it does advantages but this is where Huon Aquaculture produces its 20,000 metric tons of Atlantic salmon, adapting to the unique environment with custom-made innovations and science.

At its farm locations on the edge of the Great Southern Ocean, nutrient levels are high, meaning weed growth is prolific and Huon has to clean its nets frequently and thoroughly. Water temperatures are also warmer in summer than in other salmon farming regions, and while Australia's salmon farmers do not have sea lice to deal with, they do have amoebic gill disease (AGD), which means the fish have to be bathed in freshwater on a 30 day cycle.

For this purpose and for transporting fish between sites, Huon has *Ronja* -- a 76 meter well boat with a 3000 cubic meter treatment capacity.
However, this unique environment produces high quality fish, according to Co-Founder Frances Bender, who proudly tells **IntraFish** of a recent visit by a contingent of smaller scale Norwegian fish farmers who had some very positive observations about Huon's salmon, including, notably, "these fish are better than ours."

Huon's feed research facility has compare fish diets and improved fish growth over the years (see graph). The company has also worked with an external company to develop technology using infrared sensors to detect pellets falling through the water column, with the principal of giving fish every opportunity to eat whilst minimising wasted feed and nutrient loading on the seabed.



Open door policy on environmental challenges

The environmental awareness amongst the general public in Australia means Huon and its salmon farming counterparts have to deal with an unprecedented amount of public scepticism and backlash around their practices.

“I think it comes from a lack of understanding about how amazing and robust and scientific [our business]is,” said Bender.

“That is partly the industry’s fault,” she said. “If we don’t manage our environment then we don’t have a business, and we haven’t managed to communicate that.”

Huon, however, prides itself on its transparency and was, claims Bender, the first company in the world to produce and make publicly available, a ‘sustainability dashboard.’ Detailing data such as ‘wildlife interactions’ – seals removed from cages etc – sea temperature, antibiotic use, freshwater use and employee numbers, Huon encourages questions and comments from consumers and will happily discuss challenges and improvements that need to be made.

“We have always had the approach that we understand as salmon farmers we are using a shared resource,” said Bender.

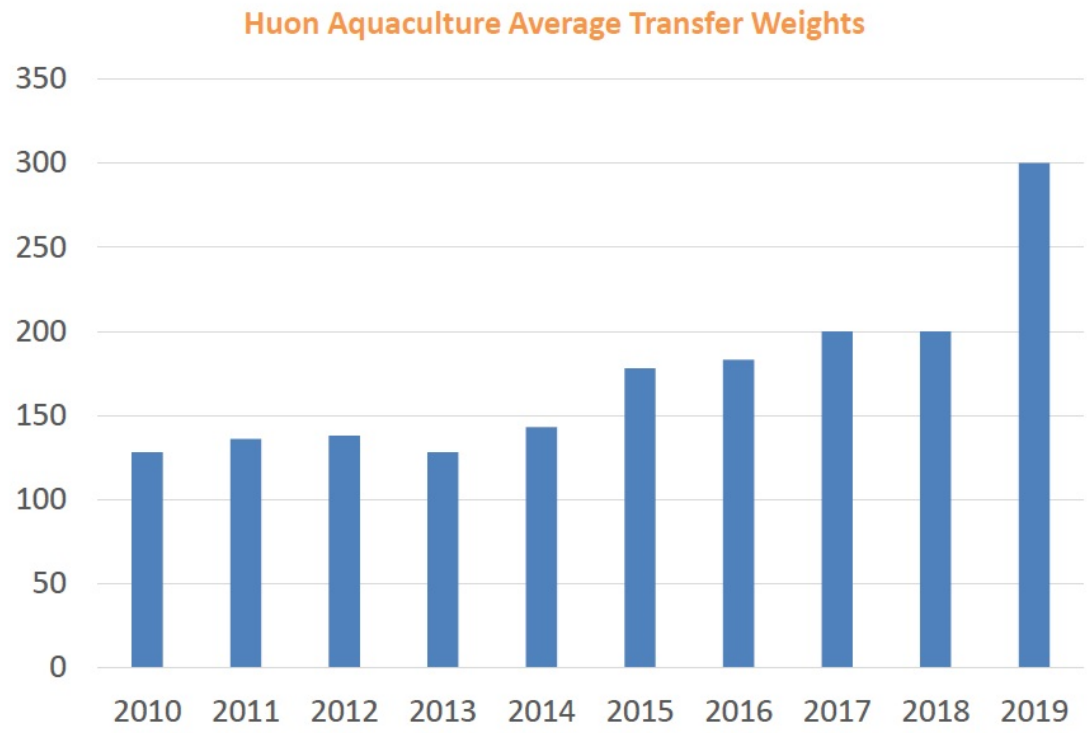
“We believe in putting information – both good and bad – out there... and our door is always open for questions and discussion.”

A future offshore

A recent news article in the Australian press cited the local Shooters and Fishers party pushing for Tasmania’s salmon farming industry to be brought on land.

But Bender sees this as an unrealistic premise for the salmon industry at the current time. “At this particular point in time, one of the major issues is cost, and the environmental status is not what everyone thinks it is.”

Bender also points to the animal welfare aspect of land-based farms. “The one thing people never consider,” she said. However, the company have started to extend their hatchery period, producing larger smolt with an aim of the fish being in the sea for just 12 months (see graph).



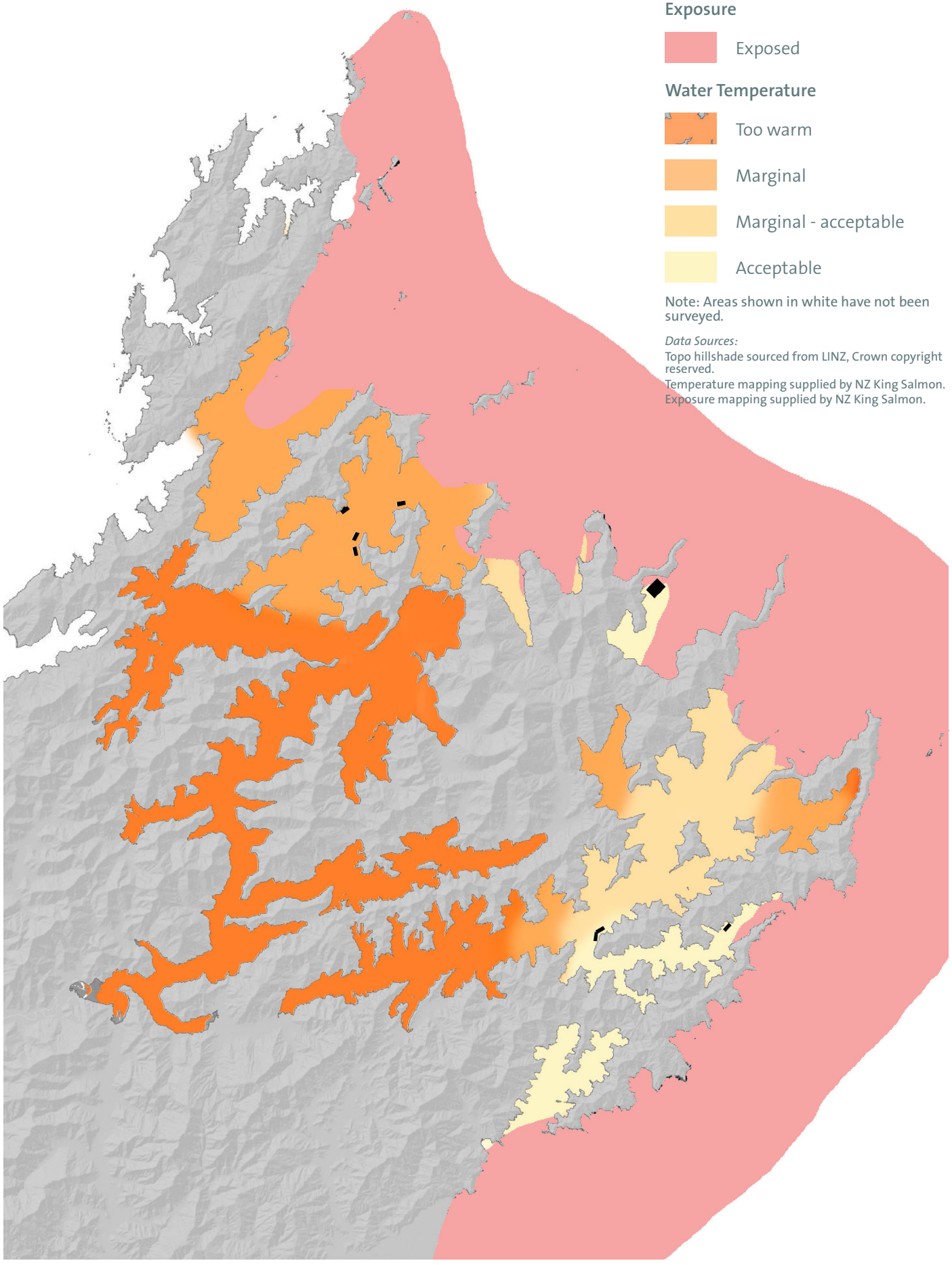
But for Huon, offshore farming is a more realistic solution to close shore challenges than land farming, having shut down its shallowest inshore sites in the Huon River and moved into deeper, higher energy areas. Its Storm Bay site (see map) is its first foray offshore, where exposure to the wild Tasman Sea and waves up to 13 meters high puts Huon’s purpose-built ‘fortress pens’ to the test.

The key to moving offshore, according to Huon's founders -- Frances and her husband Peter -- is to have a centralised monitoring system, reducing the need for Huon staff to work on the pens in rough weather.

To enable this cameras mounted on a winch system will be able to monitor pens and allow for net inspections, mort collection, environmental monitoring, data collection and general site surveillance, allowing manual tasks such as bathing, net cleaning and filling feed barges to be carried out on calm days.

Huon is also adapting other technology to suit its offshore future with plans for a new mega well boat: *Ronja Storm*. At 117 meters long and with four fish tanks totalling 7,500 cubic meters, there is capacity to bathe an entire 240 meter fortress pen in one go.

"If there’s a way to improve, make changes, we will do it,"said Bender.



Boffa Miskell
www.boffamiskell.co.nz

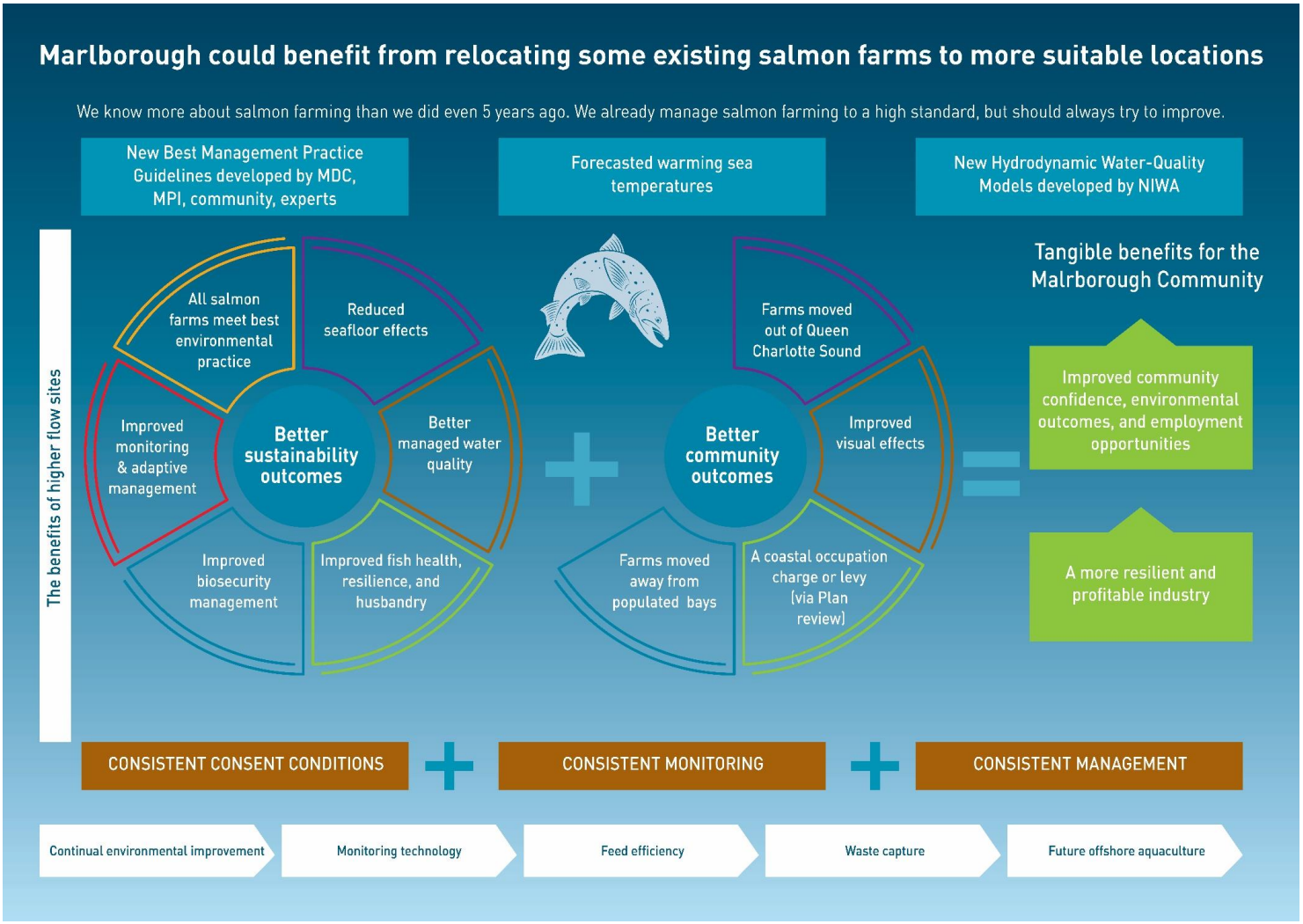
NEW ZEALAND KING SALMON

Pre-Site Selection Analysis: Water Temperature and Exposure

Date: 15 June 2012

Plan prepared for NZ King Salmon by Boffa Miskell Limited

Author: **gary.white@boffamiskell.co.nz** | *Checked:SD*


Marlborough could benefit from relocating some existing salmon farms to more suitable locations
We know more about salmon farming than we did even 5 years ago. We already manage salmon farming to a high standard, but should always try to improve.
New Best Management Practice Guidelines developed by MDC, MPI, community, experts
Forecasted warming sea temperatures
New Hydrodynamic Water-Quality Models developed by NIWA
The benefits of higher flow sites
All salmon farms meet best environmental practice
Reduced seafloor effects
Improved monitoring & adaptive management
Better sustainability outcomes
Better managed water quality
Improved biosecurity management
Improved fish health, resilience, and husbandry
Farms moved out of Queen Charlotte Sound
Improved visual effects
Better community outcomes
Farms moved away from populated bays
A coastal occupation charge or levy (via Plan review)
Tangible benefits for the Malrborough Community
Improved community confidence, environmental outcomes, and employment opportunities
A more resilient and profitable industry
CONSISTENT CONSENT CONDITIONS
CONSISTENT MONITORING
CONSISTENT MANAGEMENT
Continual environmental improvement
Monitoring technology
Feed efficiency
Waste capture
Future offshore aquaculture

Marlborough Environment Centre Submission to the proposed Marlborough Environment Plan

1 September 2016

4. Coastal Occupancy Charges

Vol 1, Chapter 5, Allocation of Public Resources
5.10.4 – 5.10.8

SUPPORT the introduction of Coastal Occupancy Charges to be used to fund research, monitoring and restoration of the coastal environment.

SUGGEST the use of coastal occupancy charges to fund the Marlborough Marine Futures collaborative process to develop integrated management of the Marlborough Sounds.

We support coastal occupancy charges because marine farms in the Marlborough Sounds do not currently pay anything for the water space they occupy to run their business. Land-based farmers and business have to pay rent or rates for the area they use. Marine farmers do not. They occupy the public water space for free, and pollute it for free. The water space they use is not available for recreational use, it is theirs exclusively.

Furthermore, the cost of reviewing marine farm monitoring, compliance and monitoring wider-field environmental effects is currently borne by ratepayers. Coastal Occupancy Charges would share these costs with the industry and give Council the necessary income to monitor effectively and enforce the standards that the RMA requires to protect the environment.

OPPOSE the proposed level of charging for marine farms, as outlined in the MDC Report for Public Consultation on Proposed Framework to Introduce Coastal Occupation Charges (1 July 2014)[i].

Under the proposed charges, moorings would cost $55 per annum. Jetties range from $55 (up to 56 m^2) per year to $200 (>84 m^2.)

PROPOSED CHARGES	**GST excl PER ANNUM**	
Boatsheds and buildings		
Up to 84 m^2	$250	
> 84 m^2	$400	
Marine farms	**Mussel (and other)**	**Fin fish (x1.6)**
Up to 4ha	$600	$960
4.1ha to 8ha	$900	$1440

8.1ha to 16ha	$1200	$1920
16.1ha to 29ha	$1200 + $100 per had above 16ha	$1920 + $160 per ha above 16ha
>29.1ha	$2500	$4000
(at present finfish farming does not exceed 16ha)		

The marine farm charges are inadequate for the amount of space they take up compared to a jetty or boatshed. While coastal occupancy charges are based soley on space occupied, the proposed charges are also inadequate considering the visual intrusion and pollution created by marine farms, especially finfish farms.

SEEK a significant increase in proposed coastal occupancy charges for marine farms on what was outlined in the MDC Report for Public Consultation on Proposed Framework to Introduce Coastal Occupation Charges (1 July 2014).

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i

MDC Report for Public Consultation on Proposed Framework to Introduce Coastal Occupation Charges (1 July 2014)

stuff

Social licence vital for aquaculture

HAMISH MCNICOL Last updated 05:00 23/10/2014

New Zealand's $400 million aquaculture industry needs to earn its "social licence" as it looks to grow to a $1 billion sector by 2025.

But because it is not a tangible licence many people do not understand what it is, or how to get one, a visiting expert says.

The New Zealand Aquaculture Conference begins in Nelson today, addressing how the industry can "feed the future" by securing water space, strengthening social licence, protecting and enhancing productivity and growing market value.

Aquaculture is the farming of aquatic species like fish, shellfish and plants, and is the fastest growing primary industry in the world.

Greenshell mussels, king salmon and pacific oysters are all commercially farmed in New Zealand, where aquaculture wants to become a $1b-a-year industry by 2025.

Australian social scientist Kate Brooks will be one of the main speakers at today's conference.

She said the notion of a "social licence to operate" was based on gaining the acceptance or approval of local communities and stakeholders for your business operations.

The domestic aquaculture industry's growth ambitions have been met with an increased need to understand the importance of community in what the sector does.

Brooks said there were three key steps in operators generating a social licence.

These were identifying stakeholders, communicating what you do to them, and then building relationships. "So rather than being reactive, it's actually a proactive relationship-building exercise and it's a cultural shift, it's a long-term engagement.

"It's saying this is who we are, this is what we want to be doing, and we want to be here for the long haul.

"We're not just here to take and to profit from this particular environment and leave."

In August, three new salmon farms were rubber-stamped after a three-year bid by New Zealand King Salmon to make salmon farming a discretionary activity in eight locations in the Marlborough Sounds.

The application went to the Environmental Protection Authority board of inquiry, which approved four farms but the decision was appealed to the High Court by the Environmental Defence Society and Sustain Our Sounds.

The High Court dismissed the appeals, but it was appealed to the Supreme Court, which upheld an appeal against one of the farms, approving the other three.

Brooks said people saw social licences as a "buzzword" but the fundamental essence, of operating in areas where there was a common resource, had not changed.

"Any industry, that operates, particularly using common resources like water or land, forests, has to concern themselves with social licence to operate issues.

"It's like somebody saying I want to come in and use your front yard.

"When it's engaged seriously as a long-term relationship-building exercise, it's extremely successful."

- The Dominion Post