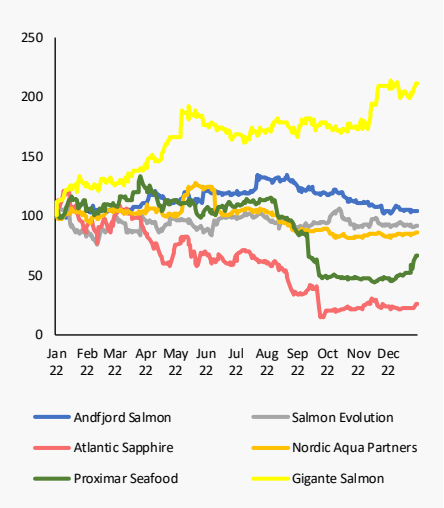
Land-based salmon farming

Share Performance (rebased)



Share	Last price	Rec.	TP
Andfjord Salmon	38.6	BUY (BUY)	55 (55)
Salmon Evolution	8.20	BUY (BUY)	11 (11)
Atlantic Sapphire	8.5	HOLD (HOLD)	9.0 (7.5)
Nordic Aqua Partners	60.8	BUY (BUY)	80 (90)
Proximar Seafood	5.58	SELL (SELL)	5.0 (5.0)
Gigante Salmon	8.28	BUY (BUY)	13 (12)

Share	4Q Reporting date
Andfjord Salmon	16/03/2023
Salmon Evolution	08/02/2023
Atlantic Sapphire	na
Nordic Aqua Partners	02/03/2023
Proximar Seafood	24/02/2023
Gigante Salmon	14/02/2023

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Everyone is willing to score, only a few are able

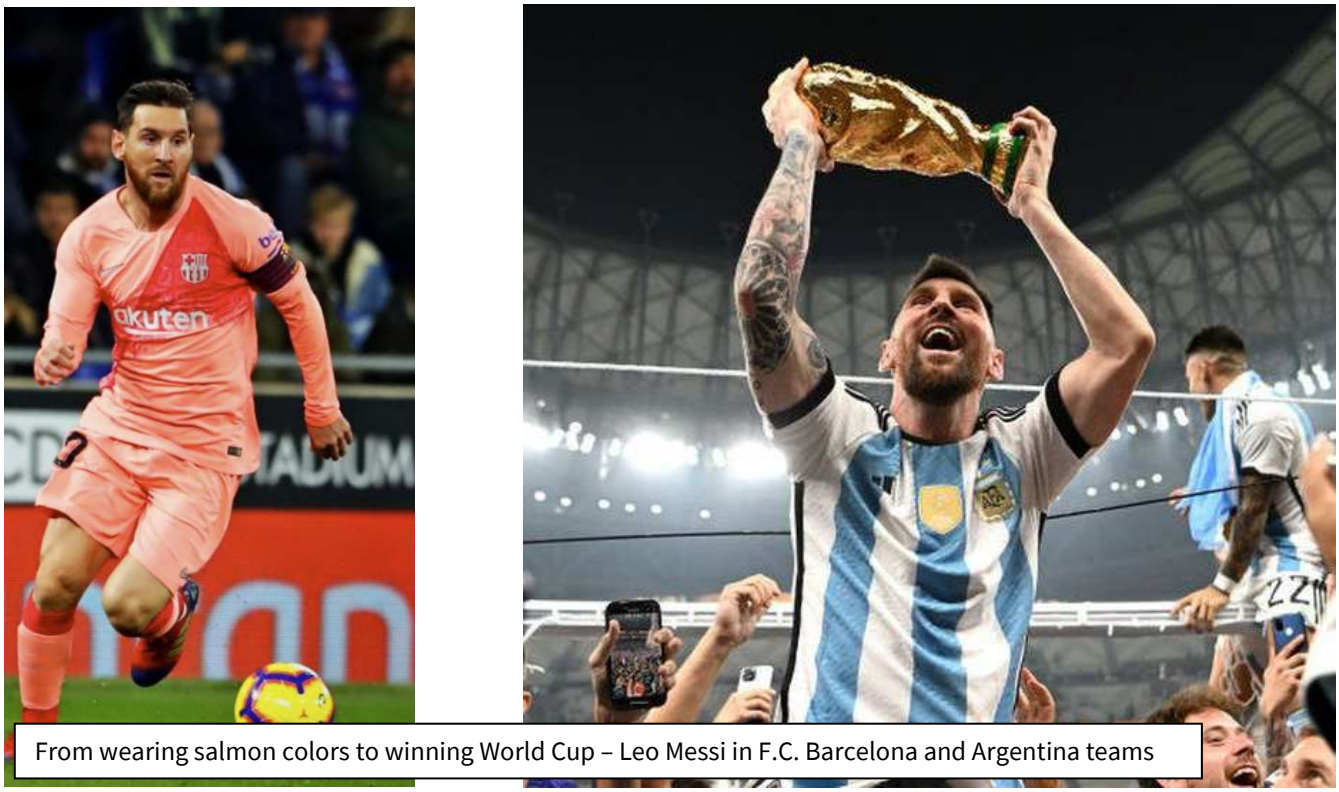
One would have no issues in finding a hundred inspirational quotes on how unnecessary comparing two things is and how we should believe in ourselves being unique. However, what suits personalities, does not always belong in the business world. Therefore, this report is all about the comparison and the competition of the land-based salmon farming versus traditional farmers and the land-based among themselves. Surely, the ground rent tax is also not to be forgotten. And yet, let us begin our story with football.

Competition is everywhere

Even with the preparation for the Christmas' tables, salmon was not the single most important thing everyone was talking about during the month of December. Neither was the war in Ukraine. Nor the inflation. This was the period of one of the largest worldwide competitions, the World Cup in Qatar. And whether you like it or not, it is rather similar to the competition in the salmon industry. Even the land-based salmon farms, which require large sums of financing, are still less expensive than those one-time stadiums in Qatar, while in the extremely dark comedy, one might argue that the land-based farm mortality level is lower. This we will actually compare in this report, but, of course, strictly within the salmon environment. What we wanted to narrate, was that the largest, sea-based salmon farmers like Mowi or Salmar can be seen as Brazil or Spain or England – always on top, always competing, sometimes with one incident or another, but always popular among the spectators, or, in our case, salmon experts. We can also draw a parallel between the smaller land-based salmon farmers to other countries, which are interesting to follow, but the risk/reward might be higher. As we have the coverage of several land-based salmon farmers, it was rather easy to associate each of them with the respective competitor, however, the overall land-based segment is like a player coming off the bench to make the difference. This can end either like for Goncalo Ramos, who scored a majestic hat-trick in the footsteps of Cristiano Ronaldo, or like for Morocco's Benoun, substituted in during the last minute of extra-time to perform well in the penalty shootout and missing the shot poorly. However, it is not completely unexpected to have the player we saw many times in the salmon-colored uniform raising the most prestigious trophy there is.

Where is the fun in supporting one of the top teams?

With Norway out of the picture in this World Cup, Norwegian fans had to find some other country to support and, having the coverage of six land-based salmon farmers, we draw the parallel between them and the most interesting not-the-top countries in the tournament.



From wearing salmon colors to winning World Cup – Leo Messi in F.C. Barcelona and Argentina teams

Salmon Evolution seems like the strongest company within the category, similar to Croatia in the World Cup – with less resources than the grand teams, but very strong and solid leadership and passion. This leadership has actually gone through the process of the "change in generations" with Håkon André Berg stepping down after bringing the company to the heights like Luka Modric, leaving Salmon Evolution in good hands of all-arounder Josko Gvardiol's equivalent Trond Håkon Schaug-Pettersen, the new CEO.

The former leader before Salmon Evolution in this segment was **Atlantic Sapphire**, but in terms of ups and downs, it unfortunately still had significantly more downs. We believe that the squad of Belgium is the best comparison for Atlantic Sapphire. Once the leader, the next year somewhere down below, while the problems seem to be inside the company, just like the clashes in the dressing room of the Red Devils. Still, having De Bruyne or Courtois, means having a lot of potential to perform better. We believe the same stands for Atlantic Sapphire, as the U.S.-based company should have zero problems in finding the demand for its product, but everyone is keen to see stronger performance.

Proximar Seafood has its land-based plant being built in Japan and we believe matching the company to the same football team plays out well here. The company, just as the Japanese eleven, has all the right ideas and is very well mentally prepared, but as the team is lacking the physical size, the company lacks the financing and had to accept in-our-view not the best conditions for the rather sizable convertible bond. Yet, if you followed the World Cup closely, the other thing that stood out for Japan was the cleanness, the tidiness of both the players and the fans. Symbolic or not,

this is one of the aspirations of Proximar Seafood, the company with several *green* certificates.

Although China has not qualified to the World Cup and we cannot perform the same action for **Nordic Aqua Partners** like we did with Proximar Seafood joining them to Japan, we suggest moving not that far and staying in Asia. South Korea it is then. The foreign coach Paulo Bento, who led the team to the proud top-16, is like a foreign company helping Nordic Aqua Partners in China – that is Akva Group building the land-based plant. Other than that, if we analyze, how South Korea is playing – nothing spectacular, but everything is working, just like we see Nordic Aqua Partners.

Speaking of nothing spectacular, but everything performing rather well, we have the Netherlands and the company **Gigante Salmon**. While there are much more announcements from the others, Gigante Salmon is slowly and confidently doing its job. There is no need for financing, like there is no need for external resources for the Netherlands team – we just have to grab a fish popcorn (yes, it exists) and wait for the results with strong confidence. And while we are not sure whether Matthijs de Ligt or Andries Noppert visually resembles Gigante Salmon's CFO's Rune Johansen more, there is no doubt he could very well fit in the squad.

Lastly, the totally different story of **Andfjord Salmon**. While other companies have a very strict timeline, Andfjord Salmon seems a bit more laid back, but the progress is evident. We see Andfjord Salmon as a project of the future, like the team of Ghana – very young (youngest average age within all the competitors), but very promising. Also, the teamplays were visually striking, just like the reports and presentations from Andfjord Salmon – the company recently had a first fish tasting session with the top chef Øyvind Bøe Dalelv, who said the taste and structure of the salmon are excellent, while we are awaiting the capital markets update from the company to show whether the future looks as promising as for one of the best teams in Africa.

Summary of the report

In this report we made no changes in recommendations, while the Target Prices were adjusted just a tad as most of the stories are just beginning to unravel.

Salmon Evolution – BUY, NOK 11/sh TP (BUY, NOK 11/sh previously)
Andfjord Salmon – BUY, NOK 55/sh TP (BUY, NOK 55/sh previously)
Atlantic Sapphire – HOLD, NOK 9.0/sh TP (HOLD, NOK 7.5/sh previously)
Nordic Aqua Partners – BUY, NOK 80/sh TP (BUY, NOK 90/sh previously)
Proximar Seafood – SELL, NOK 5.0/sh TP (SELL, NOK 5.0/sh previously)
Gigante Salmon – BUY, NOK 13/sh TP (BUY, NOK 12/sh previously)

		ANDFJORD	ATLANTIC SAPPHIRE	Gigante Salmon	Nordic Aqua	PROXIMAR SEAFOOD	SALMON EVOLUTION
Technology		Flow-through	RAS	Flow-through	RAS	RAS	Hybrid
Location		Andøya, Norway	Homestead, Florida	Rødøy, Norway	Greater Shanghai, China	Close to Tokyo, Japan	Indre Harøy, Norway
Capacity (t)	2022	0	9,500	0	0	0	7,900
	«Blue-sky»	90,000	220,000	16,000	20,000	26,000	100,000 (incl. South Korea and the U.S.)
Fish delivery		2023	2021	End-2024	2024	2024	2022
Positiv op. cash flow (EBITDA)		2024/2025	2023/2024	2025	2024	2024	2023
CAPEX 2023-2026 (NOK bn)		2-3	6-7	0.3	2-3	4-5	3-4 (incl. Korea)
Finance	**Equity end-3Q22**	76 %	72 % (end-1H22)	97 %	93 %	65 % (end-1H22)	69 %
	Accessible debt	Undrawn 25m Grants 5m	Undrawn 1,300m	290m guaranteed by Spb1 Nord-Norge	250m Eksfin and Rabobank credit 50m credit Bank of Ningbo	230m guaranteed by Mitsui and Grieg Kapital, 300m post-construcion loan	645m available liquidity incl. Undrawn debt facilities 188m. 97m ENOVA grant 14m Skattefunn
ESG	**Water consumption**	Flowing	Low	Flowing	Low	Low	Medium
	Power consumption	Low (1kWh/kg)	High (9.5kWh/kg)	Low (2kWh/kg)	High (9kWh/kg)	Medium (3.5kWh/kg)	Medium (6kWh/kg)
	Mortality	Low (1.3%)	High (incidents)	na	Low (1.5%)	na	Low (2.0%)

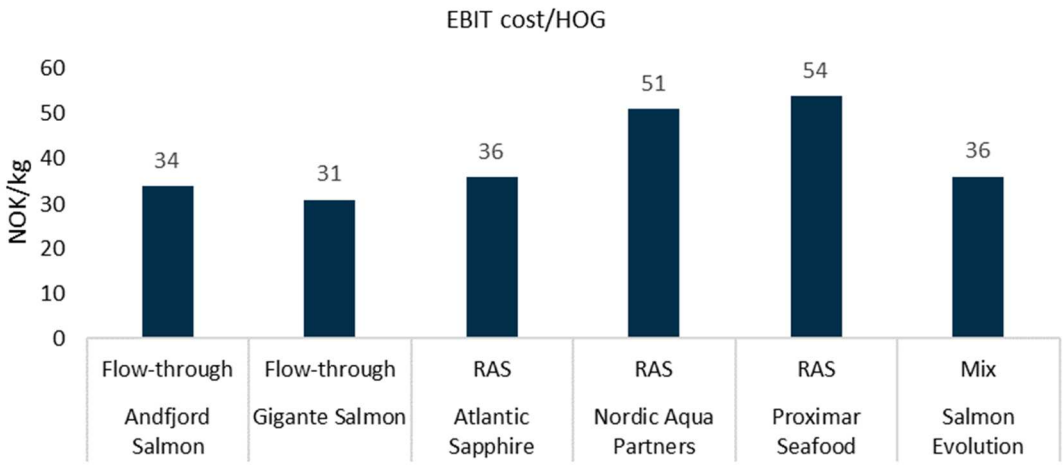
Contents

Flow-through versus RAS versus Sea-based

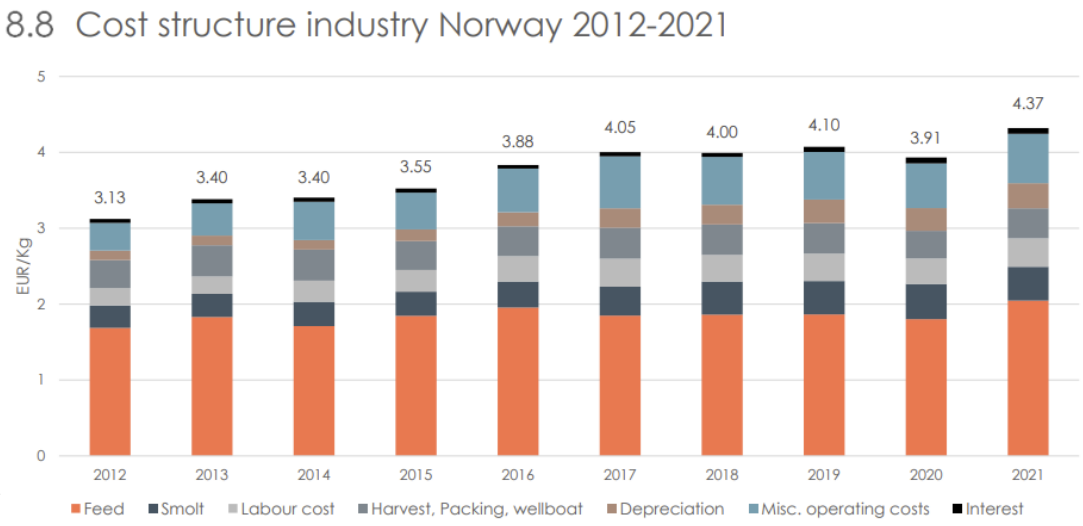
Let the competition begin

Just as we said, one can be young, the other can be experienced, either physically or tactical prepared, by the end of the day everyone would still be looking at the only thing that matters – the score. The numbers. Therefore, we selected several KPIs to evaluate the land-based salmon farmers among themselves, as well as, where possible, compare them to the conventional, sea-based farmers.

While the revenues depend on the global salmon price movement and projected harvest amounts, the second most interesting aspect is the cost. For a better comparison, we selected the EBIT cost per 1 kilogram of HOG salmon. These are the expectations and guidance from the respective companies, and we can see the technological differences adding to the cost side. RAS companies have projected significantly higher costs than their opponents from the Flow-through segment. Notably, Gigante salmon phase 1 expectations are at NOK 38/kg (NOK 31/kg is for the fully implemented production). Similarly, Nordic Aqua Partners were guiding for NOK 57-58/kg for the first stages and NOK 51/kg afterwards. We also suggest that Atlantic Sapphire's real costs are likely to be higher than they guided following all the incidents, while Salmon Evolution signaled NOK 45/kg level in Korea.

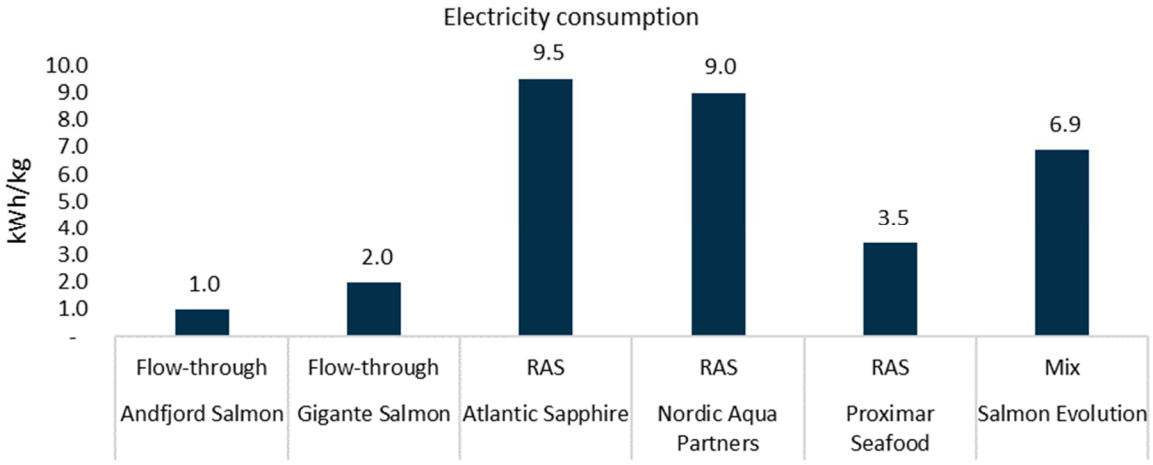


However, this is very comparable to the ordinary sea-based operators. Data from Mowi Salmon Industry Handbook for 2021 shows that the cost has been gradually increasing over the years and has reached NOK 45+ per kg. Although this chart includes Interest costs, these are relatively small as can be seen in the next chart.



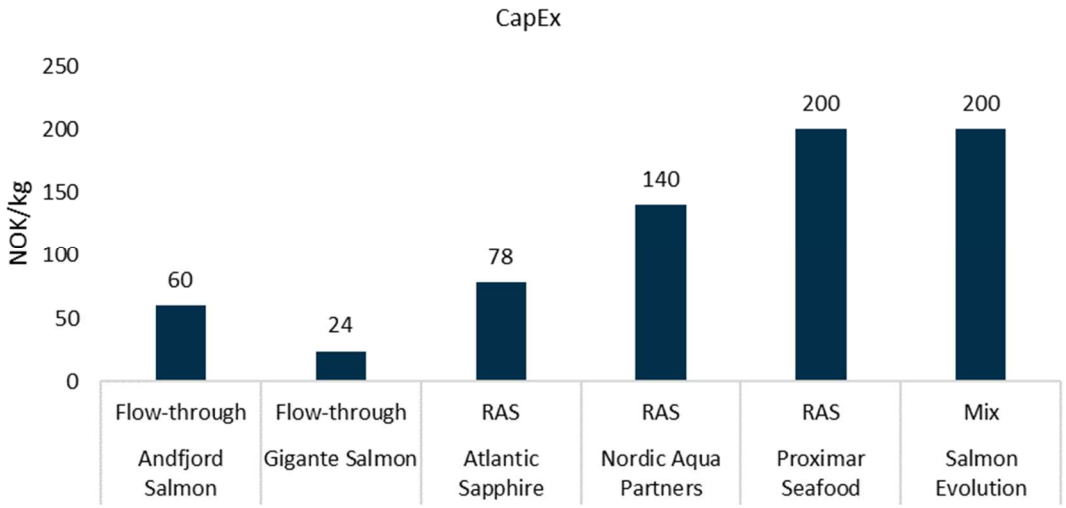
Source: Mowi

One of the cost components that really differentiates RAS and Flow-Through technologies is the electricity cost. Flow-through uses electricity basically just for water pumping, while RAS adds rather complex heating/cooling processes. This leads to 7-10 kWh per kg of Salmon HOG. Compared to this, 1-2 kWh/kg from Flow-through operators is like comparing a number of Ballon d'Or's of Messi and Modric. One might ask, what the deal is with Proximar Seafood, although being a RAS operator, but providing a more similar to Flow-through electricity consumption figure. From what we found, Proximar has chosen a RAS from AquaMaof that has a significantly lower energy consumption in comparison to other conventional RAS solutions available in the market, but we are very skeptical about the figure and believe it to be at least twice as large when normally operating.

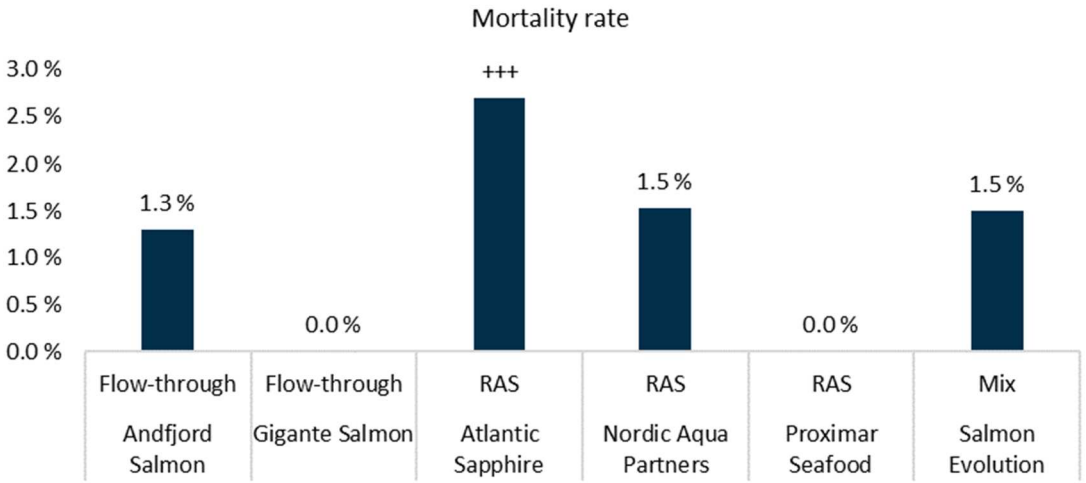


CapEx is also one of the key elements and is also one of the most differentiating parts between the Flow-through and RAS. Surely, it significantly depends on the country the plant operates in as well. From what we gathered, Gigante Salmon is the leader, but it should be noted,

that CapEx for phase 1 is planned at NOK 71/kg. Atlantic Sapphire's NOK 78/kg seems super promising in the RAS field, but this number has not been updated for quite some time and the current inflationary impact might have boosted it. Thus, although Salmon Evolution has presented NOK 200/kg (NOK 190/kg for South Korea), when the company is moving in seven-mile-shoes towards the future, this is not that scary anymore.



The final thing we wanted to cover and compare with the conventional farmers is the mortality rate. Overall, this is one of the most important advantages for land-based salmon farmers versus the sea-based. Unless you take into account the figures from Atlantic Sapphire, that is. The company has recently had biological issues including the loss of salmon appetite and elevated mortality and the outcome is unclear, but the mortality rate has definitely increased. We should also note, that Salmon Evolution's first batch had a large one-off mortality of nearly 6%, but the other batches are falling into 1-2% category so far. With all the other already operating companies having 1-2% of salmon mortality, this is significantly better than that of the conventional farmers. MOWI value-based calculations show mortality of around 7% in 2021, Salmar is talking about 5%, Leroy's figures in 2021 were at around 7.5%, while Bakkafrost's mortality is kind of depressing with more than 10% in Faroe Islands and hardly believable around 30% in Scotland.



Høringsnotat - Grunnrenteskatt på havbruk

Getting serious with the resource rent tax

Did you know, that VAR stands for Valuing Accessible Resources? Just like the brother-from-another-mother of Trygve Slagsvold Vedum, the Spanish referee Antonio Mateu Lahoz caused the controversy with 18 yellow cards (15 players on the field, a World Cup record), Norwegian Finance minister caused a similar controversy with the proposed resource rent tax. Despite the fact, that the land-based companies were hardly touched by the decision directly, the sentiment towards the overall salmon sector changed drastically.

On 28th September, 2022, Norwegian Government sent out the proposal of a resource rent tax on aquaculture for consultation. It should be introduced from 1st January, 2023. The proposal covers the production of salmon, trout and rainbow trout and involves the taxation of resource rent at an effective rate of 40%. The rules are formulated in such a way that only the largest operators will pay resource rent tax. This is done by granting a tax-free allowance of between 4,000 and 5,000 tonnes.

Revenues from salmon are established on the basis of a norm price. The norm price is based on the commodity prices for salmon. Revenues from trout and rainbow trout are based on the actual sale prices.

Corporate tax is calculated before resource rent tax on aquaculture, and resource rent-related corporate tax is deducted from the basis for resource rent tax (as for petroleum and hydropower). An effective resource rent tax rate of 40% therefore means that the formal resource rent tax rate is set at 51.3%. Including corporate tax, the total effective marginal tax is 62%.

Tabell 2 Illustrasjon av skattegrunnlaget[1]

År	0	1	2
Investering	-1 000		
Driftsinntekt		800	800
Driftskostnad		-100	-100
Avskrivning		-500	-500
Selskapsskatt			
Driftsinntekt		800	800
Driftskostnad		-100	-100
Avskriving		-500	-500
Skattegrunnlag		200	200
Selskapsskatt		44	44
Grunnrenteskatt			
Driftsinntekter		800	800
Driftskostnader		-100	-100
Umiddelbart fradrag for investeringskostnad	-1000		
Fradrag for selskapsskatt		-44	-44
Skattegrunnlag	-1000	656	656
Grunnrenteskatt	-513[2]	336	336

Tax calculation example

[1] For enkelthets skyld er avskrivningene i selskapsskatten satt til 50 pst. lineært, fordelt over to år.
[2] Negativ grunnrenteskatt foreslås fremført med rente, se omtale i punkt 4.6.5.

The resource rent tax covers returns from commercial licenses for fish for consumption relating to the production of salmon, trout and rainbow trout, irrespective of how the license holder is organized. Development licenses are not covered by the resource rent tax. Development licenses that are converted to ordinary licenses for fish for consumption will be covered by the resource rent tax from the date of conversion. The resource rent tax applies to all licenses within the geographical scope of the Aquaculture Act (out to the continental shelf).

Update on the fixed price and possible delays

The resource tax was widely attacked, especially the fixed-price part. This led to some proposed adjustments during the first weeks of December 2022. Finance Minister Trygve Slagsvold Vedum has said in a letter to Norway's parliament, the Storting, that the proposed "ground rent" tax – which is intended to tax industries that use marine resources – will now be calculated using internal industry prices rather than the (often higher) prices listed on the Oslo Stock Exchange.

Trygve Vedum

However, Vedum is insisting the industry must be able to verify the price to an independent council. He says this change means the industry can now enter into long-term contracts and reverse plans to lay off hundreds of salmon process workers. Several contracts worth a total of NOK 35 million have been cancelled since the tax was proposed. Because of the original proposal contracts had virtually come to a halt. Vedum told the Storting in a letter: "I now believe there is no reason for the processing business to wait to enter into contracts." However, the employers' organization Seafood Norway (Sjømat Norge) is skeptical, saying that while it is a step in the right direction, there are still a number of unanswered questions. The group's policy manager, Peder Weidemann Egseth, said he will study the proposal to see how it will affect the industry. He added that nothing was yet known about the so-called independent council, its composition or how it planned to check actual prices. He also feared that it could lead to extensive bureaucracy and a lot of extra work.

Although no meetings have been fixed, the two sides are expected to get together for talks on Vedum's plan. Meanwhile, the opposition Conservative party has proposed delaying the introduction of the tax until 2024 because there are too many issues to resolve. Even with allies, however, the Conservatives do not have a majority to get their plan through parliament.

Comments from the economists supporting the tax

There were different opinions between the directly impacted salmon farmers and theoretical thinking economists about this ground rent tax. It was communicated that the sharpening of these taxes led to cheers among many economists in Stavanger at the KåKånomics Festival, the largest economics festival in the Nordic countries. "Ground rent tax is something that is right out of economics textbooks," said Øystein Thøgersen, an economics professor and rector at NHH Norwegian School of Economics. "This is the best tax, if it is properly designed", he said. Karen Helene Ulltveit-Moe, an economics professor at the University of Oslo, agreed: "It was a day of joy for Norwegian society. It was incredibly great that this proposal came," Ulltveit-Moe said during one of the debates at the KåKånomics conference. In 2019, Ulltveit-Moe chaired the aquaculture tax committee which investigated taxation of the aquaculture sector. The majority of the committee proposed introducing a ground rent tax of 40% on fish farming. This is the same rate as for power production. A minority wanted to keep the current system. "At the start, salmon farming was considered a low-income industry, and each person could only buy one licence," Ulltveit said at the KåKånomics conference.

Karen Helene Ulltveit-Moe

Layoffs began, auctions were cancelled

It could have been seen that although sometimes not directly affecting the business side, the newly proposed tax already had serious consequences for the fish farmers. Just as former PM Erna Solberg said "This has dramatic consequences. Because we already see that no one dares to enter into long-term contracts, which are the basis for growth in this industry". Solberg would prefer to have deferred the entire resource rent tax on salmon, and she is particularly opposed to a standard price as a tax basis.

But she is open to a settlement, where other taxes for the fish farming industry are increased. Norway's salmon permit auction netted just under NOK 4 billion, less than half of what had been expected. Seafood Norway CEO Geir Ove Ystmark said the government had effectively lost NOK 4bn in revenue and this only applied to the sale of permits. More would be lost through lower investment which meant less for the communities the government wants to help. "Companies would have offered far more if the tax proposal was not on the table", Ystmark contended, as demand for salmon has been enormous in recent years. "In addition the country had lost billions more in deferred or cancelled investment programmes", he added along with major market losses on the Oslo Stock Exchange.

Geir Ove Ystmark

That is not all. Largest companies began to lay off the processing staff in wake of the new tax proposal and although Vedum declared that there is no proposed ground rent tax on processing, in total around 1,300 people were laid off. This affected the system suppliers as well, a company Salmon Systems can be an example, announcing the layoff of workers due to a halt in the market, mostly due to all the ongoing uncertainties.

Comments from the conventional farmers

The conventional farmers were not happy to say the least. See below the comments from the largest companies operating in Norway:

Mowi: The tax level is completely disproportionate for a biological production process such as salmon farming given the risks entailed. Mowi therefore respectfully advises the government to reconsider its resource tax proposal. The aquaculture industry is of great importance for the future of Norway and it is in the nation's best interests to see it grow. However, the proposed tax will severely damage participants' ability and willingness to make investments. A tax rate of 62% will put an end to most of the many significant investment plans along the Norwegian coast, leading not only to reduced local employment levels now and in the future, but also to a massive diversion of funds away from coastal communities. Until an agreement has been reached on a more viable framework for the industry

all new structural investments in Mowi Norway have unfortunately been put on hold. Mowi is a global company and salmon farming is not bound by geography – it can take place in sea and on land anywhere in the world, close to its major markets. If the proposal for 62% tax is approved by parliament then the Norwegian aquaculture industry faces the greatest setback in its 50-year history, and over time Norway stands to lose its leading position within aquaculture to other countries.

In light of the proposal, the Board decided to cancel its June acquisition of 1% fixed-price growth of 914 tonnes MAB related to the traffic light system, as the company could no longer justify the purchase price of EUR 18 million. By extension, Mowi chose not to participate in the traffic light auction itself.


Ivan Vindheim

MOWI CEO Ivan Vindheim has published a consultation paper setting out an alternative to the Norwegian government's proposed ground rent tax on fish farms. Vindheim says the Norwegian government has formulated its tax model on false premises, but believes a solution can be found to what is becoming an increasingly bitter dispute. His alternative plan would effectively see a big reduction in the 40% rate. While the document is critical of the budget proposal, Vindheim's tone is conciliatory. He says Mowi and the government share the same ambitions for Norwegian aquaculture – in that they want to create jobs and expand the industry along the coast. But the current proposal, he argues, completely undermine such plans. The document says: "Mowi believes the government's proposal does not meet academic goals and has been sold on false premises. "Ever since the government's press conference on 28 September, we have calculated how the proposal will turn out for us and the rest of the industry. "Although the proposed tax model apparently works as intended in the power and petroleum sectors, it is unfortunately not applicable to the aquaculture industry. Our value chain is significantly more complex. In addition, less than 20% of the breeder's investments will be deducted, while 80% of the profit will be taxed." He said the 40% rate was the same as that set for the energy wind power sector, which was quite different from aquaculture in several ways, yielding a substantially higher

tax revenues than the NOK 3.65bn estimated by the government. He said Mowi was proposing that the government should set up a special committee to examine the entire taxation structure of the fish farming industry. He concluded: “We hope the government is willing to take a step back and contribute to the design of a tax model that is adapted to the aquaculture industry through a broad cross-party settlement.”

Salmar: No other country has introduced a tax of this nature and at this level on its food production. The objective is to collect over 40% of all future revenue streams from Norwegian fish farmers. The proposal has various features that will intensify its distorting and harmful effects. Both the level and the design of the new tax will contribute to investments in Norwegian aquaculture being diverted to other countries, and other business sectors. This will have a major impact on the capacity for innovation and investments in the green industrial transition up and down the Norwegian coast. The tax will mean a large reduction of considerable investment capital that could have been used for innovation and industrial development not only in the aquaculture sector itself, but also in associated and other industries. After the proposal was announced, SalMar exercised its right to cancel its purchase of capacity growth at a fixed price. For the same reason, SalMar declined to participate in the Ministry of Trade, Industry and Fisheries’ traffic-light auction in October. The uncertainty surrounding the framework conditions for Norwegian aquaculture indicates the need for heightened caution with respect to investments and the signing of new contracts.

Lerøy: The rent resource proposal and the process surrounding it have given a situation of acute operational chaos that is already having serious consequences for the company, employees, suppliers and customers. The ability of the company and the wider industry to fulfil their obligations in relationships developed over the last 30 years has effectively been torpedoed. The government’s proposal assumes the industry is a raw material supplier with a homogenous product that can be sold in the spot market by means of daily transactions. In the long term, the proposal will weaken the competitiveness of Norwegian industry and, other things being equal, reduce salmon production in Norway. Lerøy has halted a NOK 400 million development on Skjervøy. In addition, Lerøy has cancelled the purchase of 614 tonnes MAB from the state at a price of NOK 123 million and did not participate in the auction of new licence capacity.

Comments from our covered Land-based farmers

On the other hand, the land-based farmers are not impacted by this newly announced resource rent tax and this might work as an advantage if the tax is accepted as proposed. And yet, not everyone shares the same view.

Loppa municipality wants more people to pay ground rent tax in the aquaculture industry. Loppa is one of the municipalities that has submitted consultation responses in connection with the government's proposal on ground rent tax. There they write that they are positive about the ground rent tax, which they believe will lead to the municipalities being transferred more of the value creation that takes place in the municipality. The municipality says it is not satisfied with just taxes on salmon and trout in

the sea. “The ground rent tax should also include cod and land-based facilities,” they believe.

Gigante Salmon: the new resource tax will only - if implemented - be imposed upon salmon farmers holding commercial licenses in sea water. As Gigante Salmon’s license is assigned for land-based salmon farming, Gigante Salmon will not be impacted by the proposal which is sent out for consultation. What is experienced from larger, conventional farmers is a high level of uncertainty and investments put on hold moving forward, but for Gigante Salmon this has no direct impact.

Andfjord Salmon: It is important to underline that the increased resource rent tax for ocean-based farming is currently only a proposal from the government. There may be changes to the proposal following the public hearing and the potential adoption of it. The land-based farming is not subjected to the new tax, but it is too early to speculate on what type of indirect effects this may or may not have on the land-based sector. That said, Andfjord Salmon does not expect that investor interest in land-based farming will be negatively affected by the proposal or subsequent adoption of it.

Salmon Evolution: the company still thinks it is too early to determine the long-term effects of this as the conventional farmers are still assessing the impact this has on their own operations. Furthermore, the proposal may also be subject to changes before a potential approval in the parliament. Nevertheless, it is fair to say that from a capital markets perspective this is not good as it creates uncertainty as to the visibility on regulations in Norway.

Norway freezes permit applications for land-based fish farms

Another questionable decision

We had some extra time added to complete the match, but the referee blew his whistle not allowing anything else to follow. Something like this had to be felt by the potential new land-based farmers, who were thinking of applying for the new permit. Too late, cannot do that anymore. This is yet another questionable government decision following the unexplainable and still difficult-to-count ground rent tax.

The Norwegian government has imposed a temporary halt on permit applications for new land-based fish farms so that it can modernise regulations to take account of the increasing number of coastal projects that utilize sea water. The background for the temporary halt is that there are a number of applications for, and permits have been granted for, concepts with a close connection to the sea. This challenges the regulations' clear distinction between aquaculture in the sea and aquaculture on land and shows a technological development that was not foreseen when the current regulations for aquaculture on land were introduced.

Work is now underway in the Ministry of Industry and Fisheries to design a set of regulations that will take these challenges into account. This will be submitted for consultation shortly. The temporary suspension applies until the ministry has determined changes to the regulations and in the first instance is set at six months. Effective immediately, county municipalities will not be able to accept new applications for land-based aquaculture projects. The moratorium will apply until new regulations regarding aquaculture on land are introduced. Applications that are already being processed by county councils will be processed in the usual way. The same applies to appeals to the Directorate of Fisheries.

Factfile: Permits for land-based farming

- Permits for aquaculture on land are granted by county councils. Such permits are not part of the "traffic light system", which regulates whether farmers can grow more, the same, or fewer fish in a production area based on an expert assessment of sea lice pressure on wild salmon.
- In contrast to ordinary, commercial aquaculture permits in the sea, permits for aquaculture on land are free of charge and not limited in number.
- Permission is being sought both for recirculating aquaculture system (RAS) plants, where the water used in production is recycled, and flow-through plants.
- The government said that the greatest interest currently is in flow-through facilities with a close connection to the sea. Such plants bring in seawater for production, which, after varying degrees of purification, is released back into the sea.

There has been some uncertainty among some people about the decision on permits and the ministry clarified.

- The temporary suspension applies to both broodstock, nursery fish and food fish.
- There is considerable interest in permits for aquaculture on land now, and applications are being made for concepts that are suitable to challenge the regulations' distinction between aquaculture on land and in the sea.
- It is understood that a temporary stop can be experienced as challenging for those who may be planning to apply for such permits now.
- Most applications for permits for aquaculture on land that are being processed today are combined applications for both food fish and hatchery fish production. As most facilities are also sought to be located in close proximity to the sea, there will also be potential for impacts on the sea from hatcheries. This applies even if hatchery and food fish production is separate, and the hatchery is kept in freshwater tanks.
- The temporary suspension is limited to aquaculture of salmon, trout and rainbow trout.

Introducing: Arctic Char

Cousin to salmon and trout

Like only one brother Hernandez scoring for France, Atlantic Salmon has all the flashlights, but we should not forget that Lucas is also in the squad and we should not forget the Arctic Char (or Charr, as used in some references).

Arctic charr (Salvelinus alpinus) is a cold-water fish in the family Salmonidae, native to alpine lakes and arctic and subarctic coastal waters. Its distribution is circumpolar. It spawns in fresh water and populations can be lacustrine, riverine or anadromous, where they return from the ocean to their freshwater birth rivers to spawn. No other freshwater fish is found as far north. It is one of the rarest fish species in Britain and Ireland, found mainly in deep, cold, glacial lakes, and is at risk from acidification. In other parts of its range, such as the Nordic countries, it is much more common, and is fished extensively.

The Arctic char is closely related to both salmon and lake trout and has many characteristics of both. The fish is highly variable in color, depending on the time of year and the environmental conditions of the lake where it lives.

Arctic char are farmed in land-based, closed systems that minimize the risk of escape into the wild. The land-based Arctic char farming systems are among the most environmentally responsible fish farming designs. They remove particulate matter and effluent prior to releasing water from the fish tanks into the environment. Sludge removed from the water is used to fertilize terrestrial crops. Leftovers from fish processing may be incorporated into dog food or delivered to local compost facilities.

TL;DR: main arguments

If there is a brief contracted play to enjoy, it is the penalty shootout and we have experienced several of them during this World Cup. What would Arctic Char bring to the spot? Five main arguments:

1) Thriving in high densities = perfect for RAS
2) Outstanding feed ratio – 0.8kg of fish feed provides 1kg of fish
3) No known illnesses or issues, stronger immunity
4) Less fat than other salmonids, meaning firm texture and strong taste – perfect for sushis and sashimis
5) Health benefits: omega-3, antioxidants, fatty acids

Companies worth watching

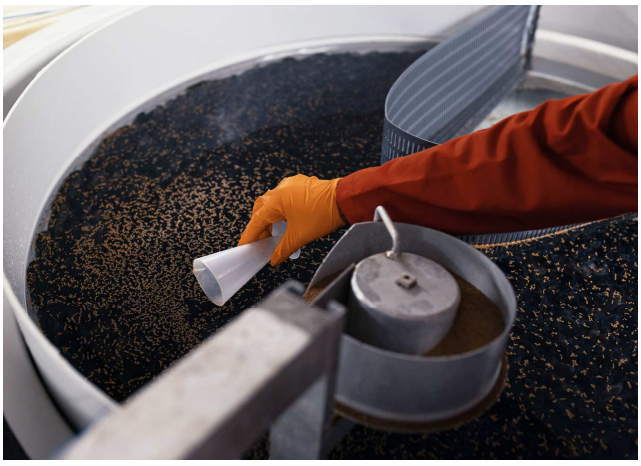
It is not widely known, but some companies are already in one or another business stage of growing arctic char in RAS systems. There are small companies in Latvia and Lithuania: SIA Blue Circle and Noras Zuvys and the fish is already in the market phase. Opercule in Canada, Coldlake in Sweden, Matorka in Iceland, but if one is more interested in the Norwegian projects, Norwegian Fish Farms and Rendalsfisk are the ones to pay a visit. However, Rendalsfisk just announced at the end of December that they are halting the construction plans in a dry capital market, thus Atlantic char lovers suddenly have even fewer options.

Land-based worldwide projects

Finding the company according to your needs

There are many ongoing land-based projects right now and even more are floating just in the form of a thought, waiting for the financing to take place. Anyway, we collected the majority of the projects and present those to choose according to your needs. Just like Haaland or Salah were not on display, but are definitely super talented, some of these projects might become the diamonds in the upcoming future. Some of them might be like the team of Norway – not the best, but with potential. Others can find themselves in the footsteps of Lithuanian national football team – with zero chances whatsoever even with the planned 48 teams.

Note, that the Rating Of The Starfish is our subjective view towards the companies.



Aminor	Norway	Hybrid
Planned capacity: **n.a. tonnes**	Rating	

The world's only facility for Spotted Wolffish, a 100% land-based production, is located in Meløy municipality on the idyllic coast of Helgeland.

The facility houses the complete life cycle from roe to finished product. The production is based on a substantial amount of cold and fresh water with a minimal environmental impact. The clear and clean Arctic seawater is crucial for the health and well-being of the Spotted Wolffish. Therefore, it is collected from 60 m deep, at the far end of a fjord system with ice-cold water from Norway's second largest glacier, Svartisen.

Aqua Group	Russia	RAS
Planned capacity: **5,000 tonnes**	Rating	

Russian company Aqua Group is planning to build a land-based salmon farm near Moscow, which will have a production capacity of 5,000 metric tons. It is planned to invest around RUB 4 billion (€50.4m) to build a facility.

Aqua Group has leased a land in the Moscow area to build the salmon farm, which will use RAS technology.

Aquabang	USA	RAS
Planned capacity: **10,000 tonnes**	Rating	

Aquabanq's multi-phase plan to build the state-of-the-art land-based aquaculture plant in Maine began in September 2018 and the construction is set to begin in 2022.
Cold-water RAS has been designed in North America by an aquaculture technology group serving the industry since 1987. The system provider of choice has been a key system vendor to several commercially successful, large-scale aquaculture farms growing a variety of aquatic species in the U.S., Canada, Australia, and China.

AquaBounty	USA	RAS
Planned capacity: **55,000 tonnes**	Rating	

NASDAQ: AQB

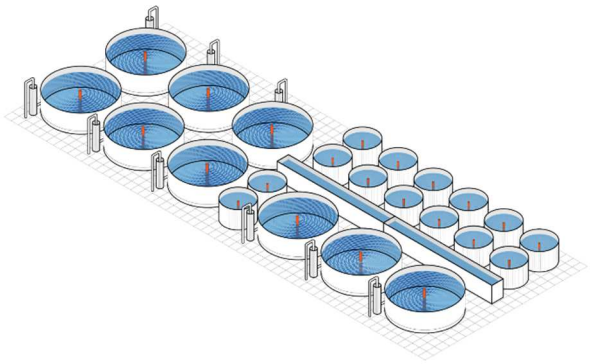
AquaBounty have northeast Indiana farm which produces around 1,200 metric tons of salmon each year. The first harvest of genetically engineered salmon started in Q2 of 2021 for both farms.
The company invests USD 290-320m in salmon farm in Pioneer, Ohio which will have 10,000 metric tons of annual production. First stocking of salmon eggs is expected in late 2023 while the first harvest in 2025.
The fish farmer seeks to reach 55,000 tonnes of salmon annual production by 2028.

AquaCon	Norway	RAS
Planned capacity: **50,000 tonnes**	Rating	

AquaCon AS is a Norwegian holding-company which develops land-based salmon RAS.

50,000 tonnes production volume target will be achieved in six years and with three phases (each with around 16,000 - 17,000 tonnes annual production).

AquaCon planning to develop USD 300m salmon production facility on the East Coast of US. The plant will be capable of raising 15,000 tons of salmon a year using recirculated water.



Akvaproduct	Russia	RAS
Planned capacity: **7,500 tonnes**	Rating	

Akvaproduct started construction of the farm in Russia's northwest Vologda region in July 2019 and begin to operate in 1Q22., Akvaproduct planned to invest around USD 27m into the project. The hatchery and grow-out facility has been built to supply a nearby salmon RAS farm currently being built by the company. According to the company, the facility has a projected annual capacity of 2,500 metric tons of Atlantic salmon. Akvaproduct has invested over RUB 2 billion (USD 27.4 million, EUR 25.9 million) in the project.
The company also has plans for a second fish farm capable of producing 5,000 tons of fish per year.

Arctic Seafarm AS	Norway	FT
Planned capacity: **15,000 tonnes**	Rating	

Arctic Seafarm is a land-based aquaculture located in Helgeland. The company has a license to produce 15,000 tonnes of salmon per year.
Arctic Seafarm is focused on the efficiency operations that help to achieve <1.1 fish meal/fish oil ratio (produce more fish than the fish consume).
Arctic Seafarm plans to build a land-based farm at Langsettvågen in Nesna Municipality. The company signed the project development agreement for the processing plant in June 2021. It is projected that a plant will produce up to 15,000 tonnes of salmon per year.

Asset Buyout Partners	Norway	FT
Planned capacity: **42,000 tonnes**	Rating	

Property company Asset Buyout Partners plans to invest between NOK 2-4 billion in a new land-based fish breeding facility.

The facility will be built out in stages, starting with a production of 10,200 tons of fish. The park will be further developed in four stages to a total production of 42,000 tonnes.

Averøy Industripark	Norway	RAS
Planned capacity: **25,000 tonnes**	Rating	

Averøy Industripark will produce 25,000 tonnes of salmon on land in Averøy by developing facility in two phases. First phase – annual production of 5,000 tonnes of salmon. 2nd phase - annual production of 20,000 tonnes of salmon.

The company highly focuses on safety and tries to minimize the risk of infection that is why the company uses "all-in-all-out" principle. All operating departments are physically and operationally separated from each other.

Baring Farsund	Norway	RAS
Planned capacity: **24,000 tonnes**	Rating	

Baring Farsund produces salmon using RAS in the southernmost part of Norway.

The facility will cover an area of more than 80,000 square meters and have an annual production capacity of up to 24,000 tonnes of salmon. The plant will produce post-smolts and harvest-weight salmon.

LANDLACHS

Berliner Land Lachs	Germany	RAS
Planned capacity: **5,000 tonnes**	Rating	

Berlin Landlachs will build the largest salmon farming facility in Germany with an approximately 30,000 square meter operations

The facility will use aqua cycle system with a capacity of 5,000 tons of salmon per year. According to the company 95% of the water will be reuse by using bio-filter system.

Blom Salmon AS	Norway	RAS
Planned capacity: **20,000 tonnes**	Rating	

A new land-based salmon farm for Oksneset, Norway, is in the early planning stages. The company is aiming to produce 20,000 tonnes of post-smolt salmon.

The Norwegian Food Safety Authority for the South and West region, which has assessed Blom Salmon's application against the Food Act and the Animal Welfare Act, has rejected it.

Blue Star Foods	USA	RAS
Planned capacity: **21,000 tonnes**	Rating	

NASDAQ: BSFC

The company mainly sells crab meat and other premium seafood products.

Blue Star Foods Corp has applied for an aquaculture license for a planned salmon farm in western Canada that would produce 1,500 metric tons of head on gutted steelhead salmon annually with the investment of about USD 35m.

Bolaks AS	Norway	RAS
Planned capacity: **12,000 tonnes**	Rating	

Bolaks on August 2021 has received approval for the construction of a salmon farm. The facility will be capable of producing 10,000 metric tons of fish annually. The facility will include a land-based fish farm, a warehouse and a biogas plant.

AS Bolaks currently has ten licenses for the production of food fish, and two licenses for breeding fish. The company's goal is to produce 12,000 tonnes of fish for each year.

Bordemar	Chile	RAS
Planned capacity: **24,000 tonnes**	Rating	

Bordemar on April 2019 received an approval for RAS salmon farm in Chile. The cost of the development will be around USD 45 million and the plant will be able to produce 4,000 tonnes of fish in its first year, rising to 24,000 tonnes by the third year.

Bulandet Miljøfisk	Norway	FT
Planned capacity: **15,000 tonnes**	Rating	

With NOK 150 million in equity and NOK 63 million in loans and grants, the company has secured sufficient funding for the first construction phase, including a pilot plant. As the company name indicates, this plant is being built as far west as you can go in Norway, in the island kingdom of Bulandet.
They are betting on a "flow-through concept", with an intake pipe of 400 metres, which fetches clean and tempered seawater from the north side of the facility.
Initially, they are aiming for a production of 1,000-2,000 tonnes of post smolt at the pilot plant. The next construction stage is a further 4,500 tonnes of food fish. This can then be expanded to up to 15,000 tonnes.

Cape D'or Salmon	Canada	RAS
Planned capacity: **7,000 tonnes**	Rating	

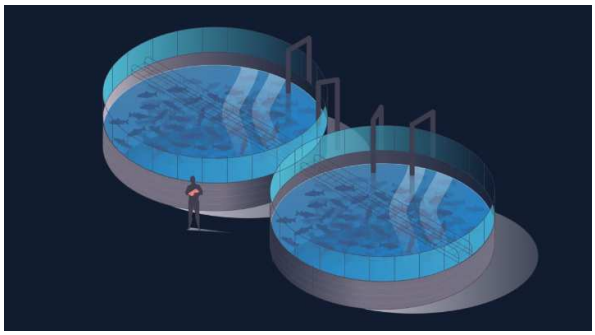
Cape D'or Salmon located in Canada which uses RAS system to produce both salmon and halibut

The farm was certified to Canadian organic standards by Global Trust, making it one of the few certified organic land-based salmon farms in the world. 85% of the facility is now organic and with the goal to become 100% in the future.

Cape Nordic	South Africa	RAS
Planned capacity: **6,000 tonnes**	Rating	

Cape Nordic Corporation is currently developing a large-scale, land-based RAS for the production Atlantic Salmon. The facility will be located on the West Coast of South Africa where seawater temperatures are the coldest on the African continent.

The production should reach up to 2,000 tonnes Atlantic Salmon per year. This will be increased to 6,000 tonnes annually through Stage 2 and 3 expansions.



Columbi Salmon	Belgium and Norway	RAS
Planned capacity: **12,000 tonnes**	Rating	

Columbi Salmon is Norwegian salmon and salads producer. Company aims to harvest 12,000 tonnes of salmon and 4,000 tonnes of salad by 2025.

On November 2020 the Columbi Salmon announce partnership with Billund Aquaculture to develop of a land-based salmon farming facility in Oostende, Belgium.

Over the upcoming years the company plans to build more facilities in Europe.

Currently, Columbi are doing trials in Norway to develop "Carbon Neutral Salmon" It involves 1,000 smolts and a greenhouse for salad production. It will provide necessary information to design the Ostend facility.

Danish Salmon AS	Denmark	RAS
Planned capacity: **2,700 tonnes**	Rating	

Danish Salmon does egg incubation and harvest, as well as processing, packing, and shipping. Annual production currently stands at 1,100 metric tons, is expected to increase to 2,700 metric tons by 2023.

Nissui and Marubeni, Japan's fifth-largest general trading company, have taken a 66.7% stake in the company, and intend to grow the company's operations in Europe and elsewhere.

Dongwon Industries	South-Korea	Hybrid
Planned capacity: **20,000 tonnes**	Rating	

20,000 tons LWE production facility in South Korea using Salmon Evolution's HFS technology, developed in two phases of 10,000 tons each.

Ownership through a joint venture structure with seafood giant Dongwon Industries where Salmon Evolution will hold 49% ownership.

Project cost for phase 1 is estimated to be about NOK 1.6bn, which will be funded by financial institutions as well as Dongwon Industries and Salmon Evolution.

Driva Aquaculture AS	Norway	RAS
Planned capacity: **25,000 tonnes**	Rating	

Driva Aquaculture AS produces a pure premium mountain trout born and raised in Norway.

The company establishes 3 steps plan to reach 25,000 tons production. During step one 4,000 tonnes of salmon will be harvested (first harvest November 2025), while phase two will produce additional 8,000 salmon per year (first harvest October 2027) and the last phase will help to develop 13,000 tonnes of salmon per year.

Ecofisk AS	Norway	RAS
Planned capacity: **40,000 tonnes**	Rating	

Ecofisk AS is building a RAS facility in south-west Norway. Production is expected to start in 2023 and reach full capacity in 2032 by providing 40,000 tonnes of fish per year.

The company signed a contract with Benchmark genetics to receive 25m annually Atlantic salmon eggs. The deliveries will start in 1Q23 and will last for five years.

"We will probably need up to NOK 1.5 billion in equity", Bjørn Inge Staalesen has told Dagens Næringsliv.

Eco Fish Circle	Norway	RAS
Planned capacity: **6,000 tonnes**	Rating	

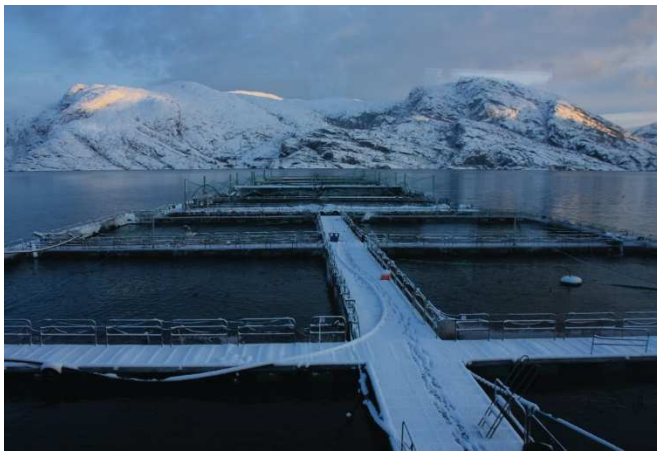
Eco Fish Circle is a fish farming technology company that will establish a new type of land-based salmon farming. The company has two facilities: in Hausvik where the new concepts are verified and in Lista where salmon is being growth and sold.

Eco Fish Circle expects that the facility will provide 6,000 tonnes salmon per year with the available expansion of 500 tonnes per year.

Eco Seafood AS	Norway	RAS and FT
Planned capacity: **45,000 tonnes**	Rating	

Eco Seafood is proposing an egg-to-pack facility on the island of Kråkøya in Nærøysund municipality where 45,000 tonnes of salmon will be produced.

In the hatchery, recirculating aquaculture system (RAS) technology will be used, in the post-smolt facility, water reuse technology (FTS-R) will be used, and in the grow-out facility, a combination of flow-through and water reuse will be applied.



Erko Seafood AS	Norway	RAS
Planned capacity: **12,500 tonnes**	Rating	

Erko Seafood AS currently has 10 farming licenses to produce salmon and trout with an expected production volume of 12,500 tonnes annually.
Erko Seafood AS with the help Global Maritime AS have developed a new concept for offshore salmon farming, called the “North Sea Fish Farm”. The goal behind the concept is to move the fish farming of salmon out of the fjords, beyond the coastline areas, and into the open ocean where it can benefit from larger production areas and volumes.
It was announced that the company may lose development permits, but they believe that the ministry has no opportunity to change the decisions.

Fifax	Finland	RAS
Planned capacity: **3,200 tonnes**	Rating	

HEL: FIFAX

Fifax aimed to achieve full capacity in the existing fish farming facility in 2022, which corresponds to a fish stock of approximately 900 tonnes. This should result in the production equal to full capacity in the first fish farming facility of about 3,200 tonnes of round fish per year.

Production plant in Åland uses ultra-intensive RAS technology in fish farming. The plant employs around 30 people and is one of the largest already operational land-based facilities in northern Europe, capable of producing more than 3,000 tonnes of fish a year.

Finger Lakes Fish	USA	RAS and MCR
Planned capacity: **400 tonnes**	Rating	

Finger Lakes Fish, located in New York, raises Coho salmon. The company hatched its first set of eggs in late 2018 and reached full production capacity of 10,000 fish per month in early 2021.

The company uses MCR (Mixed Cell Raceway) system route for the facility because it's more energy efficient than other RAS systems. The water flow is partly gravity-fed rather than 100% pumped.

Finger Lakes Fish annual production capacity is still relatively small at 400 metric tons.

Fishbase Group	Norway	RAS and FT
Planned capacity: **2,000 tonnes**	Rating	

Fishbase Group was established in 2014. The company has a license to produce 2 thousand tonnes of fish every year (Atlantic Cod, Salmon, and Lumpfish).

On March 2022 Fishbase Group, Gigante Salmon, LetSea and TESS have entered into a collaboration agreement on a research project. The project tests the properties and effects of nanobubbles on fish and the fish's environment which should have a positive effect on economics, fish welfare and the environment.

Fish Farm	UAE, Dubai	RAS
Planned capacity: **3,000 tonnes**	Rating	

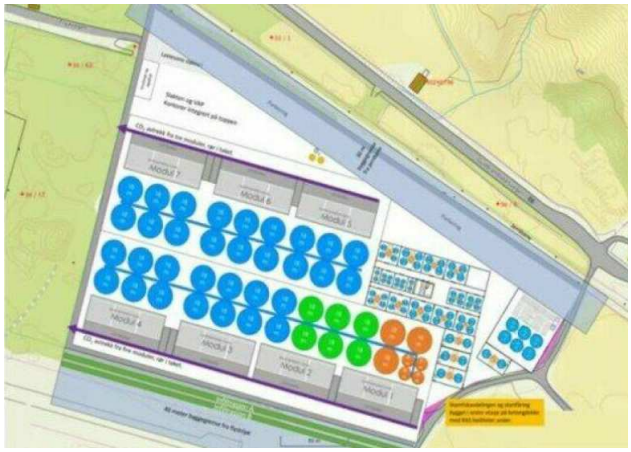
Fish Farm LLC was incorporated in 2013 with a focus on marine fish breeding and hatchery to support the local aquaculture industry and reduce the dependency on foreign imported fish.
Headquartered in Dubai, Fish Farm has set up three facilities - a caged farming facility in Dibba, a hatchery in Umm al-Quwain and an inland farming facility in Jebel Ali. The company achieved a production capacity of 2 million kgs in 2017.
Jebal Ali facility has 34 tanks and produces over 3,000 tons of royal Sea Bream, Sea Bass and Salmon annually.

FRD Mitsui	Japan	RAS
Planned capacity: **2,000 tonnes**	Rating	

FRD Japan's closed RAS system uses a unique filtration technology that utilizes bacteria, making it possible to conduct aquaculture while circulating water with minimum exchange.

The company owns demonstration experiment plant which produces salmon trout and is planning to build commercial plant with a capacity of 2,000 tonnes per year. Construction is expected to start in 2023.

Frya Oppdrett AS	Norway	RAS
Planned capacity: **8,000 tonnes**	Rating	



Frya Oppdrett has applied for a maximum permitted biomass of 6,000 tonnes of mountain trout which would enable it to produce 8,000 tonnes of fish per year.
The company also plans a hatchery, broodstock facility and processing plant and has applied for a hatchery permit to raise 6 million juveniles per year to an average weight 90 grams.
Frya Oppdrett is 100% owned by Driva Aquaculture AS, which is already building a 4,000 tonnes mountain trout facility at Oppdal.

Gaia Salmon AS	Norway	RAS
Planned capacity: **50,000 tonnes**	Rating	

Gaia Salmon secured an area of 32,000 square meters for farming on land at Træna. The farming facility will have a capacity of 7,200 tonnes of salmon.

Company believes that it can achieve 50,000 tonnes production in 10 years and will be listed on Oslo stock exchange in 2 - 5 years.

-With a strengthened equity of NOK 392 million, we are now ready to start construction work in January 2023, said chairman Roald Dolmen of Gaia Salmon Holding in a press release.

GeoSalmo	Iceland	Hybrid
Planned capacity: **20,000 tonnes**	Rating	

Geo Salmo intends to be a leader in developing the land-based salmon farming industry to future success for the benefit of the world, building a 20,000-tonne hybrid flow-through land-based farm in South-Iceland with on-site smolt and processing, allowing for roe to finished product within the same facility.

Greenaquanor	Norway	RAS
Planned capacity: **90 tonnes**	Rating	

Greenaquanor is planning an aquaponics system producing up to 90 tons of trout and 567 tons of greens and berries. The plant will be based in Hølen with the catchment area of 19.9 km2

Havlandet	Norway	RAS
Planned capacity: **25,000 tonnes**	Rating	

Havlandet has 20 years expertise with land-based farming. Currently Havlandet facility has a license of 200,000 tons of salmon. However, it is expected that the plant will reach capacity of 20,000 – 25,000 tonnes of salmon.

Havlandet implemented Philips LED lights to improve fish welfare and to suppress maturation. Philips's patented light spectrum has been developed specifically for salmon growth and health, providing 30% more light.

Helgeland Miljøfisk	Norway	RAS
Planned capacity: **50,000 tonnes**	Rating	

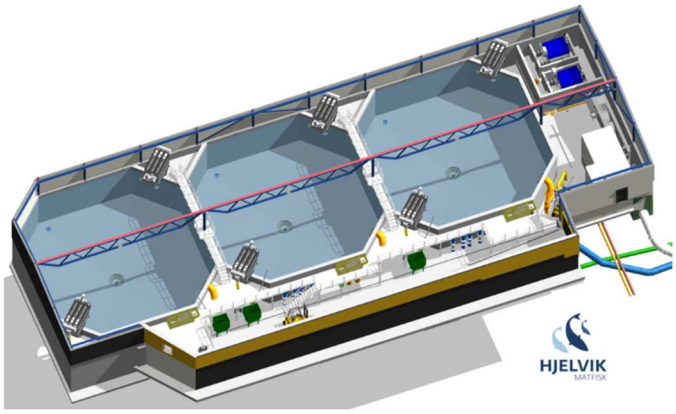
February 2022: Helgeland Miljøfisk has entered into an agreement with Multiconsult to take the next step in the process towards a land-based food fish farm at Toft outside Brønnøysund.

Hima Seafood Rjukan	Norway	RAS
Planned capacity: **4,550 tonnes**	Rating	

At Rjukan in the land of Telemark, Hima is establishing the world's largest land-based trout farm based on technology that recirculates pure, clean mountain water. The groundwater used at Rjukan originates in Telemark's high-altitude mountain lakes. It is naturally filtered through thick moraines.

Construction of the facility began in May 2021, and when fully operational, it will produce about 9,000 tonnes of premium Hima® Trout, equivalent to 22,000,000 dinners per year.

Furthermore, Hima has entered into a partnership with Villa Seafood, which is responsible for the sale, distribution and processing of the Hima brand.

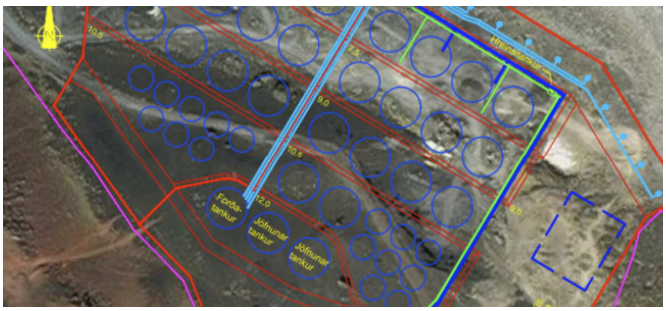


Hjelvik Matfisk	Norway	RAS
Planned capacity: **2,000 tonnes**	Rating	

The land-based breeding facility is located right next to Hjelvik Settefisk, on Vågstranda in Møre og Romsdal. The company has been granted a license for a total of 2,000 tonnes of standing biomass (MTB). The food fish production is a pilot project. In the long term, the company will increase production significantly.
Hjelvik Matfisk has had its first round of slaughter.

Hudson Valley Fish	USA	RAS
Planned capacity: **1,200 tonnes**	Rating	

Growing Steelhead Trout. The self-contained land-based farm employs advanced RAS technology with uncompromising biosecurity. Coupled with dedicated animal care, including the use of BAP-certified fish feed, the company raises the healthiest fish without the use of antibiotics, pesticides or growth hormones. Aquaculture system filters and converts fish waste into organic fertilizer.

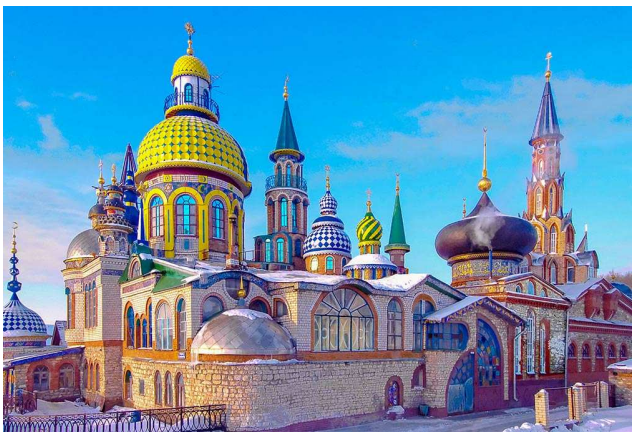


Icelandic Land Farmed Salmon	Iceland	FT
Planned capacity: **10,000 tonnes**	Rating	

The aim is to build a 10,000 tonne / year fish farm for salmon in a flow-through system. Work began on the project in 2018. The final design was planned to be completed in 2022. When the design work is completed, construction will begin.

Jurassic Salmon	Poland	RAS
Planned capacity: **1,000 tonnes**	Rating	

Jurassic Salmon facility is the most modern and technologically advanced RAS Atlantic salmon (Salmo salar) farm situated in Janowo, West Pomerania, Poland. It is also the world's first plant which is using geothermal saline waters for this purpose and the third such farm leading production from egg to harvest size. This is also the largest farm of such a type in Europe, and is located below the Jutland Peninsula, Denmark.



Kazan-anlegg	Russia	RAS
Planned capacity: **10,000 tonnes**	Rating	

There is no publicly available info about the project, but we know it was considered to be built in Kazan, Russia, and this makes it objectionable.

Kvidul	Norway	RAS
Planned capacity: **40,000 tonnes**	Rating	

Kvidul's first fish farm will be built on Brennholmen in Åfjord municipality. Work is being done on other locations in the region to establish more land-based facilities.
The plant is planned for an annual production of 10 million smolts and 20,000 tons of edible fish with an average weight of 5 kg. A detailed zoning plan has been approved, and an agreement on the land acquisition has been entered.
The first plant is scheduled for production in the first half of 2024.

Landeldi	Iceland	RAS
Planned capacity: **20,000 tonnes**	Rating	

Landeldi's facility is designed in a modular fashion. It will be expanded in three phases between 2021 and 2027 and during that period, the production quantity will double every two years. Starting at 5.000 tons in 2022 it will have grown to at least 20.000 tons by 2027.

Langnes Laks	Norway	RAS
Planned capacity: **20,000 tonnes**	Rating	

October 2022: Langnes Salmon is applying for the establishment of a new facility for hatchery salmon at Langnes in Alta municipality. Permission is being sought for an annual production of 20,000 tonnes of MTB (maximum permitted biomass) - divided into 20 million fish per kilogram.

Lerøy Årskog	Norway	RAS
Planned capacity: **10,000 tonnes**	Rating	

The start-up has now been decided to be postponed.

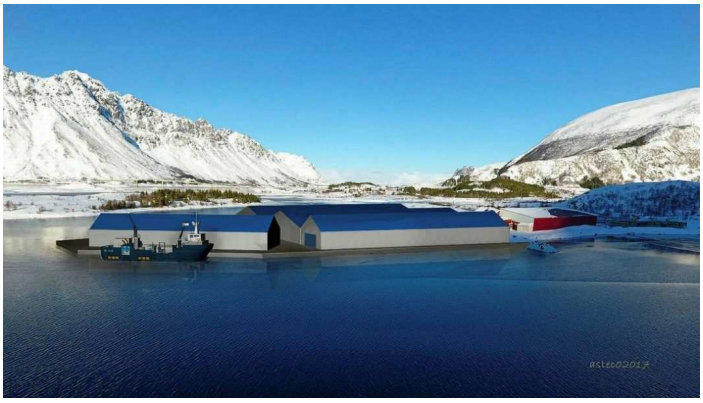
Local Ocean	France	RAS
Planned capacity: **8,500 tonnes**	Rating	

Land-based salmon company Local Ocean has expressed interest in building a salmon farm in the French seafood processing hub of Boulogne-sur-Mer.

In a response to a call for expressions of interest from the company operating the development of the port, Société d'Exploitation des Ports du Détroit (SEPD), Local Ocean expressed interest in a 45,500 square meter plot of land for the purpose of building RAS salmon farms.

The company intends to produce 8,500 tons of 5kg commercial sized salmon. Local Ocean is expected to spend about US$126 million in purchasing and developing the 45,500/sq. m. site.

Lofoten Salmon	Norway	RAS
Planned capacity: **7,500 tonnes**	Rating	



Lofoten Salmon was granted a license for hatchery and food fish for a total production of up to 3,100 tonnes MTB.

Lofoten Salmon will first build a large smolt facility in Vågan municipality before the company possibly proceeds with the production of food fish.

Losna Seafood	Norway	RAS
Planned capacity: **28,600 tonnes**	Rating	

Losna Seafood, led by entrepreneur Geir Nordahl-Pedersen, received a license in 2020 to produce 28,600 tonnes of salmon on land on the island of Losna in Solund municipality. Then the license was withdrawn. Losna Seafood has now won the case against the Ministry of Trade and Fisheries, which went to Førde district court over four days in September.

The reason why the licenses were withdrawn was that the Norwegian Directorate of Fisheries did not believe that the facility was classified as a land-based farming facility, but a marine facility.

Lumarine	Norway	RAS
Planned capacity: **n.a. tonnes**	Rating	

Lumarine AS was founded in 2015 under the name Rognkallen AS, and was initially a producer of lumpfish. The company was established by a group of people with years of experience in farming new species, and the company started operations in Tømmervåg in Aure municipality. In the first half of 2019, Lumarine acquired two companies: Njord Salmon AS in Tjeldbergodden and Atlantic Lumpus AS at Sleneset in Nordland. These companies are now named Lumarine Tjeldbergodden and Lumarine Sleneset. Lumarine is specializing in Cod and Ballan wrasse growing.

Maiken Foods AS Independent Production Units (IPUs)

Maiken Foods	Portugal	RAS
Planned capacity: **6,000 tonnes**	Rating	

Maiken Foods AS was established in 2021 in Måløy, Norway with the ambition of commercializing land-based salmon farming. Members of the team have built several of the tanks planned constructed in phase one in Portugal. Parallel, the organization will be strengthened to work out the business plan to execute phase two of the project. The company is still looking for investors.

Matorka	Iceland	RAS
Planned capacity: **3,000 tonnes**	Rating	

Matorka's land-based aquaculture system enables the company to raise fish consistently and dependably. The company is able to meet growing demand and delivers fish every day of the year. The infrastructure allows to protect marine environments and mitigate risks. Land-based aquaculture is a key component of responsible seafood production.

The company is providing the market with different type of fish, including salmon.

Namgis Kuterra	Canada	RAS
Planned capacity: **250 tonnes**	Rating	

Kuterra salmon is raised on land in a closed aquaculture system on the northern tip of Vancouver Island in British Columbia, Canada.

Very small amounts of salmon are produced, but on a very professional scale.

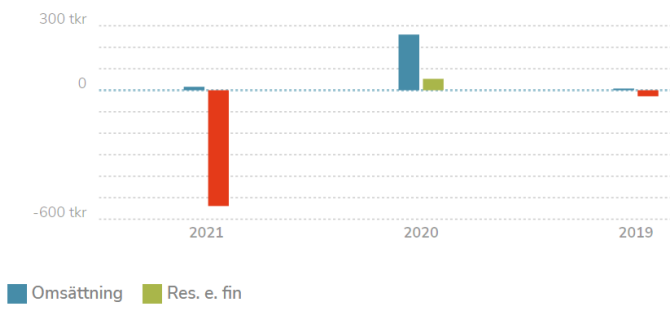
Norcantabric	Spain	RAS
Planned capacity: **3,000 tonnes**	Rating	

Norcantabric is the first salmon farming plant in Spain with organic certification through recirculating water systems.

The harvest is coming soon, 2022-2023, they say. However, the website seems to be in a terrible state.

Nordic Aquafarms	USA	RAS
Planned capacity: **50,000 tonnes**	Rating	

Nordic Aquafarms aims to be a leading player in land-based aquaculture with production close to large markets but is having problems with licensing in USA.
2 subsidiaries: Fredrikstad Seafoods has the complete grow-out infrastructure and on-site fish processing and will facilitate production of Atlantic Salmon to 4-8 kilos, with an annual production capacity of 1,500 MT, and with potential for 3,000 MT on-site capacity expansion. Sashimi Royal in Hanstholm at the north-western part of Denmark has one of the largest yellowtail kingfish productions in the world, with an annual production capacity of approximately 600 MT, and with substantial potential for on-site capacity expansion



Nordic Salmon AB	Sweden	RAS
Planned capacity: **10,000 tonnes**	Rating	

No info was found about the company, seems to be struggling.

Nordkapp Laks	Norway	RAS
Planned capacity: **3,600 tonnes**	Rating	

Nordkapp Laks was previously known under the name OFS Nordkapp.
19/10/2022: Troms and Finnmark county council gave permission for a land-based facility for salmon food fish with a maximum permitted biomass of 3,600 tonnes in Nordkapp municipality.

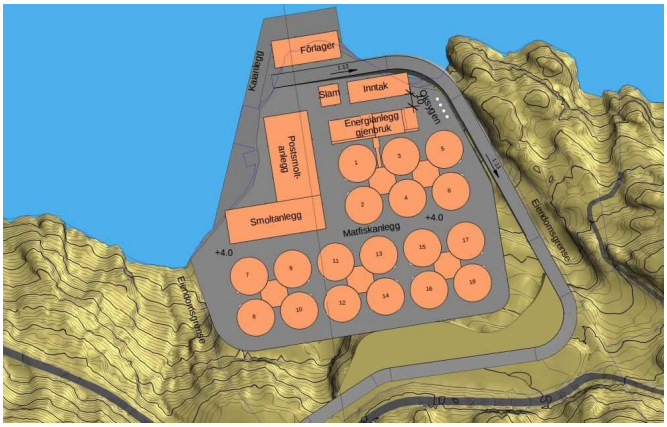
Norsal	China	RAS
Planned capacity: **30,000 tonnes**	Rating	

Norwegian fish farming company Norsal has signed a contract with Norwegian engineering consultancy Multiconsult for construction of a 30,000-metric-ton land-based salmon farm in Yantai, China

After completion of the first phase of construction, the plant will have production capacity of 10,000 metric tons of harvested fish a year, building to 30,000 metric tons in phase two. Multiconsult will carry out preliminary work on the pilot project, which will then be taken over by a local Chinese company.

Norwegian Mountain Salmon	Norway	Hybrid
Planned capacity: **25,000 tonnes**	Rating	

Norwegian Mountain Salmon (NMS) aims for 25,000 tonnes of salmon annually. This will cost NOK 2bn. They are looking at several places along the coast, including Karmøy, but Norway's smallest municipality, Utsira, is the first choice. If everything goes according to plan, the facility could be completed in 2028.



Norwegian Seafarming	Norway	Hybrid
Planned capacity: **13,500 tonnes**	Rating	

In the plan, the company describes that they want to establish a facility for farming food fish in addition to a smolt facility. The facility will combine RAS technology in the hatchery, technology for water reuse in the post-smolt section and technology for flow-through and reuse of water in the food fish section. This involves the construction of halls, tanks, silos and other things that are necessary for the construction of the plant. The preliminary sketches for the plant show that Norwegian Seafarming will have a production of 13,500 tonnes of salmon and 330 tonnes of smolt annually.

Ocean Farm Holding	Norway	RAS
Planned capacity: **10,000 tonnes**	Rating	

In December 2020, Ocean Farm Holding applied to the State Administrator in Agder, the Norwegian Food Safety Authority, the Directorate of Fisheries and the Coastal Administration for a license to establish a land-based farming facility and the permission was granted.

General manager and sole owner of Ocean Farm Holding is 49-year-old Trond Rafoss. He is a former researcher at Nibio and now works at the University of Agder. The company will build up to four facilities, which can increase production to 10,000 tonnes.

Ocean Harvest	UAE	RAS
Planned capacity: **2,000 tonnes**	Rating	

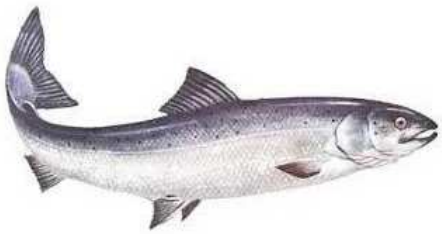
Ocean Harvest is a leading land-based aquaculture startup based in Abu Dhabi.

The company is led by a co-founder of Pure Harvest Smart Farms — one of the most well-funded and fastest growing CEA startups globally, however, we are not sure the process has moved to a further phase.

OFS Norge	Norway	Hybrid
Planned capacity: **15,000 tonnes**	Rating	

OFS Norge is a salmon and trout land-based farming company offering seamless and sustainable production, from smolt to final products of the highest pre-rigor quality.
OFS Måløy is a wholly owned subsidiary of OFS Norge. The license for land-based production of 15,000 tonnes salmon annually was one of the first awarded in Norway.
The project will be realised in 3 phases with a clear progression plan to reach full scale within 2026. Next, with a streamlined facility running and a centre of excellence in land-based operations providing a solid platform for knowledge transfer and competent growth, the company intends to develop joint ventures abroad.

Omega Aqua	India	RAS
Planned capacity: **2,000 tonnes**	Rating	



Had plans to build the facility in 2019 but it seems nothing has moved past the planning phase.

Pure Salmon	Worldwide	RAS
Planned capacity: **20,000 tonnes**	Rating	

Pure Salmon is one of the fastest growing Atlantic salmon companies globally on course to build and operate multiple 10,000 tons p.a. and 20,000 tons p.a. vertically integrated aquaculture production and processing facilities using land-based RAS technology. The company is targeting 260,000 tons of annual Atlantic salmon production by 2025, with 140,000 tons p.a. already mapped out.

Pure Salmon is about to announce the location of the first 10,000 tons p.a. facility in Japan, which will be the largest Atlantic salmon RAS facility in Asia and one of the largest globally. In Japan, Pure Salmon will operate under the name "Soul of Japan".

Qingdao Guoxin	China	RAS
Planned capacity: **20,000 tonnes**	Rating	

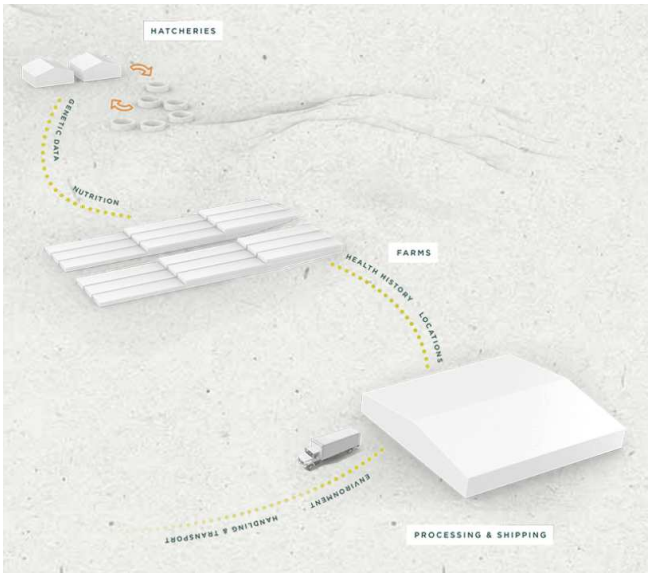
Shandong Ocean Oriental sold its land-based salmon farm to Qingdao Guoxin recently at a price of ¥226 million ($32 million). The facility is currently mainly producing Atlantic salmon as well as species including coho salmon, king salmon and rainbow trout.

Qingdao Guoxin Group is a state-owned enterprise located in Qingdao, Shandong province. Guoxin and SOO will run the farm as a 70/30 joint venture into which Guoxin injected new capital and SOO will concentrate on the technical side of the operations. It is believed that the RAS farm will complement Guoxin's marine cage farming business.

Quality Salmon AB	Sweden	RAS
Planned capacity: **100,000 tonnes**	Rating	

Quality Salmon Sotenäs AB – owned by Lighthouse Finance – and Finnish-headquartered construction company Uponor Infra Oy have signed a letter of intent to plan and construct a new land-based salmon farm, to be located outside the city of Kungshamn, in the municipality of Sotenäs on Sweden's west coast. Investing SEK 17 billion to SEK 20 billion in the circular industry park and aiming for a future production of 100,000 MT of salmon per year.

The company signed numerous contracts with the third parties like feed providers but we found limited information on the development of the farm.



Riverence Holding	USA	RAS
Planned capacity: **15,000 tonnes**	Rating	

Producing Steelhead Trouts. The company raises eggs in Washington State in state-of-the-art RAS facilities, maximizing natural water resources and capacity through technology and a tenured team. Once the eggs are ready, they are transported to grow-out farms, located along the Snake River in Idaho's Magic Valley. These raceway-based farms and processing center, also known as Riverence Farms, are situated on top of an abundant supply of the purest spring water in the world, from the Rocky Mountains.

Salfjord	Norway	RAS
Planned capacity: **36,500 tonnes**	Rating	

Salfjord AS aims to build one of the largest salmon farm in Europe. The first Oceanfront salmon farming concept will be located at Tjeldbergodden in the heart of the salmon farming cradle. Fully developed, the farm will produce 36,500 tons (HOG) of salmonids per year.

At the same time as the plant at Tjeldbergodden is being worked on, another plant is being planned at Tustna. The establishment of the facility at Tjeldbergodden has been the subject of appeals several times in both the municipality and with the County Governor, as well as in the court system. The reason was that they feared that the blasting work on the site would frighten the hatchery fish at the facility and lead to high mortality.

Salmofarms	Norway	RAS
Planned capacity: **10,000 tonnes**	Rating	

SalmoFarms is now well underway with realizing its land-based breeding facility. The company has permits and a land agreement in Tinn municipality, and wants to build a land-based facility on the Svadde industrial area in Rjukan in Telemark. The aim of the company is in the first phase to produce 5,000 tonnes of salmon on land, which will be doubled in the second phase.

Salmon Terra	Norway	RAS
Planned capacity: **8,000 tonnes**	Rating	

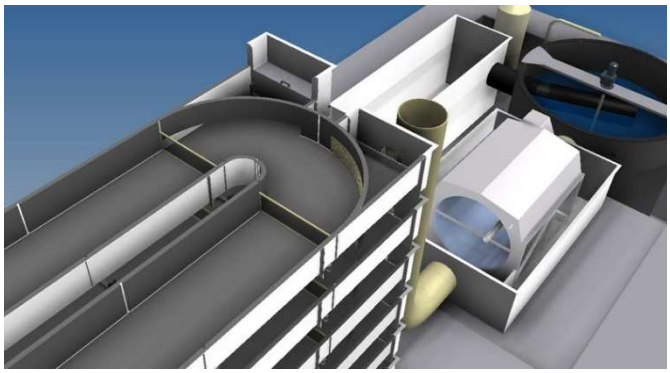
2021 November: Norwegian land-based salmon farming group Salmo Terra will begin building its first land-based growout facility on Oygarden, just outside Bergen, in 2022.
The group signed an agreement with Danish aquaculture technology supplier Graintec, who will deliver all parts of the fish farm based on recirculation aquaculture system technology.
In the beginning of 2022, the construction of the new facility will take off, and phase one is expected to be in production in first half of 2023, the companies said.

Samherji	Iceland	RAS
Planned capacity: **4,200 tonnes**	Rating	

Samherji Ltd. founded in 1983 is one of the largest companies in the Icelandic fish industry. Samherji's aquaculture is comprised of most aspects of fish farming, i.e. hatching, juvenile production, the on-growing of marketable fish, harvesting, packaging and marketing of the products. Samherji operates one broodstock farm, one hatchery, three nurseries and three on-growing farms. The company also operates two processing plants, one in Öxarfjordur on the east coast and the other in Sandgerdi on the Reykjanes peninsula. All of the farms are land-based and use crystal clear geothermal water, fresh or brackish.
3,000 tonnes of Arctic Char and 1,200 tonnes of Atlantic Salmon are produced.

Sashimi Royal	Denmark	RAS
Planned capacity: **6,000 tonnes**	Rating	

Subsidiary of Nordic Aquafarms, producing yellowtail kingfish. Sashimi Royal a/s in Hanstholm at the north-western part of Denmark has one of the largest yellowtail kingfish productions in Europe, with annual production capacity of approximately 600 MT, and with potential for 6,000 MT on-site capacity expansion.



Seafood Group	Norway	FT
Planned capacity: **2,500 tonnes**	Rating	

Seafood Group AS in close cooperation with SIFT Group, represented by TT Management, examined the possibility of land-based salmon farming.
SIFT – Super-Intensive Farming Technology (SIFT).
This method can be described as the use of long shallow water raceways located in height racks. The water circulates in a velodrome and the layout resembles a river. Parts or all of the water flow is discharged for cleaning approximately every 10 minutes and ensures high water quality for fish in the raceways.

Sift Group	Norway	FT
Planned capacity: **10,000 tonnes**	Rating	

SIFT Group AS is building a land-based fish-farm for salmon. The facility uses new solutions where the fish are reared in vertical raceways with extensive water conservation and purification in RAS. The farming technology is being tested and fine-tuned in a separate pilot plant that has been built up since 2020.

The Super-Intensive Farming Technology (SIFT) concept has for many years been thoroughly tested through both research and industrial aquaculture of sole and turbot and is now under final development in a pilot farm for salmon in Tromsø.

Singapore RAS	Singapore	RAS
Planned capacity: **1,000 tonnes**	Rating	

Singapore-based aquaculture company Singapore RAS is targeting to produce 1,000 metric tons of farmed salmon in Singapore by 2025 to serve demand in the city-state, the company said in a release. According to the company the recirculating aquaculture system project will be expanded to 3,000 MT in later phases to meet Singapore's "strategic 30/30 food sufficiency target."

Skagen Aquaculture	Denmark	RAS
Planned capacity: **3,000 tonnes**	Rating	

The owners of recirculating aquaculture facilities Danish Salmon and Sashimi Royal acquired Skagen Aquaculture in the fall of 2019.

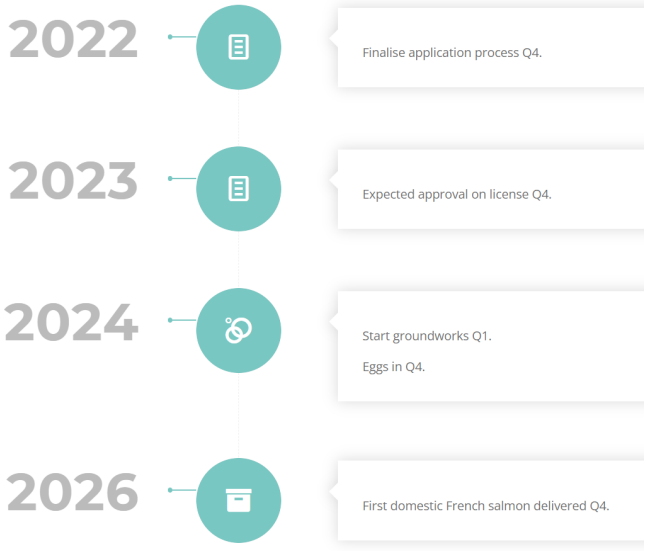
The location in Skagen will allow the farm to access the highly developed logistics system already in place for the Danish wild fish export industry.

Photo: Jens Petri, CEO at Skagen Aquaculture

Smart Salmon Norway	Norway	RAS
Planned capacity: **7,500 tonnes**	Rating	

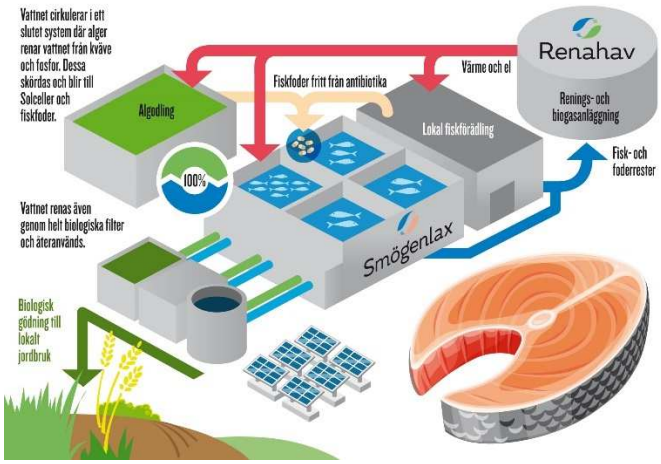
Stage one is a 2.500 tonnes post-smolt facility with construction starting already in autumn 2021. This first stage is low risk and yet profitable. Stage two is a 5,000 tonnes facility with a flexible solution of producing both post-smolt and full-grown salmon on-site, depending on the market's demand.

The land, licences and preliminary facility design were in place and the company aimed for the IPO @ Euronext Growth but did not succeed. With a loan agreement with PCP Capital of NOK 220 million, Smart Salmon estimates they need to add something over NOK 200 million.



Smart Salmon France	France	RAS
Planned capacity: **8,000 tonnes**	Rating	

Same company as above. Smart Salmon has a preliminary design of the facility, and is now working with French partners to be granted all licenses and building permits for 8.000 tonnes of salmon. It is designed to produce from eggs to full-grown salmon and it includes a process department for its own consumer brand products all under one roof – complete with its own wastewater and sludge treatment units where the only outlet will be cleansed water.



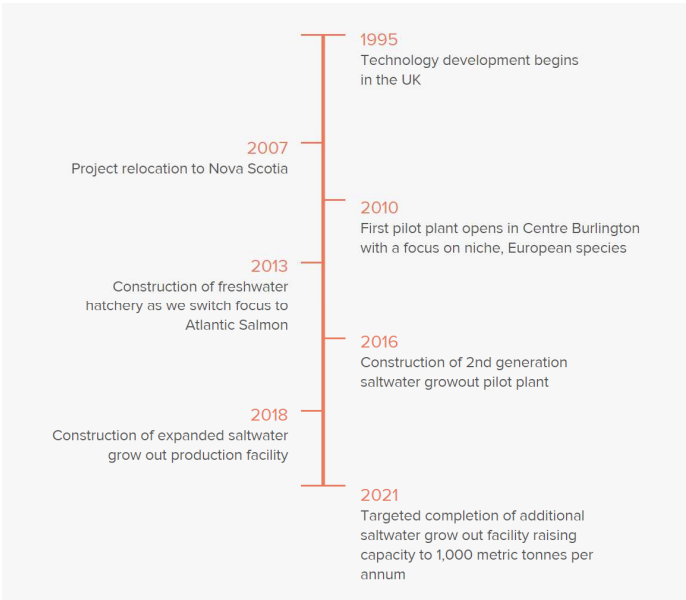
Smøgenlax	Sweden	RAS
Planned capacity: **6,000 tonnes**	Rating	

A climate-smart salmon developed for a conscious customer group, planned to begin large-scale production from the year 2024.

The facility primarily produces salmon, but the purification process also includes algae cultivation, from which silicon is extracted. In addition, the salmon and algae farming is connected to a biogas plant. The residual products in this process will not be considered waste, but will play a very important role in the production of, among other things, energy, plant power and medicine.

Superior Fresh	USA	RAS
Planned capacity: **680 tonnes**	Rating	

Superior Fresh is a family farm producing certified-organic leafy greens and premium seafood in the Midwest. While other salmon are fed unnatural diets, supplemented with pesticides, antibiotics and GMOs, and hurt natural ecosystems, your Superior Fresh salmon raise the bar on nutrition and sustainability.



Sustainable Blue	Canada	RAS
Planned capacity: **1,000 tonnes**	Rating	

Most land-based aquaculture fisheries recycle some of their water. Unfortunately even discharging only 1% of wastewater back into the environment means that in practice, fish waste is simply more concentrated – amounting to hundreds or even thousands of litres of pure effluent. Sustainable Blue is the world's first closed-loop land-based saltwater fishery that re-uses 100% of it's water, with zero wastewater emissions.

Sustainable Blue Atlantic salmon can be purchased online through retail partners or at any of their local markets.

Strizh-Aqua	Russia	RAS
Planned capacity: **10,000 tonnes**	Rating	

Russian startup Strizh-Aqua HUB, in partnership with Israel-based AquaMaof Aquaculture Technologies, signed a memorandum of understanding to establish a recirculating aquaculture system growing Atlantic salmon in the Krasnodar region, aiming primarily at the booming market of southern Russia.

The first phase of the farm was planned to be completed in 2023 or 2024, with a planned annual output of 5,000 metric tonnes. The capacity can then be further expanded to 10,000 MT a year.

Svensk Lax (RE:OCEAN)	Sweden	RAS
Planned capacity: **10,000 tonnes**	Rating	

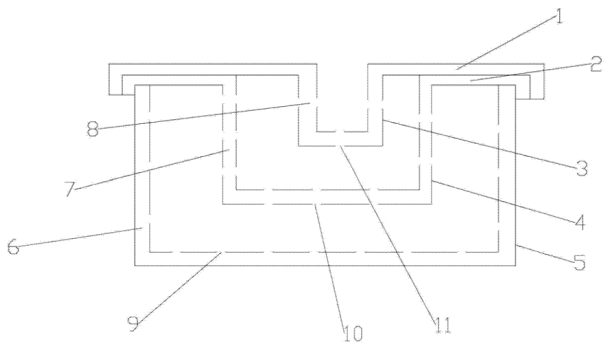
RE: OCEAN is changing that by building a large-scale and sustainable facility where salmon will be grown on land in a sea-like environment. Some 10,000 tonnes of salmon are set to be produced annually as early as 2026.

One of the largest investments in food in the country amounting to more than SEK 2 billion.

20/12/2022: received NOK 500 million in support from the EU's investment bank.

Swiss Lachs	Switzerland	RAS
Planned capacity: **2,300 tonnes**	Rating	

The recirculating aquaculture system technology is the most advanced and elaborated. The water is filtered sevenfold, all the waste is recycled in a local biogas plant. The fish is growing in melted snow entirely free from chemicals and antibiotics. The result is a fresh, healthy fish which is not only fresher, healthier and more sustainable, it also tastes better.



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Tianjin Changjiufada	China	RAS
Planned capacity: **500 tonnes**	Rating	

Termination of patent right due to non-payment of annual fee.

Tomren Fish	Norway	RAS
Planned capacity: **10,000 tonnes**	Rating	

In total, the RAS plant was communicated to have a price tag of between NOK 1.3 and 1.5 billion (2020 data). The company raised NOK 15 million in an issue for engineering.

Tytlandsvik Aqua	Norway	RAS
Planned capacity: **4,500 tonnes**	Rating	

Tytlandsvik Aqua AS is owned by Bremnes Seashore AS, Grieg Seafood Rogaland AS and Vesthavbruk AS with three equal parts.
The facility is located in Hjelmeland municipality in Ryfylke.
TytlandsvikAqua AS is under construction and has the capacity to produce 4,500 tonnes of "large smolt" for delivery to food fish farmers, mainly in Rogaland.

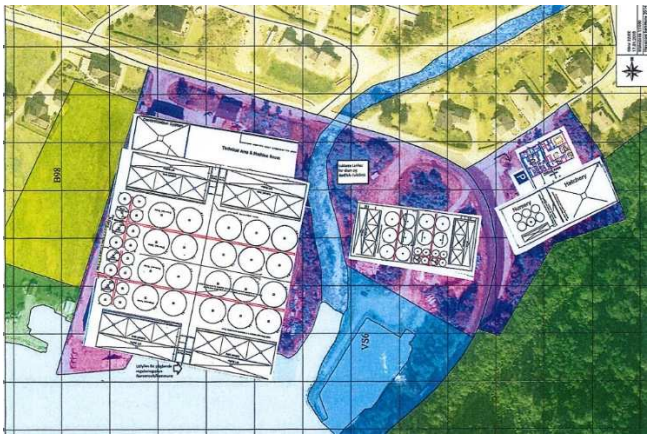
6 halls, 3 completed, the plan is that the whole facility will be completed around 2025.

UPSTREAM SALMON

is in process of liquidation on Jul 16, 2021

Upstream Salmon	South Africa	RAS
Planned capacity: **2,000 tonnes**	Rating	

Is in process of liquidation since July 16, 2021.



Vadheim Akvapark	Norway	RAS
Planned capacity: **6,000 tonnes**	Rating	

Vadheim Akvapark received a license to produce up to 6,000 tonnes of fish in a facility, which will be located in the business park in Vadheim in Høyanger municipality. The company is owned by the Danish feed producer Aller Aqua (66 per cent) and Hjetland Industripark (34 per cent). The latter is wholly owned by Høyanger municipality.

The idea for Vadheim Aquapark is to build a facility that covers the entire production from roe to ready-for-slaughter fish, but first the post-smolt plans must be realised. The company aims to get started with the construction of the post smolt plant and is planning to spend between NOK 150 and 250 million.

Viking Labels	Dubai	RAS
Planned capacity: **50,000 tonnes**	Rating	

Vikings Label, a company majority-owned by Norwegian investors, is planning to set up the country's first salmon farming-project with an aim to supply Saudi consumers with as much as 5,000 tons of the cold-water fish each year by 2023.

The first step of a three-year construction plan is set to begin with a 5,000-ton salmon RAS facility worth USD 100 million.

Viking Aqua	Norway	RAS
Planned capacity: **33,000 tonnes**	Rating	

Former Sande Aqua AS

The Company has been granted a concession to produce 33,000 tonnes of Atlantic salmon farmed on land in Skipavika, thereof 5,600 tonnes post-smolt and 27,400 tonnes of harvest-sized salmon.
2023: Construction phase 1
2024: Construction phase 2
2025: Production Phase 1
2027: Production Phase 2

West Coast Salmon	USA	RAS
Planned capacity: **50,000 tonnes**	Rating	

Norway based West Coast Salmon AS, along with its US operating subsidiaries plans to build and operate an industrial scale land-based Atlantic salmon operation outside of Reno, Nevada. The first phase is designed to deliver close to 14k tonnes of production capacity (HOG, per annum “steady state”) in the first half of 2025, serving fresh and sustainably raised Atlantic salmon to health and environmentally conscious US West Coast consumers. WCS’ business plan consists of three development phases for up to a total of around 50k tons HOG production.

World Heritage Salmon	Norway	RAS
Planned capacity: **100,000 tonnes**	Rating	

Hofseth has purchased an abandoned olivine mine at Sunnylvsfjorden, close to the Geirangerfjord World Heritage Site, with the intent of building a flowthrough farm that will produce 100,000 metric tons of salmon per year. The new venture, named World Heritage Salmon, is strategically placed near Hofseth’s processing facilities. However, due to the unique location of the proposed farm, it is subject to a complex application process involving special environmental and emissions permits.

Whole Oceans	USA	RAS
Planned capacity: **50,000 tonnes**	Rating	

Whole Oceans is a Maine company, on track to become America's premier, land-based producer of sustainable farm-raised Atlantic salmon.

The company, which is owned by Auburn, Indiana-based Emergent Holdings, first announced a plan to build the farm at the site of a former paper mill site at a cost of USD 250 million (EUR 203 million), with the initial goal of producing 5,000 metric tons (MT) of Atlantic salmon annually, and eventually expanding to produce up to 50,000 MT. But the project has been on hold for two years, despite receiving approval from the Bucksport Planning Board and the Maine Department of Environmental Protection in 2019.

Årdal Aqua	Norway	RAS
Planned capacity: **15,000 tonnes**	Rating	

Årdal Aqua will build a large smolt plant close to the smelter in Sauda. The investment has a framework of NOK 600 million.
Årdal Aqua is owned one third by Grieg Seafood, one third by the smolt and post-smolt company Vest Havbruk and one third by the Stavanger-based investor group Omfar.
Årdal Aqua is also engaged in a land-based breeding facility for smolt and food fish in Årdal in Rogaland. Here they will produce at least 3,000 tonnes of post-smolt annually and "test food fish on land".

Øygarden Seafood	Norway	RAS
Planned capacity: **28,600 tonnes**	Rating	

Planned to be identical to Averøy plant, operation by Trond Haugland and Geir Nordahl-Pedersen.
Hard to find more information on the project besides the article that the farm is struggling to receive the approval.

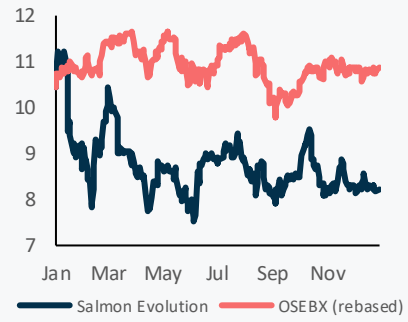
Salmon Evolution – BUY, TP: NOK 11/sh (prev. BUY 11)

Announcements since our last comment and 4Q preview

Key share data	
Sector	Consumer Staples
Bloomberg	SALME NO
Market Cap (NOKm)	2,835
Net debt (NOKm)	44
EV (NOKm)	2,879
Net debt / Equity	3%
Issued shares (mill.)	346

Target price	**11.00**
Last share price	**8.20**
Last recommendation	**BUY**

Share price

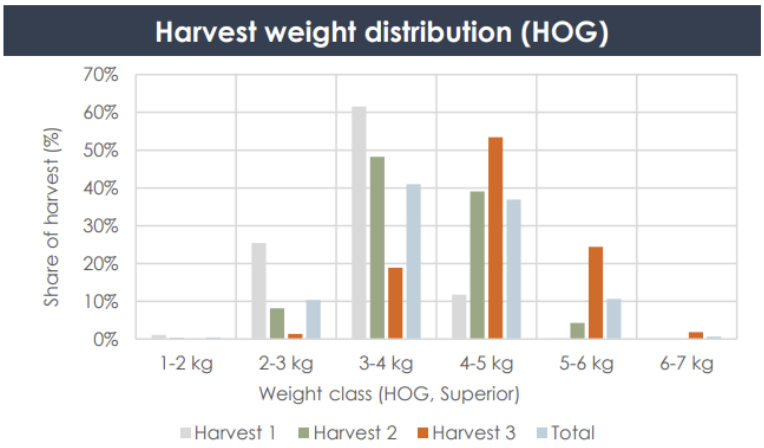


Performance	1m	3m	12m
SALME	-1%	-4%	-21%
OSEBX	0%	6%	4%

Upcoming events	
4Q22 Report	February 8, 2023

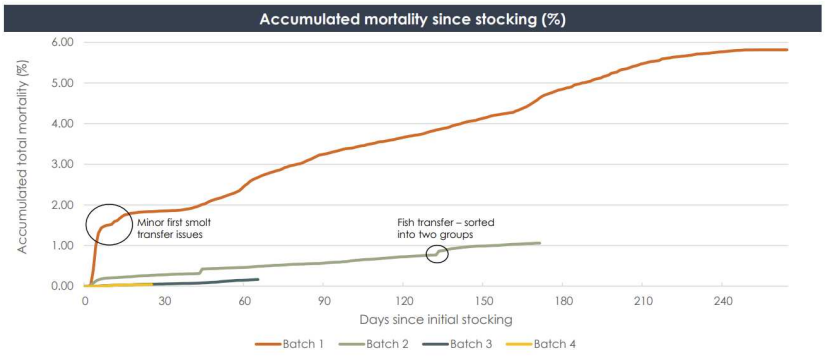
4Q operational update

Salmon Evolution issued the 4Q22 operational update on 4th January 2023. The total batch 1 harvest volumes were reported of around 340 tonnes and of an average weight of 3.75kg HOG (around 4.5 kg Live weight). However, we find even more important the harvest weight distribution comparison of different batches, which clearly shows that with every new batch the average harvest weight significantly increases. The last harvesting round was said to be with less than 2% below 3 kg HOG and around 80% above 4 kg HOG.



The company also mentioned average realized price of NOK 75/kg and NOK 78/kg for Superior 3+ kg HOG and very good feedback from the customers with harvest volumes sold worldwide across different segments and channels – product is proven to be well suited for both conventional cooking, raw consumption and smoked. If one wishes to taste the salmon of Salmon Evolution, there is an opportunity to do this either in the Meny shops in Oslo or in some Japanese restaurants.

The other important thing to report was the change in mortality levels in the batches. Although the first batch recorded a mortality of less than 6%, this might be an exception, as the second batch is at 1% with less than half a way to go, while the third and fourth batches are scrapping the bottom in the mortality chart.



First recurring revenues in 4Q projected

Revenues from Kraft Laks are expected to remain somewhat inconsistent and might bring some disparity in estimates in the short period. However, the 4Q22 should mark the first revenues from the sale of the in-house salmon, which is the largest milestone for the land-based farmer. Following the guided 340 tonnes and NOK 75-78/kg price, we anticipate NOK 26m in revenues. We also are looking favorably towards the next year, where we should gradually move to the full usage of the production capacity.

There are several triggers upcoming: Phase 2 construction should commence in 2023 and the company will need additional funding to complete it, but the timing is to be decided. Then there should come a decision on the potential expansion in the US or Canada.

Valuation

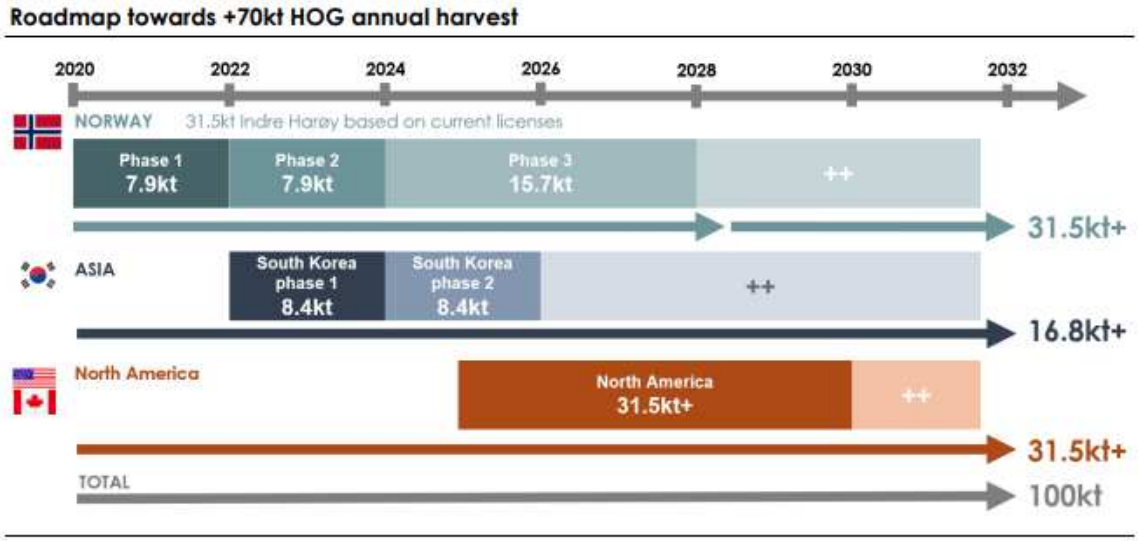
We did not change the Target Price for Salmon Evolution stock and still state that in our opinion the share is underpriced, therefore Buy recommendation @ NOK 11/sh (modest 10% discount to DCF) is reiterated. There are positive triggers for the stock upcoming and we leave both the potential expansion to North America and the further expansion towards the 100,000 tonnes for the upside.

2Q and 3Q updates

2Q update: More details on North American expansion while the fish is nicely growing

The reported figures were in line with our expectations, but it is still not about this. More importantly, the fish from the first batch were said to be growing at a pace exceeding expectations and have reached around 2.3kg on average as per 15 August with low mortality numbers. This is on track for the first commercial harvest in 4Q22, but the company already made the tasting and confirms the good quality of the product. The growth and the taste are the indications of a concept, water quality and fish welfare. In July the company also released the second smolt batch, again, everything according to plan, which tends to grow even faster than the first batch with again a very low mortality level. Two more releases are scheduled for the remainder of 2022.

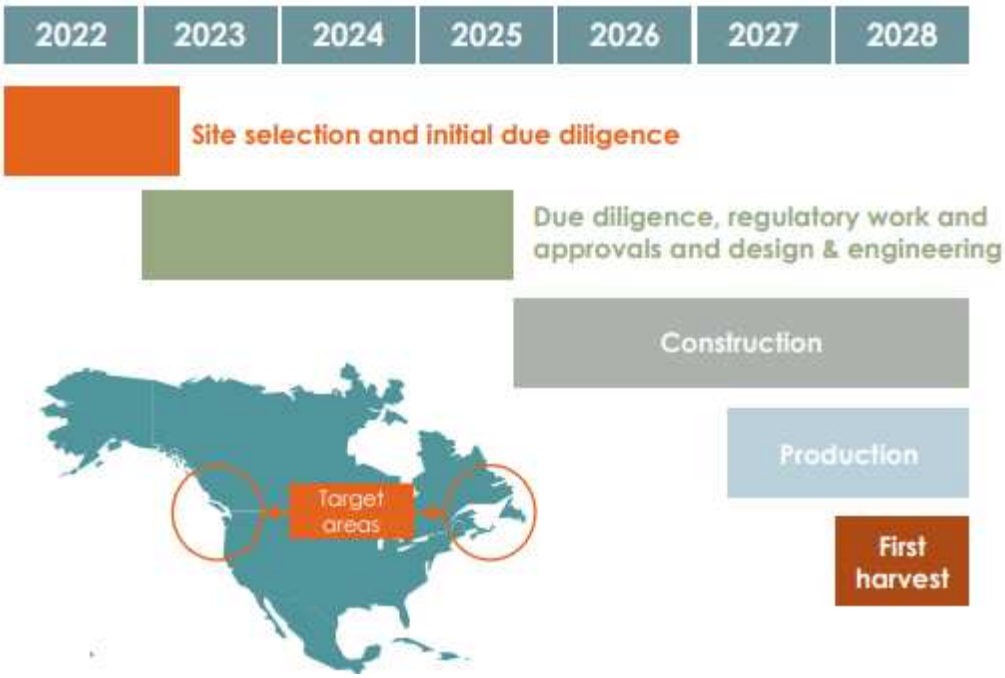
Salmon Evolution has initiated a process with the aim of expanding its farming operations into North America and at the same time raising its production capacity target to 100,000 tonnes HOG by 2032. With the processes in Norway and South Korea underway, the company is evaluating potential production sites in North America on biological, technical and regulatory basis. The company expects to select the site by the end of 2022 and to start the construction in 2025 or 2026 with the plans to build a full-scale 31.5 thousand tonnes HOG facility.



3Q update: And so it begins

We have had similar figures predicted in our model as the company reported. The revenues phase, however, is approaching as the first harvest batch was completed early November with the remainder of batch 1 to be harvested during 4Q22 and it is expected to reach the average harvest weight of around 4kg HOG for the batch as a whole. The biological performance for the fish was said to be continuously strong and the quality testing revealed good filet quality and taste. Mortality levels remains low. New smolt release from batch 2 followed with 200,000 smolt with an average weight of 220 grams stocked late October.

Operations in Norway are only one part of the company. Processes in South Korea are continuing as previously planned with the regulatory approvals and dialogue with Korean authorities. Construction of smolt facility is targeted to start during 1Q23 and the grow-out facility in mid-23. As for the move to North America, the company is actively evaluating the potential production sites both on the west and east coast. The current focus is centered on site selection processes including fatal flaw analyses of both biological, technical and regulatory aspects. More detailed timeline was provided in the report.



DCF model

NOKm	4Q22E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Revenues	26	240	730	1,630	1,709	2,297	2,715	2,854	2,854
EBIT	11	121	355	774	719	987	1,171	1,233	1,233
Tax on EBIT	0	-27	-78	-170	-158	-217	-258	-271	-271
NOPLAT (+)	**11**	**95**	**277**	**603**	**561**	**770**	**914**	**961**	**961**
Depreciation & amortization (+)	1	13	51	93	147	186	200	221	256
Capital expenditure (-)	-80	-1,077	-1,042	-605	-854	-952	-658	-478	-256
Change in working capital (- or +)	0	-137	-47	-47	-19	-19	-33	-4	-5
Free Cash Flow to the Firm	**-68**	**-1,106**	**-760**	**45**	**-165**	**-15**	**422**	**700**	**957**
NPV of FCFF	-66	-971	-601	32	-106	-9	220	329	405

Assumptions	
L.t. growth	2.5%
Tax rate	22%
# shares, m	**345.8**
WACC	**11%**

Valuation, NOKm	
Net debt	44
Minority interest	0
NPV cash flow	
4Q22E - 2030E	-766
2031E -	4,878
Total NPV cash flow	4,112
Equity value	4,068
Value per share, NOK	**12**

Sensitivity analysis

NOK/share		L.t. growth rate				
	NOK 12	**1.5%**	**2.0%**	**2.5%**	**3.0%**	**3.5%**
WACC	**9%**	16	18	19	21	23
	10%	13	14	15	16	18
	11%	10	11	**12**	13	14
	12%	8	9	9	10	11
	13%	6	7	7	8	8

	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Revenues	45	240	730	1,630	1,709	2,297	2,715	2,854	2,854
EBITDA	-33	135	407	867	866	1,173	1,371	1,454	1,489
EBIT	-30	121	355	774	719	987	1,171	1,233	1,233
Net Profit	-18	88	266	592	549	758	902	949	949
Volumes, kt									
Norway	0.3	3	8	16	20	24	30	32	32
South Korea	0	0	0	4	4	8	8	8	8
Total	0.3	3	8	20	24	32	38	40	40
EBIT/kg									
Norway	neg	46	44	39	31	31	31	31	31
South Korea	0	0	0	40	30	30	30	30	30

Profit & Loss (NOKm)	2018	2019	2020	2021	2022E	2023E
Operating revenues	**1**	**-0**	**1**	**12**	**45**	**240**
Operating expenses	-3	-12	-18	-48	-79	-105
EBITDA (adj)	-2	-12	-17	-36	-33	135
Depreciation & amortisation	-	-0	-1	-2	-6	-13
Operational EBIT	**-2**	**-12**	**-18**	**-38**	**-39**	**121**
Non-recurring items and fair value adj.	-	-	-	-	9	-
EBIT	-2	-12	-18	-38	-30	121
Net interest & other financial effects	-0	1	1	5	14	-9
Pre-tax profit	**-2**	**-11**	**-17**	**-33**	**-16**	**112**
Minority interests	-	-	-	-	-	-
Taxes	-	-	-	-	-2	-25
Profit after tax	**-2**	**-11**	**-17**	**-33**	**-18**	**88**

Balance sheet (NOKm)	2018	2019	2020	2021	2022E	2023E
Deferred tax asset	-	-	-	-	1	1
Intangible assets	-	-	0	63	63	63
Plant, Property & Equipment	1	26	220	987	1,684	2,747
Right-to-use Asset	-	1	2	2	11	14
Other financial assets	-	-	-	26	25	27
Non-current assets	**1**	**27**	**222**	**1,078**	**1,783**	**2,852**
Inventory	-	-	-	15	49	49
Receivables	1	3	23	107	68	30
Other current assets	-	-	-	-	-	-
Cash and cash equivalents	0	21	648	506	386	874
Current assets	**1**	**24**	**670**	**628**	**504**	**953**
Total assets	**2**	**50**	**893**	**1,705**	**2,287**	**3,805**
Shareholders equity	-1	38	788	1,291	1,578	1,666
Non-controlling interests	-	-	-	-	-	-
Total equity	**-1**	**38**	**788**	**1,291**	**1,578**	**1,666**
Deferred tax liability	-	-	-	7	-	-
Long-term interest bearing debt	2	2	-	220	478	2,078
Other long-term liabilities	-	0	1	1	15	15
Non-current liabilities	**2**	**2**	**1**	**228**	**493**	**2,093**
Current interest bearing debt	-	0	40	13	23	23
Trade payables	0	8	60	162	180	5
Other current liabilities	2	2	3	12	15	15
Current liabilities	**2**	**11**	**103**	**187**	**217**	**43**
Total liabilities	**3**	**12**	**104**	**415**	**711**	**2,136**
Total liabilities and equity	**2**	**50**	**893**	**1,705**	**2,289**	**3,802**

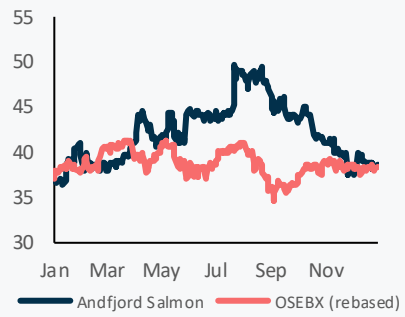
Andfjord Salmon – BUY, TP: NOK 55/sh (prev. BUY 55)

Announcements since our last comment and 4Q preview

Key share data	
Sector	Consumer Staples
Bloomberg	ANDF NO
Market Cap (NOKm)	1,584
Net debt (NOKm)	-33
EV (NOKm)	1,551
Net debt / Equity	-7%
Issued shares (mill.)	36

Target price	**55.00**
Last share price	**38.60**
Last recommendation	**BUY**

Share price

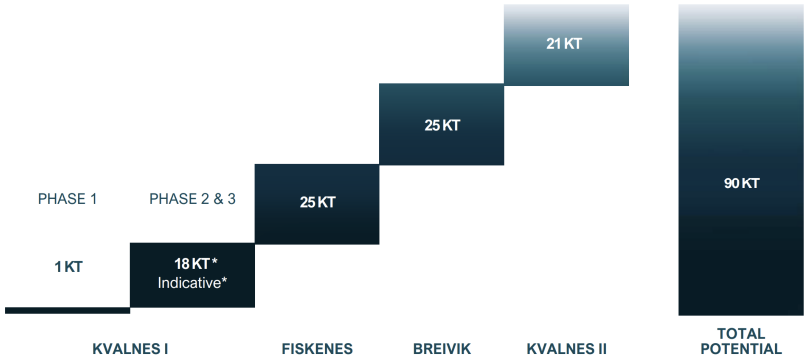


Performance	1m	3m	12m
ANDF	1%	-13%	4%
OSEBX	0%	6%	4%

Upcoming events	
4Q22 Report	March 16, 2023

No major announcements after 3Q report

As Andfjord Salmon did not issue any major announcements after reporting 3Q22 results (which are commented below), we would like to have a reminder here of the situation of the company. Despite the long-term plan being on display for ages, there was no concrete timeline directed towards the expansion. However, this might change very soon as the company said that they "in due course" invite shareholders to a capital markets update and we expect two things from it: firstly, the timeline and secondly, the comment about the financing situation of Phase 2 and 3 of Kvalnes I plant. With the first harvest of Phase 1 expected in mid-23, Andfjord Salmon, in our view, will have an even better proof-of-concept than they had currently with the celebrity chef tasting performed. This might help to convince the investors, as the company is in a very high need of further financing to continue building the facilities. Based solely on our draft calculations, Andfjord Salmon is in need of around NOK 400m and if the timeline is not pushed forward too much, the company would need the funds in 2023 already.



Of course, zero revenues in 4Q projected

With zero revenues in 4Q projected, we anticipate to see a bit lower costs QoQ, more in line with the previous quarters, but the more representative picture towards the earnings should come towards the end of 2023 with the first commercial sales.

Valuation

We did not change the Target Price for Andfjord Salmon stock and still state that in our opinion the share is underpriced, therefore Buy recommendation @ NOK 55/sh is reiterated. What we most like about the company is the Flow-through technology. It is very straightforward and easy to handle. Less moving parts means fewer points of possible failures. Also, the proof of concept is already tested by a professional chef and this brings more certainty to the case. Not to be forgotten, the excellent KPI numbers: the company has the lowest electricity consumption and mortality levels in the sector.

2Q and 3Q updates

2Q update: Fish is growing well

With zero revenues until the first harvest in 2023, the focus is on the cost side, which came somewhat stronger than we predicted. EBIT of NOK -8.4m (NOK -10m expected by us) and the bottom line of NOK -9.3m (NOK -10.6m expected by us) were reported. The first pool is operational from the start of the year with all the systems up and running, while operating personnel was working in shifts as if there were fish in the pool, thus the YoY cost increase was seen, nothing dramatic, though.

June marked an important milestone for Andfjord Salmon with the smolt release by the end of the month. Since then, the fish was said to be growing successfully, reaching more than 400 grams of weight on average in mid-September (up from 120 grams when released). What is even more encouraging is the industry-leading survival rate of released smolt that is still above 99%. As mentioned previously, the first harvest is expected in mid-2023.

The first pool at Kvalnes is just the beginning for the company. For the Phase 2 in Kvalnes, the area was said to be already scraped and the excavation works ongoing. In June, Andøy municipal council approved Andfjord Salmon's zoning plan application for the development of a land-based fish farming facility at Breivik, Andøya. The production volume target for the new facility is 25,000 tonnes HOG. While the decision on Fiskenes, which had some issues with the nearby airport security, is expected in 2H22.

3Q update: Fish growth seems strong, but the time to finance Phase 2 approaches

EBITDA of NOK -14.7m vs. NOK -11.4m in 3Q21, also including NOK -2.2m related to the change in biomass, does not scare us away at this stage of development and we continue to monitor the salmon growth situation more closely. The company communicated that the fish is growing faster than expected, displaying such a good appetite that close to zero feed waste is left in the pool. As of 30 November, the average weight per fish reached 1.35kg. What is even more important is the very low mortality rates of 1.3% as of today. Natural biological conditions and little stress make the fish thrive in the pool. Andfjord Salmon with its Flow-Through technology is also a leader in terms of energy consumption – the company stated to be using 1kwh per kg of fish, compared to RAS numbers more like 4-9kwh/kg. On top of all, Andfjord Salmon organized the first tasting by the top chef Øyvind Bøe Dalelv, who highlighted the texture, colour and taste.

In parallel with the first production cycle at Kvalnes, Andfjord Salmon is currently working on detailing the process for Kvalnes Phase 2 and Phase 3, which aim to increase production volume at Kvalnes from 1,000 tonnes HOG to 19,000 tonnes HOG in two steps. The significant amount of groundwork is already completed – two pools are excavated much quicker than the first one. The company is about to enter the final stages of contract discussions with suppliers regarding the most cost-efficient plan for development. Andfjord Salmon will in due course invite shareholders to capital markets update to present the build-out plan and timeline for Kvalnes Phase 2.

Not only the Kvalnes Phase 2 decisions are awaited in 2023. The company shall also receive a decision from the Andøy municipal council on the situation in Fiskenes, where the plans for 25,000 tonnes HOG salmon are laid out. Also, probably the most important milestone will be the first harvest which is targeted in mid-2023.

DCF model

NOKm	4Q22E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Revenues	0	40	75	882	2,640	2,640	4,140	4,140	5,400
EBIT	-9	-22	-10	378	840	800	1,260	1,220	1,573
Tax on EBIT	0	0	0	-83	-185	-176	-277	-268	-346
NOPLAT (+)	**-9**	**-22**	**-10**	**295**	**655**	**624**	**983**	**952**	**1,227**
Depreciation & amortization (+)	2	7	32	32	72	112	152	192	259
Capital expenditure (-)	-103	-412	-725	-881	-800	-800	-848	-896	-259
Change in working capital (- or +)	10	0	0	-96	-19	0	-63	0	-53
Free Cash Flow to the Firm	**-101**	**-428**	**-703**	**-650**	**-92**	**-64**	**224**	**247**	**1,174**
NPV of FCFF	-98	-367	-534	-437	-55	-34	104	102	428

Assumptions	
L.t. growth	2.5%
Tax rate	22%
# shares, m	**41.0**
WACC	**13%**

Valuation, NOKm	
Net debt	-33
Minority interest	0
NPV cash flow	
4Q22E - 2030E	-890
2031E -	4,181
Total NPV cash flow	3,291
Equity value	3,324
Value per share, NOK	**81**

Sensitivity analysis

NOK/share		L.t. growth rate				
	NOK 81	1.5%	2.0%	2.5%	3.0%	3.5%
WACC	11%	109	117	126	136	147
	12%	88	94	101	108	116
	13%	71	76	**81**	87	93
	14%	58	61	65	70	75
	15%	47	49	53	56	60

	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Revenues	0	40	75	882	2,640	2,640	4,140	4,140	5,400
EBITDA	-37	-16	22	410	912	912	1,412	1,412	1,832
EBIT	-42	-22	-10	378	840	800	1,260	1,220	1,573
Net Profit	-46	-20	-10	292	653	621	980	949	1,224
Volumes, kt									
Norway	0	1	1	13	44	44	69	69	90
EBIT/kg									
Norway	neg	neg	neg	30	20	20	20	20	20

Profit & Loss (NOKm)	2019	2020	2021	2022E	2023E
Operating revenues	**-**	**0**	**-**	**-**	**40**
Operating expenses	-8	-19	-34	-37	-56
EBITDA (adj)	-8	-19	-34	-37	-16
Depreciation & amortisation	-0	-0	-1	-8	-7
Operational EBIT	**-8**	**-20**	**-35**	**-45**	**-22**
Non-recurring items and fair value adj.	-	-	-	2	-
EBIT	-8	-20	-35	-42	-22
Net interest & other financial effects	2	0	-1	-3	-3
Pre-tax profit	**-6**	**-19**	**-36**	**-46**	**-26**
Minority interests	-	-	-	-	-
Taxes	-	-	-	-	6
Profit after tax	**-6**	**-19**	**-36**	**-46**	**-20**

Balance sheet (NOKm)	2019	2020	2021	2022E	2023E
Deferred tax asset	-	-	-	-	-
Intangible assets	1	1	3	3	4
Plant, Property & Equipment	55	224	429	602	1,008
Right-to-use Asset	-	-	-	-	-
Other financial assets	0	0	0	0	0
Non-current assets	**55**	**225**	**432**	**605**	**1,012**
Inventory	-	-	-	-	-
Receivables	3	18	34	15	15
Other current assets	-	-	-	0	0
Cash and cash equivalents	94	149	15	45	20
Current assets	**96**	**166**	**49**	**60**	**35**
Total assets	**152**	**392**	**480**	**666**	**1,047**
Shareholders equity	147	354	323	488	468
Non-controlling interests	-	-	-	-	-
Total equity	**147**	**354**	**323**	**488**	**468**
Deferred tax liability	-	-	-	-	-
Long-term interest bearing debt	-	-	39	109	509
Other long-term liabilities	-	4	59	59	59
Non-current liabilities	**-**	**4**	**99**	**168**	**568**
Current interest bearing debt	-	-	-	-	-
Trade payables	4	30	50	11	11
Other current liabilities	1	4	9	2	2
Current liabilities	**5**	**33**	**58**	**13**	**13**
Total liabilities	**5**	**38**	**157**	**181**	**581**
Total liabilities and equity	**152**	**392**	**480**	**669**	**1,049**

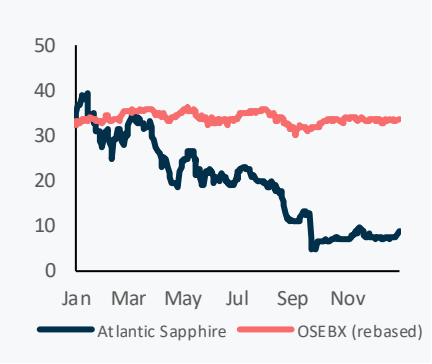
Atlantic Sapphire – HOLD, TP: NOK 9/sh (prev. HOLD 7.5)

Announcements since our last comment and 2H preview

Key share data	
Sector	Consumer Staples
Bloomberg	ASA NO
Market Cap (NOKm)	1,284
Net debt (NOKm)	370
EV (NOKm)	1,655
Net debt / Equity	1.42
Issued shares (mill.)	153

Target price	**9.00**
Last share price	**8.50**
Last recommendation	**HOLD**

Share price

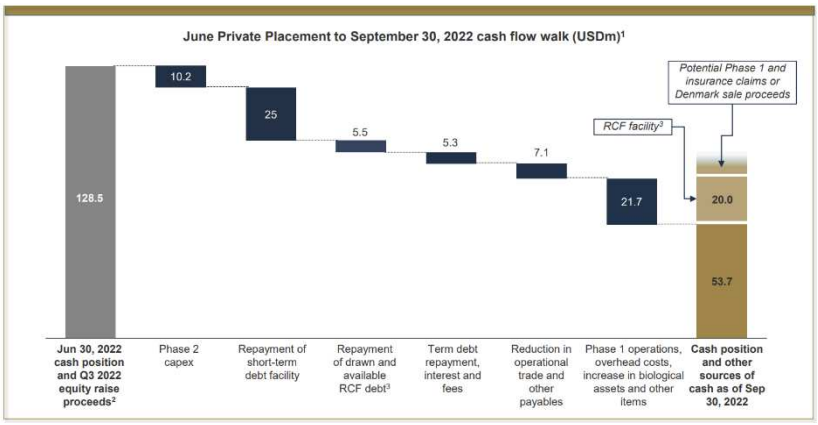


Performance	1m	3m	12m
ASA	12%	78%	-74%
OSEBX	0%	6%	4%

Upcoming events	
1H22 Report	August 26, 2022

Operational 3Q22 update released

The company reports twice a year, but we have issued an update on Atlantic Sapphire after the announcement about the biological issues, it is included in this report below. However, the latest important announcement from the company was an operational update of 3Q22. The harvest volume for 3Q22 was said to be around 1,050t HOG, which is in line with the previous guidance and our estimates. Regarding the 2H22 biological issues, Atlantic Sapphire announced, that the fish in certain independent systems were harvested out at sub-optimal weights after experiencing loss of appetite and elevated mortality. The cause of the early harvest has been thoroughly analyzed and has been identified as an issue caused by sub-optimal operational procedures. No disease or issues with any farm-wide infrastructure or production inputs, such as intake water or feed were recorded. The company said that several actions were taken in regard to the incidents, that is adjustments to automation and equipment and optimization of farm operations and protocols.



2H expected slow, with unexpected mortality significantly impacting the numbers

We anticipate USD 12m in revenues for 2H22 based on the company's guided harvest figures and expectations. However, the cost side should be relatively large especially for the 3Q22 due to the aforementioned incident. The company announced the cash flow movement during the 3Q22, which shows more than USD 20m operational and overhead costs, increase in biological assets and other items, in addition to larger than usual debt repayment.

Capex, on the other hand, was limited in 3Q as Atlantic Sapphire has clearly stated that the phase 2 construction spending will be kept at a minimum until the break-even level in phase 1 is accomplished, this being one of the covenants for the company. Although Atlantic Sapphire is aiming for a full production by the end of 1Q23, which might bring the covenants above the break-even line, but we would expect that more into the second half of this year.

Valuation

After the dramatic slash in the Target Price by the end of October, we stick to our view and reiterate Hold recommendation. The company seems to be struggling operationally, but as soon as the technical problems are solved, the demand in the US market and the potential price premium should benefit Atlantic Sapphire.

1H and Company updates

1H update: In-line figures, many adjustments to Phase 2

Following the 400t harvest in 2Q22, Atlantic Sapphire reported USD 9.7m in revenues for the first half of this year, in line with our USD 9.3m expectations. Adjusted for USD 25.3m related to the insurance proceeds of Denmark facility and USD 1.9m of fair value adjustment of biological assets, EBIT came in at USD -40m (USD -46m anticipated by us). The harvest volume for 1H was stated at 1,217 tonnes HOG (1,275t in 1H21, but this included Denmark facility), but the one element to blame was the cost inflation across most key production inputs.

Atlantic Sapphire issued significant updates on the timeline and budget for the Phase 2. Inflationary pressure increased the CAPEX from budgeted around USD 225m in total (last monthly update) to USD 275m-300m current estimates. The company also stated that they are prioritizing quality and cost optimization over the building speed and are currently expecting to complete the Phase 2 in 1H24 (1H23 previously). Atlantic Sapphire stated that they are working to minimize the impact of construction and global supply chain issues, like concrete delivery delays, to the timeline.

The company expects to hit a steady state of standing biomass, which is when annualized biomass gain and harvest volumes are estimated to be around 9,500t HOG, early in 4Q22. The harvest volume guidance this time is related to the number of fish: it is expected to harvest 800,000-1,000,000 of fish in 2H22 with a minimum of 2/3 in 4Q22. Atlantic Sapphire considers a live fish weight of approximately 4 kg to be the optimal harvest weight, while 64% of the number of fish is expected to reach the optimal harvest weight, thus we are looking at 3-3.5 thousand tonnes in 2H22.

Company update: Still struggling

Atlantic Sapphire posted an update on expected revenues for 2H22 which came in like a profit warning and brought some negative memories as ASA had lots of operational problems a couple of years ago, but we thought of them to be over with a higher focus on problematic areas. Weak guidance due to increased mortality in certain systems followed the 1H22 update with significant adjustments to the timeline. We reduced our estimates and the Target Price to NOK 7.5/sh. Hold is reiterated due to no drama with financing, yet the company really needs to step up operationally.

It was announced that due to above normal and increasing mortality in certain systems, fish from these systems have been harvested earlier and

at a lower average weight than originally planned. The company's average harvest weight in the second half of 2022 is therefore expected to be around 2 kg HOG, while previously Atlantic Sapphire said that a live fish weight of approximately 4 kg (~3.4kg HOG) is the optimal harvest weight. The revenue for the second half of 2022 is guided to be around the same level as in the first half of 2022 – which was USD 9.7m. The company continues to investigate the cause of the above normal mortality in certain fish systems to be able to take further corrective actions and minimize future mortality.

In its 1H22 report, Atlantic Sapphire issued significant updates on the timeline and budget for the Phase 2. Inflationary pressure increased the CAPEX from budgeted around USD 225m in total to USD 275m-300m current estimates. The company also stated that they are prioritizing quality and cost optimization over the building speed and currently expecting to complete the Phase 2 in 1H24 (1H23 previously). Atlantic Sapphire stated that they are working to minimize the impact of construction and global supply chain issues, like concrete delivery delays, to the timeline. We adjusted the timeline in our model pushing forward the expected harvest figures and Capex.

DCF model

USDm	2H22E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Revenues	12	79	101	198	298	298	501	754	1,007
EBIT	-38	-20	-7	67	145	129	198	298	418
Tax on EBIT	0	0	0	-15	-32	-28	-44	-66	-92
NOPLAT (+)	**-38**	**-20**	**-7**	**52**	**113**	**101**	**154**	**232**	**326**
Depreciation & amortization (+)	8	20	28	40	52	67	89	111	124
Capital expenditure (-)	-25	-128	-154	-180	-180	-325	-325	-325	-124
Change in working capital (- or +)	-13	-10	1	-22	0	0	-12	-15	-16
Free Cash Flow to the Firm	**-69**	**-139**	**-132**	**-110**	**-15**	**-157**	**-94**	**3**	**310**
NPV of FCFF	-65	-117	-100	-74	-9	-84	-45	1	118
NPV of FCFF (NOK)	**-639**	**-1,148**	**-975**	**-724**	**-89**	**-824**	**-440**	**12**	**1,160**

Assumptions	
L.t. growth	2.5%
Tax rate	22%
# shares, m*	**153.3**
USDNOK	**9.8**
WACC	**12%**

**adj. for private placement*

Valuation, NOKm	
Net debt*	-861
Minority interest	0
NPV cash flow	
2H22E - 2030E	-3,668
2031E -	4,778
Total NPV cash flow	1,110
Equity value	1,971
Value per share, NOK	**13**

Sensitivity analysis

NOK/share		L.t. growth rate				
	NOK 13	1.5%	2.0%	2.5%	3.0%	3.5%
WACC	10%	28	31	35	39	44
	11%	17	20	22	25	28
	12%	10	11	**13**	15	17
	13%	4	5	6	8	9
	14%	0	0	1	2	3

USDm	2021	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Revenues	17	21	79	101	198	298	298	501	754	1,007
EBITDA	-84	-64	0	21	107	197	197	287	409	542
EBIT	-132	-50	-20	-7	67	145	129	198	298	418
Net Profit	-133	-59	-24	-9	49	110	97	151	229	323
Volumes, kt										
U.S	2	3	7	9	19	29	29	49	74	99
EBIT/kg (USD)										
U.S	neg	neg	neg	neg	3	5	4	4	4	4

Profit & Loss (USDm)	2018	2019	2020	2021	2022E	2023E
Operating revenues	**0**	**6**	**6**	**17**	**21**	**79**
Operating expenses	-9	-17	-37	-101	-85	-80
EBITDA (adj)	-8	-12	-31	-84	-64	-0
Depreciation & amortisation	-1	-2	-7	-15	-14	-20
Operational EBIT	**-9**	**-14**	**-38**	**-99**	**-78**	**-20**
Non-recurring items and fair value adj.	0	0	-9	-33	28	-
EBIT	-9	-13	-47	-132	-50	-20
Net interest & other financial effects	-2	0	-9	-0	-8	-4
Pre-tax profit	**-11**	**-13**	**-55**	**-133**	**-59**	**-24**
Minority interests	-	-	-	-	-	-
Taxes	-	-	-	-	-	-0
Profit after tax	**-11**	**-13**	**-55**	**-133**	**-59**	**-24**

Balance sheet (USDm)	2018	2019	2020	2021	2022E	2023E
Deferred tax asset	-	-	-	-	-	-
Intangible assets	0	0	3	3	3	2
Plant, Property & Equipment	126	210	257	264	309	418
Right-to-use Asset	-	-	-	-	-	-
Other financial assets	0	16	1	1	1	2
Non-current assets	**126**	**226**	**261**	**268**	**312**	**422**
Inventory	0	3	3	7	5	5
Receivables	1	1	2	1	3	13
Other current assets	6	14	27	19	23	23
Cash and cash equivalents	19	9	29	17	49	106
Current assets	**25**	**27**	**60**	**44**	**79**	**147**
Total assets	**152**	**253**	**321**	**312**	**392**	**568**
Shareholders equity	137	209	255	240	327	303
Non-controlling interests	-	-	-	-	-	-
Total equity	**137**	**209**	**255**	**240**	**327**	**303**
Deferred tax liability	-	-	-	-	-	-
Long-term interest bearing debt	1	28	51	50	-	200
Other long-term liabilities	-	-	3	3	2	2
Non-current liabilities	**1**	**28**	**54**	**53**	**2**	**202**
Current interest bearing debt	0	0	-	0	56	56
Trade payables	13	16	11	19	7	7
Other current liabilities	-	-	0	-	-	-
Current liabilities	**14**	**16**	**11**	**19**	**63**	**63**
Total liabilities	**14**	**44**	**66**	**72**	**65**	**265**
Total liabilities and equity	**152**	**253**	**321**	**312**	**392**	**568**

Nordic Aqua Partners – BUY, TP: NOK 80/sh (prev. BUY 90)

Announcements since our last comment and 4Q preview

No major announcements after 3Q report

As Nordic Aqua Partners did not issue any major announcements after reporting 3Q22 results (which are commented below), we would like to have a reminder here of the situation of the company. Although Nordic Aqua Partners aims for as much as 70,000 tonnes, a very realistic scenario to be encountered over the next several years should be the growth to 20,000 tonnes via three stages of 4,000 tonnes, 4,000 tonnes and 8,000 tonnes respectively. As the eggs in the first stage facility were already introduced in March 2022, this implies the first harvest early 2024.

TIMELINE OF GAOTANG BUILDOUT

Installation of RAS 3 is completed, and installation of RAS 4 will be completed in January 2023. The picture below shows how the construction site looks as of 06/12/2022.

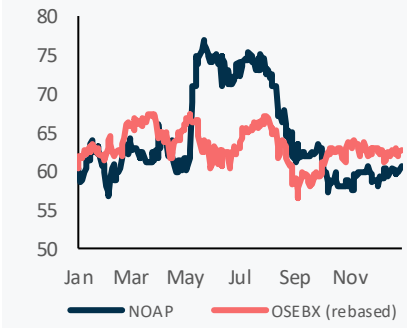
Zero revenues in 4Q projected

With zero revenues in 4Q projected, we anticipate to see a bit lower costs QoQ, more in line with the previous quarters, but the more representative picture towards the earnings should come only at the beginning of 2024 with the first commercial sales.

Key share data	
Sector	Consumer Staples
Bloomberg	NOAP NO
Market Cap (NOKm)	625
Net debt (NOKm)	-305
EV (NOKm)	320
Net debt / Equity	-79%
Issued shares (mill.)	10

Target price	**80.00**
Last share price	**60.80**
Last recommendation	**BUY**

Share price



Performance	1m	3m	12m
NOAP	3%	-4%	1%
OSEBX	0%	6%	4%

Upcoming events	
4Q22 Report	March 2, 2023

Valuation

We have lowered the Target Price for Nordic Aqua Partners seeing that they somewhat increased both the Capex and Opex estimates. Yet, in our opinion the share is still underpriced, therefore Buy recommendation @ NOK 80/sh is reiterated. We have applied a 25% discount to the DCF model to arrive at the Target Price.

2Q and 3Q updates

2Q update: Everything just as planned

The income statement with basically zero revenues brings little importance, but the costs were broadly in line with our expectations, while the guidance for FY22 of a loss of DKK 30-35m was reiterated. The most important thing is that the current project execution was communicated to be solid with the first inlay of eggs in March, then the fry was moved to another facility in according to schedule and will be moved again in October. At the end of August, Batch 2 will be introduced to RAS 01. Biological performance was said to be strong so far, and both mortality and growth have been at better levels than budgeted.

The project continues to develop on time and on budget. Eggs were introduced immediately after the completion of the hatchery, and with an estimated production of two years, this implies the first harvest early 2024. There were no changes in the timeline concerning the second stage, while we find it positive that the first harvest for the third stage was moved half a year earlier, but this might be adjusted again when the discussions with the local government on land area are finalized.

With Covid-19 somewhat contained and war in Ukraine being far and yielding no impact, the company can focus on the fish growth.

3Q update: Unchanged timeline, but higher Capex and Opex expectations

With zero revenues, Nordic Aqua Partners reported EBITDA of DKK -8.6m and the net profit of DKK -9.7m, in line with our expectations and the company's guidance to have DKK -30-35m on the bottom line in 2022. This was guided previously and reiterated in 3Q report, signalling for 4Q to be very similar. The project development was communicated to be ongoing on time and within budget with the completion of administration building, hatchery facility, RAS 1, 2 and 3 buildings, also with the first inlay of eggs in March. The first batch continued its journey to RAS 2 and RAS 3 where the fish currently stays. Batch 2 was introduced to RAS 1 at the end of August, and in September eggs for Batch 3 were introduced to the hatchery. When the company reaches full production capacity in 2024, a total of 8 batches will be in production simultaneously. All this is according to the previously announced timeline and it sometimes was a déjà vu feeling seeing the same slides with the completely unchanged short-term and long-term plans.

What has changed in this report was the Capex and Opex estimates. Due to inflationary pressure, the company increased its Capex estimates for stage 2 and stage 3 from NOK 125/kg to NOK 145/kg (meaning RAS total Capex increased from NOK 2,000m to around NOK 2,320m). Furthermore, Opex projections were upped as well and now the company guides the EBITDA cost for the full project of NOK 44/kg and EBIT cost of NOK 51/kg (NOK 38/kg and NOK 46/kg previously).

The company, as well as we, expects a positive result for the year 2024, when the first harvest will be initiated. Although it was mentioned that the Covid-19 situation in China and the war in Ukraine have not impacted the progress significantly and the equipment needed for construction as per plan is already on site, our estimates will be mostly adjusted following the higher Capex and Opex expectations and this should lead to lower TP for the stock.

DCF model

DKKm	4Q22E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Revenues	0	0	274	260	405	463	1,157	1,157	1,157
EBIT	-8	-41	111	97	116	131	392	392	392
Tax on EBIT	0	0	-25	-21	-25	-29	-86	-86	-86
NOPLAT (+)	**-8**	**-41**	**87**	**76**	**90**	**103**	**306**	**306**	**306**
Depreciation & amortization (+)	0	10	19	24	56	103	103	103	103
Capital expenditure (-)	-44	-140	-371	-792	-474	-52	-103	-103	-103
Change in working capital (- or +)	0	0	-40	-1	-12	0	-33	0	0
Free Cash Flow to the Firm	**-52**	**-171**	**-306**	**-693**	**-341**	**154**	**273**	**306**	**306**
NPV of FCFF	-50	-149	-237	-480	-210	85	135	134	120

Assumptions	
L.t. growth	2.5%
Tax rate	22%
# shares, m	**10.3**
WACC	**12%**
DKKNOK	**1.4**

Valuation, DKKm	
Net debt	-156
Minority interest	0
NPV cash flow	
4Q22E - 2030E	-652
2031E -	1,296
Total NPV cash flow	644
Equity value	800
Value per share, DKK	78
Value per share, NOK	**109**

Sensitivity analysis

NOK/share		L.t. growth rate				
NOK 109		**1.5%**	**2.0%**	**2.5%**	**3.0%**	**3.5%**
WACC	**10%**	159	175	192	212	235
	11%	121	132	145	159	176
	12%	90	99	**109**	120	132
	13%	67	73	81	89	98
	14%	47	53	58	65	72

DKKm	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Revenues	1	0	0	274	260	405	463	1,157	1,157	1,157
EBITDA	-19	-28	-31	130	121	171	235	495	495	495
EBIT	-19	-28	-41	111	97	116	131	392	392	392
Net Profit	-28	-29	-46	82	71	86	98	301	301	301
Volumes, kt										
China	0	0	0	4	4	7	8	20	20	20
EBIT/kg (NOK)										
China	0	0	0	39	34	23	23	27	27	27

Profit & Loss (DKKm)	2019	2020	2021	2022E	2023E
Operating revenues	**-**	**-**	**1**	**0**	**-**
Operating expenses	-6	-19	-19	-28	-31
EBITDA (adj)	-6	-19	-19	-28	-31
Depreciation & amortisation	-0	-0	-0	-0	-10
Operational EBIT	**-6**	**-19**	**-19**	**-28**	**-41**
Non-recurring items and fair value adj.	-	-	-	-	-
EBIT	-6	-19	-19	-28	-41
Net interest & other financial effects	-0	-7	-9	-0	-6
Pre-tax profit	**-6**	**-26**	**-28**	**-29**	**-46**
Minority interests	-	-	-	-	-
Taxes	-	-	-	-	-
Profit after tax	**-6**	**-26**	**-28**	**-29**	**-46**

Balance sheet (DKKm)	2019	2020	2021	2022E	2023E
Deferred tax asset	-	-	-	-	-
Intangible assets	-	-	-	-	-
Plant, Property & Equipment	0	5	112	285	416
Right-to-use Asset	-	-	-	-	-
Other financial assets	-	9	10	11	11
Non-current assets	**0**	**15**	**123**	**296**	**426**
Inventory	-	-	-	-	-
Receivables	0	1	1	1	1
Other current assets	-	-	5	4	4
Cash and cash equivalents	9	400	277	103	226
Current assets	**9**	**400**	**283**	**107**	**230**
Total assets	**9**	**415**	**406**	**403**	**657**
Shareholders equity	9	413	398	376	330
Non-controlling interests	-	-	-	-	-
Total equity	**9**	**413**	**398**	**376**	**330**
Deferred tax liability	-	-	-	-	-
Long-term interest bearing debt	-	-	-	-	300
Other long-term liabilities	-	-	-	-	-
Non-current liabilities	**-**	**-**	**-**	**-**	**300**
Current interest bearing debt	-	-	-	-	-
Trade payables	0	0	7	21	21
Other current liabilities	0	2	1	6	6
Current liabilities	**1**	**2**	**8**	**27**	**27**
Total liabilities	**1**	**2**	**8**	**27**	**327**
Total liabilities and equity	**9**	**415**	**406**	**403**	**657**

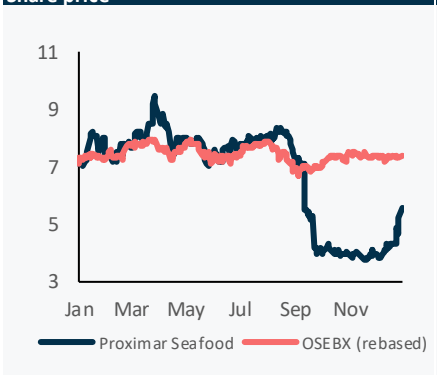
Proximar Seafood – SELL, TP: NOK 5/sh (prev. SELL 5)

Announcements since our last comment and 2H preview

Key share data	
Sector	Consumer Staples
Bloomberg	PROXI NO
Market Cap (NOKm)	222
Net debt (NOKm)	111
EV (NOKm)	333
Net debt / Equity	31%
Issued shares (mill.)	40

Target price	**5.00**
Last share price	**5.58**
Last recommendation	**SELL**

Share price



Performance	1m	3m	12m
PROXI	41%	38%	-21%
OSEBX	0%	6%	4%

Upcoming events	
2H22 Report	February 24, 2023

Eventful half of the year

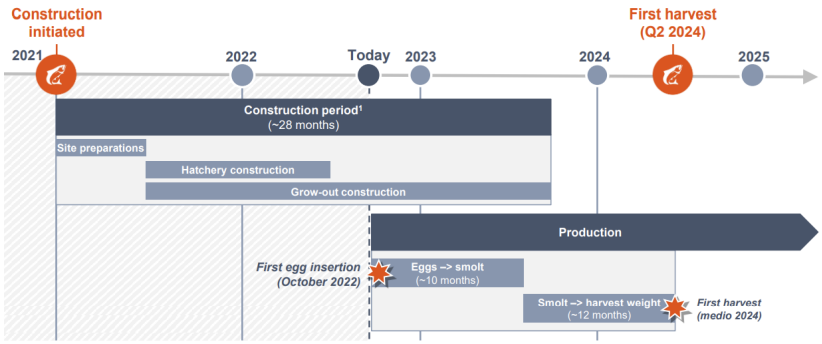
The company reports twice a year, but we have issued two reports on Proximar Seafood after the convertible bond issue and the convertible bond issue's update. As both of them are posted below, here are the further announcements from the company.

Strengthening partnership with Marubeni

Proximar Seafood announced on 17th October that it had successfully raised NOK 250m in a convertible bond, further funding the company's construction and operational start-up of a land-based salmon farming facility at the foot of Mount Fuji in Japan. In conjunction with this, Marubeni Corporation has invested NOK 21m in the convertible bond. Proximar has - from inception – executed on its partnership strategy with relevant parties to secure a strong platform for future operations. Marubeni's investment is in line with this strategy and brings in important dimensions when it comes to marketing and sales and other local synergies in Japan. Marubeni Corporation is one of Japan's largest conglomerates, with extensive business activities and presence worldwide.

Initiated Salmon production

On 28 October 2022 the first eggs were successfully inserted into the company's hatchery in Oyama, Japan. Around 125,000 eggs were inserted in this first batch. The eggs were supplied by Benchmark Genetics and their Icelandic StofnFiskur breeding program. These have shown great performance in land-based facilities, including AquaMaof's R&D facility in Poland. Proximar will insert similar batches into the hatchery each month going forward, enabling continuous harvest from mid-2024.



Received a loan offer from a Japanese bank

Proximar Seafood has, through its subsidiary Proximar Ltd. (Japan), received a loan offer from a Japanese bank for a post-construction loan of JPY 4 billion (NOK ~300 million). The senior secured loan offer was credit approved on 28th of December 2022 and is intended to finance Proximar's facility and production of Atlantic salmon at the foot of Mount Fuji in Japan.

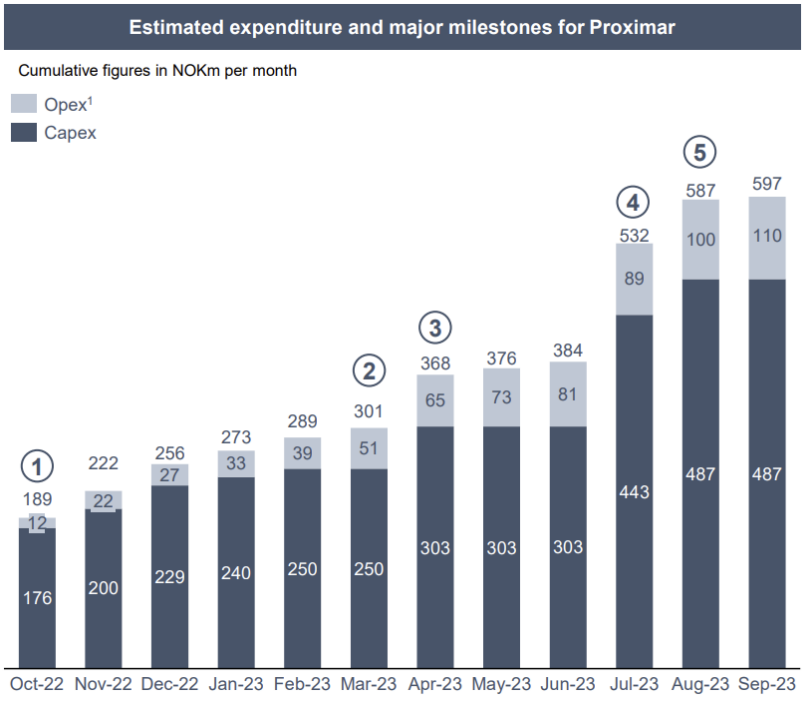
The loan is subject to syndication and certain conditions. As for the syndication, there is already positive interest from other banks and financial institutions. The loan can be available for drawdown in the end of 2024, following the company's first planned harvest mid-2024. The loan also permits further subordinated lending to reach Proximar's debt target. The ongoing discussions with banks and financial institutions cover alternatives for further construction financing as well as post-construction funding. Proximar has previously secured an outstanding loan from JA Mitsui Leasing of JPY 3.25 billion (~NOK 245m), which is required to be refinanced in March 2024. Based on the ongoing dialogues with banks and financial institutions, the company is optimistic on concluding on a debt structure aligned with the previous guidance of approximately 45 percent debt level (~NOK 630m), based on the total project cost. Proximar will evaluate the received offer and the alternatives and provide further update.

Transfer of the first batch of eggs to start feeding

Proximar Seafood announced on 20th January 23, 2023 that the first batch of juveniles has been successfully transferred to the start feeding department and started to take feed. This marked a breakthrough for Proximar's production team, after the first eggs were successfully inserted in the company's hatchery in Oyama, Japan in October 2022. The batch will stay in the first feeding for approximately two months, before the next transfer to the nursery. In the same announcement, the company reiterated Capex level of around NOK 200/kg.

High Opex in 2H22 anticipated

With no revenues for at least a couple of years from now, we anticipate the company to follow the guided rather high operating costs of more than NOK 20m in 2H22. On the other hand, more intensive Capex should be expected towards the end of 2023.



Valuation

The ceiling of the share price is somewhat set by the convertible bond's conversion price of NOK 5/sh. We use it as a Target Price for the stock as well, however, the recent couple of days of trading showed a somewhat unexplainable jump in the stock price, therefore, Sell recommendation is reiterated.

1H and Company updates

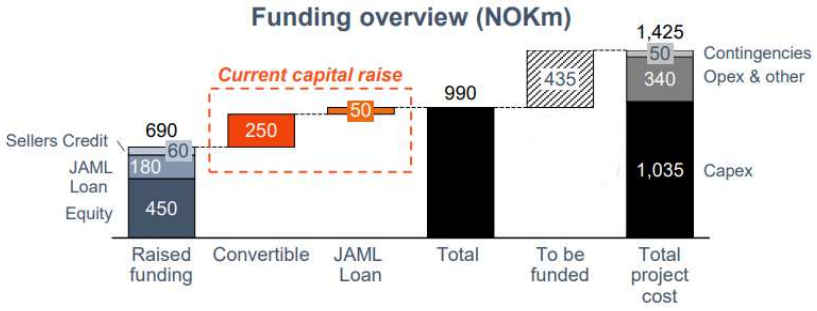
1H update: Safe from the inflationary issues

Proximar Seafood posted its semi-annual report with zero revenues and NOK -11.1m bottom line, spot on our NOK -11.0m expectations and not worth to further analyse. The most important subject is the construction process, where the company stated to continue staying on time and on budget. Completion of Proximar's hatchery and nursery is fast approaching and the first batch of eggs is planned to be delivered in October. The structural work on the post-smolt grow-out facility is well underway, and the facility is expected to be completed in 3Q23, in accordance with the original timeline. The company expects to produce an annual head-on-gutted volume of 5,300 tonnes when fully operational with the first harvest in 2024. Supporting the case is the resilience towards the inflationary environment as more than 95% of the construction costs are on fixed price contracts, while Japan, although finally coming out of deflation, has still a very low and healthy inflation figure.

Following the agreement with Marubeni and the award of the highest sustainability rating from the Japan Credit Rating Agency, Proximar Seafood stated, that the talks with the banks on further financing eased somewhat. Although the debt discussions took longer than initially planned, the company communicated being in the final stages with one Japanese bank for a syndicated long-term loan structure. The credit committee approval from the bank is needed and the conclusion is expected in 4Q22. This, in our view, is critical information as to complete the Phase 1 the company needs significant investments. Yet, we believe Proximar Seafood has taken all the necessary steps, will finalize the financing very soon, while we have no doubts on the demand side of a good quality salmon in Japan.

First Company update: NOK 250m convertible @ NOK 6/sh bond issue

Proximar Seafood issued a 3-year NOK 250m subordinated convertible bond and secured the financing for the next six months with additional NOK 50m loan increase. With the current market capitalization below the convertible bond's value, the dilutive factor is more than significant. Although we still believe in the company's high-demand market, we find the risk elevated, also knowing of the need of further large portion of financing in half a year.



The total cost to build a 5,300 tonnes land-based salmon farming facility in Japan was calculated at NOK 1,425m with NOK 690m already invested. The three financing sources are expected to provide the company with the remaining NOK 735m. The NOK 180m debt from Japanese financing provider JA Mitsui Leasing which matures in March 2023 can on the company's request be extended minimum until end of 1Q24 and maximum until end of 4Q24. In addition, it was agreed to increase the loan by NOK 50m. The company also issues NOK 250m three-year convertible bond with a cash coupon of 7% and a conversion price of NOK 6/sh, meaning 42m new shares compared to 40m existing as of now. Furthermore, should the Company carry out a share issue of more than NOK 50m, the bondholders have the right to convert at a lower strike if the price in a potential share issue is set lower than the NOK 6 strike price. This signals for more than significant dilution if converted.

The remaining NOK 435m is intended to be financed through a combination of debt and equity, targeting a debt ratio of 45%, equalling NOK 335m in debt and NOK 100m in new equity. Debt is expected to be funded through bank loans with Japanese banks, where the company communicated of a positive ongoing process. However, the pressure is huge there as the financing should be completed in the next six months. We have adjusted our model following the detailed plans of Opex and Capex for the next year provided in the company's presentation related to the bond issue, while the long-term projections also mirror Proximar's intentions and guidance.

Second Company update: Updated terms on convertible

Proximar Seafood announced an update to the convertible NOK 250m bond issue. The Company and the joint bookrunners have received subscriptions that cover the total convertible bond size of NOK 250m, including a subscription from a large Japanese strategic investor. There was a word "significant" mentioned when talking about the aforementioned subscription from the Japanese investor, but the word was removed in the following corrected message. Still, the most important information was that the conversion price of the convertible bond is lowered from NOK 6 per share to NOK 5 per share.

DCF model

NOKm	2H22E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Revenues	0	0	176	447	404	498	2,482	2,482	2,482
EBIT	-26	-85	65	215	172	212	1,162	1,162	1,162
Tax on EBIT	0	0	-14	-47	-38	-47	-256	-256	-256
NOPLAT (+)	**-26**	**-85**	**51**	**168**	**134**	**165**	**906**	**906**	**906**
Depreciation & amortization (+)	0	0	15	39	39	39	229	229	229
Capital expenditure (-)	-329	-258	-1,000	-1,333	-1,333	-1,333	-229	-229	-229
Change in working capital (- or +)	-1	0	-29	-15	5	-6	-143	-1	-1
Free Cash Flow to the Firm	**-356**	**-343**	**-963**	**-1,142**	**-1,156**	**-1,135**	**763**	**905**	**905**
NPV of FCFF	-334	-283	-702	-733	-654	-566	335	350	309

Assumptions	
L.t. growth	2.5%
Tax rate	22%
# shares, m incl. conv.	**89.8**
WACC	**13.5%**

Valuation, NOKm	
Net debt incl. conv.	-139
Minority interest	0
NPV cash flow	
2H22E - 2030E	-2,278
2031E -	2,875
Total NPV cash flow	597
Equity value	736
Value per share, NOK	**8**

Sensitivity analysis

NOK/share		L.t. growth rate				
NOK 8		**1.5%**	**2.0%**	**2.5%**	**3.0%**	**3.5%**
WACC	**12%**	13	15	17	20	23
	13%	7	9	11	13	15
	13.5%	5	7	**8**	10	12
	14%	3	4	6	7	9
	15%	0	1	2	3	4

	2021	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Revenues	0	0	0	176	447	404	498	2,482	2,482	2,482
EBITDA	-10	-36	-85	80	254	211	251	1,390	1,390	1,390
EBIT	-10	-37	-85	65	215	172	212	1,162	1,162	1,162
Net Profit	-25	-44	-112	-7	90	29	32	772	772	772
Volumes, kt										
Japan	0	0	0	2	4	4	5	26	26	26
EBIT/kg										
Japan	neg	neg	neg	55	50	40	40	44	44	44

Profit & Loss (NOKm)	2018	2019	2020	2021	2022E	2023E
Operating revenues	**-**	**-**	**-**	**-**	**-**	**-**
Operating expenses	-9	-7	-11	-10	-36	-85
EBITDA (adj)	-9	-7	-11	-10	-36	-85
Depreciation & amortisation	-	-	-	-0	-1	-
Operational EBIT	**-9**	**-7**	**-11**	**-10**	**-37**	**-85**
Non-recurring items and fair value adj.	-	-	-	-	-	-
EBIT	-9	-7	-11	-10	-37	-85
Net interest & other financial effects	0	-0	0	-15	-7	-27
Pre-tax profit	**-9**	**-7**	**-11**	**-25**	**-44**	**-112**
Minority interests	-	-	-	-	-	-
Taxes	-0	-0	-0	-	-	-
Profit after tax	**-9**	**-7**	**-11**	**-25**	**-44**	**-112**

Balance sheet (NOKm)	2018	2019	2020	2021	2022E	2023E
Deferred tax asset	-	-	-	-	-	-
Intangible assets	-	-	-	-	-	-
Plant, Property & Equipment	2	7	9	386	785	1,043
Right-to-use Asset	-	-	-	-	-	-
Other financial assets	-	-	-	25	25	20
Non-current assets	**2**	**7**	**9**	**411**	**810**	**1,064**
Inventory	-	-	-	-	-	-
Receivables	0	0	1	-	-	-
Other current assets	-	-	-	4	4	4
Cash and cash equivalents	1	1	28	74	11	76
Current assets	**1**	**1**	**30**	**77**	**15**	**80**
Total assets	**3**	**9**	**39**	**488**	**825**	**1,144**
Shareholders equity	-0	-5	34	390	329	217
Non-controlling interests	-	-	-	-	-	-
Total equity	**-0**	**-5**	**34**	**390**	**329**	**217**
Deferred tax liability	-	-	-	-	-	-
Long-term interest bearing debt	-	-	1	94	481	916
Other long-term liabilities	-	-	-	-	-	-
Non-current liabilities	**-**	**-**	**1**	**94**	**481**	**916**
Current interest bearing debt	3	13	3	1	4	4
Trade payables	0	0	0	1	-	-
Other current liabilities	0	0	0	1	7	7
Current liabilities	**3**	**14**	**3**	**4**	**10**	**10**
Total liabilities	**3**	**14**	**4**	**98**	**492**	**927**
Total liabilities and equity	**3**	**9**	**39**	**488**	**821**	**1,144**

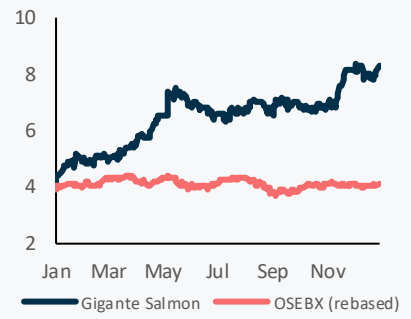
Gigante Salmon – BUY, TP: NOK 13/sh (prev. BUY 12)

Announcements since our last comment and 4Q preview

Key share data	
Sector	Consumer Staples
Bloomberg	GIGA NO
Market Cap (NOKm)	838
Net debt (NOKm)	-196
EV (NOKm)	642
Issued shares (mill.)	106

Target price	**13.00**
Last share price	**8.28**
Last recommendation	**BUY**

Share price



Performance	1m	3m	12m
GIGA	1%	19%	112%
OSEBX	0%	6%	4%

Upcoming events	
4Q22 Report	February 14, 2023

Focus on construction

There were three minor announcements from Gigante Salmon during the period of construction, all related to the third parties. Firstly, the company signed an agreement with Xylem Water Solutions to use 4 pumps for intake water with an option for further 7 pumps of the same type. The contract has a value of NOK 7.4m, and a total of NOK 26.7m upon exercise of the option, for the purchase of 11 pumps. The first 4 pumps will be delivered from 01 April 2023. The contract is in line with the investment budget for the company's project in Rødøy municipality, and the delivery is in line with the agreed progress plan.

Secondly, Gigante Salmon announced the partnership with Infrakon to carry out all the concrete works on the development in Rødøy. Infrakon AS is a total supplier of concrete and steel structures, from Rana in Helgeland. The contract is designed according to the open book principle, and work on concrete structures will start on 1 February 2023. The work includes, among other things, contact castings, drainage channels and foundations for risers and other infrastructure.

Thirdly, an agreement with Lovund Bedrifts Service was signed, which will supply concrete for the development in Rødøy. “Lovund Bedrift Service AS and Infrakon AS have worked together in the past and it is positive to get their collective experience into our project,” says CEO Helge EW Albertsen of Gigante Salmon AS. The agreement to deliver concrete has a scope of approx. NOK 10m and work will start during February.

Finally, the company has signed an agreement with Nordkontakt and Elektro Bodø for a total solution for automation, instrumentation, ICT/telecommunications and power distribution for the plant under construction in Rødøy municipality.

Zero revenues in 4Q projected

4Q22 should mark again zero revenues, slightly negative EBITDA and, if no extraordinary items are marked, the bottom line. We anticipate to see somewhat larger Capex, still, the majority of a total NOK 445m spending should commence in 2023.

Valuation

Gigante Salmon is amongst our favorite land-based farmers. One of the reasons is staying on time and on budget. Furthermore, due to used Flow-through technology, the company has industry leading KPI's, but the most important difference from other farmers is no need for further investments, meaning less dilution risk. We slightly upped the Target Price for the stock and reiterate Buy recommendation at NOK 13/sh. Smoltification and announcements on it should be the positive triggers in the short term.

2Q and 3Q updates

2Q update: Moving forward just as planned

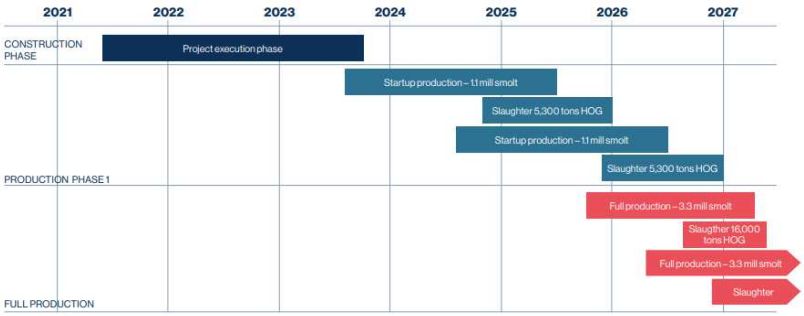
Zero revenues in this stage mean we are looking for the company not to exceed the cost line substantially, while Gigante Salmon reported EBIT of NOK -0.8m very much in line with our NOK -0.9m expectations. Still, the P&L in total should not be emphasized now.

The great goal of 20,000 tonnes of annual production by 2027 was once again unchanged, with the first harvest by the end of 2024 and the full production starting in 2026.

The project is progressing according to plan and is expected to remain within budget. However, the company stated that the price of submarine cables has risen significantly, partly due to the pandemic and partly due to the war in Ukraine. At the present, Gigante Salmon is unable to say whether this would lead to increased costs for other materials and equipment or whether it will affect lead times for procurement and delivery. In order to avoid higher-than-expected costs, and to secure realistic lead times for delivery, the company aims to complete the most critical activities by late summer, while the schedule will be revised if market conditions necessitate.

3Q update: Smolt is about to hatch

With revenues only from the other income means, we are still looking at the costs not to significantly exceed our estimates and they came in just as expected and flat QoQ, at NOK 707 thousand. This is positive as the big journey has begun. The roe is transferred to the Grytåga facility and is expected to hatch early December. The alevins will continue their lives in fresh water taken from the mountains of Vefsn. In the autumn of 2023, these juvenile salmon will undergo smoltification and will be transported to the main growing facility in Rødøy. All the phases of the plan will be revised if market conditions require. The procurement and construction phase is expected to draw to a close by the end of 1Q23. The installation phase will start in mid-February and will last until mid-July 2023. Completion, system-testing and commissioning before the planned September 2023 start-up of the facility are scheduled to be carried out in 3Q23.



The project is communicated to be progressing according to plan and aside from costs for electricity, energy, electrical equipment and automation, are within budget. However, these energy-related costs are a very important part in our view and we shall see how the situation changes when the growth phase gets closer.

DCF model

NOKm	4Q22E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Revenues	0	0	30	371	639	960	960	960	960
EBIT	-1	-15	-1	170	234	400	400	400	400
Tax on EBIT	0	0	0	-37	-52	-88	-88	-88	-88
NOPLAT (+)	**-1**	**-15**	**-1**	**132**	**183**	**312**	**312**	**312**	**312**
Depreciation & amortization (+)	1	12	18	18	18	18	18	18	18
Capital expenditure (-)	-94	-286	-18	-18	-18	-18	-18	-18	-18
Change in working capital (- or +)	0	0	6	-14	-23	-6	0	0	0
Free Cash Flow to the Firm	**-94**	**-288**	**5**	**118**	**160**	**306**	**312**	**312**	**312**
NPV of FCFF	-92	-250	4	82	99	169	154	137	122

Assumptions	
L.t. growth	2.5%
Tax rate	22%
# shares, m	**105.6**
WACC	**12%**

Valuation, NOKm	
Net debt	-196
Minority interest	0
NPV cash flow	
4Q22E - 2030E	425
2031E -	1,322
Total NPV cash flow	1,746
Equity value	1,943
Value per share, NOK	**18**

Sensitivity analysis

NOK/share		L.t. growth rate				
	NOK 18	1.5%	2.0%	2.5%	3.0%	3.5%
WACC	10%	23	24	25	26	28
	11%	20	20	21	22	23
	12%	17	18	**18**	19	20
	13%	15	16	16	17	17
	14%	13	14	14	15	15

	2021	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Revenues	2	0	0	30	371	639	960	960	960	960
EBITDA	-2	-3	-3	17	187	252	418	418	418	418
EBIT	-2	-4	-15	-1	170	234	400	400	400	400
Net Profit	3	4	-12	-1	132	183	312	312	312	312
Volumes, kt										
Norway	0	0	0	0	5	11	16	16	16	16
EBIT/kg										
Norway	0	0	0	neg	32	22	25	25	25	25

Profit & Loss (NOKm)	2018	2019	2020	2021	2022E	2023E
Operating revenues	**-**	**-**	**-**	**2**	**0**	**-**
Operating expenses	-	-0	-1	-4	-3	-3
EBITDA (adj)	-	-0	-1	-2	-3	-3
Depreciation & amortisation	-	-	-	-0	-1	-12
Operational EBIT	**-**	**-0**	**-1**	**-2**	**-4**	**-15**
Non-recurring items and fair value adj.	-	-	-	-	-	-
EBIT	-	-0	-1	-2	-4	-15
Net interest & other financial effects	-	0	0	1	3	-
Pre-tax profit	**-**	**-0**	**-1**	**-1**	**-1**	**-15**
Minority interests	-	-	-	-	-	-
Taxes	-	0	0	4	5	3
Profit after tax	**-**	**-0**	**-0**	**3**	**4**	**-12**

Balance sheet (NOKm)	2018	2019	2020	2021	2022E	2023E
Deferred tax asset	-	0	0	4	6	6
Intangible assets	-	-	-	-	-	-
Plant, Property & Equipment	-	1	1	21	159	433
Right-to-use Asset	-	-	-	-	-	-
Other financial assets	-	-	-	-	-	-
Non-current assets	**-**	**2**	**1**	**25**	**165**	**439**
Inventory	-	-	-	-	-	-
Receivables	-	0	0	-	16	16
Other current assets	-	-	-	7	-	-
Cash and cash equivalents	-	2	66	259	104	19
Current assets	**-**	**2**	**66**	**265**	**120**	**35**
Total assets	**-**	**4**	**67**	**291**	**286**	**474**
Shareholders equity	-	2	65	274	278	266
Non-controlling interests	-	-	-	-	-	-
Total equity	**-**	**2**	**65**	**274**	**278**	**266**
Deferred tax liability	-	-	-	-	-	-
Long-term interest bearing debt	-	-	-	16	-	200
Other long-term liabilities	-	2	2	-	-	-
Non-current liabilities	**-**	**2**	**2**	**16**	**-**	**200**
Current interest bearing debt	-	-	-	0	2	2
Trade payables	-	-	-	-	0	0
Other current liabilities	-	0	0	0	5	5
Current liabilities	**-**	**0**	**0**	**1**	**8**	**8**
Total liabilities	**-**	**2**	**2**	**17**	**8**	**208**
Total liabilities and equity	**-**	**4**	**67**	**291**	**286**	**474**

Summary table

		ANDFJORD	ATLANTIC SAPPHIRE	Gigante Salmon	Nordic Aqua	PROXIMAR SEAFOOD	SALMON EVOLUTION
Technology		Flow-through	RAS	Flow-through	RAS	RAS	Hybrid
Location		Andøya, Norway	Homestead, Florida	Rødøy, Norway	Greater Shanghai, China	Close to Tokyo, Japan	Indre Harøy, Norway
Capacity (t)	2022	0	9,500	0	0	0	7,900
	«Blue-sky»	90,000	220,000	16,000	20,000	26,000	100,000 (incl. South Korea and the U.S.)
Fish delivery		2023	2021	End-2024	2024	2024	2022
Positiv op. cash flow (EBITDA)		2024/2025	2023/2024	2025	2024	2024	2023
CAPEX 2023-2026 (NOK bn)		2-3	6-7	0.3	2-3	4-5	3-4 (incl. Korea)
Finance	**Equity end-3Q22**	76 %	72 % (end-1H22)	97 %	93 %	65 % (end-1H22)	69 %
	Accessible debt	Undrawn 25m Grants 5m	Undrawn 1,300m	290m guaranteed by Spb1 Nord-Norge	250m Eksfin and Rabobank credit 50m credit Bank of Ningbo	230m guaranteed by Mitsui and Grieg Kapital, 300m post-construcion loan	645m available liquidity incl. Undrawn debt facilities 188m. 97m ENOVA grant 14m Skattefunn
ESG	**Water consumption**	Flowing	Low	Flowing	Low	Low	Medium
	Power consumption	Low (1kWh/kg)	High (9.5kWh/kg)	Low (2kWh/kg)	High (9kWh/kg)	Medium (3.5kWh/kg)	Medium (6kWh/kg)
	Mortality	Low (1.3%)	High (incidents)	na	Low (1.5%)	na	Low (2.0%)

Valuation, risk and sources

Valuation

The target prices are based on DCF valuations with a different additional discounts applied.

Risks

The main risks to our investment cases in the land-based salmon farming sector are the following:

- The technology used is new and different for each of the companies. It still needs to be tested, installed, accounted for and there might be issues related to this.
- Very little testing on industrial scale. Even if the technology is proved to be providing normal results in the small environment, the results might differ significantly when tested on the industrial scale.
- Unexpected costs might occur due to unknown and untested technological items.
- Severe weather conditions might alter the salmon volumes and quality.
- Political decisions and quotes might impact the amount of salmon being grown, supply and demand.
- Salmon price fluctuation
- FX fluctuations
- Changes in people's life and economic conditions. Salmon is still the high-quality and expensive food to be put on the table.
- Environmental issues
- Salmon disease outbreaks – although land-based salmon farming significantly reduces the chances of a salmon disease outbreak, this might change the world's supply/demand situation, while some other unexpected diseases might occur.
- Prolonged adverse effects of Covid-19 crisis
- Ground rent tax adjustment to include land-based farmers
- Other possible taxation and licensing issues

Sources

The sources used in the preparation of this report were: Andfjord Salmon, Atlantic Sapphire, Nordic Aqua Partners, Proximar Seafood, Salmon Evolution Group, Gigante Salmon, iLaks, Undercurrent News, Akva Group, Salmonbusiness.com, Seafood.no, regjeringen.no, IntraFish, NorskFisk, SeafoodSource, FishFarmingExpert, FishFarmerMagazine, Oslo Stock Exchange, ScienceNorway, E24.no, EY, Global Seafood alliance, RASTech, websites of various land-based companies, Infront and Bloomberg.

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	Total return next 12 months (upside to target price)		
Risk	Buy	Hold	Sell
Low	> 10%	2% - 10%	< 2%
Medium	> 15%	3% - 15%	< 3%
High	> 25%	5% - 25%	< 5%

Our risk assessments range from "high risk" to "medium risk" and "low risk" and are based on a subjective assessment of the following factors: 1) volatility in the share price, 2) liquidity in the share, 3) strength of the balance sheet, 4) absolute earnings level and trend and 5) estimate risk.

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Arendal og Omegns Sparekasse, Bien Sparebank, Blue Ocean Technology, Bulandet Miljøfisk, Drangedal Sparebank, Energeia, Etne Sparebank, Fana Sparebank, Grong Sparebank, Haugesund Sparebank, Hegra Sparebank, Hemne Sparebank, Longhammarvegen 28-30 Holding, Nordic Halibut, Næringsbanken, Romerike Sparebank, Saga Pure, Skagerrak Sparebank, Skudenes & Aakra Sparebank, SpareBank 1 Helgeland, Sparebank 68° Nord, Sparebanken Sogn og Fjordane, Sparebanken Sør, Sparebanken Vest, Sunndal Sparebank, Surnadal Sparebank, Totens Sparebank, Tysnes Sparebank, Østre Agder Sparebank, Åfjord Sparebank

2. Market making:
5th Planet Games, Aasen Sparebank, AKVA Group, Aqua Bio Technology, Astrocast, Aurskog Sparebank, Belships, Bergen Carbon Solutions, Borgestad, BW Epic Kosan Ltd., ContextVision, GNP Energy, Goodtech, Grong Sparebank, Huddlestock Fintech, Jæren Sparebank, Melhus Sparebank, M Vest Water, Navamedic, Nidaros Sparebank, Nordic Halibut, Norsk Solar, Odfjell SE, Petrolia Noco, Photocure, Romerike Sparebank, Romsdal Sparebank, SeaBird Exploration, Skue Sparebank, Sogn Sparebank, SpareBank 1 Helgeland, SpareBank 1 Nordmøre, Sparebank 68° Nord, Sparebanken Sør, Sparebanken Vest, Sunndal Sparebank, TECO 2030, Totens Sparebank, Tysnes Sparebank, Voss Veksel- og Landmandsbank.

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A list of share holdings of the Norne Securities' employees can be found on Compliance | Norne Securities.

Distribution of Norne Securities' recommendations during three months up till December 31, 2022:

	Buy	Hold	Sell
Total	61	46	6
% of total	54%	41%	5%
Corporate clients*	28	31	2
% of corporate clients*	46%	51%	3%

* Includes publicly disclosed not immaterial investment banking services or issues of financial instruments where Norne Securities AS has been lead manager or co-lead manager, and market making clients during the 12 months prior to the overview date.

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