



Proximar Seafood AS

Shades of Green assessment



Sector: Aquaculture



Region: Japan

April 9th, 2021

Executive summary

Proximar is a Norwegian aquaculture company founded in 2015, which is initiating land-based salmon farming at the foot of Mount Fuji, Japan. Construction of its first production facility begins Q1 2021.

Shades of Green by planned investments for Mt. Fuji plant (phase 1)

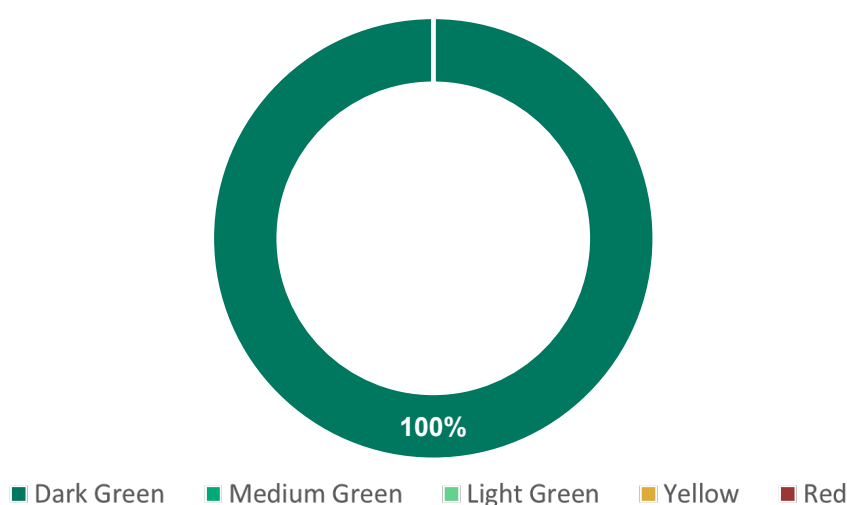


Figure 1: Shading of Proximar's planned investments for the Mt. Fuji plant (Phase 1), based on information from the company at the time of assessment.

Land-based salmon farming avoids the negative impacts on wild salmon and local marine environment associated with sea-based production. The largest climate benefit is that Proximar will be able to serve the Japanese market without using airfreight.

Proximar also aims to address the main drawback of land-based production, namely emissions related to electricity use. Its foremost strength in this regard is the electricity efficiency it intends to achieve. In addition, it has plans for installing solar panels covering a share of its consumption. Renewable certificates will be purchased covering the remainder of electricity use.

Proximar has chosen a feed supplier that is committed to moving the salmon feed industry in a more sustainable direction. In addition, land-based production has the potential to achieve better feed efficiency than sea-based production.

Because Proximar's core business concept is innovative, addresses local environmental effects of aquaculture, and has the potential to take large steps toward a long-term low-carbon solution for the industry, the investments into its first production plant receives a 100% CICERO Dark Green shading. This despite the fact that electricity supply in Japan currently comes predominantly from fossil fuels. The rating is premised on the company achieving the very high energy efficiency that it targets. In addition, it reflects the plans regarding solar panels and renewable certificates. **Investors should be aware that because the technology is**



novel and facilities yet to be constructed, there is a risk that the actual environmental performance will not meet the expectations. Important KPIs to follow environmental performance are listed in Table 1.

KPI	Proximar's expected value
Electricity intensity	2.8 kWh/kg lwe ¹ salmon
Share of electricity supply from on-site solar panels	11%
Share of purchased electricity covered by renewable certificates	100%
Economic Feed Conversion Ratio	1.12
Post-smolt survival rate	94%
Freshwater consumption	180 m3/day

Table 1: Important KPIs to follow

Sustainability appears to be integrated into the company business model and environmental factors have impacted key investment decisions. As a company in development, Proximar does not yet have a comprehensive corporate governance structure, however, some key policies are in place and the issuer has expressed a commitment to transparent reporting to investors. As the facility is located on a newly developed industrial park, it is likely that site development has led to some deforestation and it is unclear if there were any biodiversity risks. A more systematic approach to climate risk assessment, a consideration of potential risks of deforestation and local environmental impacts when choosing to locate in a recently created industrial park, as well as some more developed targets, would strengthen governance. The overall assessment of Proximar's governance structure and processes gives it a rating of **Good**.



Our assessment is based on data and information from Proximar at the time of the assessment. The data on planned investments has not been audited or verified by a third-party. Any changes in the implementation of the plans could impact our assessment and shading. Investors are encouraged to closely follow reporting from the company to ensure that the ambitious environmental plans are implemented to the fullest extent.

¹ live weight equivalent



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1 Terms and methodology

The aim of this analysis is to be a practical tool for investors, lenders and public authorities for understanding climate risk. CICERO Green encourages the client to make this assessment publicly available. If any part of the assessment is quoted, the full report must be made available. This assessment is based on a review of documentation of the client's policies and processes, as well as information gathered during meetings, teleconferences and email correspondence.

Shading corporate revenue and investments

Our view is that the green transformation must be financially sustainable to be lasting at the corporate level. We have therefore shaded the company's current revenue generating activities. Shaded investments add a forward-looking element and provide insight into future revenue streams and corporate strategy in relation to the green transformation.

The approach is an adaptation of the CICERO Shades of Green methodology for the green bond market. The Shade of Green allocated to a green bond framework reflects how aligned the likely implementation of the framework is to a low carbon and climate resilient future, and we have rated investments and revenue streams in this assessment similarly.

SHADES OF GREEN	EXAMPLES
 Dark green is allocated to projects and solutions that correspond to the long-term vision of a low carbon and climate resilient future.	 Solar energy projects
 Medium green is allocated to projects and solutions that represent steps towards the long-term vision but are not quite there yet.	 Green buildings with a high level of certification and energy efficiency
 Light green is allocated to transition activities. These projects and solutions could have lower emissions, but do not by themselves represent or contribute to the long-term vision.	 Substantially more efficient manufacturing of fossil fuel intensive materials
 Yellow is allocated to projects and activities that do not contribute to transition. These activities could have some emissions and be exposed to climate risks. This category also includes activities with too little information to assess.	 Efficiency in fossil fuel infrastructure
 Red is allocated to projects and activities that have no role to play in a low-carbon and climate resilient future. These are heaviest emitting assets, with the most potential for lock-in of investments and risk of stranded assets.	 New infrastructure for coal

In addition to shading from dark green to red, CICERO Shades of Green also includes a governance score to show the robustness of the environmental governance structure. CICERO Green has also assessed potential alignment with the EU taxonomy of Nov. 2020, see section on the Taxonomy for details of our approach.



2 Brief description of Proximar's activities, environmental and social management

Company description

Proximar Seafood AS ("Proximar") is a Norwegian private limited liability Aquaculture company founded in 2015 and headquartered in Bergen, which is initiating land-based salmon farming at the foot of Mount Fuji in Japan. Construction of its first plant is expected to start in Q1 2021 and production in 3Q 2022, meaning the first fish will be in the market mid-2024. Annual production capacity at this plant will be approximately 5 300 tonnes (head on gutted) when fully operational. Construction of a second plant with capacity of 21 000 tonnes is targeted to start towards the end of 2024.

Sector risk exposure

The below text box highlights some key risks for the land-based aquaculture. See Appendix 1 for additional background on the aquaculture sector more generally.



Physical climate risks: Rising temperatures will increase the need for cooling of the production facilities. Droughts could affect freshwater supply, but Proximar's location does not stand out as particularly exposed to droughts. Catches and prices of fish for feed depend heavily on weather events that relate to climate change.

Transition risks: The transition to renewable electricity may make electricity more expensive. Stricter climate and environmental policies in the agricultural sector may make inputs to feed production more expensive. The evolution of plant-based and cell-based meat production may affect demand for seafood.

Environmental risks: There is a risk that the environment in the local river will be affected by Proximar's wastewater discharge, in which case the company must invest in additional measures (see p. 6)

Social risks: Some of the ingredients in salmon feed can also be used for food. The aquaculture industry may therefore contribute to rising prices of some foods.



Policies and Strategies

Proximar's core business of land-based production avoids many environmental issues relating to traditional production in sea and facilitates production close to markets thus reducing transport emissions. In addition, the company aims to have a systematic approach to sustainability, meaning that sustainability is also integrated into how the company plans and intends to conduct the operations.

Risk analysis

Proximar has identified key financial and technical risks with the assistance of external consultants. This assessment covers some sustainability aspects, but the company has not completed a comprehensive climate or sustainability risk assessment.

Key aspects

Transport

The largest climatic benefit of Proximar's planned production is avoiding transport of salmon by air from Europe or Chile to Asia. The first plant is planned to serve the Japanese market only. It is located 1 to 2 hours driving distance to Japan's two largest cities, Tokyo and Yokohama, facilitating distribution directly to customers instead of transportation via hubs. The greater Tokyo area alone is home to approx. 38 million people. Proximar aims to take market shares from the fresh salmon market, which accounts for approximately 20% of salmonid imports to Japan. In 2019, 90% of fresh salmon consumption in Japan was transported from Norway by air, while 86% of frozen or smoked salmon reached Japan by ship from Chile.

Energy efficiency

Compared with open net-pen aquaculture, land-based production requires more energy for pumps and other water-related infrastructure. Proximar has chosen a recirculating aquaculture system (RAS) from AquaMaof that has a significantly lower energy consumption than other conventional RAS solutions available in the market. Comparisons carried out during the selection process indicated an electricity consumption 30-40% lower than other conventional RAS solutions. Based on design values for the RAS facility and the rest of the building, Proximar estimates that electricity consumption will be 2.8 kWh per kg salmon (live weight equivalent) when the first plant is producing at full capacity. This is a very high efficiency, as a recent report estimated the realistic range to be between 5 and 10 kWh.²

Energy supply

Proximar is working on different solutions to install a rooftop solar PV system on its main building. The solar panels will be designed to cover Proximar's electricity demand on peak hours of production. Estimates suggests they can generate around 2 MWh/year (equivalent to 11.4% of total demand). Remaining demand will be covered by grid-based electricity and the company will purchase certificates of origin to ensure that an amount equal to its consumption is produced from renewable sources.

Land-based aquaculture eliminates the use of boats for feeding, harvesting or transport, thus reducing the use of fossil fuels. Proximar will to the extent feasible purchase machinery and equipment which runs on electricity. All machinery used in its indoors production, including trucks, will be electric. Diesel generators will be used only in the case of blackouts, which are reported to be rare in this location.

Water use and wastewater management

The AquaMaof system can recirculate 99.7% of the water by efficiently removing nitrate and nitrite, resulting in low demand for freshwater and low wastewater volume. Proximar also decided to make additional investments in

² Winther et al. 2020. Greenhouse gas emissions of Norwegian seafood production in 2017. SINTEF Ocean AS.



a denitrification system to further reduce the amount of sludge and the need for new replacement water. Expected demand for freshwater replacement is at around 180 m³ per day, which is significantly lower than alternative RAS technologies available.

Proximar has chosen the specific geographic location also due to ample supply of freshwater. The facility will be located above one of Japan's largest water reservoirs. The area around the Mount Fuji traditionally registers large amounts of precipitation. Local authorities have carried out test drillings and granted a defined supply of freshwater to Proximar that they estimate to entail no risk of scarcity for drinking water supply.

With a daily demand of 180 m³ of freshwater replacement, combined with a certain amount of evaporation, the amount of water to be discharged is expected to be somewhat lower than 180 m³/day. All water will be treated with UV radiation and ozone before being discharged into a river. The environmental impact has been assessed by the local authorities, which have criteria that are stricter than national standards. Proximar's discharge permit specifies that salinity should be 2.5 ppt. As the salinity in the production will be 10-12ppt, it will be diluted before discharge. Proximar will monitor the water quality in the river and report to local authorities. The issuer has informed us that if negative changes are observed, they will invest in reverse osmosis.

Solid waste management

Proximar aims to have a systematic approach to sustainability, to take responsibility also for its waste, and promote circularity. The company recognizes that biowaste from fish farming and processing is a source of nutrients as well. Proximar intends to process trimmings and by-products into products for human consumption where possible, with the remainder considered for pet food or refined to fish meal and oil. The company intends to reduce the amount of packaging and non-organic waste to a minimum and to recycle this type of waste in accordance with local best-practice and has the ambition to use recycled materials in packaging where feasible.

Feed

Proximar aims to reduce the environmental footprint related to feed procurement. Proximar has developed a code of conduct for feed suppliers and has selected Skretting Japan as its supplier. The specific composition of the feed which will be used has not been decided yet, but Skretting Japan informs that the expected content of soy protein concentrate (SPC) is 20-30%. All SPC in Skretting's products is certified under the ProTerra label, which ensures that soy ingredients do not originate from areas of native vegetation which have been cleared or converted into agricultural areas after 2008. The supplier has in cooperation with ProTerra established a tracing system which allows the tracing of soya beans from Brazil back to the community where they were cultivated. In addition, the Brazilian suppliers of SPC for aquaculture feed have recently committed to become deforestation free across their operations (see Background).

Skretting procures marine contents, fish meals- and oils, from suppliers which are to a large degree certified under the MarinTrust label, formerly known as the Global Standard for Responsible Supply (IFFO RS), aiming for 100% coverage in 2025. Proximar's choice of feed-supplier has the additional benefit that feed will be produced in Japan, thereby reducing emissions connected to the transport of feed.

Proximar expects to achieve an economic Feed Conversion Ratio of 1.12, which would be significantly below the average for Norwegian aquaculture, which in 2017 was 1.32 (Winther et al. 2020). Land-based aquaculture is expected to achieve better feed efficiency due to faster growth and lower mortality.

Fish welfare

The company aims to eliminate the risk of parasite infections and reduce the risk of disease. These factors have a significant impact on fish mortality and welfare in conventional aquaculture. As a consequence of better control of parasites and diseases, the need for medication is reduced, if not fully removed. All fish-eggs will be disinfected



when introduced to the facility. All of the water will be treated with UV radiation and ozone, and will be supplied from secure and disease-free aquifers. The only way for diseases to enter the facility is through the air or by people and equipment. Therefore, the facility will be a strict biosecurity area, with over-pressurized buildings and strict disinfection procedures for people and equipment entering the facility.

Avoiding live transport reduces stress and enhances fish welfare. The AquaMaof system uses to a large extent harvest channels, unlike other RAS systems. These provide a gentler and less stressing handling of fish compared to the conventional pumping of fish.

Proximar anticipates a post-smolt mortality rate of 6%, which is considerably below the 15% rate in Norwegian aquaculture in 2020³.

Certification

Proximar intends to obtain certification of its facility under the Aquaculture Stewardship Council (ASC), a voluntary certification scheme on environmental and social criteria. The ASC is currently developing a module specifically for RAS. Additional criteria specific for RAS relate mainly to freshwater use and wastewater discharge. An AquaMaof facility recently constructed in Poland has achieved ASC certification.

Construction

The establishment of Proximar's facilities enjoys strong support from the local municipality. The facility is located in a 37-ha industrial park close to the UNESCO World Heritage site Mount Fuji. The site itself is located in a mountainous area surrounded by forest. The site for the industrial park was prepared prior to Proximar entering a contract with the town. According to Japanese law an EIA is only mandatory for the development of industrial parks larger than 50ha.

The facility building is planned to be certified under the CASBEE standards and the current design is expected to achieve a Built Environment Efficiency (BEE) rank of B+ ("Good"), and 2 out of 5 possible stars on their Lifecycle CO2 rating⁴.

Reporting

Proximar is a newly established company and currently has limited public reporting. The company has published a company presentation for Q1 2021 which includes information on the main sustainability aspects of the business. The company has informed us that annual reports will include environmental indicators, but the specifics have not been determined yet.

Proximar informs that it will consider joining the Global Salmon Initiative, an initiative to improve the sustainability profile of the farmed salmon industry.

³ <https://ilaks.no/dette-er-de-tre-storste-grunnene-til-at-laksen-dor-i-merdene/>

⁴ For information on the CASBEE system see: <https://www.ibec.or.jp/CASBEE/english/graphicE.htm>



3 Assessment of Proximar's green activities and policies

According to CICERO Green's methodology, a shade of green should be allocated to the revenue stream and investments according to how these streams reflect alignment of the underlying activities to a low carbon and climate resilient future and taking into account governance issues. (See methodology page for further details on shading). Because Proximar has yet to start production, we have only assessed planned investments.

Shades of Green by planned investments for Mt. Fuji plant (phase 1)

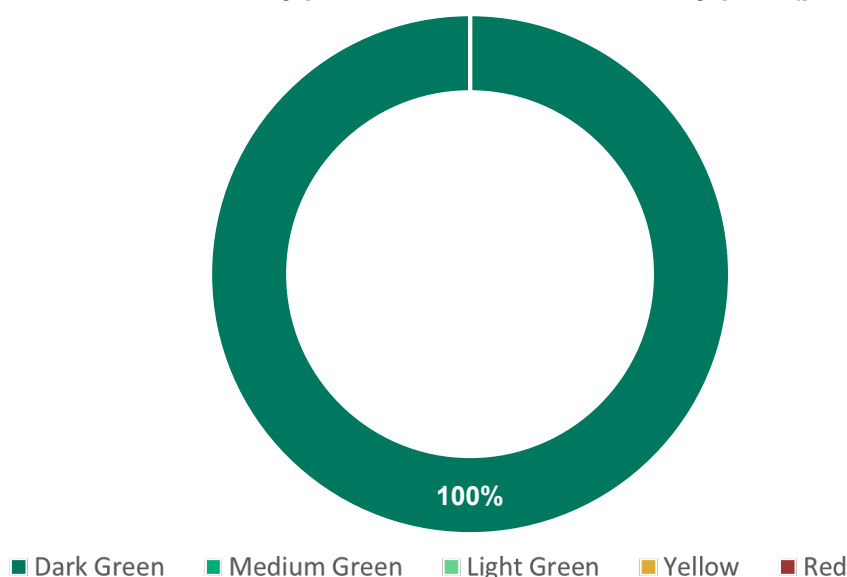


Figure 2: Shading of Proximar's planned investments for the Mt. Fuji plant (Phase 1), based on information from the company at the time of assessment.

Proximar has provided information about their planned investments for Phase 1, which are investments in building construction, RAS technology, and fish tanks. We have assessed the environmental credentials of the production plant as a whole rather than separately assessing the plant building, RAS technology and tanks. The building being constructed is specialized for land-based aquaculture and it is unclear if a comparison of the energy use to other production facilities would be appropriate. Our assessment has included the building energy use in an assessment of the total electricity intensity of Proximar's plant design.

In summary, Proximar's investments into the production plant are rated Dark Green for the following reasons: 1) Land-based salmon farming avoids the risks to local marine environments associated with sea-based aquaculture; 2) Proximar's location enables it to serve the Japanese market without airfreight, whereas the majority of current supply of fresh salmon is airfreighted from Norway; 3) The selected technology addresses the biggest climate drawback with land-based aquaculture, namely electricity use, and the company makes effort to source renewable electricity; 4) Proximar has developed criteria for sustainable sourcing of feed ingredients and selected a supplier that is seriously engaged in efforts to reduce the environmental footprint of salmon feed. From a climate perspective, its efforts to reduce deforestation risk in soy production are particularly important.



Detailed considerations regarding GHG emissions from energy and feed use are provided directly below. For avoided risk to local marine environments, see Strengths further below.

GHG emissions land-based vs. sea-based salmon farming

The carbon footprint of farmed salmon is largely made up of three components: feed ingredients, energy use in production, and transport of the final product. Compared with sea-based open net-pen aquaculture, land-based RAS production reduces emissions embodied in feed ingredients and transport, while increasing energy consumption. Whether land-based production has a lower carbon footprint than that of sea-based aquaculture is thus largely determined by the following factors:

- Whether the land-based product replaces an airfreighted product
- The improvement in feed conversion ratio
- Electricity intensity
- GHG emissions factor of electricity

A recent study by SINTEF⁵ compares the carbon footprint of salmon from sea-based production in Norway transported to Shanghai versus salmon from land-based production in Shanghai, see Figure 1. As the distance to Tokyo is only slightly longer, the figures are useful for comparison.

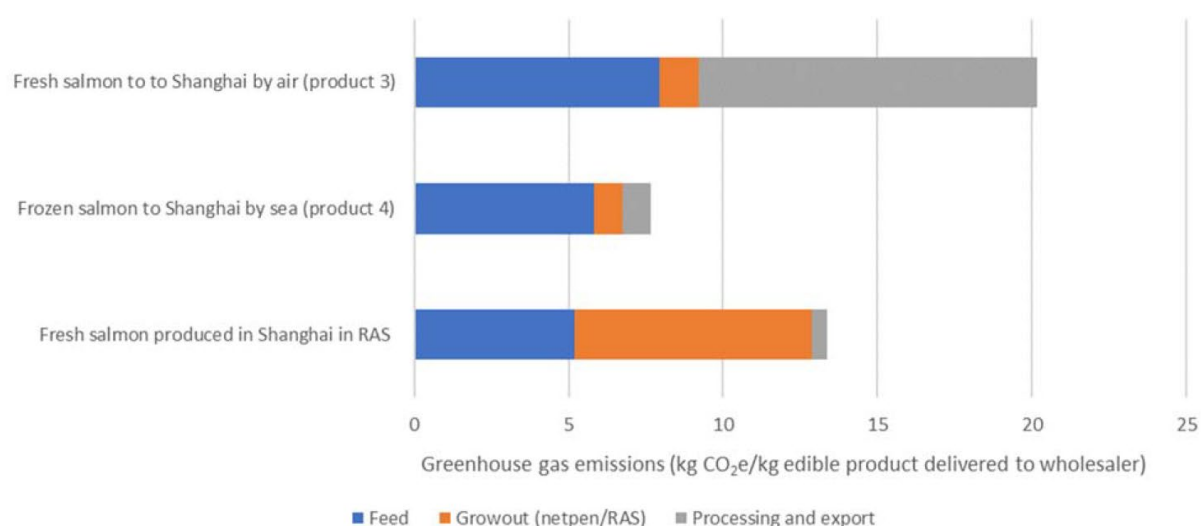


Figure 1: GHG emissions from land-based versus sea-based salmon farming (from Winther et al. 2020)

The report estimates that the footprint *at harvest* is substantially larger for land-based production. For sea-based production, this figure is around 9 kg CO₂e/kg edible salmon, with feed ingredients accounting for the vast majority. Energy use is thus a minor contributor. The estimate is based on an eFCR of 1.32 which were average figures in Norway in 2017. For land-based production, the report estimates a carbon footprint at harvest of 13 kg CO₂e/kg edible salmon, of which energy use constitutes the majority. This estimate is based on an eFCR of 1, electricity intensity of 10 kWh/kg liveweight salmon, a grid factor of 0.42 kg CO₂e/kWh (average European production). The report concludes that “for RAS production to be sustainable in a climate perspective it is critical to achieve a high feed efficiency, become more energy efficient and that they are partly served with renewable energy sources” (Winther et al. 2020, p. 83).

⁵ Winther et al. 2020. Greenhouse gas emissions of Norwegian seafood production in 2017. SINTEF Ocean AS.



Based on the information provided by Proximar, the company has the potential to achieve these three things, and thus produce salmon with a carbon footprint at harvest comparable with salmon farmed in sea.

The main reason is the expected electricity intensity of only 2.8 kWh. The GHG intensity of electricity is more difficult to assess, as the electricity provider and product has not been chosen yet. According to the Proximar, the energy mix in the electricity provided by Tokyo Electric Power Company (TEPCO) in 2019 was as listed in Table 2. The company plans to install solar panels that it estimates can provide around 11% of its consumption. With this, the company would achieve an emissions intensity very similar to the average European production assumed by SINTEF (0.42), assuming that the category “other” is emissions free. A more conservative figure would be 0.5, assuming some emissions from “other” electricity sources, and lower production from own solar panels. With this figure, the emissions from grow-out would still be reduced by two-thirds relative to SINTEF’s RAS case, cancelling out the GHG penalty for land-based compared to sea-based production at harvest.

The company will also purchase certificates of origin to ensure that an amount equal to its consumption is produced from renewable sources. The company informs us that it is considering different certification schemes from different companies, and that the price premium is 15-30%. While there is generally no direct relationship between renewable certification schemes and installation of new renewable power, Proximar will contribute to incentivizing a greening of the grid over time.

Electricity source	Share in 2019	CO _{2e} /kWh
Natural gas	59%	0.483 (IPCC 2018) ⁶
Coal	20%	0.961 (IPCC 2018)
Feed-in tariffs	6%	0
Hydro	3%	0
Other renewable	3%	0
Other	8%	?

Table 2: Composition of electricity provided by TEPCO, according to Proximar.

Proximar expects to achieve a feed conversion rate (eFCR) of 1.12, slightly above the SINTEF’s assumption for RAS. It is below the average for the industry (1.32), but similar to what the most efficient companies have achieved in sea-based production. Assuming the carbon footprint per kilo feed is the same as for feed used in Norway (see Pitfalls), its carbon footprint embodied in feed will be close to SINTEF’s RAS case, and below its sea-based case.

The SINTEF report does not include emissions from construction of production facilities, which are higher for land-based production than for open-net pen farming. A study⁷ finds that this adds 0.39kg CO₂ to the carbon footprint of salmon farmed on land and 0.02kg CO₂ in the case of open net-pen farming. In both cases, this is a minor part of the total footprint.

Airfreight of salmon from Norway to east Asia is estimated to result in around 10kg CO₂/kg salmon, thus more than doubling the final product’s footprint, see Figure 1. There has been a large increase in airfreight of Norwegian salmon in recent years, particularly to the USA and Asia. Transport by road or sea is much less emissions intense, typically adding only around 1 kg to the product’s footprint. As Proximar is located very close to the market it intends to serve, emissions from transporting its produce will likely be even lower than that.

⁶ IPCC 2018. https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_annex-ii.pdf

⁷ Liu, Y. et al 2016. Comparative economic performance and carbon footprint of two farming models for producing Atlantic salmon (*Salmo salar*): Land-based closed containment system in freshwater and open net pen in seawater. *Aquacultural Engineering* 71: 1-12.



In summary, based on Proximar's targets and plans, it has the potential to address the main drawback of land-based production, namely higher electricity consumption, and achieve a carbon footprint at harvest similar to sea-based production. When compared with salmon from sea-based production in Norway airfreighted to Japan, Proximar's product will reduce emissions substantially.

Deforestation risk associated with soy contents in feed

Proximar's code of conduct for feed suppliers requires soy contents to be certified under ProTerra, the Roundtable for Responsible Soy (segregation module) or equivalent. For a property to be RTRS certified, no native forests have been cleared or converted later than May 2009. Stricter rules apply for land conversions later than June 2016, after which no conversion of natural land can have taken place. RTRS offers two alternative soy certificates. The Segregation alternative, which is required by Proximar, ensures that the soy from certified properties is kept physically separate from soy from non-certified properties. For ProTerra certification, areas of native vegetation cannot have been cleared or converted after 2008. A comparison with RTRS finds that it has stricter criteria in many areas, but is weaker on transparency. ProTerra does not allow physical mixing. Most SPC used in feed for Norwegian Aquaculture companies is ProTerra certified. A problem with all certification schemes is that major soy producers currently only certify a small share of their production, while the rest may contribute to deforestation. Demand for soy from Brazil, even if certified, risks displacing non-certified production to new agricultural areas. The SINTEF report does not distinguish between certified and non-certified soy, because it is currently not possible to quantify the differences in a reliable way.

Proximar's chosen feed supplier – Skretting – is engaged in efforts to reduce deforestation in Brazil. Its parent company – Nutreco – together with Tesco and Grieg Seafood launched the Cerrado Funding Coalition, which aims to provide financial incentives for soy farmers in the Cerrado to halt deforestation. Nutreco has confirmed it is willing to contribute to the fund. Due to the current political situation in Brazil, it is uncertain when it will be launched. Skretting has also shown support for the Amazon Soy Moratorium, which is currently under political pressure⁸ and supports The Aquaculture Dialogue on Sustainable Soy Sourcing in Brazil⁹, which aims to increase traceability of soy, among other things. The company also engages in a dialogue with suppliers to cooperate on developing novel sustainable feed ingredients, such as insect meal.

Responding to pressure from the aquaculture industry, the Brazilian SPC suppliers recently committed to become deforestation free across their operations, not only in the share that gets certified. This means to not purchase soy grown on land in the Brazilian Serrado deforested after August 2020 or on land in the Amazon deforested after 2006. A system for monitoring, reporting, and verification has been agreed in cooperation with ProTerra and WWF Brazil. SPC is a specialized product for the aquaculture industry. Now that SPC producers are taking the lead in becoming deforestation-free, it means that the deforestation risk is lower in the aquaculture industry than in other animal protein industries that have Brazilian soy in their supply chains, as none of the major soy traders have made similar commitments.¹⁰

Governance Assessment

When assessing the governance of Proximar, CICERO Green looks at four elements: 1) Strategy, goals, and targets 2) lifecycle considerations including supply chain policies and environmental considerations towards customers 3) the integration of climate considerations into their business and the handling of resilience issues; and 4) reporting. Based on these aspects, an overall grading is given on governance strength falling into one of three

⁸ <https://e24.no/naeringsliv/i/WbyX6Q/norsk-laksenaering-med-paa-globalt-soya-opproer-mot-brasil>

⁹ <https://www.feednavigator.com/Article/2019/12/19/Salmon-feed-producers-reveal-new-Brazilian-soy-traceability-system-roundtable-for-action>

¹⁰ <https://www.reuters.com/article/us-brazil-environment-soy-idUSKBN28P2I3>

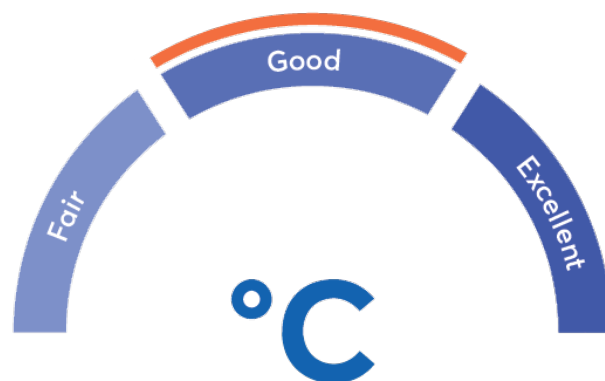


classes: Fair, Good or Excellent. Please note this is not a substitute for a full evaluation of the governance of the issuing institution, and does not cover, e.g., corruption.

Proximar is a pioneering company in land-based salmon aquaculture and its core business directly addresses two of the main environmental concerns about salmon farming: the impacts on the local marine environment and the use of airfreight. Proximar is a company in development and as such does not yet have a comprehensive corporate governance structure. Some key policies are already in place, including a supplier code of conduct. CICERO Green is encouraged that sustainability appears to be integrated into the company business model and environmental factors have impacted key investment decisions, including the choice of the RAS solution. The company is proactive in limiting its environmental impact in terms of water use and discharge, feed use, packaging, transport, and waste handling. Proximar has taken water availability into account during site selection but has not considered other environmental factors. No EIA was conducted and Proximar does not have information on potential biodiversity or deforestation issues related to the development of the industrial park.

There are currently no public environmental targets or reporting from Proximar, however, the issuer has expressed a commitment to transparent reporting to investors including relevant environmental metrics.

Proximar has not conducted an assessment of climate or sustainability related risks to their business, however, the team has a good understanding of key risks. They consider transition risk to be an opportunity for Proximar as climate-related regulation and consumer preferences are expected to increase costs for foods transported by air, and livestock-farming has a higher climate footprint than aquaculture. The team is aware of the potential for natural hazards including extreme weather and longer-term chronic water stress, which they consider that the site selection and RAS solution mitigate. However, a more systematic approach to climate risk assessment, a consideration of potential risks of deforestation and local environmental impact when choosing to locate in a recently created industrial park, as well as some more developed targets, would be required for a higher score.



The overall assessment of Proximar's governance structure and processes gives it a rating of **Good**.

EU Taxonomy

In March 2020, a technical expert group (TEG) proposed an EU taxonomy for sustainable finance that specified mitigation criteria and "do no significant harm" (DNSH) criteria for eligible activities. The DNSH-criteria are developed to make sure that progress against some objectives are not made at the expense of others and recognizes the relationships between different environmental objectives¹¹. In November 2020, EU published its draft delegated act to outline its proposed technical screening criteria for climate adaptation and mitigation objectives, respectively, which it was tasked to develop after it entered into law in July¹².

¹¹ Taxonomy: Final report of the Technical Expert Group on Sustainable Finance, March 2020.

https://ec.europa.eu/knowledge4policy/publication/sustainable-finance-teg-final-report-eu-taxonomy_en

¹² https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12302-Climate-change-mitigation-and-adaptation-taxonomy#ISC_WORKFLOW



The relevant criteria for Proximar are those that guide aquaculture. However, the EU Taxonomy does not currently contain technical screening criteria for these activities.

Strengths

Proximar's business of land-based salmon production in Japan has the potential to address several of the most important climate and environmental issues related to traditional sea-based production.

First, it avoids several local environmental challenges associated with sea-based aquaculture:

- Fish escapes pose a serious threat to wild salmon stocks, as the farmed fish modify the gene pool and outcompete local species.
- The high concentration of salmon in open net-pens allows sea lice to thrive, which also pose a threat to wild salmon stocks, in addition to reducing the welfare of the farmed salmon.
- Delousing is the most important cause for reduced welfare and the second most important cause of mortality among salmon farmed in Norway¹³.
- Chemicals used for delousing may negatively affect wild species such as cod and shrimp, and thus coastal fisheries.
- Effluents and waste negatively affect life on the seabed around fish farms.
- Medicines may kill shrimp and other crustaceans.
- Copper used in antifouling paint for fish farm installations is a toxin polluting the local marine environment.

Second, Proximar will serve the Japanese market without the need for airfreight. This implies a significantly lower total carbon footprint than salmon airfreighted from open net-pen production in Europe or Chile. Avoiding airfreight also reduces the need for packaging during transport.

Third, land-based production is also expected to facilitate somewhat more efficient use of feed (Winther et al. 2020), which is important for lowering the carbon footprint of the final product.

Fourth, Proximar's production is fully electrified (except for emergency generators), in contrast to sea-based production, where fossil fuels still power most vessels and some farms.

Fifth, the potential for recycling sludge is better in land-based than in sea-based systems.

What is more, Proximar also aims to address the main drawback of land-based production, namely emissions related to electricity use. Its foremost strength in this regard is the electricity efficiency it intends to achieve. In addition, it has plans for installing solar panels covering a share of its consumption. Renewable certificates will be purchased covering the remainder of electricity use. The RAS technology chosen by Proximar is also very water efficient, limiting potential problems associated with freshwater use and wastewater discharge.

Finally, Proximar has chosen a feed supplier – Skretting – who is committed to contribute to the development of an industry-based solution to reduce deforestation associated with the primary production of crops. It is a member of the 'Aquaculture Dialogue on Sustainable Soy Sourcing from Brazil', a roundtable created to address the

¹³ <https://ilaks.no/dette-er-de-tre-storste-grunnene-til-at-laksen-dor-i-merdene/>



increased scrutiny around Brazilian agriculture practices and deforestation. It is also engaged in the development of novel feed ingredients to replace soy and marine ingredients.

Weaknesses

Our assessment has not uncovered any significant weaknesses in Proximar's environmental management.

Pitfalls

As the technology is novel and the facilities are yet to be constructed, there is a risk that electricity use and production, as well as feed efficiency, will not meet the company's targets, which would imply higher total GHG emissions than expected. The positive assessment is based strongly on the very high energy efficiency Proximar intends to achieve. As noted, this is well below what a recent report estimated to be the realistic range for the technology. Proximar's target for feed efficiency is closer to what is expected from RAS production in general, and therefore appears realistically achievable. However, there is a risk of mass mortality events with this technology, which would lower feed efficiency.

The emissions intensity of Proximar's electricity is uncertain, as the company has not yet chosen a power supplier and type of renewable certificate. There is therefore a risk that the actual electricity used will embody higher emissions than what has been assumed in this assessment.

The assessment is also premised on the assumption that the feed ingredients sourced by Skretting Japan will achieve the same level of sustainability as those sourced by Skretting Norway. Skretting Japan informs us that they follow the same core sourcing policies as the other Skretting companies, but that minor differences can occur. Skretting Japan also informs that the expected content of Soy Protein Concentrate (SPC) in the feed is 20-30%, and that this will originate from Brazil. This is relatively high compared with the average in Norwegian aquaculture industry, which was 20.5% in 2017 (Winther et al. 2020). As explained in the Background, the Brazilian suppliers of SPC have recently committed to become deforestation free. Assuming no link to deforestation, SPC does not have a particularly high carbon footprint compared to other ingredients. However, if the commitment to no deforestation is not effective, this would increase the total carbon footprint of farmed salmon substantially (Winther et al. 2020), making a high proportion of SPC in feed a weakness.

The Proximar facility is located on a newly developed industrial park and no EIA was conducted prior to the development of the site. The Oyama town has conducted an assessment of "rare creature protection" to identify any endangered species, however, Proximar does not have information on the results of this assessment. According to the issuer, the site was previously partly material storage for a company. It is however likely that the development of the facility site has led to some deforestation. It is unclear if there were any biodiversity risks and if so, how these were managed during preparation of the site.

While the production from the first stage facility is intended to serve the domestic market, thus avoiding airfreight, future facilities may also serve other East Asian markets with airfreight.

Our assessment is based on data and information from Proximar at the time of the assessment. The data on planned investments has not been audited or verified by a third-party. Any changes in the implementation of the plans could impact our assessment and shading. Investors are encouraged to closely follow reporting from the company to ensure that the ambitious environmental plans are implemented to the fullest extent.



Appendix 1: Aquaculture sector background

Key sector statistics & background figures

- Aquaculture has surpassed wild fishing as the main provider of seafood globally. Aquaculture represents 47% of global fish production, 53% if excluding non-food uses (FAO 2018¹⁴).
- Fish accounts for about 17% of animal protein consumed by the global population. Fish consumption has increased by 3.2% in volume annually over the period 1961-2016, outpacing the growth for meat.
- Salmonoids account for 18% of world trade in fish and fish products by value, more than any other species group (FAO 2018).
- No reliable statistics are available for the sector's GHG emissions globally.

GHG emissions of farmed salmon vs. meat

The carbon footprint of salmon farmed in open net-pens is around 80% lower than that of beef, slightly lower than that of pork, but higher than that of chicken, according to a recent report by the Norwegian research institute SINTEF (Winther et al 2020¹⁵). Its footprint is higher than that of all wild-caught Norwegian seafood products assessed in the report, except shrimp. These figures do not incorporate emissions from land-use change. As explained in Section 3, the aquaculture industry has done more to address land-use change emissions in its supply chain than producers of other animal proteins have.

Key opportunities

- Demand is expected to increase as global population is projected to grow beyond 9 billion by 2050 (FAO 2018)¹⁶.
- Capture from fisheries has been stagnant for 30 years and is not projected to increase. One third of fish stocks are fished beyond biological sustainability (FAO 2018).
- Aquaculture has the potential to address the gap between aquatic food demand and supply and to help countries achieve their economic, social, and environmental goals (FAO 2018).
- Shifting diets from red meat to farmed seafood could spare millions of tonnes of feed crop annually (Froelich et al, 2018¹⁷).
- As farmed salmon has a lower carbon footprint than most meats, climate policies may make it more competitive.
- Climate impacts on agriculture may increase global demand for farmed fish (Buanes & Mikkelsen, n.d.¹⁸).

¹⁴ Food and Agricultural Organisation of the United Nations (2018). The state of the world fisheries and aquaculture. Meeting the sustainable development goals.

¹⁵ Winther et al. 2020. Greenhouse gas emissions of Norwegian seafood production in 2017. SINTEF Ocean AS.

¹⁶ Note that population scenarios are under revision.

¹⁷ Froelich, H.E. et al (2018). Comparative terrestrial feed and land use of an aquaculture-dominant world. Proceedings of the National Academy of Sciences 115(20):5295-5300.

¹⁸ Buanes, A. & E. Mikkelsen (undated). Klimaendringenes påvirkning på lakseoppdrett i nord. Available at <https://uit.no/Content/463416/klimaendring%20og%20lakseoppdrett.pdf>



Key pitfalls

- Soy production in Brazil has been linked to tropical deforestation, and thus to GHG emissions and other negative environmental impacts (Regnskogsfondet & FIVH 2017¹⁹). However, suppliers of soy to the aquaculture industry have recently committed to stop supplying soy grown on recently deforested land (see Section 3).
- Demand for marine ingredients in feed puts pressure on wild fish stocks.
- Concern about fish welfare is increasing among consumers. Fish disease and mortality also lead to increased emissions through lowering the feed efficiency.
- Airfreight over long distances can more than double the product's footprint and there has been a large increase in airfreight of Norwegian salmon in recent years. (Winther et al, 2020).
- Fish escapes from open net-pens pose a serious threat to wild salmon stocks, as the farmed fish modify the gene pool and outcompete local species.
- The high concentration of salmon in open net-pens allow sea lice to thrive, which also pose a threat to wild salmon stocks. Closed containment systems offer a solution to this issue.
- Chemicals used for delousing in open net-pens may negatively affect wild species such as cod and shrimp, and thus coastal fisheries.
- Increasing problems with disease and sea lice have increased the carbon footprint of farmed salmon from open net-pens, through reduced feed efficiency and increased use of service vessels for treatment (Winther et al, 2020).
- Organic matter from open-net pens negatively affect life on the adjacent seabed.

¹⁹ Regnskogsfondet & Framtiden i Våre Hender (2017). Fra brasiliansk jord til norske middagsbord. En rapport om soya i norsk laksefôr.



Appendix 2: Source List

Document Number	Document Name	Description
1	Proximar Seafood Green Financing Framework March 2021	
2	Investor Presentation January 2020	Presentation of the company. Private and confidential.
3	Supplier code of conduct, January 2021	
4	Ethical Guidelines	
5	Feed information from Skretting	Information from Skretting Japan forwarded by Proximar by email on 18.03.2021
6		
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Appendix 3: About CICERO Shades of Green

CICERO Green is a subsidiary of the climate research institute CICERO. CICERO is Norway's foremost institute for interdisciplinary climate research. We deliver new insight that helps solve the climate challenge and strengthen international cooperation. CICERO has garnered attention for its work on the effects of manmade emissions on the climate and has played an active role in the UN's IPCC since 1995. CICERO staff provide quality control and methodological development for CICERO Green.

CICERO Green provides second opinions on institutions' frameworks and guidance for assessing and selecting eligible projects for green bond investments. CICERO Green is internationally recognized as a leading provider of independent reviews of green bonds, since the market's inception in 2008. CICERO Green is independent of the entity issuing the bond, its directors, senior management and advisers, and is remunerated in a way that prevents any conflicts of interests arising as a result of the fee structure. CICERO Green operates independently from the financial sector and other stakeholders to preserve the unbiased nature and high quality of second opinions.

We work with both international and domestic issuers, drawing on the global expertise of the Expert Network on Second Opinions (ENSO). Led by CICERO Green, ENSO contributes expertise to the second opinions, and is comprised of a network of trusted, independent research institutions and reputable experts on climate change and other environmental issues, including the Basque Center for Climate Change (BC3), the Stockholm Environment Institute, the Institute of Energy, Environment and Economy at Tsinghua University and the International Institute for Sustainable Development (IISD).

