SETTING SCIENCE-BASED TARGETS IN THE SEAFOOD SECTOR: BEST PRACTICES TO DATE

UN GLOBAL COMPACT

OCEAN STEWARDSHIP COALITION

WWF

TABLE OF CONTENTS

FOREWORD

Seafood Sector Guide to Science-Based Targets

The dual crisis of climate change and biodiversity loss requires unprecedented and urgent action. Covering 71 per cent of our planet's surface, the ocean is vital to sustaining human and natural life on Earth. The ocean also plays a fundamental role in regulating our climate. Not only does the ocean absorb 93 per cent of the additional heat from rising anthropogenic carbon dioxide (CO_2) emissions, it also absorbs approximately 25 to 30 per cent of anthropogenic CO_2 emissions that would otherwise remain in the atmosphere and increase global warming. However, its vastness does not make it immune from pressures and we are now witnessing a turning point for nature that will make protecting marine life business-critical.

Today, the ocean's organisms, habitats and ecosystems, along with the key services they provide, face multiple threats. Climate change-driven stressors such as eutrophication and acidification[1] are further exacerbated by human-induced pressures, including habitat destruction and unsustainable use of aquatic resources. Increased ocean warming has also led to changes in marine ecosystem patterns with serious impacts on ocean biodiversity, species richness and distribution – **including fish stocks**.

Indeed, future scenarios for climate change and global population growth project fish protein shortages across many regions as fisheries are pushed below sustainable harvesting levels,[2] with acute impacts for food security and the livelihoods of millions around the globe. Change in land and sea use is the main driver of biodiversity loss and ecosystem change. About 66 per cent of the marine environment has been significantly altered by human actions in the last 50 years (ISPBES), with food production by far the leading cause. The most recent Intergovernmental Panel on Climate Change (IPCC) report found, with high confidence, that ocean warming and acidification have already adversely affected food production from fisheries and aquaculture in many oceanic regions. Additional challenges are expected when global temperature increases reach 1.5°C.[3]

These impacts present a significant challenge for the seafood industry whose operations depend on healthy and thriving ecosystems. Against this backdrop: the business case for setting climate targets and adopting sustainable fishing practices, in line with what science tells us, **has never been stronger**. The industry has a critical window to illustrate ocean stewardship in protecting our largest common good and slowing humanity's approach to critical tipping points, while unlocking benefits ranging from risk mitigation to sustainable financing, **whilst contributing to combatting both the climate and nature crisis.** Seafood companies need to get on the front foot by setting a science based target for climate and supporting the development of a target for nature[4] for the industry to contribute to reverse biodiversity loss in this decade.

This is why the High-Level Climate Champions have set a target for 20 per cent of fisheries and aquaculture companies to join the UN-led Race to Zero by 2023. Companies joining this global campaign will join over 5,200 other businesses, along with cities, regions, investors and higher education institutions, in the largest ever alliance committed to achieving net zero emissions by 2050 (UNFCCC, n.d.).[5] Businesses can get involved in the Race to Zero by committing to set a science-based target with the Science-Based Targets initiative. This will also enlist them in the SBTi's Business Ambition for 1.5°C campaign, a global coalition calling for companies to set science based emissions reduction targets in line with the goals set out in the Paris Agreement.

This guide, **Setting Science-Based Targets in the Seafood Sector: Best Practices to Date**, is a collection of best practices, common challenges, solutions and experiences from the seafood sector to support companies on this journey.[6] As the seafood sector works towards a low carbon and sustainable future, collective action across geographies and supply chains will be key to reaching these goals. The upcoming SBTi Forest, Land and Agriculture methodology will provide a model for businesses in food, agriculture and forest sectors to set Science-Based Targets.

Therefore, I am calling on all seafood companies to set ambitious emissions reduction targets and join the Race to Zero, collaborate with peers, share solutions and to take a leading role in this urgent transition – **on which our futures depend**.

Authored by Nigel Topping, High Level Climate Champion

[1] The ocean is experiencing acidification and changes to the carbonate chemistry that are "unprecedented" for the last 65 million years See: Hoegh-Guldberg, O., D. Jacob, M. Taylor, M. Bindi et al. (2018). Impacts of 1.5°C Global Warming on Natural and Human Systems. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development and efforts to eradicate poverty. In Press. Available: **ipcc.ch/sr15/**

[2] IPCC. (2018). **ipcc.ch/sr15/**

[3] IPCC. (2018). **ipcc.ch/sr15/**

[4] **sciencebasedtargetsnetwork.org/**

[5] **unfccc.int/climate-action/race-to-zero-campaign#eq-1**

[6] Note: This guide is not intended to be a methodology or sector guidance for seafood, but rather a collection of good practices to support companies on their target-setting journey.

EXECUTIVE SUMMARY

Key Messages

- The impacts of climate change on the ocean present challenges to the seafood industry – both fisheries and aquaculture - underscoring the need for companies to incorporate climate into their business strategies.
- There is a strong business case for science-based emission reduction targets in the seafood industry, with benefits ranging from risk mitigation to unlocking financing.
- Fisheries and aquaculture face different challenges. While fisheries work to decarbonize vessels, aquaculture looks to electrification and low-carbon solutions for feed.
- Diverging methodologies in the seafood industry highlight a need for standardization across data collection practices, life cycle assessments and target setting methodology.
- Going forward, there is a need for collective climate action and collaboration across geographies and value chains.

BACKGROUND

Global fish production supports the livelihoods of millions of people worldwide and provides billions of people with protein, vitamins and minerals.[7] However, as climate change impacts the ocean's characteristics, the seafood industry is facing increasing challenges ranging from declining productivity to shifts in fish distribution. These challenges underscore the need for collective climate action and call for industry-wide collaboration across geographies and value chains.

RACE TO ZERO

The Race to Zero is a United Nations-led alliance of actors, ranging from cities to companies, working towards decarbonization ambitious enough to limit warming to 1.5°C. One of the Race to Zero partners aimed at businesses is the Business Ambition for 1.5°C from the Science-Based Targets initiative (SBTi).

SCIENCE-BASED TARGETS INITIATIVE (SBTi)

The SBTi is a global body enabling businesses to set ambitious emissions reductions targets in line with the latest climate science. The SBTi's goal is to accelerate companies across the world to support the global economy to halve emissions before 2030 and achieve net-zero before 2050.

The initiative is a collaboration between CDP, the United Nations Global Compact, World Resources Institute (WRI) and the World Wide Fund for Nature (WWF) and one of the We Mean Business Coalition commitments.

SCIENCE-BASED TARGETS (SBTs)

Targets set through the SBTi, or Science-Based Targets (SBTs), are validated as being sufficiently rigorous and ambitious to contribute to a 1.5°C future.[8] They show companies how much and how quickly their greenhouse gas (GHG) emissions must be reduced in order to align with the targets set by the Paris Agreement; and over 1,100 companies worldwide have had their targets approved.

To mitigate climate change, action is required from every industry and geography. A number of seafood companies are already stepping up to set emissions reduction targets, with several approved by the SBTi. The High Level Climate Champions have also set a target for **20 per cent of fisheries and aquaculture companies** to join the UN-led Race to Zero by 2023.

To support seafood companies in taking this step, the UN Global Compact and WWF have developed this guide, consolidating lessons learned to help seafood companies on their journey to setting Science-Based Targets (SBTs). The content of this guide was informed by input on climate related seafood challenges, solutions and targets from seafood companies, including Aker BioMarine, Cargill, Cermaq, Grieg Seafood, Hilton Food Group, Lerøy Seafood Group, Grupo Nueva Pescanova, Nutreco and Thai Union.

The inclusion of company names and/or examples in this publication is intended strictly for learning purposes and does not constitute an endorsement of the individual companies by the UN Global Compact, the SBTi, or WWF.

[7] FAO. (2020) The state of world fisheries and aquaculture - Sustainability in action. Rome. Available: **fao.org/3/ca9229en/CA9229EN.pdf**

[8] The SBTi is increasing ambition to only include 1.5°C in June 2022.

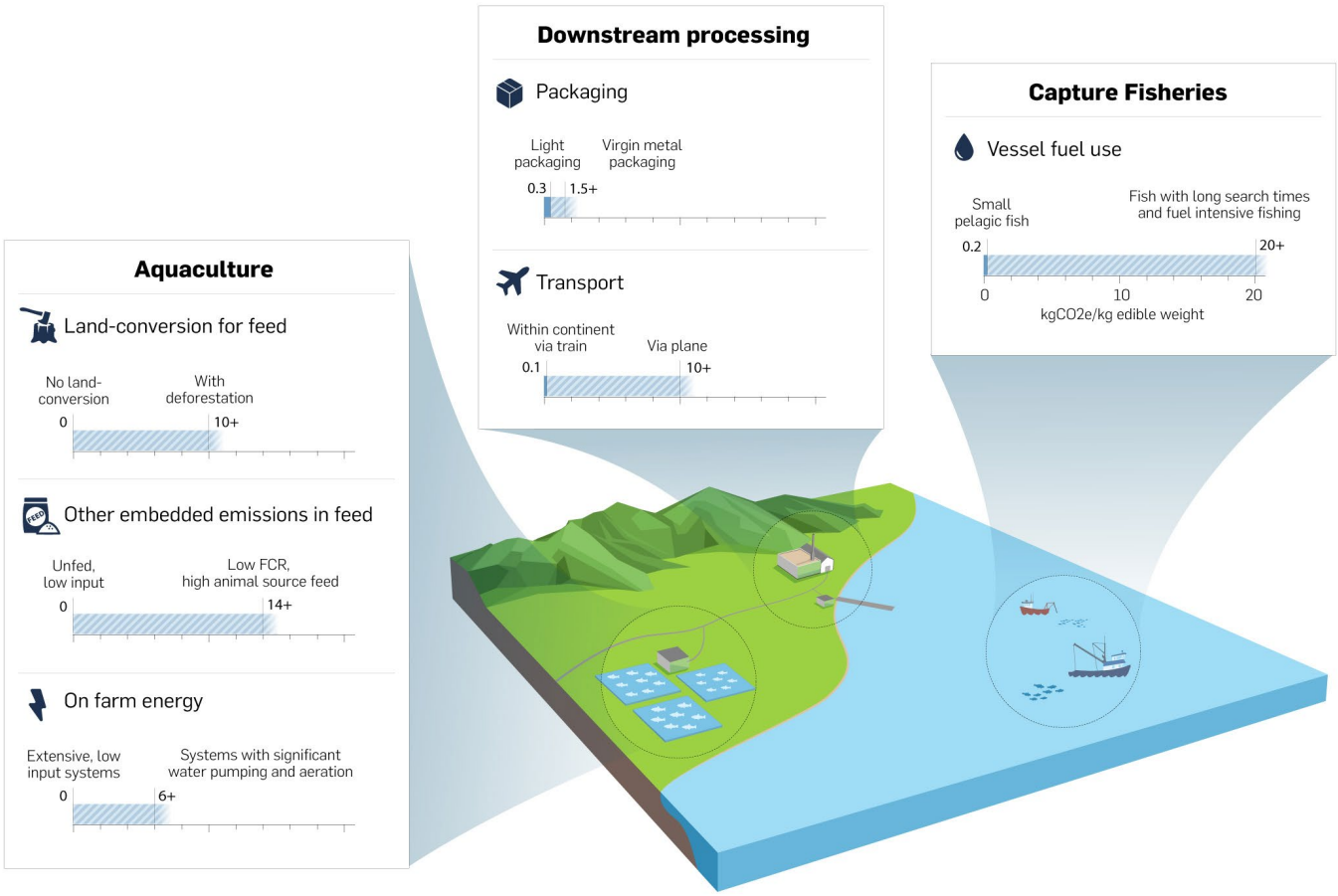

Figure 1: Where do aquatic food GHG emissions come from?

WHY SET SCIENCE-BASED EMISSIONS REDUCTION TARGETS?

While seafood already offers a lower carbon footprint compared to certain types of land-based protein,[9] the extensive reduction necessary to limit global temperature increases still requires significant action from the seafood industry. For a 1.5°C future, global greenhouse gas emissions must be halved by 2030 and reach net-zero by 2050, so all industries, including seafood, must contribute to reductions.[10]

There is also a strong business case for setting science-based emissions reduction targets (see Figure 2). Setting SBTs offers a range of opportunities and benefits, from financial incentives to positive ripple effects across supply chains. From a risk perspective, SBTs can help businesses mitigate the risk of incoming regulations, a consumer shift towards lower footprint food, physical climate change impacts on ocean operations and an investor shift away from companies without clear targets and transition plans. Setting these targets with the SBTi provides independent validation that targets are aligned with climate science and the Paris Agreement.

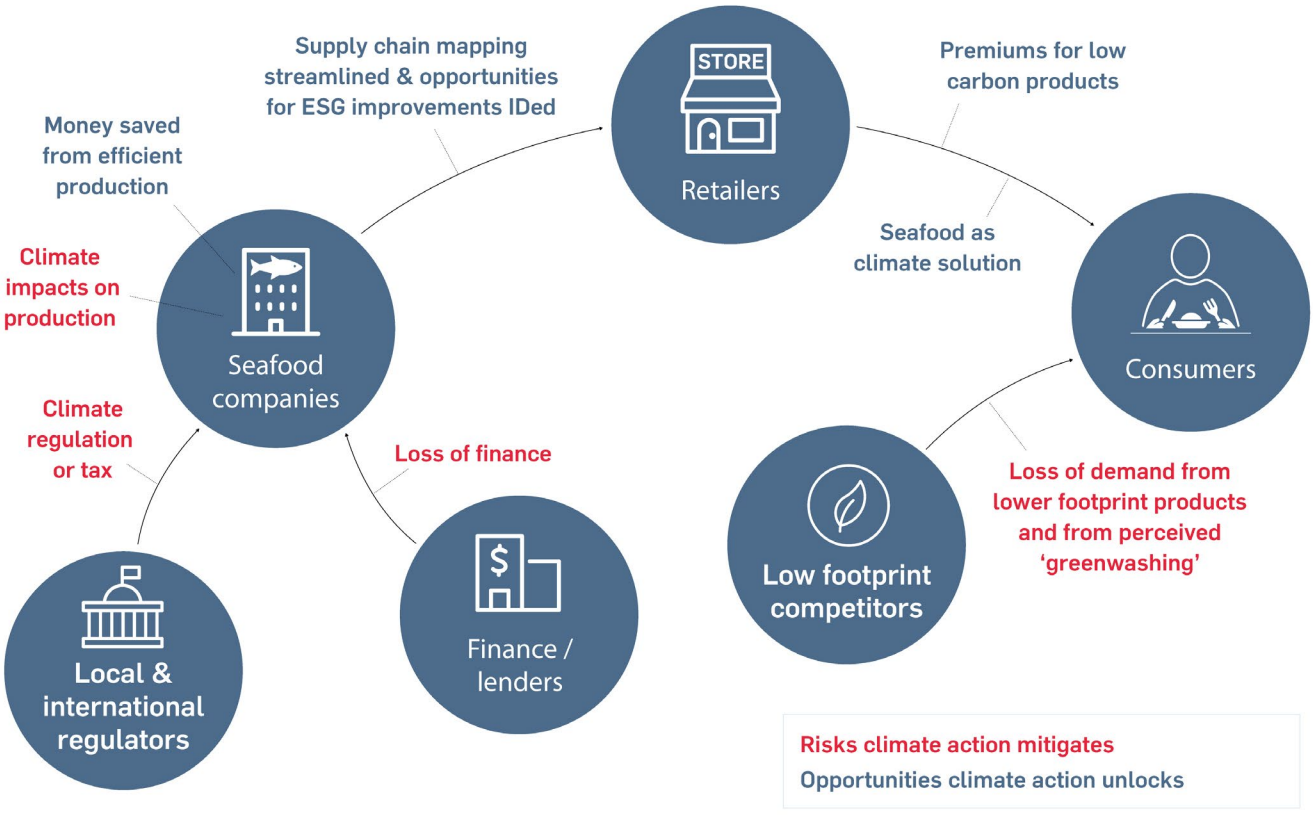

Figure 2: The Business Case for SBTs

[9] MacLeod, M.J., Hasan, M.R., Robb, D.H.F. et al. (2020). Quantifying greenhouse gas emissions from global aquaculture. Sci Rep 10, 11679. Available: **doi.org/10.1038/s41598-020-68231-8**

[10] Roe, S., Streck, C., Obersteiner, M. et al. (2019) Contribution of the land sector to a 1.5°C world. Nat. Clim. Chang.9, 817–828. Available: **doi.org/10.1038/s41558-019-0591-9**

COMMON CHALLENGES AND SUGGESTED SOLUTIONS

The case studies submitted by seafood companies highlighted a range of challenges that companies face when working with emissions reduction targets, as well as solutions that companies are currently implementing or plan to develop in the future.

Common challenges and suggested solutions in seafood

Challenge	Suggested Solutions
Sustainable and low carbon feed ingredients in aquaculture supply chains.	■ Undertake R&D with suppliers. ■ Invest in solutions such as lower carbon novel ingredients, while analyzing tradeoffs. ■ Move towards more sustainable feed supply chains and ensure feed. Ingredients do not cause deforestation or conversion of natural habitats.
Accounting for Scope 3 emissions in global supply chains & diverging data management systems.	■ Develop carbon accounting system linked to carbon emissions. ■ Intensify collaboration with suppliers to address the footprints of farms and vessels. ■ Work together on data collection and management.
Lack of uniform methodology/model to measure Scope 3 and conduct Life Cycle Assessments (LCA).	■ Collaboration within the seafood sector. ■ Development of sector-based guidance on measurement protocols.
Cost uncertainties and premiums around energy and solutions.	■ Internal carbon pricing to help drive long-term investment decisions. ■ Value chain collaboration to incorporate the value of emissions reduction measures into purchasing specifications.
Global divergences and regional specificity.	■ Coordinate research on feed efficiency and other production characteristics of farmed fishes across the world. ■ Develop place-based goals and implementation plans that reflect regional differences but adhere to globally-focused principles and targets.
Utilization of offsetting and insetting as an additional action beyond science-based target setting.	■ Build awareness that offsetting cannot be used towards progress on Science-Based Targets. ■ Progress discussions around offsetting and insetting in seafood beyond the context of emissions reduction targets, e.g. combining seaweed and aquaculture farms to capture emissions and provide mutual benefits to the fish stock. ■ Provide guidance for how companies can grow and still meet SBTs.
Low public awareness of sector efforts.	■ Develop communications to bring awareness of credible, science-based sustainability targets and mitigation efforts. ■ Demonstrate progress in systematic, clear and accurate manner.

Source: Case studies from Aker Bio Marine, Cargill, Cermaq, Grieg, Hilton Food Group, Lerøy, Grupo Nueva Pescanova, Nutreco and Thai Union

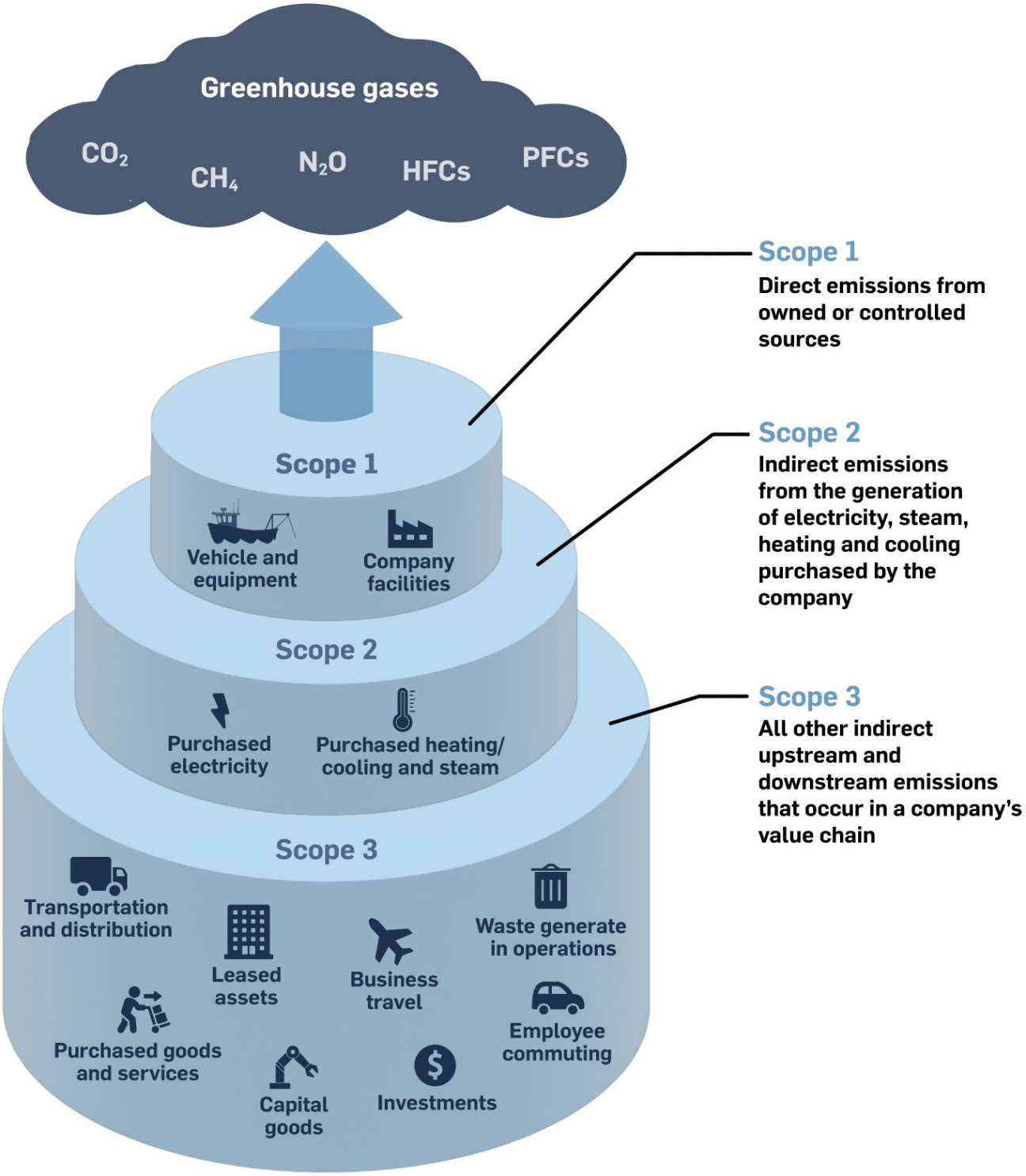

Figure 3: Setting and achieving science-based climate targets requires significant action by a company and its entire value chain

FREQUENTLY ASKED QUESTIONS

Challenge	Suggested Solutions
Who can join the SBTi?	Financial institutions and companies from all sectors and sizes can commit to setting a science-based target, with the exception of oil and gas companies. Small and Medium Enterprises (SMEs) can follow a streamlined process designed specifically for SMEs. See full answer
I already have an emissions reduction target. How can I join the SBTi?	If your company already has an emissions reduction target, please submit an SBTi commitment letter to join the initiative and commit to having your existing target independently verified against a set of science-based criteria.
How long does the SBTi process take?	After sending a commitment letter, companies have 24 months to submit their target to the SBTi. Once a target submission passes the initial screening, companies will be asked to sign the target validation service contract. Once signed, the SBTi will assess the submitted targets and communicate its decision within 30 business days of contract execution. Please note that the validation service closes each year from mid-December into January and therefore halts validation activities during this time. If targets are not approved, companies should review the feedback and resubmit targets as soon as they are able. The standard validation service includes a second assessment for no additional charge within six months of the first assessment. See full answer
How much does it cost?	On February 1, 2022, a new fee structure for validations came into effect: ■ Near-term Science-Based Target submission: $9,500 ■ Target update service: $4,750 ■ Near-term Science-Based Target submission – Small- and Medium-sized Enterprises: $1,000 ■ Net-zero target submission: $9,500 ■ Net-zero target submission – Small- and Medium-sized Enterprises: $1,000 ■ Developing countries near-term science-based target submission and/or net-zero target submission – Exempted: $0 Additional pricing and packages are available. See the SBTi Target Validation Services Offerings here. See full answer
What are the options for the seafood sector to set SBTs?	Seafood companies should use the SBTi's core methodologies and resources, including the SBTi FLAG guidance and FLAG sector tool where applicable.

Source: Science-Based Targets initiative, FAQ. See full list of FAQs here.

ADVICE FROM SEAFOOD COMPANIES WHO HAVE SET TARGETS

Cargill	Start now. Build internal expertise and partner with leading external groups to ensure efficiency and robustness of target-setting and implementation. Get started with the data you can get (primary or secondary) and document everything - where the data is from, what is missing, what the limitations are and work to improve them. Strengthen relationships with other value chain actors; their cooperation is essential for data collection and improvement and ultimately target achievement. Finally, clearly communicate progress to partners and the public. Without support from downstream in the value chain, the work will be much harder.
Cermaq	Having access to data and systems to produce a high level of detailed information about the company's emissions is crucial both for mapping the company's footprint and for tracking progress against reduction targets. Good data is also necessary to accurately assess reduction measures and their financial and operational impacts. Additionally, engaging with the company's value chain is key to delivering climate impact since this accounts for the majority of emissions.
Grieg Seafood	It is important to have solid GHG accounting in place for Scopes 1, 2 and 3 to have a good understanding of the main sources of emissions that must be reduced. Grieg Seafood also found it helpful to work with an experienced consultancy, as they found the process to be complex and appreciated the help of a capable team.
Hilton Food Group	Make the commitment at the top of your company and do it soon. The solutions to achieve SBTs for Scopes 1 and 2 are clear and will be a prerequisite for trade in years to come. For Scope 3, there is a need to take a leap of faith and commit to the collaborative efforts that will help drive the innovation which will in turn achieve huge carbon reductions across the value chain. Companies can address their own footprints, but it is not sufficient to act alone and they also need to collaborate to get ahead on the journey to shared SBTs.
Lerøy	Use time and resources to work with the subject. Thorough analysis and material analysis is needed before setting the target to ensure the target can be reached. Task Force on Climate-Related Financial Disclosures (TFCD) should be part of the core strategy of companies. Companies should not just set long-term targets, but also short- and medium-term targets. Small and medium sized companies should look for where they can contribute the largest impact. Companies should set goals going forward at the board level and target setting should be approved by top management so that it does not stay at the bottom of the corporation. Many companies' boards need to be educated on why and how they should achieve sustainability in the seafood industry. From a business perspective, sustainability is not just for looking good and reducing emissions, but it also means competitive advantage for the firm.

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GLOBAL ACTION ON CLIMATE CHANGE AND IMPLICATIONS FOR THE SEAFOOD INDUSTRY

CLIMATE CHANGE AND THE GLASGOW CLIMATE PACT

The Intergovernmental Panel on Climate Change (IPCC) regularly provides authoritative "Assessment Reports" on the science of climate change. These reports synthesize inputs from thousands of scientists and over 100 governments and conclude that:

> **Warming of the climate system is unequivocal and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen and the concentrations of greenhouse gases have increased.**

A milestone came in December 2015 with the Paris Agreement, a legally binding international treaty on climate change, which entered into force in November 2016 with 196 Parties. The aim of the Paris Agreement is to limit global warming to 1.5°C compared with pre-industrial levels and to ensure that even if the 1.5°C level is not reached, global warming will remain well below 2°C.

These targets have now been reaffirmed in the 2021 Glasgow Climate Pact, which recognizes that holding the increase in global average temperature to well below 2°C and pursuing efforts to limit the temperature increase to 1.5°C would significantly reduce the risks and impacts of climate change.[11]

THE ROLE OF SEAFOOD AS A FOOD SOURCE

Global fish production reached about 177.8 million tonnes in 2019, sustaining markets worth billions of United States dollars and supporting the livelihoods of millions of people, mostly in Asia and Africa. Fish provides more than 3.3 billion people with at least 20 per cent of their average per capita intake of animal protein and accounts for about 17 per cent of the world population's intake of animal proteins, but this share can be 50 per cent or higher in some developing countries.[12]

Fish and fish products are important sources of nutrients and micronutrients such as vitamins, minerals (zinc, iron, iodine and selenium) and omega-3 fatty acids and are a critical source of nutrition in communities where few nutrient-rich alternatives are readily available. Fisheries and aquaculture assure livelihoods for 10–12 percent of the world's population (FAO, 2014),[13] and about 60 million people were engaged in the primary sector (i.e. harvesting activities) of capture fisheries and aquaculture in 2017. Women comprise over 50 per cent of the entire sector.[14]

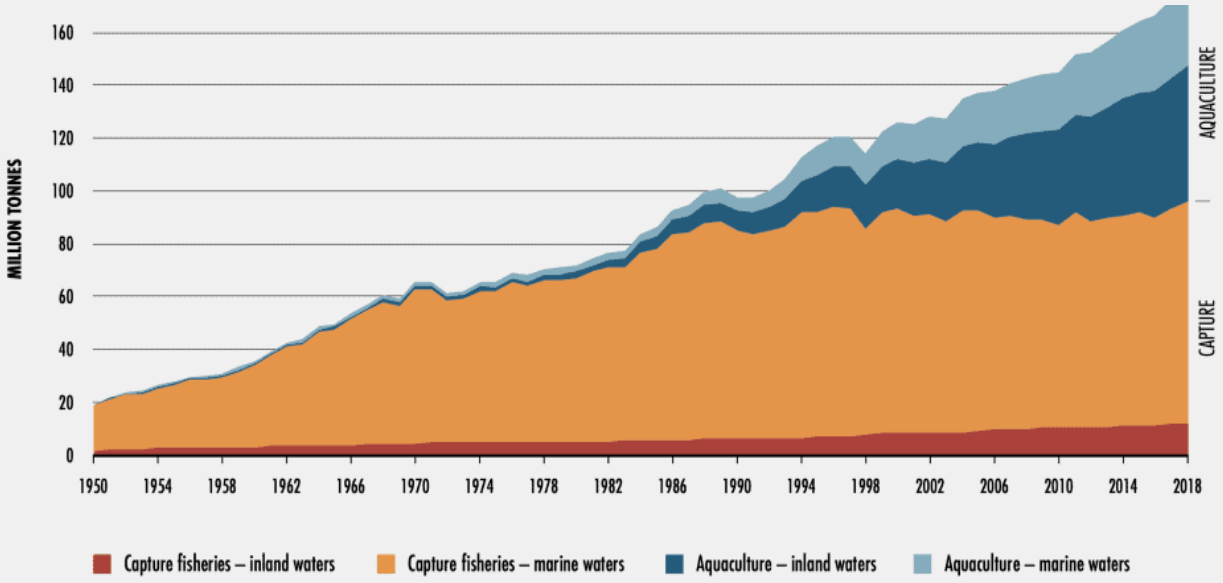
Aquatic food production, especially fast-growing aquaculture, is projected to contribute a bigger portion of future food baskets. However, about one third of the assessed stocks in the world are currently overfished and climate change poses additional stress to aquatic ecosystems and the food production systems they sustain.

[11] UNFCCC. (2021) Decision -/CP.26, Glasgow Climate Pact.
Available: **unfccc.int/sites/default/files/resource/cop26_auv_2f_cover_decision.pdf**

[12] FAO. (2020) The state of world fisheries and aquaculture - Sustainability in action. Rome.
Available: **doi.org/10.4060/ca9229en**

[13] FAO. (2020). The state of world fisheries and aquaculture - Sustainability in action. Rome.
Available: **doi.org/10.4060/ca9229en**

[14] FAO. (2014). The state of world fisheries an d aquaculture - Opportunities and challenges. Rome.
Available: **fao.org/3/i3720e/i3720e.pdf**



Note: Excludes aquatic mammals, crocodiles, alligators and caimans, seaweeds and other aquatic plants.
Source: FAO, 2020 [15]

Figure 4: World capture fisheries and aquaculture production

[15] FAO. (2020). The state of world fisheries and aquaculture - Sustainability in action. Rome. Available: **doi.org/10.4060/ca9229en**

HOW CLIMATE CHANGE AFFECTS THE SEAFOOD INDUSTRY

Climate change impacts on the world's aquatic resources can be broken into four primary, interrelated categories: changes to aquatic climates, changes to aquatic chemistry, changes to ocean circulation and changes to sea level and ice distribution. While global patterns are clear, these impacts vary across the globe. The extent to which these impacts interact is poorly understood at regional and local settings and is the subject of intense study.

Changes to sea level and ice distribution

Climate change increases sea level in two main ways: warmer water expands and melted terrestrial ice flows into the ocean. From 2007–2016, the rate of melting of the Greenland Ice Sheet doubled and the melting of the Antarctic Ice Sheet tripled. The melting is expected to continue throughout this century, contributing to rising sea levels, which have already increased, globally by 16 cm from 1902 to 2015. Rising sea levels threaten built coastal infrastructure like roads and ports as well as sensitive coastal ecosystems like salt marshes.

Changes to the aquatic climate

Global sea surface temperatures have increased on average by 0.7°C over the past century.[16] This is associated with the buffering function of the ocean, which has absorbed some 93 per cent of the extra heat associated with climate change. A warmer ocean is associated with increased frequency and intensity of extreme weather events such as marine heatwaves,[17] which are particularly devastating for key marine ecosystems like coral reefs, but can also damage ecosystems like kelp forests and seagrass meadows, salt marshes and mangroves.[18] Warmer temperatures also influence fishes' ability to digest, fight disease and reproduce. Freshwater ecosystems have been warming to an even greater extent;[19] these temperature increases are likely to have similarly negative physiological impacts on fish.

Changes to the aquatic chemistry

The ocean has absorbed much of the excess carbon dioxide emitted from the burning of fossil fuels, resulting in increasingly acidic waters. This poses a particular challenge for marine organisms that build shells, such as snails (e.g. pteropods) and corals, which are more difficult to build and maintain under acidic conditions. These organisms are a key part of marine food webs; recent estimates suggest over a third of fish species depend on corals.[20] Warmer waters also lead to lower oxygen levels in ocean waters, causing suitable environments for certain organisms to contract. Freshwater ecosystems also absorb excess carbon dioxide, but the effect on organisms has been less widely studied.

Changes to ocean circulation

Currents are crucial for many aspects of the ocean we know, redistributing heat and freshwater from polar ice melt, generating nutrient-rich upwelling areas and shaping local weather patterns. Climate change is causing ocean circulation to change, slowing down key currents and resulting, among other things, in lower levels of sea ice formation.

[16] USGCRP. (2017). Climate Science Special Report: Fourth National Climate Assessment, Volume I, Chapter 13 [Wuebbles, D.J., D.W. Fahey, K.A.Hibbard, et al. (eds.)]. U.S. Global Change. Research Program, Washington, DC, USA, 470 pp, doi: 10.7930/J0J964J6.

[17] Cheung, W. W., Frölicher, T. L., Lam, et al. (2021). Marine high temperature extremes amplify the impacts of climate change on fish and fisheries. Science Advances, 7(40), eabh0895.

[18] IPCC. (2019) Summary for Policymakers. In: IPCC Special Report on the Ocean and Cryosphere in a Changing Climate. Available: **ipcc.ch/site/assets/uploads/sites/3/2019/11/03_SROCC_SPM_FINAL.pdf.**

[19] O'Reilly, C. M., Sharma, S., Gray, D. K., et al. (2015). Rapid and highly variable warming of lake surface waters around the globe, Geophys. Res. Lett., 42, 10,773–10,781.

[20] Strona G., Lafferty K. D., Fattorini S., et al. (2021) Global tropical reef fish richness could decline by around half corals are lost. Proc. R. Soc. B.2882021027420210274.

IMPACTS ON SEAFOOD PRODUCTION

Collectively, these four impacts already translate into changes for the seafood industry, with three particularly well-studied risks highlighted below.

Firstly, the distribution and abundance of fish populations have been changing, as they first move deeper, offshore and poleward to track suitable habitat and food sources.[21] This poses a major challenge for both fishermen and for fisheries managers, particularly in the case of transboundary fish stocks managed by multiple countries. Shifts in distribution are expected to result in up to 60 fish stocks becoming transboundary by 2060.[22]

Secondly, fisheries on a global level are expected to grow less productive, although in some isolated areas there may be minor increases in production. In a global sense, mean global marine animal biomass is expected to decrease by up to 17 per cent by 2100 in the absence of fishing, driven primarily by increasing temperatures and decreasing primary production.[23] A slowing of currents is expected to weaken upwelling systems that currently contribute to some of the most productive fisheries in the world; by 2050, the maximum catch potential globally could decrease by over 7 per cent relative to 2000.[24] These negative impacts are likely to affect aquaculture as well[25] warmer waters influence disease, algae bloom frequency, fish growth rates and oxygen related fish kills.

Thirdly and finally, extreme weather events such as tropical cyclones and storm surges are expected to grow increasingly frequent and severe in the coming decades. Storms are a safety risk for capture fisheries and coastal infrastructure associated with the seafood value chain is at particular risk.

Although climate-driven changes in temperature, precipitation, ocean acidification, incidence and extent of hypoxia and sea level rise, among others, will potentially have both favorable and unfavorable impacts on aquaculture, the available information indicates that unfavorable changes are likely to outweigh favorable ones, particularly in developing countries where adaptive capacity is typically weakest.[26]

Chile and Norway have been identified as the most vulnerable geographic locations for marine aquaculture; Vietnam, Thailand, Egypt and Ecuador stood out in terms of brackish water production; Vietnam, Bangladesh, Laos and China were indicated as most vulnerable to impacts on freshwater production.[27]

[21] Poloczanska, E., Brown, C., Sydeman, W. et al. (2013) Global imprint of climate change on marine life. Nature Clim Change 3, 919–925. Available: **doi.org/10.1038/nclimate1958**.

[22] Pinsky, M. L., Reygondeau, G., Caddell, R., et al. (2018). Preparing ocean governance for species on the move. Science, 360(6394), 1189–1191.

[23] Lotze, H.K., Tittensor, D.P., Bryndum-Buchholz, A., Eddy, T.D., Cheung, W.W., Galbraith, E.D., Barange, M. et al. (2019) Global ensemble projections reveal trophic amplification of ocean biomass declines with climate change. PNAS, 116(26): 12907-12912. Available: **doi.org/10.1073/pnas.1900194116**.

[24] Lam, V., Cheung, W., Reygondeau, G. et al. (2016) Projected change in global fisheries revenues under climate change. Sci Rep 6, 32607. Available: **doi.org/10.1038/srep32607**.

[25] Froehlich, H.E., Gentry, R.R. & Halpern, B.S. (2018) Global change in marine aquaculture production potential under climate change. Nat Ecol Evol 2, 1745–1750. Available: **doi.org/10.1038/s41559-018-0669-1**.

[26] Dabbadie, L., Aguilar-Manjarrez, J., Beveridge, M.C.M., et al. (2018). Effects of climate change on aquaculture: drivers, impacts and policies. In: Barange, M., Bahri, T., Beveridge, M.C.M., Cochrane, K.L., Funge-Smith, S. and Poulain, F. (eds.) (2018). Impacts of climate change on fisheries and aquaculture - Synthesis of current knowledge, adaptation and mitigation options. Chapter 20. FAO Fisheries and Aquaculture Technical Paper 627. Rome. 628 pp. Available: **fao.org/3/i9705en/i9705en.pdf**.

[27] Soto, D., Ross, L.G., Handisyde, N., et al. (2018) Climate change and aquaculture: vulnerability and adaptation options. In: Barange, M., Bahri, T., Beveridge, M.C.M., Cochrane, K.L., Funge-Smith, S. and Poulain, F. (eds.) 2018. Impacts of climate change on fisheries and aquaculture Synthesis of current knowledge, adaptation and mitigation options. Chapter 21. FAO Fisheries and Aquaculture Technical Paper 627. Rome.628 pp. Available: **fao.org/3/i9705en/i9705en.pdf**.

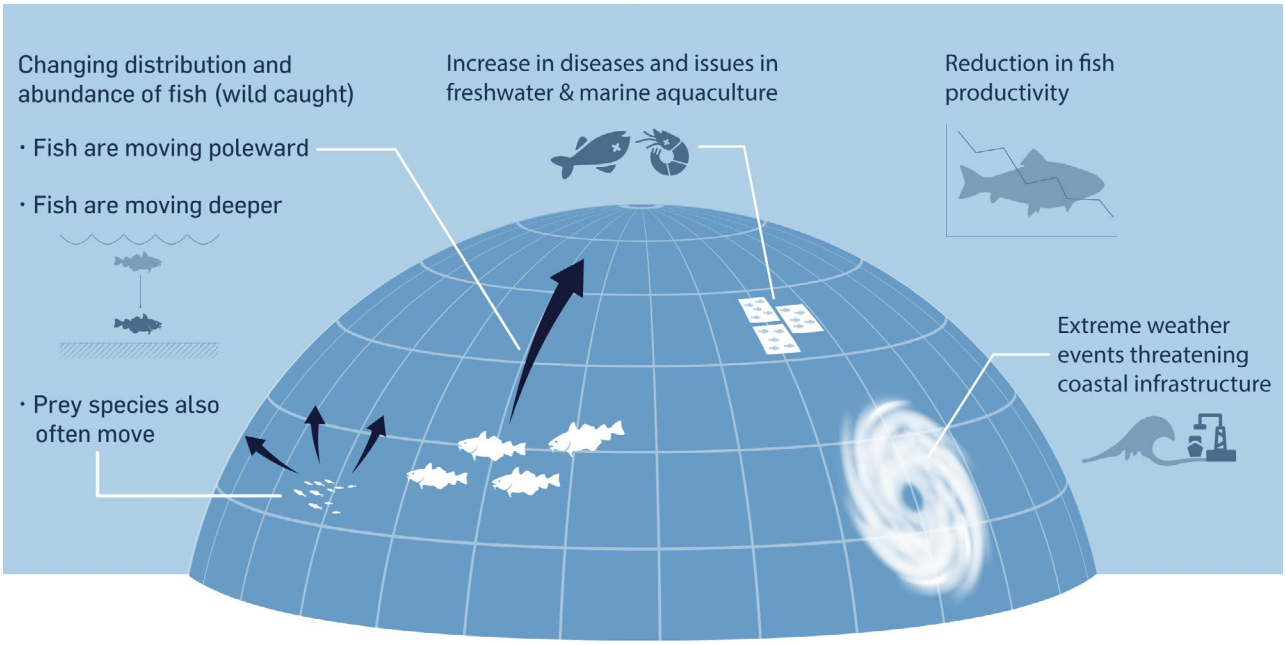


Figure 5: Impacts of climate change on seafood production

THE SEAFOOD INDUSTRY'S CONTRIBUTION TO CLIMATE CHANGE MITIGATION

Aquatic food derived from sustainable fisheries and aquaculture is known to have one of the lowest carbon footprints among all the animal-source food commodities. In 2012, the estimated global emission of carbon dioxide by fishing vessels, both marine and inland, was 172.3 megatonnes, which was about 0.5 per cent of total global carbon dioxide emissions that year.[28] The aquaculture industry, including the emissions involved in capturing fish and cultivating crops for feed, was estimated to emit 263 megatonnes of carbon dioxide equivalent in 2017.[29] More recent estimates suggest these values could be nearly double.[30]

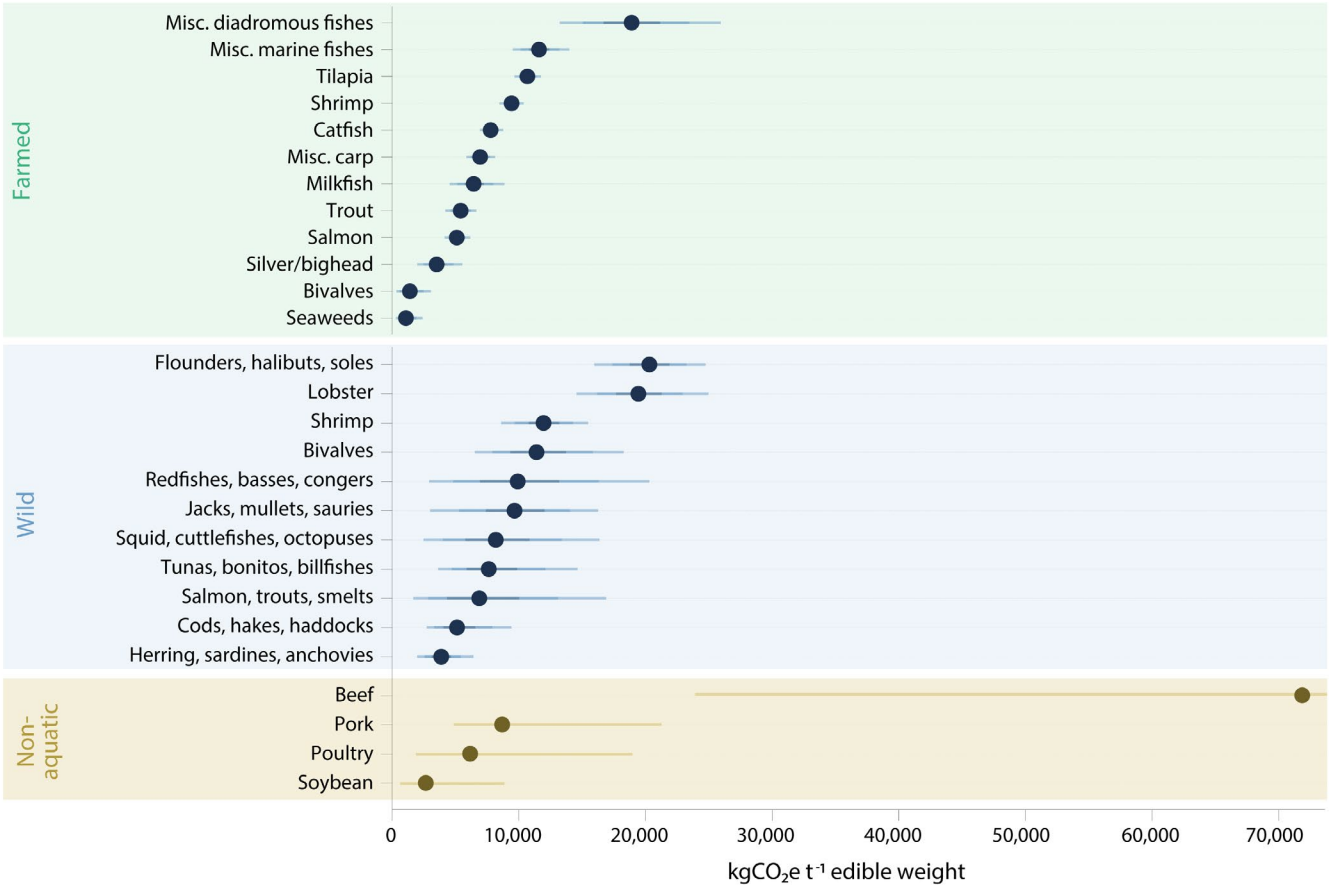


Figure 6: Aquatic food emissions (to dock) to terrestrial sources (to farm gate)[31]

[28] He, P., Davy, D., Sciortino, J., et al. (2018) Countering climate change: measures and tools to reduce energy use and greenhouse gas emission in fisheries and aquaculture. In: Barange, M., Bahri, T., Beveridge, M.C.M., Cochrane, K.L., Funge-Smith, S. and Poulain, F. (eds.) 2018. Impacts of climate change on fisheries and aquaculture - Synthesis of current knowledge, adaptation and mitigation options. Chapter 27. FAO Fisheries and Aquaculture Technical Paper 627. Rome. 628 pp. Available: **fao.org/3/i9705en/i9705en.pdf**

[29] MacLeod, M.J., Hasan, M.R., Robb, D.H.F. et al. (2020) Quantifying greenhouse gas emissions from global aquaculture. Sci Rep 10, 11679. Available: **doi.org/10.1038/s41598-020-68231-8**

[30] Gephart, J.A., Henriksson, P.J.G., Parker, R.W.R. et al. (2021) Environmental performance of blue foods. Nature 597, 360–365. Available: **doi.org/10.1038/s41586-021-03889-2**

[31] Data from Gephart, J.A., Henriksson, P.J.G., Parker, R.W.R. et al. Environmental performance of blue foods. Nature 597, 360–365 (2021). and Poore, J., & Nemecek, T. (2018). Reducing food's environmental impacts through producers and consumers. Science, 360(6392), 987–992.

Where do aquatic food GHG emissions come from?

Aquaculture:
Emissions from aquaculture are dominated by the footprint of aquaculture feed; the feed emissions come from deforestation to clear cropland for crops like soy, from nitrous oxide emissions after fertilizer application and from machinery like tractors. Accordingly, fish with a higher feed conversion ratio tend to have a higher GHG footprint. Aquaculture production may also use significant amounts of electricity or diesel fuel to operate pumps, aerators, or boats.

Capture fisheries:
Emissions from capture fisheries largely come from the fuel for fishing vessels. Roughly speaking, fuel use efficiency (L/tonne fish) captures variability in emissions from fishing.

Downstream processing:
Emissions from electricity use to filet and package fish are often small compared to the footprint of rearing or capture. The GHG from some packaging may be significant. When air-freight is used to transport fresh product, this source of emissions tends to be much larger than rearing and capture.

However, the low emissions intensity from aquatic food production should not be grounds for complacency and there are significant opportunities for deeper decarbonization along the value chains of fisheries and aquaculture.[32]

In the case of capture fisheries, a 10 to 30 per cent reduction of vessel emissions is achievable with efficient engines and larger propellers, better vessel shape and hull modifications and speed reductions.[33] There are also opportunities to reduce GHG emissions in aquaculture, which include improving technological efficiency, reducing reliance on fossil fuels, moving to low GHG intensity feed ingredients and improving feed conversion rates.

Combining these approaches would result in a reduction of 21 per cent in CO_2 emission per tonne of fish produced,[34] although it can be higher than 50 per cent for some species.[35] Given that 35 per cent of the global harvest in capture fisheries and aquaculture is estimated to be either lost or wasted every year,[36] reducing food loss and waste in seafood value chains also represents good potential for mitigation benefits.

[32] He, P., Davy, D., Sciortino, J., et al. (2018) Countering climate change: measures and tools to reduce energy use and greenhouse gas emission in fisheries and aquaculture. In: Barange, M., Bahri, T., Beveridge, M.C.M., Cochrane, K.L., Funge-Smith, S. and Poulain, F. (eds.) 2018. impacts of climate change on fisheries and aquaculture - Synthesis of current knowledge, adaptation and mitigation options. Chapter.
27. Fisheries and Aquaculture Technical Paper 627. Rome. 628 pp. Available: **fao.org/3/i9705en/i9705en.pdf**.

[33] He, P., Davy, D., Sciortino, J., et al. (2018).

[34] ibid.

[35] Gephart, J.A., Henriksson, P.J.G., Parker, R.W.R. et al. Environmental performance of blue foods. Nature 597, 360–365 (2021). **doi.org/10.1038/s41586-021-03889-2**.

[36] FAO. (2020) The state of world fisheries and aquaculture - Sustainability in action. Rome. Available: **fao.org/3/ca9229en/CA9229EN.pdf**.

2

WHY SET A SCIENCE-BASED TARGET?

THE BUSINESS CASE FOR CLIMATE TARGETS IN SEAFOOD

Seafood has always been favorable as having a low carbon footprint compared to land-based, animal source protein. Sustainability is about balancing priorities. As a low carbon source of protein: why should SBTs be a priority for seafood companies?

> ***Make the commitment at the top of your company and company and do it soon. The solutions to achieve SBTs for Scopes 1 and 2 are clear and will be a prerequisite for trade in years to come.***
>
> *Hilton Food Group*

> ***Companies should look at target setting from a business perspective. It is not only reducing emissions, but it is also a competitive advantage and can be good for the business model going forward. It will be easier for companies to set these targets if they can realize the business benefits beyond the environmental issues.***
>
> *A business perspective on SBTs*
> *Advice from Lerøy*

The case for a low carbon business is compelling and investors are increasingly focusing on business and product footprints, and the ability to reduce them. Most CEOs will understand this as a top line statement, but few will know what it takes to decarbonize their business and get the full value and consumer recognition from doing so. The case for making science-based emissions reduction commitments can be expressed under the following areas.

A MITIGATE RISKS AND CAPTURE OPPORTUNITIES

As the business landscape shifts towards a lower-carbon future, setting ambitious emissions reduction targets can help companies mitigate risks and capture business opportunities.

TABLE 1: THE BUSINESS CASE

MITIGATING RISKS

- Reduce potential impacts from the regulatory dimension such as incoming taxonomies and carbon taxes linked to Emissions Trading Systems (ETS) schemes.
- Ocean operations and terrestrial feed production can be at risk from physical climate change and emissions reduction contributes to climate change mitigation.
- Reduce losses from a shift in demand away as consumers choose lower footprint food.
- Reduce the risk of losing future financing as investors shift away from companies that have not set clear targets and transition plans.
- Improve farm practices to decrease risk of mortality due to issues such as hypoxia, disease and algae blooms.
- Reduce the risk of greenwashing and false advertising claims by externally validating that targets are aligned with climate science.

OPPORTUNITIES AND BENEFITS

- Commercial benefits: Capture consumer premiums for lower and zero carbon products.
- Data management and standardization: mapping your supply chain and data entry points can help to digitize and standardize supplier information.
- Demonstrate leadership to position seafood as a solution to climate change.
- Capture positive social ripple effects from supply chain mapping, such as the opportunity for human rights due diligence.
- Benefit from financial incentives from synergies between efficiency improvements and lower footprints.
- Opportunity for pre-competitive collaboration to learn from one another about mitigation strategies and make progress at a greater pace.

(See Figure 2)

B REPORTING TO INVESTORS AND CUSTOMERS

In some countries, reporting on climate related issues is a legal requirement. One example of this is the UK,[37] which will require firms to disclose financial information on climate-related risks and opportunities in line with the Task Force on Climate-Related Financial Disclosures (TCFD).

Additionally, some reporting frameworks, such as the Carbon Disclosure Project (CDP), rank companies according to their transparency of disclosure and level of ambition; and several global ESG benchmarking organizations use the publicly available disclosures to create a ranking of corporate performance for investors. Higher scores in these rankings could give investors confidence to buy and hold shares in the longer term and can give customers confidence to form longer term partnerships.

C COST SAVINGS

Reducing emissions can help to drive down unit costs through improved efficiency and can also considerably reduce the potential for future carbon tax impacts.

D REPUTATION

Taking a leading position in driving down carbon emissions in the company's own operations and supply chains can also help customers deliver on their emissions reduction targets, making it harder for competitors to replicate the offer. This leading reputation can also bring brand loyalty from consumers and employees. Setting a reputable, science-based target ensures efforts are not seen as greenwashing.

E LICENSE TO OPERATE AND GROW

Ultimately, governments and societies will not tolerate high emitting business models and will regulate them. Likewise, the sectors that can provide low carbon nutritious food will have the license to grow throughout the transition.

[37] UK Department for Business, Energy & Industrial Strategy, HM Treasury, John Glen MP and The Rt Hon Greg Hands MP. (2021)UK to enshrine mandatory climate disclosures for largest companies in law. Available: **gov.uk/government/news/uk-to-enshrine-mandatory-climate-disclosures-for-largest-companies-in-law**.

The Financial Case for SBTs

HARNESSING CONDITION-BASED FINANCING

There is a growing appetite for sustainable financing instruments within the financial community. In the blue economy in general and the seafood industry in particular, this has been illustrated by multiple recent initiatives that could all be gathered together under the umbrella of 'blue finance': blue bonds, green bonds issued by aquaculture companies, a sustainability-linked loan to a large integrated seafood company, sustainable loans to the salmon aquaculture sector, private equity invested in blue-tech, etc. Whilst the multiplication of these initiatives demonstrates an increasing commitment to sustainability overall, it also makes it harder to distinguish between well-conceived, science-based, genuinely sustainable projects that blue finance helps unlock, materialize or scale and others that are more akin to "bluewashing".

The use of **SBTs helps investors and lenders distance themselves from the latter and favour** the former, especially if such targets are clear and precise, externally verified, peer-reviewed and validated. Overall, as demand for truly sustainable, SBTs rises, this should gradually translate into more attractive financing terms for issuers resorting to them compared to the others *(ceteris paribus)*. This is especially true for **condition-based financing**, such as sustainability-linked loans and bonds (where e.g. the interest rate becomes more favorable to the issuer when a selection of environmental targets are reached).

COUNTERING THE PROLIFERATION OF INITIATIVES

An additional challenge identified by investors is the proliferation of different initiatives, frameworks and standards used in the seafood sector when requiring external capital to finance sustainable projects. Whilst this reflects the diversity and fragmentation of the industry, it also makes it harder for investors and lenders to gauge, rank and trust the impact of their financing actions on sustainability and, in the worst cases, allows the parties involved to cherry-pick the least demanding standards or frameworks. The use of widely accepted initiatives, standards and frameworks should therefore be strongly encouraged. Again, external verification or rating of the instruments designed is helpful in this regard.

Next on the to-do list of corporates wishing to harness sustainable finance should be the need for **additionality**. If the targets that condition the issuance of a financing instrument or an equity were already part of that company's strategy and could have been achieved without the desired financing, then such financing provides no incremental benefit to the overall sustainability of the company.

DIFFERENTIATING BETWEEN SUSTAINABLE AND MAINSTREAM: LESSONS FROM SEAFOOD

Lastly and perhaps most importantly, the question of the difference between sustainable finance and mainstream finance should be raised. If only a minority of a company's capital stack is regarded as sustainable, what does that say about its strategy? Should there really be a distinction between blue finance for sustainable projects and business-as-usual finance for business-as-usual? To answer this question, an analysis of the key financial targets of the company and its financing needs can help.

For instance, for listed Japanese seafood companies, the key financial indicators that equity investors favor the most are growth in revenue, growth in operating profit, growth in operational cash flow and growth in returns.[38] Formulating strategies that help the company grow these indicators in a sustainable way (and where the sustainability of such strategies is evidenced by science) would not only ensure greater sustainability but be rewarded by investors. This in turn would contribute to closing the gap between sustainable finance and business-as-usual finance and demonstrate that sustainability is not a costly proposition but a profitable one. The use of SBTs is therefore crucial for companies operating in the seafood industry.

With acknowledgements and thanks to **Planet Tracker**.

[38] Mosnier, F., Willis, J. (2021). Against the Tide - The Japanese Seafood Industry Confronts Natural Capital's Limits. Available: **planet-tracker.org/wp-content/uploads/2021/07/Against-the-Tide.pdf**

WHY THE SCIENCE-BASED TARGETS INITIATIVE?

The SBTi defines best practice in science-based target setting, offering resources, guidance and a methodology to help companies set targets in line with climate science. Targets submitted for approval by the SBTi are independently assessed by an expert team in line with strict criteria and this independent verification demonstrates that the company's targets are truly aligned with the targets set out in the Paris Agreement and Glasgow Climate Pact, which in turn can help to improve stakeholder confidence in the targets.

WHY SET TARGETS WITH THE SBTI?

Hilton Food Group

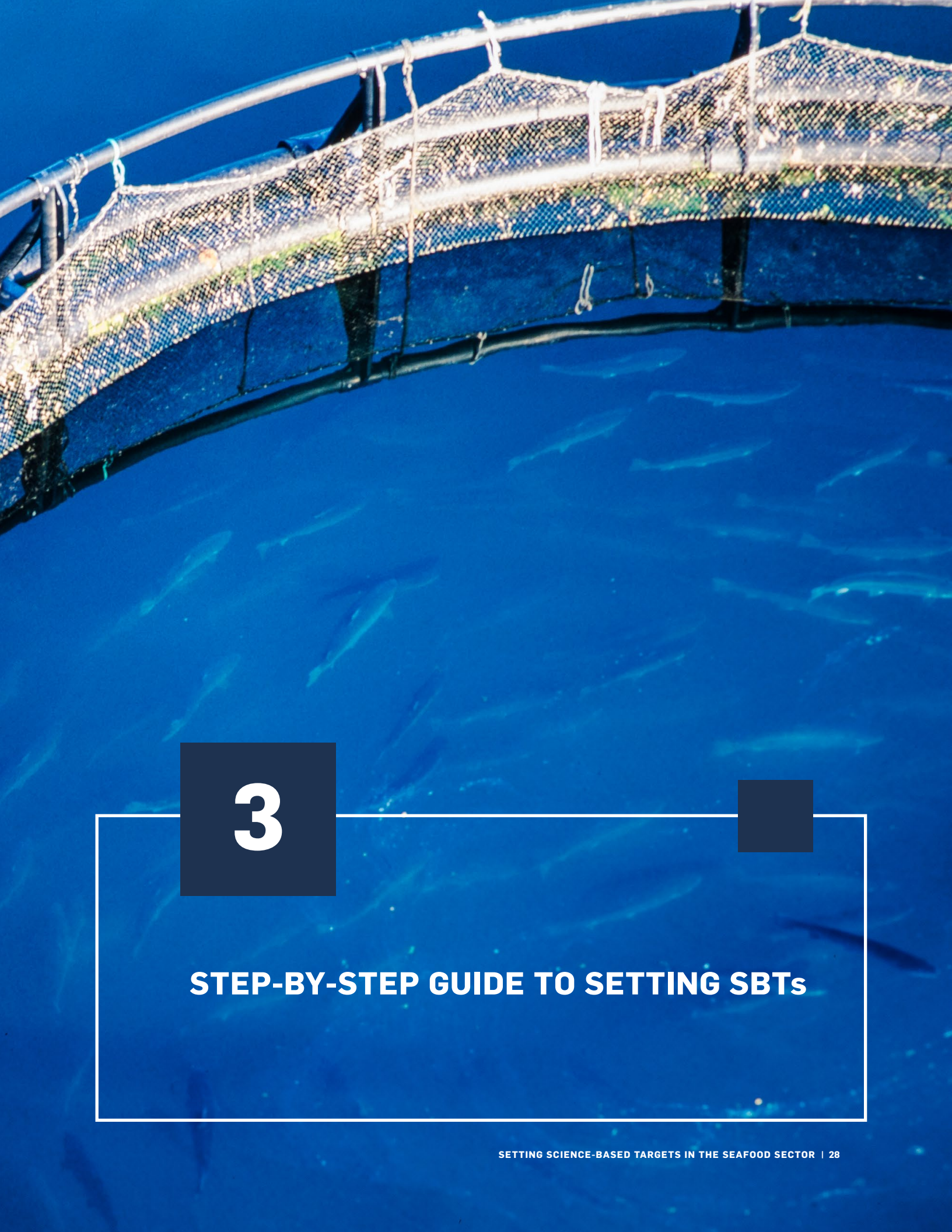
Hilton Food Group sees the SBTi as the best global framework to engage with in order to benchmark emission reduction plans against the Paris Agreement targets and to build a consensus plan across value chains with suppliers and customers.

(See annex for full case)

Cermaq

The SBTi has become the sector best practice for setting climate targets and the initiative's requirements and technical review process provides a higher level of rigor than many alternative frameworks. Additionally, the linkage between the SBTi and CDP integrates the reporting of progress towards science-based climate targets in coming years.

(See annex for full case)



3

STEP-BY-STEP GUIDE TO SETTING SBTs

The SBTi offers online resources ranging from step-by-step guides and a corporate manual outlining the process and methodology for setting SBTs. New guidance for the forest, land and agriculture (FLAG) sector is currently in development and is expected to launch at the end of June 2022.

This present guide aims to illustrate how these steps can be implemented by offering case study examples and advice from seafood companies who have gone through the target setting process or who are preparing to submit. The various factors of the SBT—such as the scope coverage,[39] timeframe, ambition level and target setting approach—can vary depending on the company, so while the following targets can be used as examples, each company should carefully assess their own operations and capabilities when developing their target.

Seafood industry examples of SBTs approved by the SBTi

Company	Temperature Alignment with Global Ambition	Target Step-by-step guide to setting SBTs
Lerøy Seafood Group ASA	1.5˚C	Reduce absolute Scope 1, 2 and 3 GHG emissions by 46% by 2030 from a 2019 base year.
Cermaq	Well-below 2˚C	Reduce absolute Scope 1, 2 and 3 GHG emissions by 35% by 2030 from a 2019 base year.
Grieg Seafood	Well-below 2˚C	Reduce absolute Scope 1, 2 and 3 GHG emissions by 35% by 2030 and by 100% by 2050 from a 2018 base year.
Hilton Food Group	Well-below 2˚C	Reduce absolute Scope 1 and 2 GHG emissions by 25% by 2030 from a 2020 base year. Reduce absolute Scope 3 GHG emissions from purchased agricultural products by 12.3% within the same timeframe.
Nutreco	Well-below 2˚C	Reduce absolute Scope 1 and 2 GHG emissions by 30% by 2030 from a 2018 base year. Reduce Scope 3 GHG emissions by 58% per unit of value added over the same timeframe. The target boundary includes biogenic emissions and removals from bioenergy feedstocks.
Cargill Inc.	2˚C	Reduce absolute[40] Scope 1 and 2 GHG emissions by 10% by 2025 from a 2017 base-year. Reduce Scope 3 GHG emissions by 30% per ton of product sold by 2030 from a 2017 base-year. * The target boundary includes biogenic[41] emissions and removals from bioenergy feedstocks.

Source: Science-Based Targets initiative

[39] Scope 1: Direct GHG emissions
Scope 2: Purchased electricity, steam, heat and cooling indirect GHG emissions
Scope 3: Other indirect GHG emissions (upstream and downstream)
GHG Protocol. (2015) Corporate Accounting and Reporting Standard. Available: **ghgprotocol.org/corporate-standard**

[40] Absolute emissions reductions means the total yearly GHG emissions decrease even if the company or its output grows.

[41] Biogenic emissions are those arising from natural sources like deforestation, decomposition of organic matter and nitrous oxide emissions rom soils.

DATA COLLECTION

Data are critical for multiple stages of GHG target setting and attainment. Data are needed to set a baseline of emissions against which future progress is measured. Within this baseline, the relative emissions from different sources can be used to identify hotspots of emissions and promising targets for mitigation. As new mitigation is rolled-out, new data are collected to track (and potentially report) on progress. Thus, data help companies iteratively strategize where to intervene and track intervention efficacy. Data collection is key to conducting a thorough greenhouse gas inventory but is often highlighted as a challenge for companies. While Scope 1 and 2 presents challenges with obtaining quality data on a company's own operations, Scope 3 can be challenging due to low availability of data, different calculation methods across the supply chain, sourcing from a large number of suppliers across geographies and the diversity and wide use of raw materials, packaging and transportation across supply chains.

Why is data critical? Global Salmon Initiative

The first step in mitigating climate impacts is measuring them and them and doing so in a consistent form. Measurements help strategic intervention and tracking progress.

There are two types of data companies need: primary and secondary data

- **Primary data** are those which are collected about specific operations; this could be energy usage in a canning facility, the composition of feed, or the origin of a particular feed ingredient.
- **Secondary data** are those which describe non-specific operations; these comprise both information like "average distance seafood travels globally" that a company may use and "emissions factors" that link specific actions or purchases to an equivalent GHG emission.

Companies may face challenges with both types of data and will need to align their primary and secondary data carefully. **Collecting better data is an iterative process that improves over time.**

Guidance and approaches to gathering data and managing inventory quality can be found in the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard, with additional guidance on collecting Scope 3 data offered in the Corporate Value Chain (Scope 3) Accounting and Reporting Standard.

Highlighting the importance of data - Cermaq

Having access to data and systems to produce a high level of detailed information about the company's emissions is crucial both for mapping the company's footprint and for tracking progress against reduction targets. Good data is also necessary to accurately assess reduction measures and their financial and operational impacts.

Additionally, engaging with the company's value chain is key to delivering climate impact as this accounts for the majority of emissions. Standardization of data, cooperation (including data sharing) through the value chain and innovation to develop low emission technologies are central areas for the industry to succeed in decarbonization.

(See annex for full case)

Scope 3 data collection - Hilton Food Group

Hilton Food Group started with mapping their Scope 3 footprints across all categories, which quickly revealed that the dominant areas were livestock purchases, including farmed and wild fish. Their approach is to build a hybrid model to combine actual supply chain data with the appropriate emission factors from national and global datasets for each species and production method.

They have chosen to partner with South Pole to build a Hilton Food Group Scope 3 data collection and analysis model, as well as an associated decarbonization strategy. By using real data from the supply chain and identifying key performance indicators that correlate directly to the footprints, Hilton Food Group can more accurately measure and track improvements.

(See annex for full case)

Data collection - Cargill

Cargill collected data on their own operations by gathering their own energy use per factory split by energy sources in an internal database and calculated emissions using energy emission factors from the International Energy Agency.

For raw material inputs to manufactured feed, Cargill used their traceability to suppliers back to the country of origin and paired this with secondary data from the Global Feed LCA Institute (GFLI) which is compliant with the Product Environment Footprint Category Rules (PEFCR) for feed, as well as data from Agri Balance and Agri-footprint.

Cargill further identified some suppliers that had their own carbon footprint assessments (primary data), which they used in the cases that the assessments were compliant with PEFCR rules. If they were not compliant, Cargill requested that suppliers improve their data. Cargill will continue to work with suppliers to transition from secondary data to more primary data representing the efforts to decarbonize in the supply chain.

(See annex for full case)

GREENHOUSE GAS ACCOUNTING METHODOLOGIES

GHG accounting systems are typically based on life cycle thinking and carbon footprinting methods within the LCA framework. A life-cycle assessment (LCA) is, essentially, the quantification of the potential impacts of the inputs and outputs of a product or service over its life cycle. The carbon footprint uses only the impact category of GHG emissions (for requirements and guidelines on the quantification and reporting of the carbon footprint of a product, companies can reference ISO 14067 [42]).

An LCA has four phases: goal and scope definition, inventory analysis, impact assessment and interpretation. In the goal and scope phase, one decides the boundaries methods and data requirements of the study. Next is an inventory; this is an enumeration of the specific elementary flows resulting from the identified relevant inputs (e.g. fuel or purchased soy) and outputs (e.g. GHG emissions) from the considered system. With this comprehensive inventory, the impact assessment uses characterization factors that translate the consumed and emitted flows into potential impacts, or, in the case of carbon footprinting, emission factors based on global warming potential are applied to calculate how much GHGs are emitted expressed as carbon dioxide equivalent (CO_2e). Finally, the results are interpreted.

Companies will often use different methods to characterize their Scope 1 and 2 versus Scope 3 emissions based on data availability; simplified calculations or calculators may be especially common for in-house operations. The incorporation of LCA methodology into products sold is an exemplary way of illustrating GHG emission reductions. Fish feed carbon footprinting can become one of several priority criteria for diet formulations, perhaps replacing or complementary to the conventional "least-cost-formulations" methodology.

Companies can follow relevant standards such as **ISO 14044** (Environmental management - Life cycle assessment - Requirements and guidelines), which specifies requirements and guidelines for LCA and **ISO 14067** (Greenhouse gasses-Carbon footprint of products - Requirements and guidelines for quantification), which specifies principles, requirements and guidelines for the quantification and reporting of the carbon footprint of a product consistent with ISO 14044. Many other standards like the GHG Protocol, the EU's Product Environmental Footprint (PEF), the International Environmental Product Declaration (EPD) system and PAS2050 are built on these core ISO standards.

INCONSISTENT USE OF DATA SETS THROUGHOUT INDUSTRY

There are currently a number of GHG accounting methodologies for the seafood sector.[43] This flexibility can make tailoring an assessment to a company's needs easy and is suitable for tracking individual company progress over time.

However, these standards differ from each other on a few key points such as the allocation methodology, system boundaries and data requirements. Using different standards across suppliers in a value-chain creates incomparable values and using different standards across companies limits our ability to share information about progress and efficacy.

Without harmonization and/or quantitative translations between calculations done with different standards and as long as each company "cherry-picks" their own standard and dataset according to their preferences, the sector will not be able to successfully undertake comparisons.

[42] ISO. (2018). ISO 14067:2018, Greenhouse gases - Carbon footprint of products — Requirements and guidelines for quantification. Available: **iso.org/standard/71206.html**.

[43] For seafood specifically, there is the Publicly Available Specification 2050-2 (PAS2050-2), Norwegian Standard 9418, ISO 22948 and forthcoming Product Environmental Footprint Category Rules (PEFCR) and Environmental Product Declaration standards. For feed, there is a PEFCR and PAS (2050-1) standard as well as the FAO LEAP's Environmental Performance of Animal Feeds.

Using a standardized methodology - Global Salmon Initiative

GSI is working to establish a common measurement framework across the GSI salmon farming member companies (and hopefully in time the wider aquaculture sector). This proposed measurement framework aims to enable GSI member companies to effectively monitor greenhouse gas (GHG) emissions, strategically identify interventions to monitor the effect of their actions and to credibly communicate their progress across GSI and to others. Consistent with GSI's position as a collaborative platform, the measurement framework aims to enable the sharing of better practices and lessons so we can all learn faster.

Creating a common language is crucial in driving long-term change at scale.

(See annex for full case)

The case for a standardized methodology - Nutreco

There is a clear need for a concise guidance document with the objective of driving consensus on Product Environmental Footprint (PEF)-related topics where there is a lack of an unambiguous understanding due to the absence of any official guidance. This is intended to facilitate the practical implementation of the Product Environmental Footprint Category Rules (PEFCR), Feed for Food-Producing Animals and harmonize LCA methodology, databases and communication.

There is also a need to compare the environmental footprints of different products using a commonly recognized Life Cycle Assessment (LCA) methodology, such as the EU - harmonized PEF. Under this initiative, the PEFCR Feed for Food-Producing animals was published in 2018, which provides specific guidance on how to calculate the LCA of feed products, aiming to reduce the flexibility and increase the comparability of footprint data provided by different feed producers.

Many companies in the feed industry are aligning and increasingly following the PEF methodology, which has also been taken up by regulation and recognized outside Europe. In this respect, Nutreco would like to encourage others to consider following the PEF methodology, in particular the PEFCR Feed for Food-Producing animals.

The PEFCR defines the six most relevant environmental impact categories for feed products and the respective impact assessment methods to be used. Additionally, only quality-assured and recognized LCA databases (eg, GFLI, Agri-footprint and Ecoinvent) should be used as sources of secondary data, with GFLI as the primary source.

(See annex for full case)

GREENHOUSE GAS ACCOUNTING

A complete and verifiable greenhouse gas inventory is a key component to setting a Science-Based Target and is necessary to define a base year and track progress towards the target over time. Use of established accounting standards can help with consistency and comparability across companies and over time.

Greenhouse gas accounting frameworks and tools used by case study companies

Framework	Description
Greenhouse Gas Protocol (GHG Protocol)	The GHG Protocol standards are the world's most widely used standards for GHG accounting. Companies can utilize the GHG Protocol Corporate Accounting and Reporting Standard to prepare a standardized GHG inventory. This can be further supplemented by additional standards such as the Scope 2 Guidance, which covers measurement of emissions from energy purchase, or the Corporate Value Chain (Scope 3) Standard, an internationally accepted method to account for value chain emissions.
CDP	CDP's annual climate change questionnaire provides a standardized format for companies to report on climate, including emissions targets, methodology, data, verification and value chain engagement. Disclosure through CDP's annual questionnaire is one method recommended by SBTi to report on progress towards reduction targets.
GRI 305 - emissions (Topic Standard)	For companies reporting in accordance with the GRI Universal Standards, GRI 305: Emissions 2016 can be used to report on emissions related impacts and management.
Scope 3 Value Chain Interventions Guidance	The Scope 3 Value Chain Interventions Guidance enables reporting on emissions reductions towards performance targets, in line with common accounting frameworks such as the GHG Protocol and is designed to work alongside the GHG Protocol Corporate Value Chain (Scope 3) Standard.

A greenhouse gas accounting process - Cermaq

Building on the annual climate reporting using the Global Reporting Initiative framework and the Carbon Disclosure Project, Cermaq carried out a greenhouse gas emissions baseline study for all material emissions with the calendar year 2019 as the base year. This work was conducted in tandem with an external climate specialist consulting firm to ensure alignment with the requirements of the Science-Based Targets initiative.

(See annex for full case)

An accounting framework for the farmed salmon sector - Global Salmon Initiative

Recognizing that collective efforts could help accelerate change, over the last year the Global Salmon Initiative has been working in partnership with the World Wildlife Fund to establish an accounting framework for greenhouse gas emissions for the farmed salmon sector, from feed to consumer. Prioritizing stakeholder collaboration and shared learning, this project is focused on aligned, credible accounting and motivating ambitious mitigation.

The goal of this work is to establish a common measurement framework across the GSI salmon farming member companies so that lessons can be shared across companies and a forum can be created for knowledge-sharing on effective greenhouse gas emission mitigation strategies. With this foundation, companies are empowered to set ambitious mitigation targets, make progress towards those goals and communicate externally about their progress. This work is still underway, but we will begin using the framework internally in 2022, with the aim of sharing externally in 2023.

(See annex for full case)

EMISSIONS FACTORS

Once primary data are collected, the greenhouse gas emissions can be calculated and reported on using emission factors (secondary data) from a variety of sources. These emissions factors translate activities into GHG emissions. Typically, these emissions factors will have units of $kgCO^2e$/unit activity (e.g. $kgCO^2e$/kg soymeal, $kgCO^2e$/L diesel fuel). These datasets often contain different elements (e.g. Agri-footprint focuses on agricultural items) and may differ in their geographic coverage. Companies often use multiple datasets to cover all their processes and purchases.

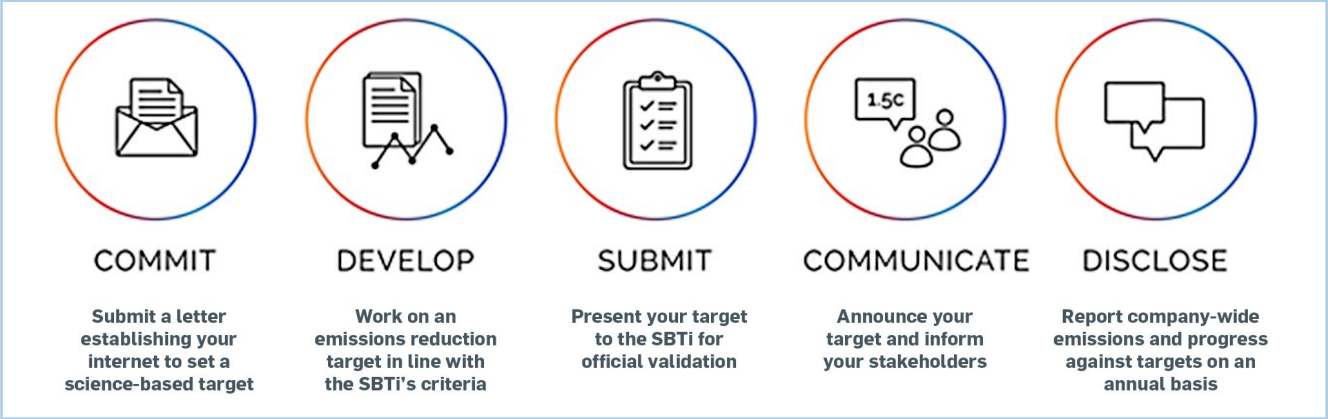
Emissions Factor Sources utilized by case study companies, in alphabetical order

Source	Description
Agri-footprint	Agri-footprint provides a life cycle inventory (LCI) database for the agriculture and food sector and covers data on feed, food and biomass as agricultural products.
Company-specific sources	In some cases, company-specific feed factors can be obtained from suppliers.
Ecoinvent	The Ecoinvent database is a life cycle inventory database that supports various types of sustainability assessments on products and services.
Global Feed LCA Institute (GFLI)	The GFLI database offers a collection of feed ingredient datasets collected using LCA methodology.
International Energy Agency (IEA)	The IEA Emissions Factors database offers annual GHG emission factors for world countries from electricity and heat generation.
Intergovernmental Panel on Climate Change (IPCC	The Emission Factor Database (EFDB) provides emission factors and other parameters with background documentation or technical references that can be used for estimating greenhouse gas emissions and removals.
National sources	Depending on the company, emissions factors from national databases may be used in calculations.
UK Department for Environment, Food & Rural Affairs (Defra)	Defra produces a new set of conversion factors each year for use by UK and international organizations.

SETTING THE TARGET

When setting the target, companies should refer directly to the SBTi's resources such as the SBTi Criteria and SBTi Corporate Manual for guidance on the base and target year, target boundary, sector specific considerations and target setting methods.

After committing to set a target with the SBTi, companies have 24 months to submit their target to the SBTi.
The full process is outlined in five steps:



Source: Science-Based Targets initiative

A streamlined pathway is available for Small and Medium-sized Enterprises (SMEs), which allows non-subsidiary, independent companies with less than 500 employees to immediately set a science-based target for Scope 1 and 2 emissions by choosing from predefined targets. To get started with understanding the methods behind setting Science-Based Targets, companies can read the SBTi's Foundations paper.

GHG EMISSIONS INVENTORY AND TARGET BOUNDARY

Targets must cover at least 95 per cent of all relevant GHGs for company-wide Scope 1 and 2 emissions as defined by the GHG Protocol Corporate Standard.[44] Companies must also develop a complete Scope 3 inventory and if Scope 3 emissions account for more than 40 per cent of total Scope 1, 2 and 3 emissions, companies must also set Scope 3 targets that cover at least two thirds of Scope 3 emissions. Companies can reference the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard and the Scope 3 Calculation Guidance for further guidance on scope Scope 3 inventories.

See SBTi Criteria p.4

See SBTi Corporate Manual p.16, 20–23

[44] SBTi. (2020). SBTi Criteria and Recommendations, Version 4.1.
Available: **sciencebasedtargets.org/resources/legacy/2019/03/SBTi-criteria.pdf**.

TIMEFRAME

Under the current criteria, mid-term targets must cover a minimum of five years and a maximum of 15 years from the date the target is submitted to the SBTi. Targets submitted from 15 July 2022 must follow the V5.0 criteria version, which requires a timeframe of five to ten years.[45]

Companies must submit both a base year inventory, which is used as the starting point for the target and the most recently completed GHG inventory, which the SBTi uses to assess forward-looking ambition. As the base year is the starting point, it should be representative of the company's typical GHG profile.

Although the SBTi recommends using the most recent year as the base year, due to the COVID-19 pandemic, some companies' recent GHG profiles may not be representative of typical operations and the SBTi recommends selecting a base year such as 2019. The SBTi will make an exception in 2022 and allow significantly affected companies to select 2019, 2020, 2021, or 2022 as most recent year inventories.[46]

See SBTi Criteria p.6

See SBTi Corporate Manual p.12

LEVEL OF AMBITION

The Paris Agreement set a global goal to limit warming to 1.5°C by the end of 2100 and, in the worst case, well below 2°C. We have a strong scientific understanding of how much greenhouse gasses are accumulating in the atmosphere and how much warming those gasses will cause. The default rate of GHG emissions decrease is 2.5 per cent and 4.2 per cent per year for the 2°C and 1.5°C pathway (2020–2035 timeframe) respectively; this essentially divides the global rate of decrease needed across all companies equally. However, given the differences in technology, costs and the difficulty of mitigation in different sectors, some sector-based pathways have been developed.

Under the current SBTi criteria, Scope 1 and 2 targets must be consistent with the level of decarbonization required to keep global temperature increase to well below 2°C compared to pre-industrial levels at minimum and Scope 3 targets must be consistent with a 2°C scenario at minimum.

However, companies are encouraged to set more ambitious targets that are aligned with a 1.5°C scenario and the new V5.0 criteria version taking effect on 15 July 2022 will increase the minimum Scope 1 and 2 ambition to 1.5°C and the minimum Scope 3 ambition to well below 2°C.[47]

This increase in ambition has been created in order to ensure targets are in line with the latest climate science, as recent reports such as the IEA Net Zero by 2050 report and the IPCC Special Report on 1.5°C underscore the need for immediate climate action. Although it may be a significant increase in ambition for some companies, it is important that these targets ensure emissions reductions are on track to avoid the most severe impacts of climate change.[48]

See SBTI Criteria and Recommendations, page 7.

45 SBTi. (2022). FAQ. Available: **sciencebasedtargets.org/faqs**
46 ibid
47 ibid
48 ibid

TARGET SETTING METHODS

The SBTi currently offers two target setting methods for Scope 1 and 2: the Absolute Contraction Approach and the Sectoral Decarbonization Approach (SDA). **Aquaculture and wild-caught fisheries are both considered part of the Forest, Land and Agriculture sector (Agriculture – animal sources).** Within FLAG, the yearly reduction rate for GHG emissions is a 3.5 per cent reduction rate which applies for land emissions associated with crop feed materials in the value chain, including on-farm energy use and energy used in fertilizer production.

For other emissions (processing, transport, etc.) a non-FLAG target is required. For non-FLAG emissions, the Absolute Contraction Approach entails an overall reduction in the absolute GHGs emitted by the target year relative to the base year, for example a 4.2 per cent linear annual reduction rate for targets aligned with a 1.5°C scenario. With this method, all companies reduce absolute emissions at the same rate, regardless of initial emissions (assuming they are aligned with the same pathway[49]).

This approach is described in further detail in the SBTi Corporate Manual and a Target Setting Tool (an Excel based tool used to model targets in line with SBTi approved criteria) is available for download on the SBTi's resources page.

See SBTi Corporate Manual, page 18.

Advice on target setting for other seafood companies - Lerøy

Before setting a target, conduct a thorough analysis as well as a material analysis in order to ensure you can reach it. Set short, medium and long-term targets. For SMEs, consider where your largest impact and potential contribution is.

(See annex for full case)

[49] SBTi. (2021). Corporate Manual, Version 2.0. Available: **sciencebasedtargets.org/resources/?tab=develop#resource**

FREQUENTLY ASKED QUESTIONS	
Which Scopes do targets have to cover?	SBTs must cover Scopes 1 and 2. For companies whose Scope 3 emissions cover more than 40% of their combined Scope 1, 2 and 3 emissions, targets must cover Scope 3. (See full answer)
How many years should my target cover? What is the base year versus the announcement year?	All targets must cover a minimum of five years and a maximum of 15 years (10 years if target set after July 15, 2022) from the date the target is submitted to the Science-Based Targets initiative. Only targets submitted in the first half of a calendar year can include the current year toward the five-year minimum. For example, companies submitting a target by the end of June 2021 can have a target year between 2025 and 2035. Targets submitted July to December 2021 must have a target year between 2026 and 2036.
Will we need to update our target based on new science and resources?	While new targets will only be accepted if they are consistent with limiting global warming to 1.5°C or well-below 2°C, existing targets in line with 2°C (which were set before the new criteria was introduced) will continue to be valid. To ensure targets remain aligned with the most recent climate science, companies will be required to review and if necessary, revalidate their targets every five years from the date of the original target approval, beginning in 2025. This will become mandatory in 2025.
What changes are being announced as part of the SBTi's new strategy?	The SBTi is making several changes to its criteria, which will come into force from 15 July 2022. These include: ■ Increasing the minimum Scope 1 and 2 ambition temperature classification from well below 2°C to 1.5°C. ■ Increasing the minimum Scope 3 ambition temperature classification from 2°C to well below 2°C. ■ Shortening the timeframe for meeting the temperature targets from 15 to 10 years.

Source: Science-Based Targets initiative, FAQ. **See full list of FAQs here.**

IMPLEMENTATION TO achieve SCIENCE-BASED TARGETS

Beyond setting the target, companies must also develop strategies for reduction. These methods vary depending on the scope and the nature of the company. While the solutions to achieve SBTs for Scopes 1 and 2 are clear, solutions for Scope 3 may require significant collaboration and experimentation.

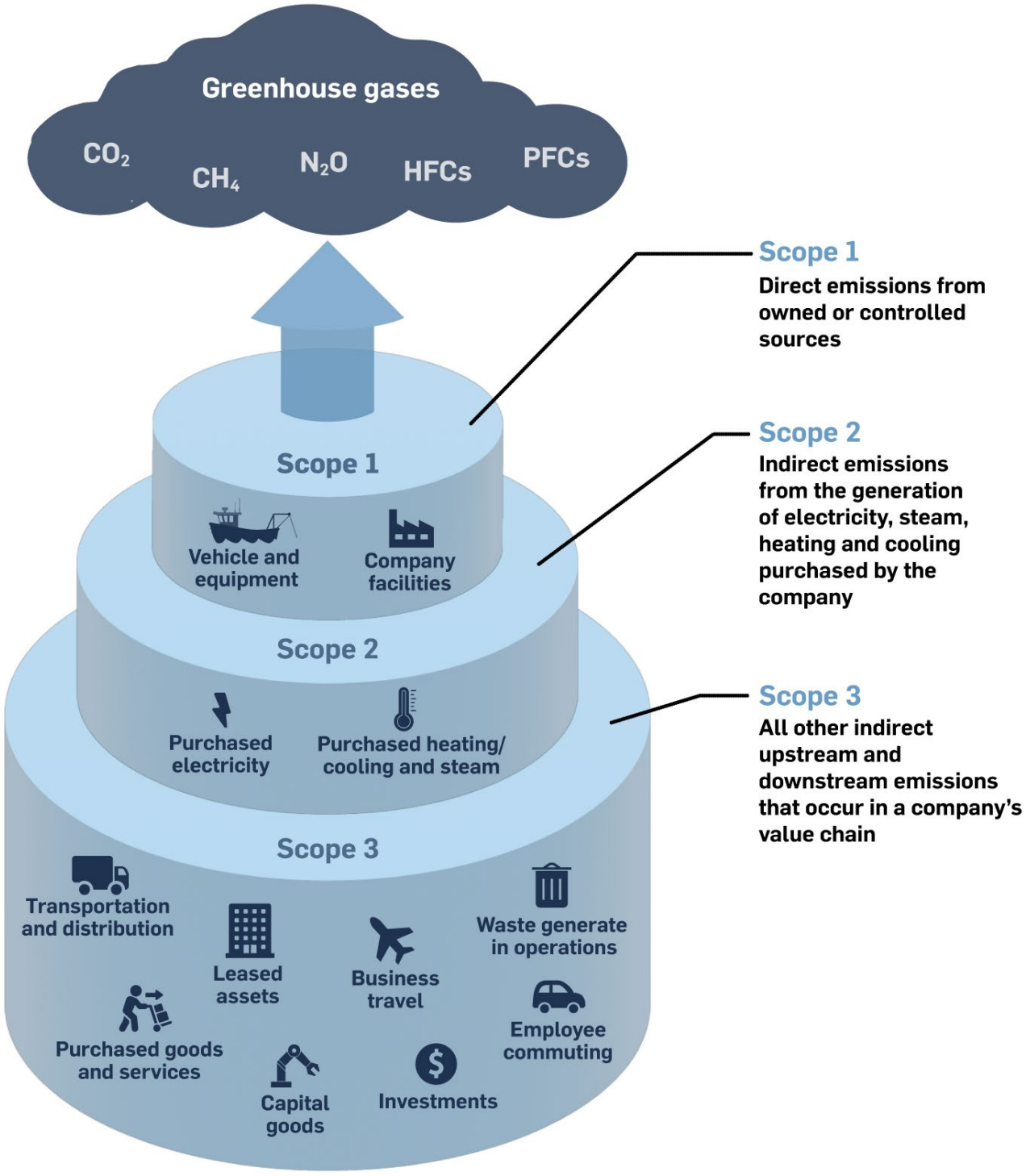


Figure 3: Setting and achieving science based climate targets requires significant action by a company and its entire value chain

TABLE: EMISSIONS REDUCTION STRATEGIES – PRACTICAL EXAMPLES FROM THE SEAFOOD SECTOR *(See Figure 3)*

Scope	Reduction Strategies
Scope 1	■ Capital investment in improved efficiency, electrification and eliminating refrigerant losses. ■ Convert to onsite renewable energy where appropriate. ■ Minimize onsite energy wastage/maximize onsite energy efficiency. ■ Have a strategy to move to lower/no emissions energy sources through a series of investments to replace equipment. ■ Reduce and eliminate emissions from diesel usage, mainly in generators and boats, through electrification and hybridization. ■ Fully move to electric and/or geothermal heating & cooling or migrate to hydrogen gas generated near seafood factories in the long term. ■ Improve on-board processing to reduce loss, waste and energy use. ■ Improve fish searching practices by using drone and other search technology. ■ Efficiency improvements in fleet, aquaculture farms and processing plants, e.g. reducing the fishing gear weight, building vessels with improved energy and fishing efficiency, improved use of diverse and nature-positive inputs and resources such as water. ■ Working with "Aquaculture 4.0" – e.g. Cloud tools, AI, IoT and other Industry 4.0 tools focused on efficiency and sustainability within aquaculture. ■ Optimize internal logistics for reduced travel distance, number of trips, under capacity trips, etc. ■ Prioritize lower footprint catching methods, such as purse seine compared to trawling.
Scope 2	■ Green renewable energy power purchase agreements (PPAs). ■ Energy efficiency measures. ■ Investment in modern factories and strategic locations. ■ Investigate the potential to utilize hydrogen-powered fuel cells as a replacement for fossil fuels.
Scope 3	■ Work with suppliers to address the footprints of feed, farms and vessels. Emissions from deforestation and habitat conversion from feed cultivation is one of the largest sources of emissions. ■ Source feed ingredients with low land use change impact (e.g. soy from deforestation free supply chains). ■ Support suppliers with learning and shared experience. ■ Improve efficiency of feed use through: direction feed management, maximizing health & minimizing escapes and working with suppliers to optimize feed ingredient and nutritional composition. ■ By-product valorization in circular solutions, particularly for animal feed. ■ Explore feasibility of alternative feed ingredients, e.g. novel ingredients. ■ Address transportation emissions by considering alternative transportation methods to decrease the footprint from airfreight, reducing transported weight and moving production closer to markets. ■ Switch to alternative low-carbon or zero emission fuel. ■ Increase utilization of raw materials on trawlers. ■ Prioritize low emissions catching (e.g. purse seine). ■ Develop sustainable fishery management to increase catch-per-unit-effort. ■ Explore more sustainable packaging options and solutions for circularity. ■ Explore greater use of high quality frozen versus fresh (lower footprint logistics and longer shelf-life). ■ Additional actions to reduce food loss and waste along the value chain.

Source: Case studies from Aker Bio Marine, Cargill, Cermaq, Grieg, Hilton Food Group, Lerøy, Grupo Nueva Pescanova, Nutreco and Thai Union

ZOOM-IN: TWO EMISSION REDUCTION STRATEGIES

1. TOWARDS NOVEL INGREDIENTS IN AQUACULTURE

A broader range of feed materials could help to facilitate the rapid growth in aquaculture that is needed to meet global protein demands and improve human health. In order for feed companies to reduce the reliance on a relatively few commodity ingredients, for example, fishmeal and soybean meals. These commodity ingredients need to be complimented with novel ingredients or ingredients highlighting "circularity". Each new ingredient must require careful evaluation to ensure it can be produced at scale without directly causing damaging land use change, being reliant on materials or processes associated with recent or ongoing land use change, or generating higher production-related emissions.

Feed manufacturers should be aware that replacing or complimenting commodity ingredients with novel ingredients should be done with the focus that the novel ingredients significantly reduce greenhouse gas emissions of the commodity ingredient they are replacing. It is important to keep in mind that novel ingredients should not be treated as a "one-size-fits-all" solution, as some novel ingredients might be justified to have equal or slightly higher footprint if they replace fishmeal originating from poorly managed fisheries and they have a clear pathway to reduce their emissions.

2 . FISHING VESSELS: ELECTRIFICATION, EFFICIENCY AND INVESTMENTS

Fishing vessels also present opportunities for decarbonization, as fuel used on vessels can contribute significantly to a company's overall emissions. Fuel use efficiency (amount of fuel per tonne of catch) is a good proxy for GHG emissions intensity. Currently, the fuel use efficiency across different types of fish can vary over 100-fold;[50] the fuel use efficiency for fishing different stocks of the same fish or using a different method (e.g, seining vs. longlining) can similarly be well over 10x different. This suggests that even using current technology, different fishing practices have significant mitigation potential.

Measures to improve fuel efficiency in existing vessels

ITEM	ACTION	FUEL SAVING	
		Low	High
Hull related			
Bulbous bow	Retro-fit installation	5%	15%
Hull appendages	Reduce/smooth/align appendages	2%	5%
Propulsion related			
Vessel speed	Reduction	5%	20–30%
Engine	Replace with new	7%	20%
Engine	Correct design/installation in including exhaust		4%
Gearbox & propeller	Replacement	5%	15%
Propeller nozzle/duct	Install	0%	15–20%
Trim & weight	Correction	0%	5%
Fuel meter	Install & keep records		
Non-propulsion related			
Hydraulics	Upgrade pumps & controls		
Refrigeration	Upgrade compressors & pumps; improve insulation		
Heating/cooling, electrical & lighting	Utilize waste heat; improve insulation		
Parasitic loads (e.g. pumps & motors)	Upgrade controls, switch off all above	0.5%	1.5%
Operational awareness	Improve training & record keeping		<10%

Source: FAO, 2018[51]

With typical ranges of fuel savings calculated or reported across vessels from 10m to 40m in length. Achievement of true fuel savings depends on detailed engineering and careful installation of each item.

[50] Parker, R.W.R. and Tyedmers, P.H. (2015). Fuel consumption of global fishing fleets: current understanding and knowledge gaps. Fish Fish, 16: 684–696. Available: **doi.org/10.1111/faf.12087**.

[51] Dabbadie, L., Aguilar-Manjarrez, J., Beveridge, et al. (2018). Effects of climate change on aquaculture: drivers, impacts and policies. In: Barange, M., Bahri, T., Beveridge, M.C.M., Cochrane, K.L., Funge-Smith, S. and Poulain, F. (eds.) (2018). Impacts of climate change on fisheries and aquaculture - Synthesis of current knowledge, adaptation and mitigation options. Chapter 20. FAO Fisheries and Aquaculture Technical Paper 627. Rome. 628 pp. Available: **fao.org/3/i9705en/i9705en.pdf**.

Many companies have cited various initiatives related to fishing vessels as part of their strategy for emissions reduction, particularly around electrification, alternate fuels and increased efficiency.

For example, Grieg Seafood is working on electrification of work- and well-boats; Cermaq is working to reduce emissions from diesel usage in boats through electrification and hybridization; Aker BioMarine is incorporating a change of fuel source into their long-term strategy; Thai Union is investigating the availability of biofuels and other lower carbon alternatives; and Lerøy is working on switching from diesel to renewable energy on feed barges, replacing marine gas oil and investing in electric working boats. **Energy efficiency with regards to vessels was another common strategy, ranging from investing in a more efficient fleet to reducing fishing gear weight and investigating the types of products to transport.**

Still, there are uncertainties around future technologies and fuels that can be used on the way to zero. Companies can take action through knowledge-sharing and collaboration and can engage in initiatives such as the Getting to Zero Coalition, an alliance of over 150 companies within the maritime, energy, infrastructure and finance sectors; supported by governments and NGOs. In addition, because fishing healthy sustainably harvested stocks uses less fuel to find fish than in depleted stocks, rebuilding stocks may be an important complement to decarbonizing boats.[52] Fishery improvement projects are a valuable way for companies to engage in rebuilding fisheries.

Efficiency, investments and a fleet renewal program - Lerøy

Lerøy is switching from diesel to renewable energy on feed barges, investing in electric working boats and is working on replacing marine gas oil. Lerøy also has 10 white fish trawlers and has started a fleet renewal program where they focus on energy efficiency and a higher utilization of the residual raw materials on board. Given that there are still some technological constraints towards zero emission vessels, further innovation is required and they acknowledge that this will take partnership with others and time, before they reach their overall goal of having a complete fleet of low carbon vessels.

(See annex for full case)

Improving energy efficiency - Grupo Nueva Pescanova

Grupo Nueva Pescanova has built six new wet-fish trawlers between 2019 to 2020 in order to replace around 10-12 older units: three 50m-vessels to Namibia and three 30m-vessels to Mozambique. The impact in fishing and engine efficiency significantly contribute to the overall fleet results with 15 per cent direct reduction in fuel consumption and emissions, then improvement in the fishing efficiency (+38 per cent, fish/day) and consumption efficiency (+21 per cent, fish/fuel) indicators.

Grupo Nueva Pescanova acknowledged that building new vessels may not be possible for most companies and for most times. In this case, maintenance is paramount for fuel efficiency and engine performance, as well as for freezing and cold storage in regard to refrigerant gasses. They suggest that the two main aspects are eliminating leakages in the system and switching to low-ODP and low-GWP gasses.

(See annex for full case)

[52] Gephart, J.A., Henriksson, P.J.G., Parker, R.W.R. et al. Environmental performance of blue foods. Nature 597, 360–365 (2021). **doi.org/10.1038/s41586-021-03889-2**

FREQUENTLY ASKED QUESTIONS	
Does the SBTi accept all approaches to reducing emissions?	The SBTi requires that companies set targets based on emission reductions through direct action within their own boundaries or their value chains. Offsets don't contribute towards progress towards a target. Companies may purchase offsets to finance additional emission reductions ***beyond*** their science-based target (SBT) or net-zero target. Avoided emissions are also not counted towards SBTs. Regarding insetting, further work is required to standardize the definition of insetting projects and to develop a clear accounting methodology (see box below). For these reasons, the SBTi will assess insetting projects on a case-by-case basis during the validation process and may not approve their use. Renewable energy instruments such as renewable energy certificates (RECs) should only be used to meet reductions of Scope 2 emissions using the market basedmarket-based approach. Please see the GHG Protocol Scope 2 Guidance for further guidance on Scope 2 accounting. ***See SBTi criteria***

Source: Science-Based Targets initiative, FAQ. **See full list of FAQs here.**

REPORTING ON PROGRESS

Once the target is set and emissions reduction strategies are in place, companies must report on their GHG emissions and progress against the targets. This can be done through annual reports, sustainability reports, the company's website and/or disclosure through CDP's annual questionnaire. To ensure comparability and transparency, companies should follow international standards for sustainability reporting and climate accounting.

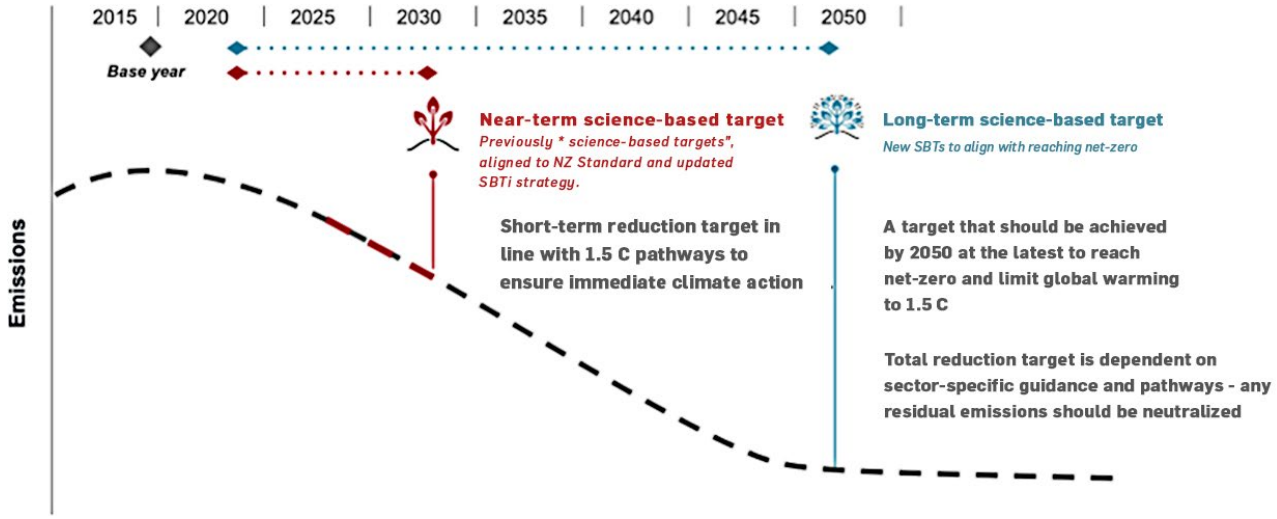
See SBTi criteria p.14

FREQUENTLY ASKED QUESTIONS	
Does the SBTi track companies' progress against targets?	The SBTi is currently undergoing a process to track company progress against targets and released initial results in the 2020 Progress Report. In the coming year, the SBTi will issue more specific guidance on what companies are required to report annually on a public basis to facilitate this process in the future. Meanwhile, companies should report their company wide GHG emissions and progress against targets through annual reports, sustainability reports, the company's website and/or disclosure through CDP's annual questionnaire.

Source: Science-Based Targets initiative, FAQ. **See full list of FAQs here.**

GO FURTHER WITH NET-ZERO

Beyond setting near term SBTs, companies can now utilize the SBTi's Corporate Net-Zero Standard to set longer term, science-based net-zero targets consistent with limiting global temperature rise to 1.5°C. These targets are a combination of near- and long-term targets and focus on rapid, deep emission cuts.



Source: SBTi Ambition Update Webinar [53]

Offsetting vs. Insetting

Offsetting is the practice of purchasing GHG reduction credits that occur outside one's value chain to cover the emissions occurring within the company's operations and value chain.

Insetting was coined to contrast with offsetting; it broadly refers to mitigation within a value chain but does not have a single definition. A few cases are highlighted below:

- Most potential insetting within a value chain is covered by Scope 3. In this case, mitigation actions can be counted towards targets and referring to these actions as Scope 3 mitigation is clearer.
- Some potential insetting is on lands (e.g. afforestation or agroforestry projects) that are part of the value chain. The GHG Protocol is currently creating updated guidance to "explain how companies should account for emissions and removals from land use, land use change, biogenic products, technological CO_2 removals and related activities in GHG inventories."
- Other definitions of insetting (e.g. investing in transportation projects outside the value chain to cover emissions within one's own transportation; investing in climate friendly practices in communities near the value chain) are likely outside both definitions and would more credibly be counted as offsets.

[53] Available: **sciencebasedtargets.org/events/webinar-on-the-sbti-ambition-update**

To achieve net-zero emissions, the seafood sector will need to address residual emissions after every effort has been made to address gross emissions. The ocean offers many opportunities to capture carbon such as the growth of macroalgae and sea grasses. By developing multi-trophic aquaculture and voluntarily designating areas for marine protection, the industry can directly contribute to carbon capture and potentially make this a source of income or net zero cost investment.

At the same time, it is important to note that the SBTi does not count offsets as emissions reductions towards meeting a target and avoided emissions from outside the value chain (e.g. a byproduct replacing fertilizer for another company) should be reported separately and are not counted towards science-based targets, including those for Scope 3.

Not all offset methods are created equal and it is important to conduct a thorough assessment in order to ensure the offset is supporting high-quality projects that reduce or remove greenhouse gasses. Companies should further ensure the projects do not create adverse impacts. WWF and BCG's Blueprint for Corporate Action on Climate and Nature recommends corporate carbon credit buyers to consider six criteria when assessing the quality of credits: robust measurement of mitigation impact, avoiding double counting, addressing non-permanence, alignment with a transition to net-zero, strong governance of the crediting process and environmental and social co-benefits.

Offsetting and carbon capture Hilton Food Group

To reach net zero will require some offsetting of emissions through carbon capture. We want to do that in partnership with our supply chains (via insetting) so there is a direct benefit that is shared by the whole value chain.

For seafood, we see the growth of seaweed and seagrasses in the oceans as providing one of the best solutions and the aquaculture industry has the capability to help deliver this with their technology. There is a huge potential co-benefit for cattle as at least one variety is being evaluated as a feed additive that reduces methane production in the rumen.

(See annex for full case)

4

COLLECTIVE ACTION AND COLLABORATION

COLLECTIVE ACTION AND COLLABORATION

We know that urgent, scaled action across all sectors is required to keep global temperatures below 1.5°C. We have less than a decade to eliminate deforestation, less than fifteen years to halve emissions and less than thirty years to reach global net zero. Collaboration through supply-chains and across competitors is critical to ensure we learn and scale fast enough.

Several initiatives around the world are working to accelerate collective and collaborative action across the supply chain – a crucial enabler to meet Scope 3 targets.

Global Salmon Initiative (GSI)

Global Salmon Initiative (GSI) is a leadership effort established by global farmed salmon CEOs committed to helping feed the world in a healthier, more sustainable way through advancements in responsible salmon farming. GSI represents 40 per cent of the global farmed salmon industry and through collaborative efforts to improve sustainability, transparency and innovation, GSI members' farmed salmon is raised to be better for oceans, climate and people. Since its conception, the group has launched the first industry-wide Sustainability Report of its kind, helped drive over 50 per cent of its production towards ASC-certification and reduced antibiotics use by over 50 per cent on average.

Benefits of collaborative work
A case study by the Global Salmon Initiative

The 2020s are a critical decade of action for climate and sustainability. We do not have time to make the same mistakes twice. Effectively communicating what is working and what is not will be critical to ensure climate mitigation scale rapidly. This is why GSI strongly believes collaborative efforts, such as this will be a crucial element in helping drive measurable progress.

Through collaboration we are able to:

- Motivate members to establish ambitious, yet realistic targets.
- Focus and streamline efforts.
- Prevent duplication of efforts and costs.
- Collaboratively problem-solve and identify solutions.
- Share resources to trial novel approaches.
- Share best-practices and lessons to learn faster.
- Combine data to identify best-practices.
- Catalyze mitigation efforts.

In addition, many sectors are grappling with similar challenges in climate mitigation, so cross-pollination of solutions may be particularly impactful.

(See annex for full case)

The Sustainable Trade Initiative (IDH)

The Sustainable Trade Initiative (IDH) works across sectors to bring together over 600 companies, CSOs, financial institutions, producer organizations and governments to develop innovative approaches to sustainable production and trade models in emerging economies. IDH has developed an aquaculture program which includes an aquaculture working group.

Collective Action
A case study by Sustainable Trade Initiative

IDH created and facilitates a pre-competitive Aquaculture Working Group, consisting of companies that can prioritize issues, start projects, create metrics and a methodology and can learn together. The aim of the group is to better measure and reduce the environmental footprint of aquaculture. By working together, companies can co-develop, test and scale solutions that they could not achieve on their own. This has the added benefit that results will be comparable across supply chains, aquaculture products and proteins.

As environmental issues are interlinked, the group focuses not on GHG emissions alone, but takes an LCA approach as far as possible to also include fresh-water use, eutrophication, biodiversity, antibiotic use and plastic use in its methodology. The group currently focuses on tropical aquaculture species (shrimp, tilapia and pangasius) but aims to make sure the created tools and methodology are applicable for other aquaculture species and explores how to integrate wild caught fish.

(See annex for full case)

Seafood Business for Ocean Stewardship (SeaBOS)

The Seafood Business for Ocean Stewardship (SeaBOS) is an initiative mobilizing ten of the world's largest seafood companies representing over 10 per cent of global seafood production and comprising over 600 subsidiary companies. Members include Maruha Nichiro Corporation, Nissui, Thai Union, Mowi, Dongwon Industries, Cermaq, Cargill Aqua Nutrition, Nutreco/Skretting, CP Foods and Kyokuyo. The initiative sets out a series of time-bound goals addressing labor, abandoned fishing gear, impacts on endangered species, antibiotic use and CO_2 emissions reduction goals.

TAKE ACTION

Seafood faces dramatic, material risks from climate change and has a critical role to play in providing high quality protein while contributing to a decarbonized future. Efforts to tailor GHG accounting, mitigation strategies and reporting for seafood are relatively nascent; this guide attempts to collate existing lessons to help all seafood companies engage.

Setting Science-Based Targets and making meaningful progress towards mitigation is feasible and companies are invited to take action by joining the Race to Zero Campaign, setting Science-Based Targets and helping the seafood sector move towards a net zero future.

Any questions? Contact: ocean@unglobalcompact.org

5

RESOURCES

SCIENCE-BASED TARGETS INITIATIVE

Resource	Description
SBTi Resources Page	The SBTi Resources page compiles the guidance, tools and forms needed to set a target.
SBTi Sector Guidance	Find information on sector-specific guidance, including FLAG, here.

GREENHOUSE GAS ACCOUNTING & REPORTING

Greenhouse gas accounting frameworks and tools used by case study companies

Framework	Description
Greenhouse Gas Protocol (GHG Protocol)	The GHG Protocol standards are the world's most widely used standards for GHG accounting. Companies can utilize the GHG Protocol Corporate Accounting and Reporting Standard to prepare a standardized GHG inventory. This can be further supplemented by additional standards such as the Scope 2 Guidance, which covers measurement of emissions from energy purchase, or the Corporate Value Chain (Scope 3) Standard, an internationally accepted method to account for value chain emissions.
CDP	CDP's annual climate change questionnaire provides a standardized format for companies to report on climate, including emissions targets, methodology, data, verification and value chain engagement. Disclosure through CDP's annual questionnaire is one method recommended by the SBTi to report on progress towards reduction targets.
GRI 305 - Emissions (Topic Standard)	For companies reporting in accordance with the GRI Universal Standards, GRI 305: Emissions 2016 can be used to report on emissions related impacts and management.
Scope 3 Value Chain Interventions Guidance	The Scope 3 Value Chain Interventions Guidance enables reporting on emissions reductions towards performance targets, in line with common accounting frameworks such as the GHG Protocol and is designed to work alongside the GHG Protocol Corporate Value Chain (Scope 3) Standard.
Feed PEFCR & (Upcoming) Marine Fish PEFCR	The Product Environmental Footprint Category Rules are European Union standards on accounting for emissions from animal feed ingredients and marine fish production respectively. The feed standard is public, while the marine fish standard is in draft form. These standards are generally compatible with more general standards like the GHG protocol; they provide more specific guidance on data requirements, system boundaries and impact allocation.

Emissions Factor Sources utilized by case study companies

Source	Description
Agri-footprint	Agri-footprint provides a life cycle inventory (LCI) database for the agriculture and food sector and covers data on feed, food and biomass as agricultural products.
Company-specific sources	In some cases, company-specific feed factors can be obtained from suppliers.
Ecoinvent	The Ecoinvent database is a life cycle inventory database that supports various types of sustainability assessments on products and services.
Global Feed LCA Institute (GFLI)	The GFLI database offers a collection of feed ingredient datasets collected using LCA methodology.
International Energy Agency (IEA)	The IEA Emissions Factors database offers annual GHG emission factors for world countries from electricity and heat generation.
Intergovernmental Panel on Climate Change (IPCC)	The Emission Factor Database (EFDB) provides emission factors and other parameters with background documentation or technica l references that can be used for estimating greenhouse gas emissions and removals.
National sources	Depending on the company, emissions factors from national databases may be used in calculations.
UK Department for Environment, Food & Rural Affairs (Defra)	Defra produces a new set of conversion factors each year for use by UK and international organizations.

6

ANNEX - CASE STUDIES

CASE STUDIES

These case studies were provided by companies who have set or are in the process of setting Science-Based Targets.

The answers to these questions are provided by the respective company and do not reflect an endorsement by the UN Global Compact, the SBTi, or WWF.

Aker BioMarine

What kind of seafood(-related) company are you?

Aker BioMarine (AKBM) is a biotech innovator and krill-harvesting company. The fully transparent value chain stretches from sustainable krill harvesting in pristine Antarctic waters through a Montevideo logistics hub, Houston production plant and to customers around the world. Aker BioMarine has a mission to improve human and planetary health, by positively impacting human health through operations that do not compromise the health of the planet. The company produces several different products intended for feed, pet food and human consumption.

Are you in the process of setting a science-based target?

Target (not yet validated by SBTi):

50 per cent reduction of CO_2 by 2030 and net zero by 2050. In total the company has set eight targets, with two directly related to CO_2 reduction and a third related to waste reduction.

If so, what has been your SBT strategy? Could you clearly list some of the steps you took?

Aker BioMarine has set up an internal accounting system such that all emissions in Scope 1, 2 and 3 can be identified. This accounting system is audited externally. AKBM has set targets with a focus on CO_2 monitoring in order to determine what areas of the value chain result in the largest GHG emissions. Fisheries related activities and on-board production represent most GHG emissions, followed by on-land production and Scope 3 emissions. To report, the Task Force on Climate related Financial Disclosures is used. CICERO Shades of Green evaluation has been performed and a life cycle assessment (LCA) analysis using external databases, mostly Ecoinvent, as well as internal data that was validated. From all the data collected, targets were set in collaboration with the management and then the targets were implemented in the rest of the organization through on-boarding and creating targeted projects to work on specific areas of reduction. AKBM is now in the process of evaluating the possibility to get the targets verified by the SBTi.

If you set targets with the SBTi, why did you do so?

Aker BioMarine is interested in setting targets with the SBTi because they see many companies using this method and they feel it will improve comparability across companies.

If you used a different framework than SBTi, please describe the methodology behind your SBT (boundary, timeline, scenario, percent reduction, tools used).

Aker BioMarine has used a life cycle assessment to map emission hotspots. They now have monitoring tools and numeric reduction targets (50 per cent by 2030, net zero by 2050) and will expand to include other environmental stressors. For feed ingredients, the possibility to perform standardized PEF or EPD exists, but for other products, there is a need for developing PCR or PEFCR rules.

What have been some of the challenges and lessons learnt from a seafood perspective?

Life Cycle Assessment, Product Environmental Footprint (PEF) and Environmental Product Declarations (EPD) are challenging in seafood as there are not always product category rules or best methods. Allocation along bundled operations can also be difficult. It has also been identified that there is a lack of good data for performing PEF or EPD in the fishmeal business. Long distance fisheries are in need of new technologies for propulsion that are effective and have no/low emissions.

What would be your advice for another seafood company?

Companies should agree on one standard on how to express the environmental footprint of products and products and should also collaborate and share to establish best practices in GHG reduction. As there are many different products in the seafood business, there might be a need for different strategies depending on the intended market.

Which resources would have helped you?

Standards for reporting that are agreed upon, as there are too many different standards at the moment. More examples and data on how to implement goals would also be helpful.

How did you generate internal support for SBTs and which departments did you engage?

The sustainability department investigated SBTs first based on the 1.5°C goal. The management was involved in setting the targets for each of the departments and products. Upon agreement in management, the company is now implementing support within the value chain. Now that they have developed targets, Aker BioMarine is developing the plan for implementation.

How did you collect data for your GHG accounting?

Sensors are placed on infrastructure, fuel consumption is monitored, data from all electricity purchased is used and all travel, water usage and other power use is recorded. The data is generated from LCA calculations, purchase records and third-party information, as well as an automated reporting system.

Which GHG accounting framework(s) did you use?

GHG Protocol. AKBM has built an in-house CO_2 accounting and reporting system, which is externally audited. In this system, the different data sources for each step of the value chain have been identified and verified and reporting SOPS have been set up. Conversion factors have been provided and verified by DNV.

What were your main sources for emission factors?

Fisheries and processing on board fishing vessels, followed by transport from fishing grounds and Scope 3 emissions.

Please describe your LCA methodology (if relevant).

ISO standard was used for the LCA and developed by an external consultant. Aker BioMarine will also expand to EPD or PEF when possible, for the products

	Emission reduction strategy
Scope 1	■ Changes in on board processing, better fishing with less searching by the use of drone and other search technology. ■ More efficient transportation to and from the fishing field (short term). ■ Change of fuel source (long term).
Scope 2	■ Electricity efficiency measures. ■ Tight monitoring of all warehouses and storage. ■ Improve process in on-land processing to require less energy.
Scope 3	■ Eliminate air freight. ■ Reduce business travel. ■ Collaborate with suppliers to reduce CO_2 in transportation delivered by suppliers.

Cargill

What kind of seafood(-related) company are you?

Cargill, Inc. is a global business based in Minneapolis, US. Cargill manufactures and supplies farmers with feeds and input; delivers finished goods to customers in food service, retail, consumer packaged goods and industrial sectors; provides insights; transforms raw materials into finished goods; and transports products.

Cargill Aqua Nutrition - the company's aquaculture feed and nutrition business – focuses on three core species in 12 leading markets:

- Salmon in Norway, Chile, Scotland and Canada
- Tilapia in China, Indonesia, Thailand and Vietnam
- Shrimp in China, Thailand, Vietnam, Indonesia, India, USA, Ecuador and Mexico

Additionally, Cargill has extensive experience in supplying feed for a variety of other aquaculture species, leveraging core expertise in applied fish nutrition.

Are you in the process of setting a science-based target?

Target (validated by SBTi):
Date joined: 2019
Near term: 2°C by 2025, 2030

As producers and distributors of agricultural products, Cargill Inc. commits to reduce absolute Scope 1 & 2 GHG emissions by 10 per cent by 2025 from a 2017 base-year. Cargill commits to reduce Scope 3 GHG emissions by 30 per cent per ton of product sold by 2030 from a 2017 base-year.
*The target boundary includes biogenic emissions and removals from bioenergy feedstocks

Cargill's existing target is in line with a 2°C scenario. The relative target for Scope 3 is unusual, but it has been validated by SBTi and should reflect the guidance for forest, land and agriculture sectors.

Cargill's aqua nutrition business launched the SeaFurther™ Sustainability initiative in 2021, with the goal of helping seafood farmers reduce their GHG emissions by at least 30 per cent by 2030 against a 2017 baseline. Whilst not a SBT in itself, it recognizes the importance of addressing GHG reduction throughout the value chain through collaboration. If the focus was on feed alone, the easiest way to reduce emissions would be to reduce the nutritional content of the feed - but then farmers would need to use more feed to grow their seafood. By collaborating towards a shared goal - reducing the footprint of the seafood - Cargill uses the full potential to develop the best nutritional solutions to support the lowest seafood footprint, so farmers can then focus on on-farm emissions reductions.

Cargill then focuses on three main pillars for reducing the footprint of the farmed seafood it feeds:

- Source – reducing the carbon emissions from the raw materials making up the feed.
- Optimize – creating the right mix of raw materials to provide the nutrition at the lowest footprint.
- Care – emphasizing the importance of health and welfare to ensure optimal sustainability.
- By incorporating changes year on year that impact through the value chain, Cargill and their partners will work towards the combined emissions reduction goal.

If so, what has been your SBT strategy? Could you clearly list some of the steps you took?

To set the strategy within the aquaculture feed business, they used the basis of the corporate level SBTi. They dug into what they believed was possible in their supply chain, their own operations and use phase of products for customers. They looked at their four salmon operating countries and looked at the current situation, the situation in 2017 (baseline year) and what is coming in the future in terms of opportunities for reduction. This was coupled with the volumes of feed that they make in total and how much they thought it was realistic to engage their customers. They don't expect all customers to engage in the program, but plan to engage at least 60 per cent of customers over the initiative.

The framework for the program has been developed by a consultancy expert in carbon accounting and reporting systems. This is essential to ensure that the program is credible to external stakeholders and will contribute to the science-based targets of the value chain partners.

Cargill did a lot of modeling to analyze the feasibility. They modeled business as usual for their customer, then added changes in the feed carbon footprint, improvements in the nutrition and customer value over time. This gives the magnification of the overall impact. In the first few years it might be a small impact, but over time they will increase the amount of avoided emissions.

What have been some of the challenges and lessons learnt from a seafood perspective?

The biggest challenge for everyone is that changing the footprint and reducing from the state we are in today will add cost, and no one is sure what the value will be. When Cargill make feed today, they set a nutritional goal with the customer, which determines the nutrients they need to put into the feed. With the raw materials and prices, they use a software to make a recipe with a ratio that delivers nutrients at the least cost of all the materials they have. This also calculates a carbon footprint. Because the software already calculates the starting recipe with the lowest cost, adjusting the recipe to lower emissions whilst meeting the same nutritional goals will always be more expensive.

Exploring what to do in the supply chain: They will need to invest in suppliers in order to have changes in the supply chain. The risk of inflation of prices is great, especially if they rely on a few suppliers. The fish farmers may be willing to engage in these emissions reductions activities, but if they raise the price of their fish then they may not be certain whether the retailers will buy it. Therefore, they need value chain collaboration that includes the retailers. This can develop an insetting opportunity where carbon reductions all the way through the food chain are allocated to the retailer so they can reduce their emissions and everyone has skin in the game. These emissions reductions would need to be in the supermarkets or businesses' purchasing specs. The commercial teams still buy everything based on price and there is a need to link this carbon reduction strategy to their sustainability teams. Pledges are an important partpart, but they often are not carried through to reality – deforestation for example has lots of pledges but there has been little integration into purchasing specs until 2021.

Data and data quality is another challenge for many companies. The more complex the supply chain, the harder it is to understand the data behind it.

What would be your advice for another seafood company?

Start early. Get started with the data you can get and document everything (where the data is from, what is missing, why the data may not be good and work to improve it.) Cargill has lots of secondary data that they are working to improve and refine with primary data and most of the data they have probably overestimates the emissions from their supply chain.

They use the Global Feed LCA Institute (GFLI) database – an open access database which provides LCA data on feed ingredients. Cargill is starting with this and working to improve on it over time with suppliers.

Which resources would have helped you?

The Global Feed LCA Institute (GFLI), Product Environmental Footprint Category Rules (PEFCR) Feed were helpful resources to Cargill. Cargill used the GHG Protocol, The Gold Standard for Scope 3 reductions and a plethora of other documents for LCA and carbon accounting methodology.

Cargill is engaging an expert consultancy to write their guidance based on interviews with Cargill and their knowledge of the external landscape on footprinting. They will create the guidance documentation for them that will be a public document so people can see that SeaFurther™ is transparent and credible. They will need to update it over the next 10 years and there will be a lot of extra documentation, guidance and improved science. This paper will be finalized in March and probably released in May.

How did you generate internal support for SBTs and which departments did you engage?

Cargill worked across all departments and it helped that there was a SBTi set at the corporate group level which provided guidance to the departments. They worked with different parts of the organization such as the sourcing teams, operations teams and their customer facing teams (marketing teams and commercial teams) on how they were going to enable this and how they could work with suppliers and customers.

There is a challenge between the marketing aspect and the way companies will take the work through the whole value chain.

How did you collect data for your GHG accounting?

For Cargill's own operations, they have their own energy use per factory split by energy sources gathered in an internal database. They then used energy emission factors from IEA.

For raw material inputs, Cargill used their traceability back to suppliers for raw materials back to the country of origin for raw materials andmaterials and combined this with GFLI data, which is compliant with the PEFCR rules for feed. They also have Agri-balance and Agri-footprint data. As some suppliers have their own carbon footprint assessments, Cargill can use this data if it is compliant with PEFCR rules. If not, they requested that suppliers improve the quality of their data.

Which GHG accounting framework(s) did you use?
GHG Protocol, Gold Standard for Scope 3 reduction

What were your main sources for emission factors?
Scope 1 and 2: IEA
Scope 3: GFLI

Please describe your LCA methodology (if relevant)

There is a lot of discussion on the different LCA approaches, which Cargill worked to get involved in. In 2019 the EU created product environmental footprint category rules for feed (labeling rules based on LCA for feed). If they want to put an environmental claim on feed, then they need to follow those rules, so they have followed that methodology. They are also working on one for marine fish, which has been in public consultation.

There are different LCA approaches depending on the value chain and they are not always synchronous. The certifications Best Aquaculture Practices (BAP) and Aquaculture Stewardship Council (ASC) are both looking at carbon footprinting and Cargill recommends other feed companies to do the same.

Please outline how you plan to reduce emissions in each scope:

	Emission reduction strategy
Scope 1	Scope 1 and 2 are quite minor (about 10% total footprint of feed.) Cargill is looking at energy efficiency as a starting point, reducing the amount of energy used and over time switching to lower footprint energy sources. They are also moving from heavy oils to natural gas or LPG, ultimately one factory on biomass and another factory in Norway moved over to electrification. This means that emissions are now in Scope 2 rather than Scope 1 and the Scope 2 emissions are from hydroelectricity in Norway. Cargill has their own Scope 1 and 2 strategy, so they have the possibility for bigger infrastructure investments. The strategies for Scope 1 and 2 are closely tied together. Traditionally Scope 1 was attributed to heat sources in the factory and Scope 2 was attributed to driving machines, but they are moving Scope 1 into Scope 2 so that they have been able to fully electrify.
Scope 2	See Scope 1.
Scope 3	Strategies include supplier engagement, changing supply chains, swapping out high footprint to low footprint and evaluating nutritional options to change the feed. Nutritional perspectives say they will look at different feeds that could be more efficient at growing seafood by increasing digestibility and nutrient availability and supporting fish health and welfare.

Cermaq

What kind of seafood(-related) company are you?

Cermaq is a global salmon farmer with sales volume of 166,000 tonnes and operating revenue of 9.1 billion Norwegian Kroner in 2020, supplying a broad variety of products from fresh whole fish to ready-to-eat frozen products. Cermaq has operations in northern Norway, the west coast of Canada and the south of Chile, is headquartered in Oslo, Norway and employs 3,029 people. Cermaq sells its fish globally, with major markets including the European Union, the United States of America, China, Brazil and Japan.

Are you in the process of setting a science-based target?

Target (verified by SBTi):
Date joined: 2021
Near term: Well-below 2°C by 2030

Cermaq Group AS commits to reduce absolute Scope 1, Scope 2 and Scope 3 GHG emissions by 35 per cent by 2030 from a 2019 base year. The target boundary includes biogenic emissions and removals from bioenergy feedstocks.

If so, what has been your SBT strategy? Could you clearly list some of the steps you took?

Building on their annual climate reporting using the Global Reporting Initiative framework and Carbon Disclosure Project, Cermaq carried out a greenhouse gas emissions baseline study for all material emissions with the calendar year 2019 as the base year. This work was conducted in tandem with an external climate specialist consulting firm, to ensure alignment with the requirements of the Science-Based Targets initiative. When mapping emissions based on the SBTi framework, some main categories emerged as key for emissions reductions. For Scope 1 emissions, the main focus will be on reducing and eliminating emissions from diesel usage mainly in generators and boats through both electrification and hybridization as well as energy efficiency improvement plans. For Scope 2 emissions, the main solutions include green renewable energy supply power purchase agreements (PPAs), particularly in Chile and energy efficiency measures as well as feasibility studies on off-grid power solutions.

Currently, Cermaq has connected several sites in Norway fully to grid power (hydropower based) and is exploring the feasibility of similar electrification measures in Chile and Canada using renewable energy. In the long-term it may be possible to utilize hydrogen-powered fuel cells as a replacement for fossil fuels as well. For Scope 3 emissions, feed and transport to markets (air freight) are the two main categories of emissions accounting for over 80 percent of total Scope 3 emissions. Cermaq is focusing on improving efficiency of feed use and working with feed suppliers to optimize feed ingredient composition, as well as exploring feasibility of alternative feed ingredients, as well as alternative transportation methods in order to decrease the impact of the product sent by airfreight.

Why SBTi?

SBTi has become the sector best practice for setting climate targets and the initiative's requirements and technical review process gives a higher level of rigor than many alternative frameworks. Also, the linkage between SBTi and CDP integrates the reporting of progress towards Science Based climate targets in coming years. At the same time, relative footprints of industries do not seem to be clearly accounted for in the SBTi framework to allow for growth where it is needed. Low carbon food production such as seafood will need to increase in the coming years to feed a growing world population. The SBTi framework does not take into account the positive relative implications of scaling production in certain industries, such as seafood, as an effective climate measure.

What have been some of the challenges and lessons learnt from a seafood perspective?

There were two main challenges: obtaining good data for fuel use in Cermaq's own operations and gathering data from upstream and downstream suppliers to produce the footprint for Cermaq's value chain.

Currently, many suppliers have differing methodologies accounting for their production of greenhouse gas emissions. The main learnings are that in many cases the main sources of emissions in the industry will be concentrated into diesel, electricity and value chain emissions, each of which has a set of rapidly evolving solutions which can be put into place to reduce and eliminate emissions.

However, these solutions will need to be scaled and made more easily available and affordable in order to allow adoption by the entire aquaculture industry. Additionally, further work on the climate profile of land-based proteins such as Brazilian soy is crucial to work on reducing Scope 3 emissions. Finally, better tracking software for shipping of product would allow for increased accuracy when benchmarking the climate footprint of product shipped to customers.

What would be your advice for another seafood company?

Having access to data and systems to produce a high level of detailed information about the company's emissions is crucial both for mapping the company's footprint and for tracking progress against reduction targets. Good data is also necessary to accurately assess reduction measures and their financial and operational impacts. Additionally, engaging with the company's value chain is key to delivering climate impact since this accounts for the majority of emissions. Standardization of data, cooperation (including data sharing) through the value chain and innovation to develop low emission technologies are central areas for the industry to succeed in decarbonization.

Which resources would have helped you?

A standardized sector guide to the main sources of carbon emissions from the sector would have been useful and help drive goal setting in the industry. Additional sector-specific methodology for aquaculture would also be useful for determining best practice and effective reduction measures.

How did you collect data for your GHG accounting?

Building on Cermaq's annual climate reporting using the GRI framework and CDP, Cermaq carried out a greenhouse gas emissions baseline study for all material emissions with the calendar year 2019 as the base year. This work was conducted in tandem with an external climate specialist consulting firm, to ensure alignment with the requirements of the Science-Based Targets initiative.

Which GHG accounting framework(s) did you use?

Cermaq's carbon methodologies are based on the CDP and GRI standards.

Please outline how you plan to reduce emissions in each scope:

	Emission reduction strategy
Scope 1	For Scope 1 emissions, the main focus will be on reducing and eliminating emissions from diesel usage mainly in generators and boats through both electrification and hybridization as well as energy efficiency improvement plans.
Scope 2	For Scope 2 emissions, the main solutions include green renewable energy supply power purchase agreements (PPAs), particularly in Chile and energy efficiency measures as well as feasibility studies on off-grid power solutions. Currently, Cermaq has connected several sites in Norway fully to grid power (hydropower based) and is exploring the feasibility of similar electrification measures in Chile and Canada using renewable energy. In the long-term, it may be possible to utilize hydrogen-powered fuel cells as a replacement for fossil fuels as well.
Scope 3	For Scope 3 emissions, feed and transport to markets (air freight) are the two main categories of emissions accounting for over 80 per centof total Scope 3 emissions. Cermaq is focusing on improving efficiency of feed use and working with feed suppliers to optimize feed ingredient composition and exploring feasibility of alternative feed ingredients, as well as alternative transportation methods in order to decrease the impact of the product sent by airfreight.

Grieg Seafood

What kind of seafood(-related) company are you?

Grieg Seafood is one of the world's leading Atlantic salmon farming companies, targeting 90 000 tonnes of harvest in 2022 and 130 000 tonnes in 2025. Grieg Seafood's farms are in Finmark and Rogaland in Norway and British Columbia and Newfoundland in Canada. Grieg Seafood's headquarters are located in Bergen, Norway. More than 750 people work in the company throughout its regions.

Are you in the process of setting a science-based target?

Target (verified by SBTi):
Date joined: 2019
Near term: 2°C by 2025, 2030
Grieg Seafood ASA commits to reduce absolute scope Scope 1, 2 and 3 GHG emissions by 35 per cent by 2030 and 100 per cent by 2050 from a 2018 base year.

If so, what has been your SBT strategy? Could you clearly list some of the steps you took?

Grieg Seafood already had a GHG reduction target to reduce climate risk, but also wanted to follow global GHG reduction developments in accordance with the Paris Agreement. This is why they decided to set new targets in accordance with the SBTi's requirements.

If you set targets with the SBTi, why did you do so?

Greig Seafood reports to CDP and uses CDP's and other ESG framework requirements to develop sustainability processes and procedures. They aim to drive sustainable growth by setting ambitious targets and SBTs were emphasized by CDP. In order to ensure they are reducing emissions according to the Paris Agreement, Grieg Seafood set a SBT in July 2020.

What have been some of the challenges and lessons learnt from a seafood perspective?

Grieg Seafood is a growing company with plans to substantially increase production over the upcoming years. Before adopting the SBT, Grieg Seafood had an intensity target and changing to an absolute SBT was a challenge with regard to calculations. They used an external climate consultancy with specialized knowledge to get the process completed.

What would be your advice for another seafood company?

Grieg Seafood's advice is that it is important to have solid GHG accounting in place for Scopes 1, 2 and 3. They had already completed their GHG accounting for some years with figures audited by a third party, which provided a good understanding of the main sources of the emissions they committed to cut. Additionally, they worked together with an experienced consultancy when setting the SBT as they found the process to be quite complex and appreciated the help of a capable team.

Which resources would have helped you?

Grieg Seafood did not have available a GHG accounting tool available, including scenario analyses and completed those calculations in a manual Excel sheet. A more automated tool would have helped a lot in calculating the different reduction scenarios.

How did you generate internal support for SBTs and which departments did you engage?

In the decision process, they involved their CEO to get internal support at the right level, as they found it to be a substantial strategic decision, which would have been difficult to make without top management support.

Grieg Seafood engaged the following departments: Sustainability, Finance, Communication.

How did you collect data for your GHG accounting?

Grieg Seafood collects GHG accounting data by using the cloud-based ESG system (Carbon Footprint module) from CEMAsys.com AS.

Which GHG accounting framework(s) did you use?

Greenhouse Gas Protocol Corporate Standard

What were your main sources for emission factors?

The key external sources used as a basis for calculations are:

- International Energy Agency (IEA/OECD),
- Intergovernmental Panel on Climate Change (IPCC),
- UK Government,
- Greenhouse gas reporting: conversion factors.

CEMAsys also uses a wide range of different local and national sources. A detailed list specifically used for your company can be provided upon request.

In addition, Grieg Seafood works with confidential, company-specific feed factors received through feed suppliers.

Please outline how you plan to reduce emissions in each scope:

	Emission reduction strategy
Scope 1	Electrification of work- and well-boats and seawater sites.
Scope 2	N/A
Scope 3	Cooperation with feed suppliers to cut feed emissions. Reduction of transport emissions (reduction of transported weight e.g. cutting ice and processing products before transport to market, transport by train, or production closer to the markets).

Are you developing an internal carbon pricing system? If yes, how will it work?

Grieg Seafood has not started the development of an internal carbon pricing system but plans to do so in the near future.

Hilton Food Group

What kind of seafood(-related) company are you?

Hilton Food Group is a global food business employing 5,400 people in 18 production facilities with a turnover of £2.8 billion. The factories are mainly producing meat, but Hilton Food Group also has a large seafood operation in the UK that supplies a wide range of wild caught and farmed species to Tesco, the UK's largest retailer. Hilton Food Group also has seafood products produced in other factories in the group such as the seafood factory within the multi protein operation in New Zealand.

Are you in the process of setting a science-based target?

Target (verified by SBTi):
Date joined: 2021
Near term: Well-below 2°C by 2030
Net zero: Committed

Hilton Food Group plc commits to reduce absolute Scope 1 and 2 GHG emissions by 25 per cent by 2030 from a 2020 base year. Hilton Food Group plc commits to reduce absolute Scope 3 GHG emissions from purchased agricultural products by 12.3 per cent within the same timeframe.

Absolute percentage reduction targets against a base year of 2020:

	Target by 2025	Target year 2030
Scope 1* (WB2C)	12.5%	25%
Scope 2* (WB2C)	12.5%	25%
Scope 3 (2C)**	8.5%	12.3%

Scopes 1 and 2 are consistent with well below 2°C and scope Scope 3 is aligned to 2°C.

If so, what has been your SBT strategy?

Hilton Food Group's Scope 1 is to deliver absolute reductions in the emissions of its sites through capital investment in improved efficiency and electrification and eliminating refrigerant losses. In the longer term, Hilton Food Group will either fully move to electric heating or migrate to hydrogen gas, which will be generated near to its UK seafood factories.

For Scope 2, Hilton Food Group is investing in on-site renewable energy generation, lowering the energy intensity of processes, and most importantly moving to green renewable electricity supply contracts including PPAs with renewable energy generators. Sites utilizing district heating are already using renewable energy.

For Scope 3, Hilton Food Group started with mapping footprints across all of the categories that quickly revealed the dominant areas of livestock purchases, including farmed and wild fish. Hilton Food Group's approach is to build a hybrid model to combine actual supply chain data with the appropriate emission factors from national and global datasets for each species and production method. Hilton Food Group has chosen to partner with South Pole to help build a Scope 3 data collection and analysis model, as well as an associated decarbonization strategy. By using real data from the supply chain and identifying the key performance indicators that correlate directly to the footprints, Hilton Food Group can more accurately measure and track improvements. To deliver the reductions, they are working alongside suppliers to address the footprints of farms and vessels and help suppliers to learn from their experience in decarbonizing factories.

Future plans:

Hilton Food Group is considering internal carbon pricing to help drive the right long term investment decisions when you factor in future carbon taxes.

Hilton Food Group believes reaching net zero will require some offsetting of emissions through carbon capture. They want to do that in partnership with supply chains (via insetting) so there is a direct benefit that is shared by the whole value chain. For seafood, they see the growth of seaweed and seagrasses in the oceans as providing one of the best solutions and they believe the aquaculture industry has the capability and technologies to help deliver this with their technology. They also see a huge potential co-benefit for cattle as at least one variety is being evaluated as a feed additive that reduces methane production in cows.

Novel proteins and oils are being used to deliver the nutrients that fish need as well as considerable health benefits to consumers. These include algal oils and insect meals that have the potential to be produced at lower emissions than the materials they replace and take the pressure off marine resources. Hilton Food Group notes a need to carefully ensure that they drive down carbon alongside other sustainability and health objectives.

Technology and innovation, such as automation, is enabling efficient processing near to the source fisheries and farms and we are seeing more of the fish that is caught being landed to allow full carcass yield for human food (the most important) with by-products going to aquaculture. They believe they must strive for this goal in all fisheries.

What have been some of the challenges and lessons learnt from a seafood perspective?

- The diversity of global supply chains makes the task daunting for a single company acting alone. The decarbonization of seafood supply chains needs to be tackled with the same collaborative approach used to address fisheries and aquaculture sustainability in general.
- There are many different models to measure Scope 3 footprints and the wider LCA footprints of our products. There is a need to agree on common methodologies to be transparent and consistent in reporting progress. The recent initiatives by Global Reporting Initiative will help with this challenge.
- In Hilton Food Group's factories and supply chains they are targeting halving food waste by 2030 in the Champions 12.3 commitment. They hope to beat this target, but this will require a concerted effort across global supply chains to achieve for the industry as a whole.
- There is a cost premium for renewable energy, which is reducing but is a penalty for first movers.
- Solutions are needed that work efficiently at every scale so that local communities globally can continue to thrive from the fisheries and farms in their area and still have access to global markets in the most widely traded of all food commodities.
- The biggest footprint in aquaculture is from feed and within that the highest contributors have been wild caught fish and assumed deforestation impacts. Hilton Food Group has reduced the reliance on wild caught fish and much of the remainder is a by-product of human consumption which carries a very low footprint. They are pleased that all the soy used in their salmon feed is now certified sustainable and the traders of Soy Protein Concentrate in Brazil have all committed to only buying from farmers that have ceased any form of deforestation, which applies to all of their markets.

What would be your advice for another seafood company?

Make the commitment at the top of your company and do it soon. The solutions to achieve SBTs for Scopes 1 and 2 are clear and will be a prerequisite for trade in years to come. For Scope 3, there is a need to take a leap of faith and commit to the collaborative efforts that will help drive the innovation, which will in turn achieve huge carbon reductions across the value chain. Companies can address their own footprints, but it is not sufficient to act alone and they also need to collaborate to get ahead on the journey to shared SBTs.

Which resources would have helped you?

It would have been helpful to have sector-based guidance on measurement protocols and the most impactful interventions and ultimately a sector-wide decarbonization plan for each region and sector.

How did you generate internal support for SBTs and which departments did you engage?

Setting long term targets requires the full support of the CEO, the board and the senior leadership teams. Hilton Food Group's CEO has a strong personal commitment to sustainable business practices and they have a board that understands the long term value of their business is built by managing risk and opportunity, which includes the impacts of climate change.

It was critical to be able to have a fact-based conversation with their business leaders to help them understand what the business was committing to and that they had a plan to achieve it. They started by building a small team that included energy procurement and supply chain teams, who would be responsible for building the plans. They then jointly consulted with external experts to help map the actions that would be needed and the alternative pathways to achieve the SBTs. The main challenge that Hilton Food Group faced was that the business has grown rapidly and will continue to do so.

To give Hilton Food Group's CEO and the senior teams the confidence to commit to these targets, the team working on the targets needed to show an outline plan for all of the scopes that encompassed this growth.

They built a waterfall diagram to describe how they could achieve their Scope 1 and 2 SBTs including accounting for planned growth by actions to decarbonize energy sources and build efficiency improvements across operations.

The plan for achieving their Scope 3 targets was less well defined at the outset, which is the reason that Hilton Food Group initially opted for a 2°C target. They know what reductions are needed for each of the categories to achieve each level of ambition and have mapped which sectors of their supply chains will need to make the most significant reductions. They are in the process of engaging with these suppliers to work out jointly how they can meet shared targets. Hilton Food Group's intention is to resubmit the targets in alignment with the highest possible level of ambition, as soon as they have a sufficiently detailed plan to achieve this.

Additionally, as part of the resubmission they are engaging across all operational units and departments to build Scope 1, 2 and 3 plans and training in each market to ensure they can be delivered swiftly, robustly and in the most locally relevant way.

Why did you set a target with SBTi?

Hilton Food Group entered the target setting process because they recognize that there is a compelling need for the food industry as a whole to decarbonize as they collectively contribute to a significant proportion of the GHG emissions and could overtake the energy and transport sectors which are reducing their emissions. The seafood element of Hilton Food Group's business is not the biggest emitter, so their challenges extend beyond the sector into other livestock and crops. However, seafood has a huge opportunity to become a low carbon food sector and to contribute to carbon sequestration.

Hilton Food Group sees the SBTi as the best global framework to engage with to benchmark their emission reduction plans against the Paris Agreement targets and to build a consensus plan across the value chains with suppliers and customers. As a global company that does not have ownership of the whole chain, Hilton Food Group needs shared goals to create the traction for effective collaboration.

How did you collect data for your GHG accounting?

For Scope 1 and 2 targets, Hilton Food Group has data from energy purchases that have been validated by an independent auditor.

For Scope 3, the data has been collated from financial accounts that provide the spend values and volumes of each of the categories. This has immediately shown the emissions from purchased goods and services are the vast majority of the total. As part of the resubmission, they will be taking a much more physical based approach, using LCA techniques to derive the footprint from volumes of commodities to give a more precise estimate of the overall footprint.

To build an initial baseline, Hilton Food Group used the spend data for each key commodity and identified the origins in order to allocate emission factors based on national data sets.

In the few instances where suppliers have collected data from the farmers and fishing vessels, they can use actual supply chain specific factors. They hope that this will become the norm in the next few years so that they can account for the supply chains and see the positive impacts of the actions taken at farm and fishery level.

Which GHG accounting framework(s) did you use?

Hilton Food Group uses the Greenhouse Gas Protocol as the primary accounting framework. Scope 1 & 2 accounting globally is aligned to the SECR methodology for resubmission.

What were your main sources for emission factors?

National or sectoral factors have been used. Hilton Food Group has subscribed to international datasets to help map these.

Please describe your LCA methodology (if relevant)

Hilton Food Group is building this at present and intends to be able to use the data from multiple tools used across the supply base globally. To help to understand how to do this, they are participating in collaborative research projects.

They are using a cradle to gate approach for purchased goods aligned to Poore & Nemecek scope boundaries and a refrigeration/ cooking assessment based on cooking instructions rather than specific heat capacity for use of sold products. All LCAs are aligned to ISO14044.

Are you developing an internal carbon pricing system? If yes, how will it work?

They are considering developing an internal carbon pricing system and would welcome a dialogue with companies across industries that made this work. Hilton Food Group is primarily focused on developing a MAC approach aligned to market prices for sequestration of residual emissions from other industries.

What factors do you think should be taken into account in a SBTi methodology for seafood?

It is important when looking at wild caught fish that the methodology considers the emissions throughout the animal's life as well as those from harvesting, including the interaction of the nitrogen cycle to produce N2O and methane through anaerobic decay.

Lerøy

What kind of seafood(-related) company are you?

Lerøy Seafood Group ASA ("Lerøy" or "The Group") is a world-leading seafood corporation with a history reaching back to 1899. The Group is a fully integrated international seafood supplier with more than 70 subsidiaries and almost 5000 employees. Lerøy has three core business segments: fish farming of salmon and trout, wild-fish catches and Value-Added Processing, Sales and Distribution (VAPSD).

Are you in the process of setting a science-based target?

Target (verified by SBTi):
Date joined: 2021
Near term: 1.5˚C by 2030

Lerøy Seafood Group ASA commits to reduce absolute Scope 1, 2 and 3 GHG emissions by 46 per cent by 2030 from a 2019 base year.

- In May 2021, Lerøy Seafood Group ASA's targets were approved by the SBTi.
- The target is to reduce absolute Scope 1,2 and 3 GHG emissions in all operations by 46 per cent within 2030, from a 2019 base year. This target is aligned with a 1.5˚C pathway defined by the Absolute Contraction Approach.[54]
- Lerøy has defined 2019 as the base year for the science-based climate target as this was the first year all operating segments in the Group were included in the emission reporting.
- Lerøy recognizes that their Scope 3 emissions are larger than their Scope 1 and 2. The Scope 3 portion of the combined Scope 1, 2 and 3 target translates to an absolute emission reduction of 46 per cent by 2030 from a 2019 base year, which exceeds the minimum ambition defined by the Absolute Contraction Approach.

If so, what has been your SBT strategy? Could you clearly list some of the steps you took?

Lerøy did an evaluation of their value chain to identify critical areas with regard to CO_2 emissions. They have been measuring Scope 1 and Scope 2 emissions for several years and two years ago measured Scope 3 emissions as well. They wanted to take responsibility for their CO_2 emissions and decided that a SBT would help to do this. Together with a supplier, Lerøy went through their figures and calculated how to reach the 1.5˚C goal.

By setting a science-based target, Lerøy has set a clear course for climate reduction throughout the entire value chain. Both the company's board, group management and employees are behind the goals that have been set out. Lerøy's vision is to be the most profitable global supplier of sustainable high-quality seafood and sustainability is an integrated part of the core business strategy.

Why did you set a target with SBTi?

Lerøy wanted targets to be ambitious, in order to show that the group is taking it seriously. They wanted to show alignment with a 1.5˚C scenario and also believe that SBTi is a leader. By connecting to SBTi, Lerøy felt they had something concrete to work towards and that it also put extra pressure on the organization to achieve the goal.

What have been some of the challenges and lessons learnt from a seafood perspective?

The biggest challenge is to get data from the suppliers, because this is not something that all companies are working with yet. Another challenge on the general base is the lack of knowledge on climate change, risk management and what that means for the sector. The seafood industry needs to be more cautious of climate change risk.

[54] The absolute contraction approach is a method for companies to set emissions reduction targets that are aligned with the global, annual emissions reduction rate that is required to meet 1.5˚C or WB-2˚C.
See: **sciencebasedtargets.org/resources/files/foundations-of-SBT-setting.pdf**.

More sustainable options can be more expensive than the common model and it may not be possible to see immediate benefits from profit margins. This is the problem for companies, but they should realize that although they pay more in the beginning, they are getting more benefits in the long term. By having a fully integrated value chain they are positioned to utilize strategies and opportunities and reach their ambitious vision going forward. Their success will be determined by and made visible in their ability to create added value for customers. They aim for growth and increased market shares by offering competitive solutions with a focus on cost and quality, innovation, supply security, traceability, service and food safety.

Lerøy believes that an increased focus on climate and environmental sustainability represents a significant opportunity for the group to provide high quality seafood in a carbon-constrained world. The three most important options to decrease emissions are related to changing feed composition, less transportation by air and switching to alternative low-carbon fuel. They have started the work of mapping and gathering information on how to reach this goal.

What would be your advice for another seafood company?

Use time and resources to work with the subject. Thorough analysis and material analysis is needed before setting the target to ensure the target can be reached. TCFD should be part of the core strategy of companies. Companies should not just set long-term targets, but also short- and medium-term targets. Small and medium sized companies should look for where they can contribute the largest impact.

Companies should set goals going forward at the board level and target setting should be approved by top management so that it does not stay at the bottom of the corporation. Many companies' boards need to be educated on why and how they should achieve sustainability in the seafood industry. From a business perspective, sustainability is not just for looking good and reducing emissions, but it also means competitive advantage for the firm.

Companies should look at target-setting from a business perspective. It is not just about reducing emissions, but it is also a competitive advantage. It is good for the business model and product going forward and it will be easier for companies to set these targets if they see these points. Companies need to realize the business benefits, not just the environmental issue. This provides motivation to move forward.

Which resources would have helped you?

Lerøy received some help from a company that works with helping companies set science-based targets.

How did you generate internal support for SBTs and which departments did you engage?

Lerøy did not face any challenge on its senior management level because sustainability is a part of the corporation's vision. The group management and the board were involved in the process and in the end, it was the board who took the decision.

The department for ESG & Quality facilitated the process, supported by the group management. Lerøy also included key personnel from different departments to work with collection figures from suppliers. After setting the science-based target, all departments within the Group are working with different projects to reach the goals.

How did you collect data for your GHG accounting?

Lerøy uses an IT system for GHG accounting.

Which GHG accounting framework(s) did you use?

The Greenhouse Gas Protocol

What were your main sources for emission factors?

Defra

Please outline how you plan to reduce emissions in each scope:

	Emission reduction strategy
Scope 1	Lerøy is switching from diesel to renewable energy on feed barges, investing in electric working boats and recent investments in modern factories and locations along the coast are also contributing to improving energy efficiency. Replacing marine gas oil is another emissions reduction activity Lerøy is working on. Lerøy also has 10 white fish trawlers and has started a fleet renewal program where they focus on energy efficiency and a higher utilization of the residual raw materials on board. Given that there are still some technological constraints towards zero emission vessels, further innovation is required and they acknowledge that this will take partnership with others and time before they reach their overall goal of having a complete fleet of low carbon vessels.
Scope 2	Using electricity where possible.
Scope 3	Lerøy recognizes that their Scope 3 emissions are larger than Scope 1 and 2, where feed production accounts for the vast majority of the footprint. They have therefore also started to collaborate with partners and stakeholders for both testing and implementing new feed raw materials. Transportation of products to the end consumer is also part of Scope 3 emissions, where air transport to overseas markets is the biggest contributor. They are addressing this as well and looking into what kind of products to transport (e.g, filet or whole fish), as well as how to transport products.

Grupo Nueva Pescanova

What kind of seafood(-related) company are you?

Grupo Nueva Pescanova: Fishing, aquaculture farming, processing and commercialization of seafood.

Are you in the process of setting a science-based target?

Working on development.

Target (not yet verified by SBTi):
Reduce the carbon footprint (Scopes 1 and 2) by 3 per cent annually, aiming to a 30 per cent cut by 2030 and 50 per cent by 2040, from the 2020 baseline.
Gradually compensate the residual Scope 1 and 2 emissions towards a net-zero goal by 2040 in combination with the emission reduction effort.

If so, what has been your SBT strategy? Could you clearly list some of the steps you took?

Measuring and reporting (S1, S2, S3). Assessing potential for reduction and compensation. Defining targets. Defining and implementing reduction and compensation plans.

Scope 1: 3 per cent annual reduction, resulting in 30 per cent by 2030 and 50 per cent by 2050
Scope 2: 3 per cent annual reduction, resulting in 30 per cent by 2030 and 50 per cent by 2050
Scope 3: Not defined, but now running a completeness assessment. They will still need to estimate the full Scope 3 category and emissions per country and activity.

If you set targets with the SBTi, why did you do so?

Grupo Nueva Pescanova has not yet set targets with the SBTi but plans to soon. They are looking for a science-based and independent validation of their emissions reduction plans, which can give robustness to the decarbonization plan.

What have been some of the challenges and lessons learnt from a seafood perspective?

- The diversity of activities and geographic dispersion of activities.
- Training needs for several key positions in the companies.
- Documentation systems and evidence for verification.
- Scope 3 emissions complexity due to point 1.

What would be your advice for another seafood company?

Step-by-step advice:
Disaggregate activities and companies (if applicable).
Set targets and plans for each and then aggregate.
Set methodology and measure.
Set targets.

Which resources would have helped you?

Specific guidance and materials for mass training across the organization.
Publicly available databases with carbon-intensity for generic Scope 3 products and services.

How did you generate internal support for SBTs and which departments did you engage?

Grupo Nueva Pescanova mainly involved the sustainability, CSR, quality & environment and finance departments and secondarily involved compliance and internal audit.

How did you collect data for your GHG accounting?

First, Grupo Nueva Pescanova sent an internal questionnaire to 42 reporting units/companies within the group. They then managed indicators and plans based on the resulting global matrix.

Which GHG accounting framework(s) did you use?

GHG Protocol Corporate Accounting and Reporting Standard

What were your main sources for emission factors?

All factors were from official and internationally recognized sources. They used the IEA for country-specific carbon intensity for electricity mix, IPCC and official national publication for fuels and practical guidance offered by the Oficina Catalana del Cambio Climático (in Spanish).

Please outline how you plan to reduce emissions in each scope:

The plan behind the annual 3 per cent reduction commitment involves assessments, CBA, opportunity, design and planification, engagement, implementation, governance and follow-up with 42 companies/reporting units on different activities and countries (i.e., fisheries, aquaculture and industry in 18 countries).

As a fundamental part of the decarbonization strategy, they have identified for Grupo Nueva Pescanova companies overarching measures aimed at:

1. Reducing the atmospheric emissions of GHG from energy conversion and consumption processes.
2. Industrial reconversion by promoting the replacement in industrial equipment of more polluting fuels to less polluting ones.
3. Promoting the switch to energy from renewable sources.

The comprehensive set of measures, for which KPIs must be defined, measured and reported, includes:

- Improving the energy use efficiency of combustion equipment and electricity consumption.
- The preferential use of materials and products that, throughout their life cycle, generate fewer emissions and lower energy consumption.
- The energy recovery of the waste generated.
- The increase in the production and/or consumption of energy from renewable sources.
- The reduction of losses and waste generation, allied to the recovery of by-products in all phases of the product chain.

	Emission reduction strategy
Scope 1	■ Replacing fuels (in 2019, replacing fuel for natural gas in the last processing plant using fuel). ■ Efficiency improvement plans in fleet, aquaculture farms and transformation plants – e.g. progressively reducing the fishing gear weight (demersal trawling gear), which resulted in saving 23 ktCO2eq/yr. ■ Building six new vessels (3*50 m, 3*32 m) with ca. 30% improvement in energy efficiency and 40% fishing efficiency. ■ Implementation of the Aquaculture 4.0 focused on efficiency and sustainability (cloud tools, AI and IoT), improving efficiency and impacting a multitude of energy-related and animal welfare KPIs. ■ Energy use efficiency improvements in several seafood transformation plants (average 17,5% improved COP of equipment and processes) and other projects on logistics, cold storage, transport and distribution.
Scope 2	■ Switching to renewables (already sourcing 60% in Spain and 30% overall in 18 countries, new PPAs and contracts every year) ■ Installing 'solar parks' (photovoltaic panels, total 40.000 m2 in 2021, generating 12GWh/yr, increasing to 15 GWh in 2022
Scope 3	■ By-product's valorization in circular solutions mostly for animal feed (about 13 kton in 2020)

Case: Improving energy efficiency

Grupo Nueva Pescanova has built 6 new wet-fish trawlers between 2019 to 2020 in order to replace around 10-12 older units: three 50 m-vessels to Namibia and three 30 m-vessels to Mozambique. The impact in fishing and engine efficiency significantly contribute to the overall fleet results with 15 per cent direct reduction in fuel consumption and emissions, then improvement in the fishing efficiency (+38 per cent, fish/day) and consumption efficiency (+21 per cent, fish/fuel) indicators.

Still, building new vessels is not possible for most companies and for most of the time.

Then maintenance is paramount for fuel efficiency and engine performance, as well as for freezing and cold storage in regard to refrigerant gasses. The two main aspects are eliminating leakages in the system and switching to low-ODP and low-GWP gasses.

Another relevant project involves the reduction of the fishing gear's weight. Grupo Nueva Pescanova has worked on the net design (less materials) and materials (lighter materials) of the trawling gear, the trawl doors (new design) and the hauling winches (twin net drums); together with T90 mesh for trawl codends, LED lighting systems and some higher efficiency equipment on board. The trawl gear was reduced in 45 per cent weight and the overall trawl drag was reduced significantly. The overall power consumption on board and gear operations was reduced with direct impact on fuel consumption (and respective emissions).

All the above concern modifications on the energy conversion (engine efficiency) and fuel combustion (fuel consumption) processes. Grupo Nueva Pescanova believes they have reached a significant improvement and further changes entail an excessive cost-effect investment. This would mean investing resources they need to improve other fleets or other operations within the group – e.g. to improve aquaculture efficiency, productivity, certifications and sustainability, energy efficiency in industry for equipment and infrastructures for renewables (solar), among other things.

Grupo Nueva Pescanova is also working on other initiatives (39 actions documented in the Responsible Action Programme that have resulted in energy savings. Initiatives include work on awareness, lighting, power meters, new freezers, maintenance, waste treatment).

Nutreco

What kind of seafood(-related) company are you?

Nutreco is a global animal nutrition company with 12,000 employees. As an animal nutrition company, they are strategically poised to influence the sustainability characteristics of the ingredients they use (the extractors component of the food value chain) and the products they offer the farm animal (fish and shrimp) producers that allows them to offer meat with a lower footprint to consumers. The aquaculture feed Division of Nutreco is Skretting, a global leader in fish and shrimp feed.

Are you in the process of setting a science-based target?

Target (validated by SBTi):
Date joined: 2021
Near term: Well-below 2°C by 2030

Nutreco commits to reduce absolute Scope 1 and 2 GHG emissions by 30 per cent by 2030 from a 2018 base year.* Nutreco also commits to reduce Scope 3 GHG emissions by 58 per cent per unit of value added over the same timeframe.

*The target boundary includes biogenic emissions and removals from bioenergy feedstocks.

If so, what has been your SBT strategy?

SBTi journey – Key Facts:

- In March 2020, Nutreco committed to the SBTi.
- In February 2021, the company's near-term well-below 2°C target was approved.
- The reduction target for Scope 1 & 2 is 30 per cent "absolute" reduction to the year 2030 using 2018 as a baseline year.
- For Scope 3, the company target is 58 per cent "economic intensity" reduction to the year 2030 also using 2018 as a baseline year.
- 95 per cent of Nutreco's carbon footprint is in Scope 3 – in the supply chain.

RoadMap 2025

The RoadMap 2025 is Nutreco's five-year sustainability strategy. As part of the "Climate & Circularity" pillar, they are committed to the SBTi. Nutreco plans to achieve the targets in RoadMap 2025 by focusing on the following:

Scope 1: Converting to onsite renewable energy where appropriate. In the first year, Nutreco has seen its Guatemalan operations switch to 100 per cent solar panel generation of electricity.

Scope 2: Nutreco's Ecuadorian and Spanish operations have converted to renewable electricity consumption.

Scope 3: Nutreco is developing a life cycle assessment methodology for products and services, as 95 per cent of the footprint is in Scope 3 (supply side). This will encourage diet changes and nutrition formulation based on land-use change (e.g. deforestation) and other lower carbon footprint feed ingredients (e.g. specific novel ingredients) to reduce emissions.

Thai Union

What kind of seafood(-related) company are you?

Thai Union Group Public Company Limited is one of the world's seafood leaders, bringing high quality, healthy, tasty and innovative seafood products to customers across the world for more than 40 years. Thai Union is one of the largest producers of shelf-stable tuna and has a global workforce of more than 44,000 people who are dedicated to pioneering sustainable, innovative seafood products.

Throughout 2021, Thai Union's sustainability efforts were recognized as they were included in the Dow Jones Sustainability Indices (DJSI), ranking second in the Food Products Industry Index. This marked the eighth year in a row they have been included in the DJSI. Thai Union was also ranked number one in the Seafood Sustainability Index (SSI).

Are you in the process of setting a science-based target?

Yes, Thai Union plans to develop targets (Scope 1, 2 and 3) in line with the SBTi as part of the company's strategy to tackle climate change and its impact on the world's oceans. In 2021 Thai Union conducted its first GHG inventory for 2020, which will be used as a baseline year for target setting.

The target will be submitted to the SBTi for approval in early 2022, with the target then communicated to stakeholders and the general public to position Thai Union as one of the world's largest seafood companies with a responsibility to drive climate actions across the global seafood sector and to meet international commitments such as the SeaBOS initiative.

If so, what has been your SBT strategy? Could you clearly list some of the steps you took?

1. Monitoring the latest developments in climate change such as COP26 and IPCC reports.
2. Study and review methodology for setting SBTs and best practice from peers.
3. Identify suitable consultants to support in modeling and analysis.
4. Define scope and boundary for the calculation methodology.
5. Data collection – this was the most time consuming step in the process, as they collected a range of data (e.g. procurement data, financial data, other types of primary data).
6. Assess mitigation options and develop a greenhouse gas reduction strategy.
7. Internal engagement to generate internal awareness on how the climate targets will impact the business units. This was critical to obtain top management sign-off.
8. Set science-based emissions reduction targets for Scopes 1, 2 and 3.
9. Submission to SBTi for approval, followed by external communication.

Why SBTi?

Credibility: Thai Union wants to use a credible and globally accepted methodology. Using SBTi's methodology helps to avoid greenwashing issues that could arise from creating a target with a 'loose' methodology.

Expertise: Knowledge from the partner organizations behind the SBTi allows Thai Union to tap into experts and utilize their methodology.

Expectations: Expectations and pressure from investors, customers and NGOs they engage with has also pushed them to set targets through SBTi. Some customers are also already setting their own targets with SBTi.

Standardization: It is Thai Union's hope that having global alignment around methodology will create more standardization around reporting and progress.

What have been some of the challenges and lessons learnt from a seafood perspective?

Scope 3 data collection and calculation: the diversity and wide use of raw materials, packaging, upstream and downstream transportations and others across numerous sectors' supply chains compounds the Scope 3 challenges faced by the seafood sector. Low availability of data and different calculation methods were the top issues to assess greenhouse gas Scope 3 emissions. Beyond this, another challenge is going deeper into the supply chain and increasing engagement in order to figure out how to track data at the vessel level, how to obtain primary data, identify alternative fuel and engines and engage with national governments and seafood companies, as industry-wide collective action will be necessary to achieve scope Scope 3 targets. As part of this they also work to push the climate change agenda across coalition platforms such as SeaBOS and ISSF.

Emissions reduction strategies: There is a need to develop and scale up innovations and technologies for the seafood sector. For Scope 3 emissions reduction, there is a need for cooperation from the supply chain to reduce greenhouse gas emissions along the value chain.

Long-term net zero targets: When considering net zero targets it is difficult to tangibly describe how to achieve these long-term targets with the currently available solutions.

What would be your advice for another seafood company?

Thai Union is inviting all companies to study and set SBTs in order to drive positive change and ambitious climate action across the seafood sector. First, companies should begin with an overview of the science-based target guidelines on SBTi's website in order to understand the requirements in more depth before developing SBTs. Then, companies should review current climate management and greenhouse gas emissions from their own operations and supply chains in order to understand the company's greenhouse gas database and identify hotspots. Finally, companies should assess greenhouse gas emissions reduction options for Scope 1, 2 and 3, develop emissions reduction strategies and set targets in line with the SBTi.

Companies should also look to their peers to learn from each other and understand they have to overcome common challenges.

Which resources would have helped you?

Science Based Target initiative: sciencebasedtargets.org/set-a-target
Greenhouse Gas Protocol: ghgprotocol.org/
Third party LCA experts.
LCA databases: Still limited information on competence around this topic from consultancies, especially with a fisheries focus.

How did you generate internal support for SBTs and which departments did you engage?

The work started with a Sustainability Committee generated by senior leaders across business units. This was followed by an informal discussion to bring middle management up to speed, with a focus on taking them along the journey rather than just presenting the strategy. This also gave them the opportunity to bring in their thoughts and comments, especially on the level of ambition. They also held internal workshops and dialogue on opportunities for emissions reduction. Finally, they engaged the Global Leadership Team (the board), as having senior representation at the highest level is extremely supportive. The final sign-off was done by the board.

How did you collect data for your GHG accounting?

SAP system: Data from Thai Union's SAP system was provided to consultants, who then calculated emissions based on the methodology. Enablon was used to collect primary environmental data from Thai Union's own processing facilities.

Which GHG accounting framework(s) did you use?
GHG Protocol

What were your main sources for emissions factors?

Scientific literature
Governmental Departments, such as DEFRA.
Quantis
Research organizations and other organizations such as FAO

Please describe your LCA methodology (if relevant)

Thai Union is currently working on evolving the methodology and approach to incorporate more primary data and become less reliant on generic LCA's.

If you used a different framework than SBTi, please describe the methodology behind your SBT (boundary, timeline, scenario, percent reduction, tools used).

Please outline how you plan to reduce emissions in each scope:

	Emission reduction strategy
Scope 1	■ Phase out coal and fuel oil ■ Boiler optimization ■ On-site solar ■ Process & efficiency optimization
Scope 2	■ Process & efficiency optimization ■ Solar PPAs
Scope 3	■ Look at availability of biofuels and lower carbon alternatives to what is used today (the biggest driver is fuel used on vessels). ■ Look at aquaculture processes and how these can be more efficient. Packaging: more sustainable options and circularity.

Are you developing an internal carbon pricing system? If yes, how will it work?

Thai Union is currently looking at the feasibility of creating an internal carbon pricing system as a mechanism to incentivize progress towards the SBTs.

Global Salmon Initiative

Global Salmon Initiative & World Wildlife Fund Climate GHG Measurement and Mitigation Project.

The race to zero is on and we know it needs to be done. But the question is how do we get there? Aquaculture already has a low carbon footprint, but improvements still need to be made to ensure we maintain our position as a climate-friendly option. The changes required are across the supply chain and affect the whole industry no matter the location. Recognizing that collective efforts could help accelerate change, over the last year the Global Salmon Initiative has been working in partnership with the World Wildlife Fund to establish an accounting framework for greenhouse gas emissions for the farmed salmon sector, from feed to consumer. Prioritizing stakeholder collaboration and shared learning, this project is focused on aligned, credible accounting and motivating ambitious mitigation.

Project aim:
The goal of this work is to establish a common measurement framework across the GSI salmon farming member companies, (and hopefully in time the wider aquaculture sector too), so that lessons can be shared across companies and a forum can be created for knowledge-sharing on effective greenhouse gas emission mitigation strategies. With this foundation, companies are empowered to set ambitious mitigation targets, make progress towards those goals and communicate externally about their progress. This work is still underway, but we will begin using the framework internally in 2022, with the aim of sharing externally in 2023.

Background on GSI and WWF

Global Salmon Initiative (GSI) is a leadership effort established by global farmed salmon CEOs committed to helping feed the world in a healthier, more sustainable way through advancements in responsible salmon farming. Representing 40 per cent of theglobal farmed salmon industry, we recognize our ability — and responsibility — to drive positive change at speed and scale. Through collaborative efforts to improve sustainability, transparency and innovation, GSI members' farmed salmon is raised to be better for oceans, climate and people. Since its conception the group has launched the first industry-wide Sustainability Report of its kind, helped drive over 50 per cent of its production towards ASC-certification and reduced antibiotics use by over 50 per cent on average.

The World Wildlife Fund (WWF) is the world's leading conservation organization and works in nearly 100 countries. At every level, WWF collaborates with people around the world to develop and deliver innovative solutions that protect communities, wildlife and the places in which they live. Providing expert advice and guidance, WWF is partnering with GSI on this project to counsel the group in better understanding accurate accounting as well as developing and implementing measurement and mitigation efforts.

Our work-plan:
This project will have four components:
(1) Aligned measurement and accounting.
(2) Ambitious mitigation.
(3) Shared learning.
(4) Credible reporting.

Aligned measurement and accounting: The first step in mitigating climate impacts is measuring them and doing so in a consistent form. Measurements help strategic intervention and tracking progress. This proposed measurement framework aims to enable GSI member companies to effectively monitor greenhouse gas (GHG) emissions, strategically identify interventions to monitor the effect of their actions and to credibly communicate their progress across GSI and to others. Consistent with GSI's position as a collaborative platform, the measurement framework aims to enable the sharing of better practices and lessons so we can all learn faster.

As GSI, we will focus on generating alignment in measurement, with all member companies using the Product Environmental 3 Footprint Category Rules (PEFCR) feed and draft marine guidelines. We will be using the GHG impact category, but GSI member companies may elect to follow additional requirements at their choice.

This measurement framework includes an ambitious proposal to include primary 'on-farm' data for key feed ingredients.

Ambitious mitigation: Mitigation options are still nascent for aquaculture systems and GSI is at the leading edge of defining ambition and attainment of these targets. Which is why, as part of this project, all GSI members (if they have not done so already) will be setting company reduction goals in line with 1.5°C ambitions and focused on mitigation efforts across all three scopes.

Shared learning: Both measurement and mitigation will require iterative learning. Creating a platform for companies to share their experiences and a digital repository to reference will enable scaling of effective strategies. GSI is well positioned to do this by connecting both farming and feed companies and companies and has already established such a working group meeting regularly in virtual meetings.

Within this working group we will focus on:
(1) Refining GHG accounting: sharing information on accounting and knowledge-sharing on any challenges.
(2) Creating a digital repository of interventions and results: sharing efforts and outcomes to streamline efforts.
(3) Ensuring yearly internal reporting: share results to support shared learning.
(4) Setting targeted experimentation: consideration of coordinating pilot testing of novel interventions.

Credible reporting: All GSI members will be reporting via the proposed measurement framework for internal GSI use in 2022. We then hope to begin external reporting in 2023. Given that consistent, credible measurement is groundwork for mitigation and reporting, this proposal focuses more on measurement as an enabling factor for these later steps.

Benefits of collaborative work
The 2020s are a critical decade of action for climate and sustainability. We do not have time to make the same mistakes twice. Effectively communicating what is working and what is not will be critical to ensure climate mitigation scale rapidly. This is why GSI strongly believes collaborative efforts, such as this will be a crucial element in helping drive measurable progress.

Through collaboration we are able to:

- Motivate members to establish ambitious, yet realistic targets.
- Focus and streamline efforts.
- Prevent duplication of efforts and costs.
- Collaboratively problem-solve and identify solutions.
- Share resources to trial novel approaches.
- Share best-practices and lessons to learn faster.
- Combine data to identify best-practices.
- Catalyze mitigation efforts.

In addition, many sectors are grappling with similar challenges in climate mitigation, so cross-pollination of solutions may be particularly impactful.

To see the food system changes and to meet the climate goals the planet needs, we need change at speed and scale. Working individually will see progress, but working together will give us the tools to accelerate efforts.

The Sustainable Trade Initiative

Collective Action - A case study by IDH, The Sustainable Trade Initiative

Coalition of the willing

IDH created and facilitates a pre-competitive Aquaculture Working Group, consisting of companies that can prioritize issues, start projects, create metrics and a methodology and can learn together. The aim of the group is to better measure and reduce the environmental footprint of Aquaculture. By working together, companies can co-develop, test and scale solutions that they could not achieve on their own, with the added benefit that results will be comparable with other supply chains, aquaculture products and proteins.

As environmental issues are interlinked, the group focuses not only on GHG emissions alone, but takes an LCA approach as far as possible to also include fresh-water use, eutrophication, biodiversity, antibiotic use and plastic use in its methodology. The group currently focuses on tropical aquaculture species (shrimp, tilapia and pangasius) but aims to make sure the created tools and methodology are applicable for other aquaculture species and species and explores how to integrate wild caught fish.

Objective
The core objective of the group is to better understand, measure and reduce the environmental footprint of aquaculture along the entire supply chain. We will do this by:

- Promoting the adoption of consistent, standardized, environmental metrics and tools, covering priority environmental topics
- Pilot metrics and methodologies in different value chains.
- Start collecting metrics in different value chains, resulting in baselines of environmental footprint of a product category (e.g. whiteleg shrimp from Thailand).
- Work together with certification schemes to harmonize data collection of the schemes and the working group.
- Better understand the environmental footprint hotspots along the value chain.
- Propose product environmental footprint targets on footprint reduction relative to a set baseline.
- Once hotspots are identified, implement collaborative projects to reduce environmental footprint.
- Continue to measure environmental footprint and add other topics to the scope.
- Share lessons on environmental footprint reduction.

Certification and rating
Certification, rating and other initiatives cover parts of the answer but there is nothing yet that can provide a complete solution. There is a need for a collaborative group consisting of organizations with a shared interest in better understanding the environmental footprint of aquaculture and working on reducing it.

As part of the working group, IDH collaborates with ISEAL and certification schemes and rating programs to align on GHG methodology so that different GHG methodologies are comparable. In 2021 four aquaculture certification schemes and rating programs have participated with ISEAL and IDH to align their GHG methodology and we will continue this work in the coming years.

Where are we now?

Currently, a methodology on GHG emissions, water use and eutrophication is being developed, that is currently being piloted by companies in the shrimp, tilapia and pangasius value chain. The methodology has LCA at its core. Simultaneously a group of interested certification and rating schemes is being convened that will work on aligning their GHG methodology.

Our Partners
Companies joining the Working Group are Marks and Spencer, Tesco, the Sustainable Shrimp Partnership, Thai Union, Hilton Seafood UK, Nordic Seafood, Seafresh Group and Taino Aqua Ferme.

7

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THE TEN PRINCIPLES OF THE UNITED NATIONS GLOBAL COMPACT

HUMAN RIGHTS

1 Businesses should support and respect the protection of internationally proclaimed human rights; and

2 make sure that they are not complicit in human rights abuses.

LABOUR

3 Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;

4 the elimination of all forms of forced and compulsory labour;

5 the effective abolition of child labour; and

6 the elimination of discrimination in respect of employment and occupation.

ENVIRONMENT

7 Businesses should support a precautionary approach to environmental challenges;

8 undertake initiatives to promote greater environmental responsibility; and

9 encourage the development and diffusion of environmentally friendly technologies.

ANTI-CORRUPTION

10 Business should work against corruptions on in all its forms, including extortion and bribery.

The Ten Principles of the United Nations Global Compact are derived from: the Universal Declaration of Human Rights, the International Labour Organization's Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development, and the United Nations Convention Against Corruption.

ABOUT THE UNITED NATIONS GLOBAL COMPACT

As a special initiative of the UN Secretary-General, the **United Nations Global Compact** is a call to companies everywhere to align their operations and strategies with Ten Principles in the areas of human rights, labour, environment and anti-corruption. Our ambition is to accelerate and scale the global collective impact of business by upholding the Ten Principles and delivering the Sustainable Development Goals through accountable companies and ecosystems that enable change. With more than 15,000 companies and 3,000 non-business signatories based in over 160 countries, and 70 Local Networks, the UN Global Compact is the world's largest corporate sustainability initiative — one Global Compact uniting business for a better world.

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