2023

Embracing Sustainability, Elevating Success

CEO Message
Carlos Diaz

I am filled with a profound sense of pride and accomplishment as we see a year where the UN embraced blue foods as a low impact and nutrient, dense food choice essential for billions of people. In BioMar, our team achieved a record-breaking 2023, not only in financial performance but also in our steadfast commitment to sustainability and innovation. This proves that investment in these areas pays off!

Aligned with our strategic vision, we continued to advance our BioSustain programme to bring sustainability metrics to our customers. We see the industry embracing sustainability data to truly understand the impact of aquaculture.

Looking back, 2023 was a landmark year for advancing our sustainability objectives and positively impacting our global footprint. Our strategic initiatives focused on enhancing product innovation, optimising sustainable feed solutions and strengthening our market presence worldwide.

These efforts are rooted in our commitment to environmental stewardship, exemplifying our leadership in shaping a more sustainable future for aquaculture. Our strategy remains centered on delivering superior value to our customers, reducing environmental impact and fostering a culture of innovation and excellence.

As we navigated the complexities of the global market, our focus remained on forging long-term relationships with both suppliers and customers. This vision goes beyond the conventional transactional model, aiming to transform the future of aquaculture into one that is sustainable, efficient and collaborative.

Our achievements reflect our dual commitment to financial robustness and environmental stewardship. As we celebrate these successes, our sights are firmly set on the horizon - towards a future where BioMar continues to lead the way in sustainable aquaculture solutions.

In this report, you will learn about our purpose and see our accomplishments in ESG and other various targets. Acting with integrity and responsibility is part of our DNA, including disclosing what we do through this report in the most transparent way possible.

I extend my deepest gratitude to our employees, partners and customers for your unwavering support and shared vision. Together, we are not just building a business, we are shaping the future of global aquaculture.

Thank you for being an integral part of our journey as we continue with our shared mission with more determination that will lead to further success.

"We remain centered on delivering superior value to our customers, reducing environmental impact and fostering a culture of innovation and excellence."

Embracing the Future with Responsibility and Innovation

As we navigate a world facing unprecedented environmental and social challenges, our commitment to sustainability is not just a responsibility, but a necessity. This year, our focus intensifies as we align with emerging ESG frameworks, ensuring that our practices are transparent, accountable and impactful.

Sustainability Director Message
Vidar Gundersen

BioMar has recently completed a Double Materiality Assessment (DMA) to help enable a significant stride towards comprehensive sustainability governance. This pivotal analysis helps enhance our sustainability strategy by ensuring that our actions and priorities align with the most material aspects for our business and stakeholders.

The DMA process is also a foundational first step for complying with the EU Corporate Sustainability Reporting Directive (CSRD) and the Environmental Sustainability Reporting Standards (ESRS) regulations.[1]

By identifying the ESG factors that are most material to our operations and our stakeholders, we ensure that our sustainability reporting is relevant, robust and representative. This assessment underlines our proactive approach to meet and exceed regulatory expectations, embedding sustainability deeply into our corporate decision-making processes.

At BioMar, our commitment to sustainability is driven by our people. We empower employees, partners and communities to drive change. Through targeted training and the promotion of an innovation culture, we enable each team member to contribute actively to our sustainability goals. By investing in people, we are advancing our sustainability agenda as we shape a more responsible aquaculture industry.

BioMar has taken decisive steps to define what sustainability means in our operational and product strategies by creating the BioSustain Impact Parameters. These include reducing our carbon footprint, improving the fish in fish out ratio, and significantly increasing the use of circular and restorative ingredients in our products.

This strategic pivot not only enhances our sustainability profile, but also aligns with key areas where seafood can make a significant difference in reducing global environmental impacts. This sets a new benchmark for responsible and innovative aquafeed production.

In terms of our commitment to the Science Based Targets initiative (SBTi), acknowledgement of FLAG emissions (Forest, Land and Agriculture) is essential.[2,3] With approximately 80% of aquaculture carbon emissions deriving from feed, we have taken ambitious steps to reduce our footprint. We are proud to be the first aquafeed company with carbon reduction targets independently validated to meet the 1.5°C pathway, as recognised by the SBTi.

Looking ahead, we remain steadfast in our Above & Beyond strategy, which integrates sustainability into the core of our business model. We have already sliced one third of our 2030 emissions reduction target. We will continue to engage with our suppliers to promote low impact and restorative practices throughout our supply chain.

We thank you for your steadfast support and partnership. Together, we will continue to make a positive impact and pave the way for an even more sustainable future for aquaculture.

...our focus on sustainability intensifies as we align with emerging ESG frameworks...

Unleashing the global potential of aquaculture

Over 3 billion people rely on Blue Foods as their main source of protein. With most global fish stocks either overfished or at maximum sustainable yield, scientists and world leaders believe that responsible aquaculture holds the key to global food security.[4]

The global potential of the sustainable growth of aquaculture is identified by the Food and Agriculture Organisation of the United Nations, the High Level Panel for a Sustainable Ocean Economy and the Blue Food Assessment, among others.[5,6,4]

BioMar as a member of the World Economic Forum's Blue Food Partnership participated in the creation of The Global Sustainable Aquaculture Roadmap: Pathways for Systemic Change. The roadmap was created to give a clear direction to nations and industry on four key pathways that can create change at scale and shift aquaculture systems towards a more sustainable future.[7]

The four pathways give recommendations to scale the sector within nature's limits while achieving greater social, economic and environmental benefits. By working together in a systems change approach, we can collaborate towards a more sustainable future for people, nature and climate.

4 Pathways

Responsible Production

Aligning responsible aquaculture practices in production is key to mitigating climate change and boosting biodiversity.

A planet-first approach to production can ensure we sustain the long-term supply of nutritious and healthy food from aquaculture. The diversity of species and systems is key to underpinning resilience and the nutritional values of aquaculture in food systems. By developing and sharing best practices and innovations for sustainable production, we can boost the diversity of supply, allowing inclusive growth, enhancing nature-positive outcomes and contributing to global biodiversity goals.

Better Livelihoods

Unlocking the potential of people and communities is vital to ensure equitable aquaculture value chains.

There is an imbalance in benefits and risks among people participating in the aquaculture sector. With the growth of aquaculture comes livelihood opportunities, but more needs to be done to secure those opportunities, especially for women and young people. With systemic change, we can rebalance inequalities, empower collaboration and community cooperatives, reduce poverty and build a more just sector for people across value chains.

Healthy Consumption

Consumers should have access to responsible and healthy blue food choices.

Around the world, access to nutritious and healthy blue foods varies. We can improve the availability, access and affordability of a diverse range of blue foods to all consumers. Advocates can raise awareness among retailers, distributors and food service providers about the benefits of a variety of blue foods to address overnutrition and malnutrition.

Enabling Environment

Sustainability in aquaculture requires support from industry, government and civil society.

To achieve responsible production, better livelihoods and healthy consumption we need policies, partnerships, certifications, innovations and investments that enable sustainable aquaculture to grow and deliver on its potential for social, economic and environmental opportunity for all.

The Blueprint

10 years of Transforming Aquaculture

A decade ago, BioMar, together with pioneering partners Kvarøy, Blue Circle Foods and Whole Foods Market embarked on a transformative journey in blue aquafeeds. The "Blue Logbook" initiative marked the beginning of an era that would redefine sustainable aquaculture and pave the way for the revolutionary Blue Impact concept.

"Blue Logbook" was once just a project code name, but became a blueprint for the future. The concept focus was to preserve marine resources and remove contaminants from the food chain, while restoring marine omega-3 levels in farmed salmon by use of alternative low-impact ingredients.

The utilisation of key ingredients like purified by-product fish oil and microalgae oil was successful. In 2019, the first farmed salmon with a fish in:fish out factor of 0.5 and fully restored levels of marine omega-3s reached the market.

The value chain collaboration was instrumental to this journey. It is a relationship fuelled by shared values and a commitment to sustainable practices. Together, we championed the "Blue Logbook" initiative to create nutritionally complete and safe feed and seafood with the lowest possible impact on the environment. "Blue Logbook" seamlessly transitioned into the Blue Impact philosophy of today. This partnership underscores the importance of shared commitments in achieving groundbreaking advancements in aquaculture.

This approach became the blueprint for transforming the entire aquaculture value chain. From sourcing to the final product, each step is infused with sustainability.

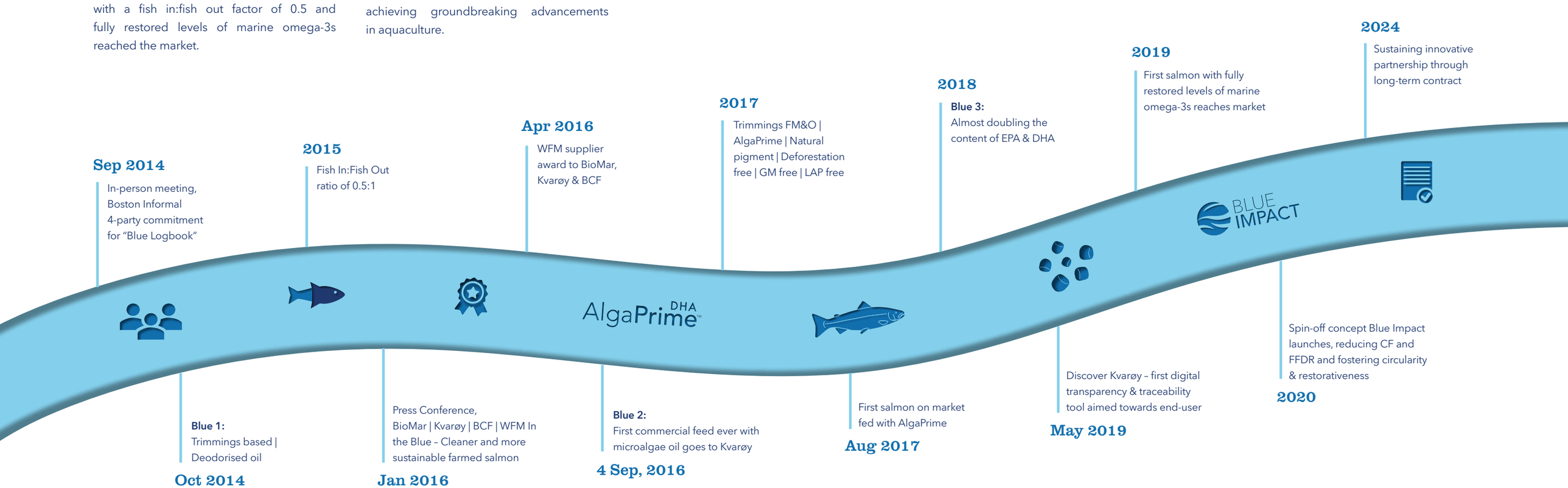
From "Blue Logbook" we understood the value of data quality in assessing environmental impact. Credible data and our BioSustain tool, the industry-leading digital solution for lice-cycle assessments (LCAs), enabled us to create the Blue Impact solutions.

The environmental achievements of Blue Impact are profound, from reducing the consumption of marine ingredients to setting a new bar for sustainable aquaculture. Socially these initiatives can improve the nutritional quality of farmed salmon, while responsibly restoring omega-3 fatty acids. Economically, they prove that sustainable practices can drive innovation and attract profitable investments, setting a model for the industry.

The original Blue feeds are still in use and evolving with Kvarøy. Inspired by this story, and the positive end-market penetration of the Kvarøy Arctic premium brand, several farmers around the world have begun their own blue journey.

A decade on, the legacy of "Blue Logbook" lives on through Blue Impact. The journey from a pioneering concept to a sustainable aquafeed standard is not just transforming the industry, but also setting a course for future development. Best of all, it is all gauged and tracked through our BioSustain Impact Parameters.

The blueprint is clear, we can achieve sustainable aquaculture without compromising on the health and performance of the fish and shrimp while remaining economically viable.



Scottish Sea Farms

Scotland

Scottish Sea Farms started their blue journey back in 2006 with the retailer M&S creating Lochmuir salmon. One portion of this salmon contains a weekly requirement of omega-3s. They have achieved this while also reducing their dependency on wild fish by more than 50%.

Kvarøy Fiskeoppdrett

Norway

Kvarøy's blue journey began 10 years ago with the Blue Logbook project. Along the way, their Blue recipe has fully restored marine omega-3 levels, lowered their FFDR < 0.5, included microalgae and will soon incorporate insect meal in version 4 to further increase circularity.

EdPacif

Ecuador

EdPacif has achieved Blue Impact status by substituting whole fish marine ingredients with trimmings and microalgae – giving an FFDR of 0. Involved in a value chain collaboration with BioMar, Earthworm Foundation and Auchan in France to create deforestation/conversion-free supply chains and improved social conditions for farm workers. Their shrimp has achieved the Mr. Goodfish label status in France.

Open Blue

Panama

A standard cobia diet contains over 50% of whole fish marine ingredients. By utilising microalgae and trimmings, Open Blue's revolutionary feed recipe has reduced the marine ingredient consumption by more than half, increased their circular and restorative score to over 50% and reduced the carbon footprint by 40%.

Loch Duart

Scotland

Loch Duart adopted a Blue Impact feed to match their low, slow, and natural production vision. Their Label Rouge salmon contains more than 50% marine ingredients, 80% of which come from trimmings. The result is a feed high in circular and restorative raw materials, low in carbon footprint, and low in FFDR.

Salten Aqua

Norway

Low-impact aquafeed transitioning towards Blue Impact, with a focus on FFDR < 1 and a low carbon footprint. Trialing Blue Impact feeds to reduce their impact even further and align with Nordic Blu branding of their salmon.

Grupo Almar

Ecuador

Started a blue journey using feeds with traceability and novel raw materials in Ecuador. Combined with their low-impact production techniques, including a partnership with AQ1, Grupo Almar is uniquely positioned to offer low-carbon shrimp to key export markets.

Lamar

Greece

Lamar, a small-scale Mediterranean farmer located off the Greek island of Rhodos, recently started a Blue Journey for their Blutopia Meagre. Lamar has increased the amount of circular and restorative raw materials in the feed, improving the carbon footprint and decreasing the FFDR below 1. The Blue Impact program is a unique selling point for Lamar and they are committed to continuous improvement on their blue journey.

Figure 1: Blue Impact projects and "Blue Journeys" in 2023 from around the BioMar globe.

BioSustain™

Feed and Services

BioMar's sustainability programme and concept BioSustain helps to foster the use of high quality, low-impact raw materials in feed recipes, thereby promoting sustainable aquaculture and responsibly produced seafood. BioSustain is applied, science-based sustainability. We make sustainability tangible.

Environmental Impact Assessment (EIA) is the systematic process of identifying and quantifying the environmental consequences of a current or proposed action/product. It improves transparency, practicability, flexibility, cost effectiveness, credibility and accountability.

The BioSustain LCA tool is used strategically and for accountability to document environmental impacts and improve our business. It also provides a service to our customers and helps them increase their business' environmental competitiveness.

BioMar plays an active role in building a circular economy. By using Material Flow Analysis (MFA), we map key materials and identify business opportunities for increasing recycling and closing resource loops. MFA is an analytical tool that tracks and quantifies the consumption and losses of materials or substances within a defined system to identify strategies to optimise their use.

As feed may depend on scarce resources, BioMar prioritises minimising resource consumption and recovering and reusing by-products throughout the supply chain. We use MFA to aid in this strategic decision-making and partner with suppliers to reach our sustainability and circular economy goals.

Impact Parameters

BioMar has created the BioSustain Impact Parameters to provide an understanding of the most critical areas of environmental impact from feed production. BioMar has developed these indicators to further guide and define sustainable innovation in feed and aquaculture. Quantifying and disclosing the impacts of our feeds help steer us towards a more sustainable aquaculture industry.

Through BioSustain, we commit to mitigating sustainability risks while supporting value chain sustainability ventures. We promise transparency through annual disclosures in our integrated sustainability report.

For a decade and a half, we have analysed, mapped and steered our raw material and product portfolio to create and drive more sustainable solutions for the industry. We call these solutions Blue IMPACT.

BLUE IMPACT™

Blue Impact solutions are the outcome of BioSustain. Through the sustainability tools, methods and know-how, we facilitate business initiatives that materialise into products or services aimed at sustainable development. Blue Impact is the 'umbrella' term for these solutions.

Aquafeed contributes up to 80% of most environmental impacts of aquaculture production. With the careful selection of raw materials, the best available technology and cutting-edge knowledge of fish nutrition, it is possible to significantly reduce the direct and indirect impacts on the planet.

Blue Impact services go beyond low-impact feeds and include reporting solutions, consultancy services and digital transparency solutions like Discover. With aquafeeds being crucial to the responsible growth of the aquaculture industry, our Blue Impact services are designed to progressively transform aquaculture.

BioSustain LCA v.7

BioMar's sustainability programme BioSustain helps foster the use of high-quality, low-impact raw materials in feed recipes.

To support our ambitions, BioMar needs reliable quantified insights into the environmental performance of our feeds across a range of impacts. BioMar's own environmental impact assessment tool 'BioSustain LCA' version 7 exemplifies this commitment to best-in-class, applied, science-based sustainability.

Substantiating Environmental Claims

Aligned with the growing demand for transparency and accountability in sustainability communication (e.g. the EU Green Claims Directive), BioMar is dedicated to providing customers and stakeholders with quantified, reliable and science-based evidence to substantiate their environmental claims.[8]

Certified under the ISO 14040 and 14044 standards, the BioSustain LCA tool version 7 is BioMar's in-house solution for Environmental Impact Assessment (EIA).

Building on high-quality background data and LCA expert knowledge, the tool calculates environmental impacts such as carbon footprint, water use, land use or eutrophication.

These capacities not only apply to bespoke feed recipes, but also improvement scenarios involving the inclusion of novel ingredients, changes in sourcing regions and suppliers, or the substitution of high-impact raw materials in diets. The tool is therefore used both strategically and for accountability to document environmental impacts by customers and stakeholders.

Ensuring Data Integrity

Greenwashing can damage the brand equity of the entire value chain and carries an escalating risk of litigation. BioMar values our customers' reputation and chooses a conservative (low-risk) approach to science-based sustainability reporting and communication. This commitment includes strict adherence to robust and high-quality data in LCA.

BioMar has aligned our tool and data quality requirements with the European Union Product Environmental Footprint (EU PEF) methodology and family of standards (Product Category Rules), as well as the Global Feed LCA Institute (GFLI) methodology and procedures.[9,10,11]

When a supplier of BioMar provides an LCA study on a cultivated product, for example, this means that activity data such as yields, land occupation, irrigation, fertiliser or fossil fuel use are evaluated against strict data quality criteria. In addition, the study must respect a strict sampling procedure, ensuring a sufficient number and diversity of farms included. Under these conditions, primary data offers a representative description of the production process of a supplier and can be used in the BioSustain LCA tool, providing insightful, correct and credible sustainability information to customers and stakeholders.

Adapting to Varying Stakeholder Requirements

The methodological requirements for sustainability assessments in the aquaculture and aquafeed industry vary greatly across stakeholders and programmes. LCA results are also commonly known to be sensitive to methodological choices.

Recognising this diversity, the BioSustain LCA tool serves as a platform to navigate the complexities and nuances of EIA, supporting customers and stakeholders in the fast-evolving world of corporate sustainability and certifications.

Key features of the tool include:

1. Providing feed carbon footprints aligned with the EU PEFCR Feed for Food-producing Animals, or the Science-Based Target Initiative (SBTi).[10,2]

2. Illustrating the sensitivity of LCA results to allocation methodologies, both economic and physical, for increased transparency.

3. Emphasising the importance of high-quality and representative primary data from suppliers and data integrity in sustainability calculations.

4. Calculating impacts per tonne of feed, shrimp or marine fish, including farming operations, building on LCA expert knowledge and years of close collaboration with customers.

5. Offering various methods for calculating water and land footprints, reflecting the diverse nature of EIA.

6. Providing a simple understanding of the most critical areas of environmental impact from feed and raw materials production via the BioSustain Impact Parameters.

Materiality

In the ever-evolving landscape of sustainable business practices, materiality assessments have become a cornerstone in understanding and addressing the most significant environmental, social and governance (ESG) issues facing companies like BioMar. These assessments are tools for compliance and are crucial for aligning business strategies with the broader goals of sustainability.

At its core, a materiality assessment is a process by which a company identifies and prioritises the ESG issues that are most significant to its business and stakeholders. This involves a deep dive into the company's operations, market environment and stakeholder expectations. The goal is to focus efforts and resources on areas where they can make the best impact, both in terms of business performance and societal contribution.

While traditional materiality assessments focus on how ESG issues affect a business, the concept of Double Materiality Assessment (DMA) takes this a step further. DMA examines not only how these issues impact a company, but also how the company's actions impact these issues. This dual perspective is crucial in today's world, where the interaction between business and society is more interconnected than ever.

The European Union's Corporate Sustainability Reporting Directive (CSRD) and the European Sustainability Reporting Standards (ESRS) are leading in redefining corporate sustainability reporting.[1] These frameworks emphasise the importance of comprehensive and transparent reporting on sustainability issues, including the impact a company has on its environment and society. By embracing the DMA process, companies like BioMar are not just preparing for compliance with these new regulations; they are positioning themselves at the forefront of sustainable business practices.

Beyond regulatory compliance, DMA plays a pivotal role in aligning a company's business strategy with sustainable practices. By understanding the bidirectional impact of ESG issues, companies can make more informed decisions that drive sustainable growth. This alignment ensures that sustainability is not just a peripheral consideration, but a central component of the company's strategic planning and decision-making processes.

As BioMar continues to lead in global aquafeed production, the integration of DMA into our business practices is more than a regulatory requirement; it is a strategic imperative. Through our commitment to thorough materiality assessments, we are not only adhering to the highest standards of sustainability reporting, but also ensuring that our business strategies are aligned with the needs of our planet and its people. The journey of sustainability is ongoing, and materiality assessments are key milestones on this path.

Double Materiality Assessment

This Double Materiality Assessment (DMA) expands on the traditional materiality assessment by considering how our actions impact environmental, social and governance (ESG) issues, and how ESG issues affect BioMar. By examining both of these perspectives, this DMA provides us with a more holistic understanding of BioMar's relationship with sustainability.

Impact

- ● Pollution of soil
- ● Pollution of water
- ▲ Work-related rights *(own workforce)*
- ▲ Work-related rights *(value chain)*
- ▲ Working conditions *(value chain)*
- ▲ Communities' economic social and cultural rights
- ▲ Particular rights of indigenous communities
- ◆ Protection of whistleblowers

Double

- ● Climate change mitigation
- ● Energy
- ● Marine resources
- ● Water
- ● Direct impact drivers on biodiversity loss
- ● Impact on the state of species
- ● Resource inflows, including resource use
- ▲ Equal treatment and opportunities for all *(own workforce)*
- ▲ Working conditions *(own workforce)*
- ▲ Information-related impacts for consumers and/or end users
- ◆ Animal welfare
- ◆ Corporate culture
- ◆ Corruption and bribery

Not Material

- ● Microplastics
- ● Pollution of air
- ● Pollution of living organisms and food resources
- ● Substances of concern
- ● Substances of very high concern
- ● Impacts on the extent and condition of ecosystems
- ● Resource outflows related to products and services
- ● Waste
- ▲ Equal treatment and opportunities *(value chain)*
- ▲ Communities' civil and political rights
- ▲ Personal safety of consumers and or end users
- ▲ Social inclusion of consumers and end users
- ◆ Management of relationships with suppliers' payment practices
- ◆ Political engagement and lobbying activities
- ◆ Responsible tax

Financial

- ● Climate change adaptation
- ● Impacts and dependencies on ecosystem services
- ◆ Cybersecurity

Key:

- ● **Environmental**
- ▲ **Social**
- ◆ **Governance**

Table 1: BioMar Double Materiality Matrix 2023/24 carried out in collaboration with Position Green.[12]

Stakeholder Management

BioMar has a long tradition of networking and interacting with stakeholders inside and outside the aquaculture industry. This has contributed to shaping BioMar into the company it is today.

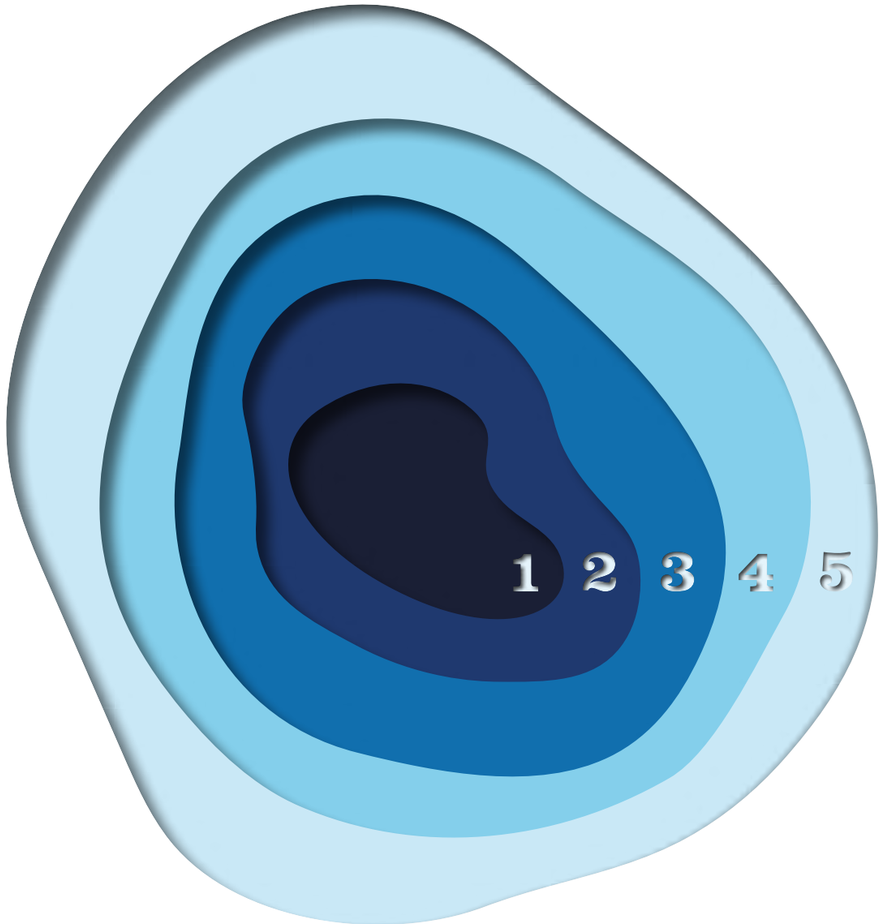
For more than 60 years, BioMar has engaged actively in a continued dialogue with internal and external stakeholders. There have been joint projects in improving feed's nutritional and environmental performance and developing multi-stakeholder approaches for defining the best practices in the industry.

BioMar also supports and is involved in public research projects and local educational activities. These activities strongly contribute to developing our corporate culture and driving continuous improvements in our operations and products.

Concerning sustainability and ESG, stakeholder engagement is fundamentally important. With new communication opportunities, such as social media, BioMar recognises that we must engage with stakeholders in new ways and that virtual and in-person representation is essential. Relating external engagement to core business activities is a challenging task. In addition, building internal awareness and interest can be challenging in a global environment.

We aim to reach out to all interest groups to discuss and transform information and learn from business intelligence. The first step is mapping our stakeholders. We have identified those to whom we have a legal, commercial or moral responsibility, such as our employees, regulators, customers, suppliers and the communities around our facilities.

Employees and suppliers are essential on an additional level since our business operations depend on them. Potential future clients or employees, such as students, are also important. We value diverse perspectives within our business, e.g., groups that can highlight new opportunities or areas that need attention, such as the media or NGOs.



1

BioMar People

2

Customers

Owners

Suppliers

Partners

Associations

3

Agencies

Investors

Government

Communities

Regional Local Government

4

NGOs

Students

National Government

Competitors

5

Media

Figure 2: Stakeholder onion illustrating layers of stakeholders and interest groups of variable relevance and importance to BioMar.

Partnership Initiatives

BioMar thrives on collaboration. By partnering with leading organisations, we cultivate innovative and sustainable solutions for the future of aquaculture.

Caribbean Aquaculture Education & Innovation Hub

Board Member

The Hub was officially launched with monthly online sessions across the Caribbean with astounding support by governing nations, farmers, scientists and the community. Several grants have been awarded including the Fulbright Award from the Fulbright Association. Founder Dr Juli-Anne Russo who was sponsored by BioMar to attend WAS in Panama has now been selected to chair a special panel on Caribbean aquaculture at a WAS event in 2024.

www.caribbeanaquaculturehub.com

Donau Soja

Committee Member

Through the Donau Soja Protein Partnerships programme, BioMar has contributed to the production and certification of more than 60,000 tonnes of European origin soybeans. This effort contributes to increased efficiency, fairness and sustainability in European food and feed protein value chains.

www.donausoja.org

ASC

Steering Committee Member

The Aquaculture Stewardship Council (ASC) is the world's leading certification scheme for farmed seafood. BioMar's contributions to the new ASC Feed Standard can be found throughout the entire document, and include definitions, methodology, calculations, data requirements and environmental/social impact assessment.

www.asc-aqua.org

Blue Food Partnership

Committee Member

The Roadmap for Sustainable Aquaculture was launched in 2023 to governing nations at the UN Ocean Conference in Panama. BioMar was an active participant in the creation of the Roadmap and presented the Healthy Consumption pillar. We are now working on the Ghana project where we look to increase access to blue foods amongst local communities.

www.weforum.org/blue-food-partnership

Earthworm Foundation

Member

BioMar was an integrate participant in the creation of code of conduct for the Responsible Shrimp initiative in Ecuador. Adopted by the Mr Goodfish label, and in 2023 implementation into the first French retailer was achieved and rollout has commenced. With the success of this initiative, work has now commenced on the next project.

www.earthworm.org

FEFAC

Member

The European Feed Manufacturers' Federation (FEFAC) includes committees where BioMar helps to improve best practices, animal nutrition, feed production, feed safety and sustainability. BioMar's most important contribution in the past year was aligning FEFAC with the latest science on legal limits for synthetic antioxidants and environmental toxins.

www.fefac.eu

GFLI

Contributor

The Global Feed LCA Institute is the largest coordinated effort to improve the application of LCA for animal feed production. As technical experts in life cycle analysis, BioMar has contributed inputs on data quality, methodological approaches, considerations for primary data and the overall business model.

www.globalfeedlca.org

Global G.A.P.

Contributor

BioMar is a contributor to the Compound Feed Manufacturing standard Focus Group. Recently, v3 of the standard was revised and updated to include an extra criterion on responsible sourcing of feed raw materials, in particular soy, palm oil and fish meal/fish oil. BioMar helped develop content on additional ESG points to address recent legislative and commercial requirements.

www.globalgap.org

GSI

Committee Chair & Members

As a member of the communications taskforce, we guide the development of the annual marketing and communications plan. Our CEO has been chair of the feed taskforce and is an active member of the CEO Board.

www.globalsalmoninitiative.org

IDH

Member

BioMar is an active member in the IDH Aquaculture Working Group, partnering with actors from the value chain to better measure and reduce the environmental footprint of aquaculture products. We are collaborating with key shrimp customers to fill a key knowledge gap related to understanding the role of direct pond emissions for the carbon footprint of shrimp. This includes taking samples from active shrimp farms based on a variety of parameters and collating this data with farms from across the world.

www.idhsustainabletrade.com

Global Roundtable on Marine Ingredients

Member

BioMar is a founding member of the GRT, which is jointly led by the Sustainable Fisheries Partnership and The Marine Ingredients Organisation (IFFO). Through this initiative, we commissioned Partner Africa to provide a Human Rights Impact Assessment of the fisheries of Mauritania and Senegal. This has been a significant piece of work, as we strive to better understand the situation on the ground and for the sector to begin addressing the issues raised.

www.marineingredientsroundtable.org

GSA

Member

BioMar is an active member of the Global Seafood Alliance (GSA), an international, non-profit trade association dedicated to advancing responsible seafood practices. BioMar participates in knowledge sharing to support their agenda of education, advocacy and third-party assurances. GSA developed and maintains the Best Aquaculture Practices standard (BAP).

www.globalseafood.org

IFFO

Committee Member

BioMar is a member of the International Fishmeal and Fish Oil producers organisation and is actively involved in the communications working group. We also joined a key panel session at the annual conference in Cape Town and participated in a technical workshop exploring greater opportunities for by-products utilisation.

www.iffo.net

Marin Trust

Committee Member

BioMar continued their longstanding engagement with MarinTrust. In 2023, we sat on the MarinTrust Standards Steering Committee and, at the IFFO Conference in Cape Town, chaired a panel session highlighting the role marine ingredient certification plays in achieving compliance with feed and farming certification standards.

www.marin-trust.com

NAPA

Member

Through our on-going participation in the North Atlantic Pelagic Advocacy group, BioMar has continued to call for the Coastal States to agree to fish within the scientific limits for mackerel, herring and blue whiting and for sustained progress within the Fisheries Improvement Projects.

www.napafisheries.org

NBNHR

Committee Member

We are working actively as a part of the Nordic Business Network for Human Rights. Four times a year, we meet to discuss how we in the Nordic countries can take the lead in implementing a new generation of business processes and due diligence related to human rights. In 2023, BioMar presented a new approach for living wages, based on a dynamic reporting method to help managers understand how they comply with our ambition to acheive 100% living wages in the company.

www.humanrights.dk

SSP

Member

Through the Sustainable Shrimp Partnership (SSP), BioMar is committed to achieving and promoting the highest environmental and social standards. It is working towards a shared mission to make shrimp farming a thriving global practice.

www.sustainableshrimppartnership.org

The Nature Concervancy

Member

BioMar is working with The Nature Conservancy, the world's largest conservation NGO, to develop demand side initiatives for sustainable and responsible seafood. TNC and BioMar have determined that demand-side projects are crucial to upscaling the production of novel ingredients and to promote regenerative practices within commodities' supply chains.

www.nature.org

ProTerra

Stakeholder Council Member

ProTerra is one of the leading standards for sustainable, responsible and GM-free soybeans. BioMar was elected to sit on the stakeholder council to provide aquaculture industry support on traceability, reducing environmental impacts of soybean production, regenerative agriculture and MRV (monitoring, verification and reporting) systems for deforestation/conversion-free claims.

www.proterrafoundation.org

SFP

Member

Sustainable Fisheries Partnership (SFP) is working towards a world where everyone has access to sustainable seafood. BioMar contributes to SFP by providing data for the annual Reduction Fisheries report and by promoting fishery improvement projects.

www.sustainablefish.org

USSEC

Global Aquaculture Advisory Council Member

BioMar's role in the GAIAC is to translate the aquaculture industry's needs into essential criteria and guidance for the United States soybean industry. Specifically, BioMar is assisting the USSEC in demonstrating the benefits of deforestation/conversion-free and regenerative agriculture techniques in key feed markets.

www.ussec.org

WiCA

Board Member

A strong team of women has been assembled across various aquaculture disciplines creating a strong connective network across the region and the globe. BioMar sponsored several women to attend the WAS conference and the Microbial workshop to support them in increasing their network and to gain knowledge and experience from recognised experts.

www.caribbeanaquaculturehub.com/about

Our Promise

BioMar makes a promise to our planet and its people with a set of ambitious targets that will seek to aid in the regeneration of our environment while enabling humanity to thrive.

Climate Action

1/3 by 2030

Reduce BioMar total feed GHG footprint by 1/3 by 2030

BioMar is at the forefront of emissions reduction within our industry, and we pledged our commitment to the Science Based Targets initiative (SBTi) aligning our operational targets with the 1.5°C pathway to mitigate climate change.[2]

This commitment was marked by our adoption of near-term targets for 2030, a crucial step for setting the stage for future sustainability achievements. We will reevaluate how to credibly set a long-term net-zero target based on experience from the near-term masterplan.

As these targets are aligned with the 1.5°C pathway, this underscores our leadership and commitment to this global challenge.

Circular & Restorative

50% by 2030

BioMar feeds 50% Circular and Restorative by 2030

At BioMar, we take action for our areas of responsibility. We encourage and stimulate restorative practices in our supply chain and have set targets for minimum inclusion levels of circular and restorative ingredients.

BioMar considers raw materials originating from by-products and waste streams to be circular. We seek to decouple feed supply chains from direct competition with food for human consumption.

We define restorative ingredients as raw materials that significantly shift the balance between ecosystem impacts and human production systems. The goal is to stimulate net-positive environmental outcomes compared to time-bound relevant benchmarks.

Enable People

100,000 by 2030

100,000 people directly engaged in Capacity Building initiatives by 2030

At BioMar, we actively engage our entire value chain as we believe we can create a far-reaching impact on the world through Capacity Building, which lies at the core of all resilient societies.

We provide training courses and development programmes for employees, farmers and communities. We actively engage in third-party agricultural and fishery improvement programmes and supplier improver initiatives. Through these initiatives, we aim to directly enable 100,000 people annually by 2030.

We promote human and labour rights through initiatives like responsible pay and diversity targets. Through innovation, we create aquafeeds that enable people to make healthier and more sustainable food choices. We continue our commitment to actively participate in the public debate about sustainable nutrition.

BioMar Farmers are meeting their climate goals

It's your blue journey

Climate Action

2030

Our Targets

- Reduce BioMar total feed greenhouse gas (GHG) footprint by 1/3 by 2030
- Meet our science-based targets through the Science Based Targets initiative (SBTi) aligned with reductions required to keep global warming to less than 1.5°C
- We commit to reduce absolute scope 1 and 2 GHG emissions 42% by 2030 from a 2020 base year
- We commit to reduce absolute scope 3 GHG emissions from purchased goods and services and upstream and distribution 30% by 2030 from a 2021 base year
- Ambition to become net-zero within our own operations by 2045, baseline 2020

2023

Milestones

- BioMar total feed GHG footprint: **1.91 tonnes** CO_2/tonne feed (-11.9% from baseline 2020)
- Scope 1 & 2 SBTi status: **-15.3% from baseline 2020 (Market-based approach)**
- Scope 3 SBTi status: **-12.5% from baseline 2021**
- Achieved scope 1 and 2 emissions reductions through low carbon technological solutions and fuel optimisation
- Achieved scope 3 reductions through strategic sourcing and supplier improvement programmes

BioSustain™ MASTERCLASS

Applied Carbon Footprinting

Ecuadorian Shrimp

BioMar's unique position in the supply chain combined with our commitment to partnerships has allowed BioMar to quantify the first ever carbon footprint based on real farm data for Ecuadorian shrimp.

While studies have assessed the environmental impact of shrimp farming in countries like Thailand, Vietnam and China, Ecuador, one of the leading shrimp producers globally, has been largely overlooked.

Understanding the carbon footprint of Ecuadorian shrimp is crucial for several reasons. Firstly, Ecuador holds a significant stake in the global shrimp industry, making it essential for the sector to take responsibility for managing emissions.

Secondly, in today's world, where governments and consumers increasingly prioritise environmentally friendly practices, knowing and reducing the carbon footprint of Ecuadorian shrimp could be the key to accessing niche markets, particularly in Europe and beyond.

By unravelling the carbon footprint of Ecuadorian shrimp farming, we not only shed light on an important aspect of the seafood industry, but also pave the way for more sustainable practices that benefit both the environment and the economy.

What the Research Shows

Research has shown that for the average fed aquaculture species, 80% of the impacts are due to feed production and feed raw materials and 20% farming. Similar estimates have been given for farmed shrimp, with 60% of the impacts being attributed to the feed and 40% to farming practices.

Based on our analysis, which includes primary data from 3 large customers, analysing over 15 localities and a functional unit of 1 kilogram of live weight shrimp equivalents (LWE), we found the average Ecuadorian shrimp carbon footprint to equal 5.2 kg CO_2 eq./kg LWE. This is just above reported estimates for Norwegian salmon at 4.8 kg CO_2 eq./kg LWE.[13]

Additionally, we found feed to contribute to only 30% of the overall footprint. Of course, there is large variability in the results depending on farming practices, densities, feed techniques, etc. However, the low contribution of feed comes as no surprise given BioMar Ecuador's high feed environmental performance.

It is important to note that the study contains sources of uncertainty. For example, we were unable to model competitor feeds due to a lack of information on feed recipes and raw material origins. In addition, the study's scope does not include all Ecuadorian shrimp producers. Nonetheless, this work is a first step towards uncovering the environmental performance of Ecuadorian shrimp – an industry which is showing a significant promise.

Keep Your Eye on the Ball

Even though our research has shown that we are on track towards making Ecuador a leader in sustainable shrimp production, we cannot get too comfortable. Small changes in sourcing, such as swapping a major protein source to unsustainable sourcing regions or increased feed conversion ratios (FCRs) and mortalities, could significantly worsen the picture.

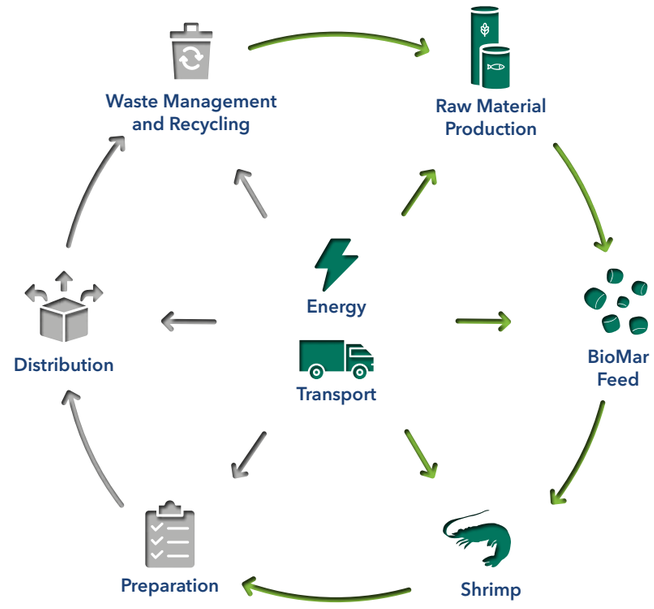
It is important that the entire industry, from feed suppliers to farmers to retailers, continue to innovate and push the bar on sustainability. Sustainability is not static - it is about continuous improvement, where tomorrow is always one step better than today.

Next Steps

BioMar will continue to improve and enhance our understanding of the environmental performance of Ecuadorian shrimp farming. This includes engaging in larger projects, such as with the Sustainable Trade Initiative (IDH) to quantify the contribution of direct pond carbon emissions – a piece of the puzzle which is currently missing.

In addition, this study notably only focused on carbon emissions. BioMar also has a strong commitment to water stewardship and biodiversity, to name a few. Therefore, we will expand the analysis to include additional indicators to ensure that feed and farming decisions make positive improvements across all sustainability parameters.

Shrimp Life Cycle Assessment (LCA)



BioSustain™ MASTERCLASS

Smart Upcycling

Reducing nutrient waste improves carbon footprint

Innovation within circular marine supply chains is reducing BioMar's carbon footprint. BioMar's continuous improvement on reducing wild caught fish in our aquafeeds has launched several new partnerships and investments in the circular economy.

The results of these new ventures are both increasing the circularity of BioMar's raw material portfolio, reducing our dependency on wild fish stocks, and reducing the carbon footprint of marine ingredients.

Reducing our Dependency on Wild Fish

Despite reducing the inclusion of marine ingredients by more than 70% in the last decades, BioMar still has a large demand for marine ingredients, which are critical to fish nutrition, health and welfare.

BioMar is therefore investing in upcycling wild marine by-products to ensure that none of its precious nutrients are wasted. We have focused on two industries: the wild caught seafood supply chain and the omega-3 fish oil supplements market.

Upcycling Wild Caught Seafood Waste

Wild caught seafood starts with the harvest of wild fish species by commercial fishing vessels. These fish are caught for an express target market amongst seafood consumers: haddock for fish and chips, cod for bacalao and mackerel for sushi.

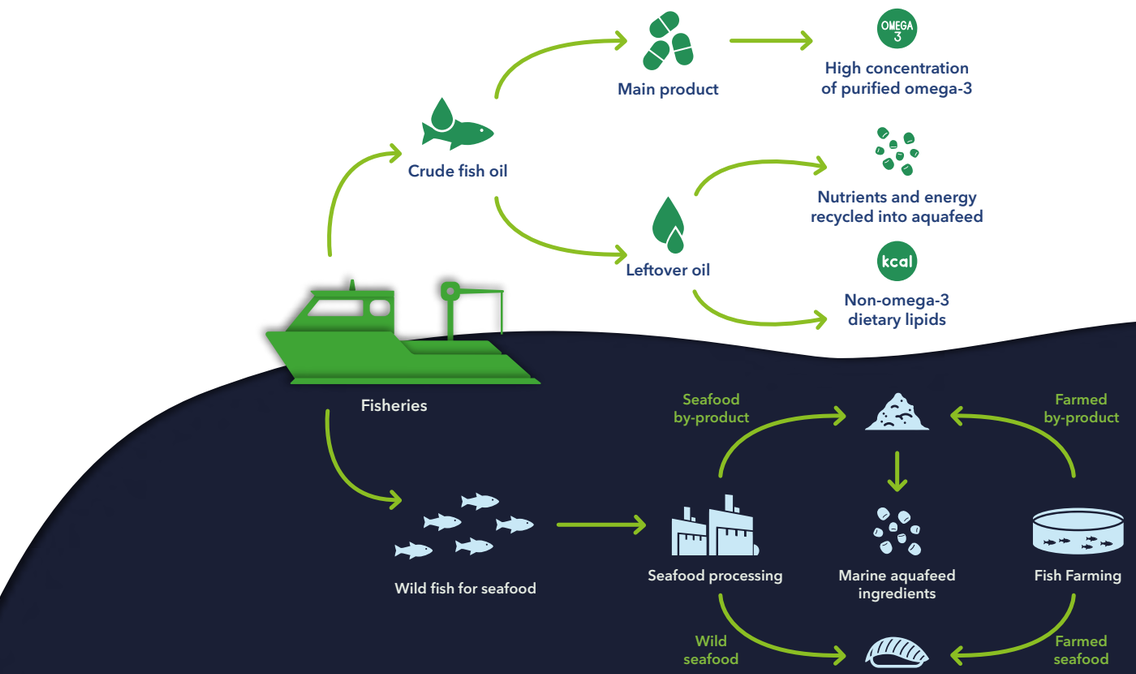
The parts that humans enjoy eating, usually the fillet, are removed from the fish and processed according to market preferences. The leftovers (heads, tails, skeleton, and viscera) have historically been either thrown away or used in non-food applications.

Either way, the nutrients contained in the leftovers have been removed or diluted away from the global food system.

BioMar's partnerships with innovative marine "bio-refineries" have pushed to turn these leftover by-products into highly nutritious aquafeed ingredients that are fed to farmed fish and shrimp. The nutrients are then upcycled from marine ingredients into aquafeed and incorporated as amino acids, fatty acids, vitamins and minerals into farmed seafood.

When farmed fish, like salmon, are filleted and sold as seafood, we have a new by-products stream; farmed seafood by-products. These same suppliers then process farmed seafood by-products into valuable marine ingredients that are used in aquafeeds for different species. This circular system ensures that the highest amount of nutrients obtained within the wild caught fish are consumed by humans.

Marine By-Product from Seafood Production



Recovering Waste from Omega-3 Supplements

The omega-3 supplements industry produces fish oil for functional and medical applications within human health. This industry has been growing at approximately 8% per year and accounts for about 20% of global fish oil consumption annually.[14]

The omega-3 industry relies on the same wild fish inputs as the seafood sector, but traditionally targets fatty smaller fish such as sardines and anchovies. The process of cleaning and removing the omega-3 fatty acids from crude fish oil creates a by-product oil that contains very little omega-3, but a large range of other important fatty acids that fish and shrimp can use for energy.

When BioMar first started exploring the by-product potential of this sector, many omega-3 plants were burning this leftover oil as fuel when diesel prices were high. This practice incinerates the leftover nutrients that could be available as aquaculture feed, while emitting CO_2 into the atmosphere a double negative.

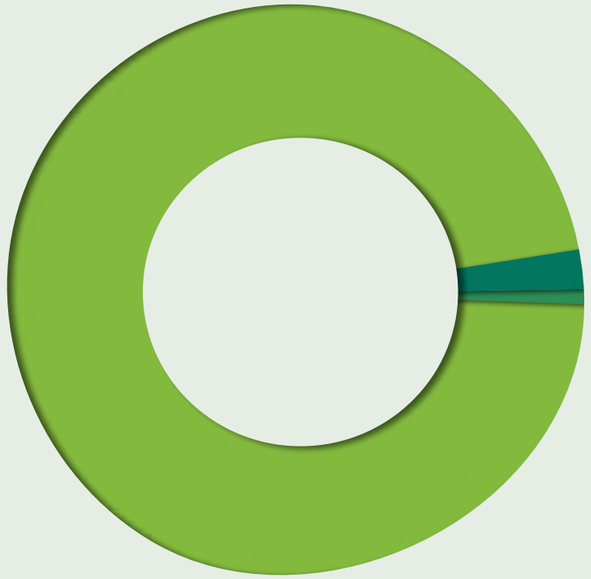
It has taken many years of co-innovation with suppliers, but today, BioMar is leading the industry in upcycling these nutrients back into the human food supply through incorporating this leftover oil in aquafeeds.

BioMar has therefore invested heavily in upcycling wild marine by-products to ensure that none of their precious nutrients are wasted. Work continues across the marine ingredients industry and the Blue Food Partnership to find ways of capturing these valuable nutrients.

Scope 1, 2 & 3

BioMar is the first global aquafeed supplier to commit to the most ambitious 1.5°C pathway for GHG emissions reduction targets.

BioMar has developed a long-term master plan focusing on operations and broader supply chain partners to create innovative solutions that make sustainability profitable. BioMar commits to reduce absolute scope 3 GHG emissions from purchased goods and services by 30% within 2030 from a 2021 base year. These targets align with reducing emissions to levels required to limit global temperature rise to 1.5°C above pre-industrial levels and avoid the worst climate impacts.

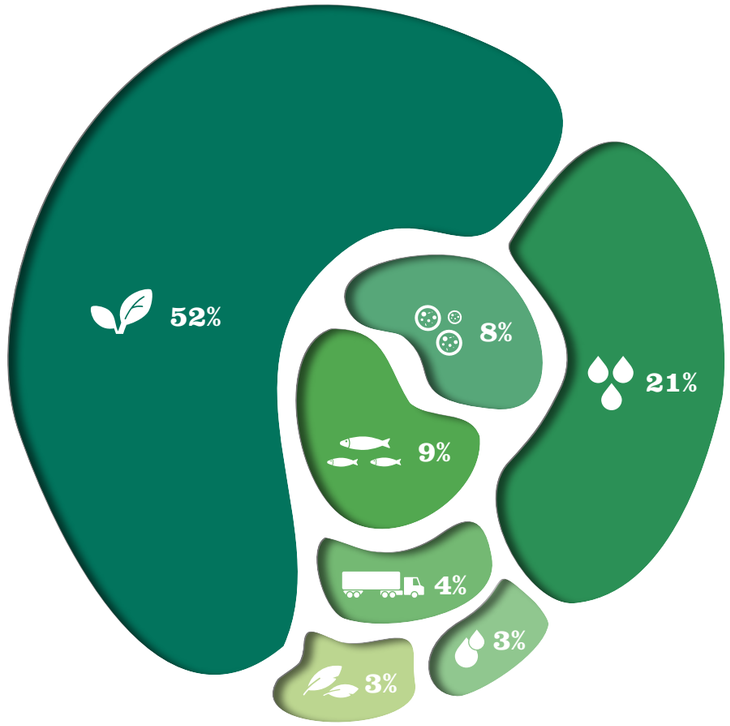


Scope 1
2.3%

Scope 2
0.6%

Scope 3
97.1%

BioMar Total Scope 3 Emissions Breakdown 2023



Plant Dry Matter
Plant Oils
Marine Dry Matter
Microingredients
Transport
Marine Oils
LAPs/PAPs

Figure 3: BioMar Scope 1, 2 and 3 emissions in 2023.

Carbon Footprint

Tonnes of CO_2-eq. per tonne of feed

1.91

-11.9%

(baseline 2020)

The Carbon Footprint (CF) of feed is a measure of the total greenhouse gas emissions generated from the different stages of the feed's life cycle. A CF indicates the product's impacts on the climate, particularly global warming, and is expressed as tonnes of CO_2 equivalents per tonne of produced feed.

The BioMar feed Carbon Footprint aligns with the European Union Product Environmental Footprint (EU PEF) methodology and family of standards (Product Category Rules), as well as the Global Feed LCA Institute (GFLI) methodology and procedures.[9,10,11]

In 2023, the average BioMar feed CF was 1.91 tonnes of CO_2 equivalents per tonne of feed produced, a reduction of 11.9% from our 2020 baseline. The reduction was largely achieved through working with key suppliers to cut raw material emissions and general supply chain improvements.

The BioMar Feed Carbon Footprint

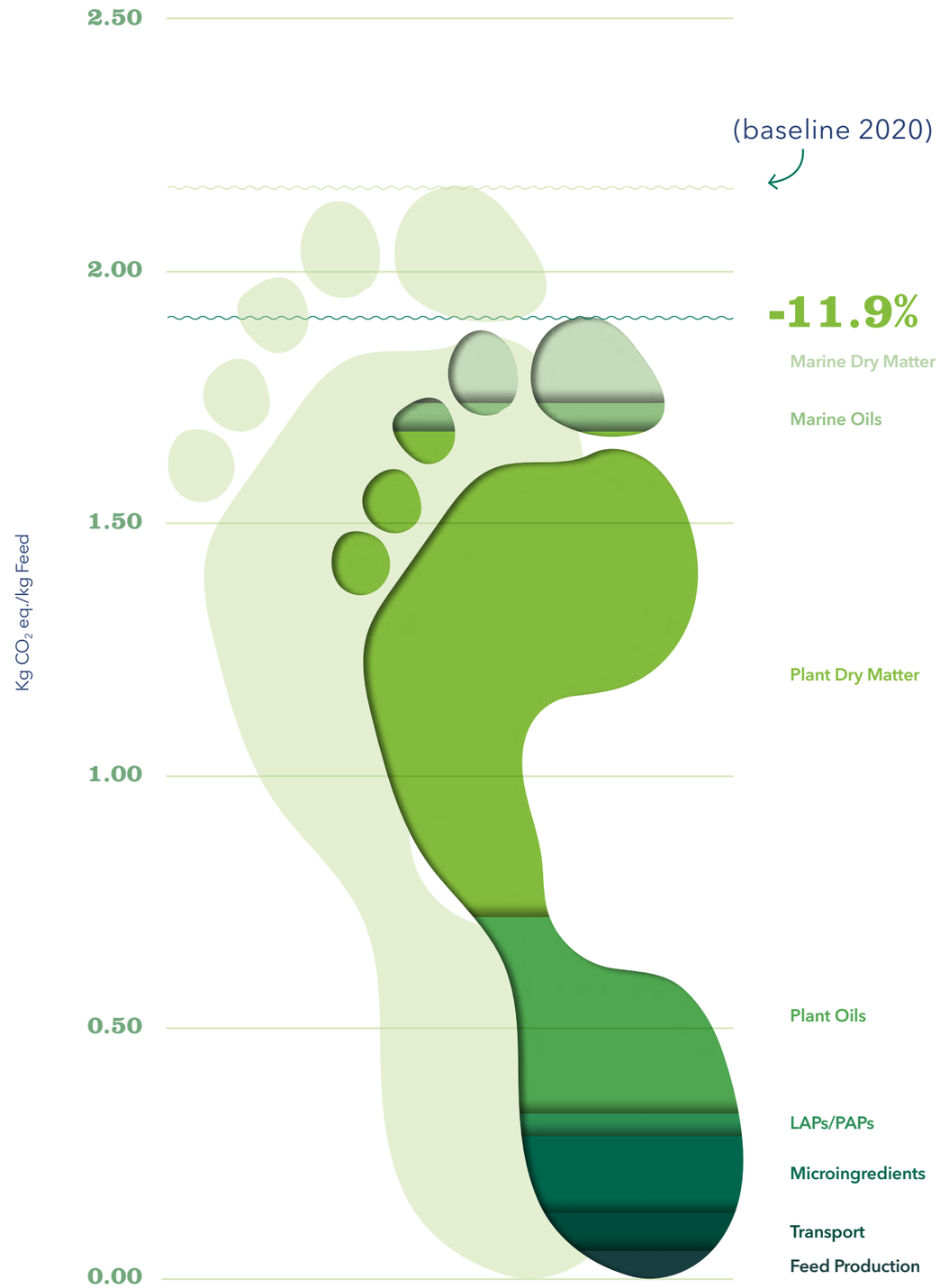


Figure 4: The overall annual Carbon Footprint per tonne of feed produced in BioMar in 2023.

2023 Here's how we did this year

Everything we produce or consume has an impact on our planet. Our strategy is to maximise our resource use by adopting responsible consumption policies that minimise waste and carbon emissions whilst optimising recycling.

Energy Management and Greenhouse Gas Emissions

The GHG Protocol Corporate Standard classifies a company's GHG emissions into scope 1, 2 and 3 emissions and allows scope 2 emissions to be calculated using either a location- or market-based approach.[15]

A location-based approach reflects the average emissions intensity of power grids in the geographical location (country level) where energy consumption occurs. A market-based approach reflects emissions from electricity that companies have contracted from a specific supplier. Emissions factors must be disclosed and meet the requirements under the GHG Protocol Corporate Accounting and Reporting Standard (for example, relating to supply from wind, solar or hydro sources).[15]

Total energy use and scope 1 and 2 emissions from BioMar are included in **Table 2.**

SBTi Progress from Baseline

Scope 1 & 2
-7.7%
from baseline 2020
Location based approach

Scope 1 & 2
-15.3%
from baseline 2020
Market based approach

Scope 3
-12.5%
from baseline 2021
Financial control approach

Energy Use & GHG Emissions	Scope 1 (GJ)	Scope 2 (GJ)	Total Energy (GJ)	Location Based Total GHG Emissions (MT CO_2e)	Market Based Total GHG Emissions (MT CO_2e)
Salmon Division	596,851	376,018	972,869	54,487	41,666
EMEA Division	171,735	78,217	249,952	14,225	13,426
Asia Division	109,645	108,637	218,282	11,310	11,310
LATAM Division	228	6,190	6,418	974	974
TOTAL	**878,459**	**569,062**	**1,447,521**	**80,995**	**67,375**

Table 2: The table discloses scope 1 and 2 energy use in gigajoules (GJ) and total greenhouse gas (GHG) emissions in tonnes of CO_2 equivalents by BioMar manufacturing divisions in 2023 using IEA factors, expressed as both location-based and market-based figures in accordance with the SBTi and GHG protocol. Organisational boundaries are set according to financial control basis aligned with our SBTi validated targets. [2,16]

Energy Use & GHG Emissions from Joint Ventures *	Scope 1 (GJ)	Scope 2 (GJ)	Total Energy (GJ)	Location Based Total GHG Emissions (MT CO_2e)	Market Based Total GHG Emissions (MT CO_2e)
TOTAL	**167,965**	**73,257**	**241,222**	**24,605**	**24,605**

Table 3: The table discloses scope 1 and 2 energy use in gigajoules (GJ) and total greenhouse gas (GHG) emissions in tonnes of CO_2 equivalents by Joint Ventures where BioMar does not hold >50% ownership and lie outside of the financial control boundary in 2023. We use IEA factors, expressed as both location-based and market-based figures in accordance with the SBTi and GHG protocol. [17,2,16]

Water*

We aim to reduce the consumption of drinking quality fresh water in production.

0.402 m^3/ MT

* Where BioMar does not hold >50% ownership and from associated companies that lie outside the financial control boundary.

BioMar Farmers are circular thinkers

It's your blue journey

Circular & Restorative

2030

Our Targets

- 50% Circular & Restorative ingredients in our feed by 2030
- We seek to decouple feed supply chains from directly competing with food for human consumption
- Increase the use of Circular ingredients
- Increase the use of Restorative ingredients
- Annual reporting on hotspot raw material compliance
- Increased evidence-based transparency

2023

Milestones

- 29% Circular and/or Restorative ingredients
- Submitted manuscripts to scientific journals to improve biodiversity coverage of our Restorative method
- Announced new partnership with French insect meal supplier Agronutris, building on years of long-term collaboration with insect meal producers with special focus on valorisation of low-value substrates (by-products)
- Record-low FFDR of 0.67 achieved through overall lower inclusion of marine ingredients, higher trimmings share and several new partnerships launched within circular marine by-products
- Partnered with key suppliers to promote restorative practices, including regenerative agriculture
- Advanced scientific platform closer to commercialisation for several low-impact circular fermentation companies

Shaping the future of aquafeed Omega-3 Alternatives

Long chain omega-3 fatty acids are key nutrients required for the health of fish and shrimp and for people eating seafood for its health benefits. However, aquafeed has faced increased complexity in the sourcing of these vital nutrients.

We formulate feeds for various fish species, based on a defined set of nutrients to meet their requirements. To broaden feed formulation possibilities and provide the most circular and restorative aquaculture feed, it is of utmost importance to characterise the key nutrients in oil alternatives and their functionality.

De-bottlenecking omega-3 fatty acid sources to help reduce the reliance on fish oil and to restore the long chain omega-3 levels in farmed salmon can be achieved in several ways.

One way is with the substitutions with standard terrestrial oilseed crops such as rapeseed, soybean, sunflower and to a lesser extent flax and camelina, all of which contain various levels of omega-3 fatty acids, vitamins and antioxidants.

Another possible substitution is with the use of rendered oils from terrestrial animals such as poultry oil. However, these sources all lack the so-called "marine lipids" EPA (20:5n-3) and DHA (22:6n-3) found in pelagic fish. This is what drove the shift toward the use of algae sources and genetically modified oils in aquaculture, the latter of which can be produced to have varying levels of both EPA and/or DHA.

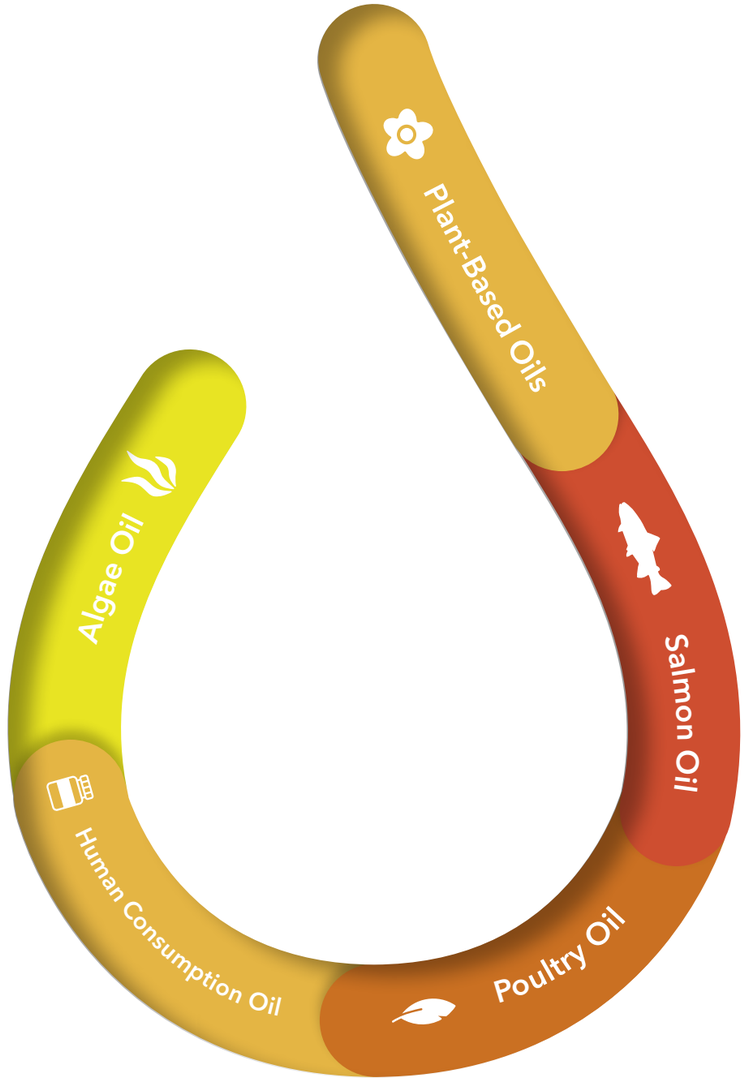
In BioMar we have successfully produced over 2 million metric tonnes of salmon feed with algae oil with no detrimental effects on fish growth performance, survival, feed intake, pigmentation of the fillet, welfare and health, or fillet quality.[18]

Approval by the Norwegian Food and Safety Authority in mid-2023 of GMO was a groundbreaking advancement for the aquaculture industry. We have sinced formed a partnership with Yield10 Bioscience to commercialise genetically modified omega-3 camelina oil and broaden the possibilities for aquafeed.

By creating a modification to the oil mix used in aquafeeds can provide both cost and health benefits for fish farmers by reducing mortalities and providing a quicker return to feed after challenging conditions; be they immunological or environmental.

However, we still see limited availability and use of fish oil alternatives. Glencross et al. (2020) summarised this perfectly, stating that even with the existing alternatives and the vast supporting literature on the use of full or partial replacement of fish oil with various alternatives, there still is hesitation from the industry to make the change. They associated this with the lack of commercial context regarding supply, cost, nutrient profile, and attributes (contaminants, heavy metals, antinutrients), production techniques (natural, genetic modification).[19]

Aligning with BioMar's initiatives to reduce its carbon footprint and be more circular and restorative, we strive to maximise the utilisation of the nutrients within the oils instead of having to rely on several raw materials to provide them. Alternatives equal possibilities!



EU Policy Developments

for the Circular Economy

The European Union (EU), long a pioneer in environmental stewardship, has embarked on an ambitious journey to redefine its economy—not as a linear path from production to waste, but as a circular flow of renewal and sustainability.

The circular economy, a concept that marries economic activity with environmental responsibility, seeks to minimise waste and make the most of resources. This vision contrasts starkly with the traditional 'take-make-dispose' model, offering instead a blueprint for a future where everything has value and nothing is wasted.

By setting out a comprehensive set of political strategies, the EU aims to make sustainable products the norm, empower consumers, enhance recycling rates and focus on high-impact sectors like packaging, plastics, food and water.

Several political initiatives have been implemented by the EU, which includes the EU's Circular Economy Action Plan, updated as part of the European Green Deal, The Corporate Sustainability Reporting Directive (CSRD) and the European Sustainability Reporting Standards (ESRS).[20, 21, 22, 1]

The Circular Economy Action Plan, specifically, introduces both legislative and non-legislative measures, aiming to reduce waste, promote circular economy processes and ensure sustainable consumption.[20]

Specific initiatives include adopting new rules on packaging to improve design for reuse and recycling, transitioning to bio-based materials and addressing microplastics pollution.

These initiatives reflect a comprehensive approach to embedding circularity and sustainability across all stages of value chains, from product design and production to consumer use, aiming for a significant reduction in waste and a shift towards a fully circular economy by 2050.

The CSRD and the ESRS provide a comprehensive framework for sustainability reporting that encompasses various environmental, social and governance (ESG) factors, including the circular economy.

They contribute to the advancement of the circular economy by requiring companies to disclose comprehensive information on their sustainability practices, including how they manage resources, waste and environmental impacts. This transparency and accountability drive companies to adopt more sustainable and circular practices, promoting a shift towards a more sustainable economic model.

As the EU continues to refine its circular economy policies, the path forward is one of collaboration, innovation and shared responsibility. The circular economy is not just an EU policy, but a global necessity, offering a model for sustainable development that other regions can adapt and adopt.

At BioMar, we deepen our commitment by aligning with evolving ESG frameworks, guaranteeing that our practices embody transparency, accountability and make a significant impact.

To strengthen EU circular economy policies in aquaculture and aquafeed production, the EU could promote the use of renewable resources, by-products and waste and implement zero-waste protocols. Enhancing resource efficiency, developing closed-loop supply chains and improving waste management are critical.

Strengthening policy frameworks, offering financial incentives for sustainable practices and investing in education and awareness can further support these initiatives.

Additionally, fostering industry collaborations and engaging in international cooperation will share knowledge and drive global standards for circular economy practices in these sectors.

New Nutrients Fermentation Technology

BioMar annually sources nearly 1.5 million tons of plant-based raw materials, and with agriculture contributing 20% to global GHG emissions and consuming 90% of the Earth's freshwater resources, we need to find alternatives.[23]

Microalgae fermentation technology designed with industrial ecology principles could improve the environmental impacts of dietary lipid production in aquafeeds.

Sustainable Dietary Lipids

BioMar's aquafeed products, catering predominantly to carnivorous finfish and shrimp, contain dietary lipids for energy, essential fatty acids and fat-soluble nutrients. Traditionally reliant on vegetable oils from oilseed crops, we are now exploring microalgae-produced lipids.

This research is driven by the need to address the sustainability challenges associated with oilseed crops, which have historically been implicated in global deforestation and occupy a significant portion of the Earth's arable land.

Our preliminary studies indicate that microalgae-based biorefineries can substantially reduce environmental impacts, including carbon footprint, water consumption, ecotoxicity, and land use change by up to 50% if aligned with current food safety restrictions.[24]

BioMar is involved in initiatives to approve the use of aquaculture waste and food waste as substrates for feed ingredients through fermentation. If these initiatives come to fruition, the environmental footprint of microalgae-based lipids can be further reduced through circular nutrient management.

Innovation and Technology

In alignment with our sustainability goals, BioMar actively explores innovative technologies that promote circular and restorative raw material production. A cornerstone of our sustainability strategy is the adoption of heterotrophic microalgae fermentation technology.

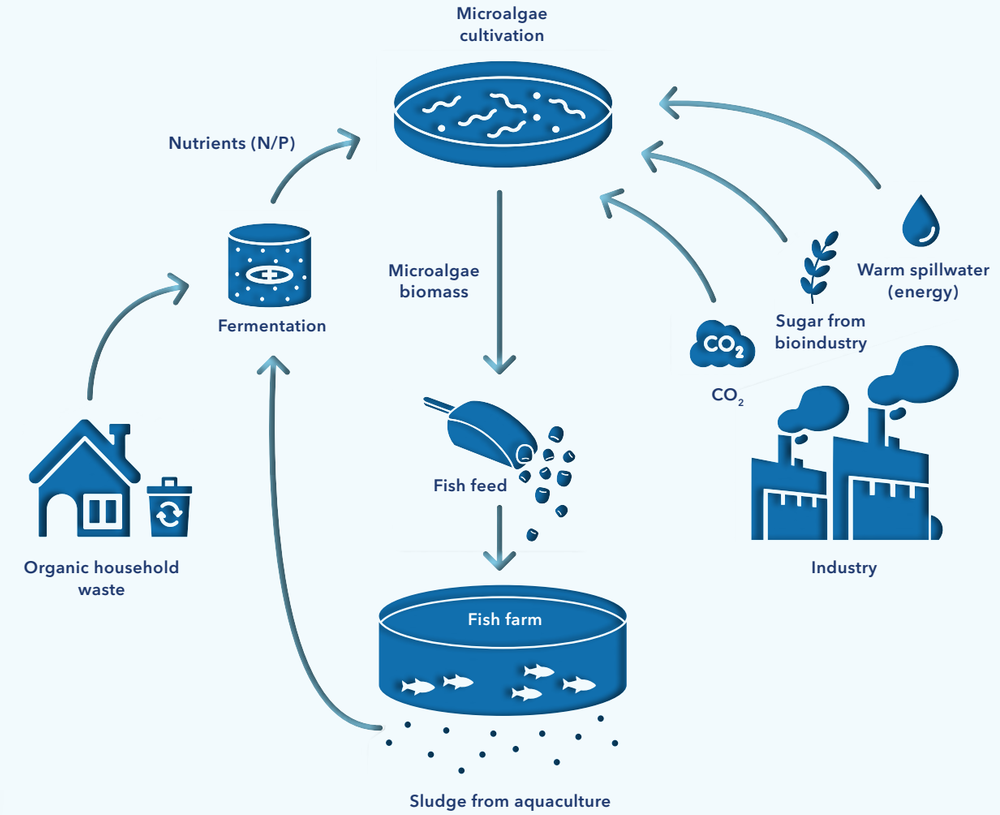
This process efficiently converts non-feed items, such as sugars and waste, into valuable feed components, including marine omega-3 fatty acids EPA & DHA. This not only provides a sustainable alternative to fish oil in aquafeed diets, but also showcases the potential for microalgae to produce a variety of lipids, contributing to our sustainability objectives.

Future Directions

We recognise the advantages of microalgae-based solutions over traditional oilseed production, not only in terms of environmental impact but also in improving the resiliency of global supply chains. Our journey towards a more sustainable future is both ambitious and necessary, reflecting our dedication to leading the aquafeed industry towards greater environmental stewardship.

As BioMar endeavors to develop these technologies and achieve cost competitiveness, we will seek out industrial partners with the knowledge and capital to test the concept through our Supplier Engagement Programme.

Circular Bioeconomy



Forage Fish Dependency

Marine resources used in aquafeeds are valuable and finite, requiring us to manage them carefully. The Forage Fish Dependency Ratio (FFDR) is a tool that helps us understand how much wild fish is used to produce one kilogram of farmed fish or shrimp.

This measurement is calculated according to the ASC farm standards and considers the protein and oil content equivalent to wild fish. The most limiting factor, either protein or oil, determines the final FFDR for that feed. To get the FFDR for farmed seafood, we multiply the feed's FFDR by the Economic Feed Conversion Ratio (eFCR).

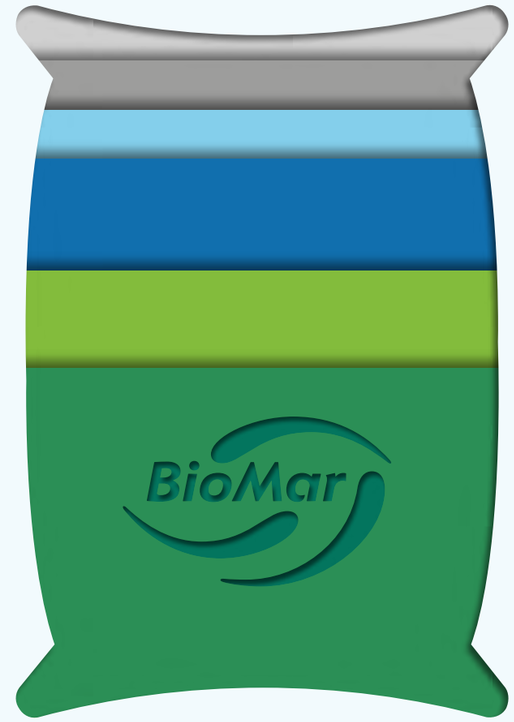
The chart showcases BioMar's global use of raw materials in 2023. The specific sources of these marine ingredients may change slightly each year. Along with variations in availability, quality and industry growth, the FFDR will also fluctuate over time.

BioMar Group	2019	2020	2021	2022	2023
FFDRm (fishmeal)	0.48	0.49	0.45	0.44	0.37
FFDRo (fish oil)	0.94	1.23	1.17	1.17	0.67
FFDR	0.94	1.23	1.17	1.17	0.67

Table 4: BioMar Fish In:Fish Out ratios calculated according to the ASC formula - Forage Fish Dependency Ratio for meal and oil.[25]

Forage Fish Dependency Ratio (FFDR)
Marine ingredients are limited resources that should be used responsibly. The FFDR is a measure of forage fish equivalents utilised to produce one unit of farmed seafood.[25]

Raw Material Distribution



50%
Plant Dry Matter

14%
Plant Oils

16%
Marine Dry Matter

7%
Marine Oils

7%
LAPs/PAPs

6%
Micro & Other Ingredients

Figure 5: Distribution of the major nutritional contributors making up BioMar's total feed recipe for 2023.

FAO Major Fishing Areas[26]

Sea	Area
Arctic Sea	18
Atlantic, Northwest	21
Atlantic, Northeast	27
Atlantic, Western Central	31
Atlantic, Eastern Central	34
Mediterranean and Black Sea	37
Atlantic, Southwest	41
Atlantic, Southeast	47
Atlantic, Antarctic	48
Indian Ocean, Western	51

Sea	Area
Indian Ocean, Eastern	57
Indian Ocean, Antarctic & Southern	58
Pacific, Northwest	61
Pacific, Northeast	67
Pacific, Western Central	71
Pacific, Eastern Central	77
Pacific, Southwest	81
Pacific, Southeast	87
Pacific, Antarctic	88

Marine Ingredients

Species	Fishing Areas	Marine Protein		Marine Oil		Total Volume		
	FAO	Tonnes	Share	Tonnes	Share	Tonnes	Share	Trimmings
Atlantic Herring	27	34,544	15.3%	13,925	13.5%	48,469	14.8%	78%
Peruvian Anchoveta	87	27,355	12.1%	11,936	11.6%	39,291	12.0%	15%
Blue Whiting	27	29,182	12.9%	3,176	3.1%	32,358	9.8%	2%
Capelin	27	17,478	7.7%	1,844	1.8%	19,322	5.9%	60%
Tuna Spp.	87, 57	15,403	6.8%	2,972	2.9%	18,375	5.6%	100%
Pacific Mackerel Spp.	87, 77, 71	10,900	4.8%	5,687	5.5%	16,587	5.0%	9%
Wild Seafood By-Products	27, 87, 41, 47, 34	12,255	5.4%	2,822	2.7%	15,077	4.6%	97%
Atlantic Sardine	27, 34, 37, 87	9,186	4.1%	5,667	5.5%	14,853	4.5%	80%
Atlantic Mackerel Spp.	27, 34	9,475	4.2%	5,246	5.1%	14,721	4.5%	77%
Antarctic Krill	48	13,834	6.1%	-	0.0%	13,834	4.2%	0%
Farmed Seafood By-Products	87, 27	2,245	1.0%	11,013	10.7%	13,258	4.0%	100%
Anchovy	47, 77, 37, 27, 34, 87, 61	4,548	2.0%	8,456	8.2%	13,003	4.0%	11%
Atlantic Cod	27	8,930	4.0%	1,647	1.6%	10,577	3.2%	100%
Araucanian Herring	87	7,734	3.4%	2,466	2.4%	10,200	3.1%	0%
Sardine	51	2,260	1.0%	6,754	6.6%	9,013	2.7%	15%
Sprat	27	3,322	1.5%	1,864	1.8%	5,186	1.6%	20%
Alaska Pollock	67	-	0.0%	5,126	5.0%	5,126	1.6%	100%
Pacific Sardine	77, 81, 61, 87	800	0.4%	3,890	3.8%	4,690	1.4%	0%
Sandeel	27	4,441	2.0%	219	0.2%	4,660	1.4%	0%
Sardinella	34, 37	-	0.0%	2,939	2.9%	2,939	0.9%	27%
Menhaden	87, 61	548	0.2%	29	0.0%	577	0.2%	0%
Other	87, 27, 34, 77, 47, 51, 71	11,162	4.9%	5,265	5.1%	16,428	5.0%	19%
TOTAL		**225,600**	**100%**	**102,943**	**100%**	**328,543**	**100%**	**46%**
MSC		63,428	28.1%	21,940	21.3%	85,368	26.0%	
MarinTrust		154,552	68.5%	47,523	46.2%	202,075	61.5%	
Fishery Improvement Projects		44,244	19.6%	9,173	8.9%	53,417	16.3%	
ASC Compliant**		191,025	84.7%	79,179	76.9%	270,204	82.2%	
Trimmings		97,885	43.4%	52,493	51.0%	150,377	45.8%	

Table 5: Species in marine meals and oils used by BioMar in 2023 are disclosed in the table in descending order, according to total volume (metric tonnes). Respective shares of species and MSC, MarinTrust, FIP and ASC-compliant material are also shown. China volumes are not included.
*Includes species landed in compliance with the revised EU Common Fisheries Policy Landing Obligation (discards ban), fully implemented on 1January 2019.[27]
** ASC compliant in accordance with species standards and their respective indicators in the ASC Interim Solution for marine ingredients.[28]

Hotspot

Raw Materials

BioMar consistently evaluates and adjusts its procurement criteria to guarantee and record responsible and sustainable production and sourcing of raw materials. In the case of 'hotspot' raw materials with elevated ESG risk profiles, BioMar mandates certification to adhere to best-practice standards. Furthermore, to align with BioMar's ambitious sustainability goals, suppliers are obligated to make additional commitments, encompassing deforestation/conversion-free practices, responsible resource management and enhanced social safeguards for human/labour rights. The certifications obtained for these hotspot raw materials underscore BioMar's dedication to attaining, at a minimum, third-party-verified sustainability performance.

Soy

90%

Certified

RTRS [29]

ProTerra [30]

Donau / Europe Soy* [31]

U.S.SSAP [32]

Palm Oil

94%

Certified

RSPO [33]

Fish Oil

77%

ASC Compliant[34]

MSC [35]

MarinTrust [36]

FIP or equivalent

FishSource™ [37]

Fishmeal

85%

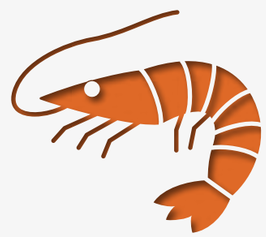
ASC Compliant[34]

MSC [35]

MarinTrust [36]

FIP or equivalent

FishSource™ [37]



Krill Meal

100%

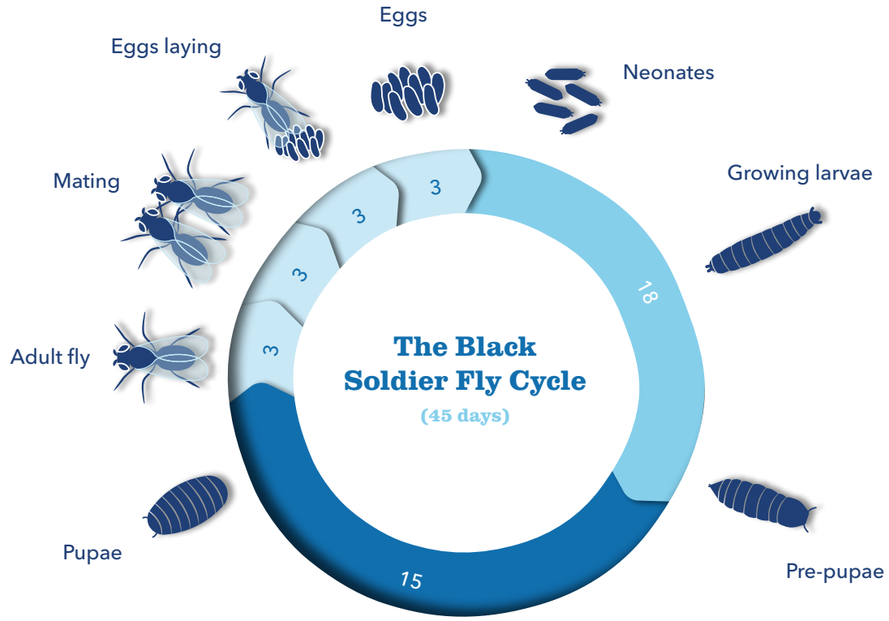
Certified

MSC [35]

Figure 6: This figure discloses certification in percentage terms of hotspot raw materials used in BioMar feed in 2023.
* Including Protein Partnerships

The next generation of insect meals

In partnership with Agronutris, we are developing the next generation of black soldier fly meals specifically designed for the needs of the aquaculture industry.



The black soldier fly (BSF) has emerged as a promising candidate in the search for new feed ingredients. Its appeal lies in its nutritional profile, digestible protein and has an amino acid composition, making it a strong candidate for replacing traditional soy meal. The insect meal also shows positive signs of palatability among fish, an essential factor for its acceptance in aquaculture diets.

Life Cycle of the BSF

One of the most compelling aspects of the BSF is its life cycle, characterised by high yields and a short reproduction cycle.

It takes only four weeks for a BSF to grow from egg to adult fly. Thanks to Agronutris' optimised rearing conditions and know-how in insect nutrition, the larvae reared at Agronutris are able to multiply their weight by 10,000 within only two weeks. Once they are mature, the larvae are collected and transformed into valuable ingredients for animal feed.

The flies can be fed flexible substrates, contributing to their commercial viability through their use of low-grade and affordable substrates (often waste). The BSF's rapid growth and efficient feed conversion ratio makes it less resource-intensive.

In addition, the potential for genetic improvement further enhances their appeal. With a short production cycle, genetic advancements can be achieved swiftly, leading to strains of flies that grow faster and more efficiently.

BSF Sustainability

A truly sustainable insect meal should be decoupled from the human food supply chain and fed a substrate based on waste foods and by-products. Agronutris has developed a model that aligns with this principle, demonstrating the potential of BSF meal as a nutritious and sustainable option for aquaculture.

There is a strong strategic alignment between Agronutris' mission to supply low environmental impact alternatives and BioMar, which has placed sustainability at the heart of its future strategy with the aim of 50% of ingredients from a circular and restorative economy and lowering its feed carbon footprint by a third by 2030.

As novel raw material manufacturers continue to evolve their product offerings, we will see more collaborations in BioMar like this.

Capturing Wasted Nutrients

Animal by-products (LAPs) like feathers and bones are excellent sources of valuable nutrients. However, these cannot be consumed directly by humans, but are ideal for the nutritional needs of many aquaculture species. By using them in aquafeeds we can return these valuable nutrients to our food system.

In some markets around the world, there have been concerns about the use of LAPs due to issues of quality. However, technological advancements, combined with stricter controls over the past decade, have made this ingredient an excellent circular, low impact ingredient.

The old views around LAPs are no longer warranted. To have a truly sustainable food system, we must change our mindset on waste. A resource like LAPs can be safely returned to the food system through seafood and should not be wasted.

Circular Products made Better

Aquaculture needs a resilient supply of raw materials to meet demand as the sector continues to grow across the globe. BioMar likes to work closely with responsible suppliers with a sustainability strategy at the core of their business. We partnered with LAPs producer Kaura Coproducts to support our joint journey to reduce the carbon footprint while promoting the use of circular ingredients.

Kaura is a Spanish company specialising in the efficient use of resources from animal by-products. They have been working with BioMar since 2022 and chose Chile as the first entry point for their products in the South American market. Taking an applied circular approach, they safely process by-product raw materials to return valuable nutrients to the food system.

Kaura's process ensures that by-products that would have otherwise entered landfill as waste are captured and can be utilised as a valuable source of nutrients for aquafeeds. This is a positive circular use of resources that benefits businesses, society and the environment.

Kaura has a steadfast commitment to improving its ESG performance. They are working towards full traceability of greenhouse gas (GHG) emissions from origin to end while looking for efficiency savings through energy savings. They have also installed photovoltaic panels and water recovery systems in their production facilities.

In 2023, they were for the second time certified to the Forética SGE 21 Standard; a certification system verifying their ethical and socially responsible management system. [38]

Although Kaura Coproduct's core focus is on the total reuse of resources as a responsible company, they are taking a wider view on sustainability. They are an example of a partner sharing our direction of reducing carbon footprint and achieving more circular use of resources in aquafeeds.

KAURA COPRODUCTS

BioMar Farmers are ensuring highly nutritious seafood

It's your blue journey

Enable People

2030

Our Targets

- 100,000 people directly and indirectly engaged in Capacity Building initiatives annually by 2030
- All salaries above living wage level
- 100% equal progression through career levels
- 100% equal pay

2023

Milestones

- More than 45,000 people were impacted by Capacity Building initiatives
- 97% of the workforce are paid at or above living wage level, slightly decreasing from 98% in 2022
- Among our employees, we have a net promotor score of 49, increasing from 45 in 2022. This positions BioMar in top 10% of the manufacturing industry
- The underrepresented gender in management increased from 26% to 27%. In general, there are 21% women in the total workforce. 34% of all new managers hired were women
- The West Africa Working Group was launched through the Global Round Table to improve ESG impacts of fisheries
- BioMar contributed to a social audit of impacts from the marine ingredients industry in Senegal and Mauritania

BioSustain™ MASTERCLASS

Human Rights and Social Responsibility in FIPs

A common and fair critique of the historical FIP model of transformative fishery change is the exclusion of social impacts from the project scope.

We have seen a step in the right direction for human and labour rights in developing fisheries. FishChoice, the organisation that owns and manages the FIP progress reporting platform fisheryprogress.org, recently introduced a Human Rights and Social Responsibility Policy (HRSR) to increase transparency around the actions that stakeholders in Fishery Improvement Projects (FIP) are taking to address human and labour rights.[39, 40]

Fishery Progress has mandated a requirement that any new FIP reporting on fisheryprogress.org must adopt the Human Rights and Social Responsibility Policy which includes conducting a risk assessment if the FIP is determined to be at higher risk for forced labor, child labor and/or human trafficking.[39]

The implementation of the HRSR Policy and risk assessment with the actors involved in the capture and transportation of fish is a significant step towards improving transparency, detection and remediation of social risks within fisheries engaged in FIPs.[39]

There are several clear actions that must be taken through the risk assessment, which raise awareness of human rights and encourage reporting of circumstances when they occur.

If and where such issues are identified, it is crucial that we and our suppliers take action to remedy the situation. Tackling social and human rights issues is complex. Systemic change is often needed, and it takes time and collaboration across multiple stakeholders to enable progress.

Understanding the social context in any resource management system is vital, and by hearing the voices of workers helps to ensure that human rights and labour issues are understood and that the drivers and root causes of any issue can begin to be addressed.

> **We expect all our suppliers to fully comply with BioMar's Responsible Sourcing Policy. All forms of human rights abuses are unacceptable to BioMar and our farmers.**

Key Components of HRSR

1. Core Requirements for all FIPs

All FIPs should demonstrate that they have a public Policy Statement outlining the commitment to Human Rights and Social Responsibility.

There is also a requirement to provide information about vessels and fishers engaged in harvesting and transporting FIP products. This improves visibility of the vessels involved and helps target efforts to make fishers aware of their rights and grievance mechanisms. Evidence must be provided to demonstrate the efforts to communicate these issues with fishers. A self-evaluation to determine whether key risks for forced labour and human trafficking apply to the FIP is also required.

2. Risk Assessment and Social Workplan

FIPs operating in a context with increased risk of forced labour or human trafficking must also undertake a risk assessment and a social workplan.

A deeper assessment of risk is required for FIPs where there are vessels undertaking transhipment at sea, or where fishing trips can exceed 90 days, where there is a migrant workforce > 25% of fishers that are not citizens of the vessel's flag state, or where incidents of labour and human rights abuses have been reported within the previous 2 years.

If one or more of these criteria are met, a deeper Social Responsibility Assessment (SRA) is required and must be conducted by a suitably qualified consultant. The assessment must be conducted annually for any high-risk scoring indicators and fully every three years.

As applicable, a social workplan to address challenges and risks identified should be developed and implemented. This is required for FIPs that submitted an alternative assessment as well as those that have high-risk-scoring indicators in their SRA.

3. Voluntary Reporting on Social Performance

The new HRSR Policy encourages a deeper dive using a risk assessment and a social workplan, and by sharing actions and progress, demonstrates leadership to the stakeholders engaged in the fishery.[39]

Whilst undertaking a social responsibility assessment is not a panacea, having greater visibility and understanding of the risks and prevalence of human rights and labour issues is an extremely useful step towards ensuring all stakeholders benefit from the improvement of the fishery.

Shaping the Next Generation

BioMar launched a global graduate programme designed to inspire and develop the new generation of employees. The programme accelerates the professional and personal growth of the graduates, while building connectedness to the organisation.

The new generations of employees are looking for a different employee experience. They are looking beyond their own task, striving for a meaningful job with inspiring development opportunities. The traditional career paths with entry positions, where you had to work your way to the interesting experiences, belong to the past.

Opening a new approach to welcoming newly educated employees in the company, we launched in 2023 a new graduate programme. Young people from around the world are invited to participate in a 12-month top-up programme, where they combine their daily tasks with challenging projects and inspiring learning sessions. At the same time, they are assigned personal mentors and networking opportunities with executive management and global senior specialists.

We have designed a learning journey where the graduates are exposed to leading experts from BioMar sharing their knowledge, stretched assignments where they can use all their talents, and our best mentors to promote their career development and network in the company.

By accelerating the development of our young employees, we benefit fully from the new academic knowledge and fresh viewpoints which they bring into the company. At the same time, we are very conscious that they are looking for a work experience, where they in a short time can feel connected to the culture and the people in the organisation.

A Personal Learning Journey

The learning journey is set up based on a personal development plan. Together, graduate, HR and manager set ambitious targets for the programme and scope an assignment, where the graduates can unfold their potential. A personal mentor is assigned to support the development plan and ensure each graduate can benefit from his or her functional experience and professional network.

This is combined with a global graduate community, where the participants meet with other graduates from across the world for online workshops, mutual support and knowledge sessions. Halfway through the programme all participants meet in Denmark for a two-day workshop where top executives from BioMar and Schouw & Co. meet to network and share insights on strategy, long-term people philosophy, diversity potential and career opportunities. At the same time, the graduates work with their own personal development and career aspirations.

> *This extended experience has been enriching, offering a structured framework that empowered me with impactful projects, driving positive changes within the organisation. The diversity of cultures within the programme has expanded my knowledge and improved my communication skills significantly. Overall, the programme has been transformative, equipping me with the tools and experiences necessary to excel in a dynamic business environment.*

Matias Olave,
Graduate

2023

Here's how we did this year

Fulfilling our purpose means looking critically at all aspects of our own business while innovating for a sustainable future, but also engaging in the public debate and enabling customers, employees, communities and partners to act and contribute.

Lost-Time-Injury Rate

Our lost-time-injury (LTI) rate increased from 5.6 to 6.8 compared to 2022. Most incidents recorded were of a less serious nature. We have during 2023 strengthened our health and safety set-up in the business units, enabling a reinforcement of our preventive approach combined with a better root cause analysis. Safety is our priority, and we strive to ensure all employees return to their families without injuries.

Upskilling Towards Living Wage

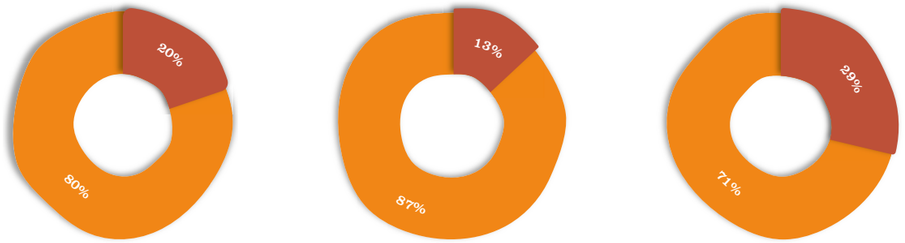
BioMar is committed to living wages and equal pay. With our ambition for Responsible Pay, we raise the bar far beyond what is required by legislation.

We believe every worker should be entitled to a fair wage based upon relevant criteria. A living wage level is what it takes to uphold a decent standard of living in any given country, while equal pay safeguards that all salaries are set without conscious or unconscious bias.[41]

In 2023, 97% of BioMar employees were on or above living wages as measured by the family living wage standards of Wageindicator. In 2023, we analysed our paying practices for living wages in depth and found that we are paying living wages to almost all employees. Out of the 3% not being paid living wages, 2/3 of the employees were new employees subject to upskilling. We are committed to accelerating our upskilling and onboarding programmes to elevate these employees to salary bands that are above the living wage level.

For more information click here to read our Salary Policy.

Gender Diversity Targets 2025



Board
Target 29%

Management Group
Target 20%

Other Management Levels
Target 35%

Capacity Building

In 2023, we enabled

45,009

people through Capacity Building initiatives.

Direct Capacity Building

Direct Capacity Building takes place when we engage in person with customers, employees, suppliers, community members and industry stakeholders worldwide. These engagements present opportunities of sharing knowledge to improve farm management, production methods, animal welfare or sustainable raw materials to deliver feed and seafood that cater to the responsible consumer.

2,086
BioMar Employees
Participating in formal development activities

2,026
Community Members
Participating in Capacity Building activities

1,127
Supplier Staff
Participating in Capacity Building activities

10,694
Conference Participants
Listening to BioMar speakers at conferences around the world

929
External Training
Attending BioMar Training (external stakeholder)

3,497
BioFarm
Attending knowledge sharing on improvement meetings with BioFarm

Indirect Capacity Building

In many parts of the world, sustainability is often not obtainable until certain basic conditions are met. Many of the world's fisheries and agricultural regions lack the knowledge, resources and capital to produce more sustainably or responsibly at scale. BioMar can help address these deficiencies by engaging in agriculture and fishery improvement projects in our supply chain. This "indirect" Capacity Building can facilitate entire industry shifts towards global, responsible and equitable fisheries and agricultural practices.

24,740
Development Programme Participants
Participating in Improvement Programmes with BioMar

Responsibility from Feed to Shelf

More people than ever before want to be contributors rather than consumers. Preferring to use their wallets to vote for responsible food choices.

This year we share the collective efforts of Auchan, Edpacif and Earthworm Foundation, together with our own contributions to advance in responsible shrimp production.

To bring systemic change to the shrimp supply chain, we need a collaborative approach. Over the last several years, BioMar and Earthworm have been working together on a transformative vision for improving farmed shrimp. In 2023, we welcomed two visionary value chain partners to produce (EdPacif) and sell (Auchan) this uniquely responsible shrimp.

By utilising BioMar's impact assessment tool BioSustain LCA, we formulated a Blue Impact shrimp feed for the project. This novel feed reduced the carbon footprint, increased circularity and reduced FFDR to zero by utilising a combination of novel feed ingredients and high-quality marine by-products. BioMar's sustainability experts actively collaborated with EdPacif, offering recommendations to decrease the carbon footprint from farming operations.

Auchan played a vital role as the lead off-taker for the project and also contributed with sustainable product innovation by agreeing to import only the shrimp tails. This change improved circularity in the project as the shrimp heads are utilised for animal feed in Ecuador, rather than ending up in a French household's waste bin.

At the core of this partnership lies an unwavering commitment to environmental sustainability. All ingredients utilised in the shrimp feed adhere to stringent responsible sourcing criteria, ensuring none are procured from deforested or tropical regions. The collabouration also emphasises social sustainability, with initiatives centered on community capacity-building, enhanced working conditions and improved housing for labourers.

The new product line earned the Mr. Goodfish label, which focuses on responsible feed, optimal farming conditions for animal welfare, environmental impact and through the work with Earthworm, a new area of social responsibility.[42]

This collective effort is now seen in the availability of the new product line in French Auchan hypermarkets, serving as a testament to the transformative power of partnerships in creating a sustainable future for seafood consumption, where responsible choices are accessible to all.

Women steering the course for the Caribbean

BioMar supports women with passion and talent for aquaculture and marine science. In 2023, we announced our sponsorship of Women in Caribbean Aquaculture (WiCA), a network of female professionals and students in the region.

WiCA members have achieved new milestones throughout the year. Juli-Anne Russo joined BioMar at the LAQCUA event in Panama, gaining valuable experience. Mia Avril also expanded her knowledge by participating in a Microbiota Workshop held in the Netherlands. Juli-Anne's dedication to the field was further recognised when she won a Fulbright Specialist Programme Award for her project on incorporating local ingredients into small-scale Bahamian fish farms.[43]

Their work contributed to the development and innovation of aquaculture in the Caribbean.

Submerging chefs into the aquaculture world

Unlike traditional farms where people can be viewed from the sidelines, aquaculture farming happens below the surface.

Seeing is believing. This is why we decided to take prominent chefs on a journey below the surface to see for themselves the life of a farmed fish and the water environment. This innovative initiative gave a full farm-to-table experience where chefs could see the raising of fish from egg to harvest and interact with the dedicated farmers. For a completely immersed experience, they were able to taste and even cook the fish on-site, learning from local chefs how they handle the different species and trying out new recipes.

Bright minds guiding the future

BioMar supports students with passion and talent for science and engineering.

Following up on last year's 60th Anniversary Community Project Competition, BioMar would like to highlight our Sponsorship of the First LEGO League World Championships.

One of 2023's most interesting projects was "ENERGY PACK", a smart solution for optimising renewable energy use, by Team Hedemølle from Hedemølle Efterskole in Denmark. They won the Breakthrough Award at the First LEGO League World Championship.

Their project consisted of a battery and a control unit that stored excess energy from wind turbines or solar panels and used it when needed. This improved the efficiency and sustainability of energy consumption. We sponsored them to the World Championship, and we are proud of their environmental innovation.

Scientists from all corners of the world

Diversity within BioMar R&D is essential for tackling complex challenges within global food production

BioMar has assembled a diverse group of top scientists and technicians with expertise in nutrition, feed processing, animal health and raw materials. These experts drive research and development efforts on diets for fish and shrimp tailored to meet the needs of our global markets. Our team is recruited from over 17 different countries and maintains a balanced 50/50 gender share. The team's knowledge base is impressive, featuring senior researchers with more than 40 years of experience in the industry as well as trainees who are beginning their PhD programmes.

This diverse mix of backgrounds and perspectives enables our innovation team to be agile, relevant and forward-looking. Together, we challenge existing scientific paradigms and innovate to create sustainable feeds for the future. The inclusion of a wide range of voices and experiences not only enriches our research, but also ensures that we address the complex challenges of global food production with the most comprehensive and innovative solutions.

A BioMar partnership helps you meet your goals

It's your blue journey

ASC Feed Standard[34]

The Aquaculture Stewardship Council (ASC) is an independent, not-for-profit organisation that operates a voluntary, independent third-party certification and labelling programme based on scientifically robust Standards.

The ASC operates a voluntary, independent third-party certification and labelling programme based on scientifically robust standards, which define criteria for responsible aquaculture practices. The ASC Feed Standard was released in June 2021 and updated in January 2023. In addition, three other documents have been released: ASC Feed Certification and Accreditation Requirements (CAR) and ASC Feed Certification Requirements for Unit of Certification (RUoC), both released in July 2022; and finally, ASC Feed Interpretation Manual released in May 2023.

The Standard allows for multi-site certification as long as the sites are in the same country and meet the requirements. The ASC Feed Standard does not distinguish between different types of feed, such as pelleted or extruded, as long as the manufacturer and the ingredients comply with the indicators of the Standard. The Standard applies to the entire facility of the aquafeed manufacturer, even if other types of livestock feeds are produced. However, only aquafeed production is subject to principles 2-5, which relate to the sourcing of ingredients.

The ASC has defined a transition period between the Farm and Feed Standards until October 2025. During this period, ASC certified farmers will have to source their feed from an ASC-compliant feed mill.

A full review and update of BioMar policies has been performed to align with ASC requirements. The subject matter content in these documents includes: social and labour rights, health and safety, environment, communities, supplier code of conduct,due diligence (risk assessment) and sustainability of raw materials. Integration of BioMar policies into local management systems is currently under implementation to align global and local teams working on ASC.

Implementation of the ASC Feed Standard is a high priority for BioMar for several reasons. After nearly a decade on the ASC Feed Standard Steering Committee, we are very motivated to see the standard implemented. In addition, BioMar's customer portfolio includes hundreds of thousands of tonnes of aquafeed for ASC certified fish and shrimp farms across every division. Those customers expect us to deliver. BioMar is therefore targeting to achieve ASC Feed Standard certification for most of our factories by October 2025.

We believe that the ASC Feed Standard is a valuable tool to improve the sustainability and responsibility of the aquaculture industry, and we are proud to be part of it.

ASC 5 Principles

Principle 1

The UoC has a management system to implement the ASC feed standard including operating legally, and in a socially and environmentally responsible manner.

Principle 2

The UoC sources ingredients responsibly through the application of a Code of Conduct and Due Diligence process to manufacturers and ingredients.

Principle 3

The UoC accounts for eligible ingredients input using segregation or mass balance models.

Principle 4

The UoC sources marine ingredients responsibly.

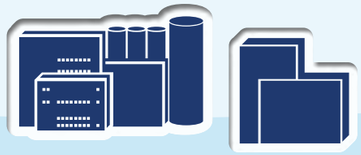
Principle 5

The UoC sources plant ingredients responsibly.

Company Timeline

1962

Dansk Ørredfoder A/S is founded by Danish Trout farmers.



1994

Dansk Ørredfoder A/S is merged with Aqualim S.A. in France and BioMar AS in Norway. The company consolidates as BioMar Group.

1995

BioMar establishes production in Scotland.

1996

BioMar establishes production in Karmøy, Norway.

2000

BioMar acquires 50% of two factories in Chile, achieving full ownership in 2002.

2001

BioMar establishes production in Greece.

2008

BioMar acquires Provimi Aqua, including factories in Chile, Spain and Denmark.

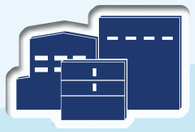
schouw&co

2005

Schouw & Co. acquires from Norsk Hydro the majority of BioMar, with full ownership in 2008.

2012

BioMar establishes a JV in Costa Rica.



2015

BioMar establishes a JV with Chinese aquafeed giant Tongwei.

2016

BioMar's JV in China acquires the fish feed company Haiwei.

BioMar establishes a JV production with Sagun in Turkey.

2017

BioMar acquires shrimp feed factory, Alimentsa, in Ecuador.

BioMar establishes a global hatchery unit in France.

2019

BioMar becomes full owner of the Joint Venture factory in Chile, renaming the factory to Ercilla.

2020

BioMar establishes production in Australia and creates a new factory in China.

2021

BioMar establishes a JV with shrimp feed factory, Viet Uc, in Vietnam.

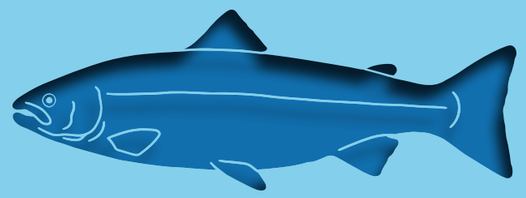
2022

BioMar acquires shrimp feeding technology company AQ1.

Species fed by BioMar 2023

14%

Shrimp
Penaeus vannamei

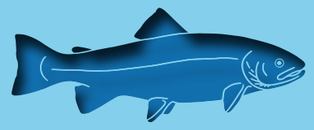


62%

Atlantic Salmon
Salmo salar

Coho
Oncorhynchus kisutch

4%

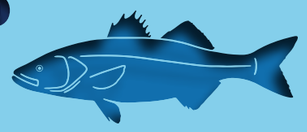


Rainbow Trout (Saltwater)
Oncorhynchus mykiss

Rainbow Trout (Freshwater)
Oncorhynchus mykiss

11%

7%



European Sea Bass
Dicentrarchus labrax

Gilthead Sea Bream
Sparus aurata

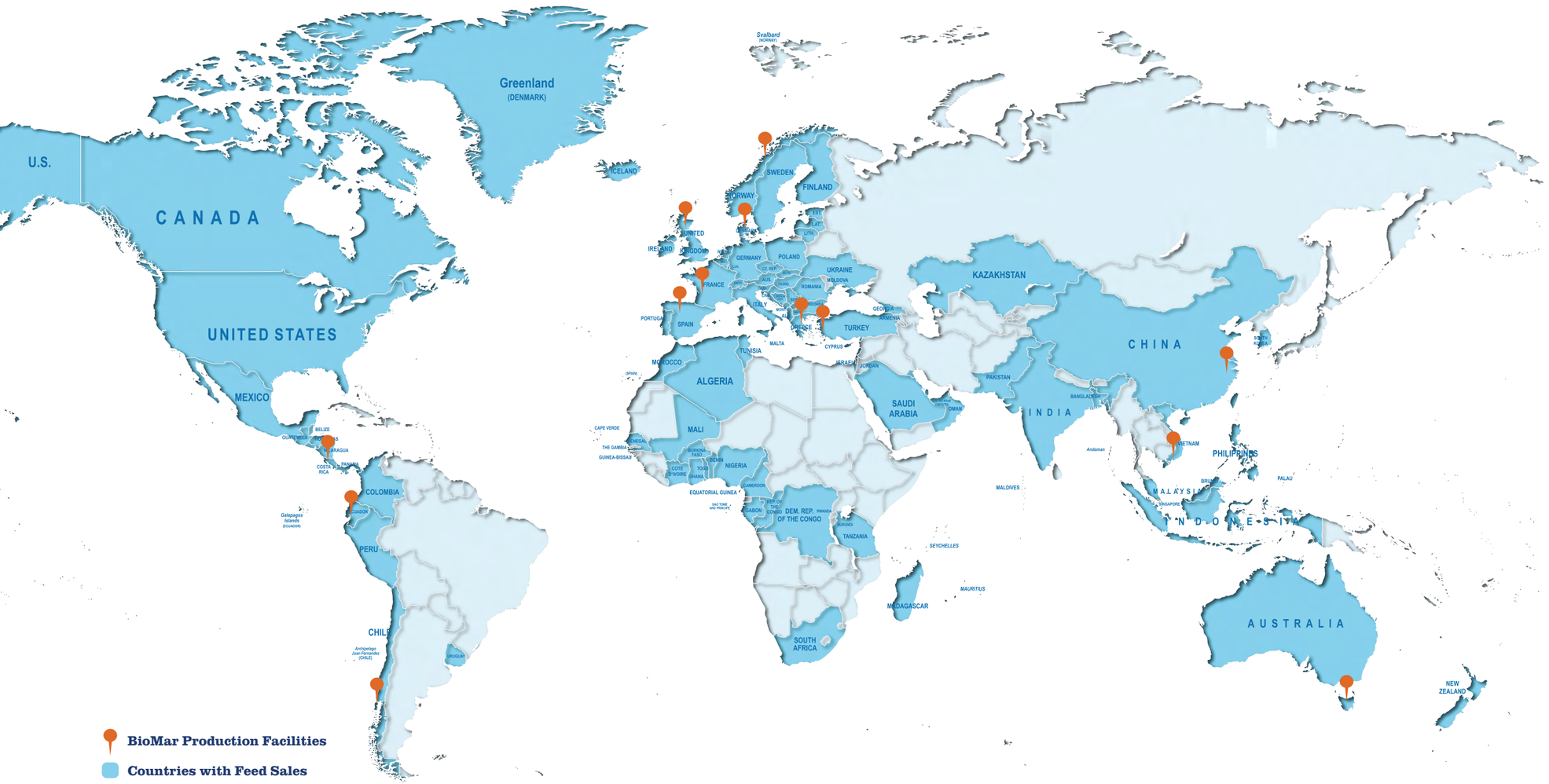
Largemouth Bass
Micropterus salmoides

2%
+ other species

Yellowtail Kingfish
Seriola lalandi

Siberian Sturgeon
Acipenser baeri

Figure 7: Top species where BioMar supplied the most feed in 2023 by volume.



Country	Name	Facility
Australia	Wesley Vale	Production
	AQ1	Technology
Chile	Castro	Production
	Ercilla	Production
	Pargua	Production
	Patagonia	ATC
China	Wuxi	Production
	Haiwei	Production
Costa Rica	Cañas	Production
Denmark	Brande	Production
	Aarhus	Headquarters
	Hirtshals	ATC
Ecuador	Durán	Production
	Ecuador	ATC
France	Nersac	Production
Greece	Volos	Production
Norway	Myre	Production
	Karmøy	Production
	Trondheim	Office
	LetSea	ATC
Scotland	Grangemouth	Production
Spain	Dueñas	Production
Turkey	Söke	Production
Vietnam	Ben Tre	Production

Table 6: BioMar production facilities, offices, ATCs by country. ATC = Aquaculture Technology Centre

Markets & Operations

BioMar leads in the aquafeed industry by producing high-quality feed for key species such as salmon, trout, shrimp, sea bass, and sea bream, among nearly 50 species globally. Sustainability and innovation propel us forward through integration into all our operations and underscores our dedication to a sustainable, productive future for aquaculture worldwide.

Seafood is a central element of global food production, but increased demand due to population growth and uncontrolled fishing has put fish stocks under severe pressure in many parts of the world.

Projections indicate that the global population will exceed 10 billion by 2050, and global food production would have to almost double to keep up with the corresponding expected income development, particularly in developing countries.

Aquaculture plays a key role in the future food supply, as aquaculture farming is the only way to secure a more sustainable approach to increasing the supply of seafood and avoid overfishing the oceans.

There is a global need for healthy and sustainable sources of protein, and according to FAO, the UN Food and Agriculture Organisation, the global production of fish in 2030 is expected to be 15% higher than the current output. Already, more than 50% of the world's fish and shrimp are raised in aquaculture, which is the fastest growing food production industry in the world.[5]

For many years, BioMar has been a leader in product development and in particular the inclusion and promotion of new innovative ingredients. With its customised products for a broad range of species, combined with a presence in Europe, Latin America and Asia, BioMar has a strong, central position in the marketplace.

Structure & Operational Model

Our Structure and Operating Model defines how we serve the needs of our customers and ensure the successful execution of our strategy.

In BioMar, we firmly believe in combining global excellence with local autonomy. The organisational and management structure of BioMar reflects our global focus across divisions, utilising our global scale to become even more relevant for our customers locally.

In 2022, we defined our new "Above & Beyond" strategy, setting sights for future value creation for all our stakeholders. Our global management set-up was adjusted accordingly to ensure a fit-for-purpose management, building up a structure that will enable the execution of our strategy.

BioMar's operations are divided into divisions. The Salmon Division covers salmonoids in Norway, Scotland, Chile and Australia. The remaining feed operations are divided geographically into the EMEA Division, with a focus on finfish with factory sites in Denmark, France, Spain, Greece and Turkey; the LATAM Division, focusing on shrimp, with factory sites in Ecuador and Costa Rica; and the Asia Division, with factory sites in China and Vietnam. The Asia division serves a wide variety of globally important and local species. BioMar has full ownership of AQ1 Systems a global leader in behavioural based intelligent feeding solutions for aquaculture, however it remains fully independent of the core operations.

Our model serves different customer profiles and market conditions and has proven to be efficient in facilitating global synergies and effective collaboration with customers. BioMar Group Management ensures operational and financial focus as well as alignment on important areas managed by group functions to ensure alignment and sharing best practices.

Board

Chairman
Jens Bjerg Sørensen

Board Member
Asbjørn Reinkind

Board Member
Jørgen Wisborg

Board Member
Marianne Kirkegaard

Board Member
Anders Wilhjelm

Management Group

CEO
Carlos Diaz

CEO, AQ1
Andrew Campbell

VP LATAM, Shrimp & Hatchery
Henrik Aarestrup

VP People, Purpose & Communications
Sif Rishoej

VP Asia
Francois Loubere

Global R&D Director
Simon Wadsworth

Global Manufacturing & Technology Director
Roger Hendry

Global Data & AI Director
Helle Sørensen

Global Sourcing Director
Morten Møjbæk

CFO
Claus Eskildsen

VP Salmon
Paddy Campbell

VP EMEA
Ole Christensen

VP Strategy, Business Development & M&A
Wasiem Husain

Global Sustainability Director
Vidar Gundersen

Global Marketing Director
Katherine Bryar

Global Business Development Director
Michael Gammelgaard

Global IT Director
Henrik Frøsig

Group Finance Director
Per Bjørn Helleshøj

Figure 8: BioMar Board and Management Group in 2023.

Above & Beyond

2023 was the first full year of our Above & Beyond strategy, which aims to create value for our customers, the environment and society.

Despite the challenges posed by the volatility of raw materials and energy prices, and the supply chain disruptions, we managed to deliver on several key strategic milestones in 2023. We are proud of our achievements and our dedicated team of professionals who made them possible.

One of the main pillars of our strategy is our commercial excellence programme, offering tailored solutions, superior service and innovative products to our customers. We have initiated and implemented a global commercial excellence programme in selected markets, strengthening our customer relationships and stickiness. We have also elevated our sustainability agenda by reducing our environmental impact and increasing our social responsibility, and sustainability has become even more relevant for our customers and stakeholders.

A third pillar of our strategy is diversifying and growing our business by exploring new opportunities, entering new segments and acquiring new capabilities. We have made significant investments in our research and development, especially in our hatchery segment, a key driver of growth and innovation. We have expanded our trial facility in Hirtshals, Denmark, and also entered the bioremediation segment, which offers solutions for improving water quality and reducing waste in aquaculture systems. Moreover, the acquisition of AQ1 in 2022 brings us new capabilities and technologies to help our customers optimise their feeding operations. We are broadening AQ1's solutions to markets where optimisation of feed practices still holds significant potential.

We are confident that our Above & Beyond strategy will enable us to continue creating value for our customers, the environment and society, while ensuring our long-term profitability and growth.

Figure 9: (right) The Above & Beyond strategy has three core ambitions. The first is to protect the core, the second is to accelerate our global growth, and the third is to move into related business areas, innovating for next-generation product solutions.

Sustainability Committee

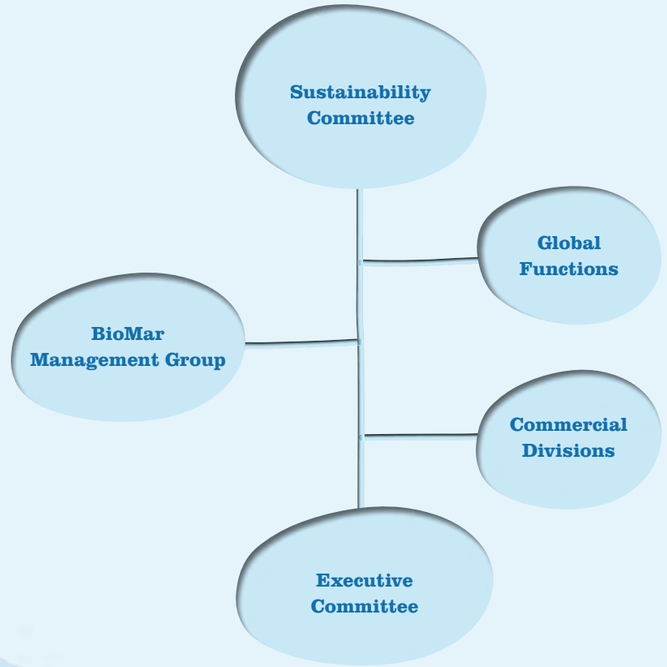
At the forefront of championing sustainability within our core, the BioMar Sustainability Committee orchestrates our strategic sustainability endeavours, ensuring our operations are intrinsically aligned with our commitment to environmental stewardship and operational excellence.

At BioMar, the Sustainability Committee (SC) stands at the forefront of weaving sustainability into our strategic fabric, ensuring that our business operations and sustainability goals align seamlessly. Chaired by our Global Sustainability Director, the SC embodies leadership across the spectrum, including our CEO, CFO, VP of People, Purpose and Communication, and directors from Global Sourcing, Manufacturing and Technology, and R&D. This high-level involvement underscores our dedication to good governance and sustainable development.

Beyond core leadership, the SC is bolstered by specialised working groups that tackle ambitious sustainability and strategic initiatives, ensuring a disciplined approach to governance and execution. These groups, along with global function representatives, are pivotal in driving sustainability initiatives and achieving key performance indicators (KPIs).

Integral to our global ethos is the adherence to our rigorous Code of Conduct by our suppliers and partners, reinforcing our commitment to ethical business practices and sustainability across our value chain. This commitment extends to ensuring compliance with all relevant laws and regulations in the regions we operate, emphasising labour and environmental standards.

Through this structured and inclusive approach, the BioMar Sustainability Committee not only guides our sustainability strategy but also embeds a culture of responsibility, innovation and commercial excellence across all levels of our organisation.



Mandate & Directive

- **Set and oversee strategic sustainability initiatives**
- **Set and oversee sustainability goals and KPIs**
- **Oversee Sustainability Report**
- **Seek value-add and commercial excellence**
- **De-risking of value chains**
- **Decisions to go through BioMar Group Management**

Figure 10: Overall structure of BioMar operational activities and global functions, and complementary interaction between the Executive Committee and the Sustainability Committee.

Global Policies

BioMar employees are responsible for providing operational, administrative, and strategic support to all local business units.

Global policies covering a diverse range of customer- and country-specific regulatory requirements have replaced dozens of factory-specific documents.

In 2022, BioMar created or updated several policies and statements, including ISO, BAP, GLOBALG.A.P. and ASC certification requirements. These global policies apply to all companies under BioMar operational control. They will be periodically reviewed by the BioMar Executive Committee for alignment with current and future objectives. Revisions will be published and brought to the attention of all employees and relevant parties.

For more information
CLICK HERE

Our People

Diversity Policy

BioMar is committed to increasing and safeguarding value creation in the company through encouraged collaboration between people with different backgrounds. The purpose of the company's targets and efforts on diversity is to ensure a corporate culture that supports diversity.

Salary Policy

At BioMar, we have a responsibility to protect and promote human rights. Our commitment to ethical salary standards means we are enabling our employees and their families to live a dignified life. At the same time, we promote and demonstrate fair and equal remuneration across geographies and cultures.

Responsible Employment Policy

We are committed to fair contracting of the workforce, assuming employer responsibility, equality and diversity, fair and transparent employment terms, upholding dialogue, and integrating and training of all staff.

To deliver on our commitment, we are working with local authorities, unions, and employee representation, adopting leading market standards for the employee experience, while safeguarding our BioMar way of working.

Our Ethical Principles

Code of Conduct

Our Code of Conduct describes our position regarding the ethical behaviour we must uphold if we are to truly live up to our ambition as a leading innovator in aquaculture. We are always ready to engage in dialogue with our employees and stakeholders to discuss our current practices.

Code of Conduct for Suppliers

The BioMar Code of Conduct for Suppliers sets out requirements corresponding to our fundamental principles of responsible sourcing: conducting business lawfully and with integrity, ensuring product quality and food safety, protecting natural resources and upholding human and labour rights.

Our Manufacturing

Environmental Policy

BioMar strives to meet its customers' needs in an environmentally responsible and sustainable way. We are committed to operating responsibly in the direct operations we control and throughout the wider supply chain that we influence.

Health & Safety Policy

BioMar strives to secure the health and welfare of our people, providing good working conditions so that all employees can return home to their families without injuries or health-related issues caused by factors inherent in the workplace.

Quality & Food Safety Policy

Compliance with agreed requirements for quality and food safety is a responsibility of all employees throughout BioMar and is integrated into local management systems involving every stage of the manufacturing and supply process.

Our Sourcing

Microplastics Position Statement

BioMar is committed to continuously monitoring the knowledge development of micro- and nano-plastics, especially those aspects associated with production of fish feed, and which carry over from feed to farmed fish and taking actions in relation to its contribution to food safety and sustainability in the food chain.

BioMar Responsible Sourcing Policy

The Responsible Sourcing Policy specifies the five fundamental principles that all suppliers must comply with when supplying raw materials to BioMar globally. Our local companies might apply additional local sourcing policies and processes, however always within the frame of the global policy.

Vegetable Ingredients Position Statement

BioMar is committed to sourcing vegetable ingredients that meet the needs of our customers certified to best-practice industry standards , such as GlobalG.A.P., Best Aquaculture Practices (BAP) and Aquaculture Stewardship Council (ASC).

Marine Ingredients Position Statement

BioMar is committed to sourcing marine ingredients that meet the needs of our customers certified to best-practice industry standards, such as GlobalG.A.P, Best Aquaculture Practices (BAP) and Aquaculture Stewardship Council (ASC).

Responsible Sourcing

Responsible sourcing is at the heart of our business, and meeting our five fundamental principles is embedded in everything we do.

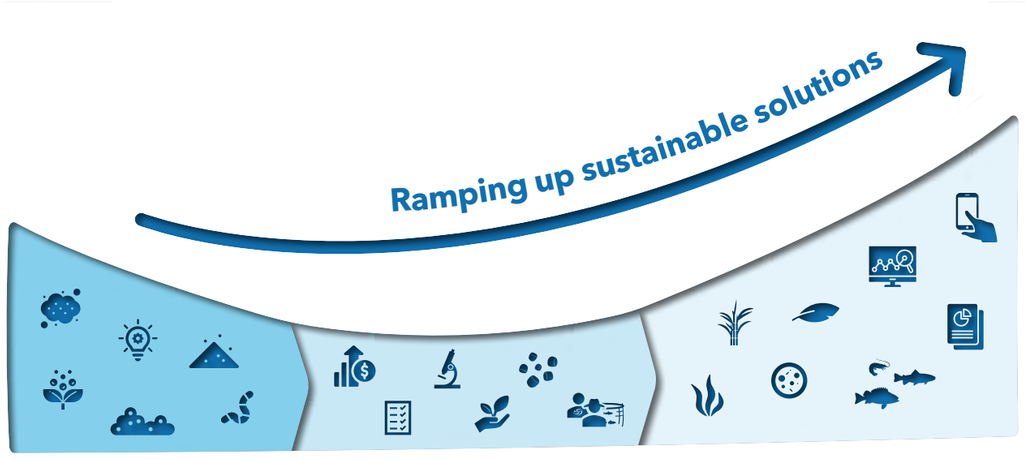
Throughout 2023, BioMar continued investing in long-term sustainability and risk management across the business. This has required some reconfiguration and strengthening across key areas of our Global Sourcing team.

The Global Governance team has been restructured to better meet our business needs, and we recently onboarded a Global Sourcing Sustainability Lead. This new role enables greater strategic engagement with our key suppliers and industry stakeholders across various sustainability initiatives, positioning BioMar to accelerate delivery towards our 2030 sustainability goals.

We have continued to develop our business IT systems to meet our current and future requirements. A new supplier management system is now in place supporting how we manage our supply chains, providing higher granularity and developing closer relationships with our suppliers. We have increased our focus on supplier auditing, more than doubling the number of on-site supplier audits in 2023. Our preparations towards ASC Feed certification have progressed in relevant markets across our business divisions.

Introducing new ingredients in aquafeed is a complex challenge, but one that we must continue to work with as aquaculture grows globally. As a feed company, we need to ensure both optimal nutrition for thriving healthy animals and meet our sustainability ambitions. Building the pipeline of raw materials and having as many options as possible that meet our responsible sourcing standards also improves feed supply resilience.

Our programmes on novel ingredients, coupled with our work on improving existing “traditional” raw materials, are helping to position BioMar to meet our targets on climate action and circularity.



BioMar Innovation Pipeline

As BioMar continues to place a significant emphasis on investigating novel feed ingredients, we have a dedicated Global Sourcing Category Manager who works closely with our local business units, food safety, sustainability and R&D teams to develop the pipeline of potential new feed ingredients. We are now starting to see the impact of having a new category management approach, driving forward our work in this area.

We recognise that bringing novel ingredients into the mainstream is a long-term endeavour and that delivering the BioMar New Deal requires collaboration across our value chains. Our goal is to secure the commercialisation of these novel ingredients. This often means engaging early with businesses in the start-up phase, supporting them where we can in their scale up and route to market. Our strategic business focus is to work on sustainable solutions for the supply of EPA & DHA, as well as the diversification of suppliers of insect meals, single-cell proteins and fermented raw materials. Algal sources are now established in today’s aquafeeds.

In 2023, we used more algal source EPA & DHA, in our aquafeeds, supported by market conditions. Algal sources of EPA & DHA, are here to stay.

Integrating technological solutions and diversifying the raw material basket of the future are opportunities we are keen to take forward with the best candidate ingredients, and where our emphasis will continue to be placed.

Quality Systems & Certifications

At BioMar, we focus on quality and food safety to ensure compliance with local regulatory frameworks and mutually agreed customer requirements.

We build on base-level ISO 9001 certification & HACCP at all production locations and include ISO 14001, ISO 22001, ISO 45001, ISO 50001 and ISO 17025 at specific locations depending on the needs. In addition, we follow market-related standards, certify to BAP, GLOBALG.A.P. and other product standards, and are working on deploying the new ASC Feed Standard across all applicable markets.

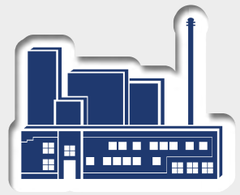
In 2023, we found no major health and safety impacts and identified no non-compliance with regulations.

* The Haiwei (China) plant is not included in the overview as it falls beyond our definition of Operational Control.

Castro, Chile
ISO 9001, ISO 14001, ISO 22000, ISO 45001, GlobalG.A.P., BAP

Pargua, Chile
ISO 9001, ISO 14001, ISO 22000, ISO 45001, ISO 17025, GlobalG.A.P., BAP

Ercilla, Chile
ISO 9001, ISO 14001, ISO 22000, ISO 45001, ISO 17025, GlobalG.A.P., BAP

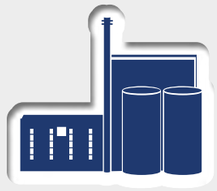


Brande, Denmark
ISO 9001, Global.G.A.P.

Nersac, France
GlobalG.A.P.

Dueñas, Spain
ISO 9001, ISO 14001, GlobalG.A.P.

Wesley Vale, Australia
ISO 9001, ISO 14001, ISO 22000, GlobalG.A.P., BAP, FeedSafe.



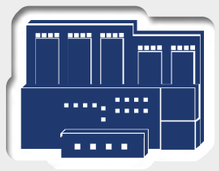
Grangemouth, Scotland
ISO 9001, ISO 45000, ISO 14001, ISO 22000, BAP

Volos, Greece
ISO 9001, ISO 14001, GlobalG.A.P.

Durán, Ecuador
ISO 9001, GlobalG.A.P., BAP

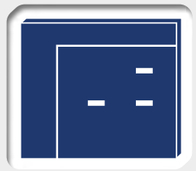
Ben Tre, Vietnam
ISO 9001, BAP

Myre, Norway
ISO 9001, ISO 14001, GlobalG.A.P.



Karmøy, Norway
ISO 9001, ISO 14001, GlobalG.A.P.

Söke, Turkey (JV)
ISO 9001, GlobalG.A.P.



Cañas, Costa Rica (JV)
ISO 9001, ISO 50001, GlobalG.A.P., BAP

Wuxi, China (JV)
ISO 9001

Financial Performance

Income Statement

BioMar Group realised record high earnings full year of 2023. Revenue was in line with last year due to reduced prices and exchange rate developments.

By adding all the feed companies in the Group managed by BioMar, including joint ventures, BioMar ends with a record year surpassing the DKK 1 billion EBIT mark and a corresponding EBITDA of more than DKK 1.4 billion of which China and Turkey accounted for DKK 0.2 billion. A consolidated EBITDA for 2023 of DKK 1.25 billion is at a satisfactory level and above expectations.

Sales volume for the full year of 2023 was marginally lower than 2022, equal to 1%. Full-year revenue for 2023 amounted to DKK 17,878 million, which is marginally higher than 2022, but based on a lower sales volume. Exchange rate developments had a significant negative effect on the full-year revenue for 2023 of approximately DKK 1,100 million mainly due to a weakened NOK against DKK.

SALMON division reported a combined deduction in sales volume driven by Norway, but also Chile. Operations in Australia and Scotland have reported an increase in sales volume compared to 2022. The lower sales volume reflected reduced contract positions, because BioMar has prioritised long-term relationships with fish farmers, but were also due to biological factors and earlier harvest of fish stock biomass. However, the market momentum was supported by a broad product offering and a focus on commercial excellence, so the division's earnings improved substantially.

LATAM division reported substantial improvements in sales volume compared to 2022. Earnings improved attributable to stronger contract positions in a market otherwise challenged by low prices on farmed shrimp. BioMar continues to strengthen its offering of products, concepts, and services mainly in the Ecuadorian market where the company has added new production capacity in 2023 by investing in two new extrusion lines, which are fully operational.

EMEA division reported sales volume slightly below the level of 2022, primarily driven by the markets of the Mediterranean region. Earnings increased significantly compared to 2022, primarily due to non-recurring provisions recognised in connection with the decision to stop all sales activities in Russia following the invasion of Ukraine in 2022.

ASIA division reported a combined volume increase compared to 2022, mainly driven by Chinese activities. The operation in Vietnam is still under development. Sales volume has increased but is still not satisfactory, and earnings are still impacted by costs incurred for market build-up purposes.

Operations in the Tech Division, which was established after the acquisition of AQ1, reported an increase in revenue. The division reported a slight drop in earnings, primarily reflecting investments in strategic initiatives, new people and competencies to bring further positive value to BioMar through high-quality product offerings and being able to further accelerate the growth both in current and new markets.

EBITDA for 2023 amounted to a record high DKK 1,250 million compared to DKK 1,013 million in 2022, which was better than the most recent guidance range provided after Q3 2023 and announced by the parent company Schouw & Co. Exchange rate developments had a negative effect of approximately DKK 74 million compared to 2022.

Shrimp farming in Vietnam has faced disease outbreaks and low settlement prices, combined with challenging competition from more efficient farming in Ecuador, all of which have severely impacted the anticipated developments following BioMar's acquisition of Viet-Uc feed activities. As a result, BioMar has written down the carrying amount of goodwill relating to Viet-Uc by DKK 36 million, which amount has been recognised as depreciation and impairment.

Joint Ventures and Associates

BioMar manufactures fish feed in China and Turkey through two 50/50 joint ventures with local partners. These activities are not consolidated, but due to their large growth potential, being strongly represented in these markets, is very important to BioMar. The three factories reported a combined revenue of DKK 1,844 million (100% basis) and EBITDA of DKK 179 million for 2023, against revenue of DKK 1,665 million and EBITDA of DKK 120 million in 2022. The result was achieved through continuous expansion of the customer portfolio focusing on value creation and simultaneous cost control.

The associated businesses include the Chilean fish farming company Salmones Austral and three minor businesses, LetSea, ATC Patagonia and LCL Shipping. These non-consolidated joint ventures and associates are recognised in the 2023 consolidated financial statements with a negative profit at DKK 38 million, against DKK 80 million profit after tax in 2022. The considerable decline was largely attributable to a fair value adjustment of the biomass in Salmones Austral.

Balance Sheet

Working capital increased from DKK 1,977 million on 31 December 2022 to DKK 2,141 million on 31 December 2023, mainly driven by increased trade receivables, whereas inventories and trade payables were reduced. BioMar is experiencing an increasing demand from customers requesting longer credit terms and delays in payments as well. Inventories decreased substantially from structured inventory reductions, but also generally lower raw material prices despite record high fish oil prices. Supplier debt decreased despite focused credit term optimisation. Lower raw material prices, lower sales volume in Q4 2023 and exchange rate developments are the main reasons.

BioMar Group facilitates a factoring and reverse factoring (supply chain financing) programme funded by credit institutions. The main purpose and benefits with the programme are to reduce commercial risk and to develop and strengthen long-term relations with its suppliers of raw materials in a commodity market. As a company, BioMar supports long-term relationships with customers, suppliers, and other stakeholders. This is one of the guiding principles of the business to support its Purpose Statement.

The use of supply chain financing programme is reducing raw material costs and finance costs in BioMar's value chain. The programme funds growth and innovation for suppliers, which is an advantage for BioMar's product innovation, and it secures the supply chain according to the strategy and future growth. Utilisation of supply chain financing fell from DKK 980 million on 31 December 2022 to DKK 764 million at 31 December 2023, primarily due to a change in few suppliers where the process of onboarding the new suppliers in the SCF facility has taken longer time than expected. Currency fluctuations impacted the net working capital positively by approximately DKK 90 million mainly due to lower USD and AUD against DKK.

ROIC excluding goodwill increased to 22.1% on 31 December 2023 from 16.1% at 31 December 2022 reflecting a significant increase in EBITA earnings, while average invested capital decreased.

Cash Flow Statement

Cash flow from operating activities amounts to DKK 665 million compared to DKK 299 million in 2022. The significant increase is due to higher earnings and reduced impact from working capital compared to 2022, however, partly offset by higher financial costs and tax payments.

Cash flow from investment activities amounts to DKK -207 million compared to DKK -447 million in 2022, an increase of DKK 240 million. The increase is mainly driven by the acquisition of AQ1 Systems in April 2022 and reduced investments in productions facilities and equipment during 2023 compared to 2022.

Cash flow from financing activities amounts to DKK -562 million compared to DKK 156 million in 2022. The development is mainly related to 2022 where BioMar made substantial drawdowns on the Group financing facilities to settle external finance facilities and higher investments.

Financial Performance

Financial Resources

Net interest-bearing debt amounts to DKK 2,531 million compared to DKK 2,507 million end of 2022, an increase of DKK 24 million, mainly due to the need for financing the increase in working capital. BioMar is partially financed through the parent company with committed facilities towards third-party financial institutions that exceed 12 months.

Business Development

BioMar endeavours to be a strong long-term partner to all its stakeholders. BioMar will stay focused over the coming quarterly periods on taking advantage of the downwards trends in prices of raw materials where possible. In addition, BioMar will be strongly focused on delivering on the company's sustainability ambitions, which are demanded by customers and consumers, and which are essential for long-term value creation.

Sustainability efforts form an integral part of BioMar's strategy, which includes a focus on the use of alternative raw materials and on generally reducing the climate impact. BioMar's strategy also centres on a commercial excellence programme intended to strengthen customer service and exploit earnings potential.

In August 2022, BioMar announced together with an Icelandic partner the ambition to construct a net-zero emission aquaculture feed production plant in Iceland. Exploration and negotiations have ended, and BioMar is looking into other ways of establishing a feed production plant in Iceland alone.

In December 2019, the Chilean competition authority indicted four Chilean fish feed producers, including BioMar Chile, on charges of concerted practice. The charges are based on isolated circumstances related to the Chilean fish feed industry during the 2003-2015 period. BioMar Chile does not acknowledge the charges, and the company intends to rebut the charges that it has participated in concerted practices to restrict competition in the industry. After a period with little progress, the process has accelerated although there is still no indication of a likely outcome.

Outlook

The long-term demand for farmed fish and shrimp is generally developing favourably in many markets, and there are no immediate indications of any significant changes to this trend. BioMar is well positioned to take advantage of this trend both with high quality and ever more sustainable feed solutions, as well as cutting edge farming technology. In the short- to medium-term, the current significant price volatility in raw materials and energy markets, including the selling prices of farmed fish and shrimp worldwide, will impact short-term results. Specifically for shrimp markets, feed volume and value, and investments have been and will continue to be impacted negatively by the currently low shrimp prices.

BioMar is currently investing to upgrade its global ERP cloud-based platform and state-of-art manufacturing systems. The substantial investments made weighs on earnings both in 2023 and in the coming years but will also bring BioMar to a next level of digitalisation, higher efficiency, more transparency, live data interaction with customers, and global excellence processes.

BioMar expects to generate full-year 2024 revenue of about DKK 17.5-18.5 billion, but changing market conditions and volatile prices of raw materials may as always impact the revenue forecast substantially. Given the current outlook, BioMar expects 2024 EBITDA in the range of DKK 1,210-1,290 million.

The non-consolidated associates and joint ventures are recognised at a share of profit after tax. The share of profit after tax is expected to improve to around DKK 70 million in 2024.

BioMar Group

Income Statement	2023	2022
Volume ('000 tonnes)*	1,437	1,456
Revenue	17,878	17,861
EBITDA	1,250	1,013
Depreciation and impairment losses	390	410
EBIT	860	602
Profit after tax in associations and joint ventures	6	130
Net financial items	-212	-23
Profit before tax	654	709
Tax on profit/loss for the year	-171	-154
Profit for the year	461	532

Cash Flows	2023	2022
Cash flows from operating activities	665	299
Cash flows from investing activities	-207	-447
Cash flows from financing activities	-562	156

Balance Sheet	2023	2022
Intangible assets	1,376	1,480
Property, plant, and equipment	1,716	1,743
Other non-current assets	1,188	1,311
Cash and cash equivalents	184	299
Other current assets	6,709	6,864
Total assets	11,172	11,697
Shareholders' equity	3,116	3,181
Interest-bearing liabilities	3,729	3,635
Other liabilities	4,327	4,881
Total equity and liabilities	11,172	11,697

Financial Data	2023	2022
EBITDA margin	7.0%	5.7%
EBIT margin	4.8%	3.4%
ROIC excluding goodwill	22.1%	16.1%
ROIC including goodwill	16.2%	11.7%
Working capital	2,141	1,977
Net interest-bearing debt	2,531	2,507

Table 7: BioMar Group financial figures for 2023 & 2022 in DKK millions.
*Consolidated sales volume excluding Turkey and China.

Schouw & Co.

Income Statement	2023	2022
Revenue	37,210	32,637
EBITDA	2,849	2,282
Depreciation and impairment losses	1,121	994
EBIT	1,727	1,288
Profit after tax in associations and joint ventures	8	130
Net financial items	-369	-114
Profit before tax	1,367	1,304
Tax on profit/loss for the year	-376	-311
Profit for the year	935	960

Cash Flows	2023	2022
Cash flows from operating activities	1,777	319
Cash flows from investing activities	-1,521	-1,499
Cash flows from financing activities	-367	1,377

Balance Sheet	2023	2022
Intangible assets	1,777	319
Property, plant, and equipment	-1,521	-1,499
Other non-current assets	-367	1,377
Cash and cash equivalents	584	712
Other current assets	14,690	15,519
Total assets	27,896	28,445
Shareholders' equity	11,556	11,237
Interest-bearing liabilities	7,107	6,680
Other liabilities	9,233	10,529
Total equity and liabilities	27,896	28,445

Financial Data	2023	2022
EBITDA margin	7.7%	7.0%
EBIT margin	4.6%	3.9%
ROIC excluding goodwill	12.8%	11.2%
ROIC including goodwill	10.7%	9.3%
Working capital	7,225	6,969
Net interest-bearing debt	6,339	5,790

Table 8: Schouw & Co. financial figures for 2023 & 2022 in DKK millions.

Ownership

schouw&co

The BioMar Group is fully owned by Schouw & Co., a Danish industrial conglomerate listed on the Nasdaq Copenhagen Stock Exchange that practises ownership through and alongside company management.

BioMar is one of the world's largest manufacturers of quality feed for the fish and shrimp farming industries and it is a global player with a presence in all major shrimp and fish farming regions.

Schouw & Co. took an initial ownership interest in BioMar in 2005, and the company became a wholly-owned subsidiary through a merger process in 2008. BioMar accounts for about half of Schouw & Co.'s revenue.

Besides aquaculture feeds, Schouw & Co.'s subsidiaries comprise non-woven textiles for personal care and industrial applications, hydraulic solutions and components, electronics and advanced mechanics, and components for the automotive industry.

Schouw & Co. maintains close dialogues on such issues as strategy, business ethics, financing, accounting, investments and acquisitions, and it exercises active ownership alongside company management teams.

Glossary

Abbreviations

ATC: Aquaculture Technology Center (BioMar's trial and research facilities)

BSF: Black Soldier Fly

CoC: Code of Conduct

CSRD: Corporate Sustainability Reporting Directive

DHA: Docosahexaenoic Acid

DMA: Double Materiality Assessment

EBIT: Earnings Before Interest and Taxes

EBITDA: Earnings Before Interest Taxes and Depreciation

eFCR: Economic Feed Conversion Ratio

EIA: Environmental Impact Assessment

EMEA: Europe, Middle East, and Africa

EPA: Eicosapentaenoic Acid

ERP: Enterprise Resource Planning

ESG: Environmental, Social, and Governance

ESRS: European Sustainability Reporting Standards

EU: European Union

FCR: Feed Conversion Ratio

FFDR: Forage Fish Dependency Ratio

FFDRm: Forage Fish Dependency Ratio fishmeal

FFDRo: Forage Fish Dependency Ratio fish oil

FIFO: Fish In:Fish Out ratio

FIP: Fishery Improvement Project

FLAG: Forest, Land and Agriculture

GHG: Greenhouse gas emissions

GM-Free: The absence of genetically modified organisms

GM: Genetically Modified

GMO: Genetically Modified Organism

ISO: International Standards Organisation

KPI: Key Performance Indicator

LAPs: Land Animal Proteins

LATAM: Latin America

LCA: Life Cycle Analysis

LTI: Lost Time Injury

LWE: Live Weight Equivalents

MFA: Material Flow Analysis

NGO: Non-governmental organisation

PhD: Doctor of Philosophy

R&D: Research and Development

ROIC: Return on Invested Capital

SBTi: Science Based Targets initiative

UN: United Nations

UN SDGs: United Nations Sustainable Development Goals

BioMar Terms

AQ1: Behavioural based intelligent feeding technology and solutions for aquaculture.

BioSustain: BioMar's sustainability programme including the scientific methodologies, tools and data for the aquaculture industry.

BioSustain Impact Parameters: Indicators that provide an understanding of the most critical areas of environmental impact from feed production.

Blue Impact: BioMar's flagship sustainable feed concept.

Circular & Restorative ingredients: Raw materials from either by-products (circular) or best practice, low-impact agriculture (restorative).

Milestones: Relevant achievements in the latest year measured against the Our Targets.

Our Targets: KPIs set for the decade period from 2020 to 2030.

Sustainability Committee (SC): BioMar's highest level governing body for sustainability.

Industry Terms

Aquaculture: The farming of aquatic plants or animals in water.

Aquafeed: Feed for fed aquaculture.

Arable Land: Land worked (ploughed or tilled) regularly, generally under a system of crop rotation.

Biodiversity: The biological diversity of species within an ecosystem.

Biorefineries: The coupled generation of energy and materials (chemicals, food, and feed) from biomass.

Blue Foods: Edible plants and animals derived from aquatic environments.

By-products: A product that is not the primary product(s) of a production system and that does not contribute significantly to the profitability of the factory.

Capacity Building: (Direct + indirect) The process of developing and strengthening the knowledge, skills, abilities, processes, and resources that organisations and communities need to survive, adapt, and thrive in a fast-changing world.

Carbon Emissions: Emissions of carbon containing compounds, such as carbon dioxide and methane.

Carbon Footprint: The total amount of greenhouse gases (including carbon dioxide and methane) that are generated by human actions.

Carbon Neutral: The offsetting of carbon emissions resulting in no net release of carbon dioxide into the atmosphere.

Circular Bioeconomy: A new economic model that replaces fossil products with renewable natural capital while minimising waste.

Circular Economy: A model of production and consumption, involving sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. In this way, the life cycle of products is extended.

Conversion Free: Commodity production, sourcing, or financial investments that do not cause or contribute to the conversion of natural ecosystems (as defined by the Accountability Framework).

Cradle-to-Gate: A life cycle system boundary definition that starts at raw material production/extraction/harvest (cradle) and ends at the factory gate (gate) before the product is transported to market.

Deforestation Free: Commodity production, sourcing, or financial investments that do not cause or contribute to deforestation (as defined by the Accountability Framework).

Dietary Lipids: A class of food constituents, also known as fats and oils, that serve as a source of energy and essential fatty acids in animals.

Ecotoxicity: The capability of a compound or any physical agent to harm environments and organisms, for instance, fish, insects, microorganisms, wildlife, and plants.

Environmental Stewardship: The responsible use and protection of the natural environment through active participation in conservation efforts and sustainable practices.

European Green Deal: The European Green Deal will transform the EU into a modern, resource-efficient and competitive economy, ensuring: No net emissions of greenhouse gases by 2050, economic growth decoupled from resource use, no person and no place left behind.

Footprint: Life cycle environmental impacts of a product or service.

Gender Diversity: Equitable and fair representation of people of different genders.

Greenwashing: Unsubstantiated or misleading marketing claims related to sustainability.

Heterotrophic Microalgae Fermentation Technology: Creating valuable compounds through feeding algae cells with sugars.

Hotspot Raw Materials: Raw materials with known ESG risks that require consistent risk assessment and mitigation strategies.

Living Wages: A wage that is high enough to maintain a normal standard of living in a specific geography.

Microalgae: A group of heterotrophic or autotrophic microorganisms that live in marine, freshwater and soil ecosystems that produce organic substances from carbon substrates.

Net-Zero: Cutting carbon emissions to a small amount of residual emissions that can be absorbed and durably stored by nature or other carbon dioxide removal measures, leaving zero in the atmosphere.

Pelagic Fish: Fish species that occupy habitats in the upper zone of the water column (pelagic).

Regenerative Agriculture: A collection of farming techniques designed to improve environmental outcomes connected to agriculture.

Stakeholder: An entity with a strong interest in a organisations operations or supply chain.

Steering Committee: An advisory board consisting of top stakeholders or experts that govern over a subject matter or project.

Upcycling: A form of recycling where the product or raw material is transformed into something perceived to be of equal or greater value.

Water Stewardship: A set of practices that promotes and fosters the sustainable and equitable management of freshwater resources.

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