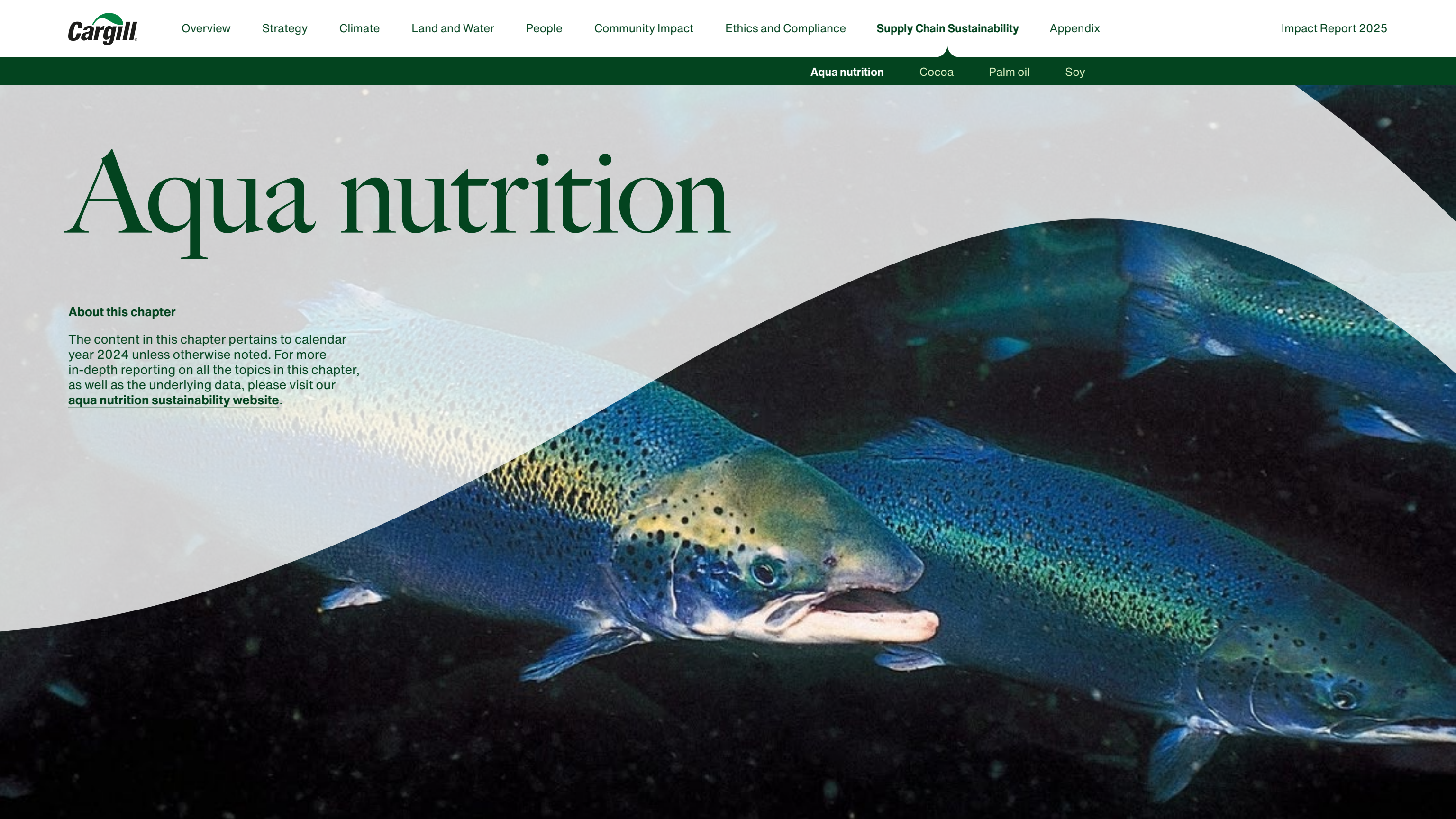


Aqua nutrition

About this chapter

The content in this chapter pertains to calendar year 2024 unless otherwise noted. For more in-depth reporting on all the topics in this chapter, as well as the underlying data, please visit our [aqua nutrition sustainability website](#).



Supply chain overview

Cargill's aqua nutrition business helps customers meet the world's growing demand for sustainably grown fish and shrimp with high-quality feeds tailored to each species' nutritional needs. Our aqua feeds account for variation in specific environments and markets while supporting the sustainability goals of Cargill and our customers.

26
facilities in
13 countries

5
R&D innovation
centers

17
dedicated aqua
feed mills

1.94
million tonnes of
feed sold in 2024

2,000+
employees

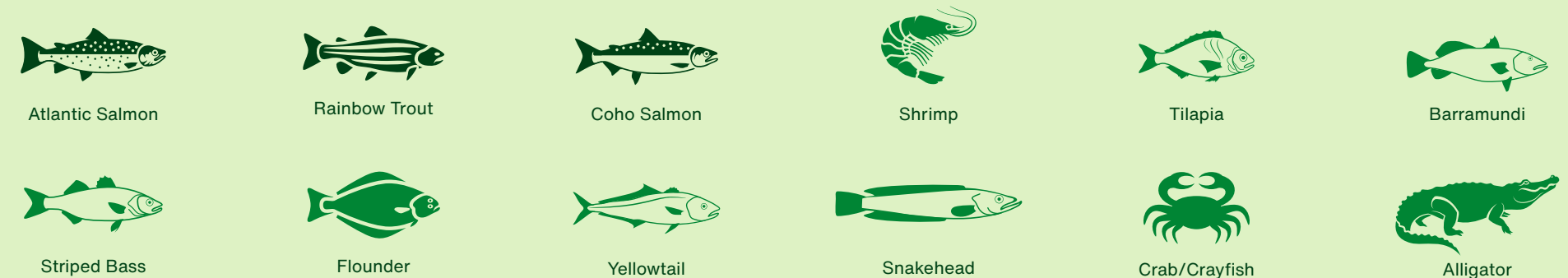
Our feed mills and innovation centers in 2024

● Coldwater mill ● Warmwater mill ● Innovation center



Nourishing 12 species groups

● Coldwater ● Warmwater



Our global brands



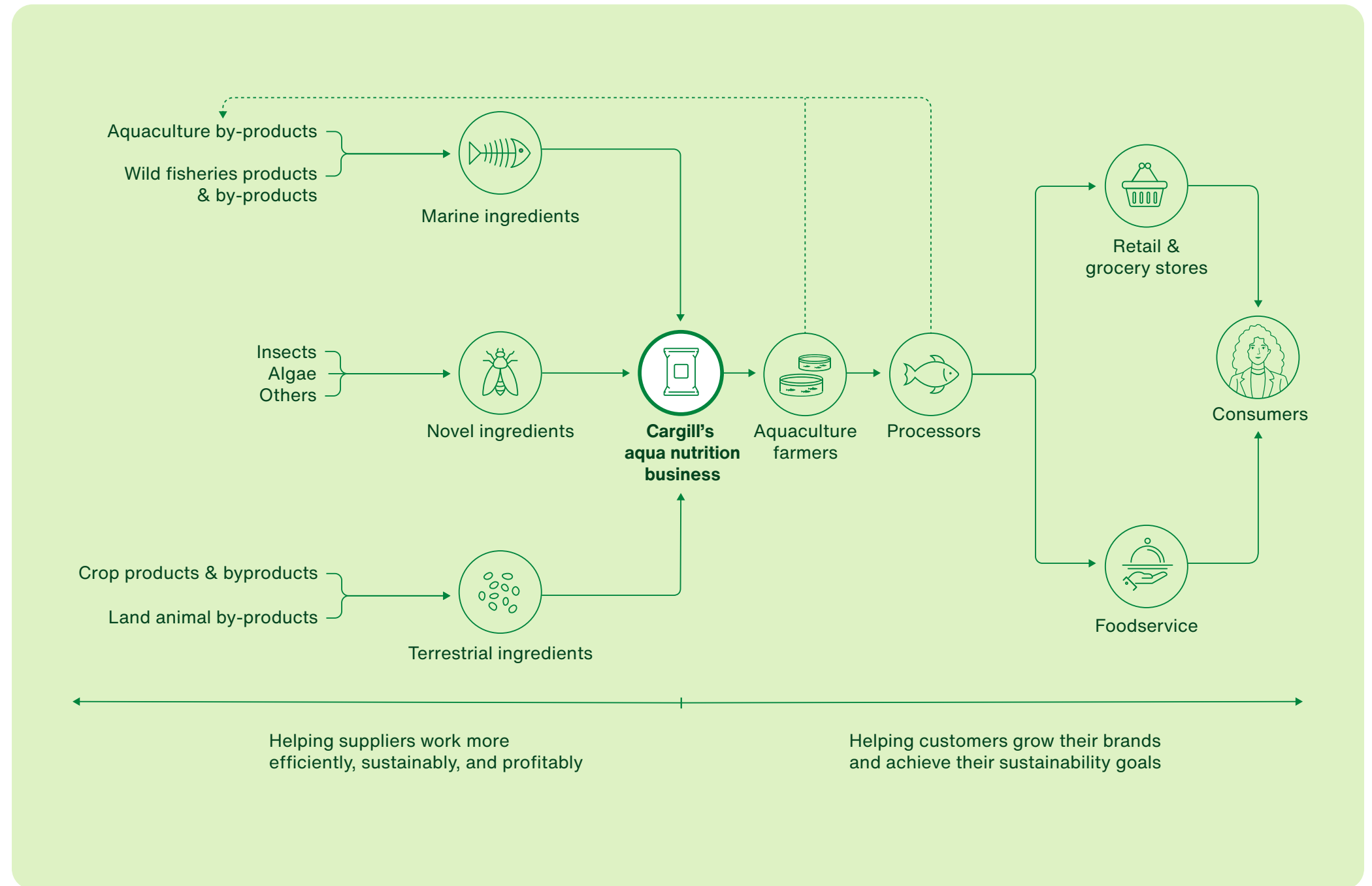
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Making a positive impact from the center of the value chain

Our aqua nutrition business sources upstream ingredients, transforms them into nutrient-rich feeds for global aquaculture production, and delivers them to our downstream farming customers, who produce the seafood that nourishes people around the world.

Thanks to the scale of our operations and our central position in the supply chain, we can support positive impacts to the food system in multiple directions. Backed by our decades of experience, technical capabilities, and market expertise, we are uniquely positioned to connect supply and demand, facilitate the exchange of best practices and information, and help our partners up and down the value chain work profitably while producing more food and using fewer resources.

In our aqua feeds, we use a variety of ingredients and work with our suppliers to process materials that were traditionally considered waste or co-products and recapture nutrients back into human food chains. Similarly, we use certain lower-value co-products like rice bran or wheat gluten, which are generated during the processing of rice and wheat for direct human consumption. This helps reduce the overall environmental impact of our feeds and recaptures important nutrients that would otherwise be lost to the food chain. Learn more about our ingredients and formulation [here](#).



Dashboard

The figures on this page are for Cargill's global aqua nutrition business and our 17 dedicated aqua feed mills during calendar year 2024. It includes both our coldwater and warmwater feeds unless otherwise noted. For more in-depth data on these and other topics, please visit our [aqua nutrition sustainability website](#).

Context on our performance

We strive to produce high-quality aqua feed efficiently and in ways that conserve resources without sacrificing safety or performance. Over the last several years, we have made progress on many fronts even as we grow our business and our overall feed production.

Forage Fish Dependency Ratio for fishmeal (FFDRm) and fish oil (FFDRo): These indices measure the ratio of wild-caught forage fish by weight that goes into our feeds compared to the estimated weight of the farmed fish produced by those feeds. If one pound of forage fish in our feed led to one pound of farmed fish in our customers' harvested aquaculture, the ratio would be 1.0. Although this figure is much higher for coldwater species than warmwater species (reflecting the differences in fundamental nutritional needs for these species), we have shown good improvement in both. For more details on how we calculate these indices, visit our [website](#).

METRIC		2024 RESULTS	BASELINE	% CHANGE	
Feed production (tonnes)	Coldwater	1,240,000	985,000 (2017)	+26.1%	
	Warmwater	759,000	662,000 (2017)	+14.7%	
	Total	2,000,000	1,650,000 (2017)	+21.5%	
Forage Fish Dependency Ratio for fishmeal and fish oil	Coldwater	FFDRm	0.555	0.60 (2015)	-7.5%
		FFDRo	1.62	1.84 (2015)	-12.0%
	Warmwater	FFDRm	0.111	0.22 (2015)	-49.5%
		FFDRo	0.141	0.15 (2015)	-6.0%
Share of all marine ingredients from certified sources		90.5%	n/a	n/a	

Share of marine ingredients from certified sources: We are working to source more marine ingredients from certified sources or credible Fishery Improvement Projects (FIPs). Our [certified sources](#) in 2024 included MarinTrust IP, MarinTrust,

Comprehensive FIPs, and Marine Stewardship Council (MSC). Percentages of our marine ingredients under each certification are available on our [website](#).



Focus areas

Achieving progress across many dimensions

We know that positive impact can take many forms, and across our global aqua nutrition business we seek to improve how we operate and the legacy we leave when we go home at the end of the day. We take a data-driven approach, making sure we can measure our impact and use that information to keep learning and achieve even more tomorrow. We are focused on making progress in three key areas: Product, People, and Planet. We lean on Cargill's global capabilities and the dedication of our employees around the world, who strive to reach higher every day.



Product

We are innovating across our portfolio in an effort to make our products and services more sustainable and to help our customers raise healthier and more productive aqua species.

People

We strive to create equitable workplaces for people across our aqua nutrition business and safeguard the rights of those in our supply chains.

Planet

We aim for a holistic approach to sustainability that will use resources more efficiently to reduce our impact on ecosystems and the climate across our value chains.

Product

Every day, we seek to improve the aqua feeds we sell. That includes enhancing the sustainability of our existing feed ingredients while also working to unlock a range of new products and services. We aim to provide our customers with high-quality products that improve fish health and productivity while reducing negative environmental impacts. Find additional data on our products [here](#) and more information on our ingredients and formulation [here](#).

“At Cargill, we are proud to develop high-performing, more sustainable aqua feed solutions that make a tangible difference for our customers. Through collaboration and innovation, we are helping to build a thriving, responsible aquaculture sector that benefits both people and the planet.”

Juan Enrique Rosales,
Managing Director in Chile for
Cargill Animal Nutrition & Health's
aqua nutrition business

Using data to better treat sea lice

Our research capabilities allow us to develop products that help raise efficiency and performance for our customers' farms. They also enable us to work with customers to uncover important new research for fish health overall. For example, in 2024 [we shared results](#) from a multi-year project with Norwegian fish farmer Hofseth and data analysis company Manolin into data-driven delousing strategies. By performing an in-depth analysis of Hofseth's production sites, we were able to determine which combinations of treatments worked best in various conditions — reducing lice pressure while minimizing tradeoffs in fish performance or other factors.

Partnering for impact with Regal Springs Indonesia

We partner and work closely with our customers to support them in achieving their sustainability goals. In Indonesia, the aqua feed we are supplying to tilapia fish producer Regal Springs Indonesia is a great example of this partnership approach. The palm oil ingredient in our aqua feeds supplied to Regal Springs Indonesia is certified by the Roundtable on Sustainable Palm Oil (RSPO). In addition, we use fishmeal and fish oil certified by [The Marine Ingredients Organisation](#) (IFFO) to reduce risk to the environment posed by the marine ingredients used by Regal Springs Indonesia. Our carbon footprint measurement for feeds has helped Regal Springs Indonesia calculate their own carbon footprint in pursuit of greenhouse gas (GHG) emission reduction targets.

Our sourcing policy

Our supplier management process helps us identify and manage potential risks and source high-quality, more sustainable ingredients. We require that all Cargill suppliers follow our [sourcing policy](#) and Cargill's [Supplier Code of Conduct](#).

Our sourcing policy stipulates that those who sell raw materials to us must abide by our sustainability principles and have environmental and social risk management procedures in place. It sets out our expectations on environmental and social performance, aligned with third-party standards where applicable. Each year, we conduct audits to ensure our suppliers meet the requirements.



Product

A ready supply of more sustainable marine ingredients

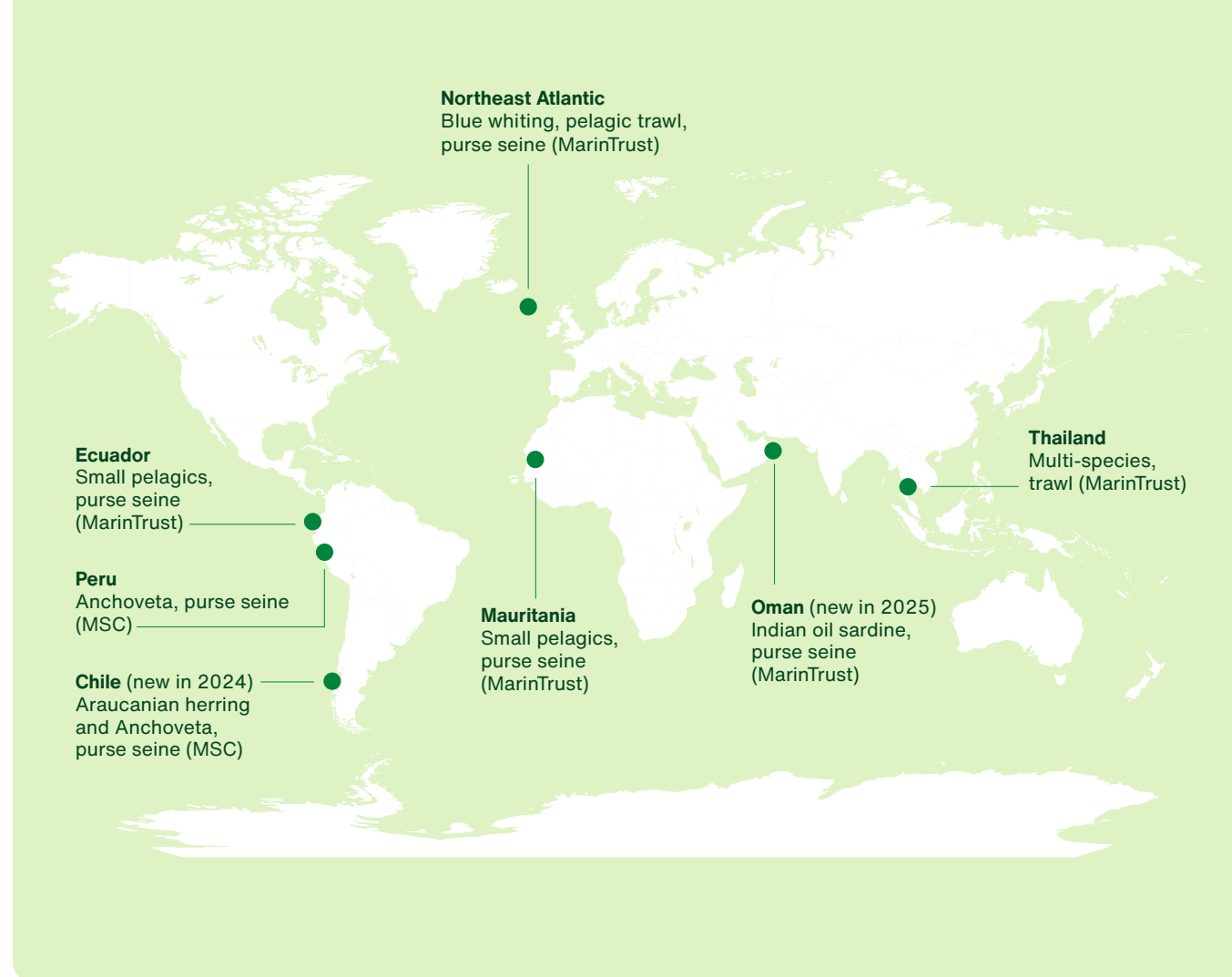
With time-bound commitments to achieve third-party seafood certifications and mechanisms to verify progress along the way, credible Fishery Improvement Projects (FIPs) help fisheries transition to more sustainable and responsible practices. Our engagement with FIPs helps reduce overfishing and supports the effort to ensure a steady supply of more sustainably produced marine ingredients for our feeds. The key FIPs we support adhere to the standards of one of the two most respected certification programs: **MarinTrust** or **Marine Stewardship Council (MSC)**. **FisheryProgress** serves as the authoritative registry for FIPs and provides guidance on sourcing from and supporting these improvement projects.

90.5%

of our marine ingredients in 2024 were from a certified source or a FIP.

Key Fishery Improvement Projects we support

Click on each FIP for the latest progress updates.



Expanding the reach and impact of FIPs

FIPs bring together multiple stakeholders in the value chain through a coordinated local action plan to restore the health of fisheries and make them more sustainable. In 2023, the **Fisheries Improvement Fund (FIF)** was established by Finance Earth, in collaboration with the World Wildlife Fund, to provide an innovative new financing mechanism for FIPs. In 2024, Cargill provided a \$412,000 grant to the FIF to drive progress at pace and strengthen the enabling environment for FIPs and fishery improvements more broadly in India, China, and Japan. The goal of the 18-month project is to culminate in the launch of new FIPs in at least two locations.

In 2024, we also celebrated the launch of a new FIP off the coast of Chile, which reached the milestone of being registered with FisheryProgress. Additionally, after supporting the development of a new FIP off the coast of Oman for a few years, we were pleased in early 2025 to see this FIP approved for registration with the MarinTrust IP program.

People

People are at the center of everything we do. A safe, supportive work environment enables our workforce to deliver the quality goods and services our customers expect, while also helping us advance our sustainability goals. See [page 37](#) for more information on how our company supports safeguarding the rights of those in and around our supply chains. And see [page 14](#) for the latest company data on people.

“In addition to being the right thing to do, taking care of people is essential to maintaining a sustainable business. Through our practices, policies, and purpose, we aim to protect people in and around our business.”

Benjamin Weis,
Senior Manager of Sustainability for Cargill Animal Nutrition & Health’s aqua nutrition business

Investing in a safe work environment

Across our network of facilities, we are continually assessing potential safety risks and upgrading the controls we have in place to protect our people. For example, at our plant in Coronel, Chile, we installed cameras on all forklifts. Powered by artificial intelligence, these cameras detect whether a person is in the forklift’s path and stop the vehicle if needed, adding an additional control beyond just the response of the driver. During 2024, the team at Coronel also switched from large tables to towers segregated behind barriers for integrating feed products. This means employees are less exposed to injury as large amounts of bulk products are processed. For more information on Cargill’s commitment to the health and safety of our teams, see [page 33](#).



Empowering shrimp farmers in Ecuador and Mexico

Farmers are our customers, and we succeed when they do. We work with shrimp farmers in Ecuador and Mexico to help them improve performance while using more sustainable practices. This includes our Women Entrepreneurs in the Shrimp Sector program, which after three years has reached more than 100 female farmers with training in good farming practices, entrepreneurship, the circular economy, and more. In 2024, we expanded the program to other women in the aquaculture industry. Additionally, our Aquaxcel brand held training sessions with 180 farmers in 2024, with a focus on nutrition and the factors that drive a successful harvest. Learn more about how Cargill strengthens farmer livelihoods on [page 40](#).

100+
female farmers in Ecuador and Mexico received training over the last three years through our entrepreneurship program.

Strengthening access to necessities

We seek to extend positive impact in the communities where we operate beyond just our business presence. For example, in Thailand we work to help schools get access to safe drinking water, including through two new projects completed in 2024 that benefitted approximately 100 students in Nakornnayok province. When super typhoon Yagi devastated the North region of Vietnam, our employees mobilized monetary and in-kind donations that reached more than 1,200 households, while our business donated 10 tonnes of aqua feed and 20 tonnes of livestock feed to farmers to help them restart production.

Supporting community success in Chile

To help local communities near our facilities stay resilient, our team in Chile supported 30 social organizations in 2024. Projects improved public spaces, created greater access to educational resources, and encouraged social activities including sports and recreation, among other benefits. This is helping improve the quality of life and strengthen the social fabric in Coronel, Colaco, and Puerto Montt. Find out more about how Cargill positively impacts communities on [page 42](#).

Planet

We seek to drive improvements across our operations and supply chains, using resources more efficiently and reducing our carbon emissions to lower our impact on ecosystems and the climate throughout our value chains. These efforts enable us to contribute to Cargill’s corporate goals (see [page 14](#)) as well as those of our customers, their customers, and our suppliers.

Fully renewable energy in Norway

Across our three feed mills in Norway, we have completed the transition to renewable energy, certified with Guarantee of Origin (GoO) documentation, which equates to a reduction of approximately 40,000 tonnes of greenhouse gas (GHG) emissions annually. That’s more than half our average annual Scope 1 and 2 emissions globally for coldwater feeds over the past five years.

55%+

The amount we reduced our Scope 1 and 2 GHG emissions in Norway in 2024

23.2%

Improvement in our Scope 1 and 2 GHG intensity (tCO₂e per tonne of feed produced) since 2017

10.6%

Reduction in our water use per tonne of feed compared to 2023

ASC recognizes Cargill’s 3S soy program

Cargill’s 3S program in Latin America has long been considered a model for continuous improvement in more sustainable soy production. Soy farmers enrolled in the program in Brazil, Argentina, and Paraguay commit to certain criteria, including producing soy that is deforestation- and conversion-free (DCF). They implement best practices on their soy farms related to cultivation, regenerative agriculture, and social compliance. Now, 3S soy from Cargill is accepted for the mandatory raw materials due-diligence process of the ASC Feed Standard. This creates a convenient new supply of ASC-ready, soy-based feed ingredients on the market. Read more about our 3S program on [page 105](#) or by visiting the [3S website](#).



Programs and partnerships

The world is more complex and interdependent than ever, and the challenges facing global aquaculture demonstrate why collective action is needed. We are working closely with a range of partners to accelerate solutions. Through collaboration, innovation, and partnership, we are helping to build a thriving, responsible aquaculture sector that benefits both people and the planet.

Our belief in the need for collective action is why Cargill has long worked with multiple stakeholders in global aquaculture across a range of sustainability topics, strengthening work activities and creating greater impact than any organization could achieve alone. A leading example of this approach is in the sustainability of marine ingredients – a focal point in aqua feeds.

For example, for nearly 20 years we have worked with Sustainable Fisheries Partnership (SFP). We were an early adopter of SFP's FishSource program to analyze the sustainability of the fisheries in our sourcing network. Since 2013, we have provided funding for the publication of SFP's **Reduction Fisheries Report**, which provides important insights into the stocks and management of key fishery resources.

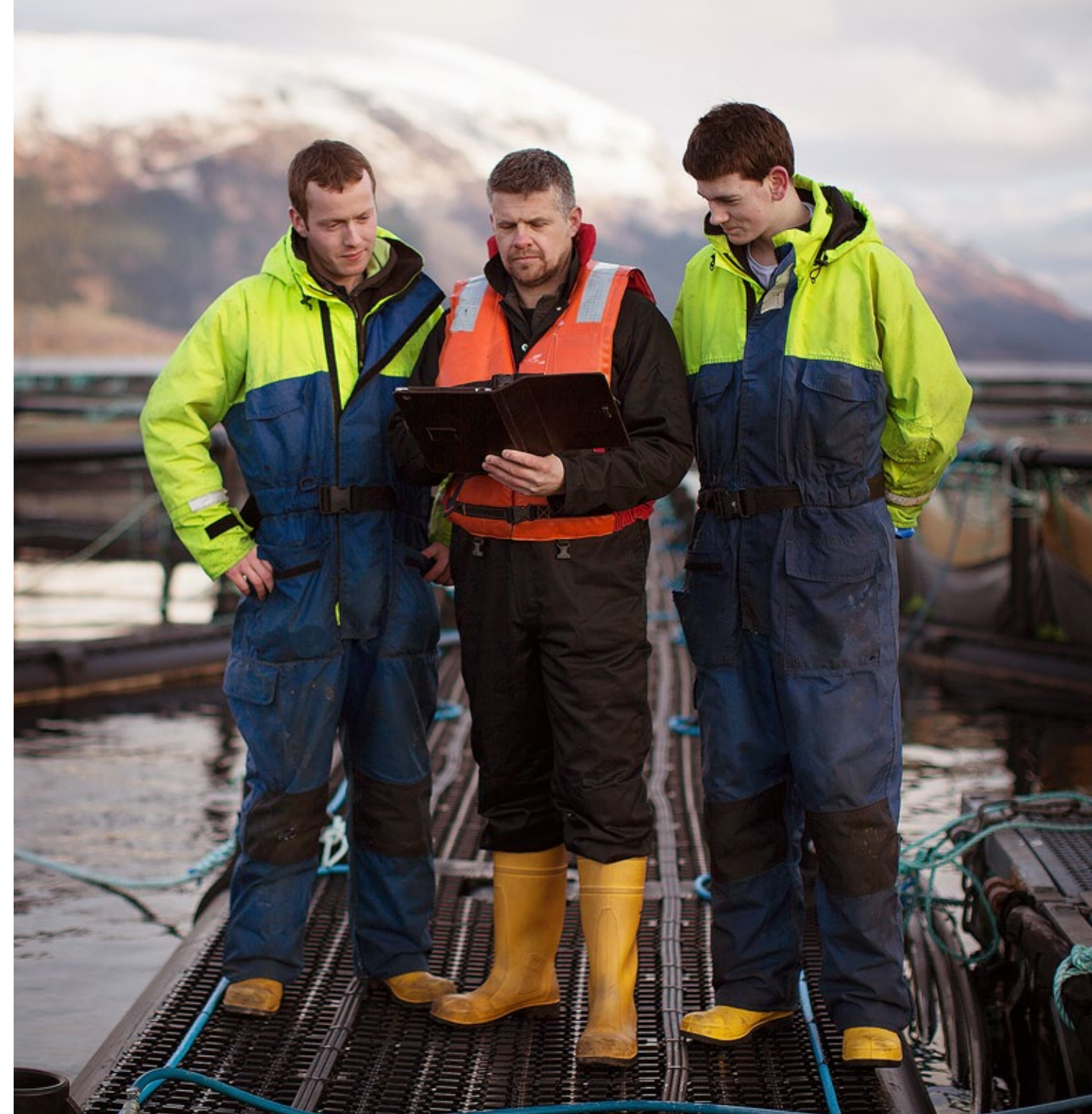
Additionally, as members of The Marine Ingredients Organisation (IFFO), we worked closely with our peers to develop responsible fishmeal and fish oil supply chains. IFFO's continuous tracking of marine ingredient production, regulations, and markets helps companies like ours develop sustainability strategies and work programs to implement them.

These and other partnerships led to a collaboration breakthrough in 2021: the Global Roundtable on Marine Ingredients. Established and jointly run by SFP and IFFO, the Roundtable comprises 14 members – Cargill among them – working to increase the availability of responsibly sourced and produced marine ingredients. These examples demonstrate how stakeholders working together across an ecosystem of organizations can more effectively drive change.

For a full list of our partnerships, visit our [website](#).

14 multi-stakeholder partnerships

We are actively involved in numerous organizations while also partnering across the industry and with customers to advance sustainability for global aquaculture



Continued efforts through SeaFurther

Feed is typically the largest component of farmed salmon’s footprint. It’s why we created the **SeaFurther™ Sustainability program**, through which we can offer tailored decarbonization pathways supporting our customers achieving their science-based GHG emission reduction goals. One of the core ways we do this is by using Cargill’s know-how to reduce the carbon footprint of our feed ingredients, including using **regenerative agriculture** practices to help reduce the carbon emissions in terrestrial ingredients per tonne of product. Regenerative practices can help store carbon in the soil while also conveying benefits to soil health, water quality and use, biodiversity, and farmer livelihoods.

In 2024, we continued using regenerative agriculture practices in our SeaFurther program to reduce the emissions from our raw materials. This included working with 86 farmers in the U.K., many of whom have participated in SeaFurther for multiple years. We also purchased inset certificates produced through regenerative agriculture on farms in France and Poland from our third-party-verified internal program Cargill RegenConnect® and from external companies like Agreea. In total, this covered more than 15,700 hectares of wheat and rapeseed that reduced our emissions by 10,200 tonnes of CO₂ equivalents. Although this fell short of our 2024 goal, we continue to work with customers to achieve greater scale for SeaFurther as we continue our path to 2030. Meanwhile, we are also investigating bringing SeaFurther to additional species beyond salmon.

Example of reducing harvested fish emissions



SeaFurther’s three pillars

Source

We work with our suppliers to develop and design our feed to minimize its carbon footprint while delivering optimized nutrition.

Optimize

We work with our customers to reduce energy use in feed production and farming, streamline transportation and logistics, and tailor our feeds to the fish and environments for which they are destined.

Care

We develop fish nutrition that promotes the health and welfare of farmed fish.



Leading SeaBOS forward

As a company that takes a science-based approach to sustainability, we are proud to be part of the **Seafood Business for Ocean Stewardship (SeaBOS)**, which brings together eight of the world's largest aquaculture companies with leading scientists to support sustainability and a healthy ocean. This year, Helene Ziv-Douki, Leader of Cargill Animal Nutrition & Health-EMEA & Global Salmon, was elected chair of SeaBOS and commissioned an assessment of the organization to understand how it can be even more impactful.

Dave Robb, director of sustainability for Cargill Animal Nutrition & Health's aqua nutrition business, continued to lead SeaBOS Task Force I on illegal, unreported, and unregulated (IUU) fishing and labor abuse at sea, where work in 2024 focused on aligning SeaBOS's supply chain standards with those of certification programs such as MarinTrust. We also continued to support the West Coast Africa Keystone Project, which focused in 2024 on scientific work to assess supply chain and social risks as the basis for future improvements.

“By partnering and working alongside industry leaders, scientists, and policymakers, we're strengthening our collective action and can accelerate progress toward a healthier ocean and a strong aquaculture sector.”

Helene Ziv-Douki,

Leader of Cargill Animal Nutrition & Health – EMEA & Global Salmon

Growing the future of sustainable shrimp aquaculture

Ecuador has rapidly become the world's largest shrimp producer and exporter. The **Sustainable Shrimp Partnership (SSP)** is a pre-competitive ecosystem of Ecuadorian producers and stakeholders committed to transforming shrimp aquaculture by proving that shrimp can be raised responsibly through promoting best practices for all aspects of the value chain. In 2024, we joined the SSP to collaborate on achieving this goal and growing the future of global shrimp aquaculture. With these objectives in mind, our product line in Ecuador provides a solution to help farmers achieve their productivity goals more efficiently — using fewer inputs, maintaining healthier shrimp, and protecting water quality.

Continuing to advocate for progress in the North Atlantic

The North Atlantic Pelagic Advocacy Group (NAPA) is taking a market-led approach to FIPs, with supply chain businesses including Cargill committing to sourcing more sustainable seafood and marine ingredients. As blue whiting is significant for us in the region, Cargill's Dave Robb is chairing the sub-group on this species. We are working with regulators, catching organizations, and other buyers of fish to solve a fundamental challenge: The coastal states surrounding the North Atlantic FIP have not come to an agreement on dividing up fishing quotas within scientific regulation. This is driving overfishing, and the FIP will expire in October 2026, making the need for action among governments more urgent than ever.

Tools for measuring and reducing carbon

In 2024, Cargill joined the [IDH Aquaculture Working Group on Environmental Footprint](#), which is working with partners all along the supply chain to significantly reduce their carbon footprint for species such as tilapia, pangasius, and shrimp. Members in the coalition are working together to find the best ways to achieve this objective, including developing a benchmarking protocol for life cycle assessments (LCAs) to help companies select the best tools given relevant guidelines and standards.

A first for ASC in Canada

To support our customers producing seafood certified by the Aquaculture Stewardship Council (ASC), we are gaining ASC certification for various feed mills in our network. In late 2024, our mill in Surrey, Canada, was the first facility in Canada's aqua feed industry to achieve this rigorous certification. This year, we have worked to get mills in several other countries certified to help our customers meet ASC's October 2025 deadline requiring ASC-certified farmed seafood to use only ASC-certified feed. For example, our aqua feed mills in Norway, Scotland, Ecuador, Chile, Honduras, and Indonesia received ASC certification in 2025. Read more about our ASC certifications [on our website](#).

