Environment

Stolt-Nielsen has several environmental ambitions in line with our three priority UN Sustainable Development Goals (SDGs) – Climate Action, Life Below Water and Responsible Consumption and Production.

In 2022, these SDGs guided our efforts as we enhanced our data collection and reporting capabilities, launched new initiatives, and made measurable progress towards achieving our environmental aims.

Indicator	Stolt Tankers	Stolthaven Terminals[1]	Stolt Tank Containers[2]
GHG Emissions Scope 1	5.8% ↓ 2022: 1,531,884 MT[3] 2021: 1,626,515 MT[4]	4.6% ↑ 2022: 38,649 MT 2021: 36,951 MT	4.5% ↓ 2022: 8,054 MT 2021: 8,438MT
GHG Emissions Scope 2	28.7% ↑ 2022: 233, 892 MT 2021: 166,880 MT	12.0% ↓ 2022: 13,228 MT 2021: 15,032 MT	39.5% ↓ 2022: 2,150 MT 2021: 3,556 MT
GHG Emission Intensity (AER)[5]	1.2% ↓ 2022: 10.91 2021: 11.06		
Sulphur Oxide Emissions	3.6% ↓ 2022: 1,934,300 Kg 2021: 2,153,410[6] Kg		
Nitrogen Oxide Emissions	10.3% ↓ 2022: 44,646,946 Kg 2021: 46,193,438 Kg		

Performance key

↑ Negative change from prior year ↓ Positive change from prior year ↔ No change from prior year

1. Includes wholly-owned terminals only.
2. Includes wholly-owned depots only.
3. Including Scope 1 GHG emissions from E&S Tankers' fleet.
4. Including Scope 1 GHG emissions from E&S Tankers' fleet of 39, 803 MT CO_2 in the third and fourth quarters. This fleet operates under a separate reporting system.
5. Stolt Tankers uses the Annual Efficiency Ratio (AER) to measure the intensity of its carbon emissions. This measures carbon emissions relative to a ship's capacity and distance travelled.
6. Restated to account for capture of SOx emissions by exhaust gas cleaning systems (scrubbers) onboard 10 ships. Scrubbers bring SO_x emissions generated onboard within IMO mandated sulphur cap limits, even when burning high sulphur fuels.

Supporting global goals

The Stolt-Nielsen approach to protecting the environment is driven by our ambition to reduce our impact. It is underpinned by strong governance frameworks and processes aligned with several UN SDGs, as well as industry-leading standards. In 2022, we progressed efforts to establish baselines and improve the collection of our environmental data, expanding our benchmarking and reporting capabilities as we work towards our goals.

We regularly review our approach based on changing regulations and to incorporate evolving best practices.

Sound governance and processes

Another element of our ongoing sustainability focus involves regularly testing and updating business contingency and emergency response plans for all our sites and across our fleet. This ensures our teams are fully equipped to manage potential incidents such as collisions, contamination, spills, leaks, fires or explosions. For land-based facilities in areas at risk of extreme weather events such as flooding or hurricanes, contingency plans are designed to minimise any impact on our facilities and ensure operations can return to normal quickly and safely. We regularly test our plans, including conducting drills in partnership with customers, local emergency response teams and local authorities. These drills give our teams the opportunity to share lessons learned across different locations, refine their plans and develop strong working relationships with stakeholders.

Our facilities and ships use robust management systems to report all incidents that have the potential to impact the environment. We classify a spill as significant if it involves a release of materials that poses a major health and safety risk to people or causes damage to the environment. There were no significant spills in 2022.

Stolt Tankers

Sustainability ambitions

Reduce carbon intensity by 50% (relative to 2008 levels) by 2030

Have at least one carbon-neutral ship in the fleet by 2030

Run a carbon-neutral business by 2050

In 2022, Stolt Tankers focused its efforts on the two SDGs where it can make the greatest contribution: Climate Action and Life Below Water. Our reporting was prepared with reference to the Sustainability Accounting Standards Board (SASB) topics for marine transportation. This was also the first year that 100% of our fleet's voyages were verified by the world's leading maritime classification society DNV via their online *Veracity* platform.

We added to the size of our sustainability team this year, which helped focus our efforts to integrate environmental considerations into business processes. In addition, we established working groups for several new 2023 regulations – the Energy Efficiency Index for Existing Ships (EEXI), the Carbon Intensity Index (CII) and Europe's Fit for 55 package. These working groups will oversee the steps required for our fleet to be compliant.

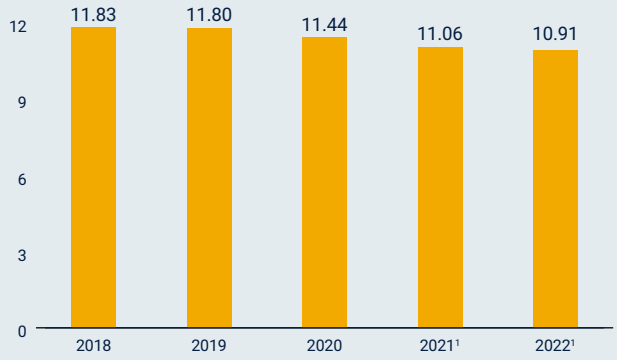
Stolt Tankers' environmental efforts received positive recognition during the year. We improved our overall EcoVadis rating, achieving gold, which placed us in the 95th percentile. We also received a C rating under the Carbon Disclosure Project (CDP). During the year, 59 of our ships were awarded the CSA Certificate of Environmental Achievement. 57% of our ships (39 in total) that called at US ports during the past three years became eligible for the US Coast Guard's Qualship 21 certification. Membership is testament to the quality of our fleet, as less than 20% of all foreign-flagged vessels operating in the US meet the strict eligibility requirements.

Reducing emissions

Stolt Tankers is, by far, Stolt-Nielsen's largest greenhouse gas emitter and its ambition is to cut emissions by 50% by 2030 (relative to 2008 levels). Our key indicator for the Climate Action SDG is the Annual Efficiency Ratio (AER), which we use to calculate carbon intensity across the fleet in line with International Maritime Organization (IMO) and shipping industry reporting. Our 2022 AER was 10.91, compared with 11.06 in 2021. Despite the strong tanker market requiring our ships to increase speed, thus consuming more fuel, the improvement in our AER means we are on track to meet IMO targets and our 2030 goal.

Annual Efficiency Ratio (AER)

Gram CO_2 emitted per deadweight tonne of capacity and distance travelled



1. Includes E&S Tankers fleet.

This year, we continued measuring Scope 1 and Scope 2 emissions across the fleet and began measuring Scope 2 emissions for our offices. We also worked on expanded digital capabilities for reporting carbon emissions using the Sea Cargo Charter framework to help customers better understand the sustainability of their supply chains. Despite adding several ships to the fleet, year on year we saw a 6% decrease in our Scope 1 emissions.

We reduced Scope 1 emissions through the deployment of innovative energy-efficient technologies and voyage optimisation. For example, we trialled and implemented *FuelOpt*, which delivers direct, real-time propulsion optimisation and leads to greater energy efficiency and lower fuel costs. Our existing practice of proactive hull and propeller cleaning progressed, with 13 new advanced propeller boss cap installations completed during 2022. We also trialled in-transit hull cleaning to reduce biofouling and emissions, and a graphene coating for propellers that also improves fuel efficiency. We continued to investigate the use of marine biofuels produced from certified sustainable feedstocks, building on last year's trials by investigating suppliers and mechanisms for scaling use. In addition, we established a working group for the use of second-generation biofuel as a drop-in fuel on ships employed in certain trade lanes.

2022 was the first full year of our partnership with the Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping. We appointed another secondee to the centre, and now have two Stolt Tankers representatives actively contributing to future regulations and technologies to decarbonise shipping.

We expanded our other partnerships, as well. Work continued as part of our two-year consortium agreement with Concepts of Ammonia/Hydrogen Engines for Marine Application (Cahema). We reached an agreement with the Global Centre for Maritime Decarbonisation, and we began collaborating with the Bellona Foundation to develop an industry-wide standard for hull cleaning. As part of our ongoing work with a coalition exploring cold ironing, we agreed a pilot project in Rotterdam, the Netherlands which has the potential to reduce emissions from chemical tankers by using electricity supplies in port rather than running ship engines.

Promoting biodiversity

Stolt Tankers works in accordance with Ballast Water Convention D-2 requirements, which dictate the maximum levels of viable organisms allowed to be discharged into the ocean. This year marked a milestone in our collaboration with Stolthaven Terminals to treat wastewater shoreside instead of discharging it at sea. As part of this unique project, 11,899m^3 of tank wash water in Houston, US was voluntarily directed to our onsite wastewater treatment plant, and initial layby tank cleaning saved 246 tonnes of fuel (compared with 5,800m^3 and 139 tonnes in 2021). Based on this success, our intention is to expand the approach to other ports.

Other initiatives related to the Life Below Water SDG included exploring options to recycle ships' consumables as part of a circular economy vision. To further tackle pollution, we launched a collaboration to trial a new technology that filters microplastics during ballast water treatment, preventing them from entering seawater. The first installation will be on the *Stolt Sagaland* in 2023. As part of our underwater noise pollution mitigation efforts, our advanced propeller boss cap fins have actively contributed to a five-decibel reduction within a range of 100 to 1,000 kH. In line with guidance from the International Maritime Organization (IMO) and other experts in the field of marine animal welfare, Stolt Tankers ships travelling south of Sri Lanka, the north-west of the Mediterranean Sea, around Vancouver Island and along the east coast of the US where large marine animals live and feed, will modify their routes and reduce their speed by 20% to minimise the impact of shipping on the whale population.

Stolt Tankers also contributed to broader biodiversity efforts this year through its support of non-profit organisations WeForest and OneTreePlanted; both have extensive experience managing reforestation, carbon absorption and environmental impact projects.

Managing waste

Stolt Tankers is certified to international environmental standard ISO 14001, and all waste from ships – including hazardous waste – is disposed of in line with the International Convention for the Prevention of Pollution from Ships (MARPOL). During 2022, waste to landfill from Stolt Tankers' shipping operations was 5,968m^3 (2021: 5,964 m^3). As a member of IMPA ACT and as part of our responsible procurement programme, we also work closely with our suppliers to look for sustainable alternatives to single-use plastics.

Stolt Tankers and its preferred recycling yards operate in accordance with the IMO 2009 Hong Kong Convention for the Safe and Environmentally Sound Recycling of Ships. Stolt Tankers has a director on the ITOPF Board, an organisation that specialises in preparedness for and response to accidental marine spills. We are also a founding member of the Ship Recycling Transparency Initiative: www.shiprecyclingtransparency.org, an online platform reporting ship recycling practices against a set of predefined criteria. Ships delivered for recycling hold an inventory of hazardous materials, and an accredited auditor verifies that each vessel has been properly prepared before issuing a 'Certificate Ready to Recycle'. Weekly reports track the entire recycling process, including all required environmental permits and waste management. One ship was sold for recycling in 2022.

To learn more about sustainability at Stolt Tankers, please visit: stolt-nielsen.com/our-businesses/stolt-tankers/sustainability

Stolthaven Terminals

Sustainability ambition

Primary activities, including the storage and handling of products, to be carbon-neutral by 2040

In 2022, Stolthaven Terminals updated its materiality assessment, surveying external stakeholders including customers, vendors and port authorities. The results reinforced the key topics identified last year. We also began measuring our carbon footprint against the GHG Protocol, with preparation carried out to seek validation in 2023. Our dedicated sustainability team expanded this year, and now includes at least one member from all wholly-owned terminals driving local initiatives. We continued to use our online ideation platform to crowd-source environmental ideas from front-line employees. Notable projects included upgrading lights to LEDs at our Dagenham, UK site, saving 48 MWh, and donating 50 tonnes of timber from our old Dagenham jetty for recycling into benches and planters for a local skate park.

Stolthaven sought an EcoVadis rating for the first time and achieved silver for all wholly-owned terminals, ranking in the top 4% for sustainability performance in the warehousing and storage industry. Our terminal in Moerdijk, the Netherlands received International Sustainability and Carbon Certification (ISCC) and CAT-3 certification. We intend to achieve these certifications at other terminals in our network.

Managing emissions

Stolthaven's carbon emissions are relatively low, but we continued our ongoing reduction initiatives in line with our Climate Action SDG commitment. We progressed with energy scans to inform terminals' carbon-neutral roadmaps, completing three more this year for a total of four. We also partnered with Deloitte to pilot their decarbonisation tool at our sites in Houston and New Orleans, US, using data from the energy scans and terminal initiatives to identify areas for improvement. At our terminal in Santos, Brazil, we opened the company's first nitrogen plant. The plant covers most of the terminal's tank capacity and is expected to reduce supply vehicle movement onsite by 80%, with a corresponding reduction in fuel consumption and emissions.

In addition to driving our own transition to greener energy, we are supporting our customers through their transitions. In 2022, we partnered with Pecém Industrial and Port Complex to launch a green hydrogen hub in Brazil. This will provide storage and handling services at the Port of Pecém for green hydrogen and associated products. In partnership with Fluxys and Advario Gas Terminal, we began to study the feasibility of building an open-access green ammonia import terminal at the Port of Antwerp-Bruges. We have also announced a partnership with XL Batteries to develop an industrial-scale flow battery with the potential to apply it in the port and industrial sector as well as potentially providing shore power to ships calling at terminals. To help establish an industry-wide vision for sustainable storage and warehousing, we joined the Terminal of the Future research partnership.

Some products stored at our terminals can emit vapours, and we use several techniques to prevent these from entering the atmosphere, including vapour recovery systems, scrubbers, flares, internal floating roofs and nitrogen blankets. Our new tank designs feature higher design pressure, which reduces emissions as more vapour is retained in the tank. In 2022, we approved a project to reduce volatile organic compound (VOC) emissions by converting the East Property Flare at our Houston terminal into a vapour combustor unit (VCU). This project will serve as a pilot for potential implementation at other terminals.

To learn more about sustainability at Stolthaven Terminals please visit: stolt-nielsen.com/our-businesses/stolthaven-terminals/sustainability

Stolt Tank Containers

Sustainability ambitions

50% renewable energy consumption at wholly-owned depots by 2030

In line with IMO commitments, a 40% reduction in our transportation partners' carbon footprint (relative to 2008 levels) by 2030

In 2022, Stolt Tank Containers established a new, dedicated sustainability workstream with a defined short-, medium- and long-term strategy linked to three priority SDGs: Climate Action, Clean Water and Sanitation, and Life on Land.

As part of these efforts, we updated our materiality assessment to include input from key customers and regulatory authorities. This latest feedback led us to increase our focus on supporting customers with reducing Scope 3 emissions from the purchase of transportation services. We are creating a Scope 3 baseline for all transport modes using EcotransIT emissions calculation tools, complying with the Global Logistics Emissions Council (GLEC) framework. We are also continuously improving and expanding our reporting on resource use and Scope 1 and 2 emissions from our wholly-owned depots using BearingPoint's Emissions Calculator.

We renewed our EcoVadis assessment resulting in an improved silver rating, our scores in both environmental and ethics increased from 60% to 70%, and we renewed our Chemical Distribution Institute Marine Packed Cargo Assessment Scheme (CDI-MPCAS) for our main global offices; which also showed significant improvement in environmental scores.

Transitioning to a greener future

2022 was STC's first full year of measuring Scope 1 and 2 emissions at wholly-owned depots – and of implementing targeted reduction initiatives. Our primary focus was on incorporating greener fuel sources into operations. Our depot in Moerdijk, the Netherlands now uses certified wind energy and certified biofuels; Houston, US is purchasing certified green electricity and has started offsetting emissions by using wind and solar power; and Singapore has switched from diesel to natural gas for heating. Switching to greener gas and offsetting led to a 4.5% decrease in Scope 1 emissions. Electricity and fuel-related reductions led to a 39.5% reduction in Scope 2 emissions.

We are investigating ways in which to provide alternative lower GHG-emitting transportation solutions to our customers across all modes of transport. We have included sustainability requirements in our ocean freight tenders using Smart Freight Centre guidelines from the Clean Cargo Working Group. We are the only tank container operator that is a member of this working group, which is an organisation dedicated to reducing the environmental impact of global goods transportation and promoting responsible shipping.

Reduce, recycle, reuse

Our materiality assessment update highlighted an increased need for STC to focus on GHG reduction, water (re)use and on zero waste to landfill. We will use 2023 to clarify our data and define a baseline against which waste reduction targets can be set.

This year, we piloted circular recycling projects in Moerdijk, the Netherlands and Houston, US, focusing on reusing cleaning water, as well as on collecting, cleaning and reusing manlid gaskets to reduce plastic going to landfill while fostering compliance with forthcoming perfluorooctane sulfonate (PFOS) legislation. In Houston, US, we also trialled recycling other plastic elements used during tank container handling.

To learn more about sustainability at Stolt Tank Containers please visit: stolttankcontainers.com/sustainability

Stolt Sea Farm

Sustainability ambitions

Zero waste to landfill by 2030, focusing on recycling and energy recovery

Reduction of fish products in our ongrowing feed (relative to 2020 levels) by 2030: 65% reduction for sole and 50% reduction for tubot

During the year, Stolt Sea Farm continued to establish baselines for measuring environmental performance to support our efforts to achieve zero waste to landfill by 2030. We now have a completed baseline for Norway in addition to the baselines for France, Spain and Portugal that were completed in 2021. Data analysis continued as part of work towards establishing baselines for our operations in Iceland.

This year, we renewed Global GAP certifications for all operations and renewed our ISO 9001 and ISO 14001 certifications for France, Spain, Portugal and Norway. We also maintained our International Featured Standards (IFS) and Specific Self-inspection Systems (SAE) food safety certifications at our processing plant in Lira, Spain.

Reducing our carbon footprint

Seafood has one of the lowest carbon footprints of all animal-based protein sources, and SSF works to minimise emissions as much as possible across its operations and supply chain in line with our commitment to the Climate Action SDG. 100% of electricity used in our operations in Iceland and Portugal is certified renewable. In 2022, we installed 193 kW of solar panels at our farm in Quilmas, Spain, which adds to the 230 kW already installed in Cervo, Spain. We also began installation of solar panels in Tocha, Portugal, these have a maximum capacity of 950kW.

Stolt Sea Farm does not currently measure GHG emissions. It measures energy and fuel consumption, and is working towards better recording and measurement of emissions and capturing baseline data.

Responsible farming

SSF is committed to responsible farming and transparency as part of our wider commitment to the Responsible Consumption and Production SDG. We continued to work with feed manufacturers to investigate new feed formulas with lower fishmeal and fish oil content, reinforcing our leadership position when it comes to preserving scarce natural resources.

This year, we also helped establish a new platform for collaboration between non-profit organisations and the scientific community in Spain to drive fish welfare progress in aquaculture. The project has published an initial set of general fish welfare guidelines for the Spanish aquaculture sector.

Waste reduction

In 2022, we joined the *Life Refish* partnership project to reduce waste and optimise the use of by-products from aquaculture activity. In addition, we launched an initiative to improve circularity at our processing plant in Spain and identify higher-value solutions for seafood by-products. We are committed to incorporating environmental considerations into our value-added product (VAP) development, and defined sustainability criteria for new packaging.

To learn more about sustainability at Stolt Sea Farm please visit: stoltseafarm.com/sustainability