



● Environmental opportunities for shipping

# Clean Shipping Index

FOR SUSTAINABLE SHIPPING

Clean Shipping Index  
– ranking the world’s most  
high performing ships – when it  
comes to environment.



**Our sponsors:**

Region Västra Götaland, the County Administrative Board of Västra Götaland, the Göteborg Region Association of Local Authorities, Port of Gothenburg and City of Gothenburg.

Copywrite: Sara Sköld, Clean Shipping Project and Merijn Hougee, North Sea Foundation.

Graphic design and layout: Format.se

Photo: Cover: Bengt Frizell, p2, p5 and portrait p10: TransAtlantic,

p3 and all other portraits: Jan Kwarmark, p5: Fotolite.com, p5: Wagenborg.

Illustration/animation: Mister Lee, www.mrlee.tv

Print: Grafika

This brochure is printed on Munken Lynx, an FSC-certified paper

Environment marked print.

Sweden 2011



## Clean Shipping Index – at a glance

- is a tool for cargo owners and transport purchasers to select environmentally well-performing shipping services
- provides an environmental ranking system for both vessels and carriers
- has a holistic view on the environmental problems of shipping focusing on CO<sub>2</sub>, NO<sub>x</sub>, SO<sub>x</sub> and particles as well as chemicals and water and waste
- includes both a global and regional/local approach
- gives credit to maintenance, good operation and technical improvements
- goes beyond current laws and regulations
- is a web-based tool which is quick and easy to fill in for carriers – and to no expense
- covers main types of vessels from all ages
- has a Network of many cargo owners such as H&M, SKF, Akzo Nobel which is a strong economic driving force
- has a verification with online documentation by objective and authorized third party such as Lloyd’s Register and DNV
- has a potential to become “ticket to trade” for environmentally well performing carriers
- creates a “win-win” situation for cargo owners, quality shipping and the environment.

# Clean Shipping Index

## Sustainable Shipping Tool

What do companies like Volvo, AkzoNobel, H&M, Ericsson and InterfaceFLOR have in common – apart from having annual turnovers expressed in billions? These cargo owners do not only take into account the environmental performance of their own products, but are increasingly looking at the entire life cycle of products. Including sea transport.

The abovementioned companies stem from a growing group of now over twenty-five large cargo owners that form a so-called “private governance network” with the aim to stimulate sustainable development in the maritime industry by using their market power: the Clean Shipping Network. The network originates from Sweden and is now expanding across Europe with the help of NGOs (Non Governmental Organisation). The tool used is the Clean Shipping Index.

### Clean Shipping Index

The Clean Shipping Index is an easy to use, transparent tool which can be used by cargo owners to evaluate the environmental performance of their providers of sea transport. The index takes into account five different areas of environmental impact: CO<sub>2</sub> emission, SO<sub>x</sub> and particulate matter (PM) emissions, NO<sub>x</sub> emissions, chemical products and water/waste. This holistic approach is what makes this index special compared to other initiatives in the industry.

### Beyond existing regulations

To be included in the Clean Shipping Index, ship-owners are required to complete a questionnaire consisting of twenty questions on a vessels operational impact. The information is entered on a ship-to-ship basis but is also added to total carrier fleet score for an overall ranking. Scores can only be obtained for measures that go beyond existing regulations. Based on the scores, a ship is ranked as having a ‘low’, ‘medium’ or ‘good’ performance. The final index score is the total average score multiplied with the percentage of reported ships of the totally owned or managed fleet. Data can be analysed to much more detail, down to the level of NO<sub>x</sub> emissions for a single engine or stern tube oil usage on a single ship for example.

### Shipping Requirement

A vessel or shipping company cannot perform well in only one area of the index (for instance sulphur emissions) and

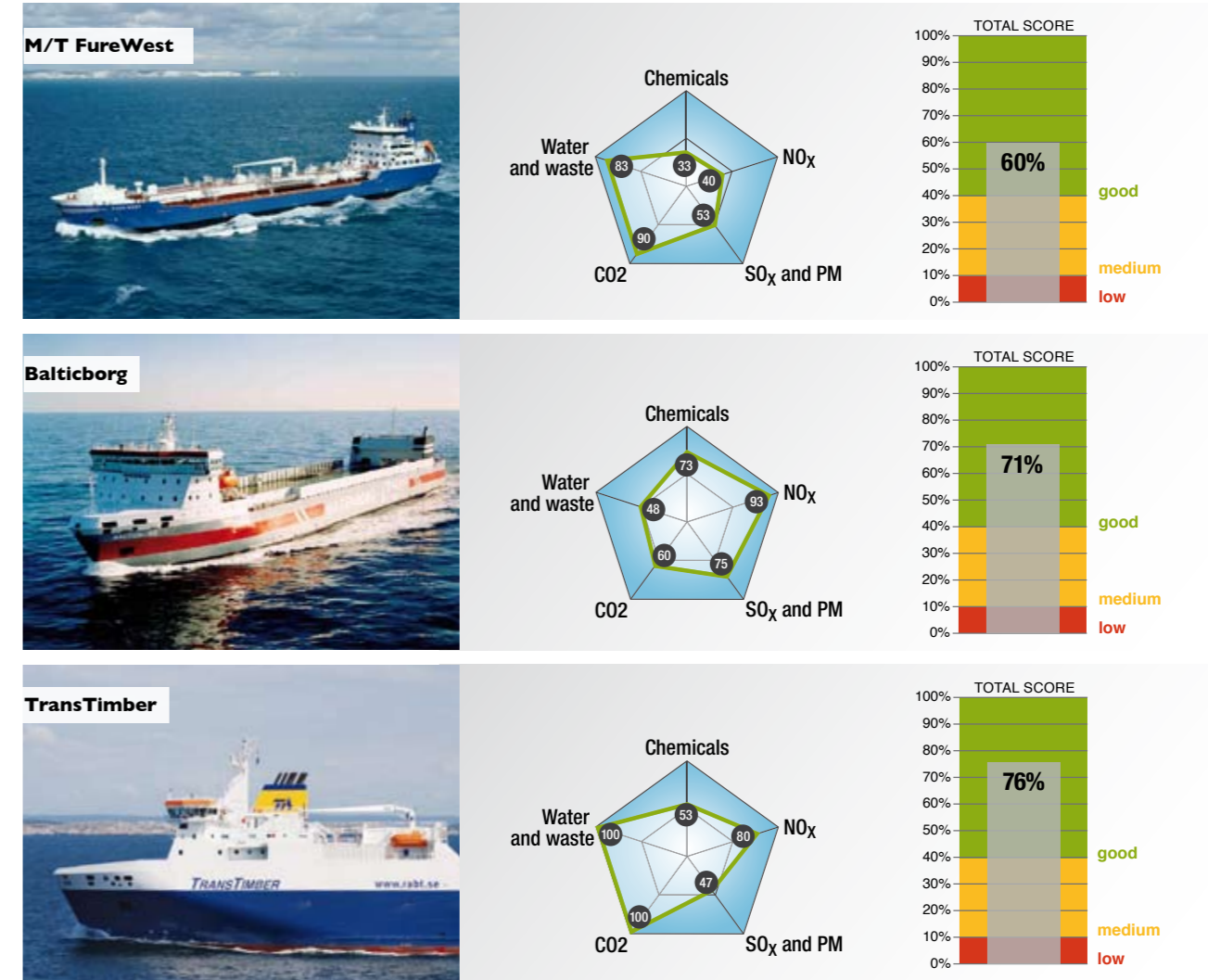
get a good overall performance – no good grades for being a perfect student in just one of the subjects. The index is dynamic; what is good environmental performance at one time might change as new technology gets installed and the environmental legislation becomes stricter. For example, a question on clean and safe ship recycling will be added to the questionnaire soon. Today eleven of the fourteen largest shipping companies of the world have presented information in the CSI database. New ships are almost entered daily and at this moment data from around one thousand five hundred large vessels is included in the database.



### Win-win situation

Most of the harmful emissions come from daily ship operation. Intentional and unintentional discharges of oil, chemical cargo residues, garbage and cleaning agents, anti-fouling paint, exhaust and other air emission and non-indigenous species from ballast water have an on-going adverse impact on life in the seas of the world. Compared to land, the environmental legislation process has been slow when it comes to shipping. If reasonable

This is example data from Clean Shipping Index based on self-assessment by the shipping companies.



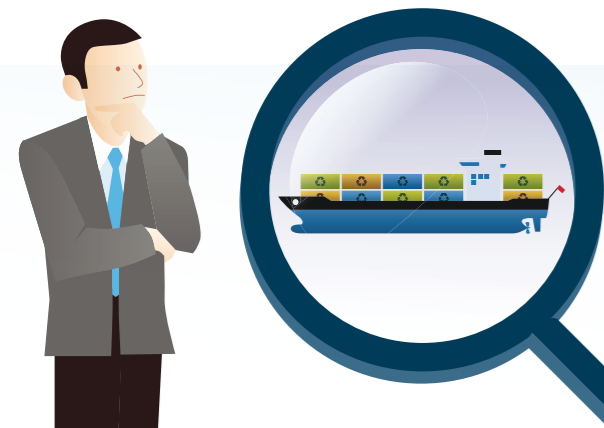
but significant environmental demands are coordinated from large cargo owners, a win-win situation could be created. This is beneficial for quality shipping companies, subcontractors for clean technology and last but not least – the environment itself.

Submission is voluntary and data is only verified if ship owners pay Class Societies (so far Lloyd’s Register and Det Norske Veritas offer these services) for a third party verification. Amongst the shippers in the Clean Shipping Network, submission of data is becoming a requirement for shipping goods. Volvo for example requires all ship-owners transporting Volvo goods to submit CSI data.

### Reason

The five areas of environmental impact – CO<sub>2</sub> emission, SO<sub>x</sub> and PM emissions, NO<sub>x</sub> emissions, chemical

products and water/waste – the scoring system takes into account, have a maximum score of 30 points each, and they are all important to address. The scoring system may be seen as a tool to estimate how well a vessel is doing in each area. The weighing together of the score gives a hint of the overall performance but must be judged with reason and used as a platform for more detailed discussions in for example a procurement situation. The basis for scoring is how well a vessel performs compared to a reference ship. To get scores the vessel must have emissions below this reference. Information needed for carrying out the calculations is the cargo carried, the distance travelled and the fuel consumption. Operational factors are accounted for by using estimates of average load factors and payload factors.



**CO<sub>2</sub>**  
Two ways of submitting CO<sub>2</sub> data are accepted; either CO<sub>2</sub> emissions in grams/tonne-nm calculated according to Energy Efficiency Operational Indicator (EEOI) of International Maritime Organisation (IMO) or calculated CO<sub>2</sub> emissions in grams/TEU-km according to the Clean Cargo Working Group calculation formula. Calculations cover a period of one calendar year.

**NO<sub>x</sub>**  
The basis for NO<sub>x</sub> scoring is how the NO<sub>x</sub> emissions from main/auxiliary engines relate to the standards set in the Revised MARPOL Annex VI. Just complying with global standards does not score. The reference emission levels are tied to the same levels as defined in Tier I, II and III in the Annex VI. Pre- and post-combustion reduction techniques are rewarded.

**SO<sub>x</sub> and PM**  
Scores can be obtained if sulphur content in the fuel during a calendar year is lower than global standards for both main and auxiliary engines. A distinction is made between operations in ECAs (Emission Control Areas) and non ECAs. Particulate matter is included because of its close link between SO<sub>x</sub> emissions and PM emissions. Use of abatement techniques is rewarded.

**Chemicals**  
Scoring relies on the environmental effects of different types of chemicals used on board. Properties of chemicals present in anti-fouling, stern tube oils, external hydraulic fluids, gear oils for thrusters and/or controllable pitch propellers, boiler/cooling water treatment, cleaning agents and refrigerants are covered by the index. For example a non-toxic anti-fouling coating, that is coatings without chemical or biological activity and water lubricated stern tubes get high scores.

**Water and Waste control**  
Questions in this section are about ballast water treatment, sewage/black water treatment, garbage handling, sludge oil handling, bilge water treatment and – last but not least – crew awareness.

○ An online tool for cargo owners to enable them to make informed, sustainable choices when picking a shipping company.

## How Clean Shipping Index works



The shipping companies fill in a list of 20 easily answerable questions about the different ships in their fleet. It is questions ranging from how high their SO<sub>x</sub> and CO<sub>2</sub> emissions are to what type of ballast water treatment or lubricants they use.

It is easy to see the results. Total scores are shown in red for low performance, yellow for medium performance and green for good performance, which is pretty hard to get. Shipping companies can also compare their performance with that of the competition – and use this as benchmarking.

Cargo owners can compare the environmental performance of the shipping companies. Information can be viewed not only for an entire fleet, or a single ship, but also for just a specific issue of choice, like CO<sub>2</sub>, for example. The carriers get points in 5 areas; carbon dioxide emissions, sulphur oxides and particle levels, nitrogen oxides, chemicals and water and waste.

Leading cargo owners like Volvo, H&M and Tetra Laval are already participating. Many of the largest container carriers have entered environmental data into the index and the index database is increasing every day.





**Volvo Logistics is a part of Volvo Group and they provide logistics solutions for the automotive industry. Volvo Logistics has around 1200 employees and a turnover of approximately 10 billion SEK.**

**– How would you describe the Clean Shipping Project?**  
 “Clean Shipping Project is a collaboration between the largest export and import companies in Sweden, where we put environmental demands on the shipping industry. The project has got two very inspiring managers Ulf Duus and Jan Ahlbom. They are quite frankly – two of Sweden’s top people when it comes to environment and how chemicals effect the marine environment.”

○ When your customers know you are doing your part in the global effort towards a healthier planet that’s good for the overall brand perception and therefore also a wise business decision. And when you decide to join the frontrunners of today you become part of a growing group of companies and organisations that think about the long term, beyond the confines of their company grounds with both their common sense as well as their hearts.

In the following pages you can read about some of the companies which already use Clean Shipping Index today.

○  
**Susanna Hambeson**  
**Volvo Logistics**



**– Why did Volvo Logistics join the Clean Shipping Network?** “Volvo Logistics are no rookies when it comes to putting high standards on our suppliers. We have had environmental demands on our transport suppliers for over 10 years. Therefore, joining the Clean Shipping Network was an easy step to take and a part of our strategy to support sustainable development.”

**-In what way have Volvo benefited from the Clean Shipping Project?** “For Volvo it’s important to be a part of such a proactive environmental project and to work together with so many prominent environmentally focused companies. The database is easy to understand and to work with – it’s a flexible tool and a great way to work towards the shipping companies. It makes my work easier.”

**- How do you work with the database?** “If our major shipping suppliers don’t submit data to the database from January 2010, we will not use their services. If they submit data and the environmental performance is good we might extend our collaboration. We will also start using the data as input for our emission calculations for sea transports.”



○  
**Per Nilsson**  
**and Björn Lindahl**  
**both from**  
**Tetra Pak**

**Tetra Pak is the world’s leading food processing and packaging solutions company. Tetra Pak provides customers in over 170 countries with safe, innovative and environmentally sound products. They have over 20,000 employees all over the world and their net sales was 8.955 M EUR in 2009.**

**– How would you describe the Clean Shipping Network?**  
 “Clean Shipping Network is a group of cargo owners who have joined together in a network to put environmental evaluation demands on the shipping industry.”

**– Why did Tetra Pak join the Clean Shipping Network?** “We met the two project managers Ulf Duus and Jan Ahlbom and they told us about their ideas on how to make the shipping industry more environmentally adapted. We showed the system we use at Tetra Pak to evaluate our contracted suppliers with green, yellow and red colors depending on their evaluation result. We felt that our system was too general when it came to evaluating shipping companies and not applied to the environmental impacts of shipping. In short: combining Ulf and Jans research of shipping’s environmental impact with our evaluation system became the Clean Shipping Index. We have recommended several cargo owners to join the Clean Shipping Network because the Clean Shipping Index is a great tool to evaluate one’s shipping suppliers. The larger the cargo owner network is, the more positive impact we can make together.”

**– Has Tetra Pak changed shipping supplier because of the results in the Clean Shipping Index?** “Yes, we have changed supplier because of what we have seen in the Clean Shipping Database. During the selection process we evaluate the shipping companies’ environmental data according to the Clean Shipping Index. During the procurement process we also put environmental demands on the shipping companies if there is something specific that we want them to focus on, for instance if their SO<sub>x</sub> emission levels are too high. Then we put specific demands on that for the next procurement process.”

**– How do you work with the database?** “We use the database to calculate our environmental footprint when it comes to our transports on sea. These are figures we present in our yearly environmental report. We hope that we in the future can see the environmental impact of a specific shipment when we are about to book it. Then the personnel that book the transports can make a choice between price, lead time, environment and other factors.”



“it’s also a tool for us shipping companies to reach out with our environmental work



**Annelie  
Rusth Jensen  
TransAtlantic**

“As I see it, the Clean Shipping Project was at the start a simple way for cargo owners to evaluate shipping companies and easier to find environmentally friendly transports. But in a way it’s also a tool for us shipping companies to reach out with our environmental work. We are more anxious to see the positive results now that we are able to submit the data ourselves. We feel that being an active shipping company in the Clean Shipping Project is a good complement as we are both quality certified according to ISO 9001 and certified according to ISO 14001.

Early on, when the Clean Shipping Project started, we heard a lot about it. The first time we received the questionnaire from Tetra Laval, we felt a bit discouraged by the sheer size of it. This was at the time when the system was Excel-based and a huge pile of data was needed in order to complete the form. I remember thinking “If we’re having this trouble filling out the form, how can Tetra be able to read something out of all this data?”

Since Clean Shipping launched the internet-based index with only 20 questions it’s become much more user friendly. What we want as a shipping company is one even evaluation system instead of every client inventing their own methods

**TransAtlantic with their head office in Skärhamn in Sweden has 7 offices world-wide and runs 38 vessels. They have about 1,100 employees and had SEK 2.3 M in consolidated net sales in 2009. TransAtlantic operate offshore and ice-breaking vessels, both in the Baltic Sea, North Sea and Arctic/Antarctic waters. The Industrial Shipping section of the company primarily focuses on contract-based transport.**

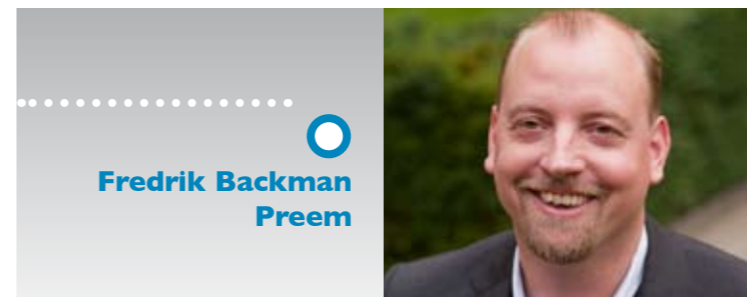
and systems. That’s what’s great about the Clean Shipping Index: if a client asks how we perform environmentally, we can send over our index performance data and the client is thereby often satisfied.”

**Was there anything difficult about answering the 20 questions in the Clean Shipping Index?** “Well, we had a lot of trouble finding the revolutions per minute values of the vessels older than 10 years in order to calculate the NOx emissions. It took several hours to look for this and a lot of searching the internet for data on the engine manufacturers. But some indexes exclude vessels older than 10 years because one has to have an EIAPP certificate in order to participate. Clean Shipping Project is open for all vessels and that’s great.”

**Are you planning to verify your vessels – to check if the data you’ve submitted to the database is correct?** “We’ve actually already started verifying our vessels. We’re happy about the results of the first verification. It seems that we at TransAtlantic have a good picture of our vessels environmental performance and that we have filled out the Clean Shipping Index questionnaire correctly.”

**Preem is the largest fuel producing company in Sweden and their two refineries are considered to be the most modern and environmentally adapted in Europe and the world. Preem’s turnover was SEK 73.6 billion in the year 2009.**

“We at Preem think that Clean Shipping Project is a great initiative and that the Clean Shipping Index is a valuable tool to evaluate the environmental performance of our sea transport suppliers. There are other environmental performance indices on the market, but they only focus on what comes out of the smoke-stack. Clean Shipping Project takes a holistic perspective, including emissions to the water, garbage and chemical handling and so on. At Preem we’re continuously focused on looking at the big picture when it comes to the environmental problems we’re facing. We wanted a simple, practical tool to evaluate our sea transport suppliers. Since we joined the Clean Shipping Network, we have a tool box to do just that, without investing time and money on developing our own system.”



**Fredrik Backman  
Preem**

**– How do you use the Index and what are your plans for the future?** “We have a target at Preem to use the database index in our yearly environmental report. We also aim to use the Clean Shipping Index when traders book the transports and when operations plan the transports. It would be great if they could see the environmental performance of the shipping company along with pricing and other information that they have when they book transports today. In year 2011 we will have an environmental target connected to Clean Shipping Index and we will follow up on that target to make sure that we continuously improve ourselves.

Our suppliers of transport knowaontinuously improve themselves when it comes to environment. And they know that we pay more for improved environmental performance.”

“What the Clean Shipping needs now is that more cargo owners will join the Network and this will increase the need for shipping companies to submit more vessels to the database. This is an issue that I work hard with: trying to get more oil and petrochemical companies to join the network. We currently work together to evaluate the shipping companies on health safety and security, this is also called vetting. My vision is that we can incorporate the Clean Shipping Index in the current vetting system as an evaluation of the environmental performance of the shipping company.”



**Yuehua von Fircks  
Setra Group**

**Setra Group is one of Sweden’s largest wood exporters who offer eco-certified wood products for the construction industry. Setra has 1,200 employees and they spend over SEK 2.5 billion in exports to Europe, North Africa, the Middle East and Japan.**

“We work hard on lowering our impact from transports, which is a major part of Setra Group’s environmental impact. Joining the Clean Shipping Network is in line with our continued efforts to lower our environmental impact from sea transports. As a start we use the Clean Shipping Index on our contracted shipping lines. We plan to use the index in our procurement process in order to put demands on all suppliers of sea transport. The Clean Shipping Network is also a place for inspirational exchanges with other environmentally focused companies.”

“  
the Network  
is also a place for  
inspirational  
exchanges



[www.cleanshippingproject.se](http://www.cleanshippingproject.se)

# Clean Shipping Index

FOR SUSTAINABLE SHIPPING

Our sponsors:



City of  
Gothenburg



LÄNSSTYRELSEN  
VÄSTRA GÖTALANDS LÄN  
County Administrative Board



REGION  
VÄSTRA GÖTALAND