



Lauritzen Bulkera maintains a constant push for cleaner, greener, more efficient operations.

A new spin on efficiency

A Japanese company has developed a small auxiliary propeller called PBCF, which stands for Propeller Boss Cap Fins. Mounted on a ship's standard propeller, the PBCF redirects water flow to achieve a three to five percent reduction in fuel consumption at the same speed – or to boost speed by one to two percent with the same fuel consumption. "Bulk carriers have used standard designs for years," says Claus Mygind, "so a device like the PBCF is a valuable addition. Using advanced hydrodynamic technology – but without radical ship redesign – it can give a significant boost to our fuel efficiency. We're currently having the PBCF installed on four of our new-buildings from China, and we've also asked our pool partners to do the same on two additional vessels. Together with other seemingly small-scale changes – such as the hull coating mentioned in this article – initiatives like this can make quite a difference in our operational efficiency."

A smaller footprint for big ships

Bulk carriers are regarded as the low-tech workhorses of the shipping industry, yet through consistent policy and a variety of new initiatives Lauritzen Bulkera is shaping a fleet that is one of the bulker segment's most environmentally progressive. "Contrary to the common perception of the shipping industry, numerous initiatives are being taken by ship-owners with the aim of reducing the environmental impact of our operations. It is definitely our policy to look for environmentally sound solutions," says Claus Mygind, vice president and head of operations for Lauritzen Bulkera. "Bulk shipping is solidly based on price, and initiatives that lower our cost of transport and benefit the company and the environment." He points out that in the past year Lauritzen Bulkera has sold six ships built in the 1990s in order to focus

the fleet on newer, more efficient vessels. The oldest owned ship in the Lauritzen Bulkera fleet today, the *Tilda Bulker* was built 2003. This is certainly a forward-looking policy in a business where the typical vessel lifetime is 25-30 years.

The benefit is clear, as a comparison of ship performance between those that were sold and newer vessels with 2003 and 2007 build dates shows that the newer vessels burn considerably less fuel per ton of cargo transported – between 16 percent and 26 percent less depending on oil quality, trading patterns and other variables. "As it stands now, we're basing these numbers on rough calculations of fuel consumed," says Poul Martin Kondrup, marine technical manager for Lauritzen Bulkera. "This gives us a clear indication of positive results, but the new

Lab-On-A-Ship™ project being tested on two of our vessels will give us much more precise measurements of engine performance and environmental impact (see accompanying article, p. 10). We're the only bulker fleet currently testing this kind of capability."

You might say that Lauritzen Bulkers has a head start in the race to minimise fuel consumption and environmental impact, as the size and flexibility of its fleet ensures fewer ballast days for its vessels. "Basically, we move more cargo with less fuel - and consequently with less CO₂ emission - than many bulk shippers because our fleet allows us to run an efficient operation," says Bernardino Lladoc, superintendent. "We almost always have a ship close to the port where it's needed, so we virtually never make long voyages carrying ballast instead of cargo."

Additionally, Lauritzen Bulkers is engaged in a range of initiatives aimed at making the daily operation of its vessels as efficient and environmentally friendly as possible. They include the following:

Advanced hull coating

It is common to use antifouling coatings on the bottoms of ships' hulls. Unlike many other owners, Lauritzen Bulkers uses new environmentally friendly coatings on the sides of the hull - up to the normal draft line - as well. This produces better speed performance and lower fuel consumption and, therefore, less pollution. It also increases coating costs by around 30 percent, but this is more than compensated for by increased fuel efficiency.

Low-dust grabs

Poul Martin Kondrup helped design improved grabs a few years ago in response to new standards to limit dust pollution in Norwegian ports. He modified the physical design of the scoops on grabs to keep dust inside, which provides a much better working environment for ships' crews and terminal workers, not to mention a generally improved port environment. The concept has been so successful that other shipowners have requested this "Lauritzen design" when ordering from grabs manufacturers.

Improved hold cleaning

There is more to pollution than CO₂. Cargo hold cleaning is an area that in the

past has posed an environmental threat, as many ships holds were cleaned with acids, which were bad for the crew and were washed back out into the sea. Lauritzen Bulkers now uses environmentally friendly biodegradable cleaning materials supplied by a Canadian company. These are more expensive, but - in theory at least - safe enough to drink, so they contribute to a much better environment onboard ships and in surrounding oceans.

Additionally, Lauritzen Bulkers is about to begin testing a newly designed container system, which already holds a CLASS certification, that can clean wash water used in cargo holds. Essentially, it can separate cargo residue - coal, cement or clinker, for example - from water. The filtered water is clean enough to be pumped into harbours and the remaining cargo solids can be sold or disposed of onshore. This system will initially be used in the Rotterdam/Amsterdam area where Lauritzen Bulkers discharges many of its vessels. "The Baltic area has particularly strict discharge regulations," says Poul Martin Kondrup. "Ordinarily, vessels have to discharge cargo, leave port, wash down and entirely exit the Baltic before flushing wash water into the sea. With this container, the filtered wash water is clean enough to put into the harbour. This is a significant benefit to the environment and to shipowners, as it immediately frees up to 250 tons of cargo capacity that might otherwise have been wasted in transporting cleaning water."

Innovative lube systems

All newbuildings ordered by Lauritzen Bulkers have advanced engine lubrication systems that help reduce pollution by decreasing the amount of lubricants used. On older engines lubrication systems are manually adjusted by engineers. The new "alpha" system features a precise electronically controlled automatic feed, which lubricates engine parts just as effectively while using up to 40 percent less lubricant. Efficiency is further enhanced by modern cylinder design.

Achieving early compliance

"We have always had a policy of adapting early to new environmental initiatives, often long before regulations officially come into effect," says Bernardino Lladoc. "Two past examples are our rapid compliance and early certification in the areas of air pollution and antifouling paint.

Others areas we're working on include new ballast water treatment regulations that don't come into effect until 2014 - we're complying now. We're also voluntarily working toward gaining International Maritime Organisation (IMO) Green Passport certification for all vessels in our fleet." The Green Passport is a document that accompanies a ship throughout its working life. It contains an inventory of all materials potentially hazardous to human health or the environment used by a ship during its lifetime, from construction to recycling.

Working with the weather

For the past two years the entire Lauritzen Bulkers fleet has used the services of Weathernews Inc. (WNI) to help plot voyages more efficiently. Daily weather reports from WNI give sailing recommendations for optimal weather routing. This helps masters navigate to avoid storms and results in significant fuel savings. WNI's computerised programme also helps document vessel performance and fuel consumption.

Nordic Bulker and Laura Bulker receive Green Flag award

The US Port of Long Beach, California, has a 20-year record of environmental protection programmes. As part of its Green Port Policy, the port urges vessels to travel at or below 12 knots within 20 miles (32 kilometres) of the coast. Ships traveling at slower speeds reduce emissions. Those that comply earn a Green Flag Environmental Achievement Award. Two Lauritzen Bulkers vessels, the *Nordic Bulker* and the *Laura Bulker*, achieved 100 percent compliance in 2008. They are now proudly flying the Green Flag and are also eligible for a 15 percent reduction in dockage fees.



Photo by Ulla Munch-Petersen