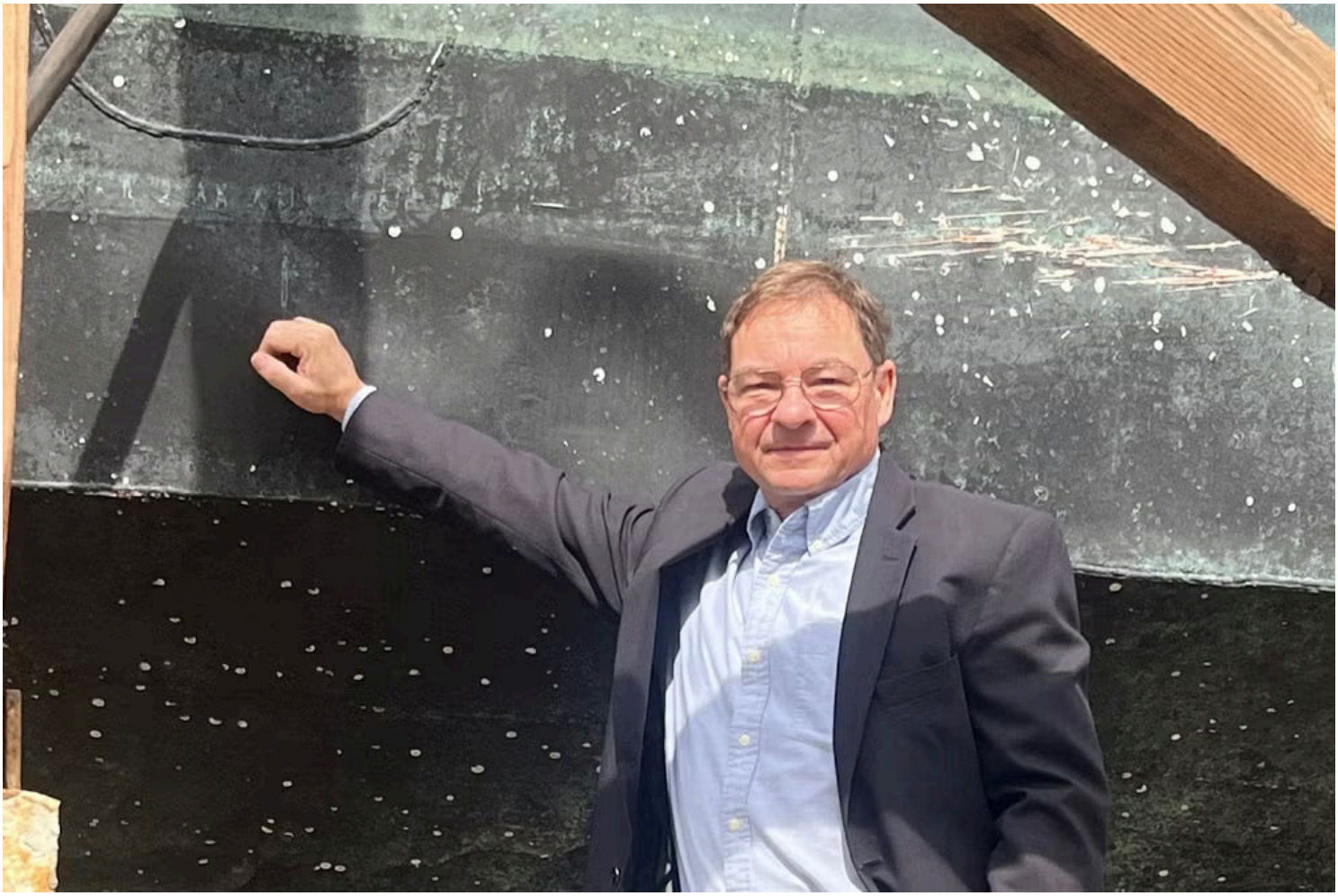
People

Why shipowner buy-in is the greatest struggle for clean-tech entrepreneurs

Having battled to bring ballast water tech into shipping, Giles Candy is on a mission with economic air lubrication



Minke Marine co-founder Giles Candy.

Photo: Minke Marine

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TradeWinds technology editor | Stockholm

Updated 24 March 2026, 05:59

Giles Candy is a maritime technology kind of man. The quietly spoken engineer has spent more than two decades working on cleantech solutions.

The one-time developer of a ballast water treatment system is today the co-founder of an air lubrication system (ALS) developer, Minke Marine, which is set to be launched onto the market.

He and his co-founder, Kevin McPherson, have been trialling the technology on a vessel, the 55,000-dwt Saga Future (built 2012), for the past 10 months.

But he knows it will require a lot of hard work to convince shipowners to install his tech. That struggle is all too familiar.

When the ballast water convention was adopted by the International Maritime Organization in 2004, his company, NEI Marine, was one of the casualties as shipowners dragged their feet over retrofitting their kit.

But Candy believes air lubrication will be different.

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He knows he has competition.

UK-based Silverstream has blazed a trail with ALS technology over the past decade with hundreds of installations on board ships.

Alfa Laval's technology is being fitted to a growing number of vessels and Damen Shipyards has a similar air cavity system, as does Samsung Heavy Industries and Mitsubishi.

There are also a couple of start-ups, including the UK's Armada Technology and Air Glide on the US east coast.

Candy said: "Silverstream blazed the way, but I think they sold perhaps 11 systems in the first 12 years, and now they are over 200, and that is on the back of [the IMO's Carbon Intensity Indicator]."

That CII regulation is the difference, he says, reflecting on his struggle to get owners to install mandatory ballast water systems, fuel-saving technology and energy-saving kits.

Rules such as CII are heavily criticised by some shipowners, Candy said, but the regulations should push them to act — or so he hoped.

"It was meant to be some publicly facing [grading, using letters] that galvanised the industry, but it is not there yet," he said,

Then came the Net-Zero Framework, which has stalled.

So, without regulations driving adoption, Candy is keen to differentiate Minke's solution as a low-cost alternative to its rivals' offerings that is optimised to get the job done.

Its performance is not the gold standard, he concedes, but delivers a balance between efficiency, performance and cost.

The system is cheaper, he explained, as it uses much of the technology a vessel already has on board.

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Minke avoids installing extra compressors and power sources, which other systems often do, bringing the retrofit cost into the millions of dollars.

The test system Minke is examining is a fraction of that, according to Candy.

The system installed on the Saga vessel was an investment of less than $500,000. Data from the trials are already showing a fuel saving on average of about 7%.

It was a low-capacity model of Minke system, according to Candy, with only two air outlets in the vessel's hull bottom.

“We used as much existing hardware as possible without compromising the fundamentals of the system,” he said.

“The beauty lies in the design, which is simple and easy to install. When the crew switched it on, it worked straight away — no adjustments or modifications required.”

Air lubrication technology explained

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Candy believes the accomplishment of installing a significant piece of technology onto a ship is under appreciated by many in the industry.

He said: “Whether it is a ballast water treatment system [or an air lubrication system], it is an achievement to integrate it into a vessel.

“That is why we have come up with a very simple, very elegant version of an air lubrication system that will integrate into a vessel, and there is a great satisfaction in that.”

Candy formed Minke in 2023 and a test installation was completed in 2025 over a few days during a regular vessel docking.

The system has been type-approved by DNV and ClassNK and Candy promises to talk more about the vessel on which the system is currently installed in the coming weeks once he gets the proper data from the trials.

Provisional trial data, available on the company's website, points to how a vessel's performance changes significantly when the system is repeatedly switched on and off.

Between developing ballast systems and his new air lubrication venture, Candy has been working for shipowners as a consultant.

That dialogue with engineering and performance teams opens doors to get that all-important conversation going about installing a new technology into an old industry, he adds.

Published 24 March 2026, 05:56 Updated 24 March 2026, 05:59

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