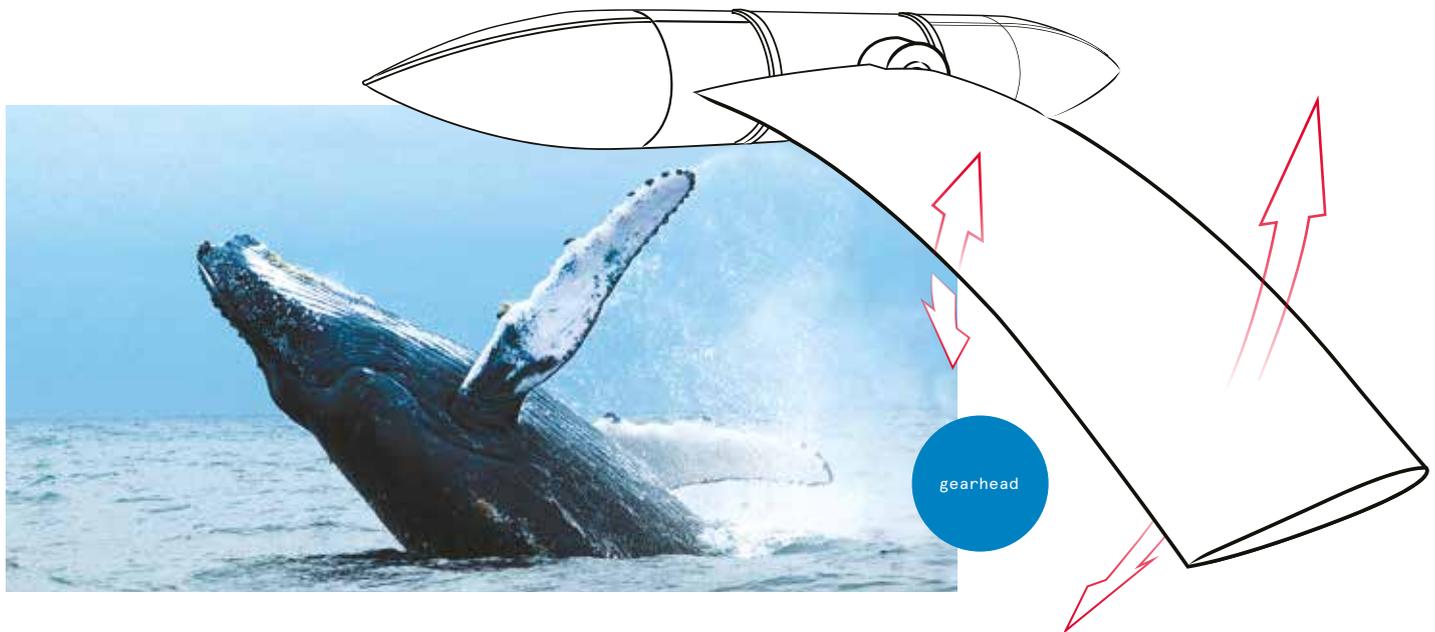


Whale of an invention

Nature inspires a new roll damping system



Is there anything more vexing than your glass of piña colada flopping over and emptying its syrupy frozen contents onto your dinner companion? As embarrassing as it was, this incident, which occurred in choppy waters around Antigua, pales in comparison with an owner facing a boatload of green-faced guests. “Real boaters” may scoff at motion sickness, but rough seas have a way of canceling out all the fun of any pleasure cruise. Finding the best way to tame a bronco at sea is an ongoing and active field of research.

The existing arsenal is already vast and includes gyrostabilizers and any number of fin systems, which have proven their worth in mitigating ill-timed motion and vertical acceleration, but there is always room for innovation.

The newest contender has arrived. It is a fin system but a different kind of one. Its inspiration is nature, according to its exclusive distributor, Dynamic Marine Systems Holland (DMS), more specifically, the fins of whales. Millions of years of evolution resulted in the thin, long and flexible appendages that allow animals weighing tons to soar above the water like ballerinas.

Studies in 2008 first showed the merits of “flapping fins,” and Arnold van Aken came up with a preliminary concept in 2011. This past March, the first AntiRoll fin stabilizer system was installed on the 122-foot trawler *Santa Maria T*.

Like whale fins, the AntiRoll’s fins are long, narrow and curved and are able to move in a couple of directions, which makes them effective both underway and at anchor. Unlike whale fins, of course, these fins are built in steel (carbon is an option) and are activated by a hybrid system by Bosch Rexroth. What they lack in flex, they make up with a couple of axes that allow them to rotate front and back for stabilization underway and up and down for stabilization at anchor. They also fold completely underneath the hull when they are not needed, flush with the hull bottom. Imagine a walrus on its back, its fins folded over its stomach, then flip it face down and you’ll get the picture.

As is often the case, it was an innovating yacht owner who moved the needle forward and allowed the first real-life application of the AntiRoll fin system to be built. His trawler, designed by Guido de Groot, was being built at the Van der Valk Continental Yachts shipyard

in The Netherlands. Ginton Naval Architects, who had designed the hull, looked for ways to optimize the AntiRoll technology for it. The architects devised a torpedo-shaped housing for all the electrical and mechanical parts operating each of the two fins. The entire device was subjected to extensive Computational Fluid Dynamics testing. To Jaron Ginton’s surprise, though the torpedoes and fins are all external, they did not create drag like most appendages do. They actually reduced resistance. “I did not expect that; I expected a penalty,” Ginton says. The fact that the stabilizers’ mechanism is external saves room for other stuff in the engine room and reduces mechanical noise inside. The hybrid power source operating the fins itself is fairly quiet and disperses just the right amount of power for the fins’ optimal use.

More real-life tests will take place, but early results are more than encouraging. A second order followed *Santa Maria T*, for an AntiRoll system to be retrofitted on the 164-foot Feadship *Endless Summer*. DMS deems the system suitable for even larger yachts, up to 262 feet in length. Even big boats need stability, as experience has proven that size alone does not guarantee a stable ride. Ask the whale. dmsholland.com – *Cecile Gauert*