

Engineers invent adjustable, compact marine winch, offering flexibility and improved vessel operations

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Engineers with the UNOLS East Coast Winch Pool at the Woods Hole Oceanographic Institution invented a new winch model that is lightweight and compact, designed specifically to make for an easier and more effective experience for crews onboard vessels. Credit: WHOI

Most research operations and missions require winches for hauling and retrieving equipment over the side of ships. A winch is used to hoist items to and from the deck such as nets, vehicles and other scientific equipment. Typically, marine winches in use today have large on-deck footprints, can be difficult to operate, are costly single purpose, and are used from one fixed location on the deck.

With these challenges in mind, engineers with the UNOLS East Coast Winch Pool, at the Woods Hole Oceanographic Institution (WHOI), spent a decade working on a product that offers a lightweight, compact winch model, designed specifically to make for an easier and more efficient experience for crews onboard vessels. WHOI has entered into an exclusive license agreement with InterOcean Systems (IOS), a world leader in marine product manufacturing, to produce and market the WHOI-patented winch. A portion of revenues will be returned to WHOI and used in support of the institution's research and innovation initiatives.

"We first collaborated with IOS when a growing number of institutions became interested in this winch design for vessels," said Allison Markova, Assistant Director of WHOI Technology Transfer.

"Now, it is being added to their [product line](#); a great example of lab-to-market success."

The [innovative design](#) is described by its inventors as a "modern design with an original, classic structure", including:

- A smaller footprint saves deck space, a valuable commodity on research vessels
- A frameless, lighter winch adaptable for a variety of marine applications.
- Capable of heaving and supporting heavy loads

- The design allows for a strength to weight ratio of 2:1 or better, depending on materials, as compared to 0.5-1:1 with traditional winches.
- The lighter-weight design also improves vessels' fuel efficiency, lending itself to lower emissions and making it an ideal for use aboard alternative-fuel-driven and ever-evolving 'green vessel' design vessels.



The winch is a small footprint, frameless winch adaptable for a variety of marine applications. The smaller footprint saves deck space, a valuable commodity on research vessels. Credit: Joshua Eaton WHOI

"Winches are universal in the science and marine community," said James Haley, UNOLS East Coast Winch Pool coordinator. "Crews are constantly putting some form of technology or equipment over the side of a boat and bringing it back using a winch. We saw an opportunity to make a smaller, stronger, and faster device that would foster the work that crews are doing each day."

"InterOcean is thrilled to be collaborating with the talented inventors at WHOI. There has not been a lot of innovation in this space in recent decades, so this novel winch [design](#) is notable. We see tremendous value in bringing this new technology to market and early customer feedback is very positive," said Chris Chase, General Manager of IOS.

Provided by Woods Hole Oceanographic Institution

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