

THORDON COMPAC IN NEW ULTRA-QUIET FISHERIES SURVEY VESSEL (FSV)

Anglers understand the need to run quietly, as to not scare the fish away. That's relatively easy for a small boat with a trolling motor. But what about a mid-sized diesel-electric powered ship with a 4.3 m (14 ft) diameter propeller? Such was the challenge faced in building the new Fisheries Survey Vessel (FSV) for the U.S. National Oceanic and Atmospheric Administration (NOAA). To ensure that fish populations could be studied effectively, the specifications featured the most advanced noise suppression technologies in the world – including Thordon COMPAC Water Lubricated Propeller Shaft Bearings.

Built by VT Halter Marine of Mississippi, U.S.A., the newly christened *Oscar Dyson* FSV will play a vital role in maintaining the health of the northern Pacific fishing industry. The ship will use a variety of techniques – including hydro-acoustic surveying – to collect the essential data required to establish quotas.

At 64 m x 15 m (210 ft. x 49 ft. x 28 ft), a powered ship of this size would normally generate enough background noise to hinder surveying operations. Therefore, achieving a low acoustic signature was a critical design parameter right from the start. "One of the areas where a lot of noise infiltrates the water is in the propulsion system" says Thordon Bearings distributor, Jim Bright, Sales Manager for Marine Industries Corporation. "So Thordon COMPAC was the obvious choice for the bearing material. In fact it was written into the vessel specification"

According to the specifications, the stern tube bearing needed to be "of environmentally safe and acoustically inefficient materials". Thordon COMPAC Propeller Shaft Bearing have a proven track record in Naval and Coast Guard applications featuring:

- *Pollution free water lubrication (a renewed innovation pioneered by Thordon)
- *No use of oil and, therefore, zero risk of oil pollution from the stern tube;
- *An expected 10-year bearing wear life or longer; and
- *A low coefficient of friction and superior hydrodynamic performance at lower shaft speeds resulting in quieter operation.

In addition to being acoustically stealthy, *Oscar Dyson* is also equipped with a Dynamic Positioning (DP) System to help the ship hover at a fixed point on the ocean. This allows the vessel to more accurately monitor undersea activity. "Of course keeping a large ship in one place isn't as easy as coming to a full stop," says Bright. "The DP coordinates the thrusters and main shaft to affect the station keeping duty and hold the vessel in one position. Starts, stops and low shaft speeds are necessary to maintain the vessel at a precise geographical coordinate. When a ship operates in this manner, shaft squeal - or "stick slip" as it is colloquially referred to in the industry - is the noise generated when the shaft is operated at slow speeds and is literally trying to stick to the bearing. This noise will radiate from the vessel into the water. Thordon COMPAC's inherent self-lubricating properties and hydrodynamic design keeps breakaway friction low which helps to eliminate stick slip effects. Thordon engineers also did some further customization as Dave Rickman, Chief Mechanical Engineer for VT Halter, points out: "NOAA specified the Thordon bearing because of its experience showing that Thordon has a low acoustic signature. We had Thordon modify the standard offering to allow for sustained hydrodynamic operation at very low shaft RPM."

Delivered in October 2003 and due to be operational in the fall of 2004, *Oscar Dyson* will survey Alaskan waters and the Bering Sea in its mission to protect, restore and manage the use of living marine, coastal and ocean resources through ecosystem-based management. NOAA recently announced plans to exercise its option to build a second NOAA FSV at VT Halter Marine with delivery in 2006.

U.S. NOAA FSV Oscar Dyson equipped with Thordon COMPAC Water Lubricated Propeller Shaft bearings.

