OCEAN RESOURCES
DEVELOPMENT &
COASTAL ZONE
MANAGEMENT

FEATURING:
Oil, Gas Mooring for Renewables
Hydrophones to Monitor Marine Life
XPRIZE for Coral Reefs
Slow-Speed Engines Better for Long Term

The Swedish Club warns that vessel operators should always look to the long term when specifying the type of engines to be installed across the fleet. Latest statistics from the club show that vessels propelled by medium/high-speed engines have a claims frequency 2.5 times higher than slow-speed engines, with an average claims cost close to $650,000.

“Main Engine Damage,” the latest loss prevention report from The Swedish Club, sheds light on an expensive category of damage that is all too frequent. Statistically, a vessel will suffer one to two incidences of main engine damage during its lifetime.

The report shows that bulkers and tankers are the best performers for claims cost. Most of these vessels have slow-speed engines. Conversely, passenger vessels/ferries have the highest frequency of main engine claims. Often, these vessels have multiple medium-speed engine installations. The same is also true for Ro-Ro vessels.

Lubrication failure is still the most expensive and frequent cause of damage, followed by incorrect maintenance and/or repairs.

The publication includes loss prevention advice from the major engine manufacturers MAN Engines and Wärtsilä.

Emission-Free Fuel Cell Power Plant for Ships

ABB and Ballard Power Systems have signed a memorandum of understanding to develop a next-generation fuel cell power system for sustainable marine e-mobility.

The fuel cell power system, to be jointly designed, developed and validated, will help accelerate the industry-wide adoption of sustainable solutions for marine e-mobility and help shipowners meet the increasing demands for clean operations.

ABB and Ballard Power Systems will leverage the existing kilowatt-scale fuel cell technologies and optimize them to create a pioneering megawatt-scale solution suitable for powering larger ships. With an electrical generating capacity of 3 MW (4,000 hp), the new system will fit in a single module no bigger in size than a traditional marine engine running on fossil fuels.

The proton exchange membrane fuel cells (PEM) convert the chemical energy from hydrogen into electricity through an electrochemical reaction. They involve no combustion, converting fuel directly to electricity, heat and clean water.

With the use of renewables to produce the hydrogen, the entire energy chain can be clean.

Foss Looks to Software To Tighten Operations

Foss Maritime has begun to centralize its fleet management and operations with Helm CONNECT, a marine software platform.

Smaller REMUS Enables More Applications

Hydroid has collaborated with Nortek to create a compact, portable AUV capable of single-person operation that would open up new possibilities for deployment.

The REMUS M3V is an AUV of A-size form factor (0.91 by 0.12 m). The compact size of the M3V makes it ideal for many applications, including marine life research, underwater assessment of oil and gas installations and offshore wind...
turbines, oil spill response, and military applications. The A-size form factor means the REMUS M3V can be launched from the air, on the surface and even submerged below the sea.

The REMUS M3V has Nortek small-form Doppler velocity log (DVL) sensors and related equipment to help accurately measure the AUV's velocity and altitude relative to the seafloor down to 300-m depth.

**Joint Subsea-Surface Survey Operations Demo**

The ability for multiple unmanned subsea and surface systems to work together on joint survey missions, controlled from shore, has taken a step closer to operational reality following a two-week trial in Scotland’s Loch Ness.

Sonardyne International Ltd.’s USBL acoustic positioning and AvTrak telemetry systems enabled a USV to locate, track and command and control a UUV. Position and mission status updates were transmitted to shore via surface communications. The mission also included through-water transfer of data collected by a Sonardyne Solstice multi-aperture sonar on the UUV to the USV using Sonardyne’s BlueComm optical modem.

The demonstrations, involving the National Oceanography Centre’s (NOC) Autosub Long Range (ALR) and ASV Global’s C-Worker 5, were the culmination of the three-year Autonomous Surface and Sub-surface Survey System (ASSSS) project, led by ASV Global, with partners Sonardyne, NOC and SeeByte Ltd., supported with funding from Innovate UK and the Defence Science and Technology Laboratory.

The need to collect more data from the marine environment means that marine autonomous systems need to be at sea for longer. Pairing a UUV or AUV with a USV means that positioning accuracy can be optimized on missions lasting weeks, if not months, without the need for manned surface vessel support. By using optical and acoustic communications systems, the survey data can also be accessed more economically and missions can be updated on the fly, according to what is found, without the UUV having to surface or needing to be recovered.

**RockFLEET for VMS**

Rock Seven’s RockFLEET global tracking and messaging system, has been selected as one of four approved devices in a mandated scheme to install a vessel monitoring system (VMS) to all commercial fishing boats in Queensland, Australia. All commercial fishing and charter boats will require a vessel tracking device to be fitted and operational by 2020. Net, crab and line boats, meanwhile, will need to have a VMS in place from January 1, 2019. Rock Seven’s partner Option Audio will manage the installation and ongoing management of the units in-country.

RockFLEET is the only Iridium-based solution available for Queensland’s fishing vessels.