

January 2012	Workshop	<u>UNOLS Inaugural Greening the Fleet Workshop</u>
April 2014	Workshop	<u>URI Workshop - Green Boats and Ports for Blue Waters II</u>
December 2015	Presentation	<u>2015 Greening the Fleet Progress Report</u>
April 2016	Workshop	<u>2016 Workshop - Green Boats and Ports for Blue Waters III</u>

<https://www.unols.org/event/meeting/green-boats-and-ports-iii>

Green Boats, A social challenge not a technical challenge - Marshall



- Greenest vessel in the world totally sustainable: unsinkable, organic, biodegradable paints
- Better (& cheaper), reliable & better experience cf. Tesla
- Solar panel integration : light are off grid
- Wind turbines
- Electrochromic glass
- Sound & vibration energy harvesting
- Phase Changing Materials for HVAC
- Almost waste-zero building
- 3D printing in future

The practical application of a hybrid system in a 19 meter research vessel – Mingo

RV Spirit of the Sound – Long Island – National Aquariums
20m LOA, 6.5m beam catamaran
AC motors – lithium Polymer Storage
Otter trawl & ROV
Fuel savings, Silent, Emissions

One Ocean at a Time: Green Initiatives in the Regional Class Research Vessels – Hilliard

Hull form & bulbous bow
Propulsion twin 360° Azimuth
Power plant : heat recovery & HVAC
Coatings & Lubricants (non biocidal, non ablative & biodegradable)
OSU & NSF

The Greening of the Research Vessel, Sikuliaq – Stein

Coating, Waste mgmt., power plant concept, waste heat recovery
Biodegradable Hydraulic Oils RV
Sewage treatment
Hull concept & auxiliaries

Green boats in practice. "Solliner" - 100% solar catamaran – Zientek

Green quiet boats in recreational sector (Poland)

Demand does not force supply

Efficient technology is keydriver

The new bottom line: cost, value, ocean and message. How Rozalia Project is making American Promise the greenest sailing research vessel in the world. – Miller

The Case for Environmentally Acceptable Lubricants: Reducing Operational Discharges of Lubricants into Oceans and other Water Bodies – Bryant