Environment of the Sea Notes

Winter 2013

Introduction

It is never quite clear when a tipping point has been reached, but there is no doubt that much is going on to make boats and boating greener. The following notes are a sampling of recent developments.

Green Outboards and More

1. A Propane Outboard. Since 2008, Lehr, Inc., of Los Angeles, has manufactured zero emissions propane-fueled lawn tools. Now the company has entered the marine environment by producing small, environmentally friendly 2.5 and 5 horsepower outboards powered by propane. The fuel comes in a small recyclable cannister which is inserted into a socket on the engine. A larger remote LPG tank can be hooked up for greater range. According to the manufacturer, its 5 hp outboard on an 8' - 10' RIB with two people aboard will run wide open for 30 minutes on a single cannister and far longer at lower speeds. The cannisters are readily available in the U.S., but could be difficult to find abroad. These outboards have won numerous awards, including the West Marine Green Product of the Year, the 2012 Intel Environment Award and the 2013 Pittman Innovation Award. They are briefly described in the February 2013 issue of Sail Magazine and reviewed at some length in the February 2013 issue of Practical Sailor, which highly recommends the motors.

2. Hydrogenerators. Every boat in the most recent Vendee Globe carried a Watt & Sea hydrogenerator. Now the company has made these noiseless, highly efficient and clean generators available in a more affordable cruising version. Affordable is a relative term - the racing versions cost approximately $19,000; the crusing models sell for about $6,000. They can be lifted clear of the water when not in use. At 8 knots of boatspeed, a Watts & Sea hydrogenerator fitted with a standard 9.5 inch propeller can produce 200 watts or approximately 16 amps at 12 volts. A similar hydrogenerator with lower output, the Aquair UW, is available from Solar Power Marine. See www.solarpowermarine.com. Most earlier hydrogenerators trail a spinner behind the boat like a taffrail, are substantially cheaper and still produce a reasonable amount of electricity, although the spinners are subject to snagging. An example is the Ferris Waterpower 200. See www.hamiltonferris.com/categories/water_power/16. The Watts & Sea hydrogenerator was the subject of an article in the January/February, 2013 issue of Ocean Navigator. Like the Lehr propane outboard, it was the winner of a Pittman Innovation Award this year.

3. A New Electric Saildrive. Another Pittman Award winner this year was the Oceanvolt SD electric saildrive, which is almost entirely self-contained, compact and waterproof.

It is water cooled, so concern over the availability of air circulation is not an issue. It's blades can be configured in such a way that the unit will double as a hydrogenerator. Made in Finland, these saildrives retail for $11,700. They are silent and emission-free and provide a propulsion system which allows a boat to get in and out of harbors and to motor in light air conditions. A regeneration function allows recharging of batteries when sailing. They have been installed in boats as large as 40'. Range, of course, is limited by boat speed, battery capacity and state of charge.

4. Torqeedo Electric Outboars. Torqeedo electric outboards have been discussed in an earlier edition of these Notes. The Torqeedo Travel 1003 is the subject of a report in the December, 2012 issue of Cruising World by circumnavigator Webb Chiles who purchased one to use as auxillary power, mostly for getting to and leaving docks, on his Moore 24, on which he plans a circumnavigation. He has concluded that the motor is an excellent choice for him, notwithstanding its cost (approximately $2,000) and limited range (2 to 16 miles, depending on speed) between charges. He considers it well engineered and designed and easy to mount and use. He particularly liked the one-finger, push button starting.

Green Boats

1. Kiwi Spirit. Kiwi Spirit, a recently launched Lyman Morse 63, will attempt to break Dodge Morgan's non-stop solo around the world record of 150 days. Of note is that the owner, Dr. Stanley Paris, will be 76 when he shoves off and that he intends to make the voyage without using any fossil fuel. To accomplish this, the boat is equipped with four Watt & Sea hydrogenerators arrayed across the stern so that electricity will be generated regardless of the boat's angle of heel. It also has multiple solar panels and a series of wind generators, the electricity from which will be stored in ion phosphate batteries. Kiwi Spirit is the subject of an article in the December, 2012 issue of Cruising World. A video of the boat and an interview of her owner can be found by clicking under "In The Media" on Lyman Morse's website (www.lymanmorse.com/news.php). For anyone wanting to follow his exploits, Paris maintains a blog about this project (www.stanleyparis.blogspot.com).

2. MJM Has A Green Mission. Bob Johnstone, the owner of MJM Yachts and a member of the Board of Directors of Sailors For The Sea, is committed to eco-friendly powerboat designs. The company has created a line of boats constructed with lighter, stronger materials which reduce their carbon footprint by using less petroleum-based resins and substantially less fuel to operate. It believes that its yachts are among the most energy efficient in the world. The boats are built at Boston Boatworks in a facility which is MACT compliant - the EPA's maximum achievable technology rating. A discussion of MJM's Green Mission can be found at www.mjmyachts.com.

3. Greenline -The Hybrid. A line of powerboats built in Slovenia by Greenline, has won some 21 boat-of-the-year, design and environmental awards and the company claims that its Greenline 33 is the best-selling 10 meter boat in the world in recent

years. The boats use a superdisplacement low-drag hull, which requires much less energy to move it through the water, and a hybrid (diesel-electric) engine. The company believes that the Greenline 33 burns as much fuel over the course of a season as a diesel powered sailboat of the same size and four times less fuel as a 33' twin-engine planing hulled powerboat. A solar roof array keeps the boat's lithium batteries charged and provides additional energy for its electric drive system. In the electric mode, used at slower speeds, the boat is silent and emission free. Details are at www.greenlinehybrid.com

4. Solar Power To The Extreme. As reported in the July, 2012 issue of Soundings, on May 4 the 100' wave-piercing catamaran, Turanor Planet Solar, completed a circumnavigation, the first to do so under solar power alone. Stopping in 18 cities, the voyage took 585 days. The boat, which was built of carbon fiber by Knierim Yachtbau in Kiel, Germany and cost $16 million, has some 38,000 solar cells covering 537 square meters and 11.7 tons of lithium polymer batteries. It has 20 - 40 kw electric motors in each hull and cruises at 5 knots. Maximum speed is 10 knots. The boat has a diesel engine and carried 660 liters of fuel on the circumnavigation, none of which was used. Among Planet Solar's 2013 projects is a scientific measurement campaign in the Florida Current and the Gulf Stream from Florida to Iceland, which is being carried out in conjunction with the University of Geneva to contribute to increasing awareness of climate change. For more information, see www.planetsolar.org.

5. Even Mega-Yachts Are Getting Starting To Think Green. The website of eco-yachts.com describes its mission as "...the promotion of environmental awareness in the super yacht industry by bringing news and tools to crews and yachting professionals". A sampling of their message can be found at www.eco-yachts.com.

Green Racing

1. A "Clean" Newport Bermuda Race. As participants in the 2012 Newport Bermuda Race and anyone who has visited the website of the race will know, last year's NBR joined a growing list of races certified as clean regattas under standards set by Sailors For The Sea.

2. The 34th America's Cup Is Making A Serious Pitch For Healthy Oceans. The certification of any regatta as "clean" is an important step forward in efforts to deal with the problems facing our oceans, but in terms of visibility and impact, perhaps none is as significant as the clean regatta partnership between the 34th America's Cup and Sailors For The Sea, the goal of which is to reduce the environmental impact of the high profile America's Cup World Series, the Louis Vuitton Cup and the America's Cup itself. Sailors For The Sea is also a partner in the America's Cup Healthy Oceans Project, a collaboration between the America's Cup Event Authority and a number of leading ocean conservation NGOs. The project is focusing on three areas where, it believes, individuals can make a difference: marine protected areas, sustainable seafood and reducing the amount of single-use plastic bottles that so frequently end up in the oceans.

3. The First Carbon Neutral Race in the U.S. The 2012 Atlantic Cup, which featured a fleet of 15 professionally-crewed Class 40 boats from the U.S., France, Germany and Great Britain racing in a series of inshore and offshore races near Charleston, was the first race in this country to be carbon neutral. Prior to the start the carbon footprint of the race was calculated by Green Mountain Energy and, based on those calculations, and a post-race assessment, carbon offsets and renewable energy carbon certificates were retired in order to offset emissions associated with the race. In addition, the race was designated plastic water bottle-free, all waste from the races was required to be recycled and all teams participating in the races used ocean-friendly cleaning products.

Green Bottoms

As efforts continue to find bottom paints which are environmentally friendly, two new products have been the subject of this year's Sail Magazine Pittman Awards: Eco Clad - Fast Coat and McLube's Antifoul Alternative Speed Polish. Eco Clad, produced by Luritek, is a bottom paint which uses biomimicry technology to support the growth of a beneficial natural biofilm that prevents hard fouling on hulls. More information about this paint can be found at www.ecoclad.com. McLube's product, on the other hand, is not a paint, but a citrus-based, long-lasting high gloss polish which prevents marine growth and is non-toxic and biodegradable. The company's website claims that it lasts "for weeks", but the crew on the Volvo Ocean Race boat Mar Mostro has not only been impressed with the boat's speed when using Hull Kote Speed Polish, but have concluded that the antifouling properties work so well that they no longer need bottom paint. See www.mclubemarine.com/antifoulpolish.

A Green Round The World Sailing Event

Jimmy Cornell, the founder of the Atlantic Rally For Cruisers, has announced an around the world sailing event - Blue Planet Odyssey - aimed at raising awareness of climate change. The event will start in 2014. Boats will sail westward and will call at some of the most endangered islands in the world and attempt to highlight the effects of climate change on the Arctic icecap, the Great Barrier Reef and the Galapagos Islands. Participants will be able to start from a port on their own continent and will be expected to take an active part in some of the projects associated with the event. They will also do outreach to children worldwide through educational programs.