



# The Year's Best Gear



The Raymarine e7D (right), tested here against the Garmin 740s (left), earned the Practical Sailor Editors' Choice award as the compact chartplotter-sounder pick.

## PS's marine systems, electronics, and gear must-haves.

A hybrid touchscreen multi-function display that can link with your iPhone; an iPad app that can serve as a backup for your chartplotter; a powerful, rechargeable LED spotlight that floats; an affordable vent filter that eats up holding tank odor; and a single-part varnish that retains a mirror-like gloss for more than a year—these are just some of the products that drew the highest praise from *Practical Sailor's* editors in 2012.

Of the dozens and dozens of marine products we tested between September 2011 and August 2012, only 18 earned the designation as 2012 Editors' Choice gear. These are products that clearly stood out among their peers during our independent tests as the best in their category and whose performance

earned the confidence of *Practical Sailor's* editors. Many of this year's Editors' Choice products fell in the upper range of the price spectrum, but there were also some priced well below their peers. (Sailors looking for Budget Buys—the most affordable recommended product in each category—should refer to the individual test reports.)

### RAYMARINE e7D

Made by marine electronics giant Raymarine, the Ray e7D chartplotter-sounder, with its 7-inch screen, is the smallest and newest of Raymarine's networked multi-functions displays (MFDs), but it is loaded with many of the features that the larger units boast.

*Practical Sailor* evaluated the e7D in the July 2012 issue, comparing it to the Garmin 740s (a top performer in our review of compact plotter-sounders, which was published in the November 2011 issue). Both products excelled in tests, earning across-the-board Excellent ratings, but what sets the e7D apart is its expanded networking options and its long laundry list of new-to-the-marine-market capabilities like WiFi and Bluetooth interfaces to mobile computing devices such as iPads and iPhones. The e7D is capable of working as a stand-

alone unit or being fully networked with other members of the new Raymarine chartplotter family and the C and E-series widescreen units.

The e7D is a hybrid touchscreen unit that combines tactile knobs and buttons with touchscreen functionality.

The e7D comes with a Navionics "USA Raymarine" microSD map chip that offers the Navionics Silver charting package. It uses micro SD memory cards and has two slots to accommodate them. Testers noted chart detail and presentation in the 2D chart view was clear, and in the 3D view, it was the sharpest of the bunch.

Measuring approximately 9 x 6 x 3 inches, the e7D has an internal GPS antenna and a 48-channel, WAAS-capable GPS receiver. It can interface with radar, NMEA 2000/0183-capable devices, and AIS. It draws 1.09 amps and is rated as IPX6 water resistant.

The Ray e7D comes with a three-year warranty and costs \$1,600-\$1,700 (about the same as the Garmin); a sailboat transducer will run another \$100-\$445.

The e7D's networking options and features like WiFi and Bluetooth interfaces earned it a spot on this year's Editors' Choice roster. If you like bells and whistles, then this is the obvious choice.

Raymarine e7D



*iNavX* (right) was PS's top navigation iPad app, and *iSailGPS* (far right) was the pick for an inexpensive nav app.

**iNAVX & iSAILGPS**

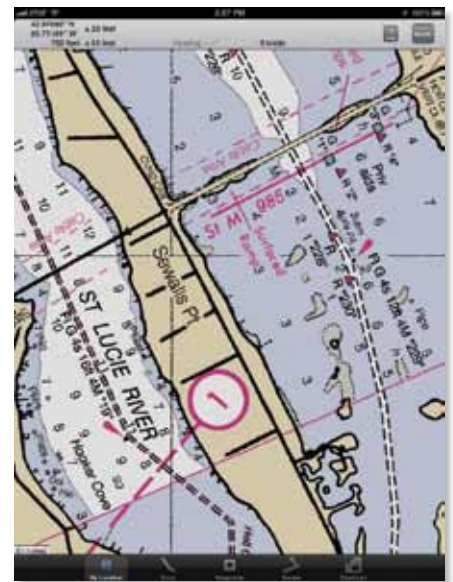
In 2012, *Practical Sailor* checked out dozens of iPad applications geared toward sailors and boaters. We tested top-tier navigation apps (*PS*, February 2012), budget chartplotting apps (*PS*, March 2012), and miscellaneous apps for things like weather, tides, and boosting your pirate vocabulary (*PS*, April 2012). Testers' top picks were the *iNavX* navigation app and the *iSailGPS* chartplotting app. Both impressed us enough to earn Editors' Choice honors.

*iNavX* bested more than 14 other well-established iPad navigation apps we tested, including iPad Navionics and Charts & Tides. While it's a bit pricey compared to most mainstream apps (\$50 for NOAA RNC global; prices for other versions vary), *iNavX* is the original and still one of the best navigation apps for the iPad.

It operates similar to a high-end dedicated chartplotter, but it does not come with charts. Users can easily download into the iPad's memory any or all of the NOAA raster charts for free, and updating is easy. For those who prefer vector, *iNavX* can do that, too.

Navigating with *iNavX* is straightforward, and anyone with experience using a GPS, Loran, or chartplotter will be immediately competent. Users begin by choosing a chart area (e.g. NOAA East Coast); the software will open the chart where you are located; and you're navigating.

About the only thing you cannot do is overlay radar images or open multiple windows to show a fish-finder or video cam. You can get other NMEA feeds (apparent/true wind, autopilot, etc.),



but you need to set up a WiFi system on your boat.

Testers noted that *iNavX* is designed as well as and is more user-friendly than most chartplotters we've seen. It earned Excellent ratings for stability, features such as satellite-image overlay and marina information, and pan/scroll speed using vector charts. The extremely intuitive, simple app concentrates on the essentials and does it well.

For those looking for a more basic and budget-friendly chartplotting app for iPad, there's the \$7.99 *iSailGPS* by James Associates.

Testers rated *iSailGPS* Excellent overall. It uses NOAA raster charts and has several distinct advantages over its nearest competitors, eSeaChart and Simple Charts, including the capability to create and edit waypoints and routes. It also has an excellent built-in "help" guide and more help on the developer's website; testers found this to be the best combination of text and screenshots among all the low-priced apps.

In basic navigating functions, this straightforward iPad app is the best of the low-priced options.

Both *iSailGPS* and *iNavX* enable the iPad to function similar to a regular chartplotter; however, we don't recommend using an iPad as your sole navigating tool. It and the apps will serve best as auxiliary or backup nav tools.

M604A and the Raymarine 218.

These fixed VHF's go way beyond the basic capabilities of moderately priced units. Both are NMEA 0183 network compatible, have 30-watt hailers, and are remote-mic capable. They also are submersible, feature microphone handsets with various control options (from channel changing to channel scanning), come with three-year warranties, and have Digital Selective Calling (DSC) functionality.

Icom's most sophisticated marine VHF radio, the IC-M604A, features an alphanumeric keypad, large display, and a \$512 price tag, making it the second most expensive test radio. The only test unit with a keypad, the M604A also had the largest footprint (4.34 x 8.65 x 4.31 inches) and a detachable mic. When interfaced with a compatible GPS, the M604A will display time and position data, boat course, and boat speed.

Its transmit power stability was rated Good, while frequency stability and receiver sensitivity were Excellent. Audio quality was also top notch, with one of the loudest outputs at 97 decibels.

With very good overall performance, a keypad, and numerous other user-friendly features, the IC-M604A earned a 2012 Editors' Choice award.

Raymarine 218



**ICOM IC-M604A & RAY 218**

Two high-end marine VHF radios that *PS* reported on in the July 2012 issue earned their place among this year's Editors' Choice picks: the Icom IC-

Icom IC-M604A



# The 2012 Marine Systems Standouts

The last year saw another bumper crop of marine-systems testing at *Practical Sailor*. Following our comprehensive look at marine toilets in 2011, our focus this year turned to the essential valves, filters, and auxiliary pumps. *PS* editors narrowed the lot to four systems standouts worthy of Editors' Choice status.

## BIG ORANGE VENT FILTER

*Practical Sailor* rounded up three popular, commercial waste vents and a home-built system to evaluate in the March 2012 issue. After four months of creative field-testing—using 5-gallon buckets as holding tanks and a Chesapeake summer as our environmental “heat chamber”—testers tapped the Big Orange 5/8-inch filter as the leader, naming it Best Choice over waste vents from Dometic and Vetus.

As the name implies, the Big Orange filter was the largest of the test field. Its refills are either bulk carbon from the Canadian manufacturer (\$25), or you can find your own lo-



Big Orange vent filter

The Raymarine 218 also offers a host of useful features, including a moderately sized display (2 5/8 x 1 3/8 inches) and a mount-anywhere microphone option. It can also connect to an optional remote mic to be operated as part of an intercom system. However, it does not have a keypad.

Performance-wise, the \$456 Ray 218 was outstanding. Testers found the 218's power output over the tested temperature and voltage ranges to be Excellent. Frequency stability and audio quality also were rated Excellent, while receiver sensitivity was Good. It measured 89

Streamlight Fire Vulcan



decibels for audio output.

The 218's phonebook will store up to 50 Maritime Mobile Service Identity (MMSI) numbers, and when it's interfaced with a GPS, the 218 displays time, boat position, course, and speed.

Buyers who want the convenience of a keypad should go with the IC-M604A; those who don't can save roughly \$83 by going with the Ray 218.

## STREAMLIGHT FIRE VULCAN

In the January 2012 issue, we evaluated seven LED spotlights priced between \$50 and \$150 from West Marine, Sirius, Coleman, Brinkmann, and Streamlight. Testers' top pick in that test



Johnson Aqua-Jet WD5.2

cal bulk carbon source (such as a pet store). Changing the carbon is a simple matter of pulling out a drawer, dumping, and refilling; it couldn't be easier. It is the only unit on the market that includes a vacuum break valve in the design, which is essential to protect the holding tank in the event of filter plugging.

The Big Orange filter's features and large size make it *PS* Editors' Choice, particularly for boaters who live aboard or have larger holding tanks (40 gallons plus) and want to ensure maximum service life. While the filter has a higher initial cost—\$145—its operating costs over time are lower than others we tested.

## JOHNSON AQUA-JET WD5.2

Johnson Pumps' Aqua-Jet WD5.2 earned a spot on the Editors' Choice list with its Best Choice showing in the October 2011 review of deck washdown pumps. Johnson has been one of the world's leading manufacturers of marine pumps for 30-plus years.

Based on our test criteria for the optimal washdown pump—reliable in salt water or fresh water, performs as advertised (or better), and can handle washdown chores aboard anything from a small weekender to a mid-size cruiser—the Johnson WD5.2 was the top pick for 12-volt, diaphragm pumps with a rating of less than 6 gallons per minute (GPM). The WD5.2 was one of only two pumps that exceeded its rated output (5.2 GPM, 70 psi) in the test. In open-flow testing, it managed a flow rate of 5.45 GPM, besting all other pumps with an advertised rating of 6 GPM or less. (The Shurflo Par-Max 7.0 kit got the nod among the higher-output pumps.)

was the Fire Vulcan made by Streamlight, a company that provides lights for the military and police and fire departments. The 2012 Editors' Choice awardee scored big points for its sheer ruggedness and versatility.

Powered by two lightweight, rechargeable lithium-ion batteries, the Fire Vulcan LED 44450 is shaped like a slender brick with a handle on top. At 1.8 pounds, it is much lighter and more ergonomic than any of the other rechargeable spotlights tested. It also was the only test light rated at IPX7 water resistance (1 meter immersion, 30 minutes), and it floats—beam up.

The Fire Vulcan has one C4 primary LED plus two very bright blue LEDs that shine rearward in a continuous or strobe



The \$143 WD5.2 has a metal motor housing attached to a four-hole metal mounting bracket. A large, plastic pump casing sits in front of the motor and contains the factory preset pressure switch. It comes with a spray nozzle, inlet strainer, multiple connection options, and a three-year warranty.

### JABSCO DIVERter VALVE

As part of our marine sanitation test mania, we evaluated seven manual diverter valves and one electric valve (*PS*, May 2012) from seven manufacturers, including Groco, Forespar, Johnson Pump, and Whale. The best of the bunch, and our Editors' Choice pick, was the Jabsco 45490-1000. Jabsco—part of Xylem Flow Control, a spin-off from ITT Industries—is a worldwide player in the leisure marine market.

The 45490-1000 has a larger footprint than some other valves because it comes with two curved, 120-degree, 1½-inch discharge ports that can rotate in any direction to make plumbing it easier. It comes with both 1½- and 1-inch screw-in inlet port adapters.

The body and handle have holes for accommodating a padlock to prevent discharge and comply with discharge regulations. The valve body is made of chemical- and corrosion-resistant polypropylene with stainless-steel bolts, screws, and bright silver, inlaid flow arrows. The ports and diverter shaft have replaceable O-ring seals.

Testers found the Y-valve easy to disassemble for cleaning and lubricating, and its operation was notably smooth, with positive stops and no leaks.

Priced at \$73 (with a one-year warranty), it came in at the lower end of the price spectrum.



Trionic SP200

### TRIONIC HOLDING TANK

Trionic Corp.'s SP2020 got testers' nod in the February and April 2012 head-to-head evaluations of holding tanks. Pitted against a comparable holding tank from SeaLand, the 20-gallon SP2020 performed well in our tank-deflection tests.

Part of Trionic's super premium line, the SP2020 is constructed of 3/8-inch-thick virgin polyethylene and complies with U. S. Coast Guard requirements. Polyethylene is the tank material of choice because it is lightweight, doesn't corrode, allows for seamless tank construction, is relatively inexpensive and (if thick enough) won't allow odors to permeate. In short, a good quality polyethylene tank could very well outlast the hull of the boat you're installing it in.

The SP2020 comes with a 5/8-inch barb vent assembly, 3-inch inspection port, 1½-inch inlet, and a 1½-inch discharge outlet and all fittings, as well as a 1½-inch screw in plug. A second overboard discharge is available as an option. All of its fittings are mounted at the top of the tank.

It also features a vacuum relief valve to prevent tank collapse at dock pump-out stations with high vacuum levels. Testers particularly liked the screw-cap design of the Trionic relief valve, which provided easy access for cleaning.

The \$200 SP2020 not only cost less than the SeaLand 20 HTS (\$400), but it also had less material deflection. Less deflection would seem to indicate greater strength. Taking the test results and the price difference into consideration, the Trionic SP2020 adds up to a better value in this holding tank size range.

Jabsco 45490-1000



pattern. Its three-way switch allows either of the two forward-firing power settings to include the rear-facing LEDs. Its selectable low and high beams are operated by a simple bat switch that can easily be operated while wearing heavy gloves. The Fire Vulcan's base allows it to sit on a flat surface with the handle up, and its charger rack (powered by 12-volt or 120-volt) is designed to be wall-mounted.

Testers looked at the spotlights' construction, battery life, beam angle, and illumination at both close (740 lux at 30 feet) and distant (one-fifth of a mile) targets. The handy and compact Fire Vulcan LED rated Excellent for beam pattern and illuminance at one-fifth of a mile, and it developed little heat. It lasted for 2½ hours before dropping to half-

strength. Its ruggedness, along with its waterproof rating, make it a good choice for cruising.

With the \$120-\$146 Fire Vulcan, you get what you pay for, including a seven-year warranty that bested any other maker's offer.

### DANARD DINGHY LAUNCHER

Wheeled dinghy launchers—like our Editors' Choice pick, the Danard Marine Launching Wheels (DW-1)—can give you the mechanical advantage you need to get your dinghy or small boat to the dock or ramp, or even across a beach.

The DW-1 was the hands-down Best Choice among the seven dinghy launchers we evaluated (*PS*, October 2011) from Davis Instruments, Garelick, Newport

Vessels, Defender Industries, and Danard. We tested each dinghy roller on three different terrains—flat concrete, a rocky shore, and a soft, sandy beach—and testers also considered ease of use and ease of installation.

A glance at the components tells plenty about the top quality of the Danard wheels: precision-machined, anodized-aluminum transom brackets and wheel struts, 16-inch Butyl tire tubes (rather than less-expensive natural rubber), and a brass, angled air fill to reduce wear to the stem. The DW-1 also doesn't require cotter or clevis pins for raising or lowering; instead, the system relies on gravity and buoyancy to hold the struts in place

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# The Marine Maintenance All-stars

Over the course of a year, *Practical Sailor* tests upwards of 100 different marine maintenance products, so selecting the cream of the crop for Editors' Choice honors is challenging, to say the least. This year, we whittled the list of maintenance all-stars to five.

## DIY NONSKID OPTIONS

In the January and July 2012 issues, we reviewed 12 products that enable boat owners to put some stick back into a slip-and-slide deck. Topping the field of nonskid paints was Durabak, a tough, flexible polyurethane coating that is pre-mixed with specially treated rubber granules.

The coarse-aggregate paint led the pack among paints and additives in our resistance and traction tests. It was a little rough on knees, but the hard polyurethane will likely endure many years of service. (After one year on our test boat, it's still holding up well.) It was easy to clean and even easier to apply—just mix and roll on—and achieving a uniform grit was effortless.

Durabak is a hard coating with many color choices and above-average traction at an affordable price (\$120-\$140 per gallon)—a combo deserving of a 2012 Editors' Choice pick.

For boat owners who prefer nonskid mats to paints, there's none more grippy than Tiflex Treadmaster. The nitrile rubber/PVC mat's diamond pattern allowed testers to stay sure-footed beyond 50 degrees of incline in all but one test situation.

Made by UK-based Tiflex, Treadmaster was *PS*'s top pick in the July 2012; Feb. 1, 2003; and Nov. 1, 1995 evaluations, and now it holds the 2012 Gear of the Year designation.

Made of ground cork and nitrile rubber, Treadmaster is designed to resist stretch, wear and tear, and chemical damage. While it can handle a pressure washer, testers found it surprisingly easy to clean; it went from mud-caked to spotless with a quick once-over with a garden hose.

It comes in eight-plus colors and is applied with a proprietary,



Tiflex Treadmaster nonskid mat



Interlux Epiglass

tenacious two-part epoxy. Prices vary by sheet size; for example, a 35.5 x 47.5 sheet runs \$117.

## DO-IT-YOURSELF MARINE EPOXY

Interlux's Epiglass HT-9000 marine epoxy resin got testers' pick over products from West System, MAS, Raka, and Evercoat in our June 2012 evaluation.

All the test resins exhibited Good or better adhesive quality, but Epiglass was the least viscous and nosed out the others when laminating multiple layers of material. The tenacious gripper was rated Excellent for wetout and adhesion. The leader in shear testing, it was the only product that repeatedly left resin patches stuck to the glass table when the bond finally failed.

Not surprisingly, the best of the bunch is also the most expensive. Epiglass HT-9000 costs \$145 for a 5-quart kit, or \$29 per quart.



Interlux Perfection after 2 years

## EXTERIOR VARNISH

*Practical Sailor* wrapped up its long-term test of exterior wood finishes after two years of testing with a report in the September 2011 issue. When it came to selecting a one-part varnish with good durability and easy application, testers tapped Epifanes Clear High Gloss. Priced at \$27 per quart, it barely edged out Pettit's 2067—which had better gloss and color retention after one year of exposure, but proved to be less durable—for the honor.

The most durable of the dozens of wood finishes tested was the Interlux Perfection two-part varnish. Its test panel still exhibited Excellent coating integrity and gloss retention after two years of constant exposure to the central Florida elements. It costs \$60 per kit and is *PS* Editors' Choice wood finish for those who prize the look and durability of a two-part varnish over ease of application.



Durabak nonskid paint



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inside the channeled transom brackets.

The Danard launcher, with a 350-pound capacity, was the only test product to earn across-the-board Excellent ratings as it can handle just about any kind of terrain.

At \$245, the Danard DW-1 also was the most expensive dinghy-launching system we tested, but not by much, and it is the only one that comes with a lifetime warranty. Its superior construction quality, ease of use, innovation, and warranty earned it the Editors' Choice award.

### GILL & CAMET SAILING SHORTS

*Practical Sailor* editors chose a his and a hers pick for the apparel Editors' Choice: the Gill men's performance padded shorts and the Camet Wahine women's sailing shorts.

Our tests of padded sailing shorts, reported in the March and June 2012 issues, included products from top sailing apparel makers—Helly Hansen, Harken, Gill, Sailing Angles, Henri Lloyd, Zhik, and Camet International. We put the test shorts through a series of bench tests emulating a few seasons of active wear onboard a sailboat. The tests were designed to evaluate ruggedness and durability, comfort, ease of use (inserting foam pads), drying time, odor resistance, color retention, and any tendency for the fabric to shrink. Each pair also was evaluated on its features, including pockets, zippers, Velcro closures, fasteners, stitching, and the quality of material and construction.

The Gill men's shorts edged out the Camet Rio men's shorts to get testers'

top pick. Described as fashionable and functional, the lightweight and fast-drying Gill shorts can accommodate closed-cell foam inserts (in two interior rear pockets with Velcro closures) and are made of soft Nylon Tactel fabric with a water-repellent finish. According to Gill, internal pad pockets are better for hiking out and make the shorts more versatile for wear off the boat (without pads). The pads are imprinted with dotted cutting lines to help guide trimming for a customized fit.

The Gill shorts also feature belt loops, elastic comfort stretch bands on both sides of the waist, a sturdy zipper, and a button closure. They have two open slash pockets and a third front cargo pocket on the left thigh; the latter with a Velcro closure and weather flap.

Priced at \$89, the Gill shorts rated Excellent on all test points, except abrasion resistance, in which they earned a Good rating due to some abrasion to thinner areas of the shorts.

The women's Camet Wahine shorts are lightweight and designed with a woman's figure in mind. The shorts are low rise with an 8-inch inseam, and they have a flat front with pockets that lay flat. The fast-drying fabric is lightweight nylon with a durable water-repellent finish that offers UV protection (UPF 40+). Made in the USA, the shorts feature belt loops, a somewhat small dipper pocket, and a button closure.

The seat is reinforced with Cordura, which passed the abrasion test without significant wear. The seat pad is inserted into a pouch sewn on the outside of the

seat. Slightly stiff, the pads lend an ungainly overall look that can be tamed by trimming the pads to fit.

The \$75 Camet Wahines earned a spot on the Editors' Choice roster as they are tailored specifically for female bodies and they held up well during bench and field tests. ▲

Photo by David Liscio

### CONTACTS

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**EPIFANES YACHT COATINGS**  
207/354-0804, www.epifanes.com

**GILL**, 678/730-5586,  
www.gillna.com

**ICOM AMERICA**, 800/426-7983,  
www.icomamerica.com

**INAVX**, www.inavx.com

**INTERLUX (AWLGRIP)**  
908/686-1300, www.yachtpaint.com

**ISAILGPS**, www.isailgps.com

**JABSCO**, 978/281-0440  
www.xylemflowcontrol.com

**JOHNSON PUMPS**  
305/234-8941,  
www.johnson-pump.com

**RAYMARINE**, 603/881 5200,  
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**STREAMLIGHT**, 800/523-7488  
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Gill men's padded performance shorts



Camet Wahine women's padded sailing shorts

