Electronic Charts

Hardware and software choices often dictate chart format

Perhaps no aspect of modern sailing is as confusing as the world of electronic charts—and the myriad programs and equipment that use them. Do you want a vector chart or a raster chart? Do you want something that can work offshore on a chartplotter, or something you can play with at home on your PC? Or do you want both?

The good news is that this is now a mature technology. And it continues to improve each year, if not each month, becoming both more powerful and easier to use. All the electronic chart providers out there do a good job of creating a solid product—electronic versions of the paper charts that make position finding and routing a snap when used in conjunction with the proper navigation software. Not only that, thanks to advances in digital technology, the differences are blurring these days so that choosing one style doesn’t mean having to give up the advantages of the other.

Still, you have to be careful. Electronic charts can be differentiated according to a few basic types. Not all charts work in all settings.

Start with hardware

First and foremost, you need to keep in mind the type of hardware you plan on using. There are three basic ways of displaying electronic charts, and they largely determine what kinds of charts you can buy. They also have distinct advantages and disadvantages in terms of life offshore.

The first category consists of dedicated GPS and chartplotter units. These are generally rugged and specifically designed for use offshore. If not waterproof, they are at least water resistant. Their screens are often small, but are intended for use in challenging light conditions, especially direct sunlight. In fact, this is another area in which the technology is improving with each passing year. The same goes for the second category: combination electronic displays like radar or sonar units that double as GPS receivers and chartplotters.

On the plus side, with a PC or laptop the field is pretty much wide open in terms of the electronic charts that you can buy. If your computer is powerful enough there are any number of different navigation programs out there that make it possible to go with pretty much any chart you want. This is especially the case since many PC navigation programs allow you to use charts of a number of different formats.

MaxSea maritime software, for example, uses all the popular electronic chart formats, including everything from Maptech, C-Map, Softchart and MaxSea’s own MapMedia charts to British Admiralty ARCS. The Nobeltec Visual Navigation Suite is capable of operating with a number of different electronic charting formats in addition to its own Passport line. The Capn software by Nautical Technologies uses a number of formats including Softchart and Maptech.

For Mac users running OS X as their operating system, there is GPSNavX. Compatible with most industry-standard electronic charts, including Maptech,
Hose jobs

Water systems—wit those hoses, fittings, valves and seacocks—can sometimes give you a sinking feeling. How many times have you fitted a hose, being so very careful everything is water tight, then come back to check on it again and again, unsure of your own handiwork. Fortunately, two new tools that are designed to take a little of the worry out of fitting and securing hoses have recently become widely available.

The ClampTite is a handy little tool that looks like it belongs on a surgeon’s instrument tray but rather is used for making hose clamps—or most any other seizing clamps, for that matter—out of plain spool wire. With the simple tool and a short length of wire it’s possible to make hose clamps of almost any size, eliminating the need to keep on hand multiple clamps of varying sizes. Hands-on sailors are bound to find other uses for the ClampTite tool as well—including attaching hardware fixtures to seizing eye splices to splinting broken tillers or spars.

The ClampTite comes in a number of sizes that sell for between $30 and $60. For more information, call (888) 860-8060 or visit the company’s Web site at www.nauticalpromotions.com.

Meanwhile, the new Turncouple assembly from Vergennes, Vermont-based Good Turns, allows hoses to be easily connected and disconnect ed using a set of turnbuckle-type fittings. Two threaded adapters tighten on a coupler simultaneously by rotating the coupler. The tapered threads provide a firm mechanical seal that the company says has been tested to hold up to 100 psi of water pressure when tightened by hand. The barbed ends of the adapters are designed to fit into marine hoses and have space for two standard hose clamps for a secure fit.

The 1.5-inch Turncouple assembly was designed specifically for marine use and is made with Isoplast, a glass-reinforced, impact-resistant material that exceeds the standards for plastics used in seacocks and through-hull fittings. Use the couplers for upgrading hose systems, disconnecting and reconnecting lines for winterization or repair, improving access to pumps and equipment, or as a quick and easy way to make your boat’s head legal in a no-discharge zone.

The Turncouple assembly sells for $49.50 and the company says it plans on introducing different sizes soon. More information is available at www.turncouple.com or by calling (802) 877-1001.
map is represented by a unique bit of code—as opposed to the whole thing being one big, flat picture file—the data can be more effectively manipulated, and more importantly, scaled, making it a more powerful navigational tool.

That’s because vector chart images are comprised of dozens of superimposed “layers” that make up features like depth contours and bottom characteristics. As the user zooms in and out these layers compensate for the scale by either adding resolution or eliminating details to reduce clutter and keep the image from becoming confusing. Similarly, the size of the text on a vector chart remains constant, as opposed to the text on a raster chart, which shrinks or expands with the rest of the chart as you zoom in and out.

The coded nature of a vector chart also has an advantage as you move across a chart surface. Because of their individually scanned nature, scrolling over the “edge” of one raster chart to another can result in disconcerting jumps (although, the transitional technology has improved dramatically in recent years). With vector charts this isn’t an issue.

Examples of popular raster charts include British Admiralty ARCs, SoftCharts and those made by Maptech. Popular vector charts include the Transas charts, Bluecharts, Navionics charts, Nobeltec’s Passport charts, C-Map’s NT+ line and NOAA’s ENCs.

In the case of both raster and vector charts, manufacturers can include a wealth of subsidiary data, either as part of the basic chart or as an add-on. This can include everything from aerial photographs that can be juxtaposed against the digital charts—like those marketed by Softchart and Maptech—to tidal information and bathymetric data that makes it possible to create three-dimensional images of the bottom.

There may also be a wealth of harbor data available with many programs. With Maptech, for example, you can find out everything from whether there is a gas dock at a given port to the availability of scuba equipment. C-Map also offers a wide range of port information, making it easier to plan ahead when coastal cruising and in search of a place to spend the night.

Note that a number of the previously mentioned navigation programs for PCs and laptops can accommodate both raster and vector charts. Also note that when making the chartplotter vs. PC decision, the lines are not so abrupt as they once were. Specifically, chartplotters and land-based PCs can now be used in tandem, so that you can transfer information between the two. Specifically, the C-Map PC-Planner software program is designed so that you can plan a trip in the comfort of home, plugging in waypoints and figuring out things like bearings and distances. Then, when you are finished, you can transfer what you’ve done to your C-Map cartridge, which in turn be used to download the information into the chartplotter that you take sailing.

Beyond that, there are now a variety of different means of downloading charting information, which offer increasing flexibility in terms of acquiring new electronic charts. In the past, charts intended for use in dedicated chartplotters, like the BlueChart line, came in special cartridges or “chips” like C-Map’s C-cards. Basically, buying a new chart meant buying another chip. Charts designed for use in PCs or laptops, on the other hand, were generally delivered on CD-ROM. Garmin’s BlueCharts, however, are now available on CD-ROM, which can then be electronically unlocked for a fee and downloaded onto memory cards or directly into a chartplotter. Similarly, Transas charts all come on a single CD. You then purchase a key to unlock the ones that you need. Note that this Transas data can then be transferred from one computer to another, but can only be used on one machine at a time.

The reason for this is a “dongle,” a plug-in adapter that needs to be plugged in to your computer’s parallel printer socket if the program is to run.

Be aware that when ordering electronic charts for use in a dedicated chartplotter it’s extremely important that you obtain not only the correct charting format but the correct type of chip, or card. Different brands of chartplotters come with different slot configurations. In contrast to much in the high-tech world, planning on navigating the Eastern Seaboard, you will still find yourself with plenty of options. It will come as no great shock to anyone that places like the East and West coasts of the United States—as well as Northern Europe and the Mediterranean—are more than adequately covered by pretty much every player in the business.

If, however, you plan on sailing farther afield, be sure to take a close look at what kinds of charts are available with the different providers. Central and South America, for example, may be only partially covered, or not covered at all, depending on the company. The fact that a provider has charts for Mexico’s Gulf Coast, for example, does not necessarily mean you will be covered on the Pacific side.