

PDA navigation systems are breaking out faster than you can say Personal Digital Assistant

BY BEN ELLISON



Courtesy of Maptech

The third way

For a number of years now sailors have struggled to keep up with the rapid development of GPS-driven navigation technology. The ability to see your vessel's position constantly plotted on a digital chart is seductive, but the questions of what gear to use are boggling. One of the hardest decisions has been whether to go with a simple, reliable dedicated plotter or a powerful, flexible PC system. Thus, I almost hesitate to report that a third way has emerged and is now proliferating at an unprecedented rate.

Just a couple of years ago hand-held computers, or Personal Digital Assistants (PDAs), evolved to the point where they could connect to a GPS and run simplified mapping software. The first PDA marine charting program just celebrated its first birthday, but now I've got five such programs on my PDA, and there are more just about to ship. There are also a slew of compatible GPSs and accessories. My experience thus far suggests that this

new third way is unique and powerful, but also that the technology is still in its chaotic infancy.

Platforms

The first viable PDA, the Palm Pilot, was introduced in 1996. It was simple, fast, and performed a few tasks very well. Specifically, the Palm linked easily with PC contact, calendar, and reminder programs to create a viable alternative to paper dayplanners. Millions of folks on the go got used to calling up essential data with a few control keys and a touch-screen interface. Some even learned the shorthand needed to update entries or write notes with a stylus.

While normally used as a dedicated gadget, the original Palm was computer-like in that independent developers were allowed to write additional applications; the Palm operating system (OS) was even licensed to other hardware companies. As a result, Palm software for celestial navigation, compass adjusting, and

PDA screens are small, but full-detail charts work well on them

other navigation tasks has been available for several years. But PDAs didn't have much real computing moxie until 2000, when Microsoft introduced the considerably more powerful Pocket PC OS and enticed several hardware builders to support it. A notable example was Compaq, whose iPaq series features a comparatively large color display and an ability to add sleeved accessories.

In late 2001 Maptech introduced Pocket Navigator and Navman brought out its iPaq GPS sleeve. I thought it such a slick package that I bought one. Now I can boot up Pocket Navigator's PC module and select the raster charts and/or topos I want, build routes as needed, and download everything to the hand-held's memory card. Once I'm out on the water, the GPS acquires position and the magic begins. Friends looking over my shoulder are invariably astounded at how sharp the charts look, how fast they zoom using the control keys, and how smoothly they pan when dragged with stylus or fingertip.

There are drawbacks. The iPaq's reflective display works well enough in

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direct sunlight, but washes out in muted or oblique light. The screen has internal lighting, but the unit's battery life, especially with GPS attached, is marginal (I use a power cord whenever possible). The iPaq does not always synch properly with my PC, necessitating reboots, and when I upgraded its operating system, it needed three round trips to a Compaq repair facility. I've also run into software incompatibilities and other problems. In short, hand-held computing does involve some headaches reminiscent of early PC days.



Garmin's iQue includes a WAAS-GPS

As I was learning this, PDAs kept on evolving. For one thing, new Palms appeared with the power and color screens needed for decent charting. Garmin will soon ship its iQue 3600, which runs the latest Palm OS and somehow includes a WAAS-GPS receiver within its svelte case. It's aimed at road warriors who want mapping integrated into their digital rolodexes, but sailors will also be able to easily load and plot on Garmin's BlueCharts.

Separate GPS

All other PDA pocket-plotters require a separate GPS, of which there are many choices. Besides the NavMan iPaq sleeve I've been using, there are now Magellan units that snap onto certain Palm models, as well as various CF and PCMCIA card-size receivers that fit into the slots present on some PDAs. There are also "mouse" GPSs, like the Deluo Universal I've tested, that make it possible to plot on a PDA while down below.



A Palm plotting on charts downloaded from the Web

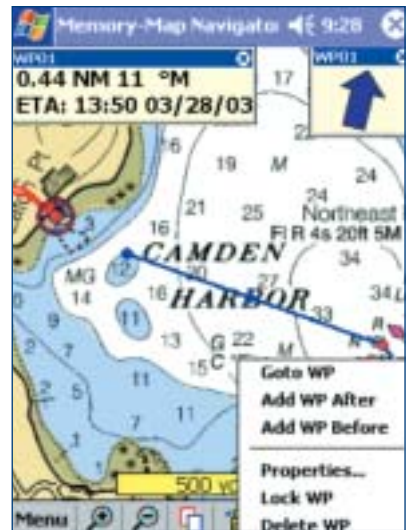
The Deluo is rather light on instructions and technical support, but can hook up to a regular computer via USB or serial ports and costs only \$100. Some new fancy PDAs have short-range (30 to 100 feet) Bluetooth wireless capability, and Bluetooth GPSs are appearing, which means you can be "location aware" without any wires, sleeves, or cards. Or you can wire a hand-held GPS to a PDA, but you'll need a special cable.

When using any of this equipment, you'll want a protective bag—not even the Garmin GPS PDA is waterproof—as well as some sort of bracket, and you may soon lust after umpteen other accessories. Fortunately, there are numerous retailers that specialize in PDA gizmology.

Programs

Most PDA navigation programs are closely related to a big-sister PC charting program and whatever charts it supports. To use Transas Pocket Sailor, for example, you must also

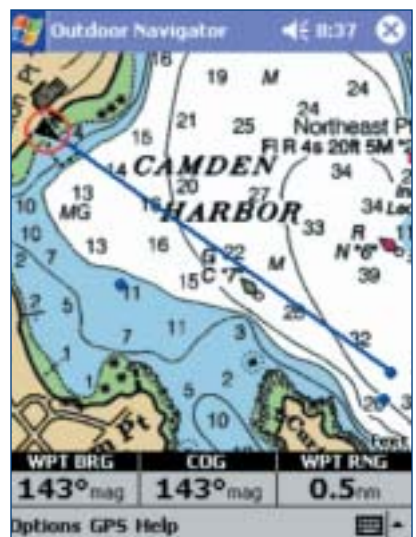
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Good Maptech interface idea #1: Tap on a waypoint to enter action menu

own; instead, its initial \$100 price tag includes a year's unlimited Web access to Maptech's hoard of 65,000 U.S. charts and topo maps. Once downloaded, they are yours forever; if you want new or updated editions a renewal subscription will be \$30 a year. This is quite a deal, as most of these programs cost around \$100 without charts (with the notable exception of Fugawi, which bundles both its PDA programs free with its already inexpensive PC charting software).

The initial release of Outdoor Navigator is for fast Palms, but a PPC version is coming soon. The chart download system is well designed, but the process will be tedious for users with a slow Internet connection.

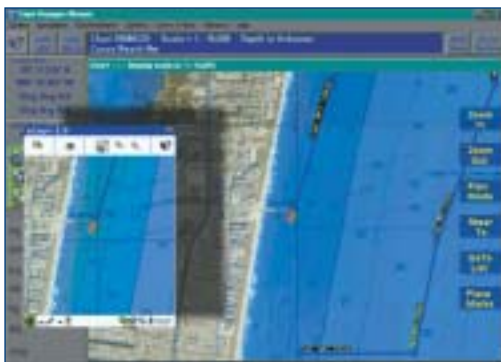


Good idea #2: Tap on the data window to toggle through data types

Outdoor Navigator also has an impressive user interface. It takes over all the buttons on the PDA and uses them to zoom or scale in and out, center on the vessel, or turn a row of data windows on and off. Those data windows have fonts readable at arm's length, and the colors of the charts themselves are juiced up for easier viewing.

On the other hand, Outdoor Navigator currently lacks some of the functions like tracking and routing found in most of the other programs (it does do waypoint navigation). NavPak might have the most features, including niceties like celestial navigation and great-circle plotting, but it does only limited zooming. Fugawi is also feature rich, especially given its price, but is a bit slow, at least on my two-year-old iPaq. Pocket Sailor has a nifty and unique zoom-by-scale function, but is the only program that does not let you drag a chart around with your fingertip.

Strangely, at this instant in PDA evolution, Maptech seems to be its own strongest competitor. Pocket Navigator, which is also marketed independently as Memory Map, is at age one the granddaddy of PDA



zCapn repeats an onboard computer screen via Wi-Fi

navigation, and its 3.0 version is still the one to beat. Its lightning-fast charting engine is acquiring valuable nuances like chart quilting, and its developer is currently working on wireless ways to add the through-the-water boatspeed and heading vector that so appeals to on-deck racing navigators. And its companion PC program makes down-below or at-home planning and PDA synching a cinch. But, then again, there are those 65,000 charts and topos waiting to serve the owners of Maptech's Outdoor Navigator. There's the conundrum! Maptech tells me that in time the two programs will likely

become one, offering both modes of chart downloading.

Possibilities

If you've stuck with me this far, you probably share my fascination with pocket-size navigation. For me it springs from years of jumping on delivery boats and trying to suss out whatever nav electronics were on board even as we coiled away the dock lines. I remember the joy of arriving one day in the early '90s with a handheld GPS already loaded with routes. I especially recall joining a cruise two summers ago carrying a Garmin 176 with its color screen and full-detail BlueCharts. It quickly became apparent that the plotter in my pocket was better than the boat's old fixed machine. PDA navigation takes this to a new level.

For one thing, the platform itself is a mass-market product with nearly infinite soft- and hardware add-ons. Check the photo of my current kit on page 74. Besides the GPS bracket and cable, there's a nice Aquapac waterproof case, good enough for kayaking, let alone cruising or hiking. The folding keyboard lets me use PPC's

COMPARING PDAS AT A GLANCE

PRODUCT	COMPANY	OS	CHARTS	PRICE/COMMENTS
C-Paq	C-Map	PPC	C-Map Vector	\$549 bundled w/software, NavMan iPaq GPS, and CF cards preloaded w/ charts
Fugawi for PPC/Palm	Fugawi	PPC & Palm 3.5-5	Maptech and Softchart and other raster, plus NOAA	Both included with regular \$99 ENC vector Fugawi 3 GPS Mapping and new \$198 Fugawi Marine ENC
iQue	Garmin	Palm 5	BlueChart, and other Garmin vector cartography	\$589 for integrated PDA, GPS, street maps, and PDA/PC mapping software
Pocket Navigator	Maptech	PPC	Maptech raster charts, topos, and photo maps	\$100 PDA and PC software; also sold for \$125 as Memory Map w/added chart support
Pocket Sailor	Transas Nautic	PPC	Transas vector	\$99 add-on to \$299 Transas NaviGator Standard and \$749 Pro PC programs
Outdoor Navigator	Maptech	Palm 5	Maptech raster charts and topos	\$100 includes 1-year unlimited chart and topo downloads; PPC version coming soon
NavPak Pocket Edition	Global Navigation	PPC	Maptech, Softchart, and other (even scanned) raster	\$119; can be used independently or with \$225 NavPak Pro
zCapn	Nautical Technologies	PPC & Linux	Repeats any screen from PC running Cap'n Mosaic 7.4	\$99; no PDA GPS needed, but both onboard PC and PDA must be Wi-Fi enabled



stripped-down Office software. What you can't see are the nifty applications I've loaded. For instance, Nomad's Pocket Stars gives me a terrifically detailed map of the heavens, lets me check moon phases and other ephemeral data, and would even reduce sextant sights if I dusted the old thing off. Navman's SmartST street-mapping software is particularly noteworthy. Pick a destination off its detailed vector maps and it will whip up a route and guide you along with clearly spoken instructions. The display screens and controls are easy to see and work by finger even as you negotiate congested traffic. It even automatically zooms according to your speed. A lot of effort is going into automobile navigation these days, and one day we'll enjoy some of the fruits of that on boats.

PDA's are also a wireless hotbed. Some coastwise sailors are already using them for e-mail via fast cellular data networks. WeatherData just introduced a product called Storm Hawk that not only does PPC plotting, but also overlays nearly live weather radar and warnings obtained via cellular. And Nautical Technologies's unique new zCapn product can use the high-speed Wi-Fi transceivers built into some PDA's to repeat and partially control a screen portion of the Capn program running on a computer down below. It doesn't need its own GPS or charts and can even display advanced imagery like blended photo charts or radar overlays.

It's quite obvious that PDA's can already do a lot for a navigator, and who knows what we'll see next. But in closing I want to emphasize that I

The author's powerful but not 100 percent reliable portable writing and nav kit

would be reluctant to ship out with a PDA as my primary means of electronic navigation. These devices aren't nearly as rugged as hand-held plotters like that Garmin 176, let alone fixed machines, and the software isn't as stable as its desktop brethren. Remember, this is an adolescent platform running infant software. It's remarkable that small-screen PDA navigation works as well as it does right now. Can we imagine what it will be like when it grows up?



RESOURCES

Aquapac, www.aquapac.net; **Capt'n Jack**, tel. 800-227-5225, www.capjack.com; **C-Map**, tel. 508-477-8010, www.c-map.com; **Deluo**, tel. 877-885-9090, www.deluo.com; **Fugawi**, tel. 416-920-0447, www.fugawi.com; **Garmin**, tel. 800-800-1020, www.garmin.com; **Global Navigation Software**, tel. 619-225-0792, www.globenav.com; **Magellan**, tel. 800-669-4477, www.magellangps.com; **Maptech**, tel. 888-839-5551, www.maptech.com; **Nautical Technologies**, tel. 800-637-4020, www.thecapn.com; **Navman**, tel. 866-628-6261, www.navman.com; **Nomad**, www.nomadelectronics.com; **Memory Map**, www.memory-map.com; **Transas Nautic**, tel. 425-778-4546, www.transasnautic.com; **WeatherData**, tel. 316-265-9127, www.weatherdata.com