THE APPS
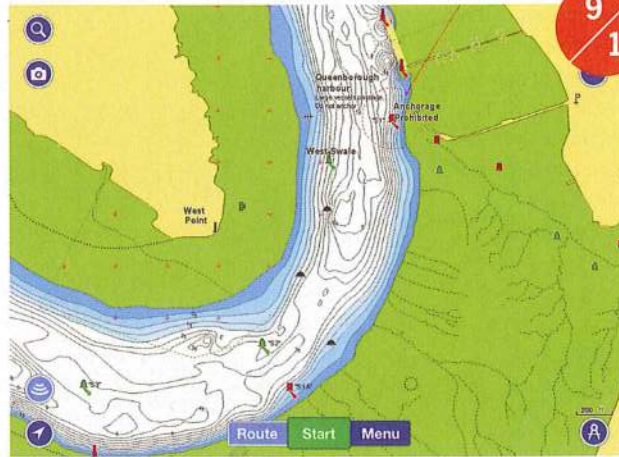See table of features and prices on page 84

NAVIONICS
iPhone, iPad and Android

The basic functionality of the Navionics app is refined and good: scrolling and zooming are quick and receptive on iOS devices, although I found Android to be slower. The app includes tidal data displayed as current arrows and tide bars. Arrows will animate if interrogated and played forward through time. Tidal height bars do the same but also depths on the chart beneath will increase and decrease with the changes in tide.

You can customise the look: it is a one-touch operation to swap between the normal view and Sonar Charts view, there are various shading options for depth contours, and Easy View mode enlarges key navigational features so they remain visible even when the chart is zoomed out.

When first purchased, each region of charts includes Navionics+ for the first year. After that an annual subscription must be paid to maintain Navionics+ features and download updates to charts. Bear in mind that without Navionics+ you can create markers and routes but

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Left: Navionics+ on iOS with Sonar Chart overlaid

there is no way to activate or follow a route. Navionics+ features include a full navigation window offering everything you would expect for following a route, the ability to create and store sonar logs with compatible instruments, and autorouting.

Autorouting plots a passage between a defined start and end point taking into account your draught and avoiding obstructions. I tested this feature and was impressed to see the app draw exactly the route I would have chosen in a matter of seconds. Plotter sync allows sharing of waypoints and routes between the app

and compatible Raymarine plotters.

Navionics is not quite perfect, however. You can't hide created marks, which can clutter the screen, created marks do not show their names on the chart and when creating a route for racing, it is not possible to return to the same mark twice – you cannot place two waypoints in exactly the same location.

Navionics is an easy-to-use all-round package and I definitely feel the yearly subscription fee for Navionics+ is worth it. The Sonar Chart feature offers a fantastic extra level of data.
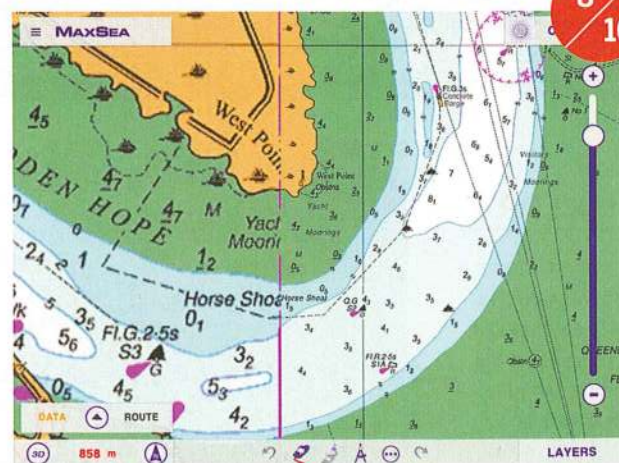
MAXSEA TIMEZERO
iPad

MaxSea has perfected seamless quilting of raster charts to produce a quick-to-respond, great looking chart that can be easily zoomed. Creating and editing waypoints and routes is very intuitive. Waypoint names are displayed on the chart and the entire waypoint layer can be switched off. Saved routes are indicated on the chart at start or end points by a little blue wheel icon. Once a route or waypoint is activated a data bar can be customised to show navigational data or hidden away for a full screen view.

Tidal information can be switched on or off and is represented on the chart in two layers: currents and heights. The

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Left: The zoom bar on the right of the screenshot is instantly responsive due to MaxSea's chart quilting

currents appear as arrows, but there is no way to animate them over time. The weather feed requires internet access and is simply a forecast from your nearest weather station with no overlay.

If you prefer raster charts then this is the package for you, but perhaps not if you seek advanced features, focussed as it is on the core tasks of creating and navigating to routes and waypoints.
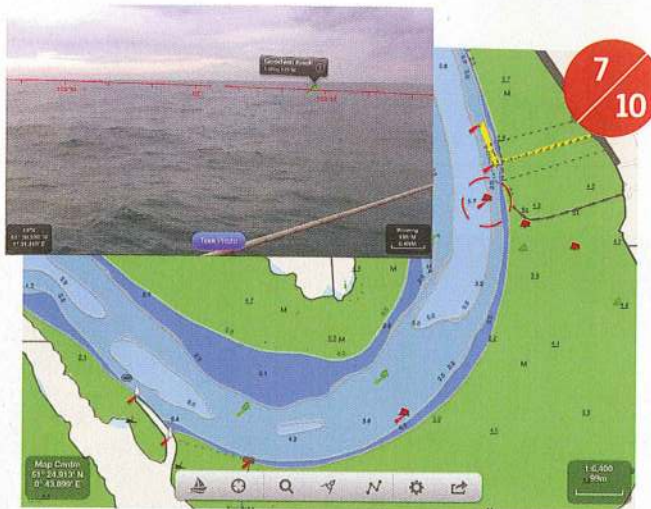
SEANAV UK
iPad

SeaNav UK (and Ireland) introduces some innovative and interesting tablet-specific features, but it isn't the strongest app for general usage. The program features customisable mapping layers, waypoints activated with one touch and a navigation window with a sensible amount of data. The app can accept data feeds via NMEA from a good range of compatible devices and it links to the Active Captain network.

However, SeaNav is a little slow – perhaps due to the advanced extra functionality – tidal information is only available if your device is online, while a request for weather information simply links you to the Met Office web page.

The innovative part involves linking an

AIS feed with the device's own camera and compass to create something called augmented reality. This feature overlays navigation and AIS data on the live video stream being simultaneously captured and displayed on your tablet.

Above: SeaNav UK makes innovative use of the mobile device's camera

It is activated by installing Boat Beacon, the ship finder AIS app from the same company that makes SeaNav. This is both clever and accurate for features between 0.5 and 1.5 miles away. I tested the AIS while delivering a boat through the Strait of Dover. With constant mobile data signal it was accurate enough to give me good situational awareness. It should not be relied upon for close quarters situations but it certainly gives a fantastic overview.

Augmented reality could help when entering new ports, and to teach navigation, plus the ability to overlay internet AIS data is useful for boats not fitted with AIS on board, but it's not a long-term solution. I wouldn't choose this app as my primary means of navigation but the AIS feature could come in handy if you were making a trip on a vessel where this was not installed. There are options for Europe, Canada and USA too.

GARMIN BLUE CHART
iPad

BlueChart Mobile uses a slick and fast vector chart with good customisation settings including the ability to change the information displayed on a sliding scale of five levels. Drop the slider to declutter the screen when zoomed out for planning longer routes – however do remember to adjust settings back to maximum information for navigation.
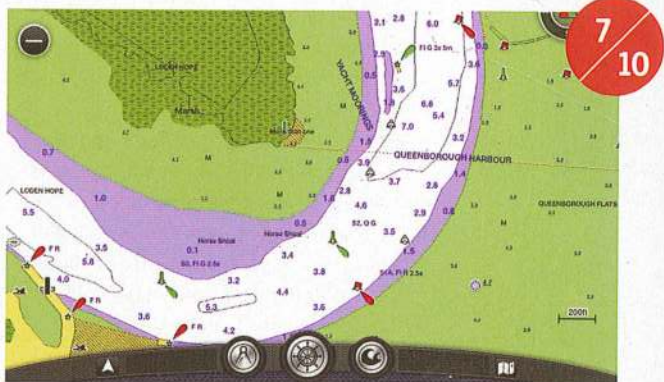
Tapping on the screen opens a fast, easy-to-use circular menu for creating waypoints and routes, but the app does not have the ability to follow a route and is designed for planning purposes only.

The basic weather option will download a free seven-day, low-resolution, GRIB file that can be viewed as an animation. Tidal currents are not animated and are represented as two graphs, one for direction and one for speed.

Garmin supports Active Captain as a layer that can be switched off, which keeps the chart uncluttered until you actually want the information.

Coupled with a wi-fi router, BlueChart Mobile will link with other Garmin devices enabling the exchange of route and waypoint information between them. Used in this way, the app lends itself to remote planning and then full integration to an onboard Garmin system.

This is a high quality app and great

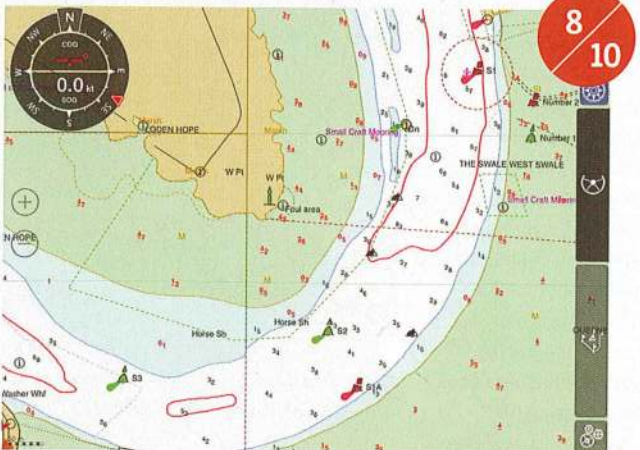**Above:** Garmin BlueChart Mobile fits in neatly with Garmin instruments

for use as a planning tool or a straight-up chartplotter, although it lacks the ability to follow waypoints. If you already have Garmin instruments on board then this app will fully integrate across platforms.

TRANSAS iSAILOR
iPad and Android

Here is another very well developed and easy to use app offering a great range of features, but for Android users, read the Google Play store information carefully, regarding which devices will work and which won't.

Zooming is quick and at high level zoom, the details are crisp and of an appropriate size. This app allows easy waypoint and route creation and has a well set up navigation sidebar. Route tables can be viewed via the sidebar

Above: A well developed standalone app with plenty of advanced features, although each one incurs a fee

while a course is active, which is great for racing. The alarms menu covers anchor watch, waypoint arrival, loss of GPS signal and low battery.

iSailor offers more advanced features, however unlocking each one will incur an extra charge. Weather, tides, and sailing guides all have associated one-year subscription costs, and although NMEA integration is available, there is a fee for each stream of data. An internet AIS feed is also available.

This app definitely lends itself to being a standalone navigational device, but the pricing structure is not straightforward, so tot up the cost of any desirable extra features before committing.

TOP TIPS

Tor Johnson

- Before setting off on longer passages ensure that you have downloaded the charts for any ports of refuge along the way and that your current package covers countries where you may conceivably need to make landfall.

- Use satellite image layers, if available, to identify landmarks when approaching a new destination.

- Check your units when setting up an app. To help with easy communication of waypoints between charts, plotters and tablets ensure your position is reported in degrees, minutes and decimals. Many apps only use degrees and decimals to report positions, which could be confusing, particularly in an emergency situation.

- Set up range rings to use as clearing zones on navigational hazards, or even to indicate the three-boat-length zone around a mark when racing.

- The velocity vector shows you where you will end up after a specified amount of time. Set the value of this vector to one hour for help in predicting tidal offsets.

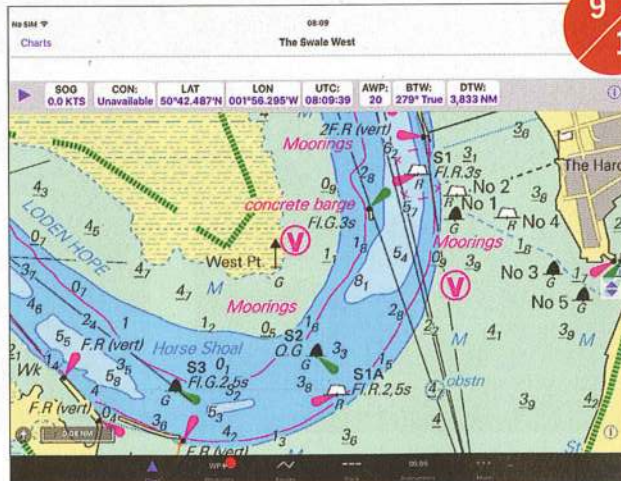| APP	Price	Charts for UK	Updates included?	Crowd-sourced information?	Android	iPad
Garmin BlueChart	Free	£84.99 for north-west Europe	N	Active Captain	N	Y
MaxSea TimeZero	Free	£39.99	N	N	N	Y
Navionics	£25.49	UK and Holland including free access to Sonar Chart	For first year then Navionics+ subscription required	Community edits, Sonar Chart	Y	Y
Navionics+	£22.99 / year	For updates to charts in region covered	Y	Community edits, Sonar Chart	Y	Y
Transas iSailor	Free	Five areas to cover UK @ £25.99 per area	Y	N	Y	Y
iBoating	£25.00	Included	N	N	Y	Y
iNavX	Free	NV raster: four folios for UK @ £45 each; Vector charts: Navionics UK and Holland £55	Free for first year then further subscription required for updates	N	N	Y
SeaNavUK	£15.99	Included	Free for first year then further subscription required for updates	Active Captain	N	Y

iNAVX

iPhone and iPad

iNavX is the only app that allows access to charts from different providers – both raster and vector – using the same software. I tried NV raster and Navionics vector charts. Charts are purchased under a one-year license. After a year you get to keep the charts but without a further subscription you cannot update.

I loved the ability to switch between platforms without losing my stored waypoints, routes and tracks. The NV raster charts are high resolution even when zoomed in, but they are not quilted, so if working at large scale you may need to swap between charts quite frequently.

The user experience for navigating and planning is intuitive and comprehensive. Waypoint names are displayed on the chart, the entire waypoint layer can be switched off if desired, and it is possible to return to the same mark twice.

Instrument data is fed from the mobile device's location system or from the onboard NMEA network via wi-fi. However, the app's instrument panel definitely needs customising: on the default setting there is far too much information.

Other notable features include the ability to reduce track recording frequency (to preserve battery power) and the ability to set a variable range ring. Tidal information is not included in the iNavX package, but can be added with the additional purchase of the AyeTides app.

I would definitely use this package as an alternative to an on-deck chartplotter for racing or cruising. It offers just about everything you need and is very user friendly. It could also be a great resource if cruising abroad due to the large range of charts available.

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Above: The ability to use multiple chart sources – raster and vector – is unique

EXTRA TIP

Check whether your chosen app includes chart updates and how they are accessed – many apps require a subscription after the first year to keep charts up to date

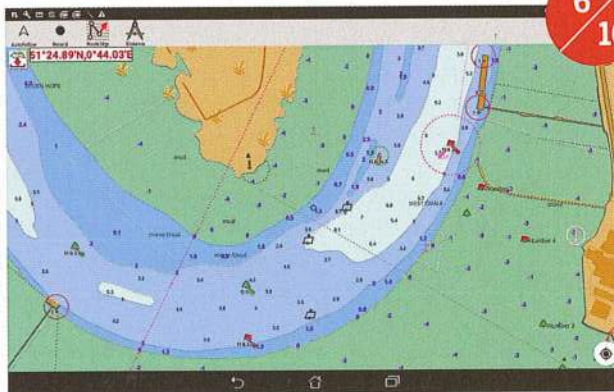| NMEA interface/ plotter sync	Internet AIS	Custom depth shading	Free weather	Premium weather	Sonar logging	Tides: height and current	Rating (out of 10)
With Garmin instruments	N	N	Seven-day GRIB	£3.99/month £22.99/ year	N	Y	7
GPS feed only	N	N	Weather report	N	N	Y	8
N	N	Y	Three-day GRIB file	N	N	Y	9 for first year dropping to 7 afterwards
Plotter sync and sonar mapping	N	One extra layer from Navionics	Three-day GRIB, detailed location forecast and weather buoy reports	N	Y	Y	9
NMEA available but extra cost for each stream	£11.99 / year subscription	Highlighted safety contours	N	£5.99/ month £18.99/ year	N	£7.99/ year	8
Y	N	Y	N	N	With link to Sonar Phone	Online only	6
Y	N	Y on Vector Charts	Three-day GRIB file	Theyr Weather subscription	N	With AyeTides app £5.99	9
Y	£9.99 or £23.49 in bundle	N	One-day text forecast with link to Met office website	N	N	Heights only	7

iBOATING

iPad and Android

iBoating is one of the least expensive applications that I tested. It uses vector charts and is reasonably fast and responsive across both platforms. The chart can be oriented away from north up by twisting two fingers on the screen, a feature that I found frustrating, as I often inadvertently reoriented the chart.

Key navigational aids become larger icons when zooming out so they are still visible, which is particularly useful for planning longer passages. The chart shows few contours until well zoomed in, although it is possible to add custom depth shading, which helps make the depth information easier to comprehend.

Waypoint and route creation takes a bit of getting used to and, rather annoyingly, every time a new waypoint is created there is an option to share it on Facebook. Once a route is created it can be followed, but the only navigation data available is an ETA and the name of the next waypoint.

iBoating is the only app that offers off-course voice prompts, however I did not enjoy being told I was off-course by an electronic voice, so I turned them off straight away.

Tidal information is limited to heights only and will only be correct for the current date if your device is online.

iBoating can connect to NMEA and display AIS and other data streams. Sonar logging is possible, though the number of compatible devices is limited.

In general this app does not feel as polished as the others, despite having most of the features you would expect. Detailed route planning with the app might be a bit frustrating, so I think I would stick to using this simply for researching, basic planning and situational awareness on board. ∎

Above: One of the least expensive apps available, but still a great tool for basic planning

Conclusion

Having spent six weeks living and breathing these apps, I have come to the conclusion that the perfect one does not exist, but some are getting pretty close. The well-developed user interfaces that app-based products provide are far superior to those found on most chartplotters and now, with NMEA integration, the all-important GPS fix comes from an external feed overcoming any accuracy concerns around using the GPS receiver built in to the tablet.

To make the most of your chosen software, pick features that are relevant to your style of sailing. Think about what information you want displayed for easy situational awareness and make sure you spend time customising your display to show only what you need and, ideally, nothing more.