

User Manual

Charts, navigation, weather, bathymetry and fishing on Windows PCs and tablets

For every version of InfinitySea · edition of November 2026
NCIS SUARL — Hannon Tech · hannon-tech.com

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About this manual and safety

This manual describes **Hannon InfinitySea** for Windows 10 and 11, on desktop PCs, laptops and touch tablets. It is written to stay valid from one version to the next. It explains each screen in the order you meet it, then gives a reference of the options. Words in **bold** are the labels you see on screen. Keys are written F4. Menu paths use the sign ›, for example **Main menu** › **Settings** › **Options…**. Abbreviations such as COG, SOG, CPA or XTE are explained in the glossary.

Versions. InfinitySea is updated often, and each update can add functions or move a setting. If your version does not have a function described here, or shows it in a different place, install the latest version (**Main menu** › **Check for updates…** when your version offers it, or from hannon-tech.com). **Main menu** › **About InfinitySea** shows the version you have. Default values given in this manual are those of a new installation and can change between versions; your own settings may differ. The notes shown with each update list what changed.

The screenshots were taken with a recent version, the English interface on a 1920 × 1080 screen, with the built-in demonstration replay off Yasmine Hammamet (Tunisia). Your screen can differ with your settings, your charts and the data received from your instruments.

> **SAFETY FIRST**
>
> InfinitySea is an **aid to navigation**. It does not replace official charts and publications, a proper lookout, radar watch, or the judgement of the skipper. Positions, depths, forecasts, CPA/TCPA values and fishing estimates can be wrong or out of date.
>
> Always keep an independent means of navigation on board. Check every route against official charts before you follow it. Know how to take the helm and put the autopilot in standby at its own control unit.
>
> Tester builds show **Experimental version for testing. Do not use as your primary navigation tool.** Chart packs from the InfinitySea catalogue are marked **Charts built from models and open data. Not for navigation.**

1 Getting started

What you need

- A 64-bit Windows 10 or Windows 11 PC or tablet. A Core i5 class processor with 8 GB of memory runs every feature comfortably.
- A screen of at least 1920 × 1080 pixels at 125 % scaling. The interface is sized for fingers: on a tablet, every button is large enough to touch.
- An Internet connection for activation, base maps, chart downloads, weather and updates. At sea, InfinitySea works offline with what you downloaded before.
- To receive live data: a GPS, AIS receiver, depth sounder, wind instruments, radar or chartplotter connected by USB/serial, NMEA 2000 gateway, Ethernet or Wi-Fi. See chapter 11.

Installing

1. Run the installer `HannonInfinitySea-Setup-`*`version`*`.exe`, downloaded from **hannon-tech.com**.
2. Choose the language of the interface. You can change it later.
3. Keep the option that adds a Windows Firewall rule if you will receive data over the network (NMEA over Wi-Fi or Ethernet, plotters). It needs administrator rights.
4. Finish the installation. The application installs into `Program Files\Hannon\InfinitySea` and needs nothing else: the .NET runtime, GDAL and SQLite are included.

Your data (marks, routes, tracks, settings, downloaded charts and weather) is kept in `%LOCALAPPDATA%\InfinitySea`. Uninstalling asks what to do with it.

Activation

The first start asks for an activation code. Enter it in **Activation code** and choose **Activate**. The first activation needs the Internet. After that you can use InfinitySea offline until the dates shown in the activation window (**Offline until** and **License expires**: the first one reached counts). A session already running is never stopped by the licence, but after that date the next start stops at the activation window until it is renewed. Before a long passage, check the date and renew it with Internet access (**Refresh license**).

No code yet? Choose **Request a license** and fill in **Last name**, **First name**, **Country**, **Boat type** and **Email address**, then **Send the request**. When the request is approved, the licence installs itself on the same computer.

Tester versions then show a warning screen. Read it and choose **I understand — continue**.

First start

The start screen shows **WELCOME ABOARD** and the steps of the start-up: settings, services, InfinitySea Cloud and automatic weather, interface, chart. The chart then opens on your home port, on the last view, or on the region of your computer.

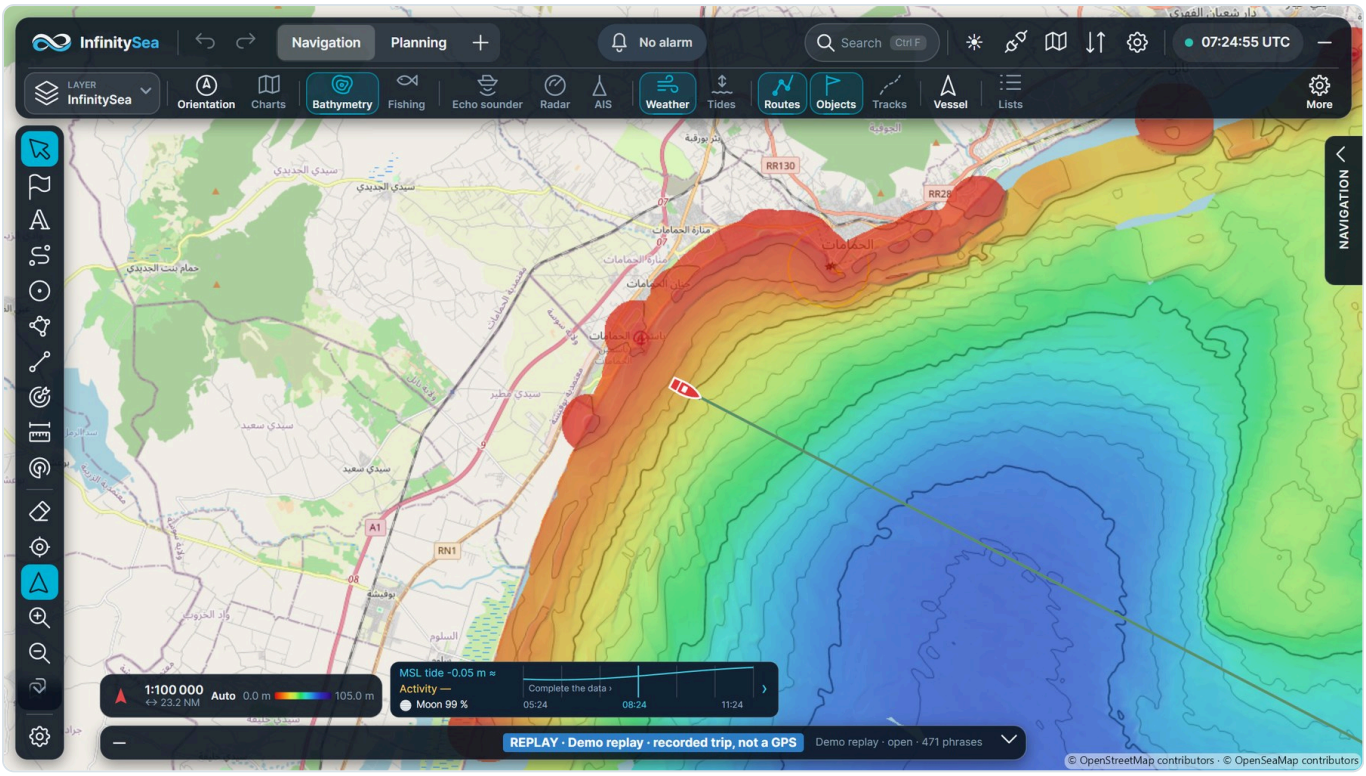


Figure 1. The main window: chart, boat, icon bar at the top, chart toolbar on the left, status bar at the bottom.

Language

Open the **Main menu** (the InfinitySea logo at the top left) › **Language** and choose **English**, **Français**, **Español** or **Italiano**. The application asks to restart.

> **NOTE**
>
> A restart briefly stops alarms, track recording, instrument connections and autopilot output. Change the language in port, not under way.

Setting up your boat

Open **Main menu** › **Settings** › **Boat adjustments…**. This opens the **Initial adjustments** page of the options. Set at least:

- **Boat name**, **Boat MMSI** (9 digits — it keeps your own AIS signal out of the target list), length, beam and air draught (**Height**).
- The boat icon, its size and its colours by day and night; the **Heading line** and the **Safety circle**.
- **Depth display** (below the surface by default; or below the keel or the transducer), the keel draught (0 m until you enter it) and the transducer depth. Enter your boat's real values, so that the depths shown and the depth alarms refer to the right point.
- The positions of the GPS antenna and of the transducer on the boat, if you want exact offsets.
- **MOB behavior**: by default **Alarm and active route** (see Man overboard).

Home port. Right-click (or press and hold) your harbour on the chart › **Home port** › **Set the home port here**. With **Open the chart on the home port at start-up** on, InfinitySea opens there. **Show the home port** takes you back to it at any time.

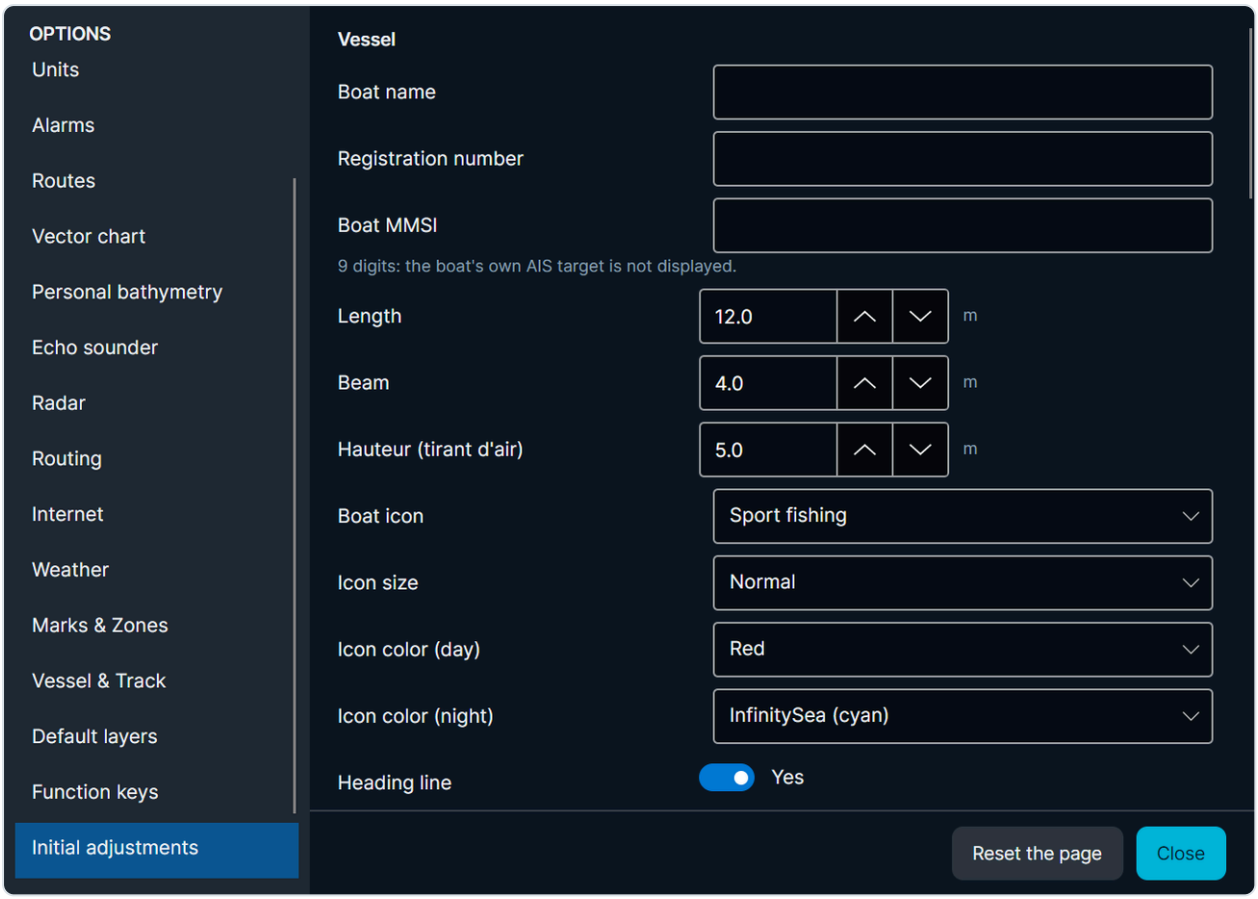


Figure 2. Options › **Initial adjustments**: identity, dimensions, boat icon and sensor offsets.

Practising without a boat

You can learn InfinitySea at home:

- **Demo replay** plays a sample trip supplied with InfinitySea — currently ten minutes off Yasmine Hammamet, with position, depth, wind, water temperature and a fishing vessel on a collision course. Turn it on in **Main menu** › **Connections** › **Connection wizard…** › **Advanced settings**. A blue **REPLAY · Demo replay · recorded trip, not a GPS** notice stays in the status bar while it runs.
- **Simulation** gives you a boat you steer yourself: **Vessel** › **Simulation**. Use **Speed + 1 kn**, **Course + 10°** and their opposites, or **Move the boat by Lat/Lon…**. You can add simulated AIS targets from the same menu. A red **SIMULATION** notice is shown, and no data is sent to the autopilot.

> **CAUTION**
>
> Turn **both** the demo replay and the simulation off before you go to sea: when you stop the simulation, the boat position comes back from the demo replay if it is still on. Check the status bar, and **Data sources** in the connection wizard, to confirm that the position comes from your GPS.
>
> A replay can send navigation data on an output port: before playing a recording with instruments connected, put the autopilot in standby at its own control unit.

2 The screen at a glance

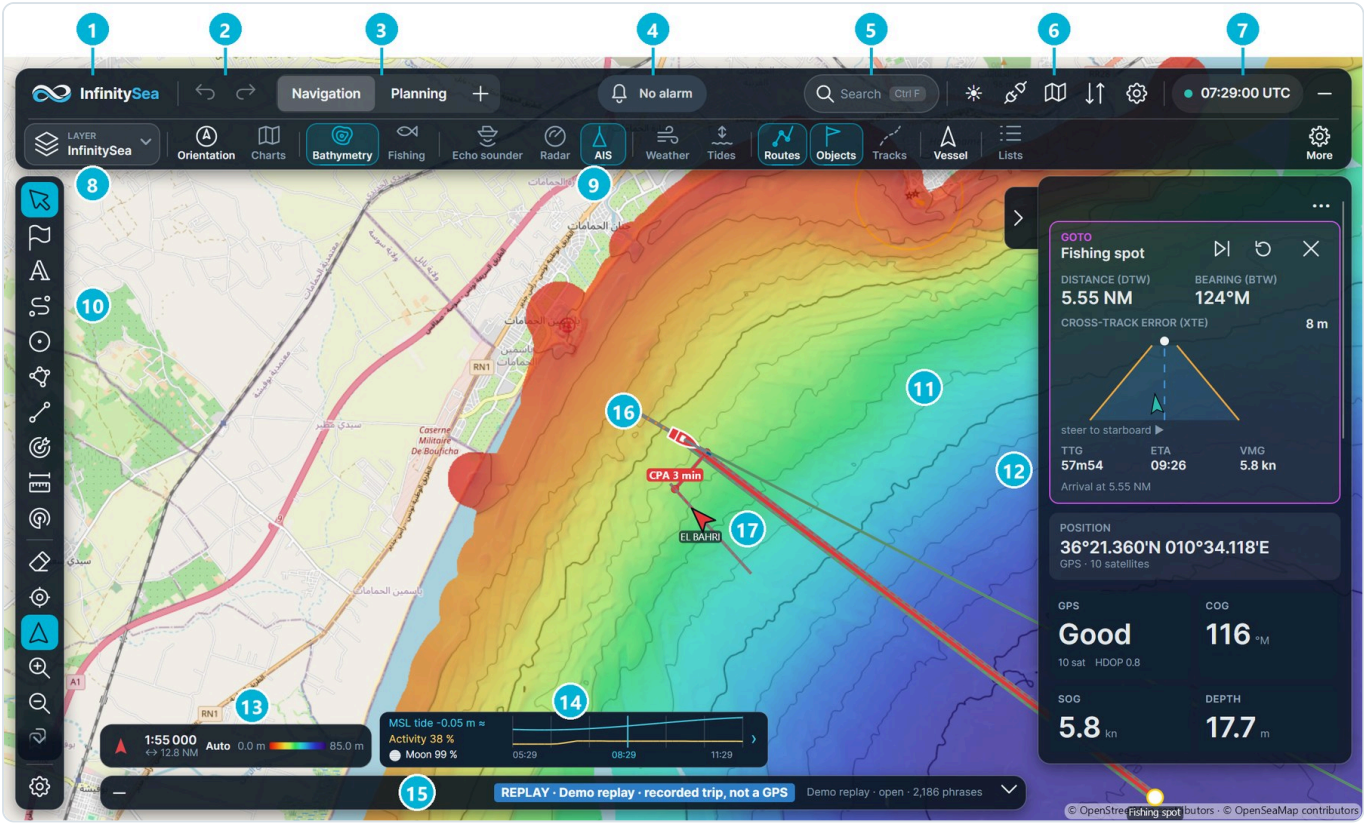


Figure 3. The main window while going to a fishing spot, with an AIS target crossing ahead.

1. **Main menu** — mode, connections, data, settings, language, help, quit.
2. **Undo / Redo** — `Ctrl`+`Z`, `Ctrl`+`Y`.
3. **Workspaces** — Navigation, Planning and your own; + adds one.
4. **Alarm banner** — the most urgent alarm, and Acknowledge all.
5. **Search** — marks, routes, areas, AIS targets, tide stations (`Ctrl`+`F`).
6. **Shortcuts** — palette, connections, chart manager, import/export, options.
7. **Reception and clock** — the coloured dot shows instrument reception.
8. **Layer selector** — which object layers are shown, and the active layer.
9. **Icon bar** — one panel per feature (see below).
10. **Chart toolbar** — pan, mark, route, zones, Go to, ruler, MOB…
11. **Chart** — base map, nautical charts, bathymetry, weather, your objects.
12. **NavData** — navigation tile and instrument tiles (`F6`).
13. **Scale and legend** — scale, displayed width, depth colour range.
14. **Tide and fishing band** — tide curve, fish activity, moon.
15. **Status bar** — notices such as REPLAY, SIMULATION, ASHORE.
16. **Your boat** — with heading line and COG/SOG vector.
17. **AIS target** — red when dangerous, with its CPA point and time.

Header and main menu

The Main menu opens from the InfinitySea logo.

Item	What it does
Ashore	Switches between preparing a trip ashore and navigating (see Navigation and Ashore modes).

Connections › **Connection wizard…**	Finds your instruments and lists your saved connections.
Connections › **InfinitySea Cloud…**	Synchronisation, position sharing and remote control from the web portal.
Data › **Import / Export…**	GPX, KML, KMZ, RTZ, XYZ and backup files from other plotters.
Data › **Full backup / restore…**	Saves or restores your objects, settings, personal bathymetry, polars and stations (and the charts, if you choose) in one file.
Settings › **Options…**, **Boat adjustments…**	All settings; boat identity and sensors.
Settings › **Save settings…**, **Restore settings…**	Copies your settings to a ZIP file (instrument ports excluded) and back. Restored settings apply at the next start.
Language	English, Français, Español, Italiano.
Help (`F1`), **Check for updates…**, **Send a diagnostic report…**, **About InfinitySea**	The list of commands and shortcuts, updates, support, version and credits.
Quit	Asks for confirmation: closing stops alarms, track recording and autopilot output.

The icon bar

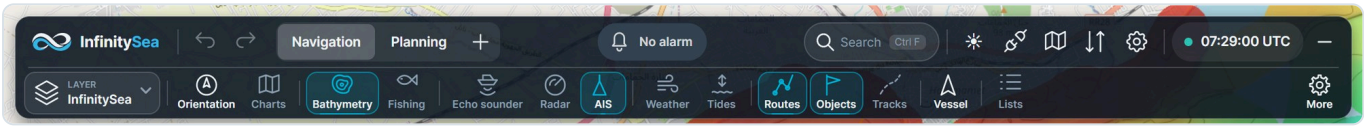


Figure 4. Header (top row) and icon bar (second row). A lit icon means its layer is shown.

Each icon opens a short panel. The main switches come first, the detailed settings below them, and a link to the full settings last. Touch the icon again, or anywhere on the chart, to close the panel.

Icon	Panel
LAYER	Shows or hides your object layers (**All**, **None**) and chooses the active layer; **Manage** opens the layer list.
Orientation	North up, Head up, Course up, Waypoint up, Stern up, Wind up, Free orientation.
Charts	Nautical charts on/off, detail, texts, safety depth, raster charts, appearance, chart manager.
Bathymetry	Depth colours, recording of your soundings (**REC** badge), relief, contour lines, drop-offs, bottom nature.
Fishing	Favourable zones, tide/activity/moon band, day detail, catch log.
Echo sounder	Starts the sounder module and its settings.
Radar	Radar overlay on the chart, transmission (**TX** badge), range, gain and filters.
AIS	AIS targets: which ones, labels, vectors, tracking, AIS list.
Weather	Forecast on the chart: wind, gusts, waves, rain, pressure, current, sea temperature, chlorophyll; download.
Tides	Tide stations, tidal currents, tide graph, tidal current graph.
Routes	New route, route list, search and rescue (SAR) routes, weather routing.
Objects	Create marks and areas, object lists, layers, filters, right-hand panels, logbook, bulk changes.
Tracks	Track recording, boat trail, track colours, track list, return to port.

Vessel	Center on the boat, autopilot, AutoShift, true motion, replay, simulation, sounder calibration, heading line, safety and fuel range circles.
Lists	Opens the tables of marks, routes, tracks, areas, layers and AIS targets (`F7`).
More	The icons you took off the bar, and **Pin to the bar** to choose which icons the bar shows in each workspace.

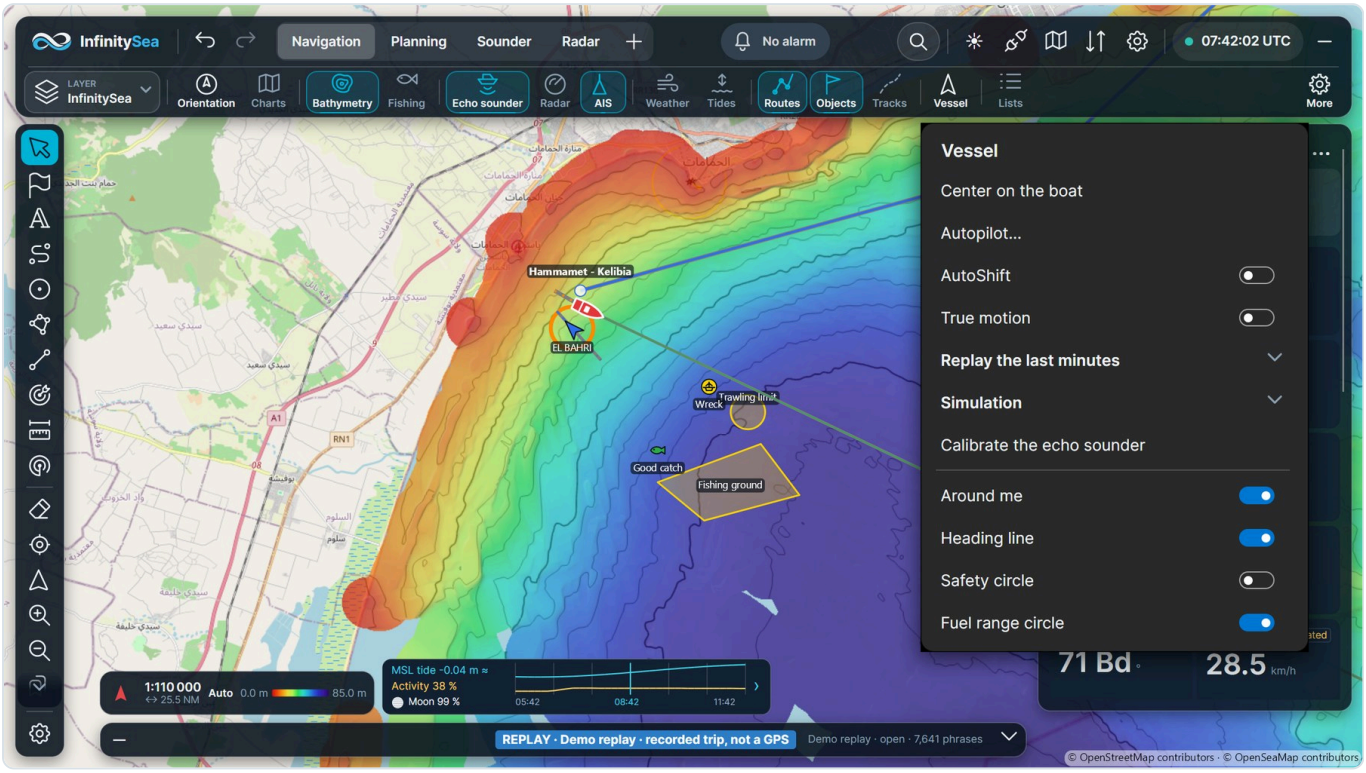


Figure 5. The **Vessel** panel, opened from the icon bar.

Chart toolbar

The vertical toolbar on the left holds the drawing and navigation tools. Hover over a tool, or press and hold it, to read its tooltip.

Tool	Use
Pan (`Esc`)	Moves the chart and selects objects. The other tools return to it when they finish.
Mark	Places a mark. Double-click the tool to enter a position by latitude and longitude; right-click it to choose the icon and colour of new marks.
Annotation	Places a text on the chart.
Route	Draws a route point by point.
Circle, **Surface**, **Line**	Draws zones (centre then radius; points then double-click to finish).
Go to	Touch a destination to start direct guidance to it. Check the whole leg first.
Ruler	Measures distance and bearing between two points. Double-click clears all rulers.
EBL/VRM	Bearing line and range ring from the boat.
Center on the boat (`F4`, `Ctrl`+`B`), **Follow the boat**	Centres the chart on the boat and keeps following it.
Zoom in / **Zoom out**	`F2` / `F3`, `PgUp` / `PgDn`, keypad `+` / `−`.

Saved places	Recalls a saved view or saves this one (12 at most).
Event (`F9`, `Enter`, `Ctrl`+`E`)	Drops an event mark at the boat position.
Anchor watch	Starts or ends the anchor watch.
Man overboard (MOB) (`F8`, `Ctrl`+`M`)	Marks the position, raises the alarm and starts the guidance back to it. It does not steer the boat.

The gear at the bottom of the toolbar opens **Tool configuration**. Move a tool to the right-hand list to add it, use the arrows to reorder, and **Default** to restore the standard set. More tools are available there: **Select** (rectangle or lasso), **Record the track**, **Record personal bathymetry**, **Depth profile**, SAR patterns, **Day, dusk, night palette**, **Acknowledge alarms** and others. Each workspace has its own toolbar.

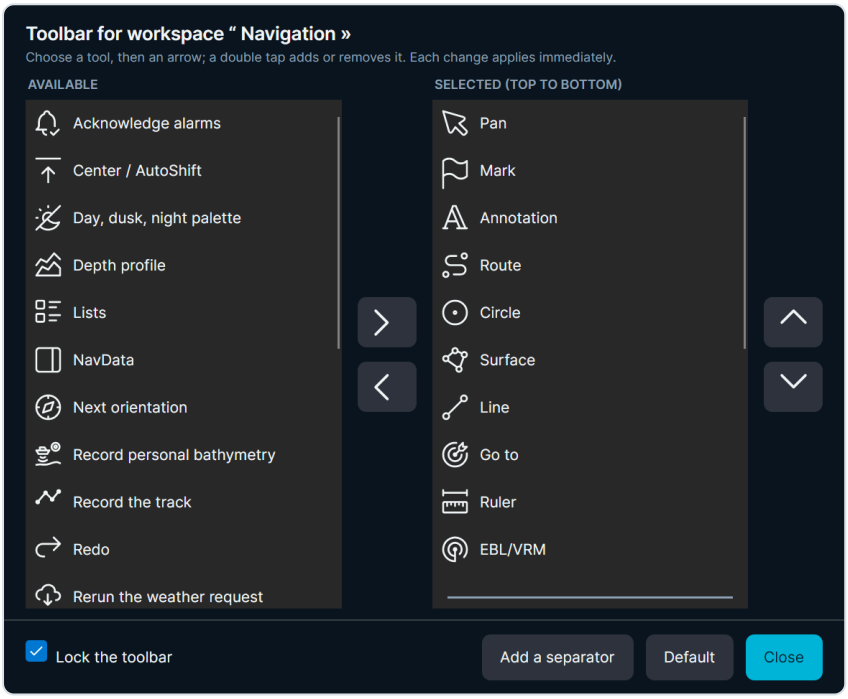


Figure 6. Tool configuration for the Navigation workspace.

NavData

The NavData column on the right shows the data you need under way. Fold it or open it with the chevron or `F6`. When a Go to, a route or a MOB is active, the **navigation tile** appears at the top of every page (see chapter 5). Active alarms appear above it.

The first page, **Main**, shows position and GPS quality, course and speed over ground (COG, SOG), depth, heading, speed through water and wind. To change it:

- **+ NavData** below the tiles adds a tile: instruments, motion, navigation, tide, weather, fuel, odometers and more. In the chooser, **green** items are received from your instruments, **orange** items are calculated or estimated, and **grey** items are of unknown origin. Values marked **Calculated** or **Forecast** on a tile are not measured.
- Right-click (or press and hold) a tile to enlarge it, show it as a dial or a graph, detach it onto the chart, or remove it.
- The page controls above the tiles add pages (up to eight), rename, move and delete them. Drag a tile onto a page dot to move it to that page.
- **Reset** on the first page restores its original tiles.

Extra panels can sit above the tiles: **Objects** › **Right-hand panels** offers **Events — drop a mark**, **Quick access — shortcuts**, **Trip — record the track** and **Dead reckoning — position without GPS**.

Status bar and notices

The bar at the bottom of the chart shows notices that change how you should read the screen: **REPLAY** (recorded data, not a GPS), **SIMULATION** (practice boat), **ASHORE**, and estimated positions. Touch a notice to read its explanation. The chevron at the far right folds the bar; it then takes the colour of the notice it hides.

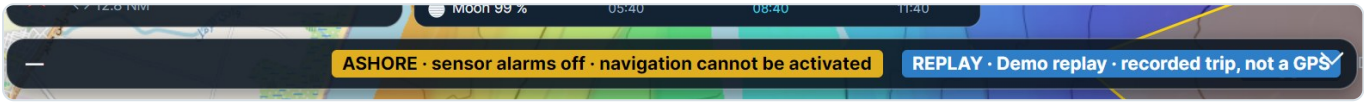


Figure 7. Status bar in Ashore mode during the demo replay.

Workspaces and split screens

Navigation shows the live chart. **Planning** adds a time bar to look at forecasts, tides and replays at other times (chapter 7). Each workspace remembers its own view, layers, icon bar and toolbar. Right-click a tab › **Save display settings** to keep its current view, or **Reset display settings**.

The + beside the tabs creates a workspace (up to 12). Choose a **Display mode** — **Full screen**, **Two views side by side**, **Three views** or **Four views** — then touch each pane in the preview and choose its content: **Chart**, **Instruments**, **Radar**, **Echo sounder** or **Camera**. Drag the dividers to resize the panes. Right-click a tab you created › **Edit…** to change it later.

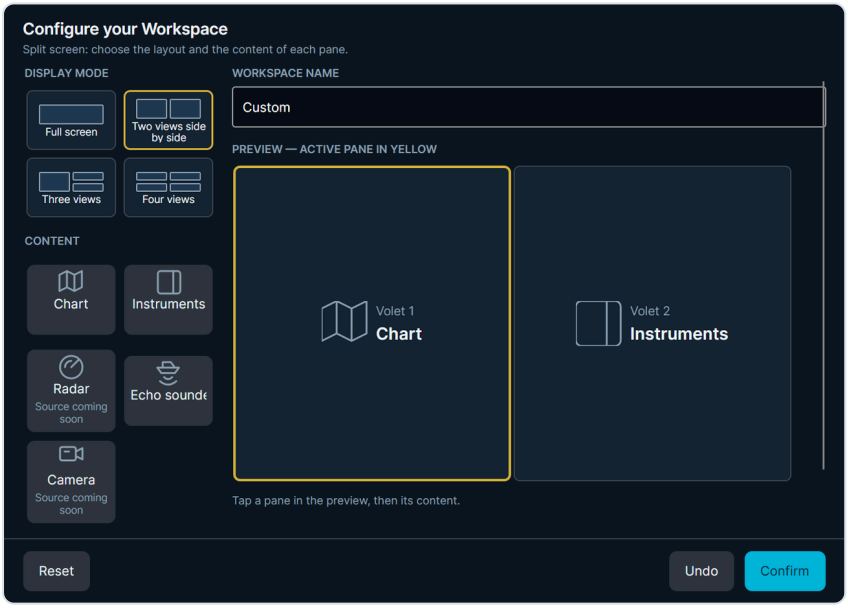


Figure 8. Creating a split workspace: chart on the left, instruments on the right.

Day, dusk and night

The sun button in the header (`Shift` + `F2`) cycles the **Day**, **Dusk** and **Night** palettes. In **Options** › **Display**, **Automatic palette** follows the height of the sun at the boat; you can also set the brightness of each palette and a red filter for night vision.

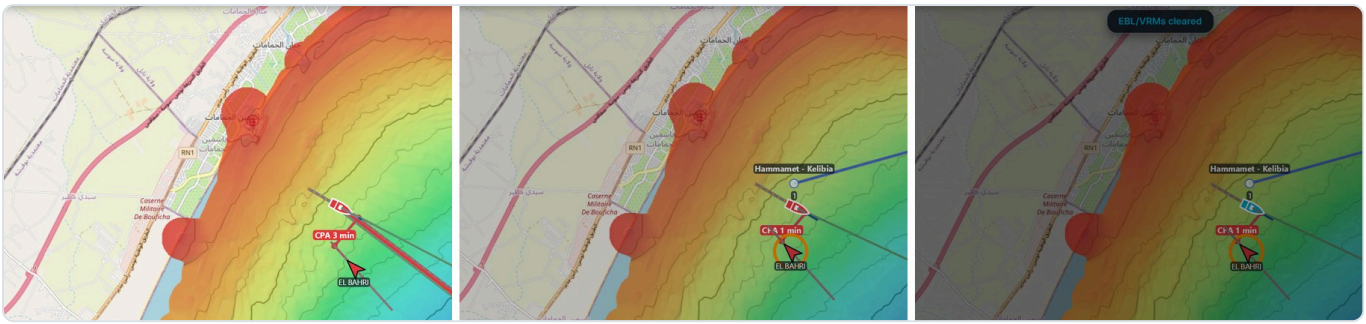


Figure 9. Day, dusk and night palettes.

By default the header and toolbars hide themselves after 5 seconds without activity and come back at the first touch, mouse move or key. They stay visible while an alarm is not acknowledged, a drawing tool is active or the search is open. Change this in **Options** › **Display** › **Automatic interface hiding**.

Search

Search (`Ctrl`+`F`) finds marks, routes, areas, AIS targets and tide stations by name. Results appear as you type, sorted by relevance or distance, measured from the centre of the screen or from the boat. Touch a result to centre the chart on it.

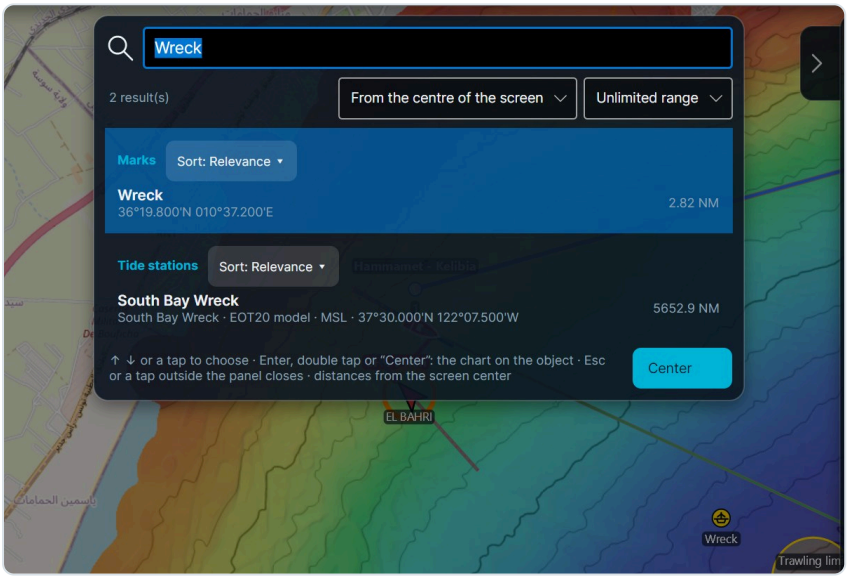


Figure 10. Searching for "Wreck" finds a mark and a tide station.

Navigation and Ashore modes

In **Ashore** mode (top of the **Main menu**) the boat is hidden, active navigation and navigation outputs stop, and ordinary navigation and sensor alarms are suspended, so you can prepare a trip at home without false alarms. Emergency alerts stay active.

> **CAUTION**
>
> Never switch to **Ashore** under way: alarms stop, and stopping the outputs does not put an autopilot in standby.

Switch back to **Navigation** before you leave, then start your route again. **Options** › **Display** lets you choose the start-up mode, or be asked at every start.

3 Working with the chart

Moving around

To…	With a mouse	With a finger
Pan	Drag with the **Pan** tool	Drag one finger
Zoom	Mouse wheel, `F2` / `F3`, keypad `+` / `−`	Pinch with two fingers
Open the menu of the chart or of an object	Right-click	Press and hold still for about ⅔ s
Select an object	Click it	Tap it
Move a mark or a route point	Click it once, then drag it	Tap it once to arm it, then drag it

When a drawing tool is active (route, ruler, circle, surface, line, EBL/VRM), one finger moves the drawing and lifts to place the point, while two fingers still move and zoom the chart. After drawing, the tool returns to **Pan** automatically.

Moving the chart by hand stops the boat following. **Center on the boat** (`F4`) brings it back.

Zoom and scale

The box at the bottom left shows the scale (for example **1:55 000**), the width of the screen in nautical miles, and the colour range of the depths. Touch the scale to choose which zoom steps are used by **Zoom in** and **Zoom out**. **Zoom to chart scale** jumps to the compilation scale of the most detailed nautical chart under the centre of the screen.

> **NOTE**
> Zooming beyond the compilation scale of a chart only enlarges it: it does not add detail. Small rocks and shoals can be missing from a chart compiled at a small scale.

Orientation and boat following

The **Orientation** icon chooses how the chart turns:

- **North up** — north at the top (default).
- **Head up** — the boat heading at the top; uses COG if no heading sensor is connected.
- **Course up** — the active leg at the top. **Waypoint up** — the bearing to the waypoint at the top.
- **Stern up** — looks behind the boat. **Wind up** — the true wind at the top.
- **Free orientation (current one frozen)** — keeps the present angle.

In the **Vessel** panel, **AutoShift** moves the boat towards the edge of the screen so you see further ahead, more as the boat goes faster. **True motion** leaves the chart still until the boat reaches the edge of a circle, then re-centres it.

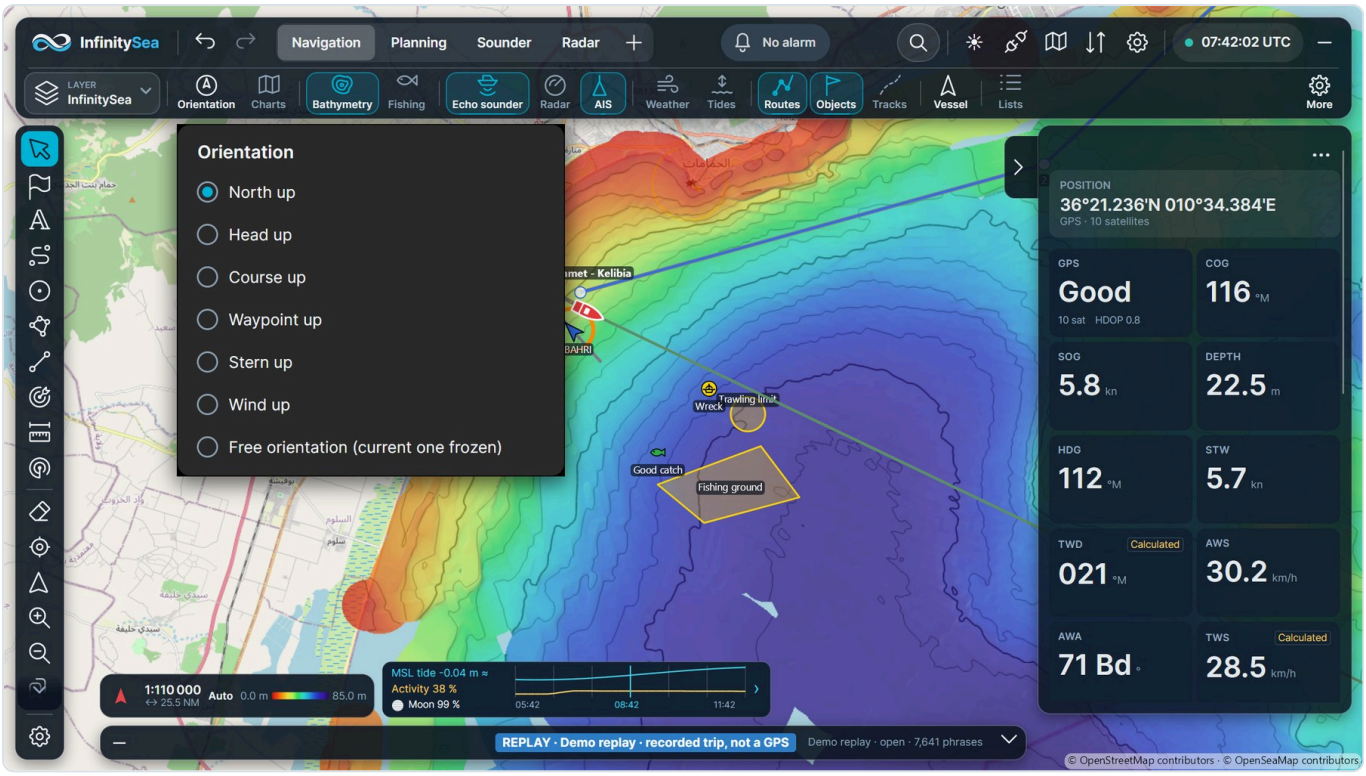


Figure 11. The **Orientation** panel.

The Charts panel

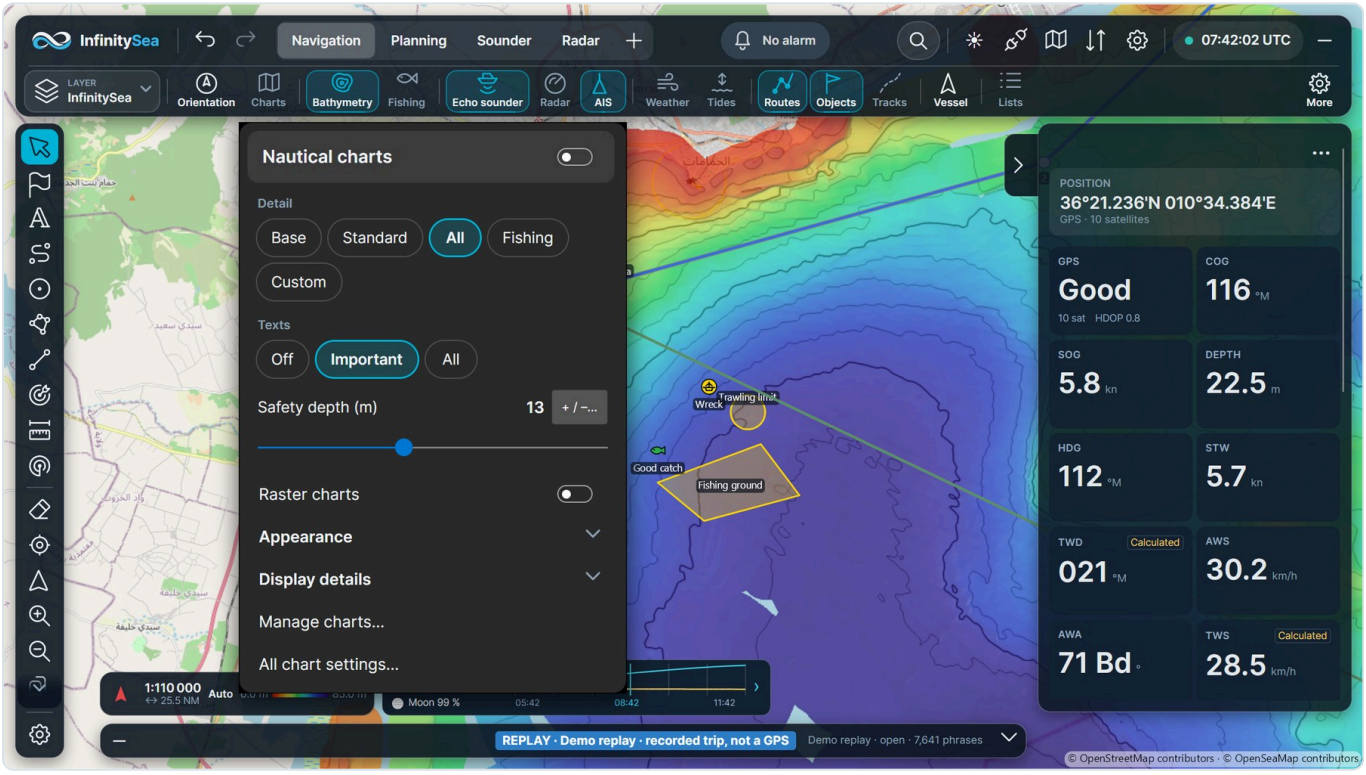


Figure 12. The **Charts** panel: detail, texts and safety depth come first.

Nautical charts

Shows or hides vector nautical charts (S-57 ENC and InfinitySea chart packs).

Detail

Base, **Standard** (default), **All**, **Fishing** or **Custom**: how many chart objects are drawn.

Texts
: **Off**, **Important** (default) or **All**.

Safety depth (m)
: The depth used for the safety contour and the shading: waters shallower than it are shaded as unsafe, and route checking uses it. The contour drawn can be the next deeper one that exists on the chart. The default is 5 m; set it from the draught of your boat plus a margin. The shallow and deep contours (2 m and 8 m by default) stay in order around it.

Raster charts
: Shows imported scanned charts.

Appearance, Display details
: Chart palette, symbol style (paper chart or simplified), object and text size, light sectors, shallow-water pattern, soundings in red below 2 m, chart boundaries, base map (**OpenStreetMap**, **Custom**, **None**), OpenSeaMap seamarks and latitude/longitude grid.

Manage charts…, All chart settings…
: The chart manager, and the full **Vector chart** options page.

> **CAUTION**
>
> The **Shallow water** alarm uses the echo sounder, not the chart, and is **off** by default (threshold 10 m). Turn it on in **Options** › **Alarms** and set both the safety depth and the alarm for your boat.

Chart sources

InfinitySea draws, from the bottom up: a base map (OpenStreetMap by default, with OpenSeaMap seamarks), raster charts, vector charts, your personal bathymetry, weather, and your objects. Base map tiles you have viewed once are kept for offline use.

Open **Manage charts** from the map button in the header or from **Charts** › **Manage charts…**. Its tabs (some appear only when that function is available):

InfinitySea
: The InfinitySea chart packs included in your licence: **Download**, **Show**, **Sources**, **Remove**, **Check for updates**. **Install from a file…** installs a `.iscp` pack you received. **Request a chart…** asks for an area that is not yet available. Packs are tied to your licence.

Catalog
: The official S-57 ENC cells you imported (`.000` files, folders or ZIP archives): status, scale, edition and updates. **Show**, **Center**, **Delete**, **Verify files**.

Raster charts
: Imports BSB/KAP, GeoTIFF, MBTiles and GeoPackage charts.

NOAA charts
: Free official charts of United States waters: search by name or Coast Guard district, tick cells, **Download selection**; **Check for updates** and **Update all** keep them current.

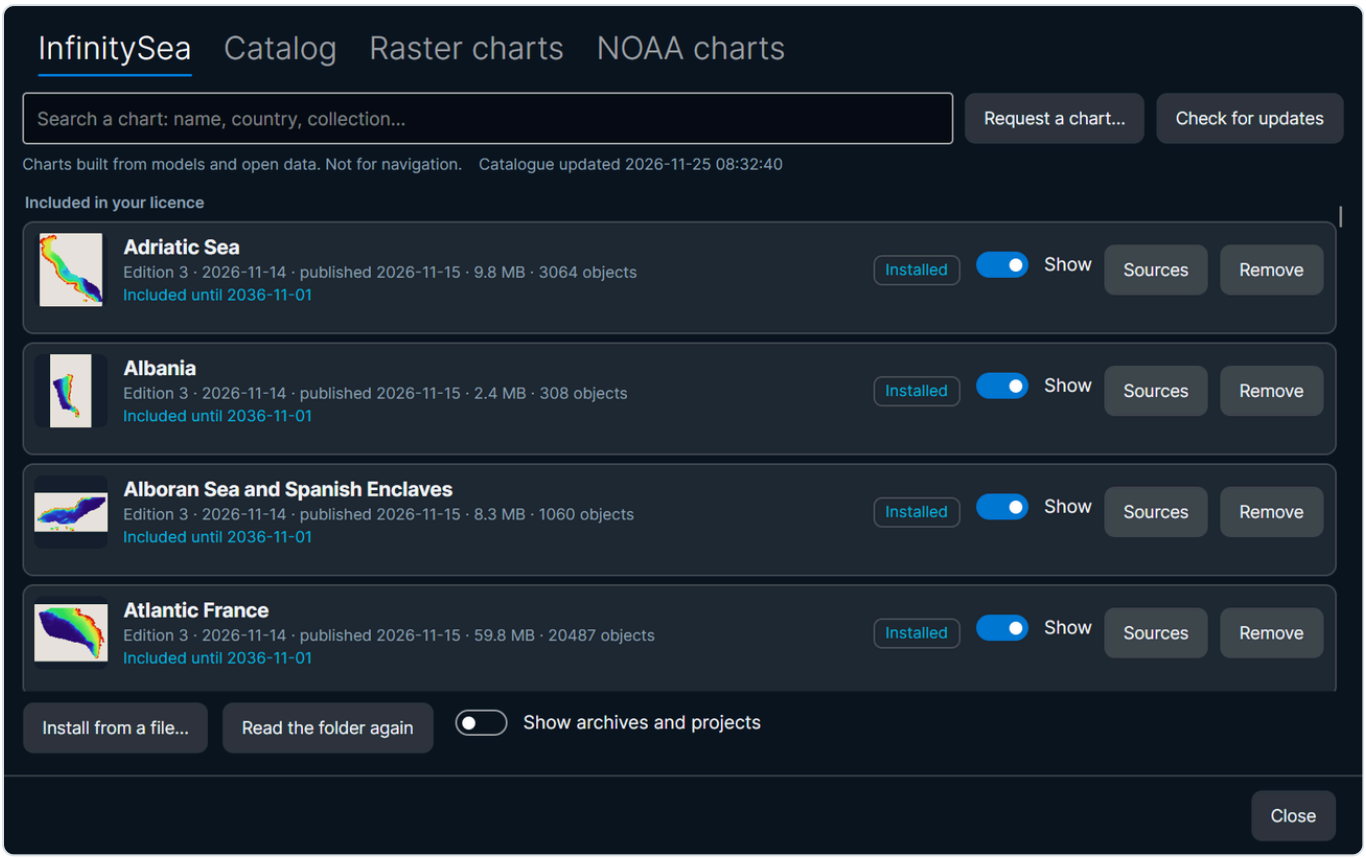


Figure 13. Manage charts › **InfinitySea**: chart packs included in the licence.

> **CAUTION**
>
> InfinitySea chart packs are built from models and open data and are **not for navigation**. Use them for planning and fishing, together with official charts. Read **Sources** to see what a pack is made of.

Chart information

Right-click an empty point of the chart › **Chart information** lists the chart cells under that point and the chart objects around it (buoys, lights, depth areas, restricted areas…) with all their attributes. With the **Pan** tool, resting the pointer on a chart object shows a short tooltip; **Show details** opens the full list.

Layers

Your marks, routes, areas and tracks belong to **layers**, like folders. The **InfinitySea** layer exists from the start. The **LAYER** selector on the icon bar shows or hides layers and chooses the **active layer**, where new objects go. **Manage** opens the **Layers** list to create, rename, lock, merge or delete layers. A locked layer cannot be edited.

Objects › **Layer for new objects…** sends each kind of object (marks, areas and texts, events, routes, boat tracks, target tracks) to the active layer or to a fixed layer.

4 Marks, routes, tracks and zones

Marks

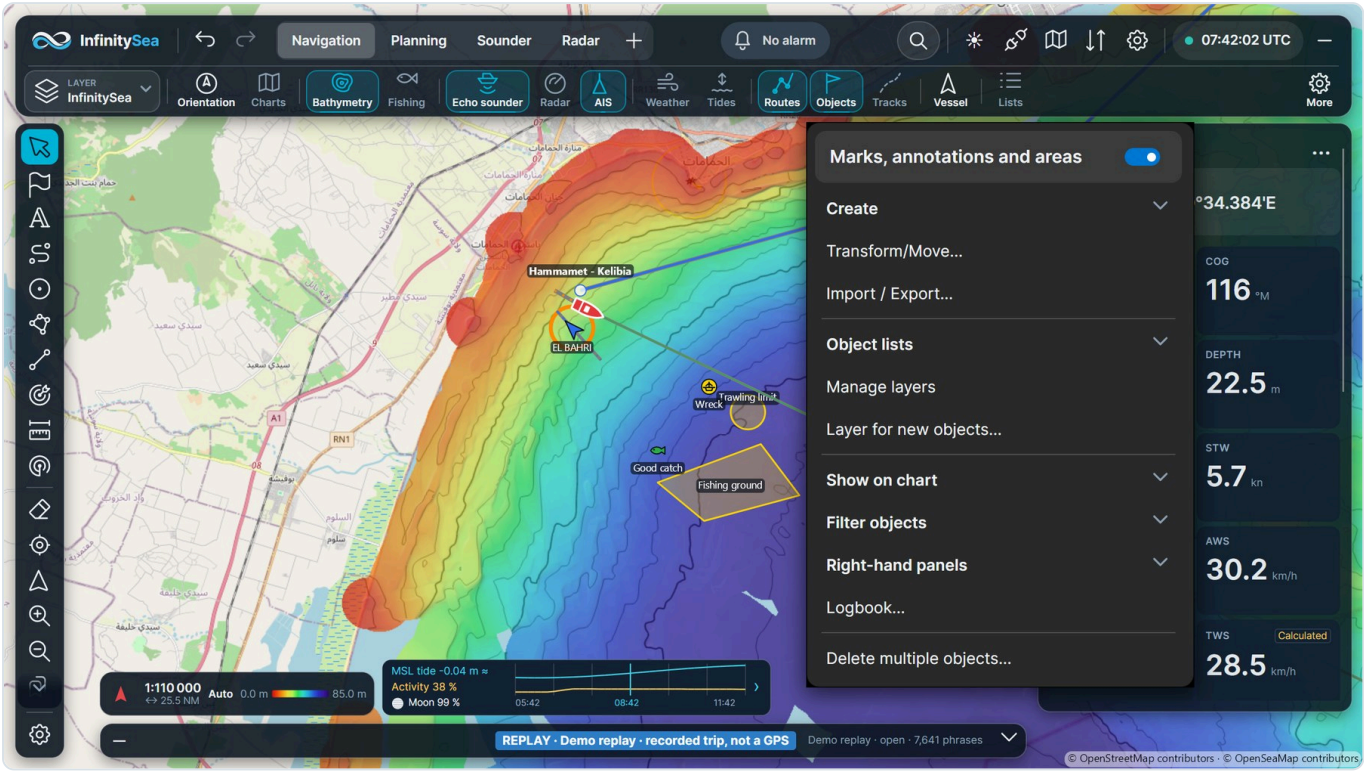


Figure 14. The **Objects** panel: create, manage, filter and import objects.

To place a mark, choose the **Mark** tool and touch the chart, or right-click the chart › **Create a mark here**. New marks are yellow **Waypoint** marks named **WP 001**, **WP 002**… Right-click the **Mark** tool to change the icon and colour of new marks.

Group	Icons
Shapes	Waypoint, Circle, Square, Triangle, Diamond, Star, Cross, Dot, Flag
Harbour and navigation	Anchorage, Mooring, Marina, Vessel, Harbour, Fuel, Buoy, Lighthouse
Hazards and fishing	Danger, Rock, Shoal, Wreck, Fish, Pot, Net
Other	Birds, Cetacean, Diving, Swimming, Photo, House, Information, Question, Event, Man overboard, Annotation (text)

Right-click a mark (or press and hold it) for its menu: **Mark information**, **Rename mark…**, **Go to**, **New route from mark**, **Edit** (› **Edit position…**, **Choose layer**), **Delete mark**. **Mark information** shows and edits the position, icon, colour, layer, depth, lock and comment, with the distance and bearing from the boat.

Entering positions. Double-click the **Mark** tool (or **Objects** › **Create** › **Marks by Lat/Lon…**) to type positions one after another. Position fields accept decimal degrees, degrees and decimal minutes, degrees-minutes-seconds, UTM and MGRS — for example `36 21.5 N 10 34.2 E`.

Annotations and events

The **Annotation** tool writes a text on the chart (5 to 50 pt, 14 pt by default).

An **event** is a mark dropped at the boat position with one key: `F9`, `Enter` or `Ctrl`+`E`, or the **Event** tool. Events are red, numbered and locked by default. The **Events — drop a mark** right-hand panel gives one button per event type. With **Event on every high-priority alarm** on (the default), InfinitySea also drops an event where a high-priority alarm happens, so you can find the place later (not in simulation).

Routes

Creating a route

1. Choose the **Route** tool (or **Routes** › **New route**, or right-click the chart › **New route from here**).
2. Touch the chart at each turning point. Touching an existing mark reuses it.
3. Finish with **Finish route** (`Ctrl`+`S`), or **Finish the route and activate it** to start following it at once.

At the end the chart fits the whole route, and the route wizard opens so you can set the speed and departure time. Routes are blue, with the distance and bearing of each leg and the waypoint names.

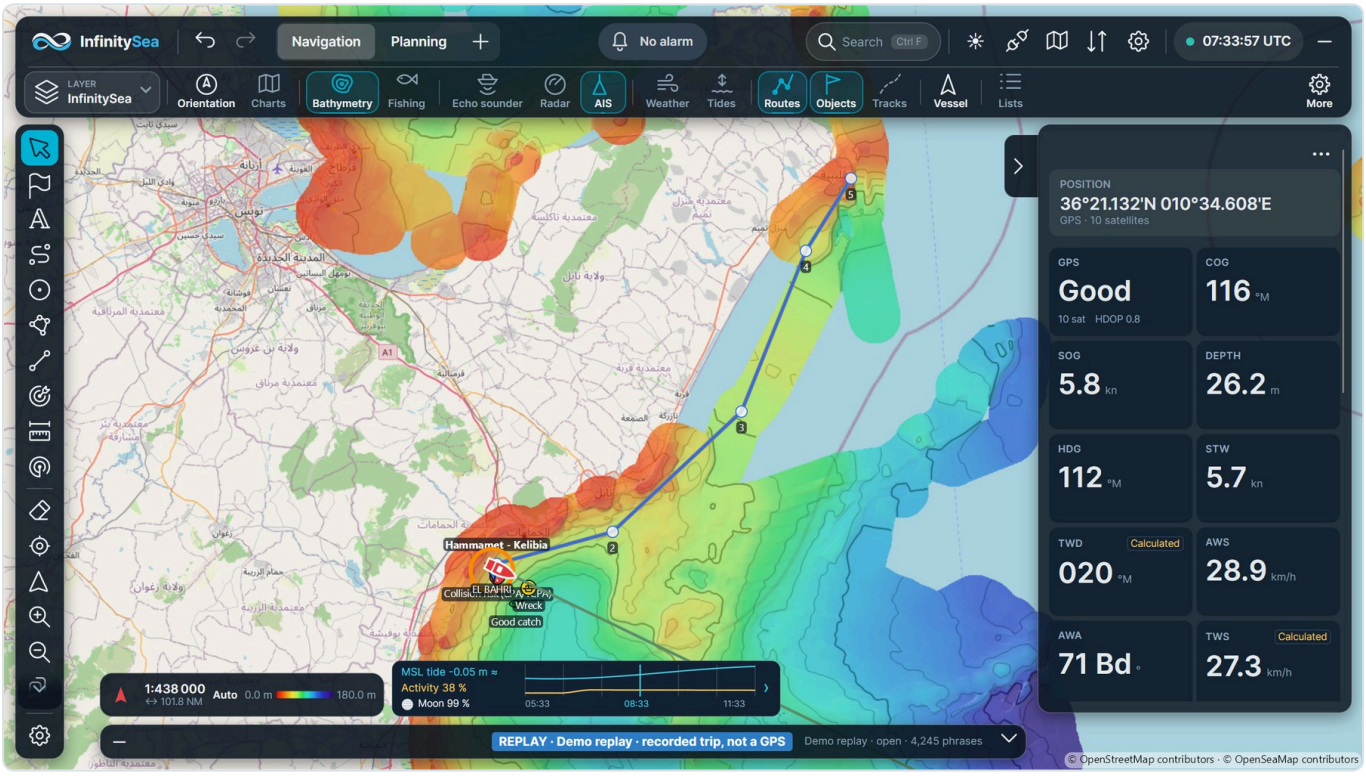


Figure 15. A five-point route from Hammamet to Kelibia.

Editing

Right-click a route, a leg or a waypoint to move, insert, rename or delete points, add a comment, set the speed of a leg, continue the route, or **Reverse** it. Drag a waypoint to move it (tap it first on a touch screen).

> **CAUTION**
> After editing or reversing a route, look again at every leg and turn, and check the safety warnings, before you follow it.

Route details

The route details window lists each waypoint with its position, course, leg and total distance, speed, time to go and ETA. **Speed on all** sets one speed for every leg; **Reset speeds** returns to the default speed (5

kn unless changed). Tidal currents from nearby stations are taken into account. **Wizard**, **Enable** (follow the route), **Reverse**, **Copy**, **Export…** and **Print** are at the bottom.

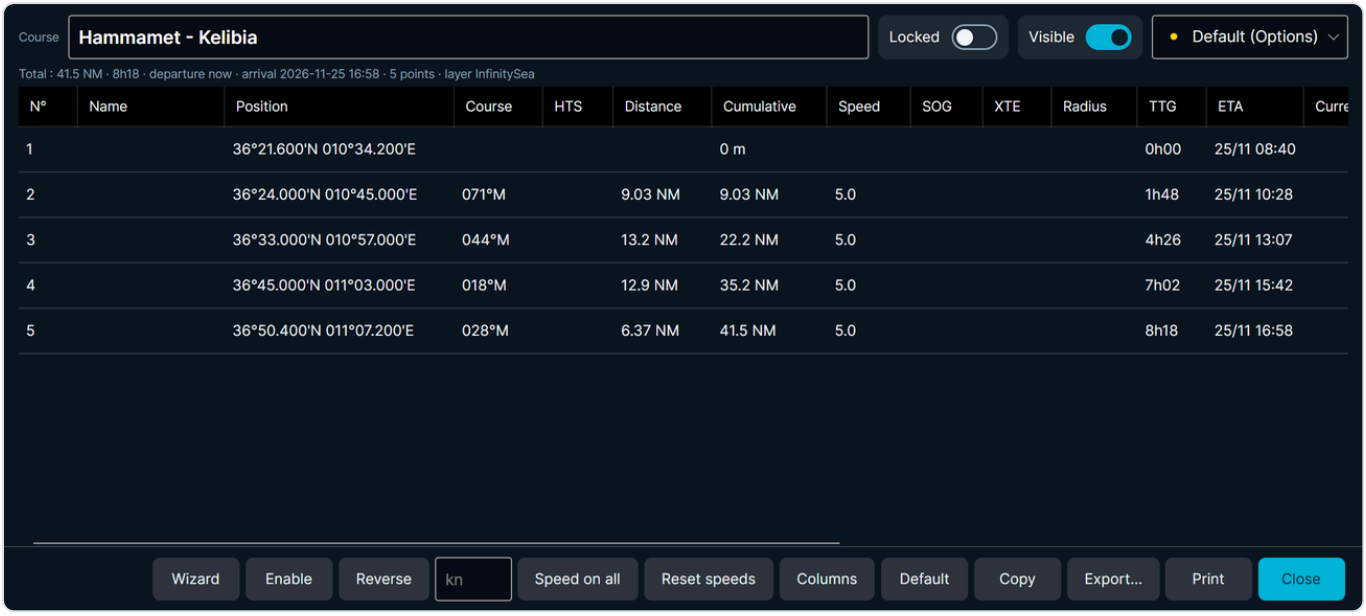


Figure 16. Route details: legs, distances, times and ETAs.

With **Enable route check** on (**Options** › **Routes**, on by default), InfinitySea checks each route against the loaded vector charts and your safety settings, and right-click the route › **More** › **Route dangers** lists the hazards found. Some legs can be left unchecked or only partly checked (very long legs, legs without vector chart coverage), and the checked corridor can be narrowed by **Automatic cross-track error**. No hazard reported does not mean a safe route: check every leg on official charts. The **Danger on route** alarm (off by default) can also warn you under way.

Search and rescue routes

Routes › **SAR routes** creates search patterns around a chosen point: **SAR zigzag route** (creeping line), **SAR square spiral route** (expanding square), **SAR sector route**, or **SAR route by Lat/Lon…**. Spacing, number of legs and first turn are set in **Options** › **Routes**.

Tracks

InfinitySea records the boat track automatically (**Tracks** › **Record the boat's track**, F5). **Start a new track** closes the current one. The **Boat trail** is a separate, short dotted line of the last hours (24 h by default).

Right-click a track for **Information** (start, end, duration, length, points), **Convert to route** (simplified to 20 m by default), **Return to port** (creates and activates the reverse route) and **Delete**. A track can be coloured by depth, water temperature or speed (**Variable color**).

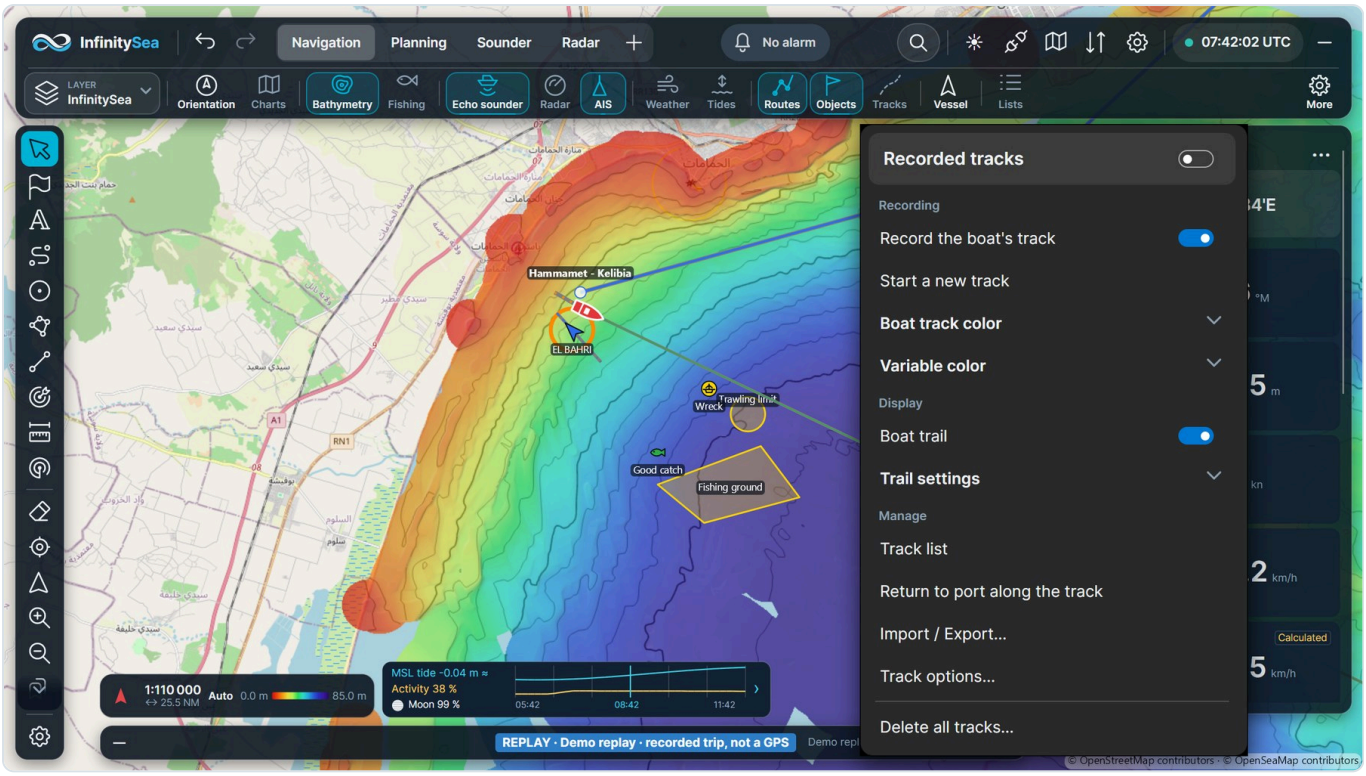


Figure 17. The **Tracks** panel.

> **CAUTION**
>
> **Return to port** follows your outbound track backwards. Conditions, traffic and tide may have changed: check the route before you follow it.

Zones

The **Circle**, **Surface** and **Line** tools draw zones. A circle needs a centre and a point on its edge. A surface needs three points or more; double-click to close it. A line needs two points or more; double-click to finish it. Double-click the **Surface** or **Line** tool to type the points by latitude and longitude.

In the zone card you set the name, layer, colour, outline and transparency, and two alarms:

- **Boat alarm** — warns when your boat approaches (300 m by default) or enters the zone, or crosses the line.
- **Target alarm** — warns when an AIS or radar target is inside the circle or surface.

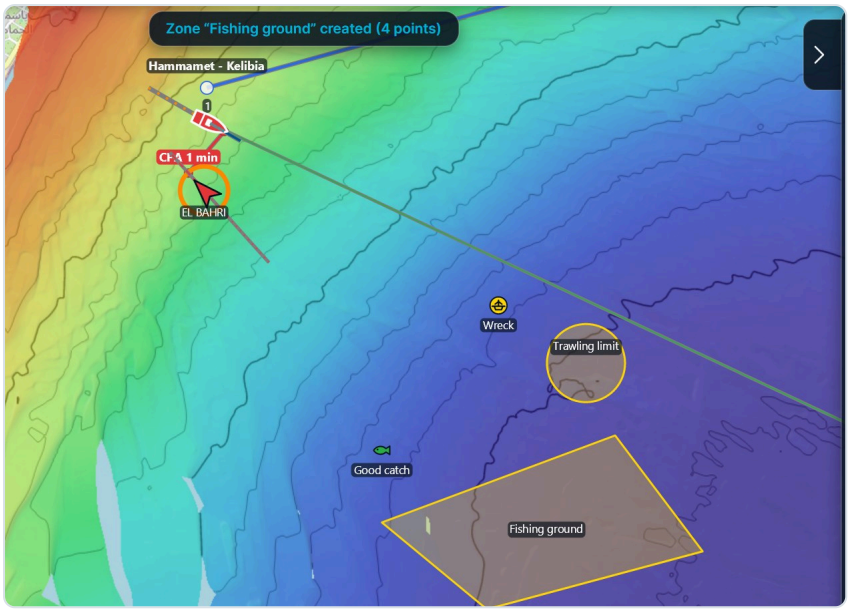


Figure 18. A circle (“Trawling limit”) and a surface (“Fishing ground”).

Lists

Lists (F7) opens tables at the bottom of the chart: **Marks**, **Routes**, **Tracks**, **Areas**, **Layers**, **Targets**, **Alarms**, and the DSC and AIS text messages when you receive them. Type in the filter box to narrow the list; select a row to work on it. **Actions** ▾ exports, copies, prints the table or chooses its columns.

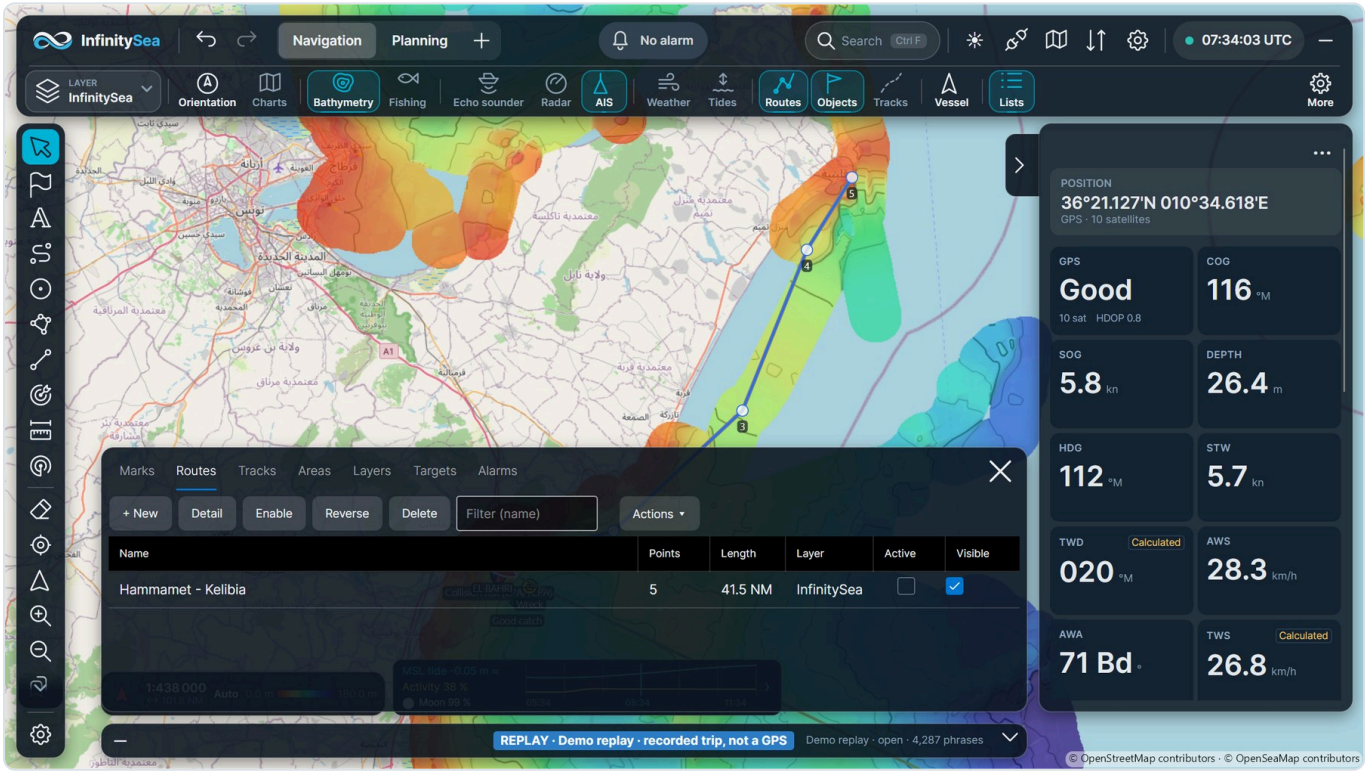


Figure 19. The **Routes** list with its buttons: **+ New**, **Detail**, **Enable**, **Reverse**, **Delete**.

Filters and bulk changes

Objects › **Filter objects** › **Manage filters…** saves sets of rules that decide which objects are shown: object type, name, layer, colour, mark icon, creation or modification date. An object is shown if it matches any rule of the chosen filter; **All objects** removes the filter. **Lists follow the filter** applies it to the tables too.

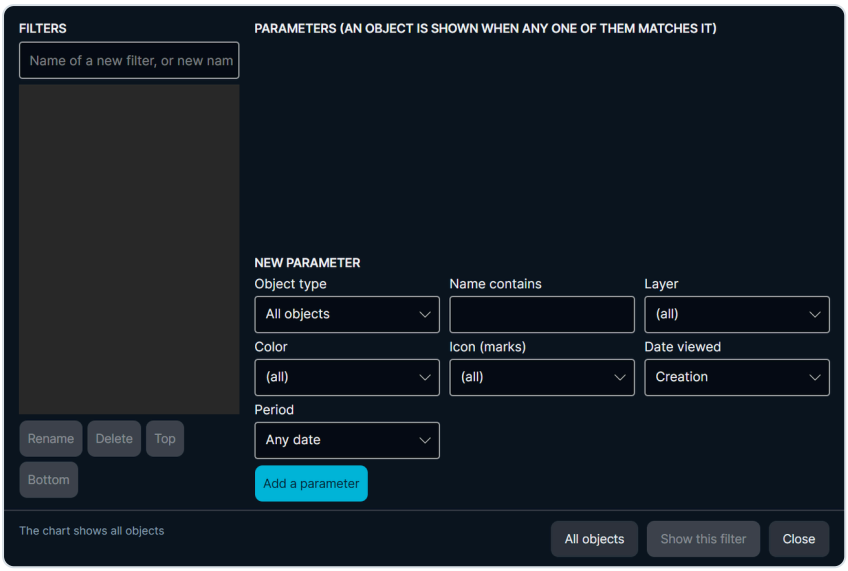


Figure 20. Filter management.

Objects › **Transform/Move…** changes the colour or icon of many objects at once, moves them to another layer, or removes duplicate waypoints. **Delete multiple objects…** deletes all the objects matching your criteria. Review the list of matching objects first; locked layers are left out. One **Undo** reverses the changes to marks, areas and routes, but changes to tracks cannot be undone: make a backup first.

Import and export

Open the wizard from the header, **Main menu** › **Data** › **Import / Export…** or **Objects** › **Import / Export…**. You can also drag a file onto the chart.

Format	Import	Export	Contains
GPX	✓	✓	Waypoints, routes, tracks
KML / KMZ	✓	KML	Marks, routes, areas, tracks
RTZ	✓	✓	Routes (ECDIS exchange format)
CSV		✓	Object tables
XYZ (`.xyz`, `.txt`, `.csv`)	✓	✓	Depth soundings for your bathymetry
TzBackup	✓		A full backup from another plotter software. **Replaces** all your layers, marks, routes, areas, tracks and soundings, even the kinds you untick; it cannot be undone and is refused during active navigation. Make a full backup first.

Import options: **Create one layer per file**, **Remove duplicates by position** (marks within 1 m of an existing one are skipped) and **Overwrite objects with the same name**. Charts (`.000`, `.kap`, `.tif`, `.mbtiles`, `.gpkg`), GRIB weather files and NMEA recordings dropped on the chart go to their own importers.

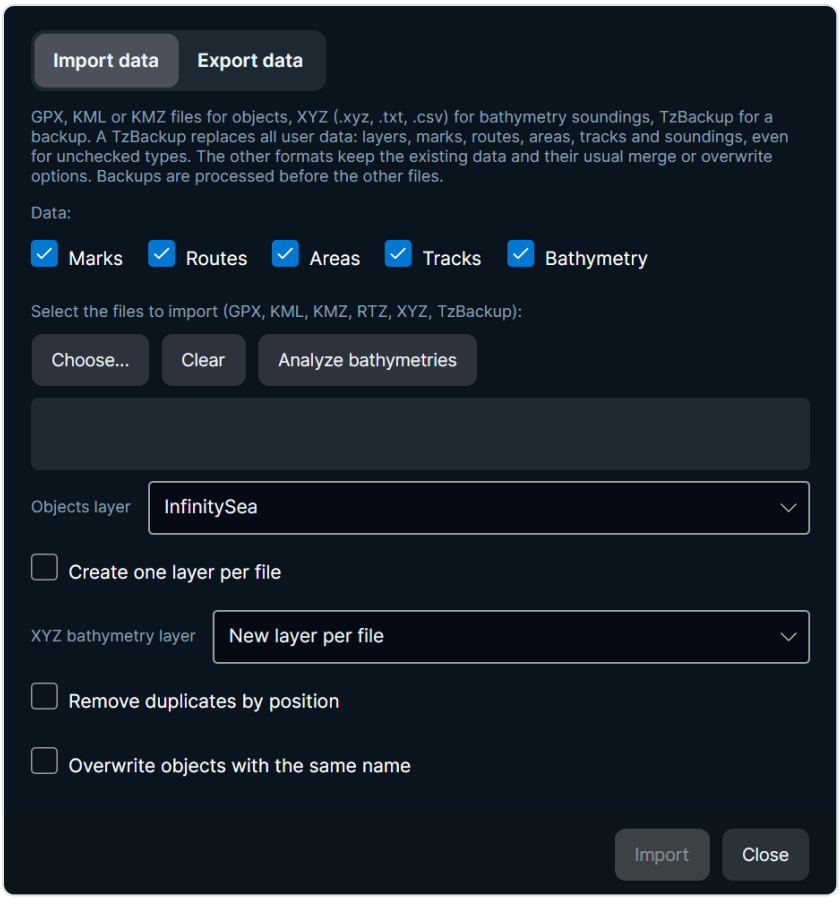


Figure 21. Import/Export wizard.

Logbook

The **Trip — record the track** right-hand panel starts, pauses and saves a trip. **Objects** › **Logbook…** lists saved trips by month with a card, a speed graph and a journal of positions, wind, depth and pressure. **Replay on the chart**, **Export GPX…** and **Export CSV…** act on the selected trip. **From history** builds trips from tracks recorded before.

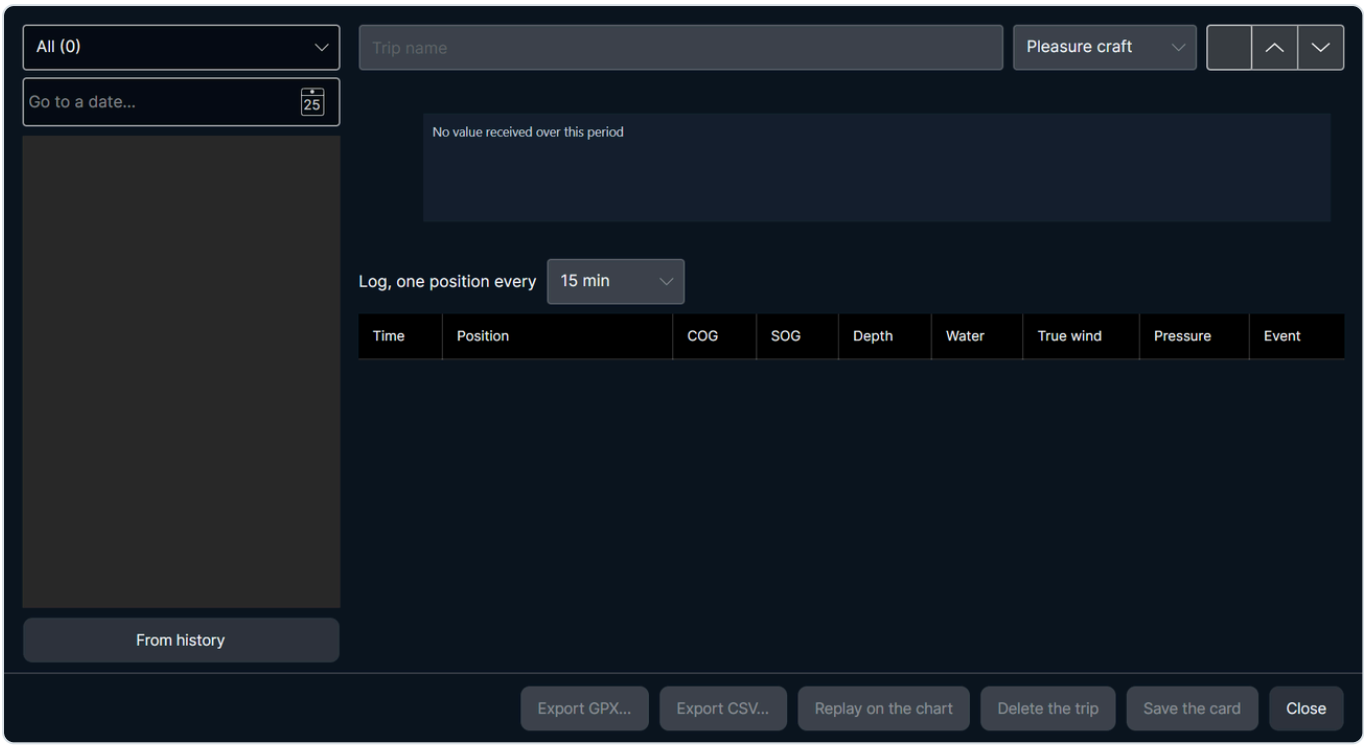


Figure 22. The **Logbook**, with no trip saved yet.

5 Navigating

Go to a position

Choose the **Go to** tool and touch the destination, or right-click a point or a mark › **Go to**. InfinitySea draws a direct leg from the boat and opens the navigation tile.

> **CAUTION**
> A direct leg ignores land and shallows. Look at the whole leg on the chart before you steer it.



Figure 23. The navigation tile during a Go to: distance, bearing, cross-track error, time to go, ETA and VMG.

The navigation tile shows:

- **DISTANCE (DTW)** and **BEARING (BTW)** to the waypoint;
- **CROSS-TRACK ERROR (XTE)**: how far you are from the planned line, with a steering hint such as **steer to starboard ▶**;
- **TTG** (time to go), **ETA** (estimated time of arrival) and **VMG** (velocity made good: your speed towards the waypoint), and for routes the next waypoints.

The buttons at the top of the tile go to the **next waypoint**, **Restart XTE** (starts the leg again from where the boat is now), and **Stop navigation**.

Following a route

Start a route from its details window (**Enable**), from the **Routes** list, or from the route menu on the chart. Without a chosen starting point, InfinitySea starts at the nearest leg.

The waypoint changes when the boat enters the passing circle (60 m radius by default) or crosses the line perpendicular to the leg at the waypoint (**Waypoint passing mode**: **Circle and perpendicular**). You are warned when you approach a waypoint set to notify and at the end of the route; arriving at each intermediate waypoint has its own alarm (off by default). Set these in **Options** › **Routes**.

> **NOTE**
>
> **Restart XTE** moves the start of the leg to the present boat position. Check the new line on the chart before you follow it.

Autopilot

When an autopilot is connected and answers, InfinitySea offers to use it when a Go to or a route starts: **Yes, use the autopilot** adds pilot controls to the navigation tile and, with some pilots, lets InfinitySea command the pilot for this session; **No, steer by hand** closes the offer. Engaging the pilot is always a separate action.

The **Autopilot** window (**Vessel** › **Autopilot…**) connects to the pilot (**Search**, **Connect**, **Disconnect**) and, depending on the model, offers **Allow the command…**, **Engage…**, **STANDBY**, heading adjustments of ±1° and ±10°, and route following. Pilots that only take NMEA 0183 route sentences are driven from an output port in the connections (chapter 11).

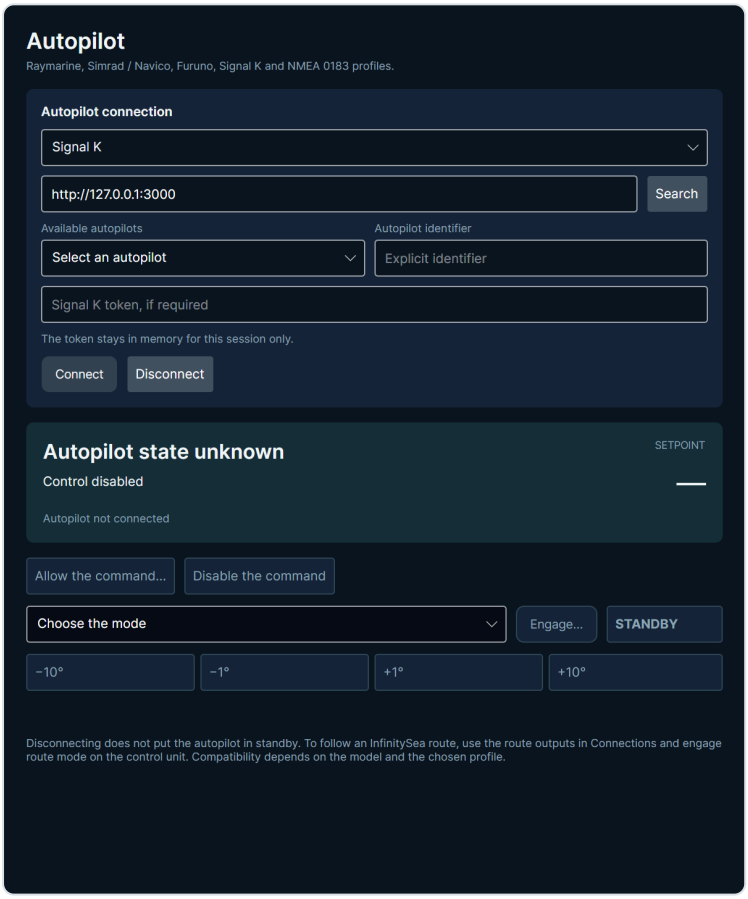


Figure 24. The **Autopilot** window with no pilot connected.

> **WARNING**
>
> Stopping navigation, cutting the output or disconnecting InfinitySea does **not** necessarily put the pilot in standby. When route following ends, InfinitySea can switch a supported pilot to heading hold, and the pilot then keeps steering. Always check the mode on the pilot's own control unit, and press its standby key to take the helm.

Man overboard and distress

Press the **Man overboard (MOB)** button, `F8` or `Ctrl`+`M`. InfinitySea marks the boat position at once (when the GPS gives one), raises the alarm and starts the navigation guidance back to the mark (**MOB behavior**: **Alarm and active route**). It does not steer the boat: take the helm. An engaged autopilot can follow the MOB guidance sent on a navigation output. If no position is available, the alarm is raised without a return point. With **MOB behavior** set to **Event**, only a mark is made: check this setting in **Initial adjustments** before you leave. Acknowledging the alarm only stops the sound: the MOB mark and the guidance remain until you stop them.

An active AIS distress beacon (AIS SART, MOB beacon) with a position opens **Distress beacon**, with **Center on screen**, **Go to** and **Acknowledge**. A DSC distress call raises its own alarm; read it in the DSC list. These alarms cannot be switched off and stay visible as long as the beacon transmits.

Anchor watch

Touch the **Anchor watch** tool when the anchor is down. A circle of 50 m (by default) is drawn around the boat's position at that moment (or around the anchor point set on the hull, when the heading or course is known) — not around the anchor itself. Start the watch when the boat is close to where the anchor went down, check the centre of the circle on the chart, and choose a radius that covers your chain and swing. The watch compares an averaged boat position with the radius. **Anchorage: warning** sounds at 80 % of the radius and **Anchor dragging** when the boat leaves the circle. Touch the tool again to end the watch. Set the radius to your chain length and swing.

Ruler and EBL/VRM

The **Ruler** measures the distance and bearing between two points; double-click the tool to clear all rulers. The **EBL/VRM** tool places an electronic bearing line and a variable range ring from the boat. Two independent sets are available; their values can be added as NavData tiles.

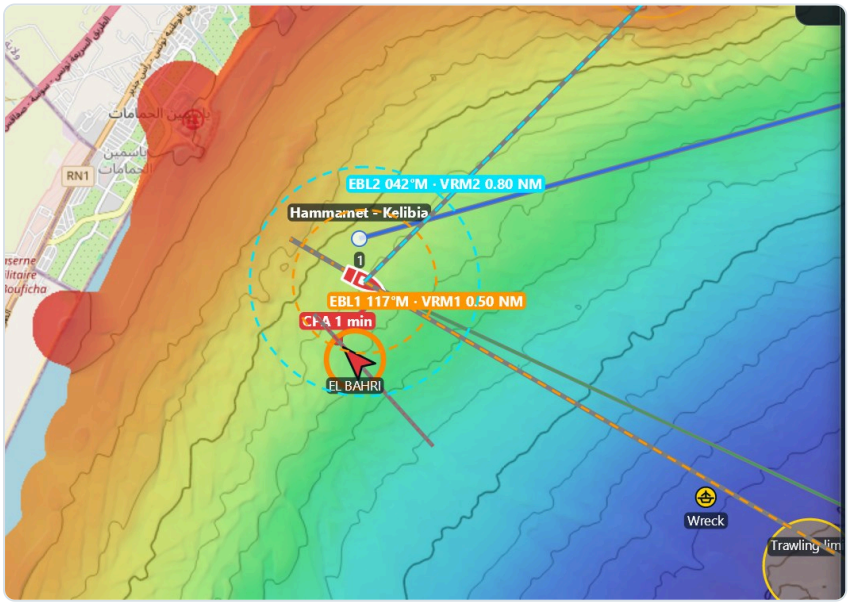


Figure 25. Two EBL/VRM sets from the boat.

Dead reckoning

If the GPS is lost, dead reckoning can estimate the position from heading and speed. Enable it before you need it: it needs a previous GPS fix and a usable course and speed. When the GPS comes back, its position is used again automatically, unless you forced dead reckoning. Open **Objects** › **Right-hand**

panels › **Dead reckoning — position without GPS**: enter a course in degrees **true** (correct your compass course for variation and deviation) and a speed, then **Apply**; **Sensors** to return to the instrument course and speed, **Reset to GPS** to re-align the estimate on the GPS fix. Automatic use is enabled in **Options** › **Initial adjustments** (**Enable dead reckoning mode**, off by default). An estimated position is always flagged on screen.

> **CAUTION**
> An estimated position drifts, all the more with current or wrong heading and speed. Confirm the position by other means near any danger.

Other navigation aids

- **Laylines** (**Routes** › **Routing**) — for sailing boats: the two tacks to the active waypoint, from the wind and your polar.
- **Odometers** — **+ NavData** offers trip, voyage and total distances and times under way (above 0.5 kn).

6 AIS targets and alarms

AIS targets

AIS targets appear as soon as an AIS receiver is connected. Class A vessels are blue and class B green by default, with their name and a COG/SOG vector. A dangerous target turns red. Radar targets (ARPA/MARPA) are shown too, and an AIS and an ARPA target of the same vessel can be merged into one (within 250 m, when their motions match).

The **AIS** panel chooses what to show: **All AIS**, **Dangerous AIS**, **Fishing AIS**, **Favorite AIS** or the list filter; the families, labels, vectors and DSC targets; **Track all AIS** and the **AIS list**.

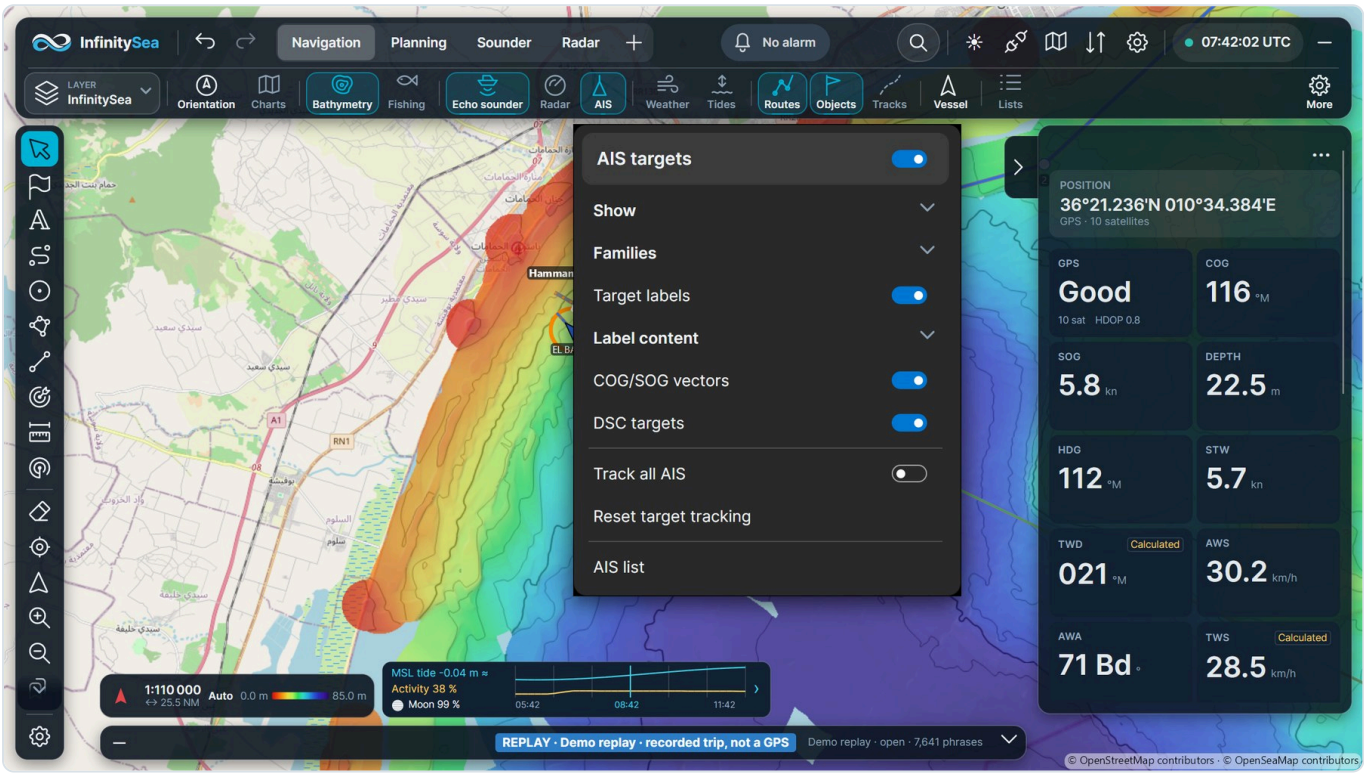


Figure 26. The **AIS** panel.

> **NOTE**
>
> Filters can hide traffic from the chart. Distress beacons are always shown. Many small boats carry no AIS: keep a lookout.

Collision risk (CPA/TCPA)

For each target, InfinitySea computes the **CPA** (closest point of approach: the smallest distance between the two boats if both keep their course and speed) and the **TCPA** (the time until then). An active target is dangerous when its CPA is 0.5 NM or less and comes within the next 10 minutes (defaults); targets slower than 1 kn are not flagged. Keep watch for slow, stationary and unreported traffic even when no target is flagged. Its CPA point is drawn with a label such as **CPA 3 min**, and dangerous targets are listed first in NavData.

Select a target to see its card: name, MMSI, class, distance and bearing, CPA and TCPA, speed and course, heading, position, navigation status, type, size and destination. The card can be locked or

detached into its own window. From the target menu you can **Center on the target**, **Follow target on screen**, **Go to target (GoTo)**, measure from it, or add it to your favourites with a nickname and colour.

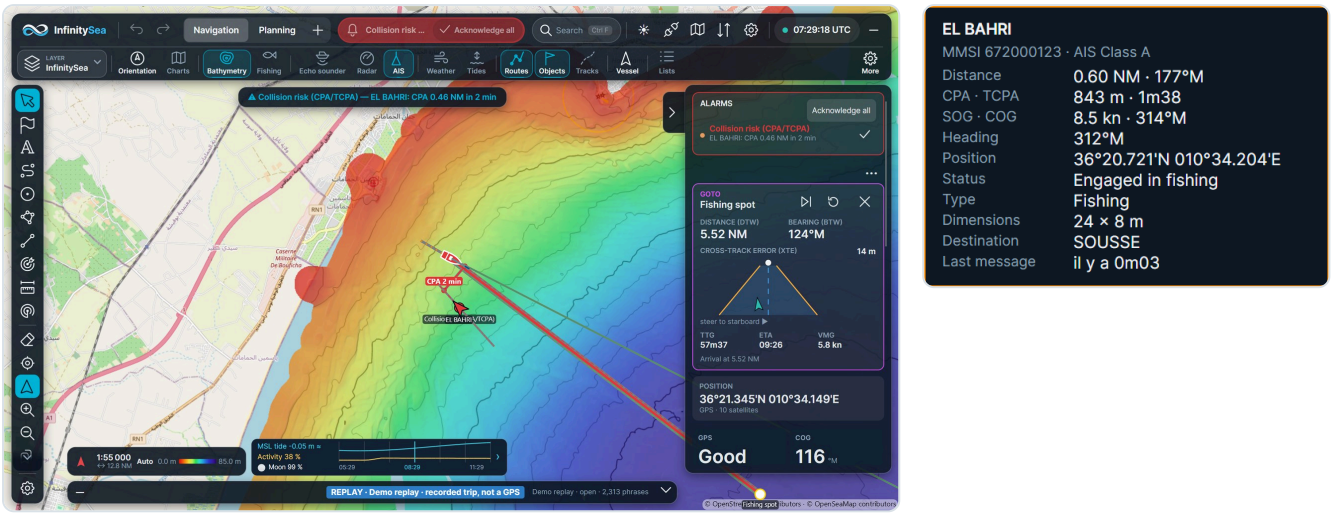


Figure 27. Collision alarm with the fishing vessel EL BAHRI (left) and its target card (right).

> **IMPORTANT**
>
> The **Collision risk (CPA/TCPA)** alarm is **off** by default. Turn it on in **Options** › **Alarms** before you rely on it. CPA and TCPA change as soon as a vessel manoeuvres, and depend on reports that can be late or missing.

Alarms

The most urgent alarm is shown in the header, and all active alarms at the top of NavData. A high-priority alarm sounds until it is acknowledged, repeating every 5 seconds. **Acknowledge all** (`Ctrl` + `Shift` + `A`) or the tick next to an alarm records that you saw it and stops the sound. An acknowledged ordinary alarm can then leave the banner and NavData even if its cause continues; turn on **Keep acknowledged alarms displayed** to keep it visible. Emergency alarms stay visible while they are active. The **Alarms** list keeps the history, with filters by type, priority and status.

In **Options** › **Alarms**: the **Enabled alarms** switches, the thresholds, the sound of each alarm, **Mute all alarm sounds** and **Keep acknowledged alarms displayed**. Emergency alarms (man overboard, MOB and AIS SART beacons, DSC distress calls) are always on.

> **BEFORE YOUR FIRST TRIP**
>
> These alarms are **off** by default: **Shallow water**, **Collision risk (CPA/TCPA)**, **Cross-track error (XTE)**, **Danger on route**, **Anti-grounding cone**, **Depth lost**. Turn on and set the ones you need before going to sea.

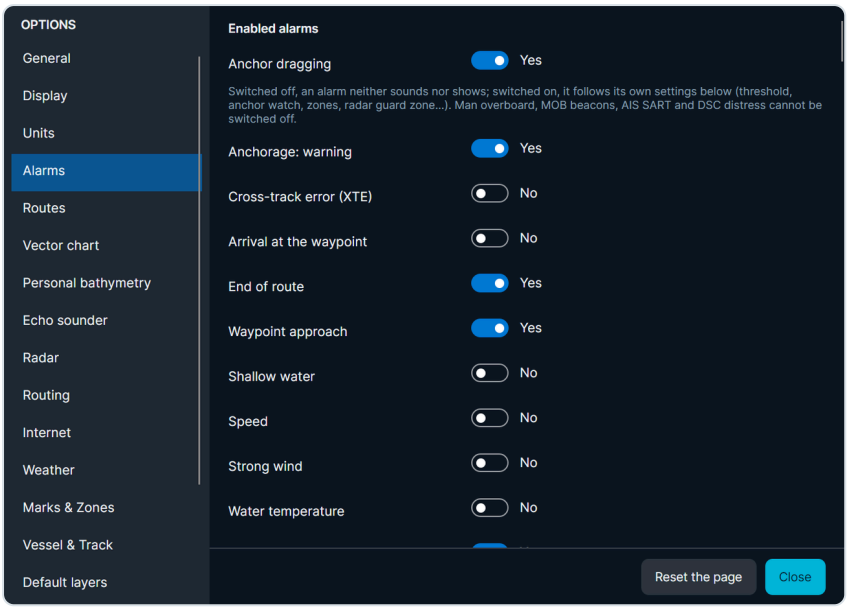


Figure 28. Options › **Alarms** › **Enabled alarms**.

> **NOTE**
> Acknowledging an alarm does not solve its cause. Muting the sounds leaves the visual alarms.

Chart zones

When vector charts are loaded, InfinitySea watches the regulated areas you sail into. By default an **alarm** is given for prohibited areas (including military areas), and a **warning** for restricted military zones, areas to be avoided, no-wake zones, speed limits, anchoring prohibited or restricted, wind farms and unsurveyed areas. Change each class under **Chart zones (Smart Zone)** on the alarms page. The **Anti-grounding cone** (off by default) looks ahead of the boat — 15° each side, 1 NM long — for shallow water and hazards on the chart.

Alarm reference

Alarm	Default	Triggers when…
Anchor dragging / Anchorage: warning	On	the boat leaves / reaches 80 % of the anchor watch circle (50 m)
Cross-track error (XTE)	Off	the boat is further from the active leg than its limit (60 m by default, or the value set for the leg)
Arrival at the waypoint	Off	an intermediate waypoint is reached
End of route	On	the last waypoint is reached
Waypoint approach	On	5 min (or 0.5 NM) before a waypoint set to notify
Shallow water	Off	the measured depth is under 10 m
Speed	Off	SOG is above 10 kn (or outside 5–15 kn)
Strong wind	Off	true or apparent wind is above 30 kn
Water temperature	Off	above 20 °C (or outside 15–20 °C)
Fuel reserve reached	On	tank level is under 20 %
Collision risk (CPA/TCPA)	Off	CPA under 0.5 NM within 10 min

AIS target nearby	Off	a target is closer than 100 m
Target in an alarm zone	On	a target enters a zone with **Target alarm**
Inside / Approaching an alarm zone, Alarm line crossed	On	the boat enters, comes within 300 m of, or crosses one of your watched zones
Danger on route	Off	a hazard lies on the route within 5 min (or 0.5 NM)
Anti-grounding cone	Off	a hazard is in the cone ahead of the boat
Entering a chart zone / Chart zone	On	the boat enters a regulated chart area set to alarm / warning
Position lost, Poor GPS fix	On	the GPS stops or degrades
Heading lost (course over ground used)	On	the heading sensor stops
Depth lost, Speed through water lost, Apparent wind lost	Off	that sensor stops after having been received
GPS deviation	On*	the GPS jumps more than 500 m from the estimate (*needs **Monitor GPS deviations**)
Data port lost	On	an instrument connection fails
Stale weather	On	the forecast shown is older than 2 days
Target in radar guard zone	On*	a tracked target enters the guard zone while the radar transmits (*guard zone off by default; untracked echoes give no alarm)
Autopilot: route following interrupted	On	the pilot stops following the route
Man overboard, Man overboard (beacon), AIS SART / MOB beacon, DSC distress call	Always	an emergency is raised or received

A sensor-loss alarm works only for a datum that has been received at least once, and not in the first 10 seconds after start-up: a sensor that is silent from the start gives no loss alarm. Before leaving, check that position, heading and depth arrive. Ordinary alarms clear five seconds after their cause disappears.

7 Weather, tides and planning

Getting a forecast

1. Open **Weather** › **Download weather…**.
2. The **Forecast area** is the visible chart. To choose another one, touch **Draw the area on the chart**: the window hides while you draw a rectangle (`Esc` cancels).
3. Choose the **Duration** (1, 2, 3, 5, 7 or 10 days) and the **Forecast interval** (3, 6 or 12 h).
4. **Area data** lists what will be fetched and its size. Touch **Download**.

The simple mode chooses the models for you and downloads only what is missing: global GFS weather and waves, the finer ICON-EU wind and EWAM waves where they cover the area, ECMWF currents and sea level, and satellite sea temperature and chlorophyll. **Compare all models of the area** adds every other model available, for comparison (much more data).

Advanced mode · choose models and data lets you type the limits of the area, choose the atmospheric and wave models (for example NOAA GFS at 0.25°, 0.5° or 1°), and tick each quantity. **Apply the recommended settings for this area** fills it in for you.



Figure 29. Download weather forecasts: area, duration, interval and the data of the area.

Download before you leave: at sea, InfinitySea uses the files it already has. To refresh the forecast every day, set **Automatic download** and up to four **Automatic download times (UTC)** in **Options** › **Weather**: InfinitySea then repeats your last request. A GRIB file received by other means opens with **Weather** › **Open a weather file…** or by dropping it on the chart.

Showing the weather

In the **Weather** panel, **Show weather** turns the overlay on, and a chip chooses the quantity shown in colour: **Wind**, **Gusts**, **Waves**, **Rain**, **Pressure**, **Current**, **Sea temp.**, **Chlorophyll** or **None**. **Other data** adds wave period, cloud cover, air temperature, altimetry, 500 hPa geopotential and sea ice.

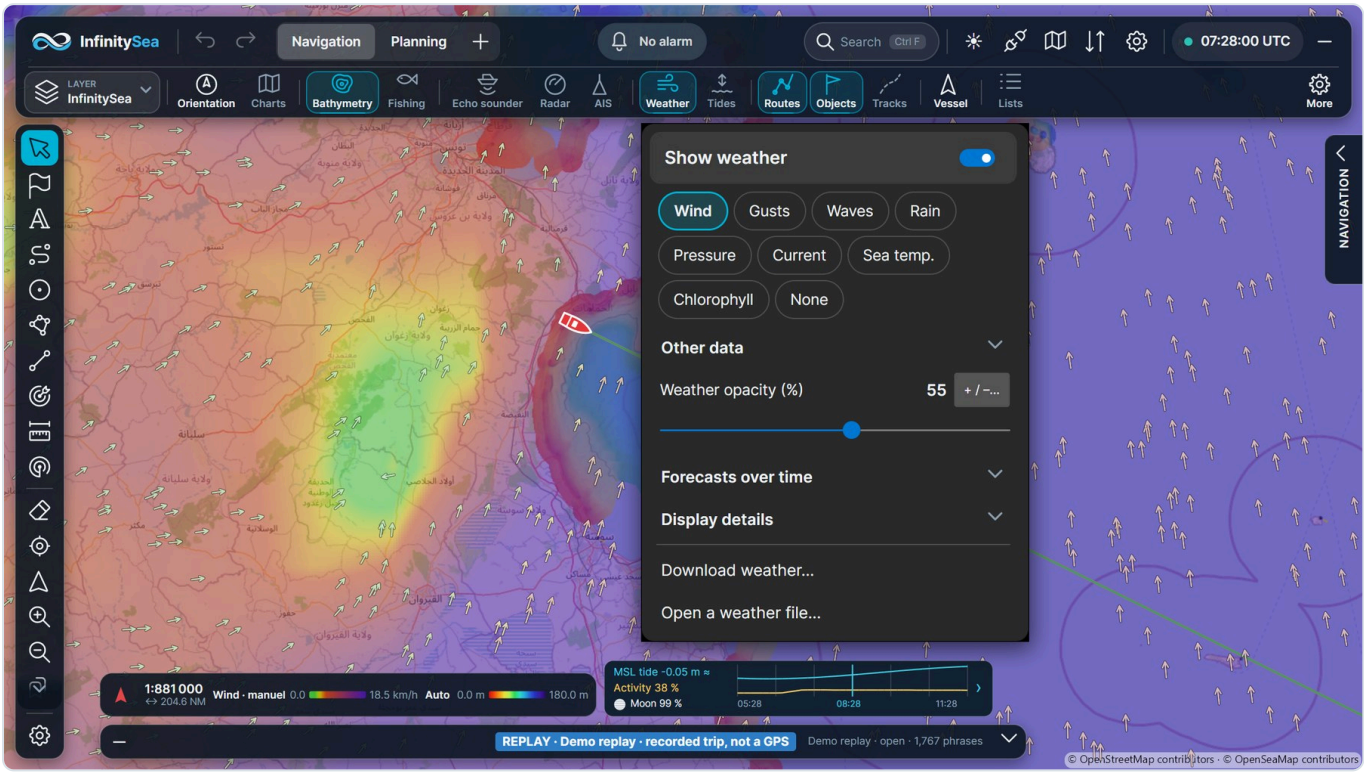


Figure 30. Wind forecast on the chart with the **Weather** panel open.

- **Display details** adds wind barbs and isobars (on by default), gust barbs, wave arrows and values written on the chart.
- **Color scale**: **Recommended** uses a fixed sea-state scale (for waves, 0.5 m is green, 1 m yellow, 2 m red); **Automatic · visible area** stretches the colours to what you see; **Manual limits…** fixes them.
- **Animation** moves trails or arrows with the wind, waves or current.
- **My presets** saves a display under a name to recall it later.
- **Weather opacity (%)** is 55 % by default.

Right-click an empty point of the chart › **Weather** › **Weather information here…** shows which forecast is open, when it was computed, and the value of each quantity at that point.

The time bar (Planning)

Open the **Planning** workspace. The time bar at the bottom moves the chart in time; forecasts, tides and fishing indicators follow it.

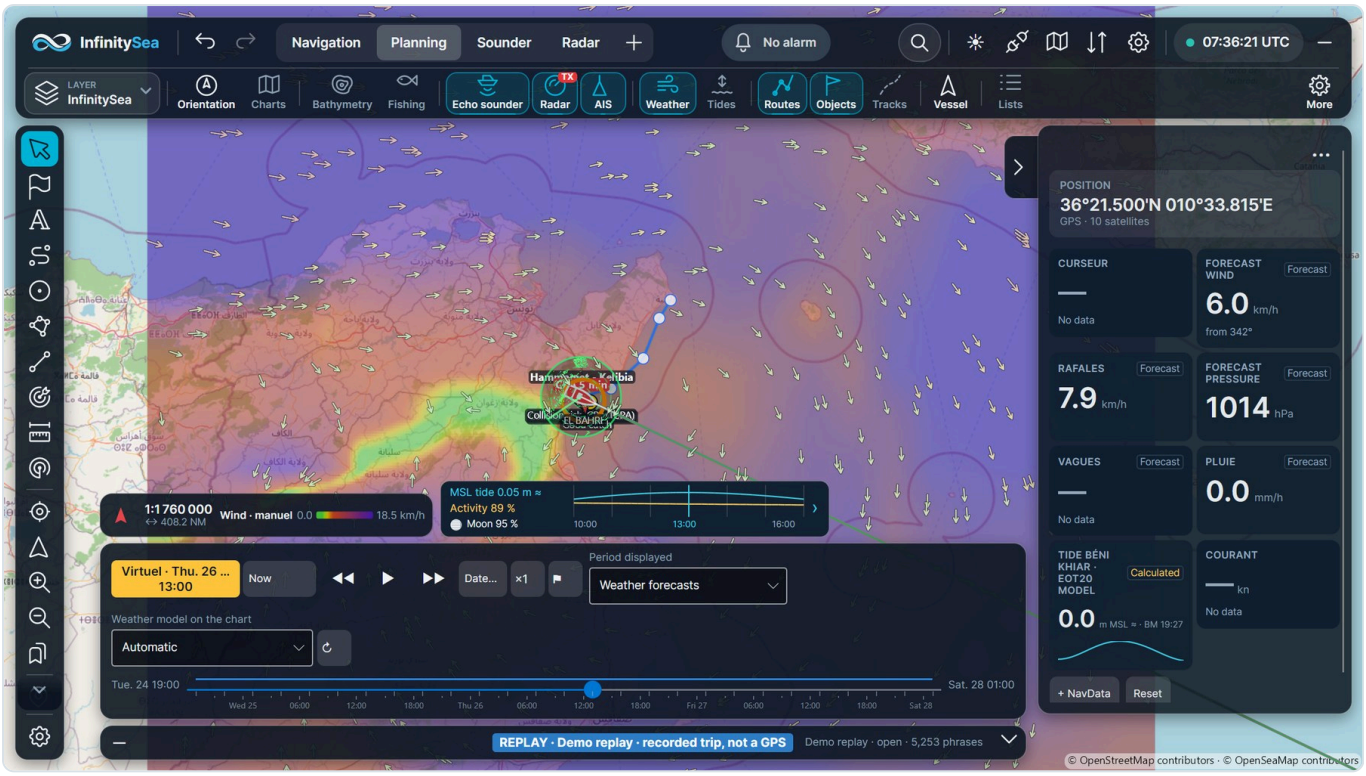


Figure 31. Planning: the yellow badge shows a virtual time (here Thursday 13:00); NavData shows the forecast at the cursor.

- The badge is **blue** at the present time and **yellow** at a virtual time. **Now** (`Ctrl` + `F2`) returns to the present.
- Drag the ruler, use the step arrows, or **Date…** to choose a time; play and pause at ×1 or ×10.
- **Period displayed**: **Weather forecasts** (the steps of the forecast), **Route progress** (the planned passage at each waypoint), **Replay a trip**, or a free range of 6 hours, 2 days or 10 days.
- In any workspace, **Vessel** › **Replay the last minutes** replays the track being recorded, without saving a trip first.
- **Weather model on the chart**: **Automatic** combines the best recent data for each place and time; you can also pick one downloaded forecast.

Forecasts at one point and along a route

Weather › **Forecasts over time** offers:

- **Comparative meteogram at the selected point…** (also on the chart menu › **Weather** › **Meteogram here · compare models**): the forecasts of all downloaded models at one place, with the **Spread between models at this hour**. A large spread means the forecast is uncertain. **Add a model** downloads more models around the point.
- **Show weather chart**: a meteogram in the side panel that follows the boat or stays at a point.
- With a forecast loaded, right-click a route › **More** › **Route meteogram**: wind, gusts, pressure, waves and rain along the route, at the planned passage times.

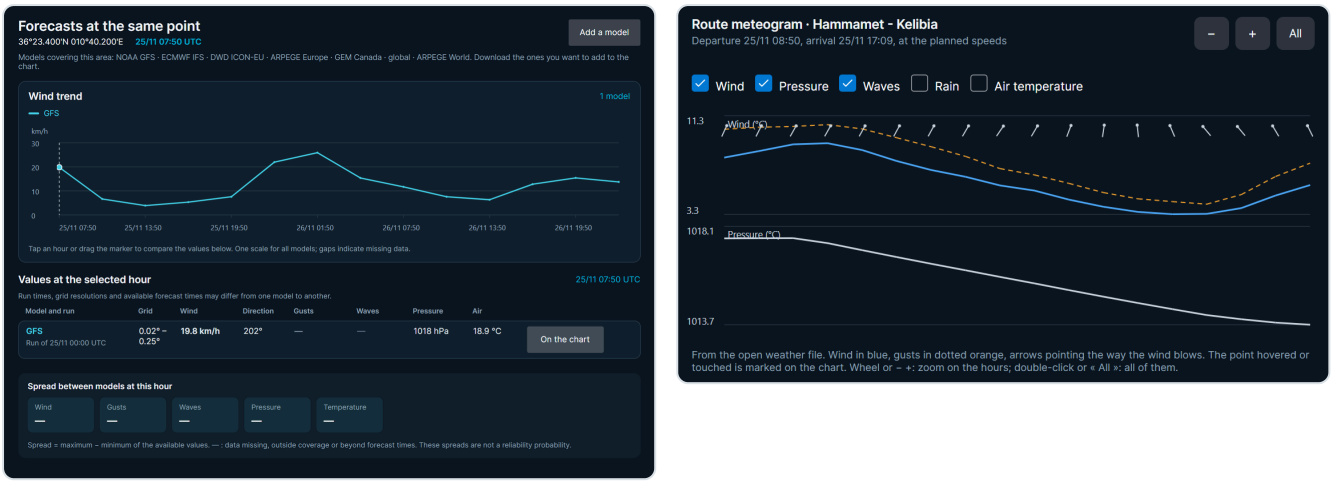


Figure 32. Forecasts at the same point (left) and the meteogram of a route (right).

Tides and currents

The **Tides** panel shows **Tide stations** and **Tidal currents** on the chart. **Tide graph** (or right-click an empty point of the chart › **Tides and currents** › **Tide graph (nearest station)**) shows a day of tide heights with high and low water, sunrise, sunset and the moon. The station, its model and its reference level (for example mean sea level) are written on the graph. Check that reference before you work out the water under your keel: a height above mean sea level cannot be added directly to a chart depth, which refers to chart datum. **Tidal current graph** shows flood, ebb and slack water at a current station.

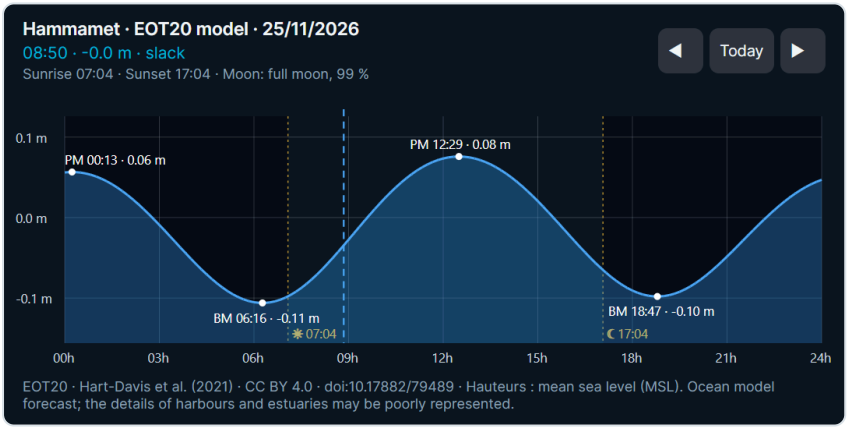


Figure 33. Tide graph for Hammamet.

The **Current** chip of the Weather panel shows the forecast ocean current (ECMWF), a separate source from the tidal current stations.

> **NOTE**
>
> Tide predictions describe their station. Harbours, estuaries and shallow areas can differ. In the Mediterranean, the tide is small and the wind and pressure can change the water level more than the tide does.

Weather routing

Weather routing computes the fastest route for a sailing or motor boat from the forecast and the boat's speed table (**polar**).

1. **Routes** › **Routing** › **Import a polar...**: a `.pol`, `.txt` or `.csv` table with the true wind speeds in the first row and one row per true wind angle (knots and degrees). **Wind polar** shows it.

2. Download a forecast covering the passage.
3. Choose **Routes** › **Routing** › **Start routing (tool)**, then touch the departure and the arrival on the chart (double-click to leave from the boat). In the **Routing wizard**, choose a departure time (**Depart at**), several departures around it (**Departure window ±**), or the time you want to arrive (**Arrive at**).
4. **Routing detail** lists the computed points with time, heading, speed, wind and waves. **Actions** ▾ offers the meteogram, **Replay the routing** (a ghost boat sails it with the weather of each hour), export, **Convert to route** and **Follow it (XTE, ETA)**.

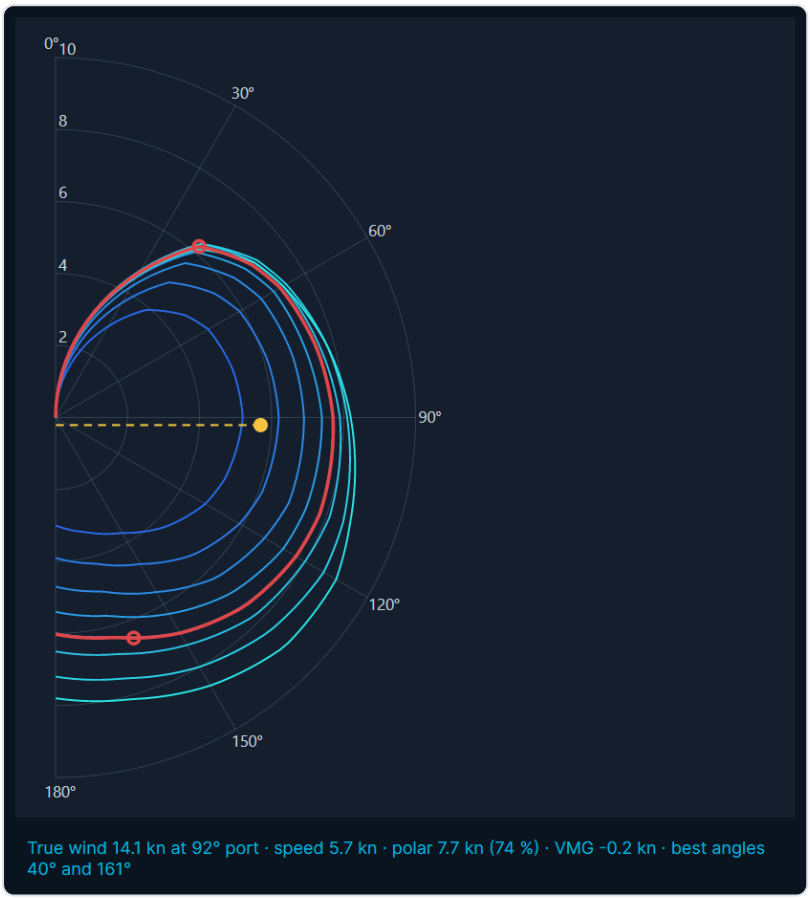


Figure 34. A sailing polar, with the present wind and the best angles.

Limits are in **Options** › **Routing**: maximum wind (40 kn), maximum waves (5 m), use of waves and currents, land avoidance, engine assistance.

> **CAUTION**
>
> Routing is a weather calculation. With land avoidance on, it avoids land and shallow water where chart or depth data exists, but it can cross areas without data. Convert the result to a route, use right-click › **More** › **Route dangers**, and check every leg on official charts.

8 Bathymetry and the seabed

InfinitySea shows the depth of the sea in colour with shaded relief, from three kinds of data: the depths of the vector charts, the soundings **you** record with your echo sounder, and imported data (survey files, other plotters, public bathymetry). Your soundings are the most detailed: after a few trips you see the seabed of your fishing grounds in relief.

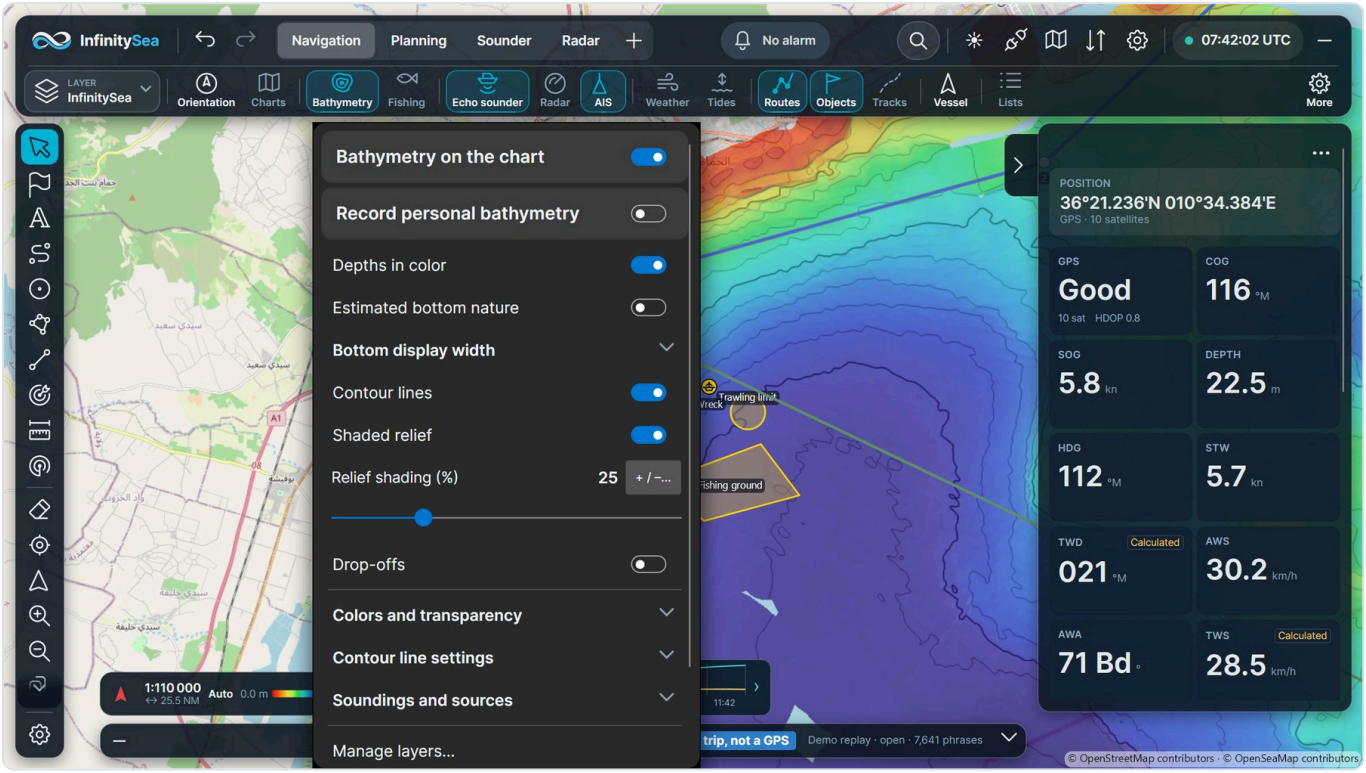


Figure 35. The **Bathymetry** panel over personal soundings in the Gulf of Hammamet.

Display

Bathymetry on the chart

Shows or hides all the depth layers at once.

Depths in color, Shaded relief, Relief shading (%)

Colours by depth and shades the slopes. Palettes: **Classic**, **Rainbow** (default), **Blue**, **Green**, **Brown**, **Gray**, their inverted versions and **Custom**; opacity 75 %.

Color range

Automatic (default) adapts the colours to the depths you see as you move and zoom, so small differences stay visible. **Manual** fixes the limits; **Fit to visible depths** copies the present range. Touch the limits of the depth legend at the bottom left to adjust them. **By steps** draws colour bands.

Contour lines

Lines of equal depth, with automatic spacing (density low to high) or a fixed interval, plus two contours of your choice drawn in red and green.

Drop-offs

Marks steep slopes (from 1° by default).

Estimated bottom nature, Bottom display width

Shows the seabed hardness and the estimated bottom type (mud, sand, gravel, rock) along your tracks, where hardness data exists.

Soundings and sources

Chooses which data are used (chart, user, imported) and how they are drawn (points, numbers, measured cells).

> **NOTE**
>
> The bottom type is estimated from the echo; it is an indication, not a survey.

Recording your soundings

1. Connect an echo sounder (or a plotter that sends the depth) and the GPS, and set the transducer depth in **Initial adjustments**.
2. Turn on **Bathymetry** › **Record personal bathymetry** (`Shift` + `F5`). The **REC** badge appears on the icon.
3. Sail. Each valid depth is saved with its position in the recording layer. Readings that fail the filters are rejected, and depths are corrected for the tide of the nearest station (within 20 NM) by default.

Recording is off during simulation and sounder replays.

Bathymetry layers

Bathymetry › **Manage layers…** lists the depth and hardness layers: **Vector chart**, **User** (your surveys), **Imported** and **Seabed hardness**, each with its visibility, number of soundings and lock. **+ User**, **+ Imported** and **+ Hardness** add layers; **Record here** chooses where new soundings go; **Lock** protects a layer from erasing. **Import…** adds XYZ soundings (`.xyz`, `.txt`, `.csv`: longitude, latitude, depth or elevation) and **Import hardness…** adds hardness data from a backup. Before mixing imported soundings with yours, check their vertical reference and whether the third column is a depth (positive down) or an elevation (negative).

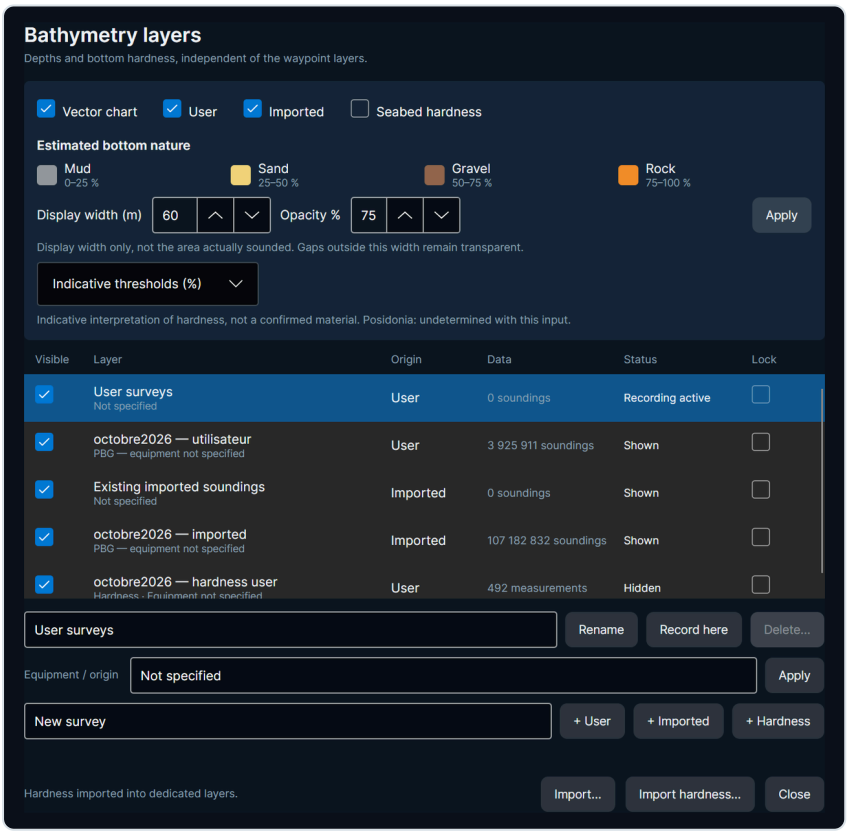


Figure 36. Bathymetry layers.

To erase wrong soundings, add the **Erase soundings** tool to the chart toolbar and paint over them.

Depth profile

Draw a line with the **Ruler**, then right-click it › **Depth profile**: a cross-section of the seabed along the line. Moving the pointer on the profile shows the point on the chart; double-click places a mark named after the depth. Tracks offer a profile of the depths recorded along them.

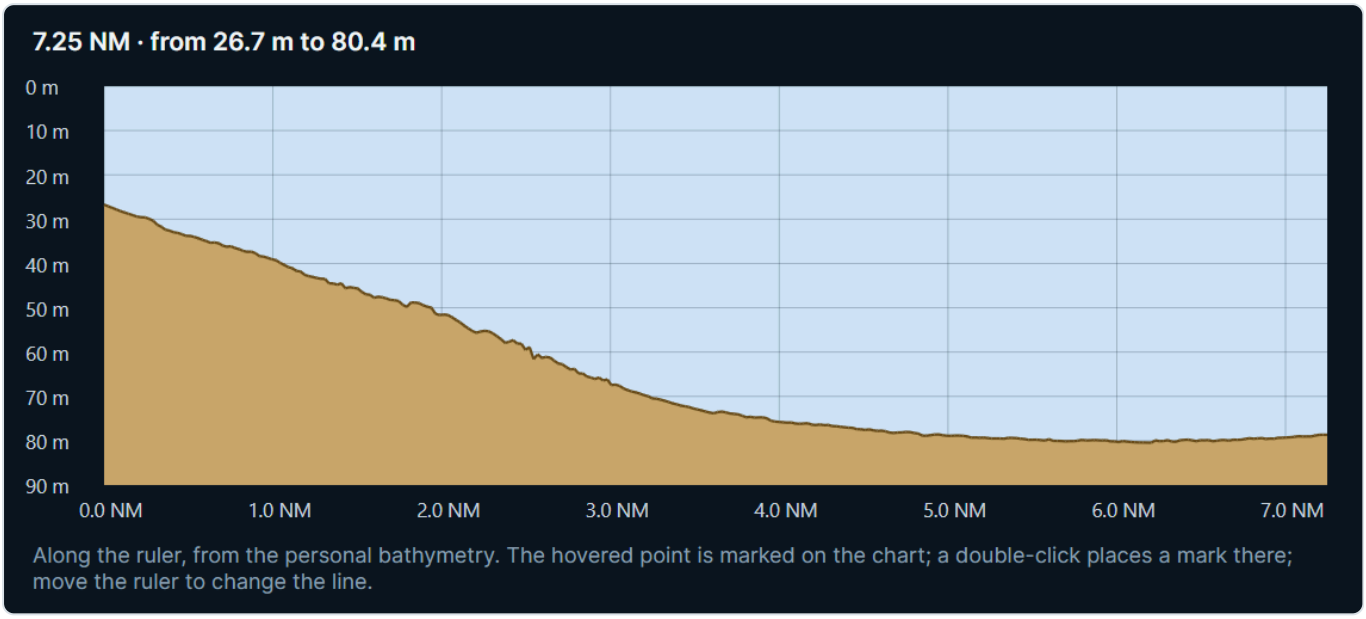


Figure 37. Depth profile along 7 NM, from 27 m to 80 m.

Calibrating the echo sounder

Vessel › **Calibrate the echo sounder** compares the depths of your sounder with a bathymetry you trust as you cross it, and proposes a correction (a median over 25 m squares, so stopping in one place does not weigh more). The panel shows the number of comparisons, their spread and the proposed correction. **Apply** keeps it, **Start over** clears the comparisons, **Undo** leaves without changing anything.

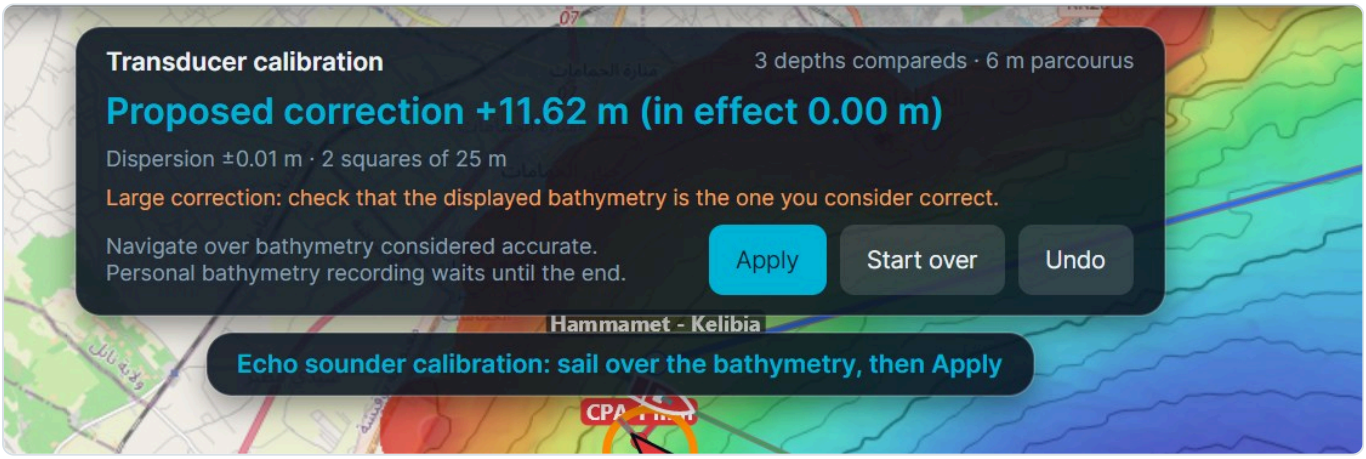


Figure 38. Transducer calibration: sail over the bathymetry, then **Apply**.

> **CAUTION**
> Check the reference, the tide and the spread before applying a large correction: a wrong correction changes every depth and the shallow-water alarm.

9 Echo sounder and radar

The sounder and the radar appear in their own panes. Create a workspace with + (chapter 2), for example **Two views side by side** with **Chart** and **Echo sounder**, or **Three views** with chart, sounder and radar.

Echo sounder

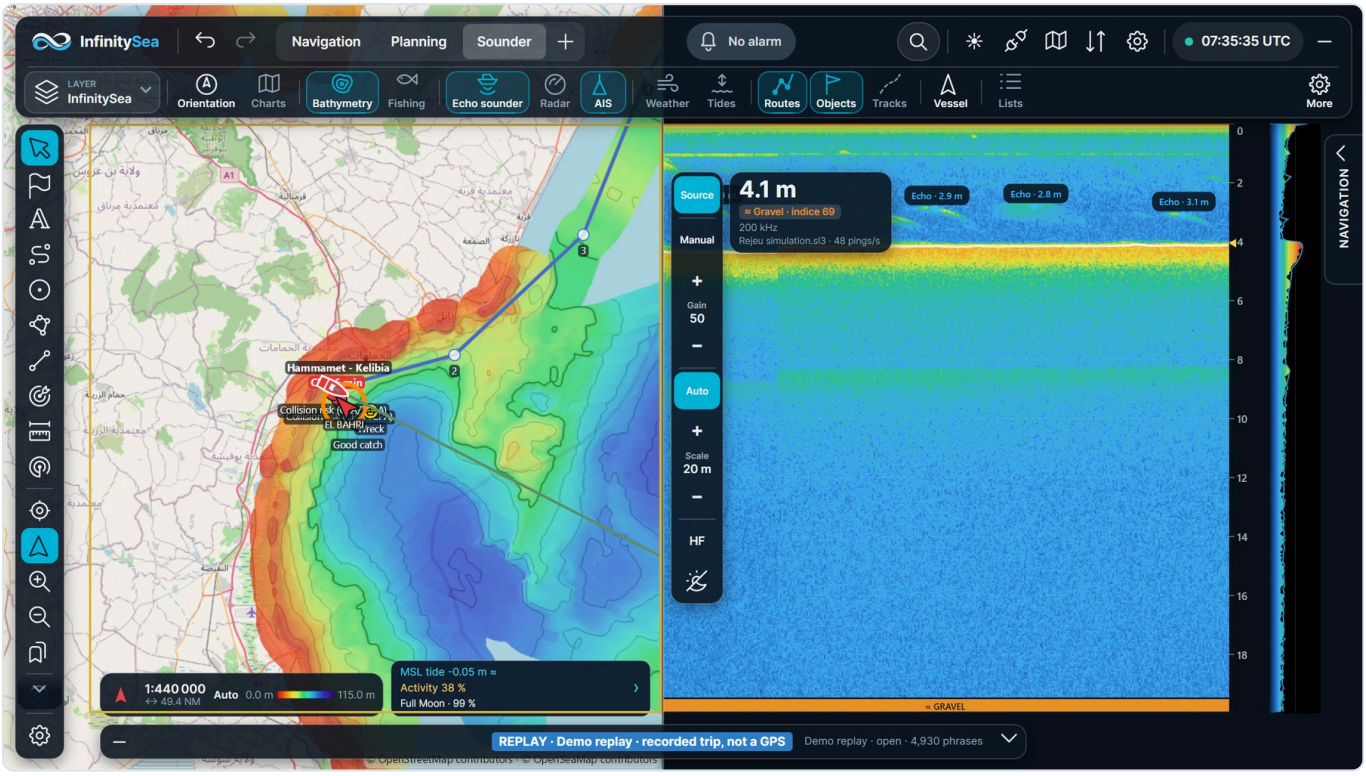


Figure 39. Chart and echo sounder side by side: depth, bottom type estimate, frequency and the A-scope on the right.

The buttons on the left of the echogram:

- **Source** — the sounder to show (connected devices, or simulations from recorded `.sl2`/`.sl3` logs); **Add a device…** opens the connection wizard.
- **Gain** — **Manual** with + and − (50 % by default), or **Auto Fishing (targets & baitfish)** and **Auto Cruising (firm bottom tracking)**.
- **Scale** — **Auto** keeps the bottom in view; **Bottom lock** flattens the bottom at the base of the screen; **Bottom zoom** follows it; **Zoom 2×** adds a magnified view.
- **Frequency** — **Low frequency (LF — wide cone)**, **High frequency (HF — fine detail)** or **Dual frequency (LF + HF)**, depending on the sounder.
- **Appearance and analysis** — palette, scroll speed, **Fish echoes (depth)**, **Bottom discrimination (substrate)**, white line, thermocline, temperature curve, A-scope and depth grid.

The **Echo sounder** panel of the icon bar holds the same settings and the noise and interference filters.

> **NOTE**
>
> Fish symbols, bottom type and thermocline are acoustic estimates. Replayed logs do not add soundings to your bathymetry.

Radar

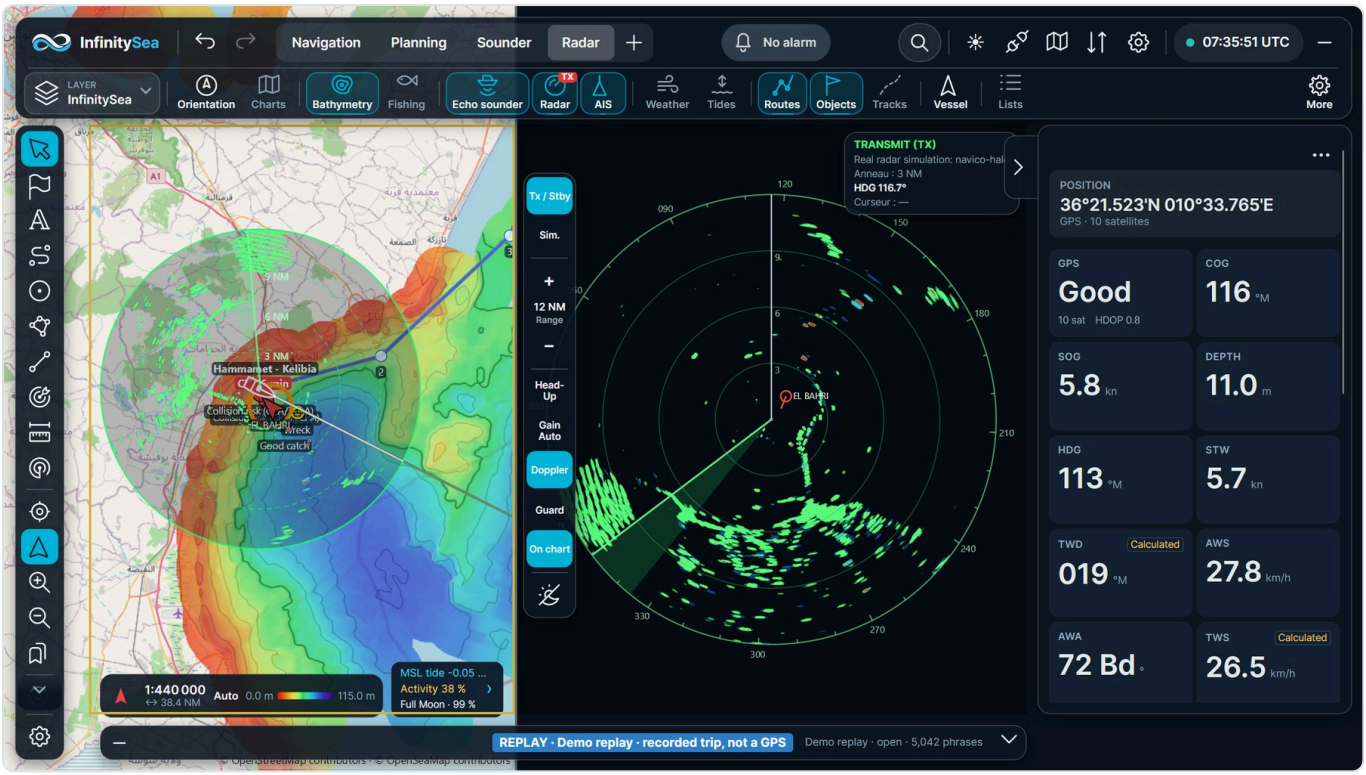


Figure 40. Radar overlay on the chart (left) and radar pane (right), here from the supplied radar recording.

- **Tx / Stby** — transmit or standby, on radars that InfinitySea can control. Before transmitting, make sure nobody is close to the scanner.
- **Range** + and − (3 NM by default, from 0.125 to 48 NM); **Head up**, **North up** or **Course up**.
- **Gain** and sea clutter — automatic by default; rain clutter — manual (15 %); palette, echo trails (30 s by default), range rings. Too much clutter filtering can hide small boats and buoys.
- **Doppler** — colours approaching targets, when the radar provides it.
- **Guard** — a guard sector (0.5 to 1.5 NM ahead by default) with its alarm.
- **On chart** — overlays the radar image on the chart around the boat (90 % opacity). **Sim.** plays recorded radar sweeps.

Radar targets acquired by the radar (ARPA/MARPA) are shown and tracked with the AIS targets.

> **CAUTION**
>
> Before trusting the overlay, check that the radar image lines up with the chart: it depends on the boat position and on a correct heading sensor. Turn **Sim.** off before navigating: a replay shows echoes recorded elsewhere.

10 Fishing aid

The fishing aid combines your bathymetry, public bathymetry, satellite sea temperature and chlorophyll, currents, tide, moon and the weather to suggest where and when to fish. Prepare it the evening before at home, then check it at sea.

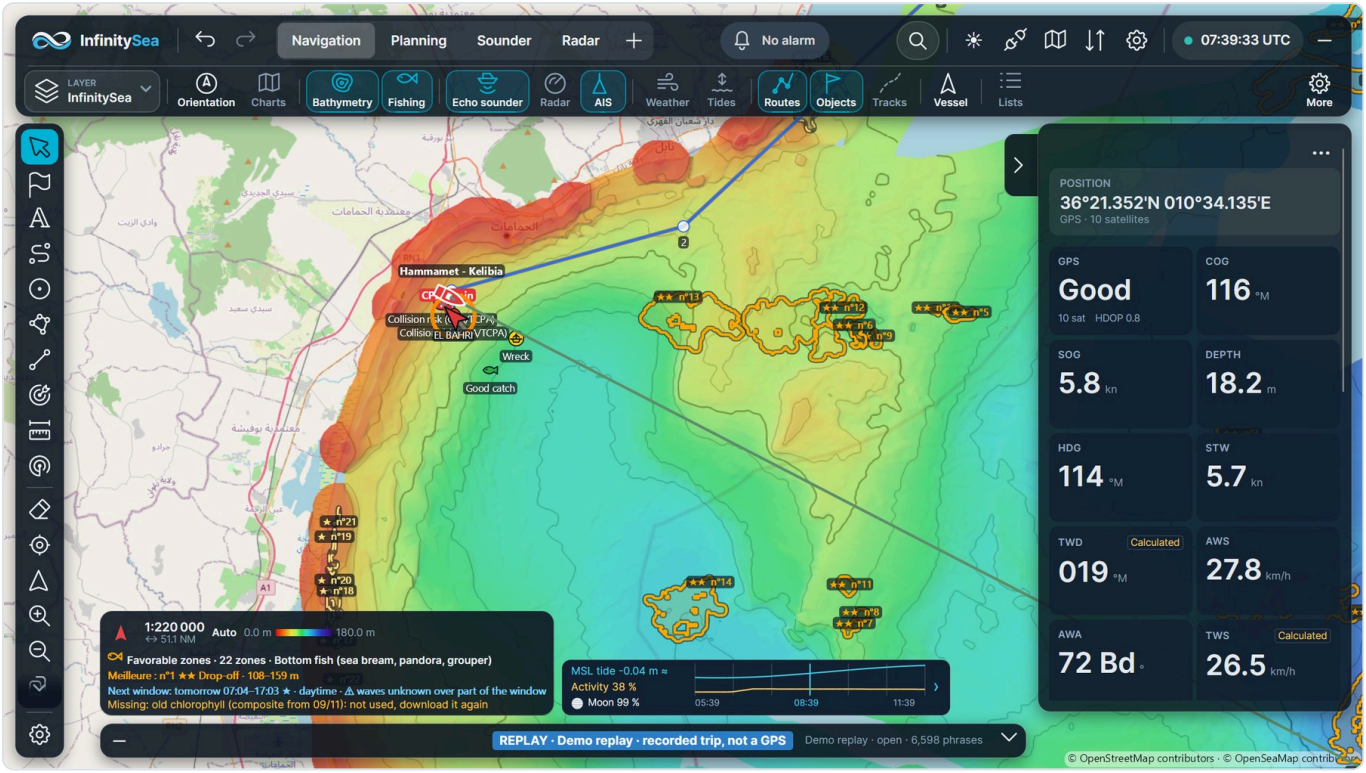


Figure 41. Favourable zones for bottom fish, numbered from the best; the box at the bottom left explains the result and what is missing.

Favourable zones

1. Download the weather with sea temperature and chlorophyll (the simple download includes them), and zoom to about 1:300 000 or closer.
2. In the **Fishing** panel, choose a profile: **General**, **Offshore pelagics (tuna, bonito, amberjack)**, **Bottom fish (sea bream, pandora, grouper)** or **Squid and cuttlefish (squid jig)**.
3. Turn on **Outline favorable areas**. Zones are numbered with one to three stars. The box at the bottom left gives the best zone, the next good time window, and the data that is missing.
4. **Recalculate areas** refreshes them after a new download.

The zones look for temperature and chlorophyll fronts, drop-offs and relief, and, with **Current against the relief (trial)**, places where the current meets a slope. Wind above 15 kn or waves above 1.25 m (adjustable) reduce the activity. **Signs on the chart** can show the fronts and drop-offs themselves.

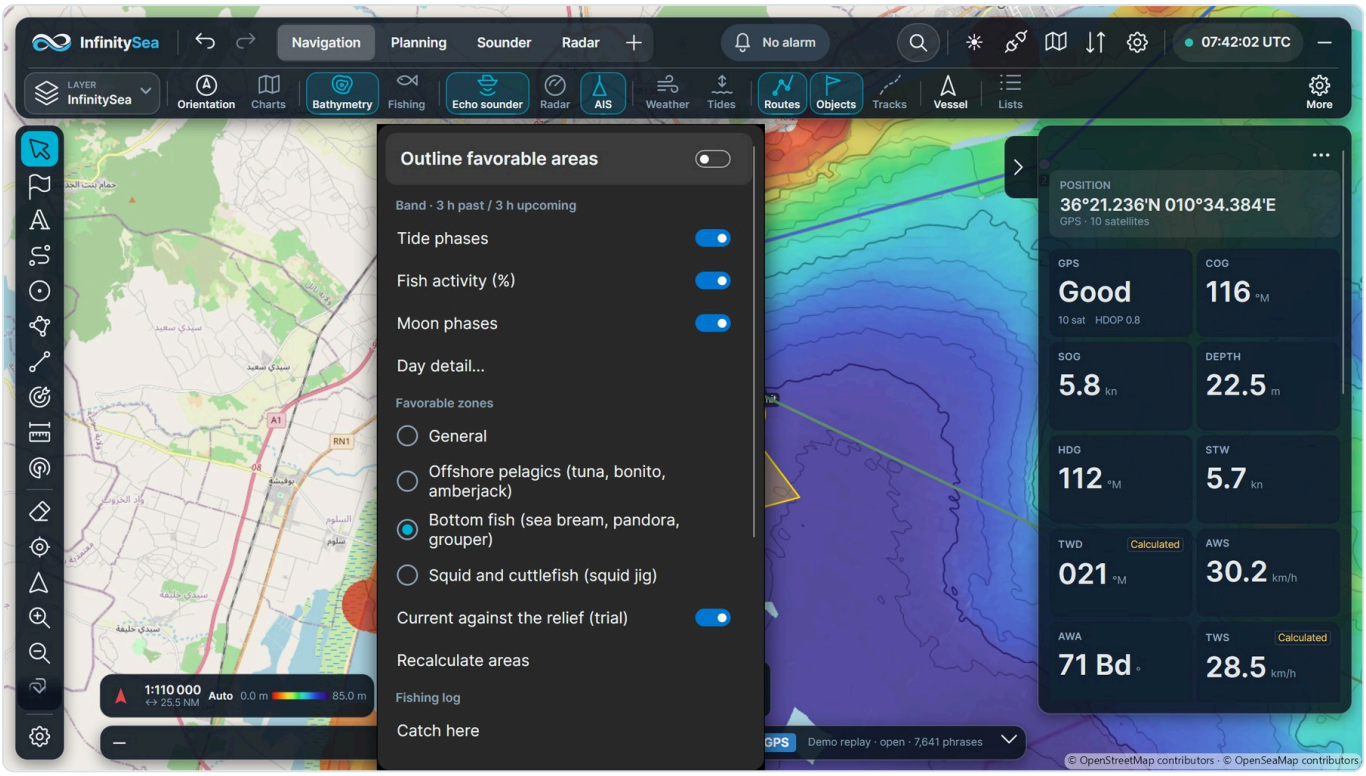


Figure 42. The **Fishing** panel.

The fishing band and the day detail

The band at the bottom of the chart shows the 3 hours past and the 3 hours ahead: tide phases, fish activity (%) and the moon. In **Navigation** it uses the boat position and the present time; in **Planning**, the centre of the chart and the time of the time bar. Touch it to open **Fishing · day detail**: the whole day, with the activity index, tide, moon, sunrise and sunset and the sources used. **‹ Day** and **Day ›** move between days; **Complete fishing data** downloads what is missing.

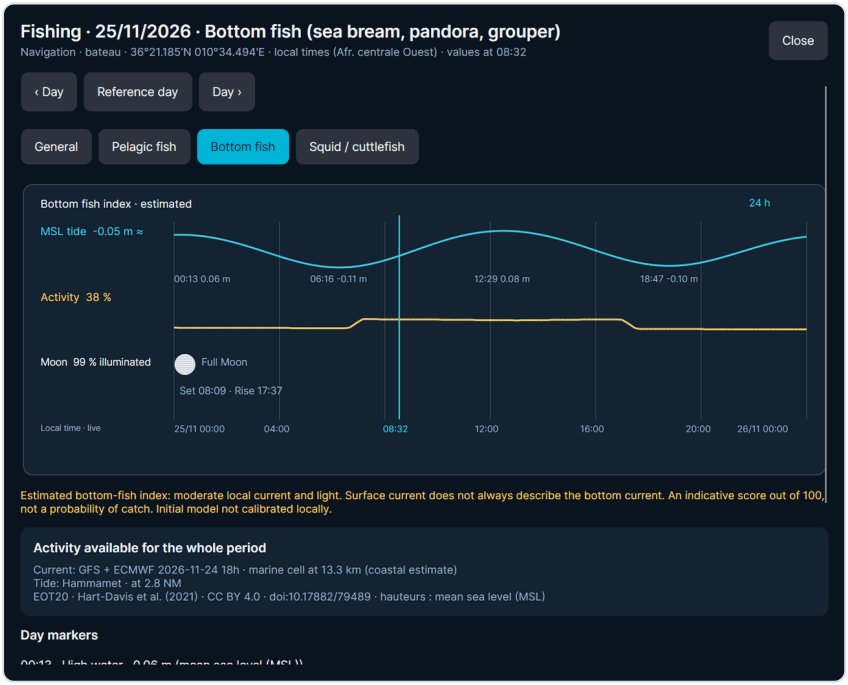


Figure 43. Fishing · day detail.

Fishing log

Fishing › **Catch here** records a catch at the boat position (and **Nothing here** an empty try), with the profile and the zone score of that moment. Over time, the log shows you how the estimates compare with your real catches.

> **NOTE**
> Scores and zones are estimates computed from models and satellite data of varying age and resolution. They show places worth trying, not a promise of fish.

11 Connecting your instruments

The connection wizard

Open **Main menu** › **Connections** › **Connection wizard…**.

1. Turn on your instruments and connect them to the computer: USB cable, network cable or the boat's Wi-Fi.
2. Touch **Find my devices**. The search takes about twenty seconds; it does not change your connections or activate the autopilot.
3. Choose a device that was found and the data to receive from it.

Your saved connections lists your connections with their state, for example **Data received** or **Off**.

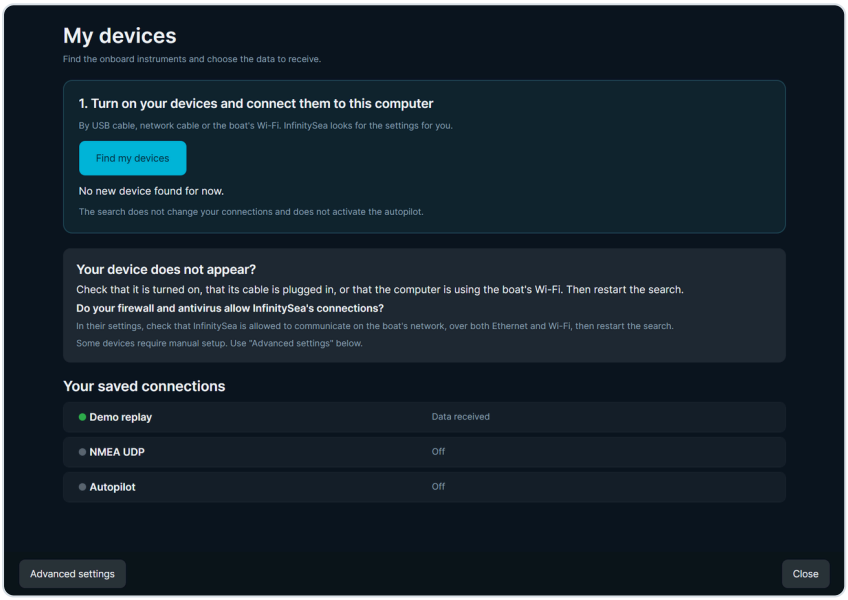


Figure 44. My devices: search and saved connections.

Advanced settings

Advanced settings gives full control, in tabs:

Settings and monitor

The list of data ports. **New port** adds one: **Serial port** (NMEA 0183, 4800 baud by default, 38400 for most AIS receivers), **UDP (receive)** or **TCP (client)** (port 10110 by default), or a file replay. The frame monitor shows the sentences received and sent; rejected ones are red with the reason. **Analyze** listens for 5 seconds without saving anything. The order of the ports sets their priority.

Data sources

Chooses which port provides each datum (position, COG/SOG, heading, depth, wind…). Without a master port, the order of the ports sets the priority: a higher port takes over as soon as its data arrives, and a lower one takes over when the current source goes silent (after about 10 seconds). NMEA 2000 devices are listed by address and instance.

Detection and log

Detect ports listens on free ports for recognisable data. The NMEA log keeps the last two hours of received sentences (or everything, if you choose).

Garmin (Ethernet), Lowrance / Simrad / B&G, Furuno (Ethernet), Raymarine, Actisense

Search and setup for each brand of chartplotter or gateway: instruments, echo sounder where supported, and the exchange of waypoints, routes and tracks.

Radar

Finds radars on the network, or receives ASTERIX CAT-240 radar video.

Autopilot

Connects to the autopilot (chapter 5).

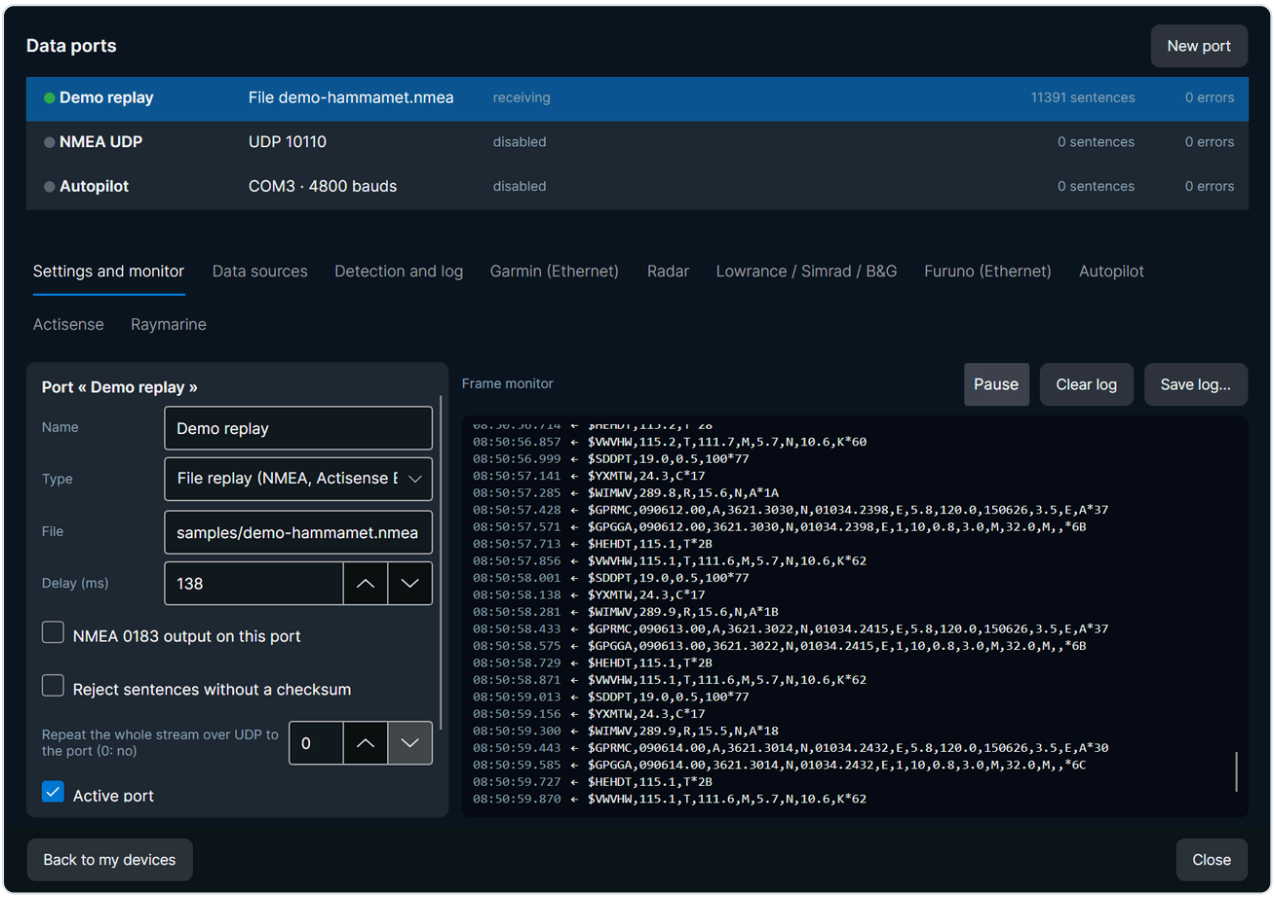


Figure 45. Settings and monitor: data ports, port settings and the frame monitor.

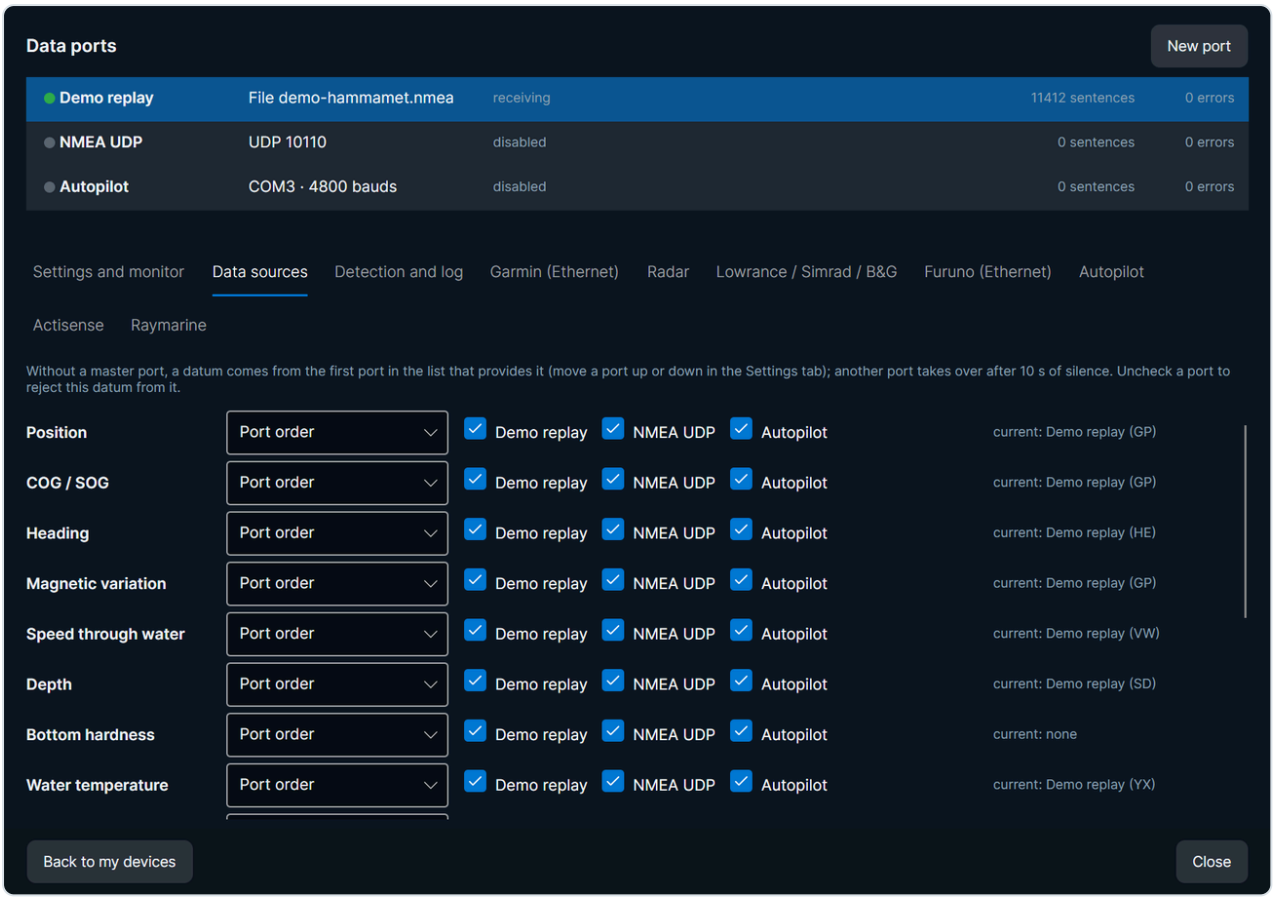


Figure 46. Data sources: which port provides each datum.

> **CAUTION**
>
> Two-way synchronisation with a chartplotter copies additions, changes **and deletions** both ways. Choose the shared layer and the display carefully before turning it on. A chartplotter in its own simulation mode can send a simulated position.

NMEA 0183 output

On a serial or network port, **NMEA 0183 output on this port** sends data to other equipment:

- **Navigation (active route)** — APB, RMB, XTE and BWC sentences (by default) during a Go to, a route or a MOB, for an autopilot or a repeater. Talker **EC**, XTE with 2 decimals, APB bearings magnetic when the variation is known.
- **Vessel data (repeater)** — the boat data, every second.

> **CAUTION**
>
> An autopilot steers from these sentences as soon as it is engaged in its navigation mode. Check the wiring, the sentences and the references, and keep the pilot's standby key within reach. Too many sentences can overload a 4800-baud port.

Firewall and network

Data received over Wi-Fi or Ethernet needs the Windows Firewall rule offered by the installer. If a network device is not found, check that the computer is on the boat's network (and the right network card), and that the firewall allows InfinitySea.

12 Options reference

Open **Options** with the gear in the header or **Main menu** › **Settings** › **Options…**. Choose a page on the left. Changes apply at once. **Reset the page** restores the defaults of the page shown.

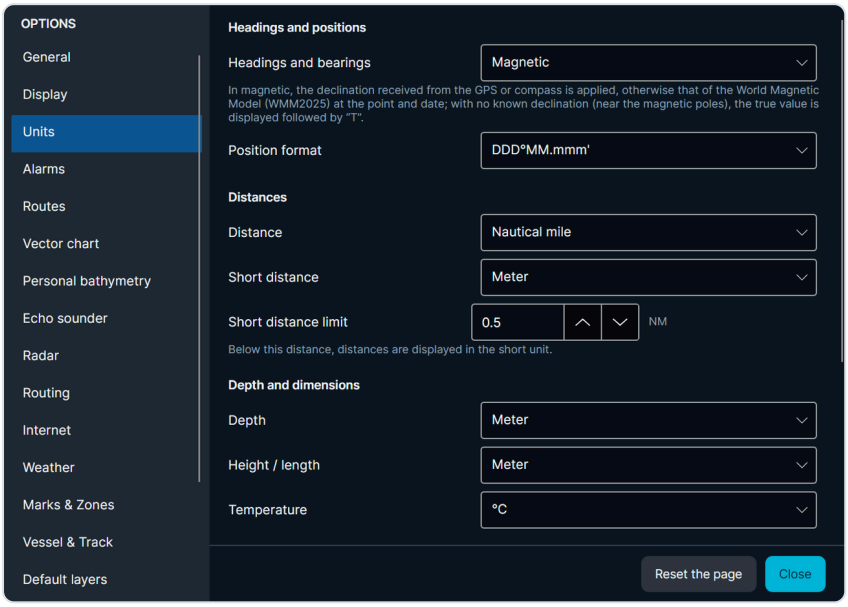


Figure 47. Options › **Units**.

Page	Main settings (default)
General	Live search results (on); search distances from the screen centre or the boat; search range (unlimited); **Check for updates at startup** (on); **Receive test versions**.
Display	Palette and **Automatic palette** (off), brightness per palette (100 %), red filter at night; start-up mode (Navigation, Ashore or ask); AIS target trail (6 min), maximum AIS range, target and label sizes, CPA points; NavData size and transparency; dial scales; smooth boat motion, tooltips (0.6 s), **Automatic interface hiding** (on, 5 s), toolbar and icon bar sizes.
Units	Headings and bearings (magnetic); position format (degrees and decimal minutes, 3 decimals); distance (NM); short distance (m, below 0.5 NM); depth and heights (m); temperature (°C); boat and wind speed (kn); pressure (hPa); rain (mm/h).
Alarms	Enabled alarms, thresholds, sounds and acknowledgement, chart zones (see chapter 6).
Routes	Route colour (blue) and thickness; leg distances, bearings and waypoint names (shown); autozoom and route wizard after drawing (on); default speed (5 kn); great-circle navigation (on); passing circle and default XTE (60 m); end of route (stop); route check (on), safety height (20 m); tidal currents (on, 5 NM); SAR pattern defaults.
Vector chart	Show vector charts (on); base map; palette, symbol style (paper chart), object and text size; texts (important), text language, buoy names; chart priority; overzoom (on); shallow / safety / deep contours (2 / 5 / 8 m), two shades, shallow-water pattern, red soundings below 2 m; lights, buoys, soundings, contours, obstructions and traffic lanes.
Personal bathymetry	Recording (off), recording filters, tide correction (on, nearest station within 20 NM), track width, depth colours (rainbow, 75 %), automatic range, relief (3×), contour lines, drop-off slope, sounding values.
Echo sounder	Source, replay files and speed, frequency (HF), palette (classic), gain (50 %), clutter (10 %), TVG (50 %), range (auto), bottom-lock span (10 m), A-scope, split zoom, depth grid, temperature graph.
Radar	Acquisition source, transmission (off), range (3 NM), palette (green), orientation (head up), trails (30 s), chart overlay (off, 90 %), rings and heading marker, guard zone (off), AIS/ARPA merging (on, 250 m).

Routing	Wind reference (true); keep only the last routing; maximum wind upwind and downwind (40 kn), minimum wind; maximum waves (5 m); waves, tidal and ocean currents, land avoidance (on); engine assistance (off); minimum depth; isochrone interval; polar percentage.
Internet	**Allow InfinitySea to connect to the Internet** (on). When off, nothing is fetched: no base map tiles (except those already in the cache), no charts, no weather.
Weather	Weather data download: automatic download (off) and its times (06:00 UTC); notifications; forecast age warning (2 days); full or simplified displays; opacity (55 %); barbs and isobars (on); particles and animation (off).
Marks & Zones	Icon (waypoint), colour (yellow), size (100 %) and decluttering of new marks; automatic naming with prefix **WP**; object names (shown); depth in the mark (off); event icon, numbering and lock; zone colour (yellow), transparency (40 %) and outline; annotation size (14 pt).
Vessel & Track	COG/SOG vector (3 min), heading line and safety ring styles, boat trail duration (24 h), track colour (red), variable colour (none) and its thresholds, simplification to route (20 m).
Default layers	Marks, areas and events in the active layer (on); routes in the active layer (off).
Function keys	A command or a sequence of commands for `F1`–`F12` and `Shift`+`F1`–`F12` (see the appendix).
Initial adjustments	Boat name, registration, MMSI, length (12 m), beam (4 m), air draught (5 m); boat icon, size and colours; heading line (on), safety circle (off), fuel range circle; sensor positions; depth display (below surface), keel and transducer depth, depth correction; damping and offsets; true wind reference (water); home port; MOB behaviour; dead reckoning and GPS deviation monitoring (off).
Simulation	Simulated boat (off): speed (6 kn), course (120°), variations; simulated heading, depth (from the bathymetry, else 30 m), wind (270°, 6 kn) and water temperature.

The **Echo sounder** page appears once a sounder source, a replay folder or a sounder pane is set up.
Pages and settings can differ slightly between versions.

13 Cloud, updates, backup and support

InfinitySea Cloud

Main menu › **Connections** › **InfinitySea Cloud…** links this installation to your account on **portal.hannon-tech.com**. It is off until you allow it (**Allow the connection to InfinitySea Cloud**); nothing is sent before.

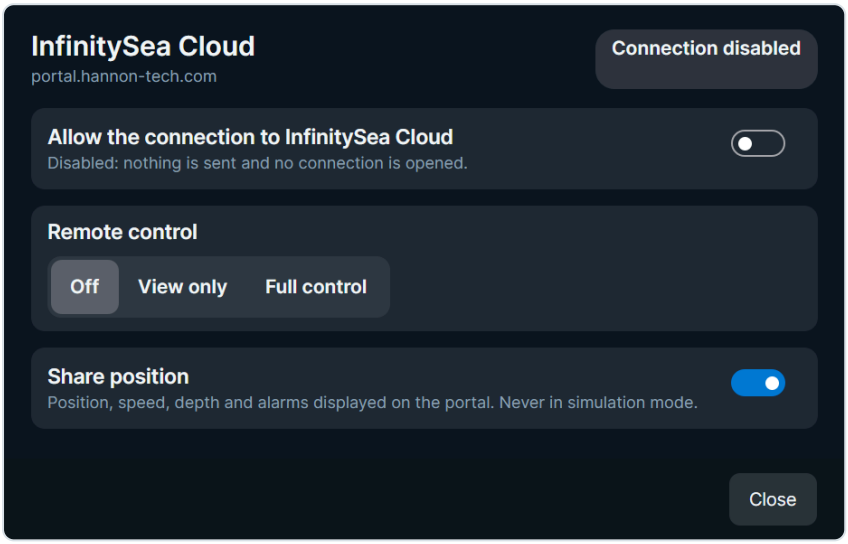


Figure 48. InfinitySea Cloud, with the connection not yet allowed.

- **Link to account** asks for your account e-mail, password and, if you use one, the code of your authenticator app. The installation is then approved by e-mail.
- **Synchronization with other installations** exchanges marks, routes, tracks, areas, recorded bathymetry and settings between your PC and your tablet. Each kind can be **Off** (default), **Send and receive**, **Send only** or **Receive only**. **Synchronise now** exchanges at once. Ports and devices stay local to each installation; a route you are following is updated only when the navigation ends.
- **Share position** shows the position, speed, depth and alarms of the boat on the portal (never in simulation).
- **Remote control**: **Off** (default), **View only** or **Full control**. Every remote session must be accepted on board; an unanswered request is refused after 30 seconds. A banner stays on screen during the session; **Finish** ends it.

> **CAUTION**
> **Full control** lets the remote person use InfinitySea as if on board, including a connected autopilot. Accept only people you trust, and only when someone is at the helm.

Updates

When your version offers it, **Main menu** › **Check for updates…** shows the installed version and the updates available for your licence. Choose **Download**, then **Install when InfinitySea closes** or **Install now**; or **Skip this version**. Downloads are verified before installing. InfinitySea checks at start-up when **Check for updates at startup** is on.

> **NOTE**
> Install only in port, when you no longer need navigation, alarms or the autopilot. **Install now** checks the autopilot and the alarms before closing InfinitySea; **Install when InfinitySea closes** starts the setup when you quit, without that check. **Cancel planned installation** postpones it.

Backup and restore

Main menu › **Data** › **Full backup / restore…**.

- **Back up** writes one collection file (`.isc`) with your **Objects**, **Settings**, **Personal bathymetry** and **Polars and stations**, and optionally the charts (**Include charts** makes it much larger). The approximate size is shown before you choose **Proceed**.
- **Restore** reads a collection; choose the parts to restore. They replace your current data at the next start, and the previous data is kept in a `before-restore-…` folder. **Cancel the restore** cancels it before the restart.

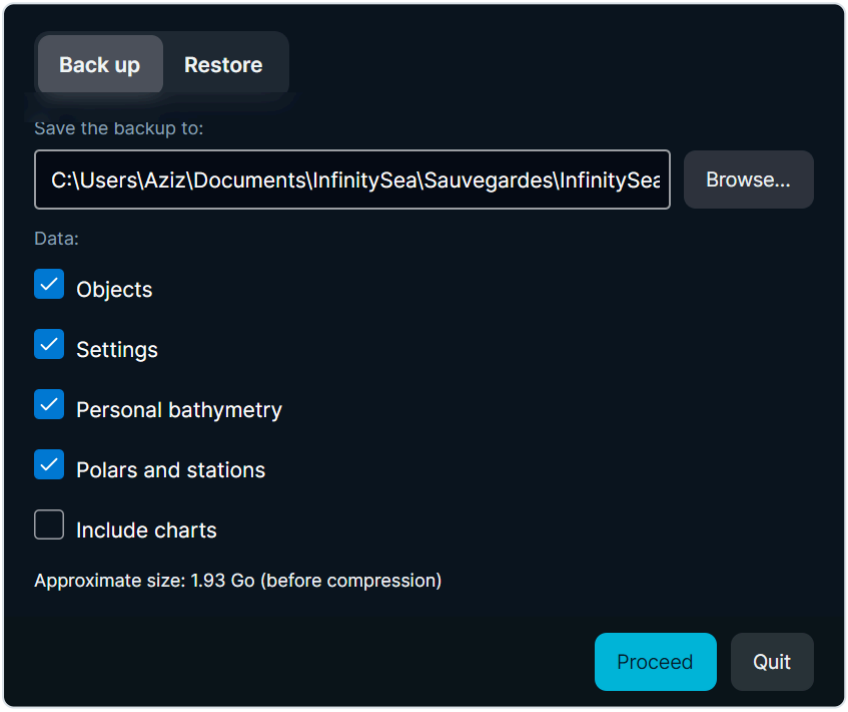


Figure 49. Full backup.

Downloaded weather and the activation are not in the backup: on a new computer, download the forecasts again and activate InfinitySea.

Make a backup before a long trip, before importing a full backup from another plotter (which replaces all your objects and soundings), and before changing computer.

Diagnostic report

If something goes wrong, **Main menu** › **Send a diagnostic report…** gathers what support needs: versions, computer, settings without passwords, the state of the ports and devices, the application log and the recorded errors. Describe what happened (what you were doing, what you saw, at what time), choose what to include — **NMEA data and positions**, **Network and Ethernet**, **Search for the Ethernet devices (about 25 s)** — then **Create the report**. All three are ticked by default: NMEA data can contain your track, nearby AIS vessels and autopilot messages, and network data your network addresses; untick what you do not want to share. The report stays on your computer until you send it: **Send by e-mail…**

opens a new message and shows the report file, which you attach yourself; **Save a copy…** keeps it where you choose. Passwords, licence and Cloud keys, e-mail addresses, the Windows user name, charts and your objects database are never included.

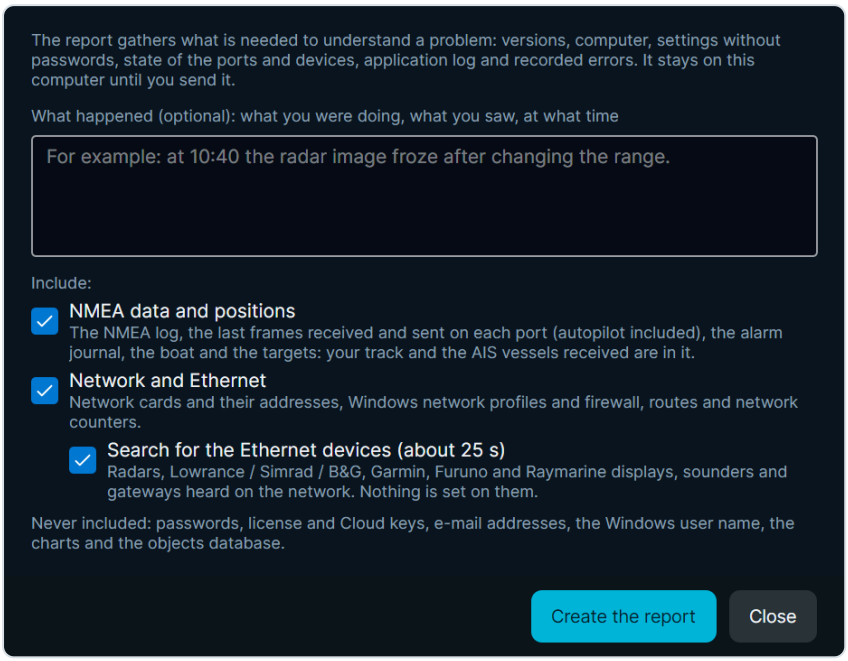


Figure 50. Diagnostic report.

Uninstalling

The Windows uninstaller asks whether to keep your personal data and the local activation; both are kept by default. If you remove them, your data is erased from this Windows account, and you will need to activate again after reinstalling.

Appendix

Keyboard shortcuts

Key	Action
F1	Help: list of commands and shortcuts
F2 / F3, PgUp / PgDn, keypad + / − (or Ctrl with the main + / − key)	Zoom in / zoom out
F4, Ctrl+B	Center on the boat
F5	Track recording on/off
F6	Show / hide NavData
F7, Ctrl+L	Show / hide the lists
F8, Ctrl+M	Man overboard (MOB)
F9, Enter, Ctrl+E	Event at the boat position
Shift+F2	Next palette (day, dusk, night)
Shift+F5	Personal bathymetry recording on/off
Shift+F10	Bathymetry colours on/off
Ctrl+F	Search
Ctrl+K	Command palette
Ctrl+Z / Ctrl+Y	Undo / redo
Ctrl+S	Finish the route being drawn
Ctrl+Shift+A	Acknowledge all alarms
Ctrl+F2	Back to the present time (Planning)
Ctrl+PgUp / Ctrl+PgDn	Time step back / forward (Planning)
Esc	Back to the Pan tool. A route, surface or line with enough points is saved; an incomplete drawing is discarded

Function keys can be reassigned in **Options** › **Function keys**. On a shared computer, check what F8 and the keys assigned to navigation commands do.

Troubleshooting

Problem	What to check
The boat is not shown, does not move, or is in the wrong place	Status bar: is the demo replay or the simulation running (they give a false position)? Are you in **Ashore** mode? Open the connection wizard: does the GPS connection show **Data received**? In **Data sources**, which port gives the position?
No data from a network device	Is the computer on the boat's network? Is the Windows Firewall rule installed? Use **Find my devices**, then the frame monitor to see what arrives.

Serial data shows as garbage or errors	The baud rate: 4800 for most instruments, 38400 for AIS.
No base map or blank chart	**Options** › **Internet** allowed? Offline, only areas viewed before are in the cache: browse your sailing area once with Internet access before leaving.
Chart packs shown as locked	The packs are tied to your licence: open the activation window with Internet access and refresh the licence.
No weather on the chart	Is a forecast downloaded for this area and this time? **Show weather** on? In **Planning**, is the time bar inside the forecast period?
Fishing zones are missing	Read the box at the bottom left: it lists the missing data (often old chlorophyll or no satellite temperature). Download again and zoom closer.
Depths look wrong	**Depth display**, keel and transducer depths in **Initial adjustments**; the sounder calibration; the tide correction.
The collision alarm never sounds	It is off by default: **Options** › **Alarms** › **Collision risk (CPA/TCPA)**. Check also that **Mute all alarm sounds** is off.
The interface keeps hiding	**Options** › **Display** › **Automatic interface hiding**.
Anything else	**Send a diagnostic report…** with a short description and the time of the problem.

Glossary

AIS
Automatic Identification System: ships broadcast their identity, position, course and speed by VHF.

ARPA / MARPA
Radar targets tracked automatically (or after a manual acquisition).

BTW, DTW
Bearing and distance to the waypoint.

COG, SOG
Course and speed over ground (from the GPS).

CPA, TCPA
Closest point of approach with another vessel, and the time until it.

DSC
Digital Selective Calling on VHF, including distress calls.

EBL / VRM
Electronic bearing line / variable range marker.

ENC, S-57
Official electronic navigational charts and their standard format.

ETA, TTG
Estimated time of arrival; time to go.

GRIB
The standard file format of weather forecasts.

HDG, STW
Heading (from a compass) and speed through the water (from a log).

MMSI
The nine-digit identity of a vessel's radio and AIS.

MOB
Man overboard.

NMEA 0183, NMEA 2000
The standards by which marine instruments exchange data (serial sentences, and the CAN bus network).

Polar
A table of a boat's speed for each true wind speed and angle.

SAR
Search and rescue.

TWD, TWS, AWA, AWS
True wind direction and speed; apparent wind angle and speed.

VMG
Velocity made good: the part of your speed that brings you closer to the waypoint.

XTE
Cross-track error: your distance from the planned line.

Credits and data sources

Base maps © OpenStreetMap contributors; seamarks © OpenSeaMap contributors. NOAA ENC charts and GFS forecasts: US National Oceanic and Atmospheric Administration. ECMWF forecasts: open data © ECMWF, CC BY 4.0. ICON-EU and EWAM forecasts: Deutscher Wetterdienst. ARPEGE and AROME forecasts: Météo-France, Etalab Open Licence 2.0. Tide model EOT20: Hart-Davis et al. (2021), CC BY 4.0. Public bathymetry: EMODnet. The full list is in **About InfinitySea**. The sample radar and sounder recordings supplied with InfinitySea are distributed under their own licences, given in the `samples` folder.

InfinitySea is written from public standards and specifications (NMEA 0183 and 2000, ITU-R M.1371, S-57, GPX, GRIB, RTZ). It uses free libraries including .NET, Avalonia, Mapsui, SkiaSharp, GDAL and SQLite.

Hannon InfinitySea is developed by NCIS SUARL (Hannon Tech), Tunis. hannon-tech.com