

NAV100: Getting the Most Out of OpenCPN

*Presented by Sherry McCampbell
s/v Soggy Paws*



Version 1.9 (Oct 2025) – With Thanks to Terry Sargent s/v Valhalla

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St Francis 44

<http://svsoggypaws.com>³

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ASIA

SV Soggy Paws Florida to the Philippines

NORTH AMERICA

PACIFIC OCEAN

MELBOURNE 2007
Rio Dulce

Colombia

Philippines

2015-2022

2014

Marshall Islands

Hawai'i 2011

DAVAO

Palau

Yap Truk

F.S.M.

Pohnpei

2013
Tarawa

Samoas

Tahiti

Marquesas

Galapagos

2008-09

Panama

Ecuador

SOUTH AMERICA

Fiji 2012

Tonga

French Polynesia

Gambiers

Pitcairn Island

2010
Easter Island

Juan Fernandez

AUSTRALIA

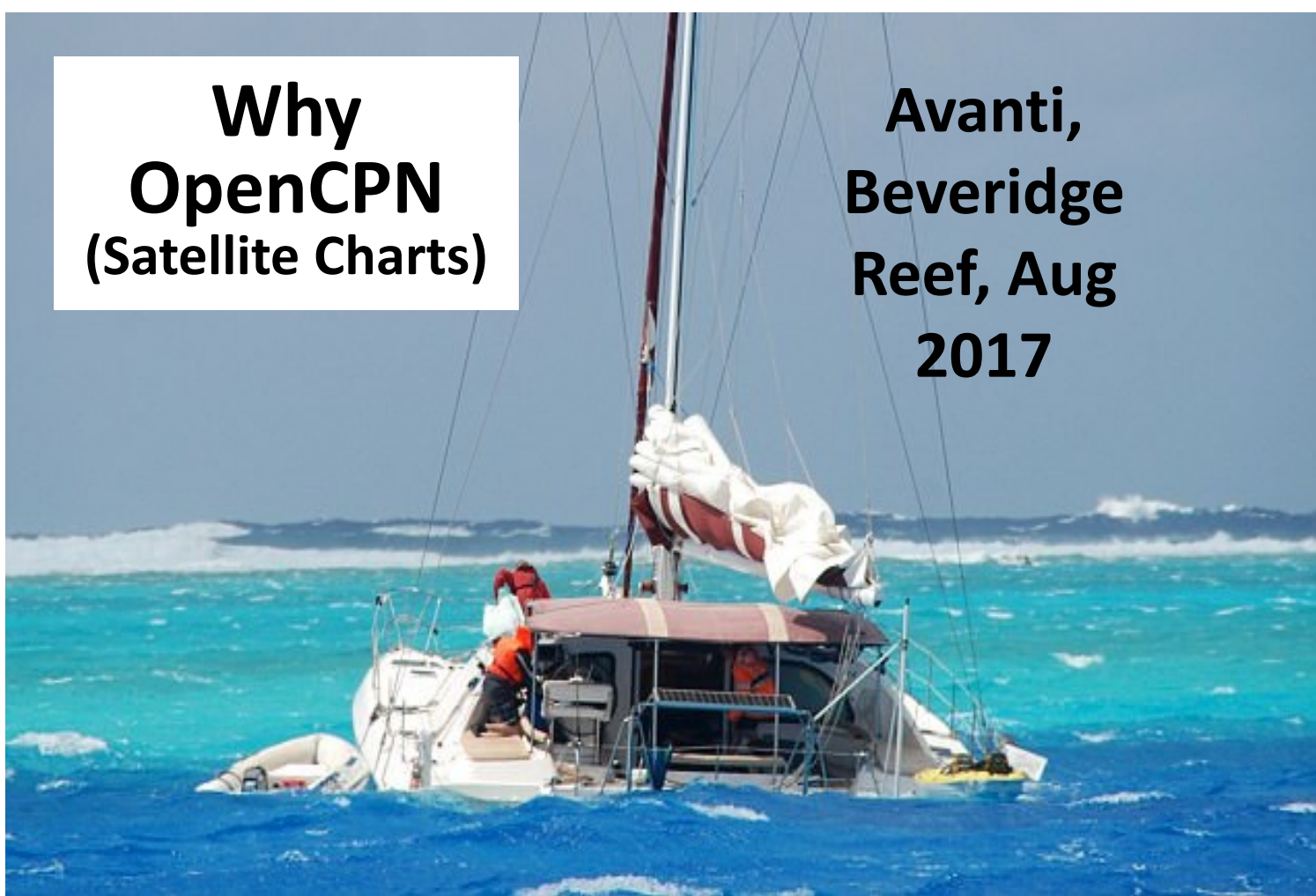
Across the Pacific

~30,000 nm



**Why
OpenCPN
(Satellite Charts)**

**Avanti,
Beveridge
Reef, Aug
2017**



“I had no idea the reef was there. I knew we’d hit something and were taking on water. We were ready to abandon ship.”

Robbie Cooper, s/v Avanti, Beveridge Reef, September 2017

Vestas Wind
Cargado
Shoals, Indian
Ocean
2014



“Team Vestas Wind’s grounding on the Cargados Carajos Shoals comes down to a basic failure in overall passage planning, and an over-reliance on electronic navigation.”

**Tanda Malaika
Huahine
2017**



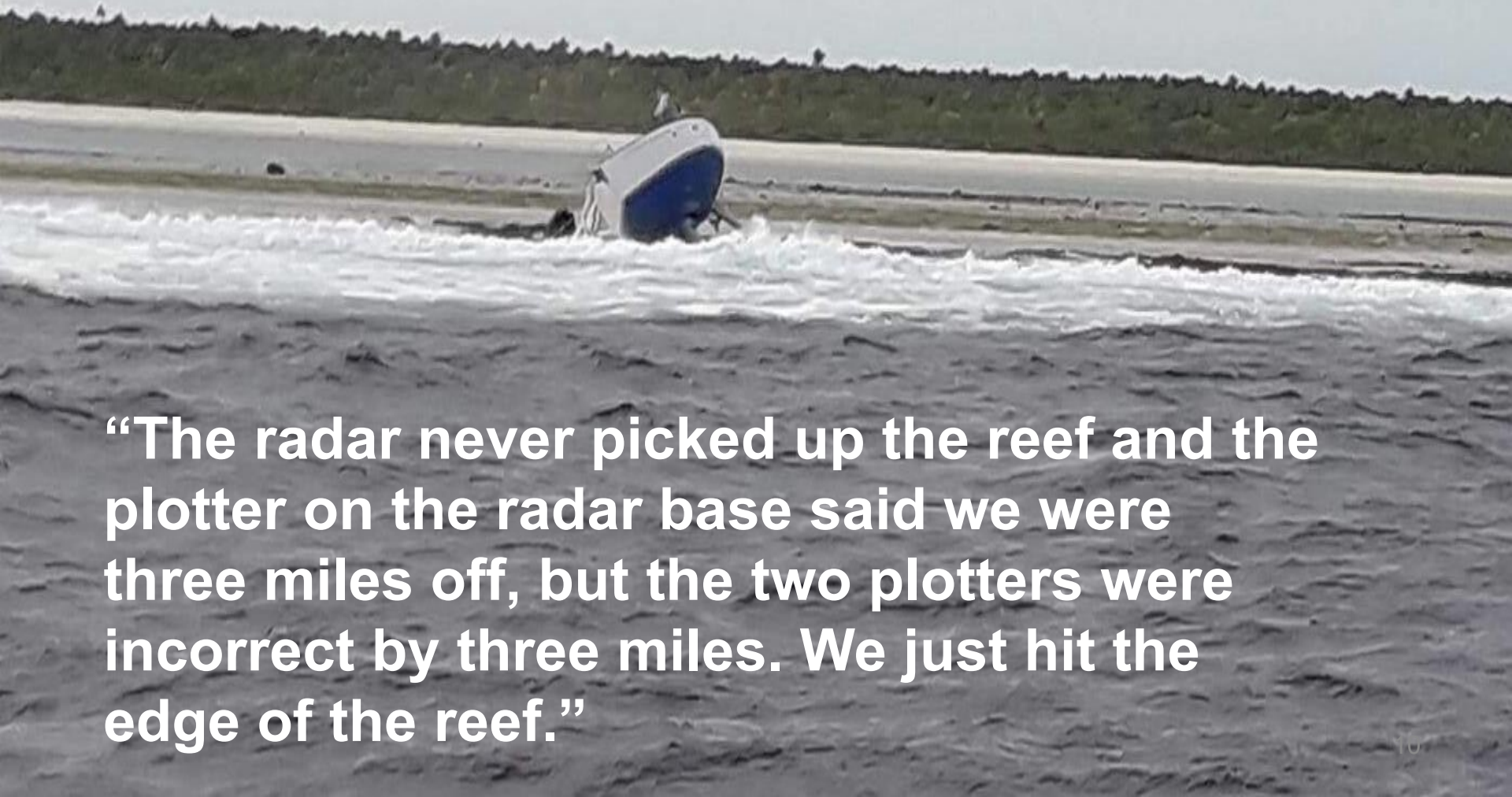
*“When they asked us what happened and we told them that our **chart did not show reef, they asked us if we had been using Navionics charts, and I said yes. He then shook his head and said that at least five boats end up on those reefs a year who were using Navionics charts.**”*



On the rocks, NW Australia, June 2016

Southern Fiji, June 2017

60 ft Oyster with Crew of 4, at night



“The radar never picked up the reef and the plotter on the radar base said we were three miles off, but the two plotters were incorrect by three miles. We just hit the edge of the reef.”

What is OpenCPN?

- An “open source” (**FREE**/ donationware) charting program
- Now runs on Windows 7-11, Mac, Linux, Raspberry Pi, and Android
- Regularly being updated with new features by cruisers for cruisers
- Download **FREE** from <http://opencpn.org>
 - Android Version on Google Play (\$9.99 for supported version with updates)

Download OpenCPN for Free from OpenCPN.org



News

About

Start

Manuals

Downloads

Resources

Tracker

Team

Gallery

Free Open Source Chartplotter and Marine GPS Navigation Software

To Downloads page

OpenCPN Chart Plotter Navigation

Win Mac Linux Raspberry Pi


Download Directory

CDN for faster and more reliable OpenCPN downloads
generously provided by  **StackPath**

OpenCPN Latest Release

OpenCPN is free, open source software for marine navigation. It is available for Mac OSX, Microsoft Windows, GNU/Linux, BSDs and Solaris.

[\[Current Version\]](#)



**Download and do
normal Windows Install
(accept all the defaults)**

Plugins

Plugins for OpenCPN are third party feature additions that expand the functionality of OpenCPN into those niche areas. Over 40 plugins available.

[\[Latest Plugins\]](#)



**Come back and explore “Plug-ins”
(extra functions) later**

OpenCPN Quick Overview

Can be changed to meters

GPS Status

OpenCPN 5.6.2

Show/Hide Toolbar

Settings

Create a Route

Route & Mark Manager

Enable Tracking

Hover over each icon to see a tool tip for what the icon does.

Chart Information pop-up. Hover your cursor over the chart bubble to pop this window with more detail about each chart

Chart Outlines

Other cruiser's tracks

Feet

IMPORTANT!
The background chart is in feet.
Numbers on mbtiles/KAP charts may be in feet or meters no matter what this says!

Chart File: C:/Users/sherr/Document/Charts/Indonesia SP/HalmaheraMorotai/BacanSW.Z16-Z16.mbtiles
Name: BacanSW.Z16-Z16 20220211135723
Scale: 1:15000
ID:
Depth Units:
Soundings:
Datum: WGS84
Projection: Web Mercator (EPSG:3857)
Source Edition:
Updated: 2000-01-01

mbtiles Chart

KAP Chart

CM93 "Background" Chart

Chart Bubble/Bars

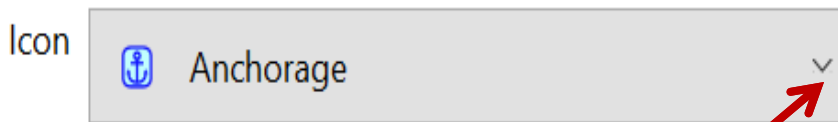
Zoom in and out... + and - keys, or mouse scroll wheel

Center on my boat

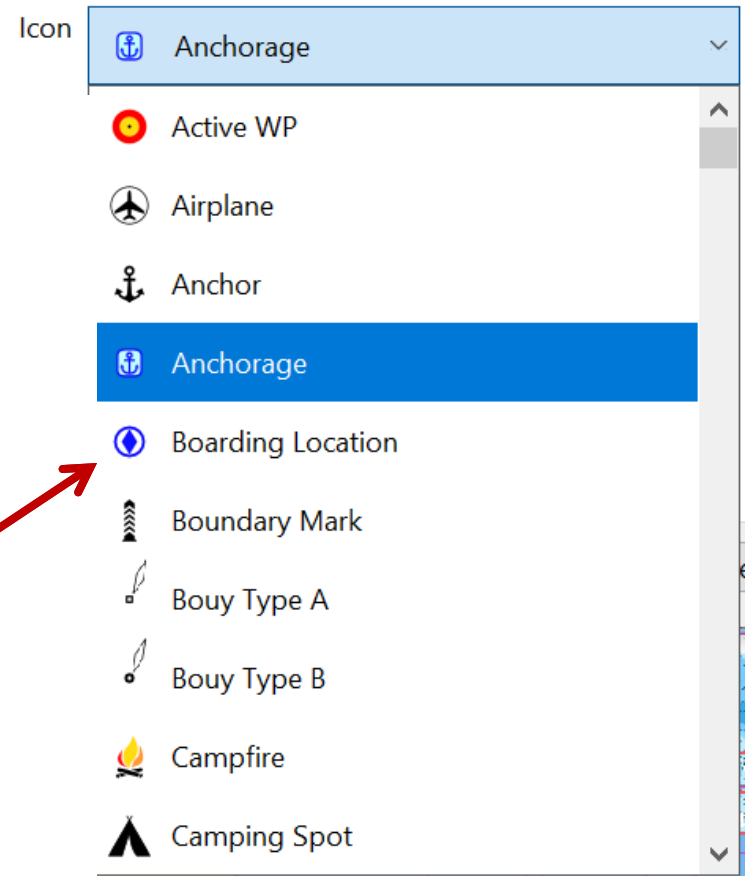
SOG --- kts COG ---° 01° 02.2815' S 126° 16.8644' E 095° 3196 NMi

Geek Terminology

Drop-down box

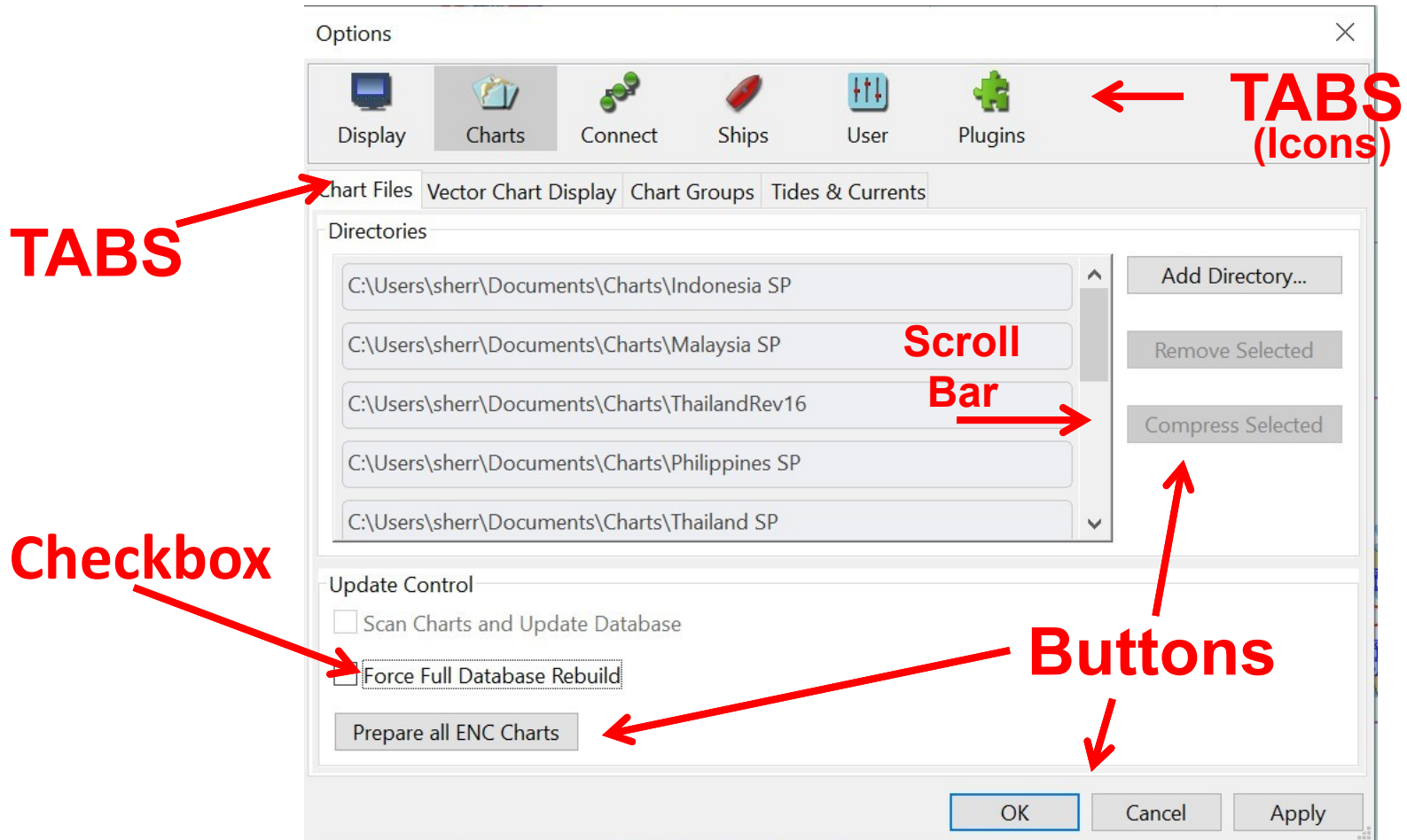


- Click the down arrow
- A selection box opens



Terminology

Tabs, Checkboxes, and Buttons



Explore the Toolbar & Find the Manual



Collapse Tool bar

Options/Settings

Draw a route

Open Route & Mark Manager

Enable/Disable “snail trail”

Change to night mode

Print chart

HELP! / About box

Climatology (Historical weather)

Radar window

Weather Routing

Grib File viewer

MAN OVERBOARD Marker

Hover your mouse over each icon, and you will see a “tool tip”



Offline manual is here

Terminology

- Hamburger
(usually a menu
drop-down)





Find the manual

About OpenCPN



OpenCPN

5.8.2-0+9f64845

© 2000-2023 [The OpenCPN Authors](#)

OpenCPN is a Free Software project, built by sailors.

It is freely available to download and distribute without charge.

Want to help? [Donate](#) or [get involved!](#)

Logfile: [C:\ProgramData\opencpn\opencpn.log](#)

Config file: [C:\ProgramData\opencpn\opencpn.ini](#)

Plugin API: 118

[OpenCPN Website](#)

[Help](#)

[License](#)

Click on the
Help Link



Find the manual

- The User Manual is installed on your computer when the program installs
- Excellent reference manual
- YOU DO NOT NEED TO BE ONLINE
- Can also be found online at opencpn.org

[Direct Link to Online Manual](#)

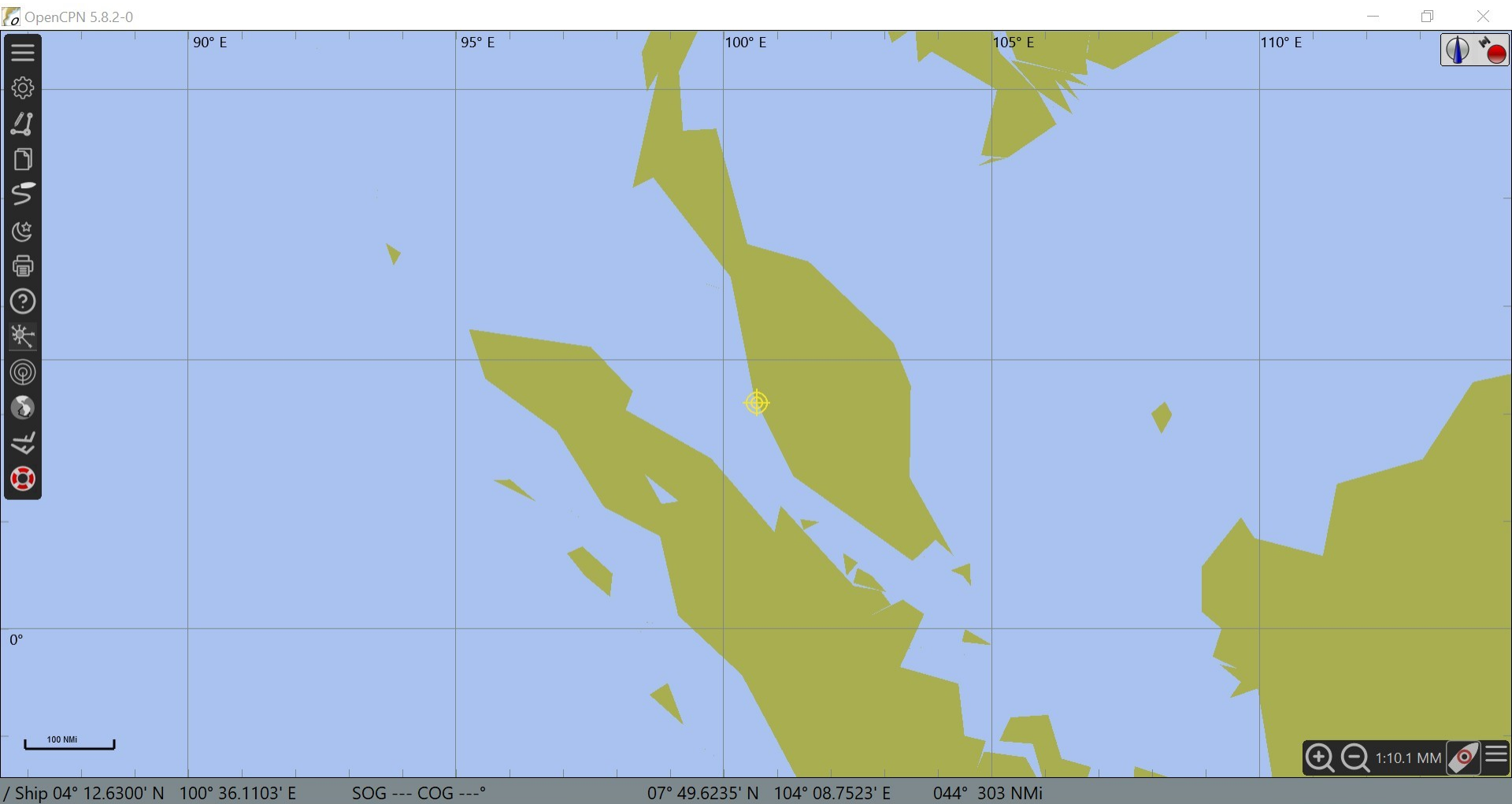
OpenCPN User Manual

[OpenCPN](#) Complete Online User Manual, *Internet access required.*

Local Offline OpenCPN User Manual

- [What's New in OpenCPN version 5.0](#)
- [Getting Started](#)
 - [OpenCPN Installation](#)
 - [Windows](#)
 - [Ubuntu PPA](#)
 - [Linux](#)
 - [Fedora](#)
 - [Mac OS X](#)
 - [Orange Pi](#)
 - [Dedicated Marine OS](#)
 - [Raspberry Pi 2/3](#)
 - [Android](#)
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 - [Touch Screen Tablets](#)
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- [Getting Around](#)
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But Wait... Mine Looks Like This!



Adding Charts

Most people start with a copy of the older CM93 World Chart Set as their “base chart” (download from [Terrys Topics](#), or from a friend).

Sources of Additional Charts

- See long list in Chart Sources section of manual
<https://opencpn.org/OpenCPN/info/chartsources.html>
- Comprehensive list of free/shared charts is here:
<https://svsoggypaws.com/SatCharts/#othersources>
- OpenCPN Chart Downloader
- Cruiser sharing (Legacy Raster and Vector Charts, sat charts)
- Ask around in the marina/anchorage
- **Bottom line: Don't leave home without an external hard drive!**

Adding Charts – Step 1

1 Click on 'Options' (the 'gear')



in the Toolbar

2

3

4

Charts that are already installed

Options

Display Charts Connect Ships User Plugins

Chart Files Vector Chart Display Chart Groups Tides & Currents

Directories

- C:\Users\sherr\Documents\Charts\Indonesia SP
- C:\Users\sherr\Documents\Charts\Malaysia SP
- C:\Users\sherr\Documents\Charts\ThailandRev16
- C:\Users\sherr\Documents\Charts\Philippines SP
- C:\Users\sherr\Documents\Charts\Thailand SP

Add Directory...

Remove Selected

Compress Selected

Update Control

- Scan Charts and Update Database
- Force Full Database Rebuild

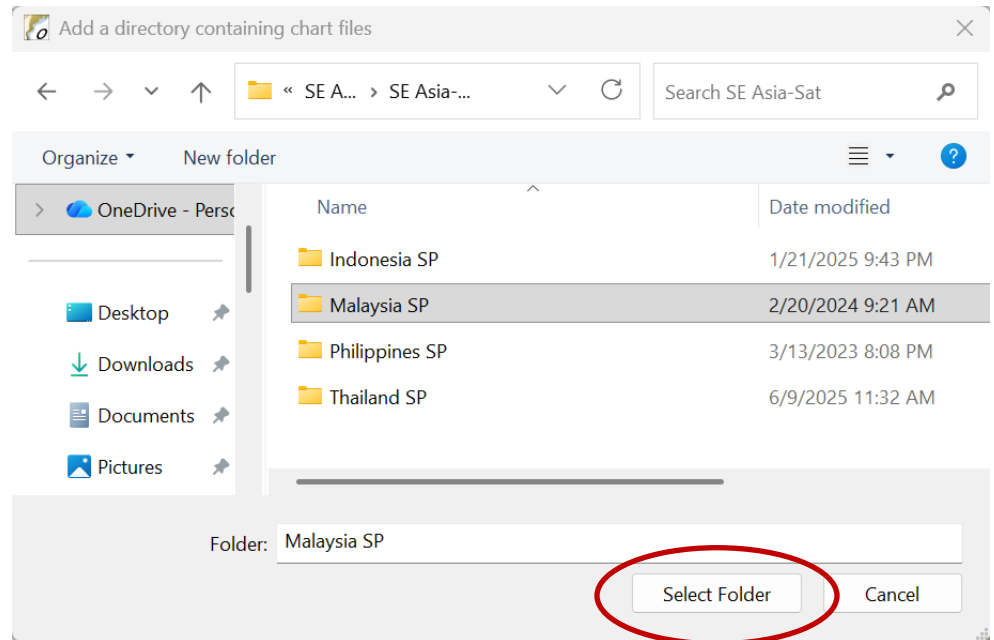
Prepare all ENC Charts

OK Cancel Apply

Adding Charts – Step 2

- Navigate to chart directory
- Select the charts you want to add
- Click OK
- Adds ALL charts in that folder, including subdirectories
- Repeat as necessary

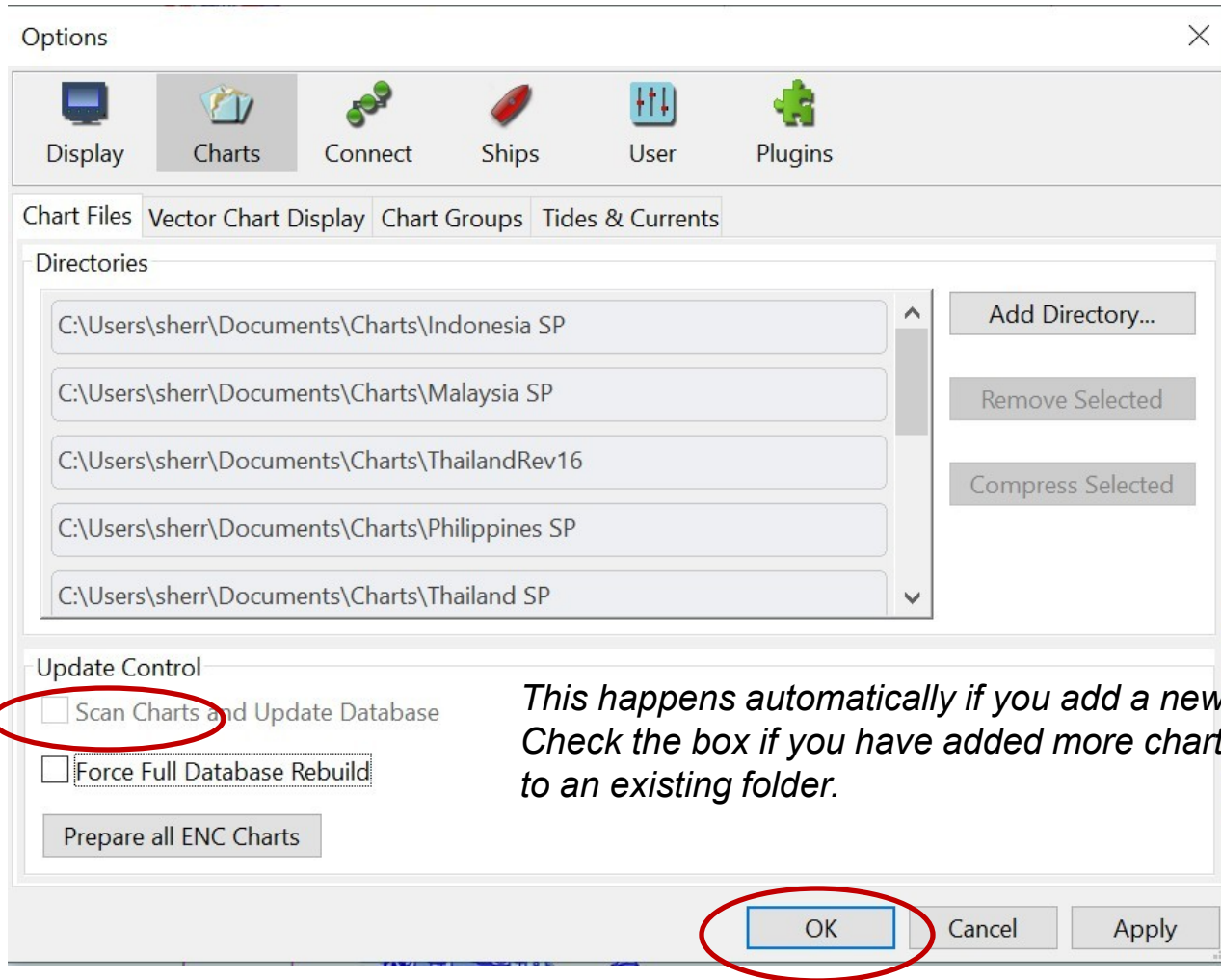
The more charts you load, the more resources OpenCPN takes on your system, so best to not load all the charts for everywhere.



Supported charts: mbtiles, kap, cap, S57 and S63, CM93v2.

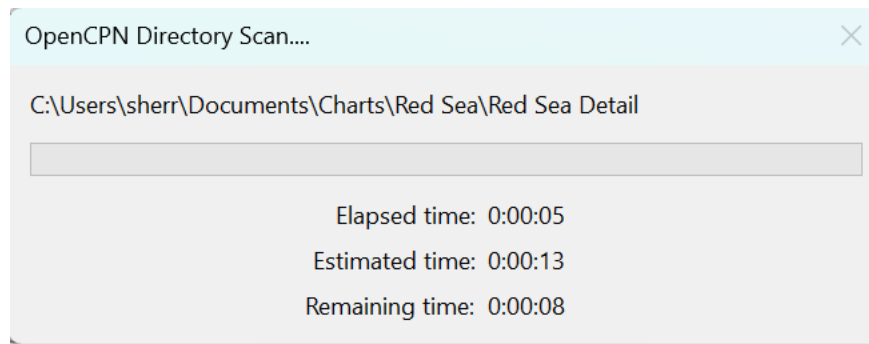
Adding Charts – Step 3

Rebuild your chart database



Rebuilding the Chart Database

Wait while the chart database is updated



OpenCPN will go through all the chart folders you have added, and find all charts (even in folders underneath the folder you added).

Note: If you add charts or sub folders to an existing chart folder, you need to tell OpenCPN to “Scan Charts and Update Database”

Sources of Free Satellite Charts

Location	Coverage
Migration's ChartLocker	Mexico, all the Pacific Islands, the Dominican Republic, Panama, Australia mbtiles 2021/2023
Ocelot's mbtiles Charts	SE Asia, Western Pacific, and Indian Ocean 2021/2022
Zen Again's Charts	Pacific Ocean, SE Asia, Crossing to S Africa, S Atlantic, Brazil
Valhalla's Charts	SE Asia, Indian Ocean, and Western Pacific And CM93 v2 Download for OpenCPN. Downloadable anchorage waypoints in GPX format. Mbtiles
Jacaranda's Charts	French Polynesia
Soggy Paws' Charts	Red Sea (Complete), Philippines (Partial), Papua New Guinea, Solomon Islands, Micronesia, Marshall Islands, Fiji, French Polynesia

Links to all these sources can be found on
<https://svsoggypaws.com/SatCharts/>

Also check the OpenCPN.org Chart Sources Page:
<https://opencpn.org/OpenCPN/info/chartsources.html>

The Chart Downloader

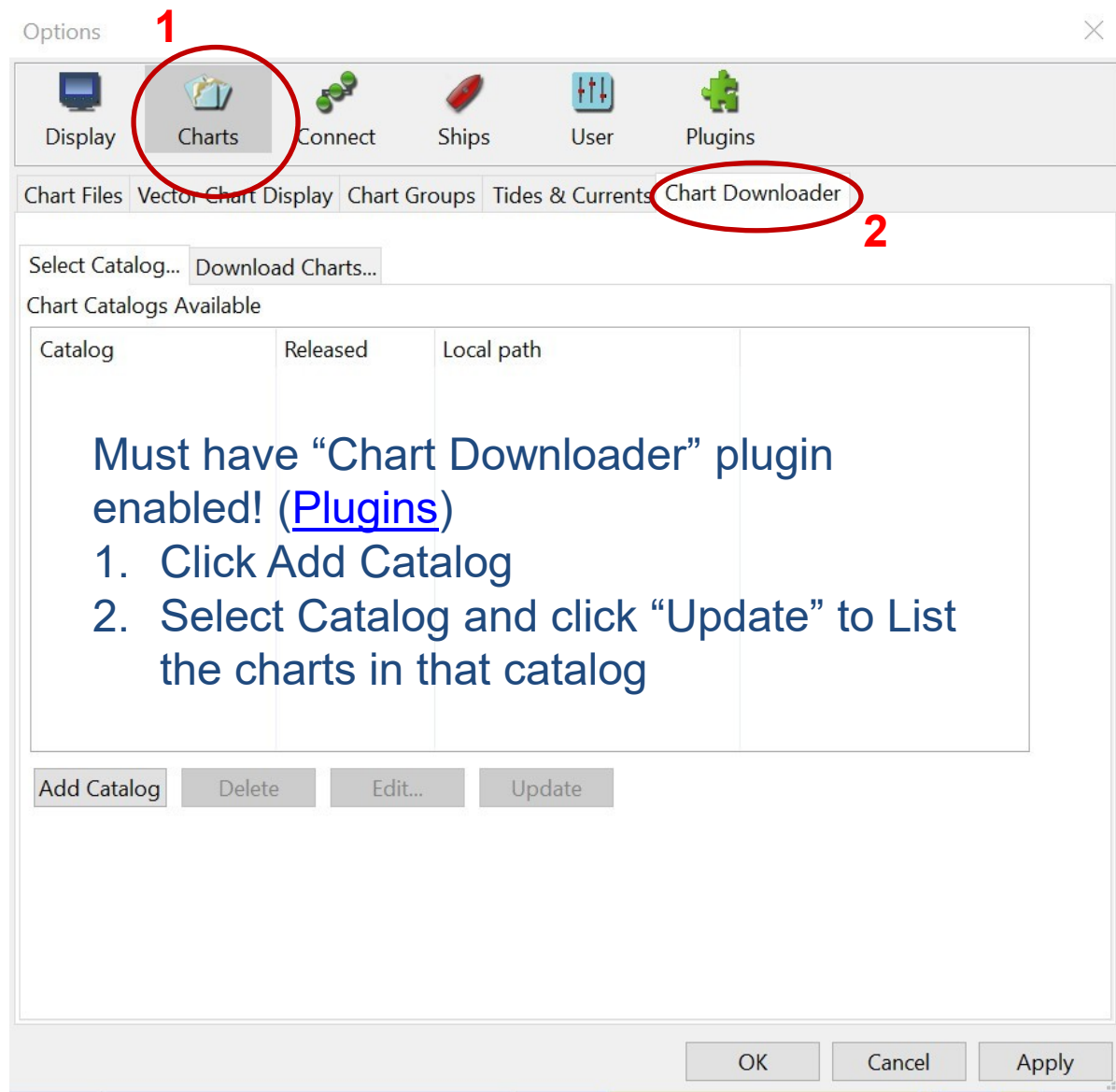
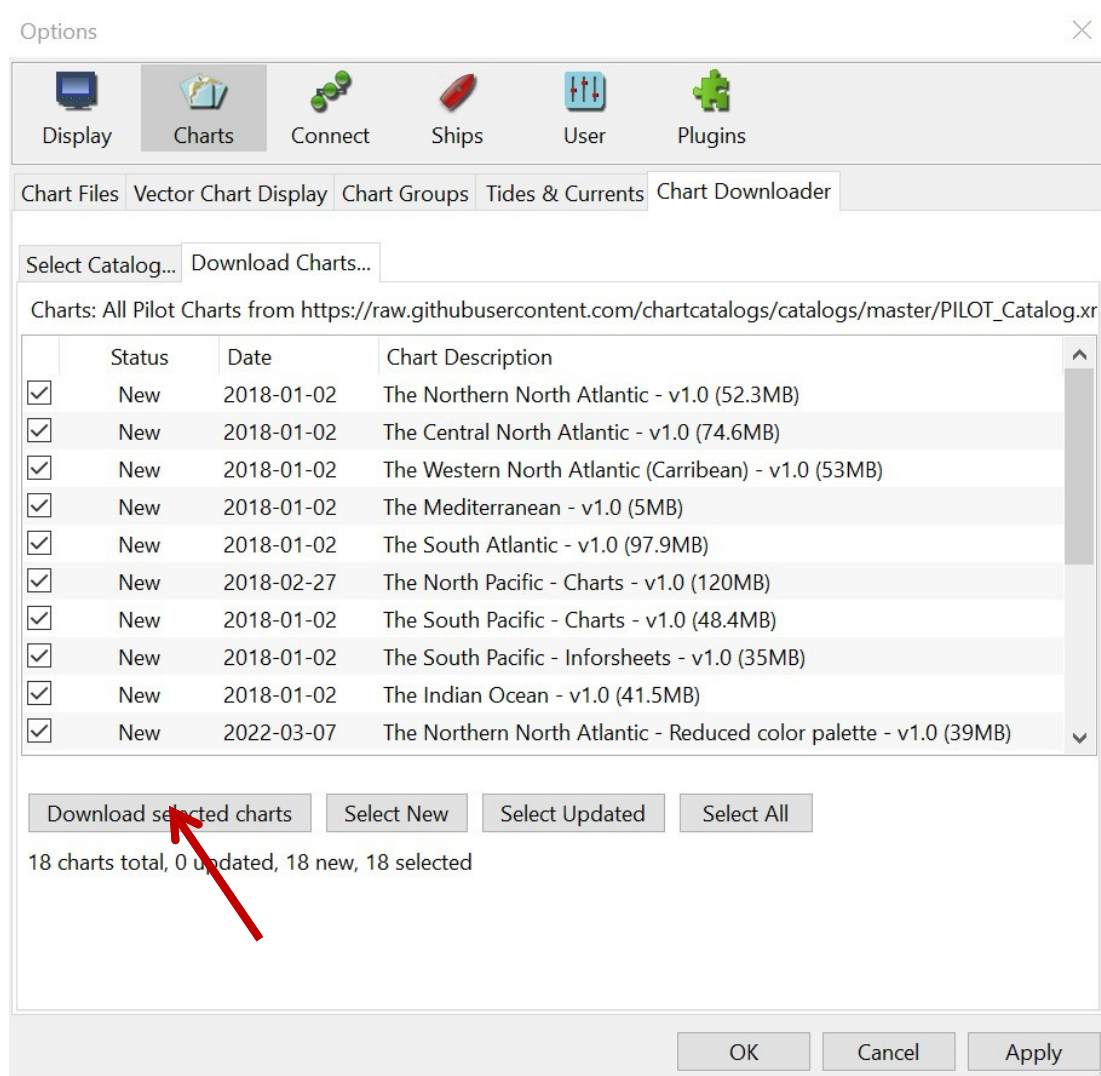
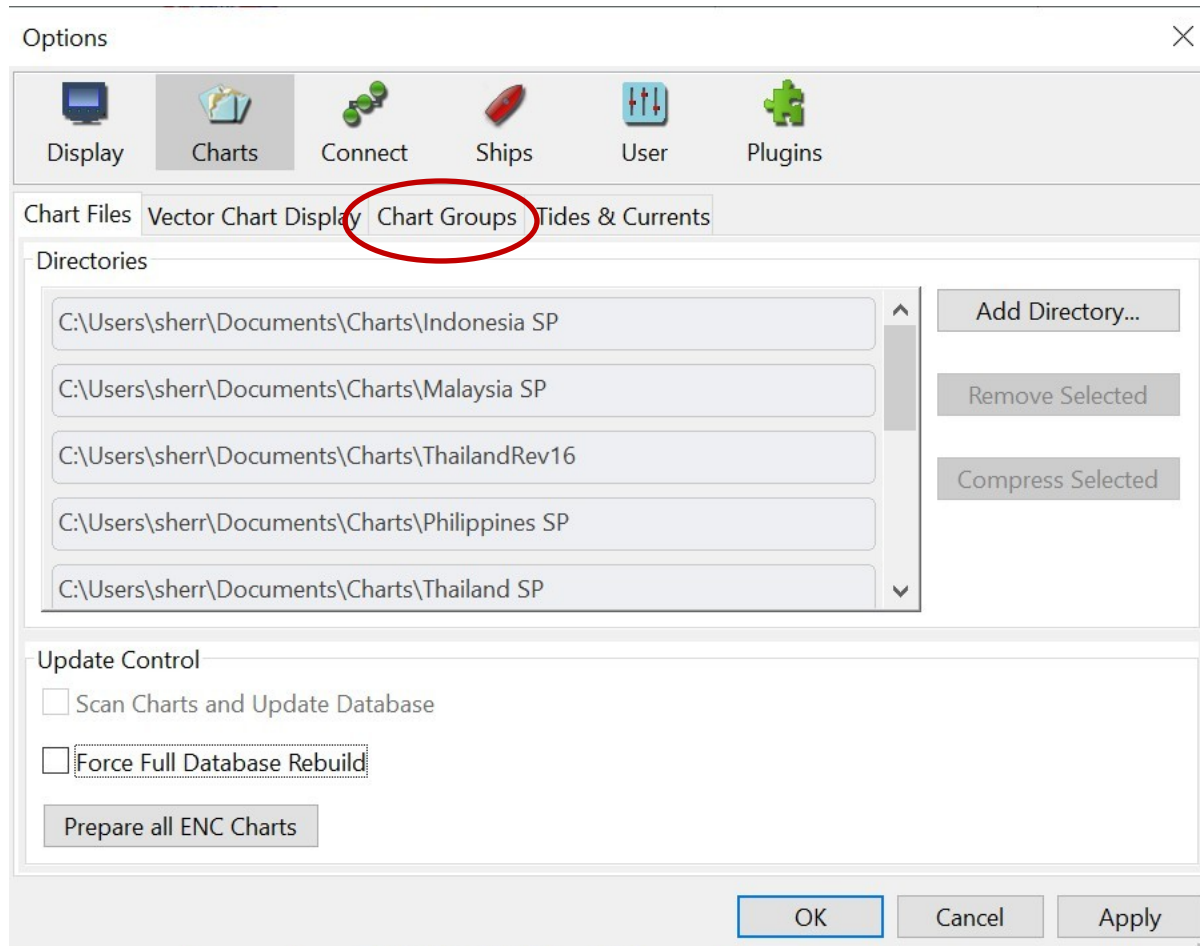


Chart Downloader-Add Charts

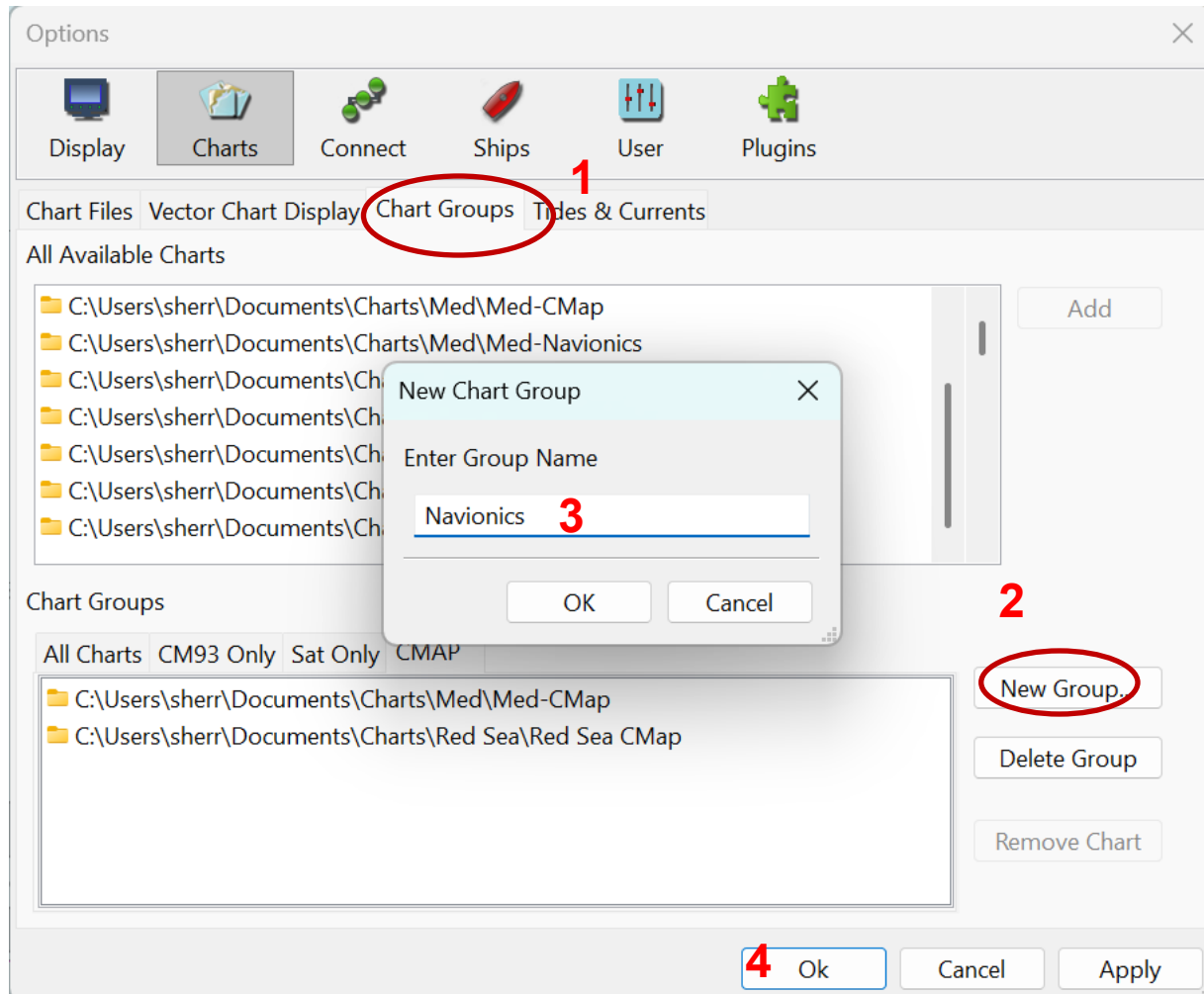


Managing Charts

The more charts you load, the longer it takes on startup
Overlapping charts from different sources can get confusing)
“Chart Groups” lets you manage groups of charts

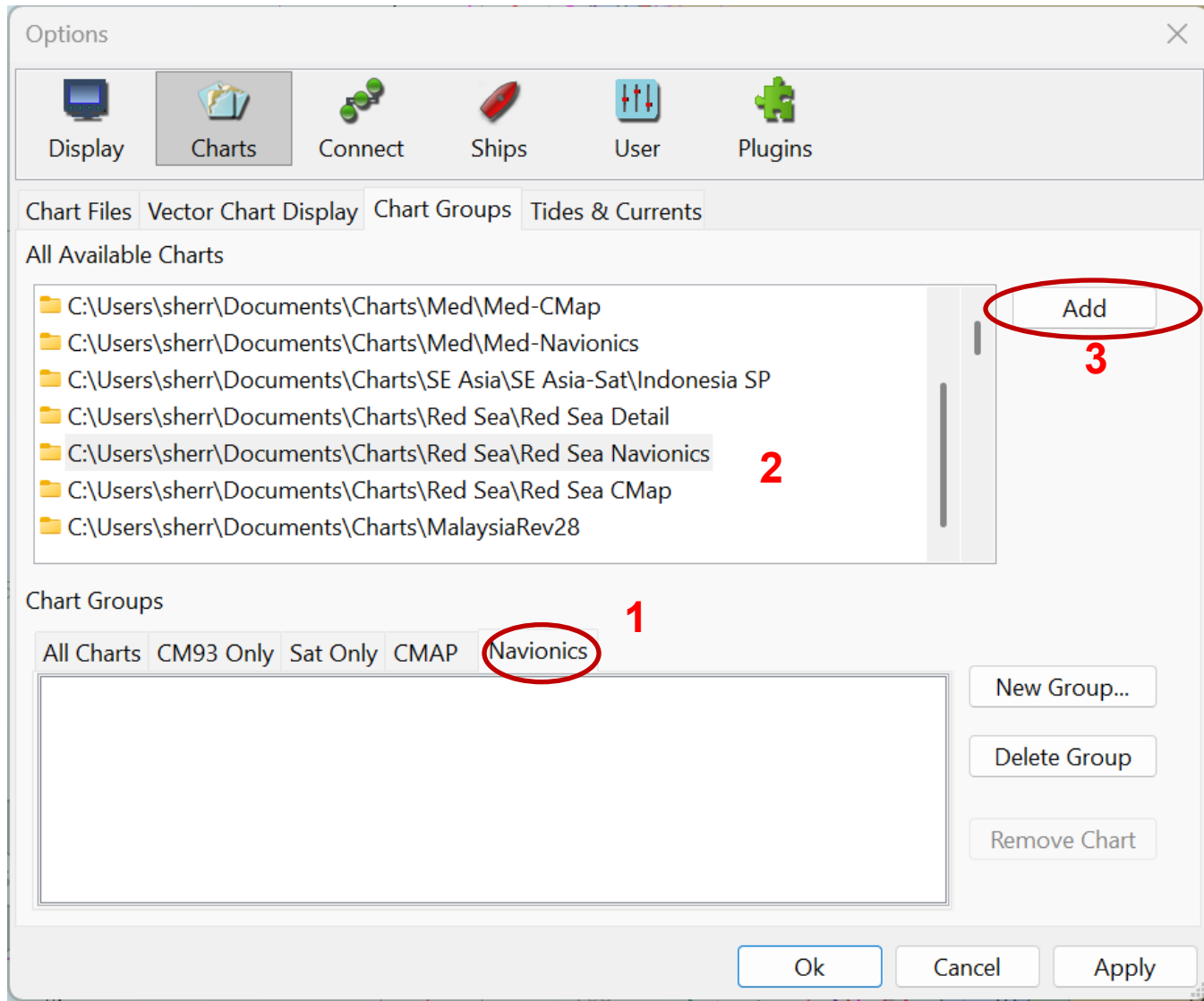


Creating Chart Groups

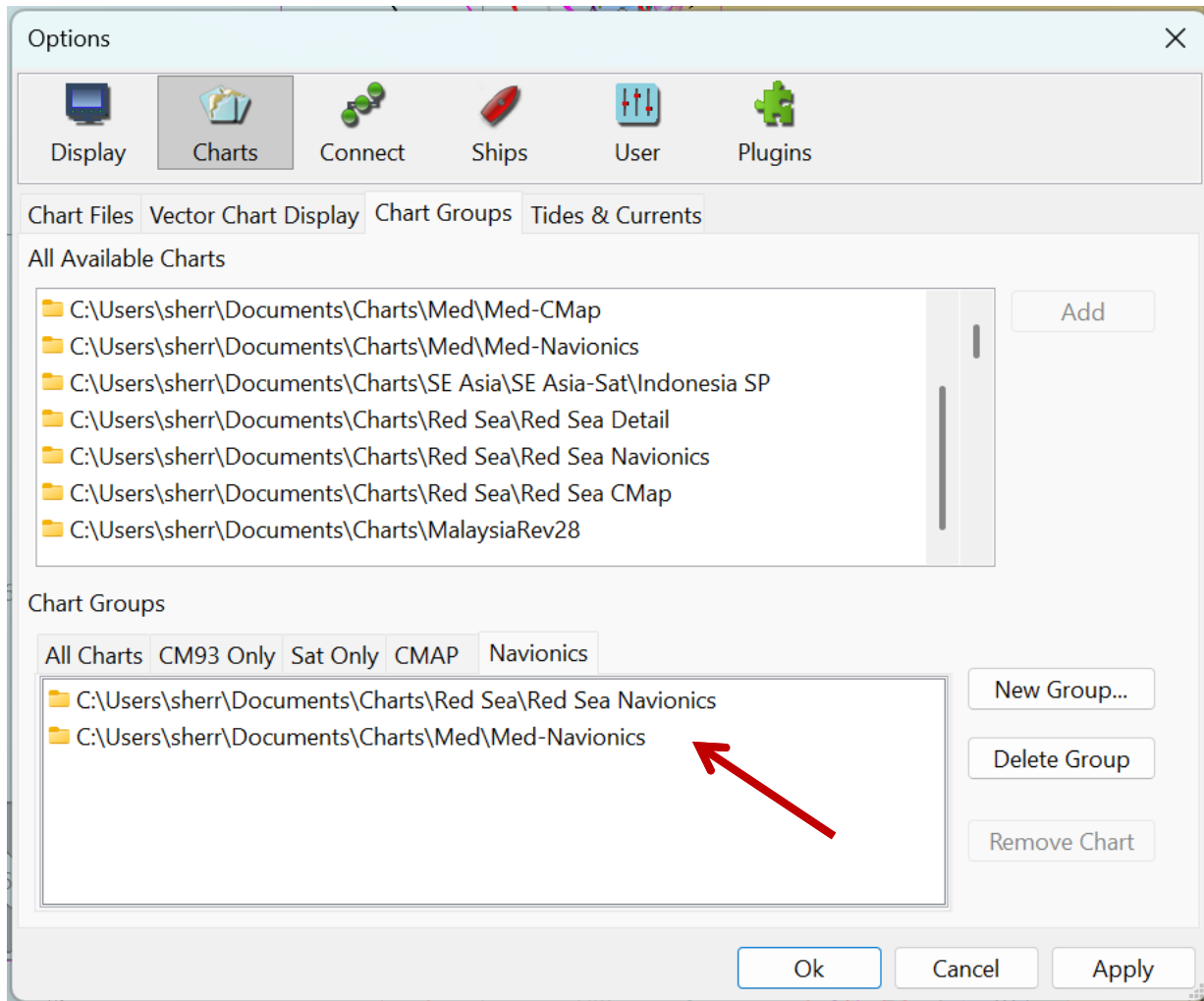


You must do Step 4 before proceeding with adding charts to the group₃₂

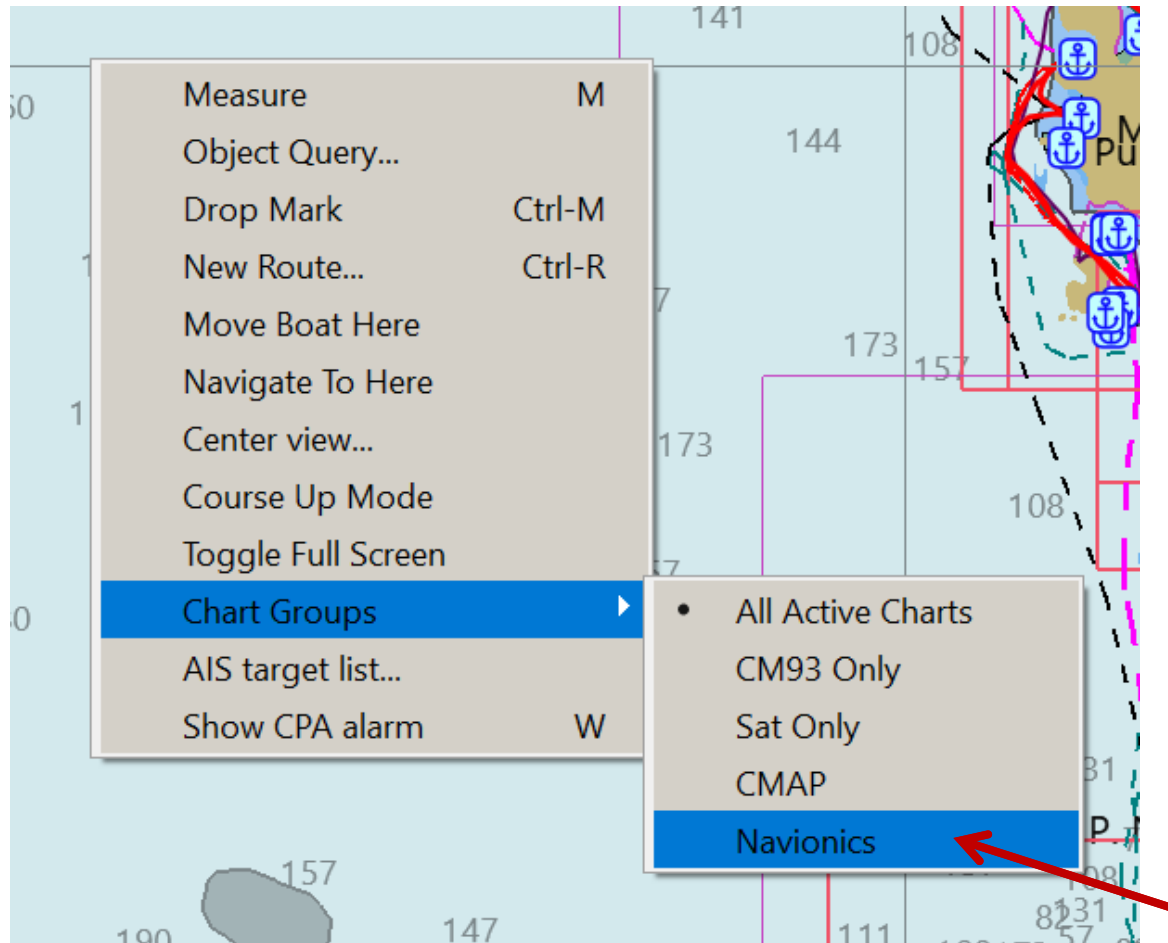
Adding Charts to a Chart Group



Adding Charts to a Chart Group

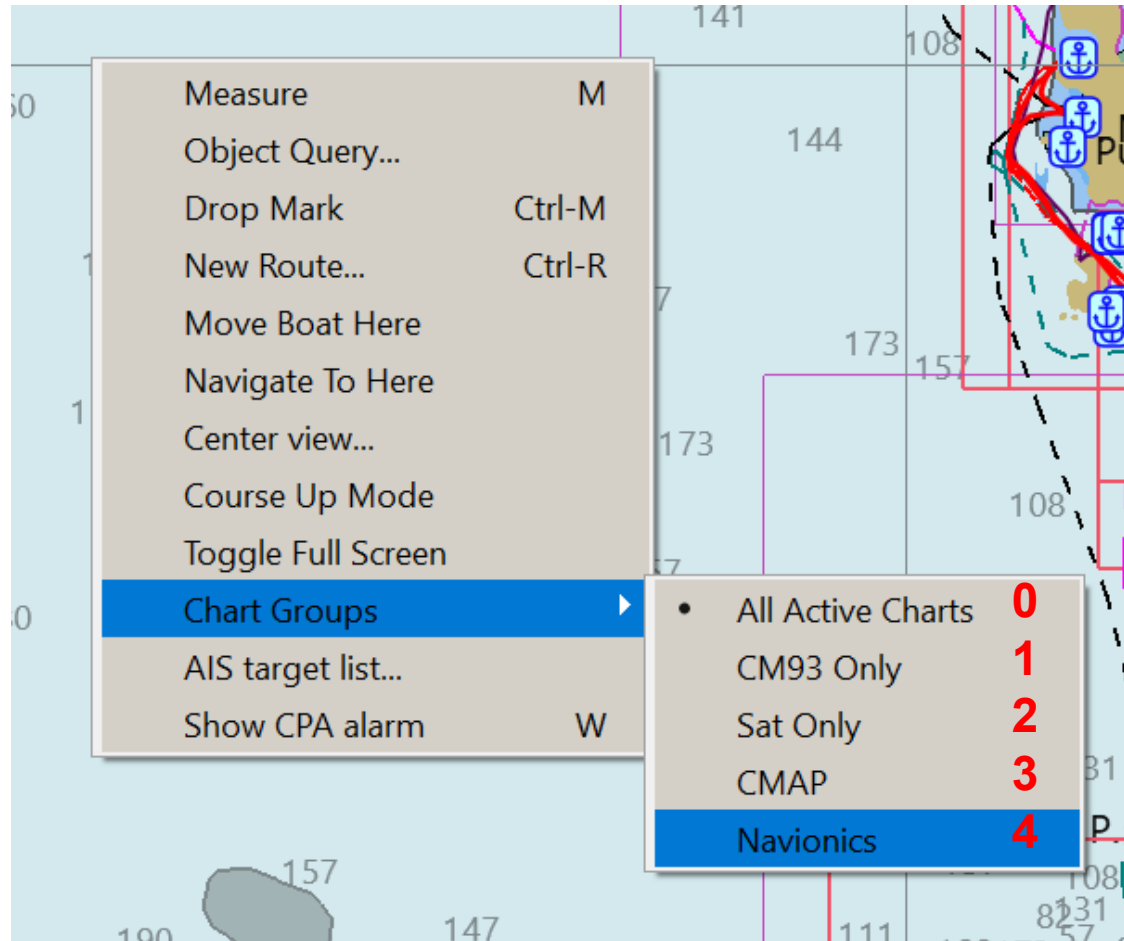


Selecting Chart Groups



Right-click on chart
Select appropriate Group
Only Charts in Group "Navionics" will be visible

Selecting Chart Groups



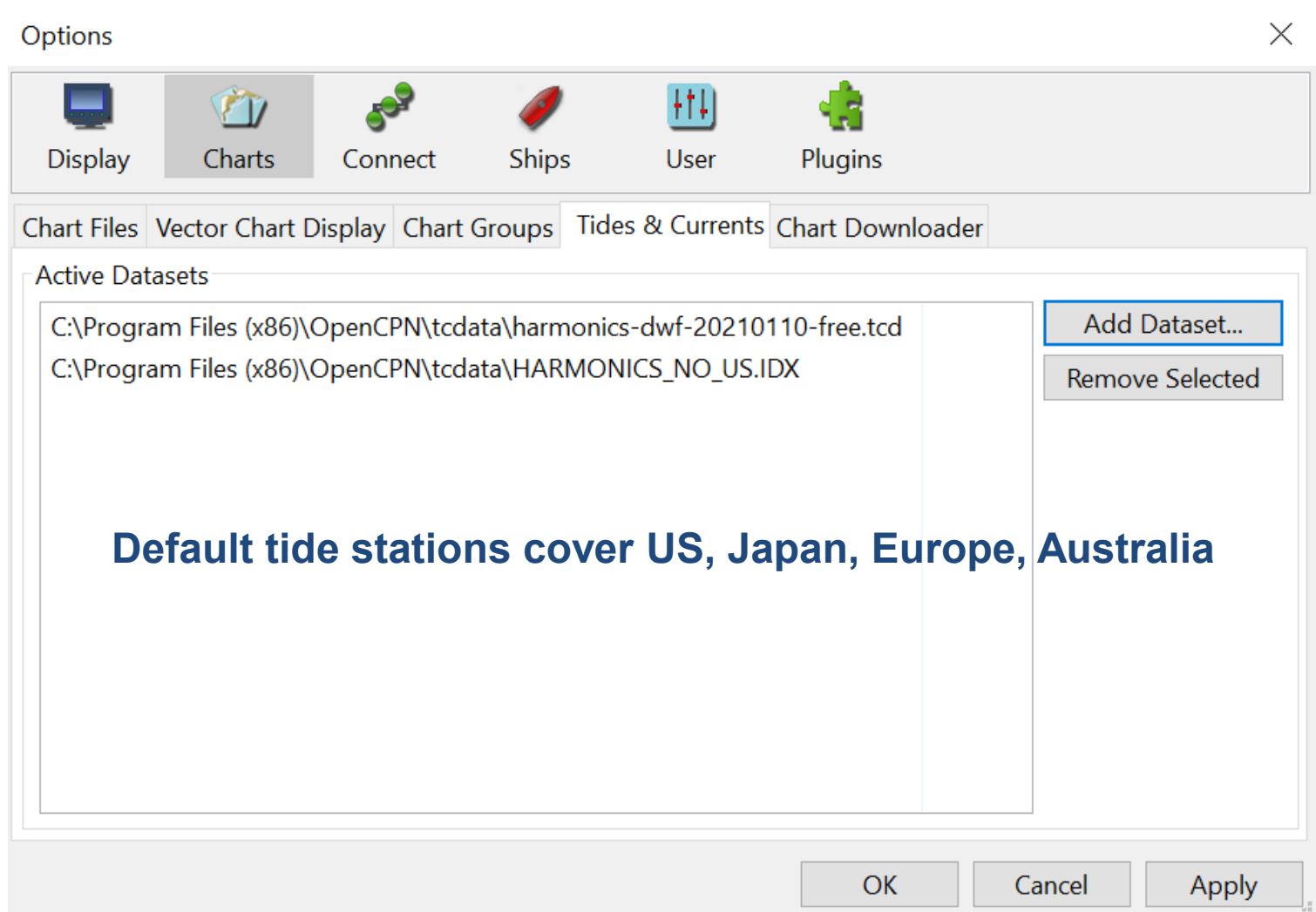
Or, use the number “Hot Key”
(one keystroke selects option)

No need to right-click

Typing “4” on the keyboard selects Navionics, 0=All charts

Tides

Options / Charts / Tides & Currents



Rest of the World Tides

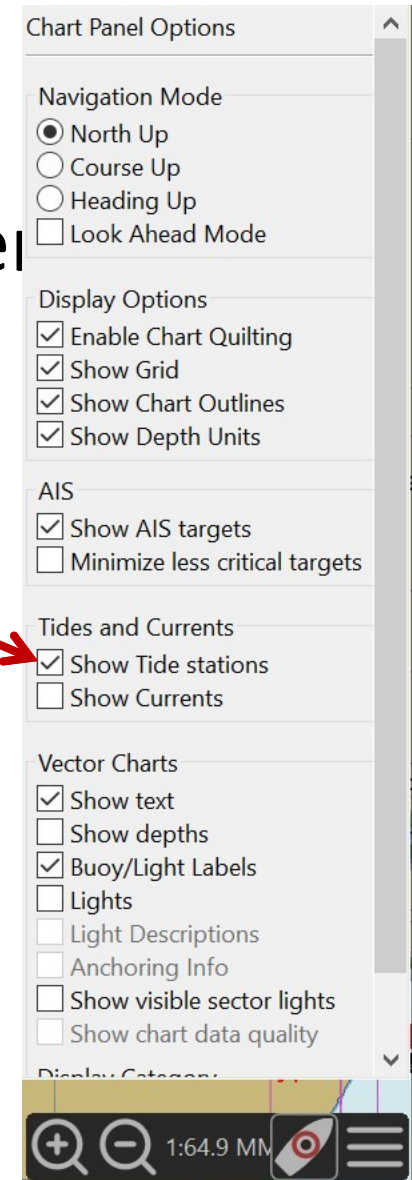
- Download from Terry's Topics [[Link](#)]
(download both Harmonic Files)
- Create a new Tides folder somewhere on your computer (Documents) and put these 2 files there.
- Options / Charts / Tides & Currents
- Add Dataset
- Select HARMONIC.IDX

You may have to re-install tides every time you re-install or upgrade OpenCPN (this may have been fixed in v5.10)

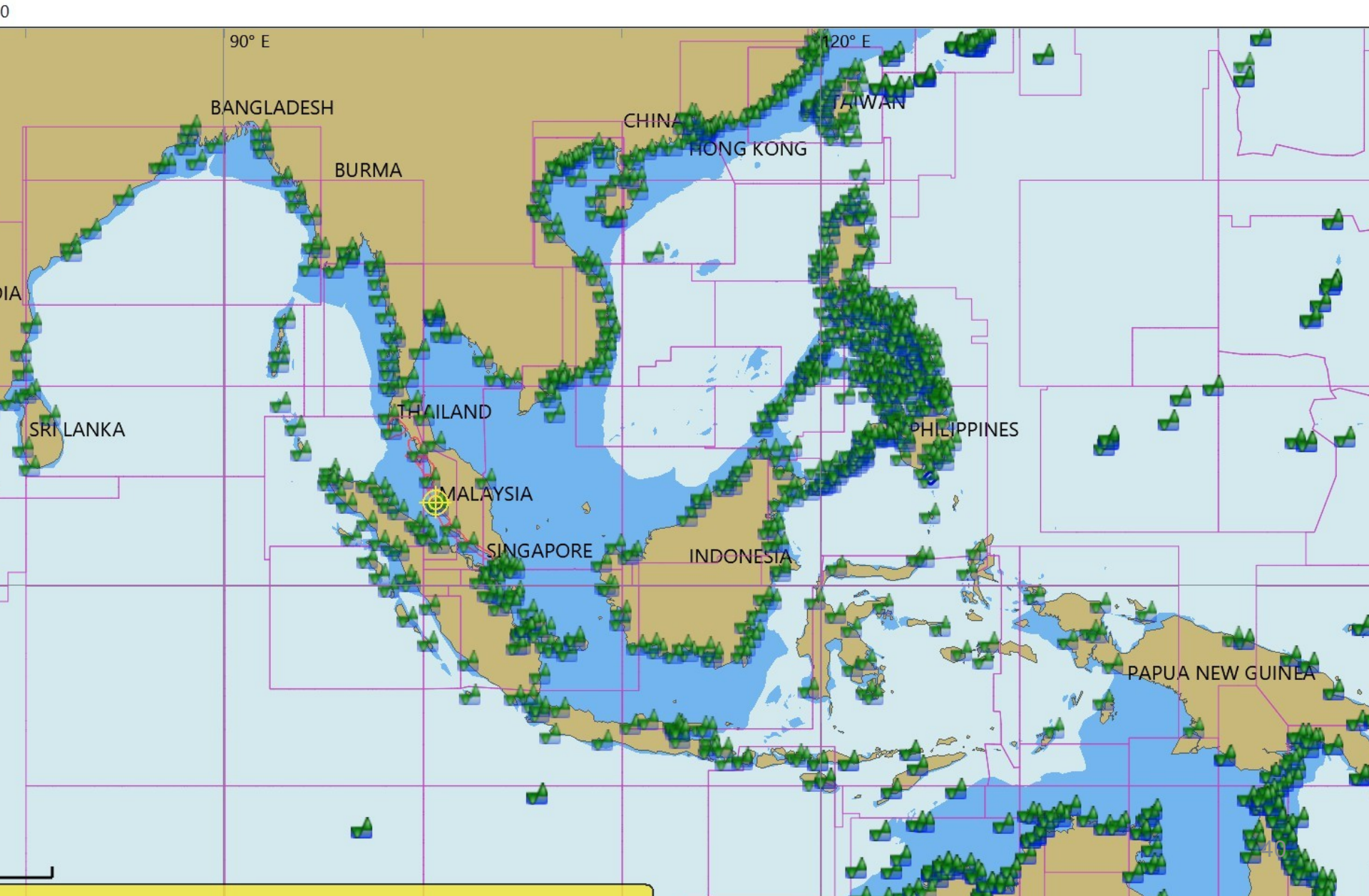
Click APPLY

To show the tide stations

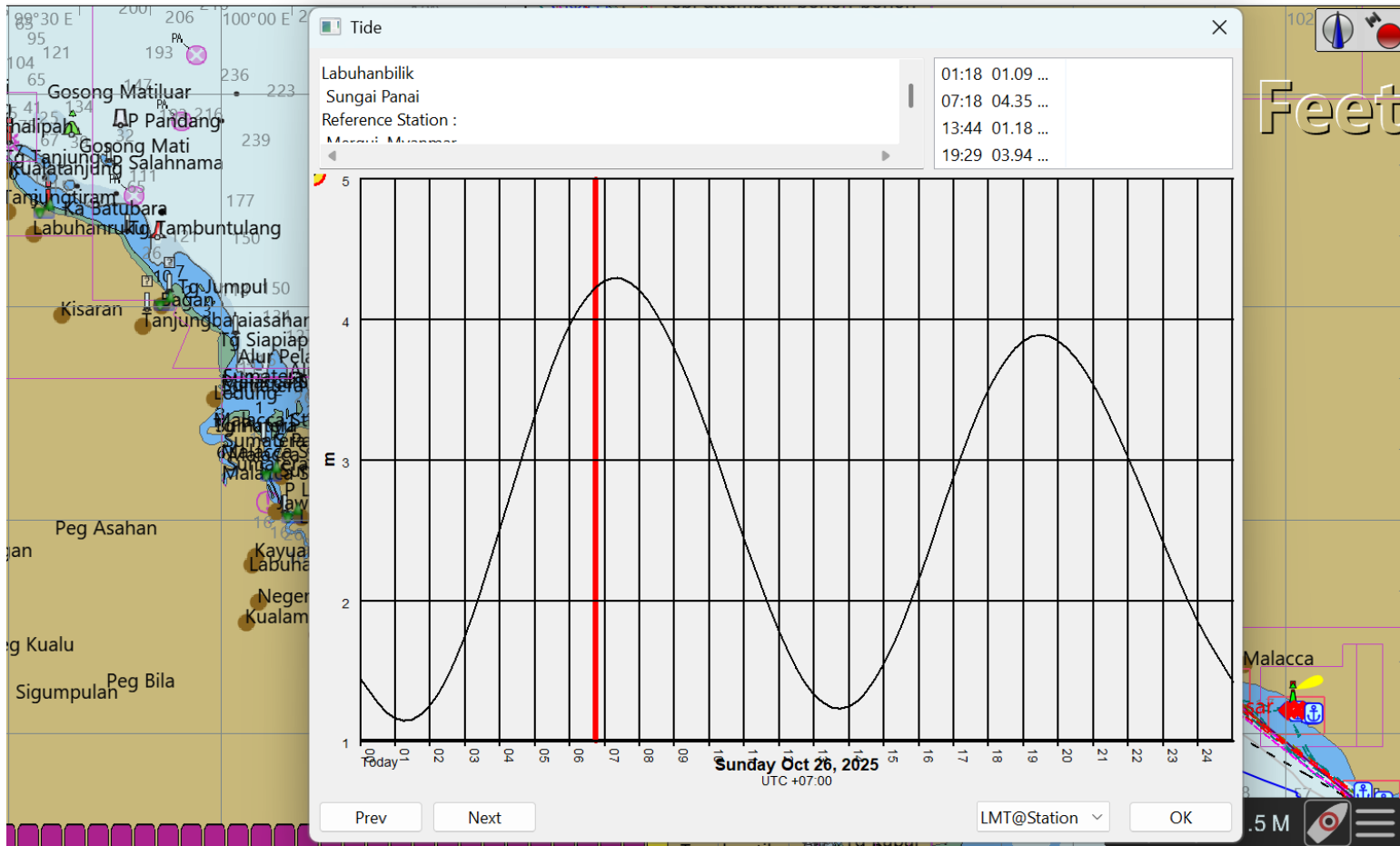
- Click on the “hamburger” in the lower right to show chart options
- Check Show Tide stations



Tide stations all over!

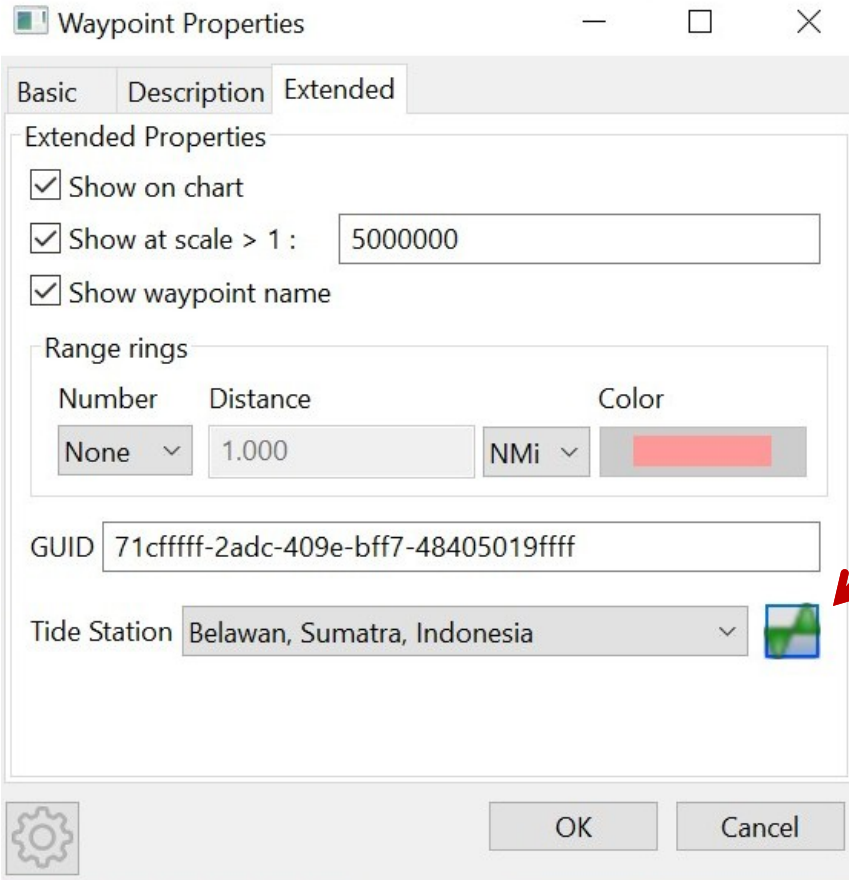


Showing a Tide Station

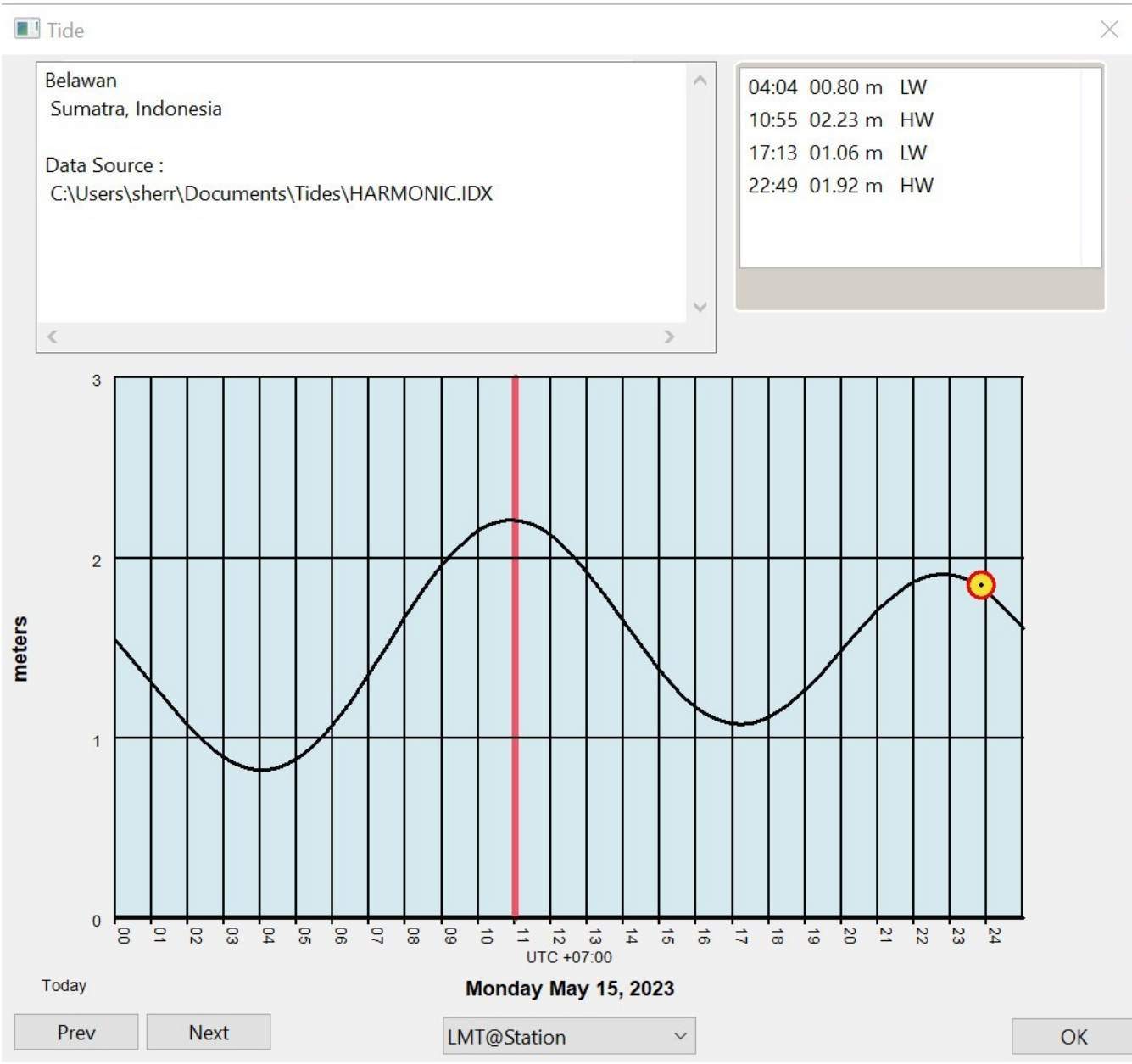


Right Click on the Green Tide Icon

Showing a Tide Station



Or,
In Waypoint Properties
Click on the Tide Icon



Setting Up a GPS

- Cheap and easy:
 - GlobalSat BU-353-S4 (or N5) USB GPS Receiver (Amazon.com \$30)
 - Gmouse (Shopee 30RM)
- OpenCPN also “plays well” with Garmin devices
- Any NMEA standard devices, including AIS
- Any on-board wifi NMEA stream (techie)



Today on Shopee



Preferred btsg VK-162 USB GPS Engine Module Laptop Board G-Mouse Receiver G-Mouse Support for Earth with Antenna

5.0 ★★★★★

2 Ratings

68 Sold

Report

RM30.90 ~~RM64.08~~

Shop Vouchers

4% OFF

3% OFF

5% OFF

5% OFF

6% OFF

Show All

Bundle Deals

Any 5 enjoy 3% off

Shipping

Guaranteed to get by 29 Oct - 5 Nov >

Free shipping

Get a RM5.00 voucher if your order arrives late.

Shopping Guarantee

15-Day Free Returns · Cash on Delivery

Quantity

- 1 +

2 pieces available

Add To Cart

Buy With Voucher
RM30.90



Share:

Favorite (3)



Setting Up a GPS

Options ×

Display Charts **Connect** Ships User Plugins

General

Filter NMEA Course and Speed data Filter period (sec)

Show NMEA Debug Window

Format uploads for Furuno GP3X **Special cases, ignore for now!**

Use Garmin GRMN (Host) mode for uploads

Use magnetic bearings in output sentence ECAPB

Data Connections

**Your new “connections” will show up here,
Scroll down to see the Add Connection button**

Scroll To add

OK Cancel Apply



Setting Up a NMEA GPS (Serial Connection)

Options ✕

Display Charts **Connect** Ships User Plugins

Adjust communication priorities...

Data Connections

Your new “connections” will show up here

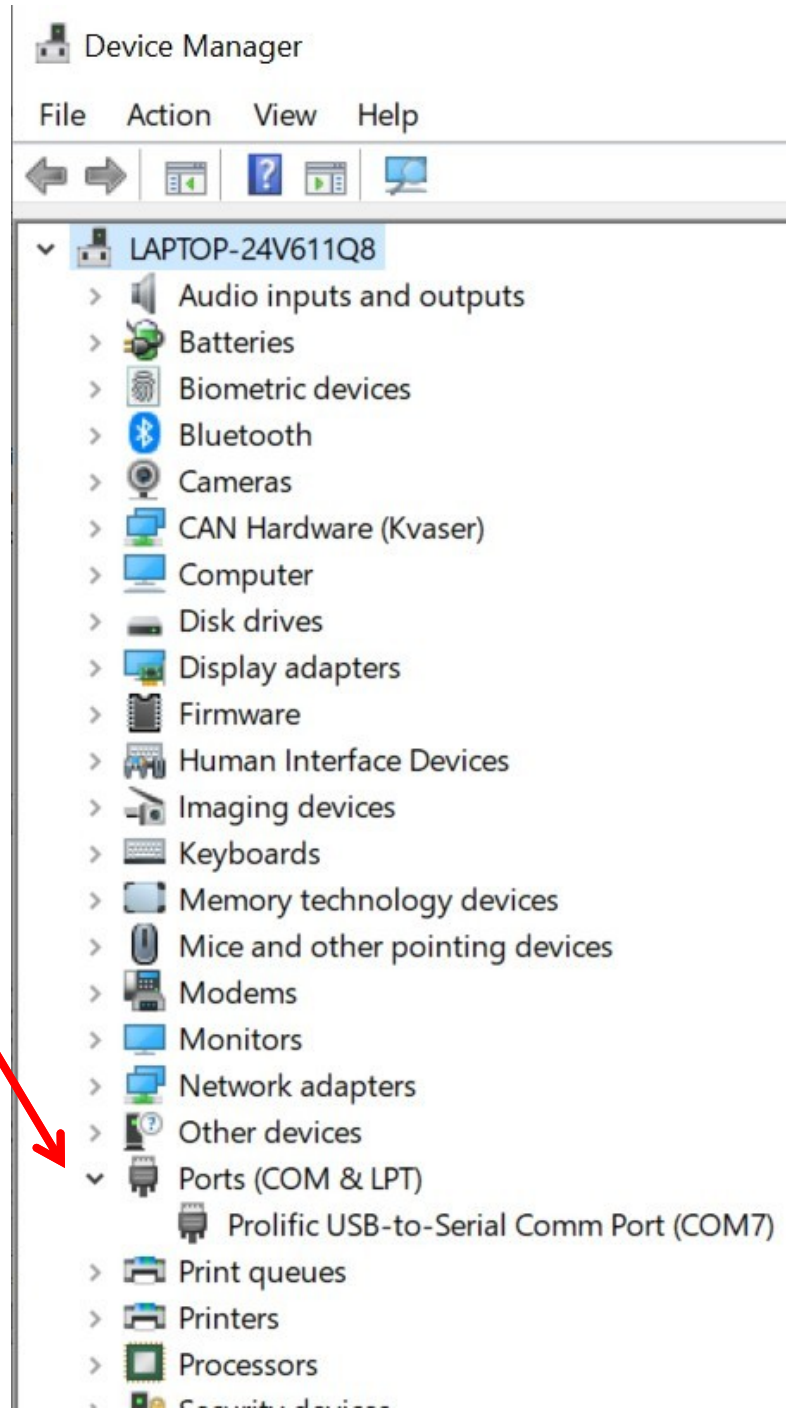
Add Connection Remove Connection

Serial Network

OK Cancel Apply

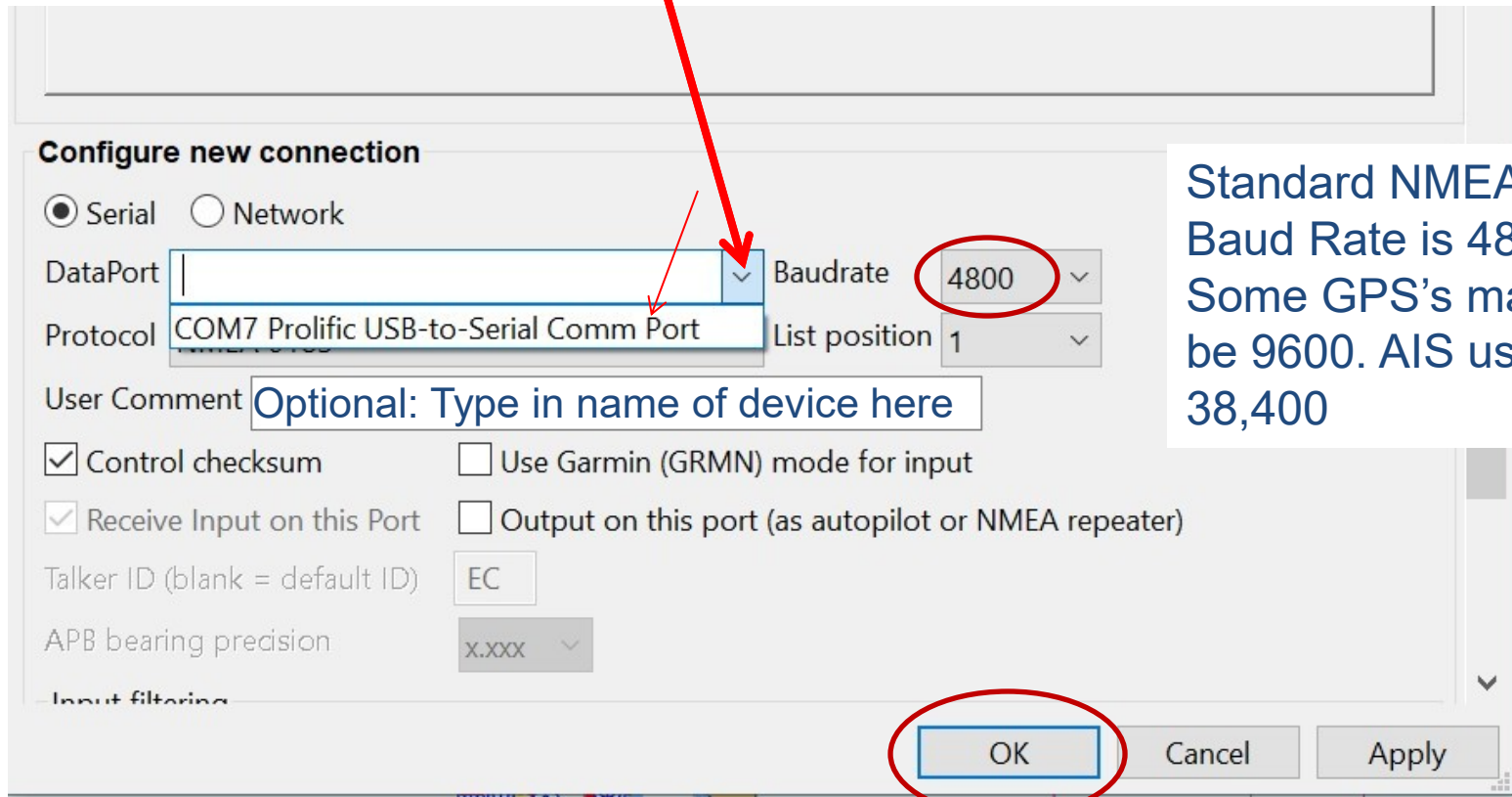
Setting up a GPS USB/Serial Connection

- First, install driver(s)
- Plug in GPS
- Check Device Manager under Ports Heading
- Make sure no errors in Device Manager



Setting Up a GPS

With your GPS on and plugged in, click this drop-down
OpenCPN will show available com ports

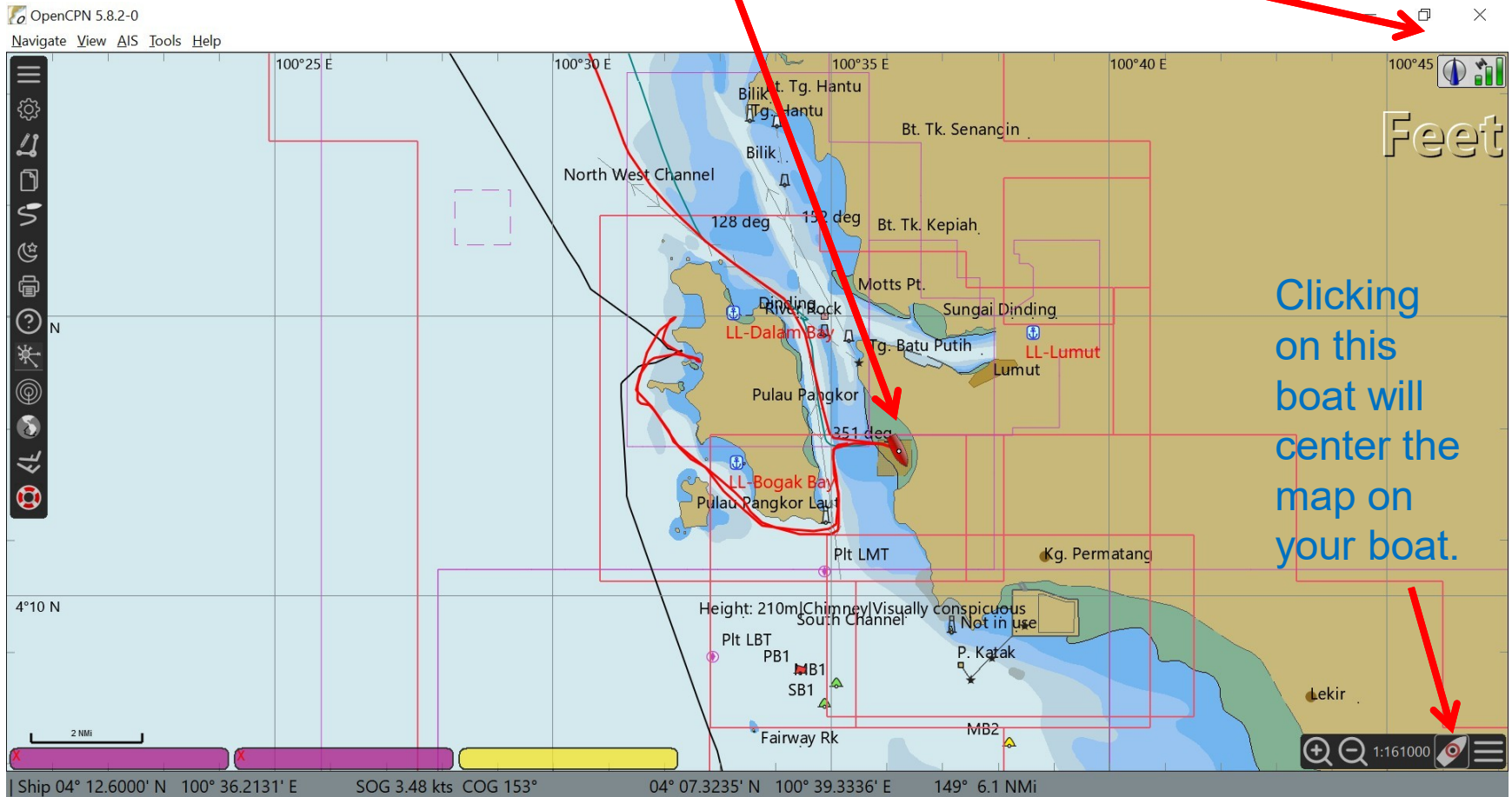


For a simple NMEA GPS for position input, that's all you need to do!

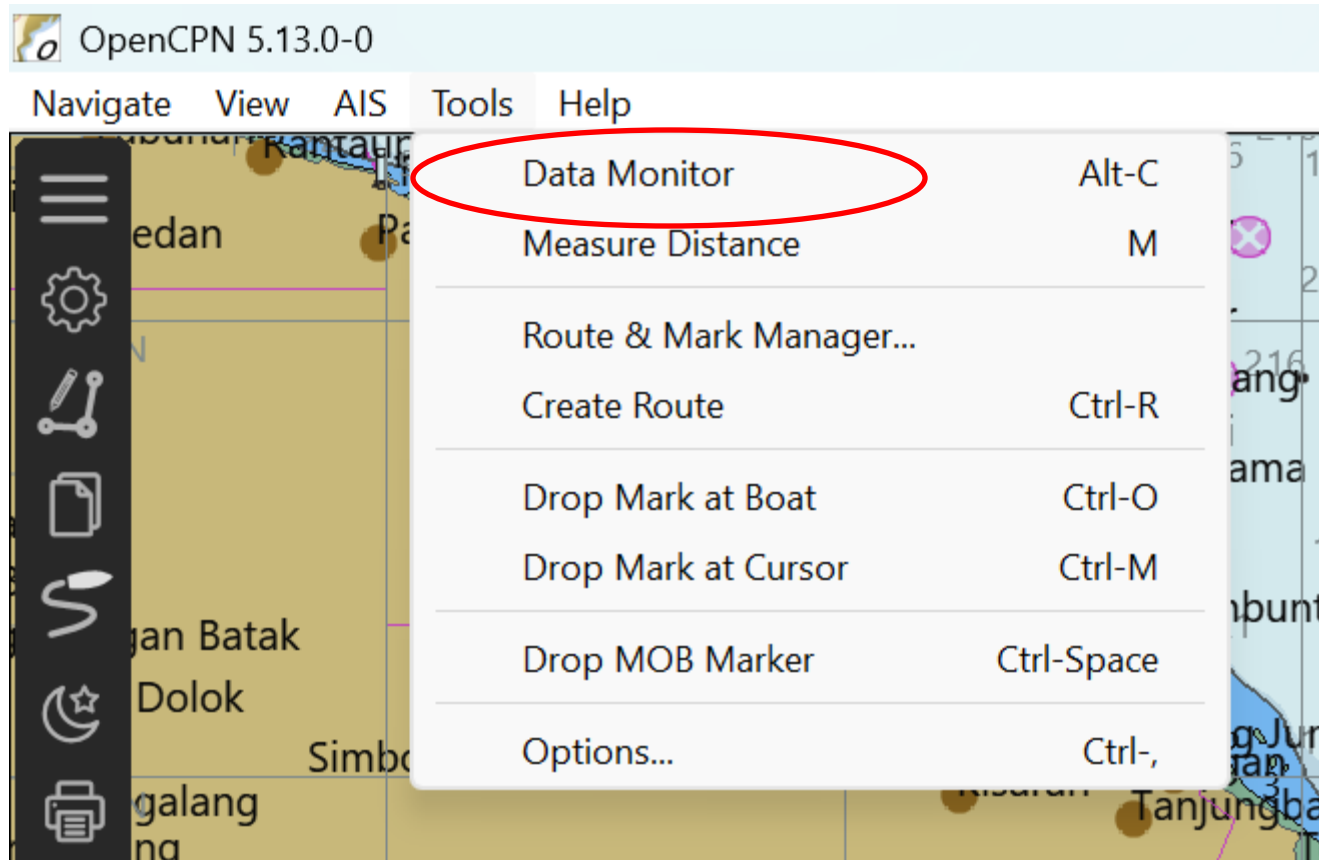
Setting Up a GPS

Once GPS configured

- GPS Status Panel should show Green
- Boat Icon should show Red



Do I Have a Working GPS?



Do I Have a Working GPS?

The screenshot shows a 'Data Monitor' window with two columns of data. The left column contains network traffic details, and the right column contains NMEA sentences. A red arrow points from the 'COM4' entry in the left column to the corresponding NMEA sentence in the right column. A red circle highlights the NMEA sentence 'n0183-RMC GPRMC SGPRMC,010302.00,A,0412.61462,N,'.

Time	Event	Data
01:02:59.338	→ UDP:5.9.207.224:11305	n0183-RMC GPRMC SGPRMC,010259.00,A,0412.61485,N,
01:02:59.338	→ ✓UDP:192.168.6.255:10110	n0183-RMC GPRMC SGPRMC,010259.00,A,0412.61485,N,
01:03:00.357	→ ✓COM4	n0183-RMC GPRMC SGPRMC,010300.00,A,0412.61478,N,
01:03:00.357	→ UDP:5.9.207.224:11305	n0183-RMC GPRMC SGPRMC,010300.00,A,0412.61478,N,
01:03:00.358	→ ✓UDP:192.168.6.255:10110	n0183-RMC GPRMC SGPRMC,010300.00,A,0412.61478,N,
01:03:01.382	→ ✓COM4	n0183-RMC GPRMC SGPRMC,010301.00,A,0412.61470,N,
01:03:01.383	→ UDP:5.9.207.224:11305	n0183-RMC GPRMC SGPRMC,010301.00,A,0412.61470,N,
01:03:01.384	→ ✓UDP:192.168.6.255:10110	n0183-RMC GPRMC SGPRMC,010301.00,A,0412.61470,N,
01:03:02.400	→ ✓COM4	n0183-RMC GPRMC SGPRMC,010302.00,A,0412.61462,N,
01:03:02.400	→ UDP:5.9.207.224:11305	n0183-RMC GPRMC SGPRMC,010302.00,A,0412.61462,N,
01:03:02.400	→ ✓UDP:192.168.6.255:10110	n0183-RMC GPRMC SGPRMC,010302.00,A,0412.61462,N,

Start logging Filter Default settings Pause [Y] [Copy] [Menu]

Do I have a Working GPS?

\$GPRMC,071238.000,A,0412.6012,N,10036.2109,E,0.90,40.20,120523,,,A*55<0x0D><0x0A>

This is a GPS position “sentence”.

- The “A” in the sentence means “thumbs up, we have a position”
- A “V” in the sentence means “thumbs down, no GPS position”

It’s a quick way to tell whether your problem is with the serial port
Or the GPS is not able to obtain a position.

If you see data, but have a V, take your GPS out where it has a clear view of the sky. (put your USB GPS out a hatch/porthole)

Most modern GPS’s will get position data fairly quickly, older ones may take a few minutes.

Getting Your AIS into OpenCPN (NMEA183)

- Plug AIS into your computer
 - Usually a USB connection, using manufacturer-supplied cables and drivers
- Setup / Connections / Add Connection just like GPS
- Select the appropriate Com port
- Set Baud Rate to 38400 (usual default rate for AIS)
- Some AIS's ALSO send Position. You only want ONE position indicator into OpenCPN. Use accept/reject settings to filter unwanted position information out.

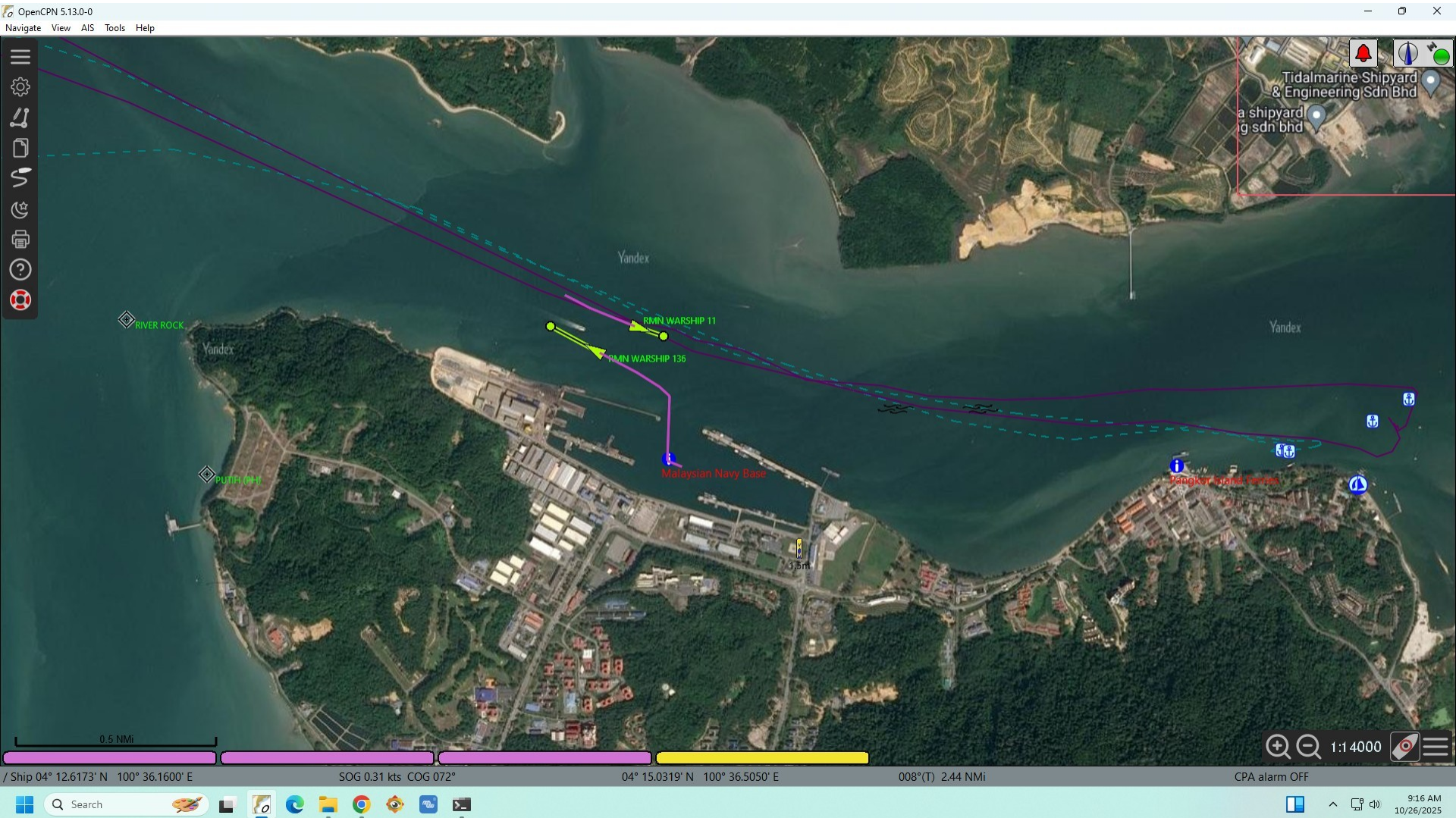
Newer AIS's may supply AIS (and maybe position) by Wifi
OpenCPN can do this by adding the connection as a Network connection.

- Consult your Mfg's manual, and the OpenCPN manual, as this varies by device.

Sorry, no NMEA2000 on Soggy Paws, no idea how to set up

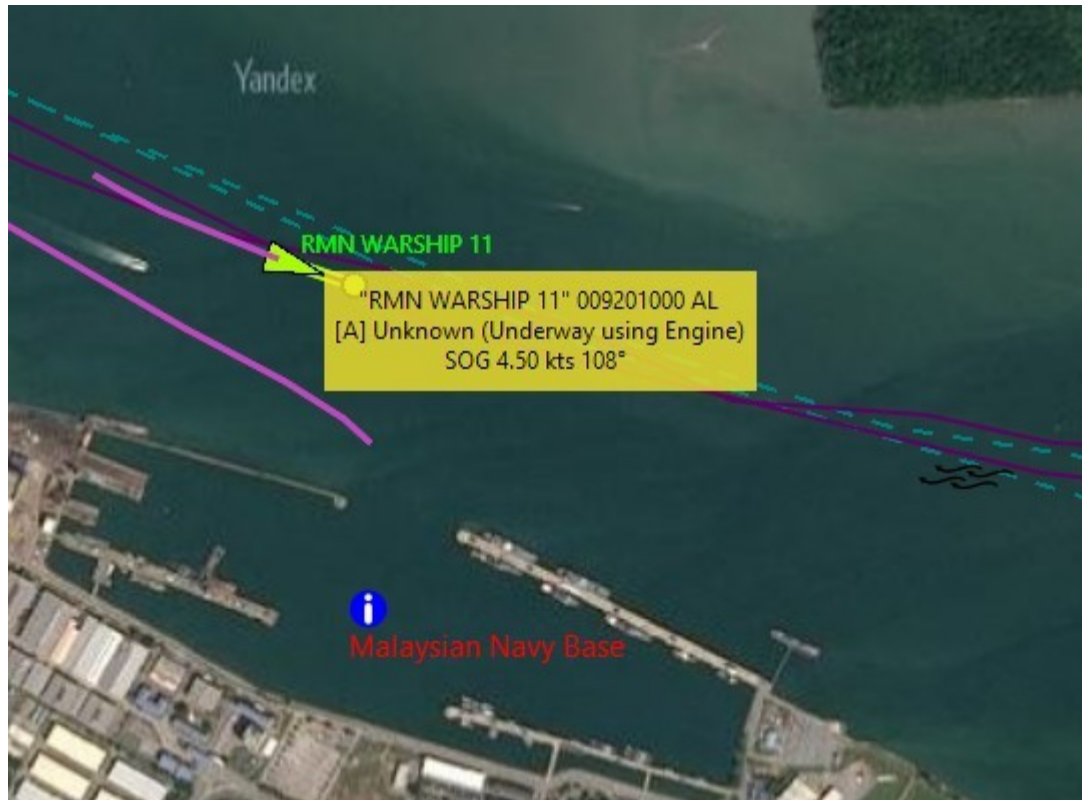
Working with AIS in OpenCPN

Once installed and configured – Ships with AIS on your chart!



Working with AIS in OpenCPN

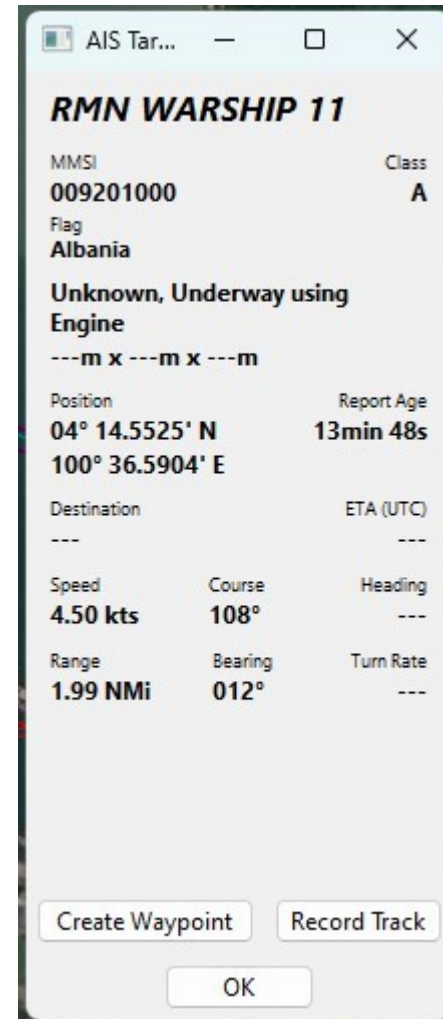
Placing your cursor on a ship gives a pop-up information box



Working with AIS in OpenCPN

Right click on target to show
AIS Target Data and CPA

See
OpenCPN
Manual for
LOTS more
on AIS in
OpenCPN



Working with AIS in OpenCPN

Right-click anywhere on chart to pop up the AIS Target List

Trk	Name	Call	MMSI	Class	Type ▲	Flag	Nav...	Brg	Ran...	CoG	SoG	CPA	TCPA
✓	FUJIHIME	DYFP	548857000	A	Cargo S...	Philippines	At ...	228	7.39	272	0.0	-	-
✓	SH2515NGWRQM		533342515	B	Fishing ...	Malaysia	-	287	1.65	166	0.0	-	-
✓	RMN WARSHIP ...	9MOJ	533140146	A	Law Enf...	Malaysia	Un...	321	2.46	172	9.8	1.33	13
✓	GRIPHEN	SUP-...	265102538	B	Law Enf...	Sweden	-	280	1.53	029	0.0	-	-
·	BATU GAJAH		995331081	AtoN	Light	Malaysia	-	331	0.81	-	-	-	-
·	MUROH		995331080	AtoN	Light	Malaysia	-	304	1.28	-	-	-	-
·	DINDING FRONT		995331084	AtoN	Light w/...	Malaysia	-	328	2.44	-	-	-	-
✓	SERENITY	DD7...	211563450	B	Pleasure ...	Germany	-	285	0.13	-	0.0	-	-
✓	AZUL V	9M2...	533131151	A	Pleasure ...	Malaysia	Mo...	302	0.13	321	0.1	-	-
·	SELAT 2R		995331297	AtoN	Port Han...	Malaysia	-	330	2.90	-	-	-	-
·	SELAT 2G		995331296	AtoN	Preferre...	Malaysia	-	329	2.79	-	-	-	-
✓	PHILIOSOPHY	WDF...	367466080	B	Sailing V...	United Stat...	-	322	0.09	-	0.0	-	-
✓	AVIATOR	2AES5	235059045	B	Sailing V...	Great Britain	-	308	0.08	000	0.0	-	-
✓	SV BINDY TOO		503055520	B	Sailing V...	Australia	-	323	0.06	120	0.0	-	-
·	EAST BANK		995331298	AtoN	Starboar...	Malaysia	-	266	1.07	-	-	-	-
✓	PAN SILVER 3		533131128	B	Unknown	Malaysia	-	301	0.27	081	7.9	0.18	2
·	-		005330175	Base	-	Malaysia	-	182	3.26	-	-	-	-

AIS target list x

Trk	Name	Call	MMSI	Class	Type ▲	Flag	Nav...	Brg	Ran...	CoG	SoG	CPA	TCPA
✓	FUJIHIME	DYFP	548857000	A	Cargo S...	Philippines	At ...	228	7.39	272	0.0	-	-
✓	SH2515NGWRQM		533342515	B	Fishing ...	Malaysia	-	287	1.65	166	0.0	-	-
✓	RMN WARSHIP ...	9MOJ	533140146	A	Law Enf...	Malaysia	Un...	321	2.46	172	9.8	1.33	13
✓	GRIPHEN	SUP-...	265102538	B	Law Enf...	Sweden	-	280	1.53	029	0.0	-	-
·	BATU GAJAH		995331081	AtoN	Light	Malaysia	-	331	0.81	-	-	-	-
·	MUROH		995331080	AtoN	Light	Malaysia	-	304	1.28	-	-	-	-
·	DINDING FRONT		995331084	AtoN	Light w/...	Malaysia	-	328	2.44	-	-	-	-
✓	SERENITY	DD7...	211563450	B	Pleasure ...	Germany	-	285	0.13	-	0.0	-	-
✓	AZUL V	9M2...	533131151	A	Pleasure ...	Malaysia	Mo...	302	0.13	321	0.1	-	-
·	SELAT 2R		995331297	AtoN	Port Han...	Malaysia	-	330	2.90	-	-	-	-
·	SELAT 2G		995331296	AtoN	Preferre...	Malaysia	-	329	2.79	-	-	-	-
✓	PHILIOSOPHY	WDF...	367466080	B	Sailing V...	United Stat...	-	322	0.09	-	0.0	-	-
✓	AVIATOR	2AES5	235059045	B	Sailing V...	Great Britain	-	308	0.08	000	0.0	-	-
✓	SV BINDY TOO		503055520	B	Sailing V...	Australia	-	323	0.06	120	0.0	-	-
·	EAST BANK		995331298	AtoN	Starboar...	Malaysia	-	266	1.07	-	-	-	-
✓	PAN SILVER 3		533131128	B	Unknown	Malaysia	-	301	0.27	081	7.9	0.18	2
·	-		005330175	Base	-	Malaysia	-	182	3.26	-	-	-	-

Find target name

AutoSort

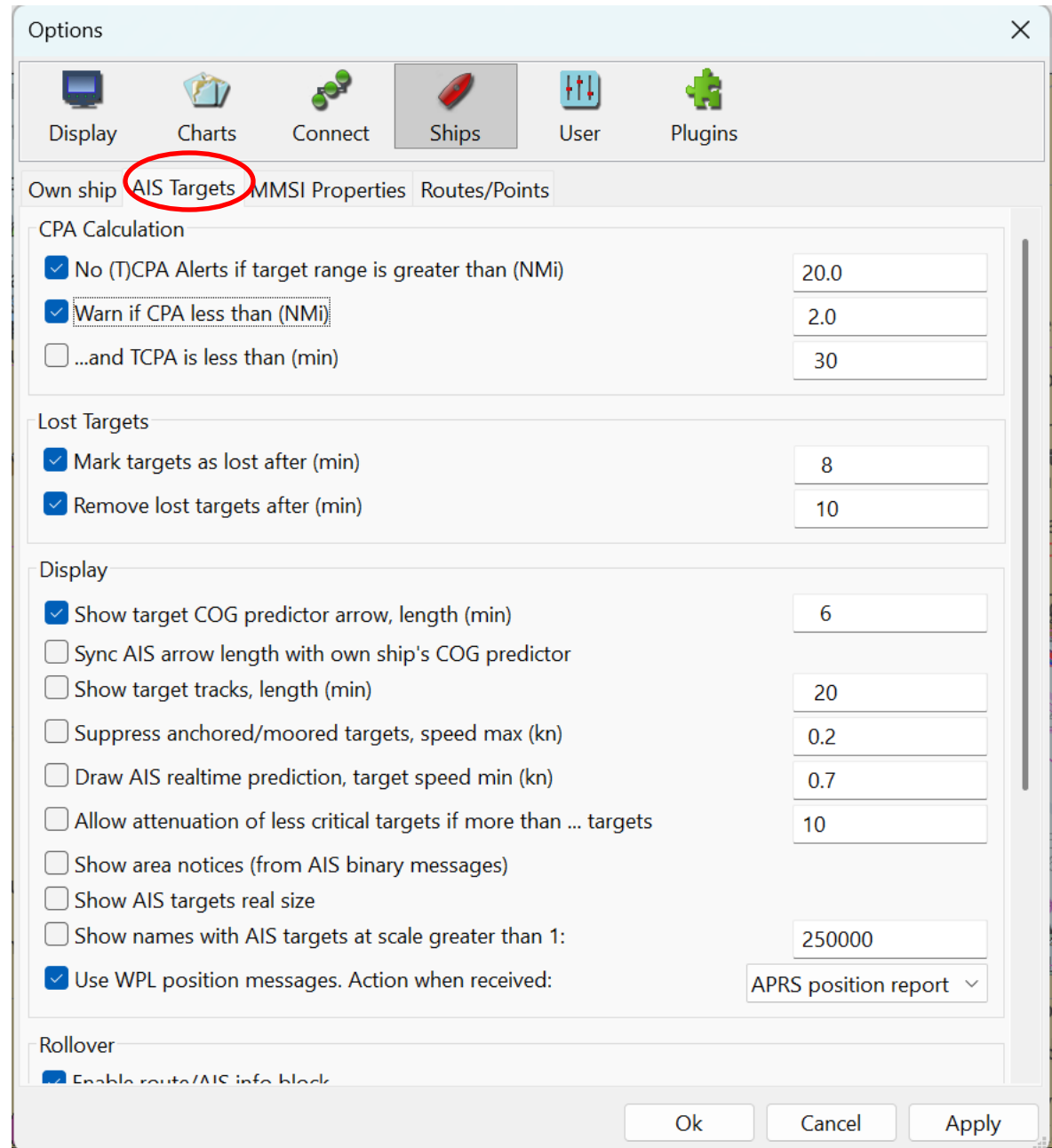
Limit range: NM

Target Count

Working with AIS in OpenCPN

Options/Ships/
AIS Targets
To display
optional settings
For AIS

For more help, see the
OpenCPN manual!



Broadcast to Boat Network

- 1. Use CMD line and put in cmd "IPConfig". Look for this set of info. That shows the network address for your network. In my case my Gateway is 192.168.100.1 so my broadcast address to put in to OpenCPN Connections dialog would be 192.168.100.255

```
Wireless LAN adapter Wi-Fi:
```

```
Connection-specific DNS Suffix . :  
IPv4 Address. . . . . : 192.168.100.100  
Subnet Mask . . . . . : 255.255.255.0  
Default Gateway . . . . . : 192.168.100.1
```

Broadcast to Boat Network

Add a new
"Output
Network"
connection.

Options

Display Charts **Connect** Ships User Plugins

Configure new connection

Serial Network

Network Protocol TCP UDP GPCD Signal K

Data Protocol NMEA 0183

Address 192.168.100.255

DataPort 10110

Description Local Network Broadcast

Receive Input on this Port

Output on this port (as autopilot or NMEA repeater)

Advanced: ^

APB bearing precision x.xxx

Output filtering

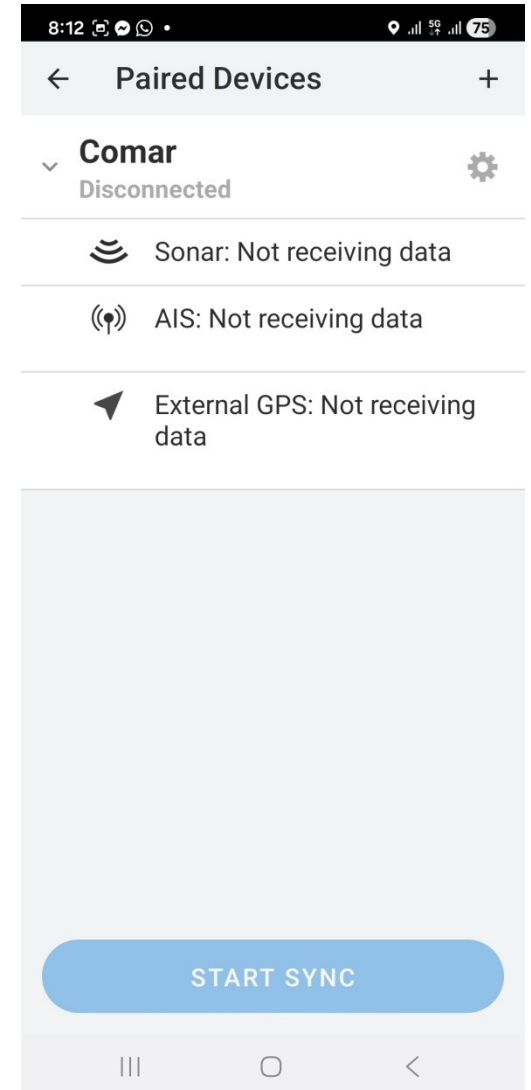
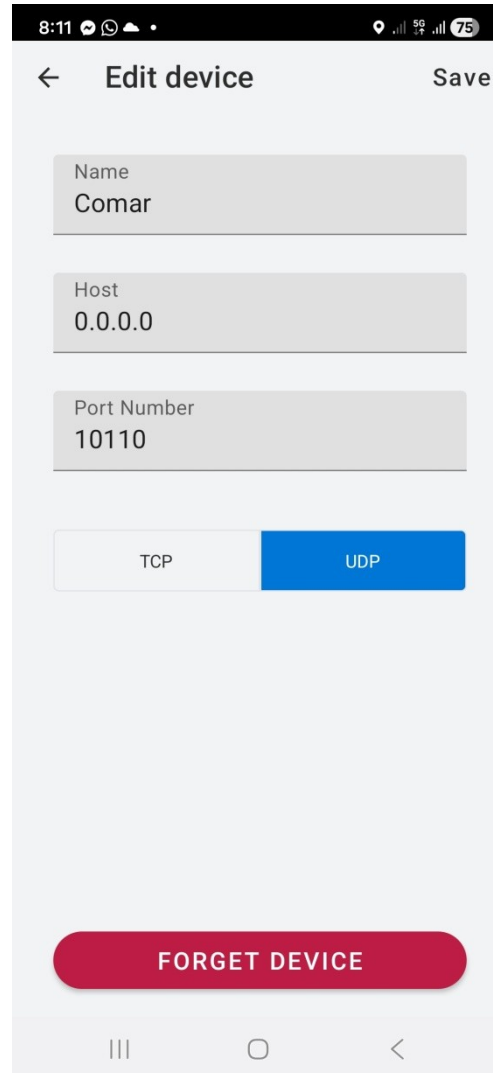
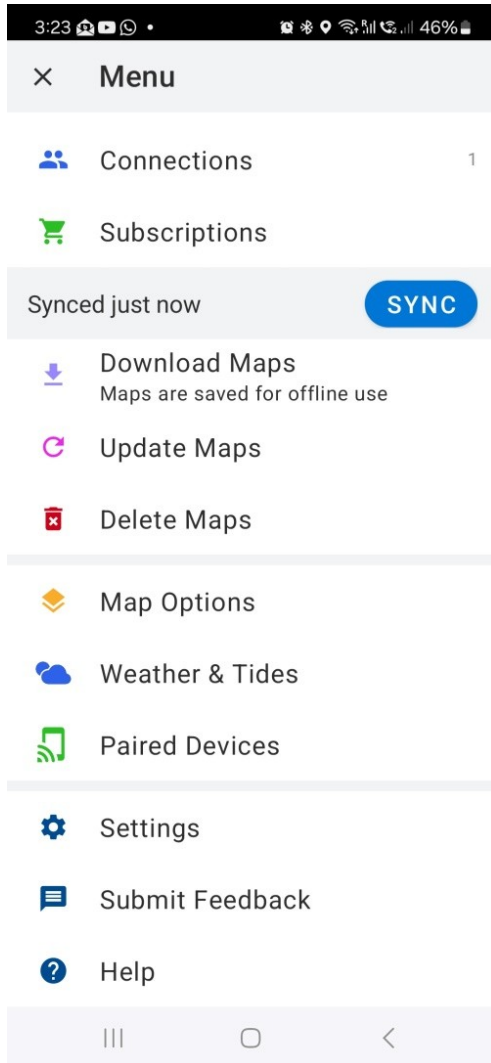
Transmit sentences Drop sentences

OK Cancel

Broadcast to Boat Network

- On any other OpenCPN on the same network
 - Settings / Connections and
 - add a new **Input** Network connection.
 - Use 0.0.0.0 and port 10110
- On Navionics Boating App add the connection to the Navionics device.
 - Menu / Paired Devices
 - Select the default Comar setting.
 - Host 0.0.0.0 and Port Number 10110.

Navionics Boating App on Phone or Tablet



Notes on Com Ports

- (If you're not sure which Com port is which, unplug one and see which one goes away), then label in OpenCPN, and tape a label on the USB cord.
- Also label the exact USB port you plug it into on your computer. (some devices will give a different com port number if plugged into a different port)
- Plugging in a new device, especially with other devices unplugged, may change your com ports!

What we do on Soggy Paws

- All connections go into the Nav Computer
- Backup devices are configured but disabled (eg. USB GPS)
- OpenCPN has an “output” capability that broadcasts info over the boat wifi network.
- Tablets and mobile phones can receive position, instrument data, and AIS over the boat wifi.
- OpenCPN and Navionics on mobile devices and laptops can receive the same data simultaneously
- Imagine watching your depth sounder numbers while standing on the bow looking for coral heads!
- A bit tricky to set up initially—once working, back it up and write it down!!!

Options

Display
 Charts
 Connections
 Ships
 User Interface
 Plugins

General

Filter NMEA Course and Speed data Filter period (sec)

 Show NMEA Debug Window

 Format uploads for Furuno GP3X

 Use Garmin GRMN (Host) mode for uploads

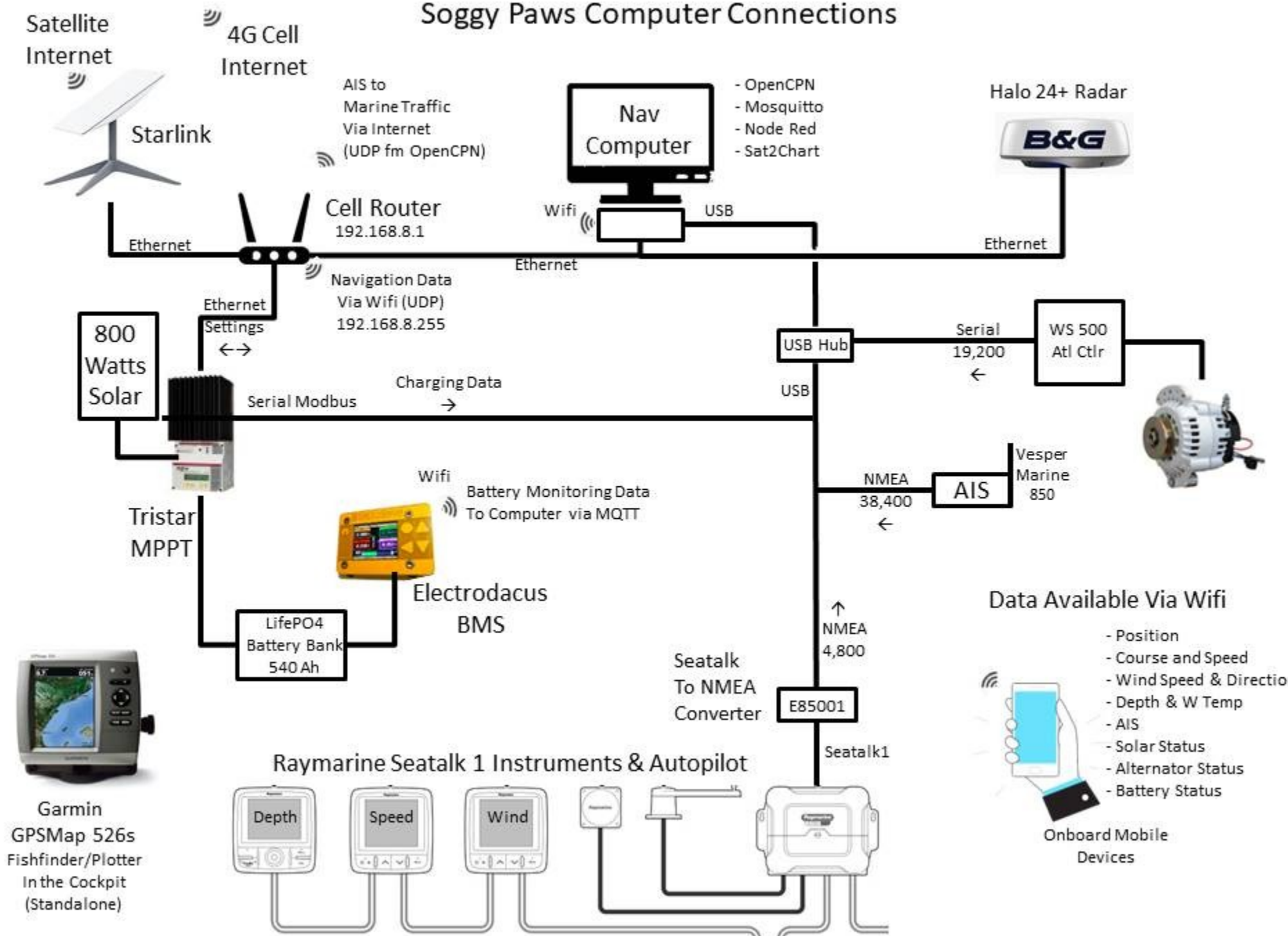
 Use magnetic bearings in output sentence APB

 NMEA0183 Talker ID

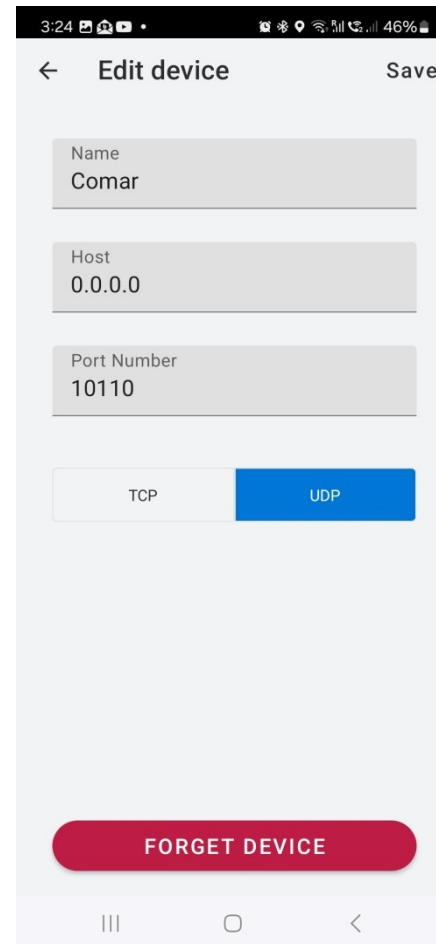
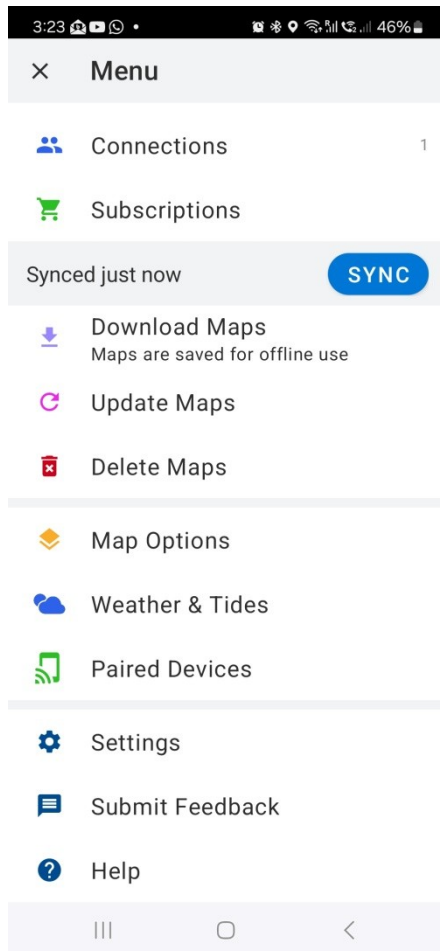
Data Connections

<input checked="" type="checkbox"/>	Enable	Type	Direction	Protocol	Serial Port	Baudrate	AIS
	Serial	Input	NMEA 0183	COM4	38400		
Comment: Watchmate AIS							
<input type="checkbox"/>	Enable	Type	Direction	Protocol	Serial Port	Baudrate	Garmin Hand Held (Backup)
	Serial	Input	NMEA 0183	Garmin-USB	4800		
Comment: Garmin USB Spanner Mode							
<input checked="" type="checkbox"/>	Enable	Type	Direction	Protocol	Serial Port	Baudrate	Raymarine Instruments
	Serial	Input	NMEA 0183	COM3	4800		
Comment: NMEA Instruments							
<input checked="" type="checkbox"/>	Enable	Type	Direction	Protocol	Network Address	Network Port	AIS to Marine Traffic
	Network	Output	UDP N0183	5.9.207.224	11305		
Comment: Marine Traffic Broadcast							
<input checked="" type="checkbox"/>	Enable	Type	Direction	Protocol	Network Address	Network Port	Everything to Local Network
	Network	Output	UDP N0183	192.168.6.255	10110		
Comment: Local NMEA Broadcast							
<input type="checkbox"/>	Enable	Type	Direction	Protocol	Network Address	Network Port	Get data from Another computer
	Network	Input	UDP N0183	0.0.0.0	10110		
Comment: Receive data via network							

Soggy Paws Computer Connections



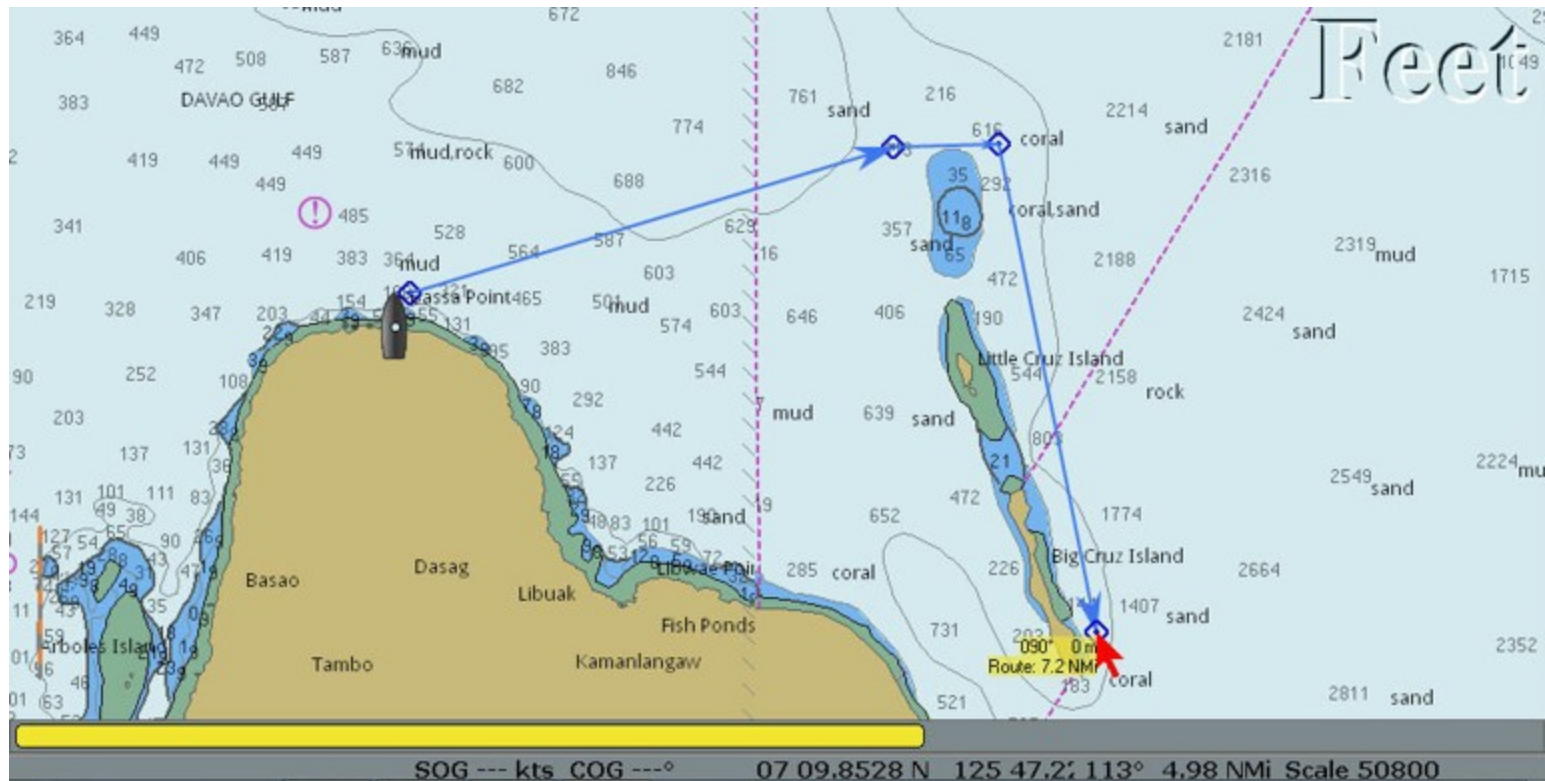
Navionics Setup on Phone/Tablet



Routes

Create a Route

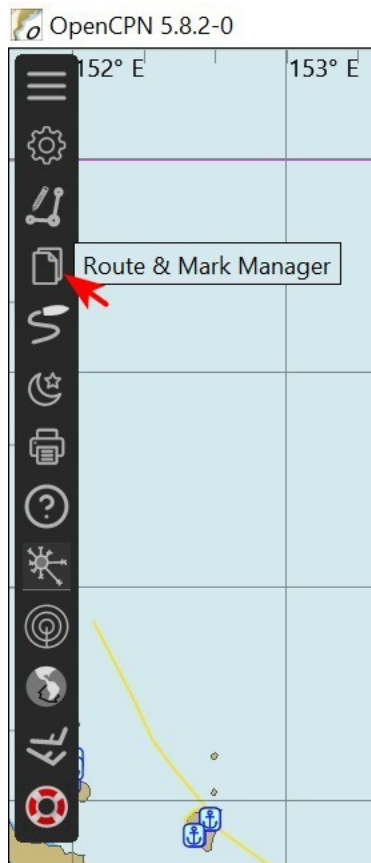
- Continue dropping waypoints (with a click) until you are finished.
- Press the ESC key to stop



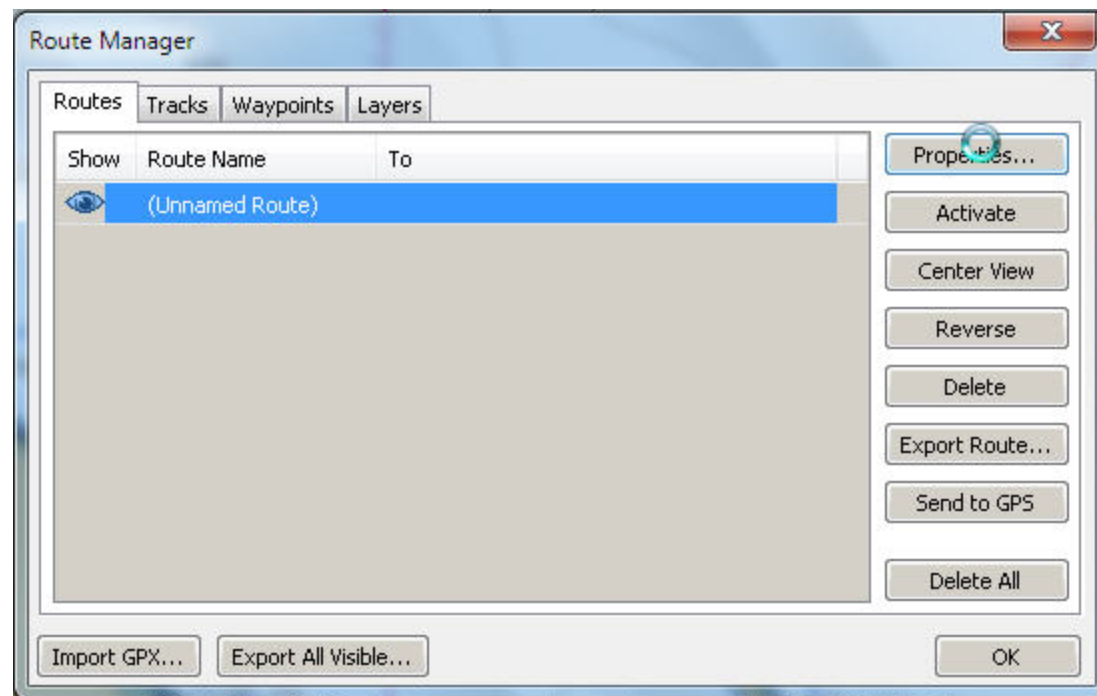
Routes

Editing/Viewing a Route

Open the Route Manager
from the toolbar



On the Routes tab,
select the new route
and click Properties



Routes

Editing/Viewing a Route

- Name the route (for future reference)
- Check distances and estimate ETA's

Route Properties

Basic | **Advanced**

Name

From To

Distance Plan speed Enroute Departure Time Color Style Width

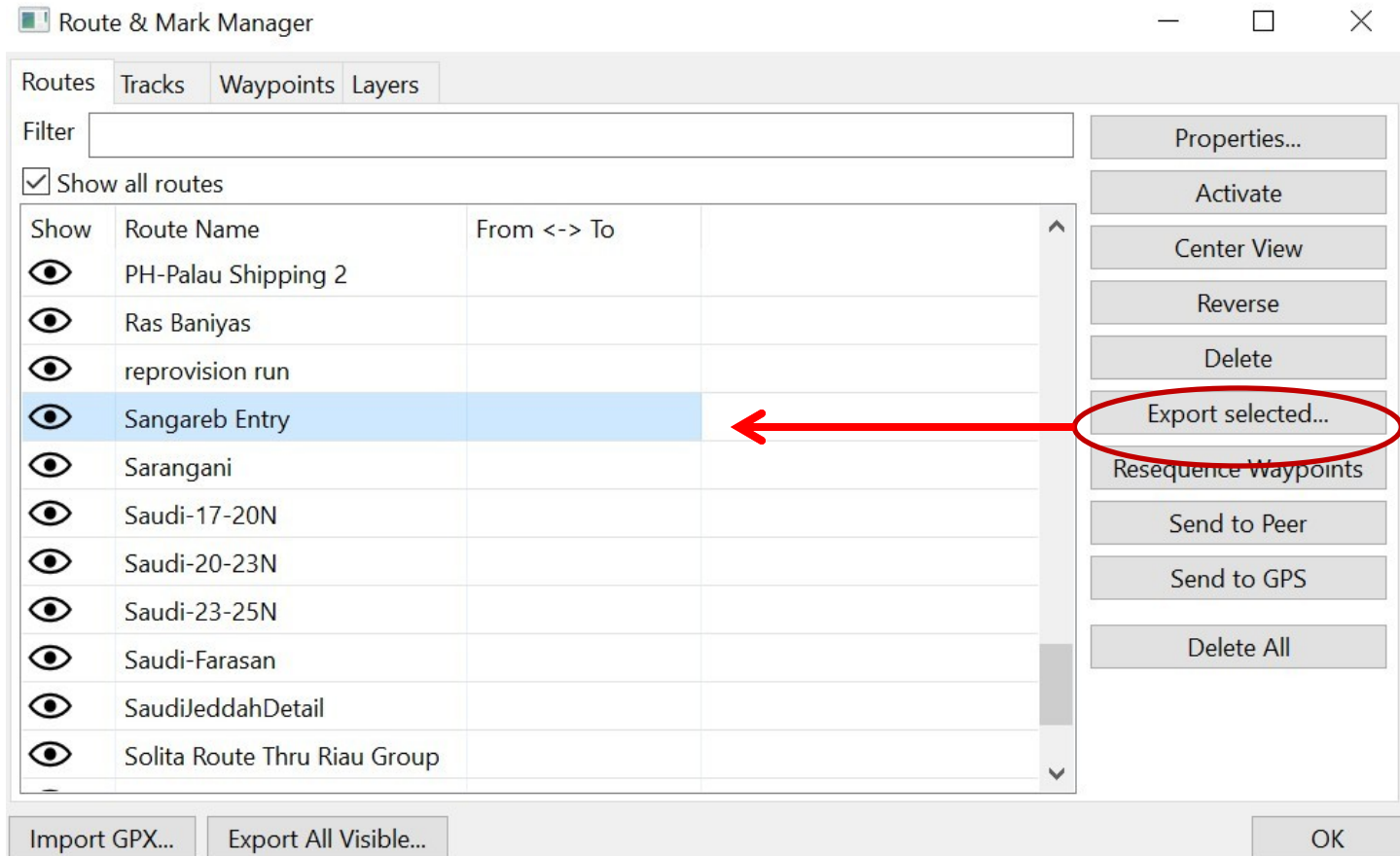
L...	To way...	Dista...	Bear...	Total Dist...	Latitude	Longitu...	ETE	ETA	Spe...	Next tide ...	Description	Course	ETD
---	FEND1	1684....	288 °T	0.0 NMi	22° 53.4'...	036° 18...	11d 16...	Start: 5/12/2...	6			248 °T	
1	FEND2	0.4 N...	248 °T	0.4 NMi	22° 53.3'...	036° 18...	3M 58S	5/12/2023 1...	6			334 °T	
2	Sha'ab ...	0.2 N...	334 °T	0.6 NMi	22° 53.5'...	036° 18...	2M 5S	5/12/2023 1...	6	HW: 5/12...	degrees and h	Arrived	

Print Extend Split OK Cancel

Routes

Save/Export a Route

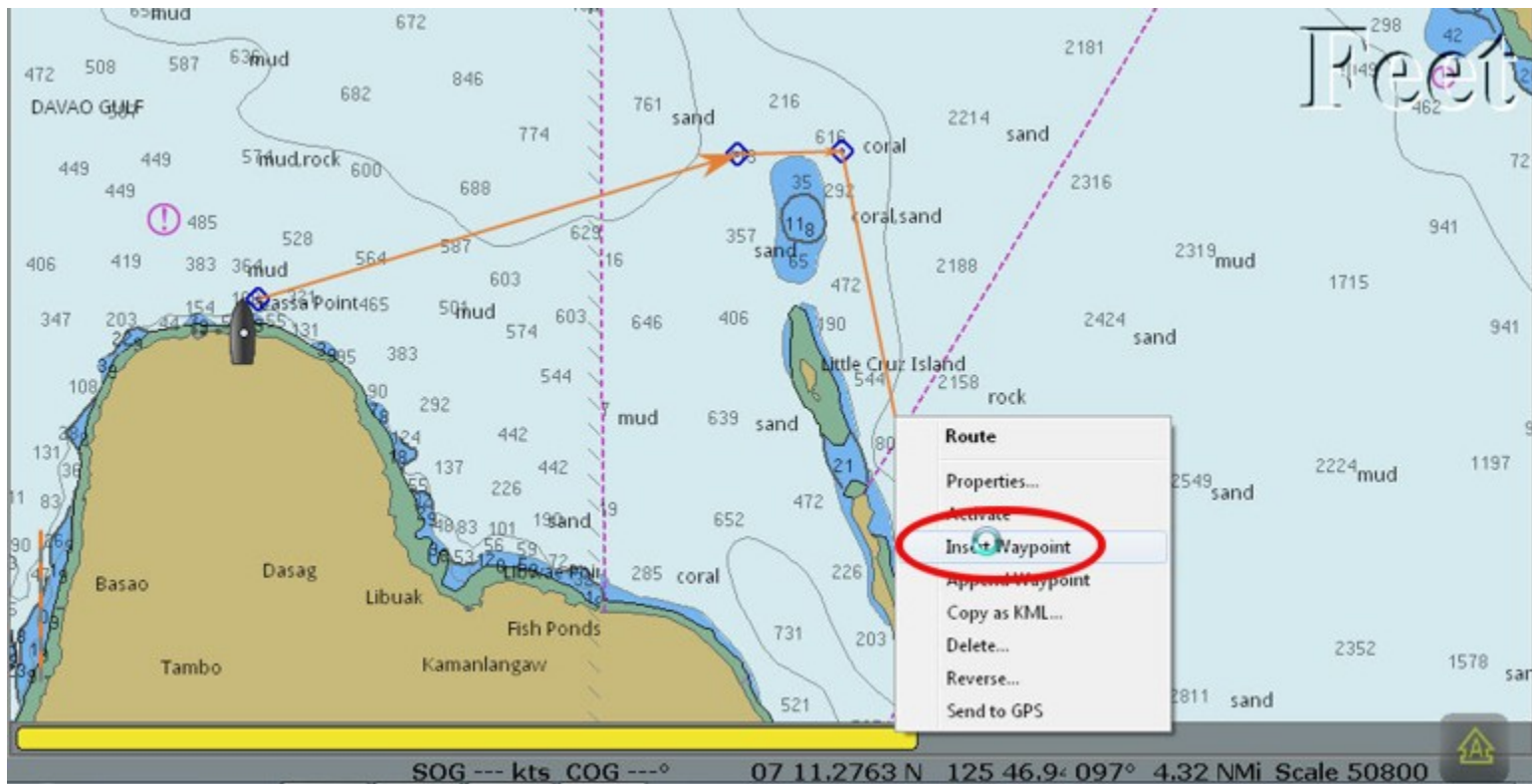
- To save a route outside of OpenCPN (for backup, to share with others)
 - Highlight route
 - Click Export Selected and Save as a file



Routes

Change a Route

- To change a route
 - Right click on a point on the route
 - Select “Insert Waypoint”



Routes

Change a Route

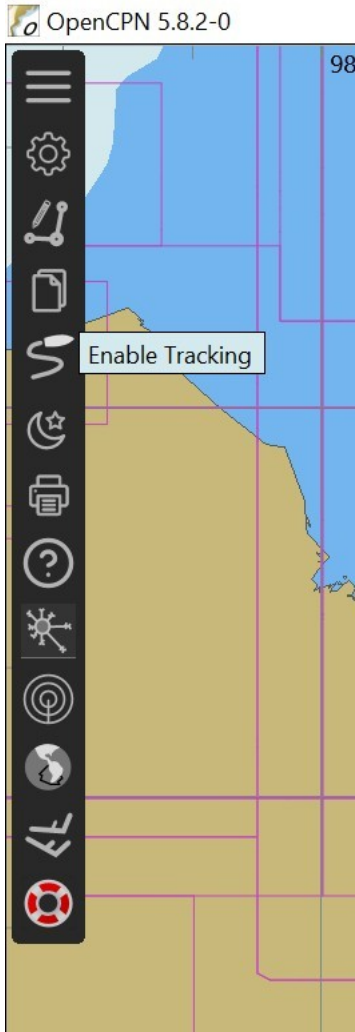
If you can't drag a waypoint, check settings

The screenshot shows the 'Options' dialog box with the 'Routes/Points' tab selected. The 'Ships' icon is highlighted in the top navigation bar. The 'New Routes' section includes a 'Waypoint default icon' dropdown set to 'Diamond', a 'Waypoint Arrival Circle Radius (NMi)' text box with '0.050', and an unchecked checkbox for 'Advance route waypoint on arrival only'. The 'New Waypoints' section includes a 'Waypoint default icon' dropdown set to 'Anchorage', a checked checkbox for 'Show waypoints only at a chartscale greater than 1:' with a text box containing '5000000', an unchecked checkbox for 'Override the settings for chartscale based visibility and show always', and a 'Waypoint range rings' dropdown set to 'None'. The 'Control Options' section at the bottom has a red circle around the 'Lock Waypoints (Unless waypoint property dialog visible)' checkbox, with a red arrow pointing to it from the text on the left. The 'Confirm deletion of tracks and routes' checkbox is checked. At the bottom right are 'OK', 'Cancel', and 'Apply' buttons.

Tracks

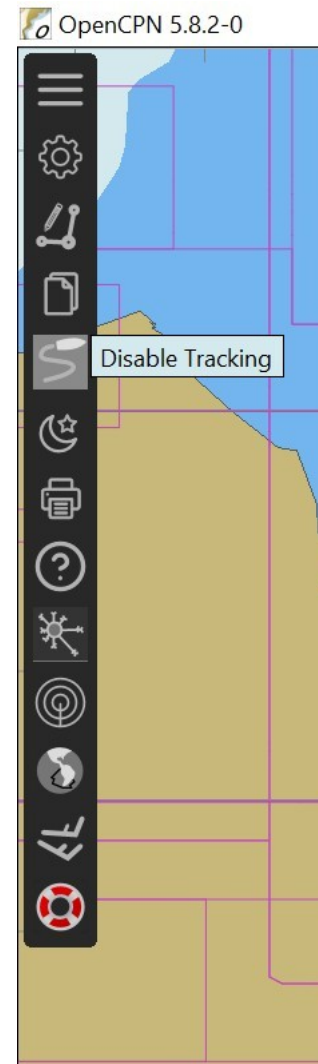
Click on the Tracking Icon to activate tracking

Creating a Track



Now it is highlighted
Click again to Disable

Tracking precision
Is set in
Options/Ships/Own Ship
- Medium is good



Tracks

Creating a Track



Tracks

Saving Tracks

The screenshot shows the OpenCPN 3.0.2 interface. The 'Route Manager' dialog box is open, displaying a table of tracks. The track '2013-02-09 02:24:02' with a length of 4.97 is selected and circled in red. The 'Export Track...' button is also circled in red. A text box on the left contains the text: 'Like routes, You can rename, Save offline, Import, etc'. The 'Dashboard' window in the bottom right shows the current position (007 09.551 N, 125 46.687 E), SOG (0.00 Kts), COG (140 Deg), and a timestamp (10:27:41 9Feb13). The status bar at the bottom displays various navigation parameters.

Like routes,
You can rename,
Save offline,
Import, etc

Track name	Length
2013-02-09 02:24:02	4.97

Dashboard

Position
007 09.551 N
125 46.687 E

SOG
0.00 Kts

COG
140 Deg

10:27:41 9Feb13

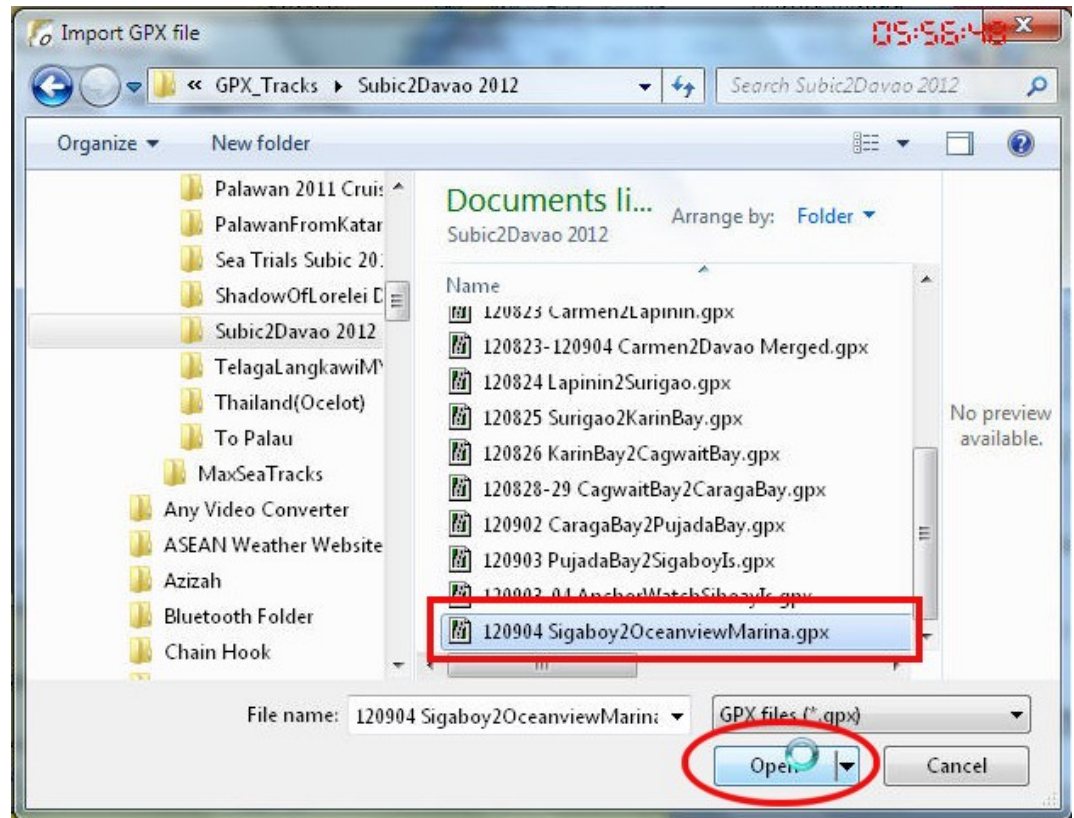
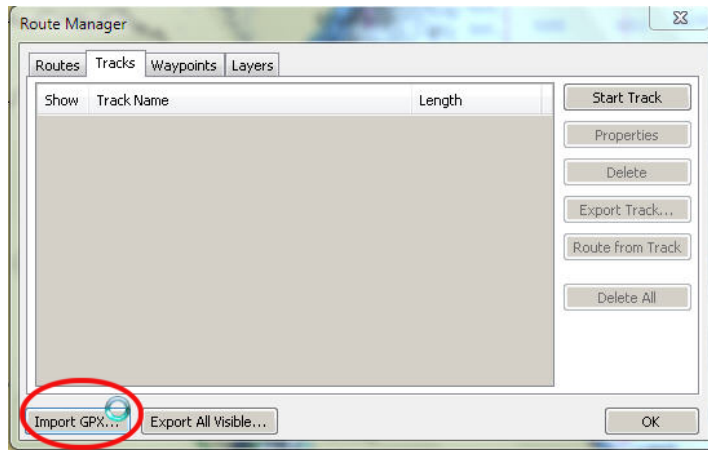
/ Ship: 007 09.5511 N 125 46.6878 | SOG: 0.00 kts COG: 140 Deg | Cursor: 007 11.1966 N 125 46.6088 E | From Ownship: 357 Deg 1.65 INH | TrueScale: 51400

Importing Tracks

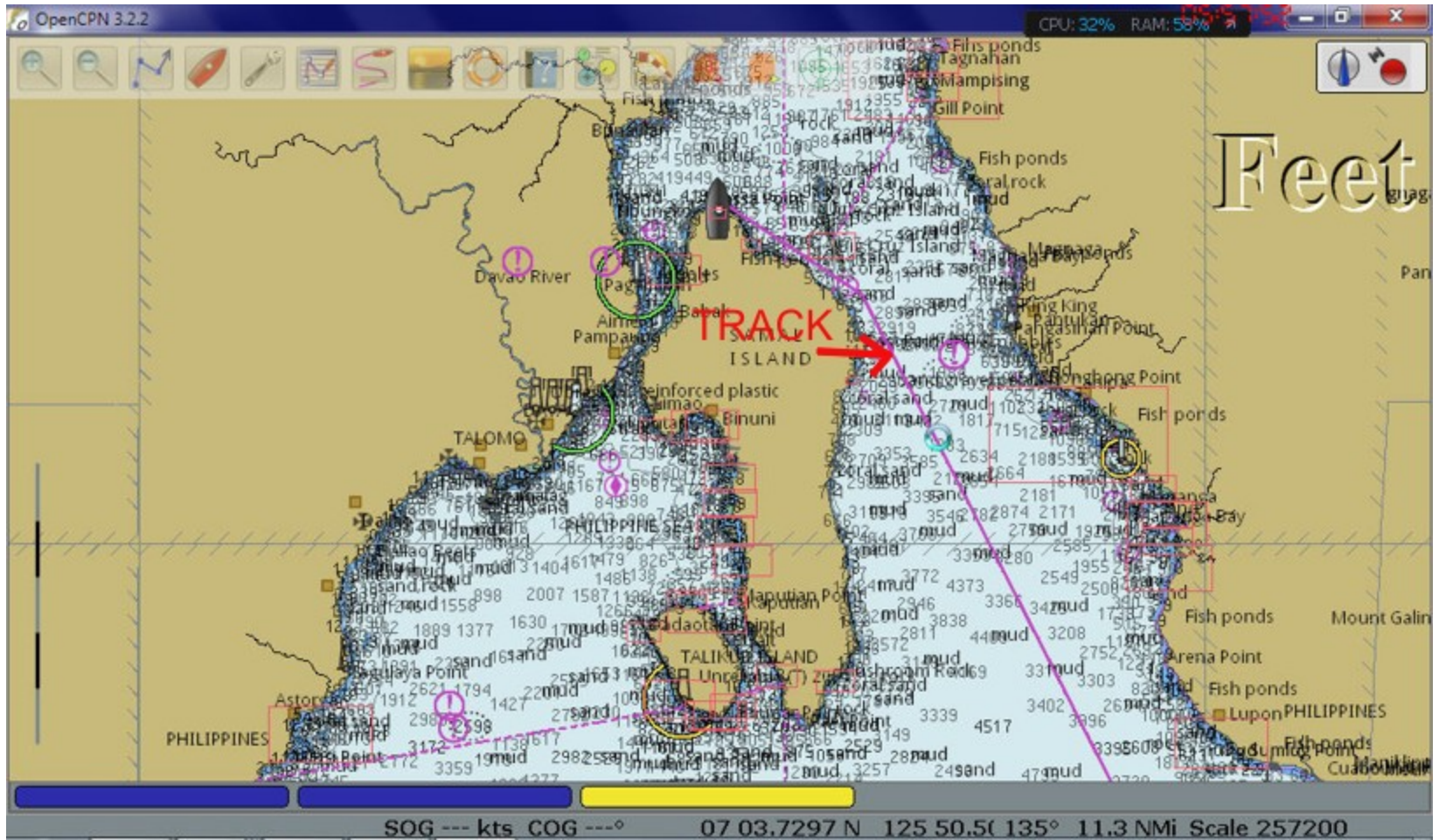
Route Manager

- Select Tracks tab
- Click on Import

Navigate to saved tracks location
Click Open

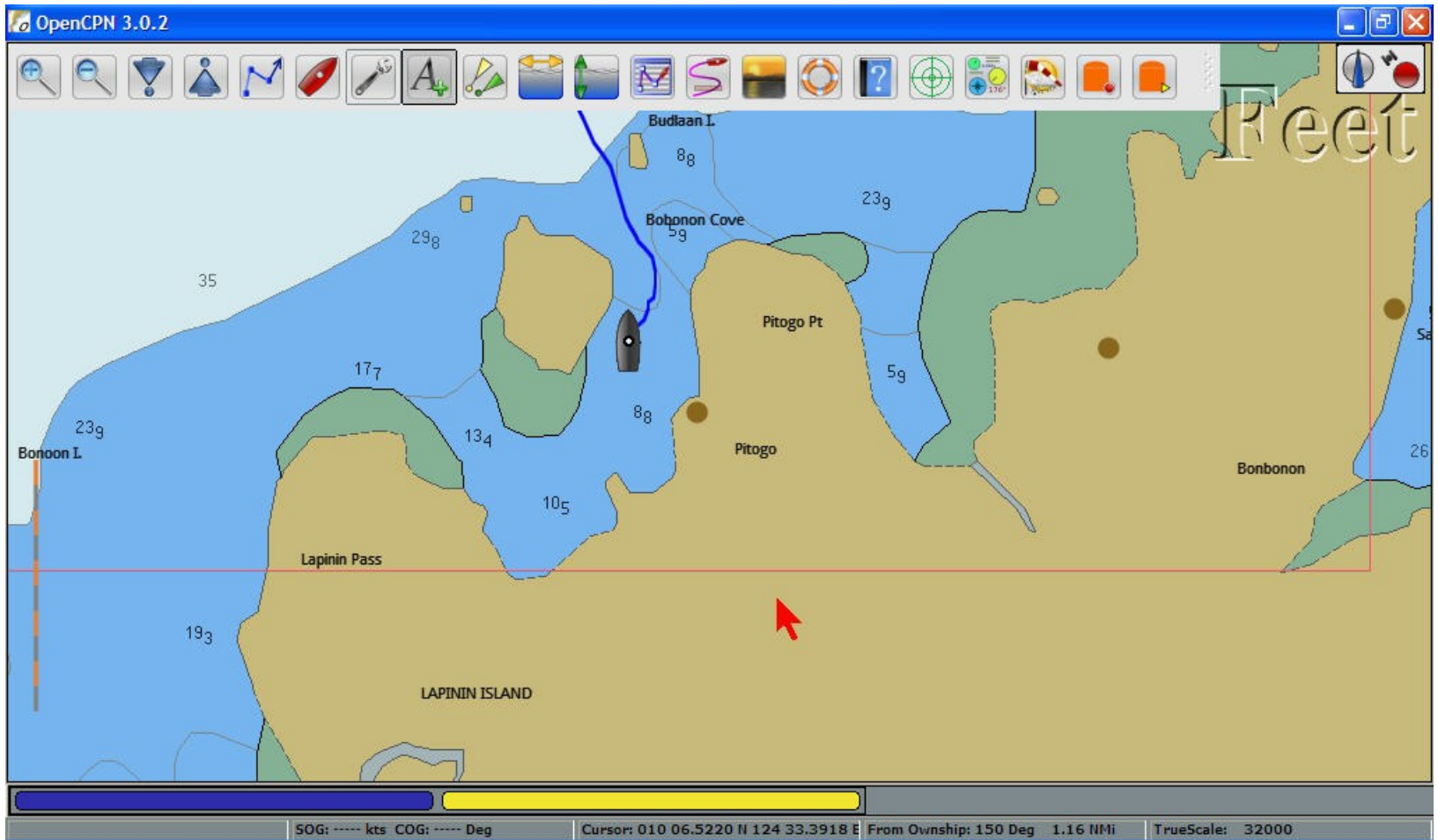


Importing Tracks



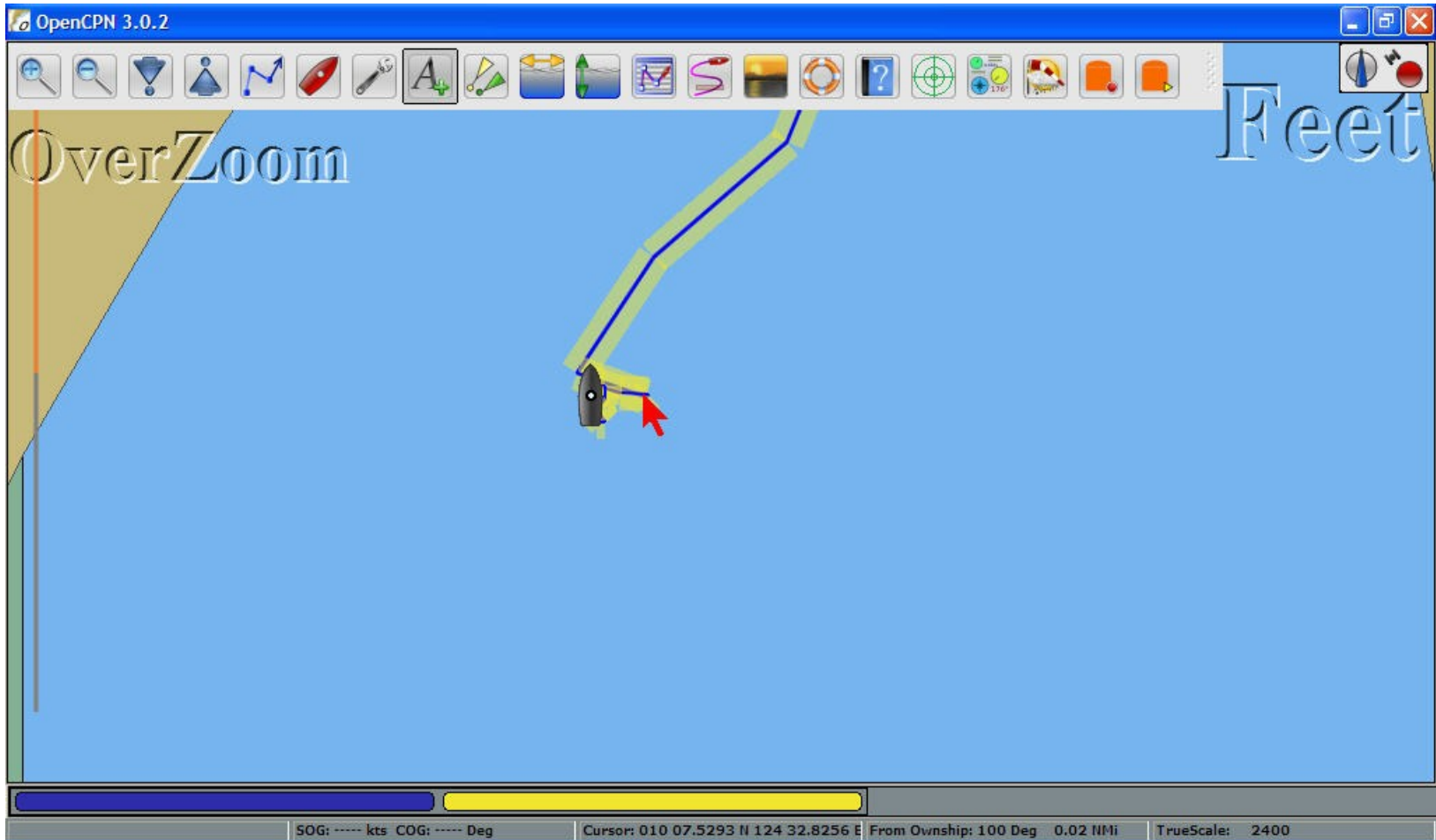
Saving Waypoints (Marks)

Shown below is the arrival at an anchorage



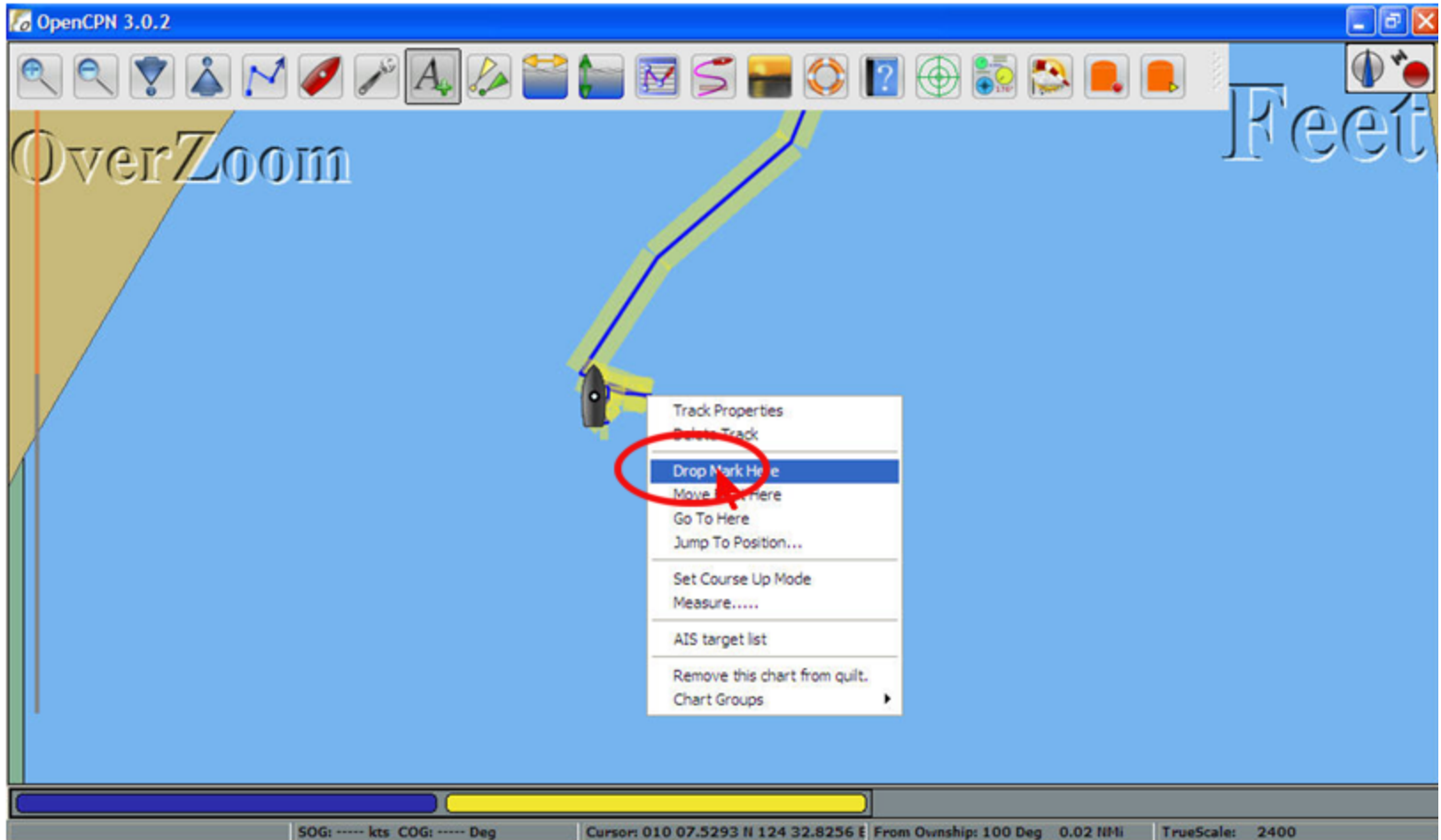
Saving Waypoints (Marks)

Zoom in to see where the anchor was dropped



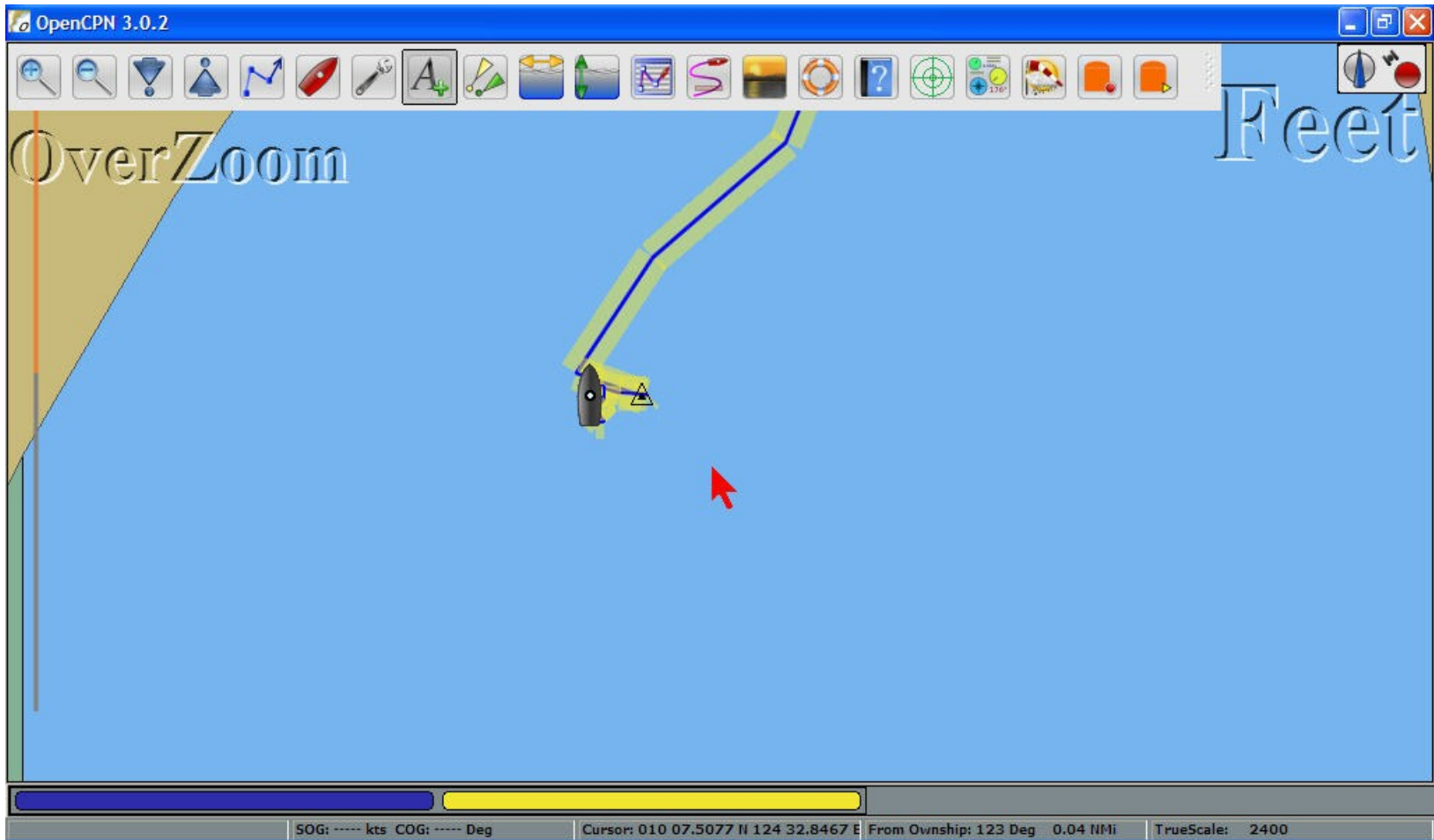
Saving Waypoints (Marks)

RIGHT-CLICK AND CLICK ON 'Drop Mark (Ctl-M)'



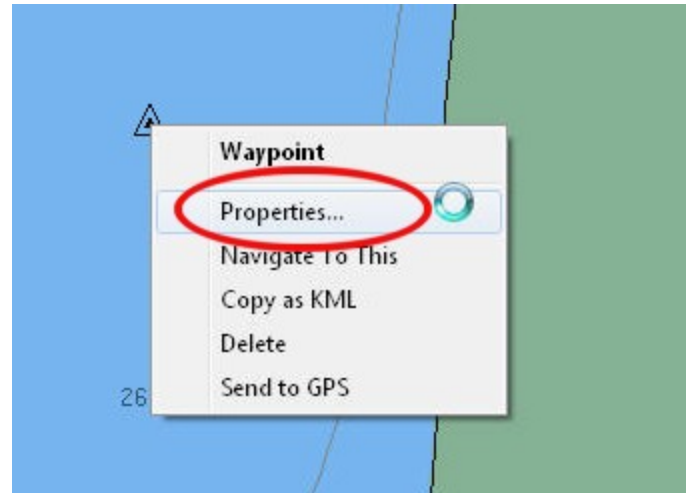
Saving Waypoints (Marks)

A MARK APPEARS AT THE SELECTED POINT
(Which mark type depends on your mark defaults)



Changing Waypoints (Marks)

Right-click on the mark
and select 'Properties'
Or
Double-click on mark



Changing Waypoints (Marks)

Change waypoint icon
to a different icon,
Add descriptive info

The screenshot shows a 'Waypoint Properties' dialog box with three tabs: 'Basic', 'Description', and 'Extended'. The 'Basic' tab is active and contains the following fields:

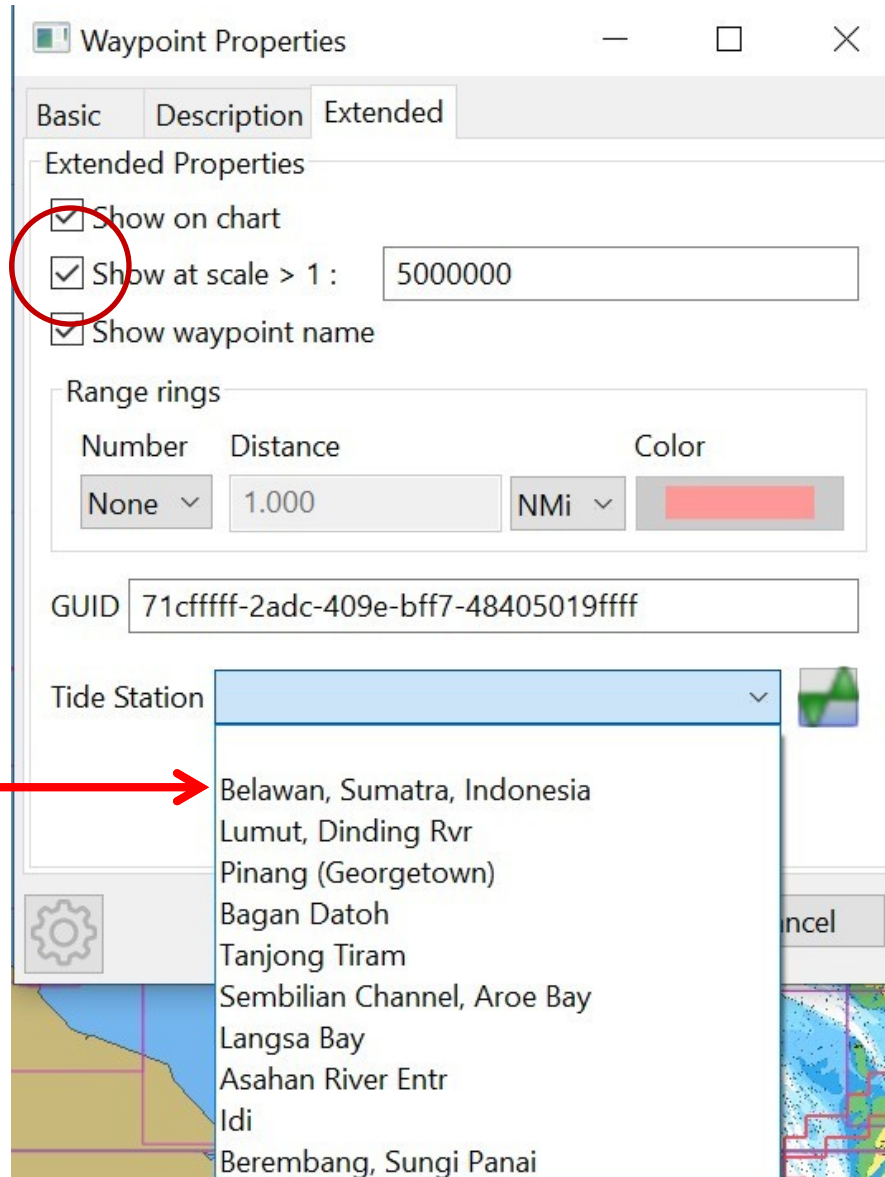
- Name:** GIVE ME A NAME PLEASE
- Show name:**
- Icon:** Anchorage (with an anchor icon)
- Latitude:** 04° 35.2590' N
- Longitude:** 099° 32.2891' E
- Description:** April 2023 - Anchored in 5m sand in clear water. Good protection from NE. Good Telkomsel 4G signal. - SOGGY PAWS
- Links:** (empty)

At the bottom of the dialog, there is a gear icon on the left, and 'OK' and 'Cancel' buttons on the right.

Waypoints Extended Info

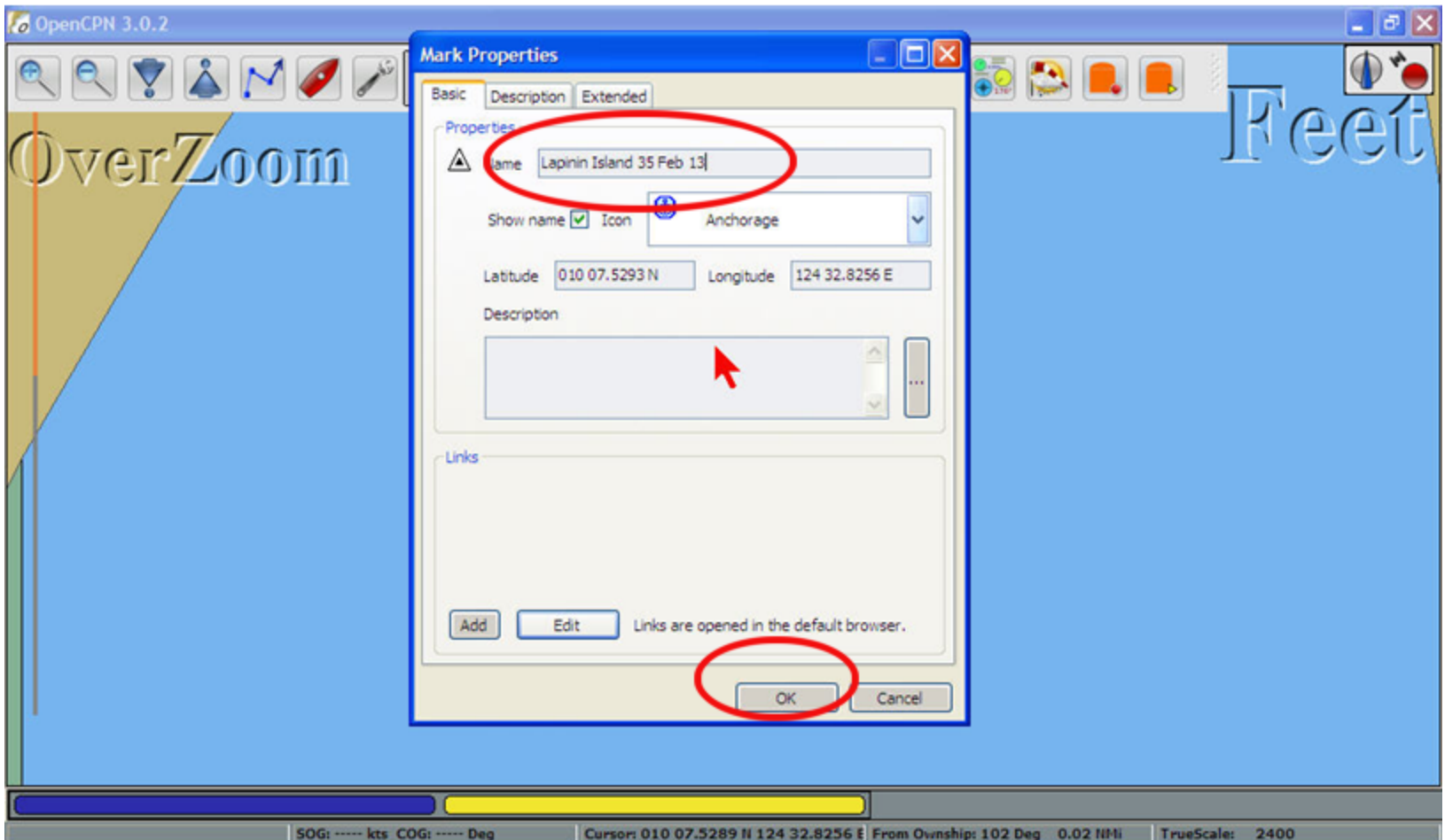
Hide waypoints
On zoom out
(set as default
For new wpts)

Select Tide Station
(closest tide to the
wpt is listed first)

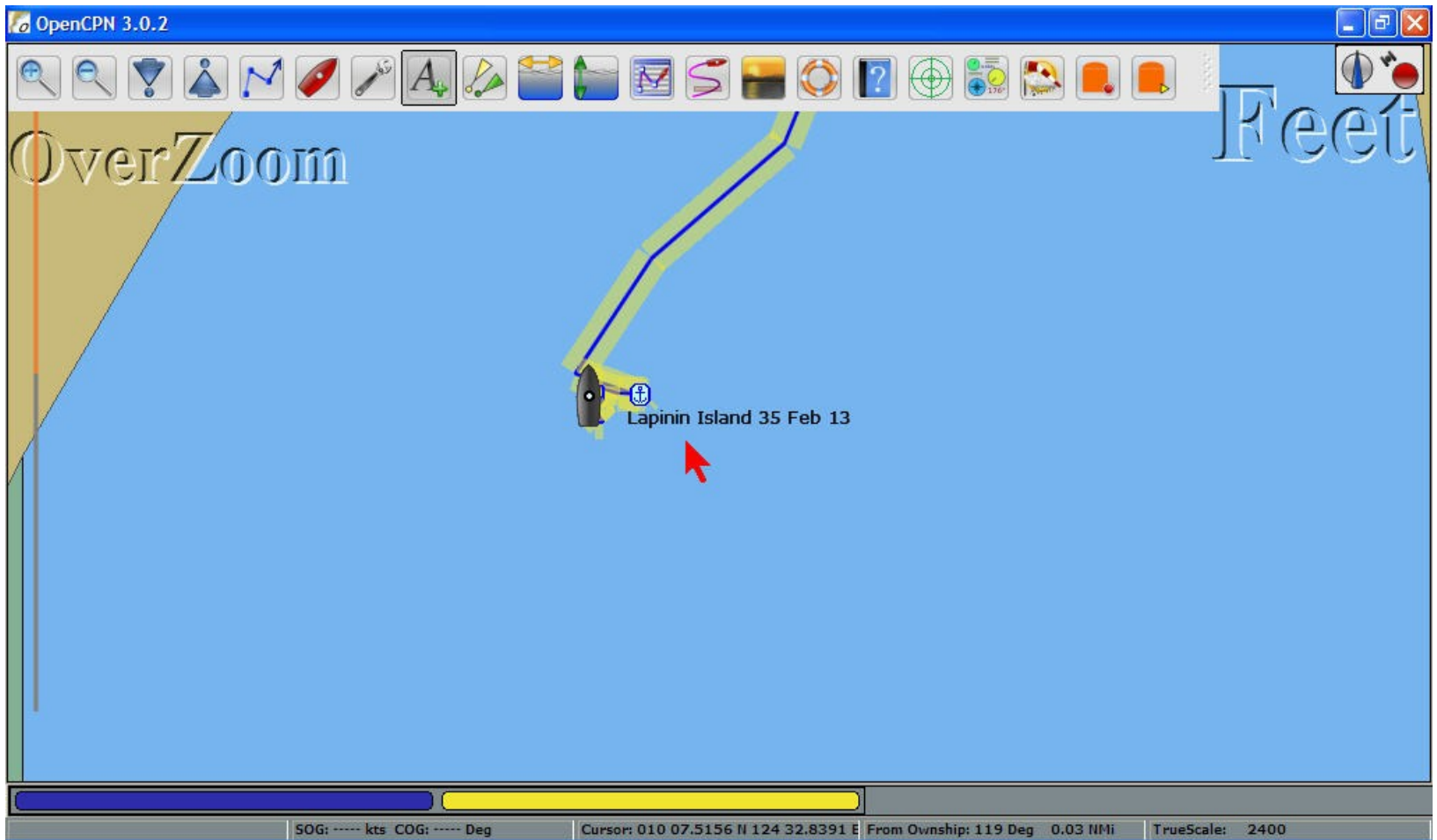


Changing Waypoints (Marks)

Also change name, and add a short description



Changing Waypoints (Marks)



Saving Waypoints (Marks)

Waypoints can be manipulated just like routes and tracks

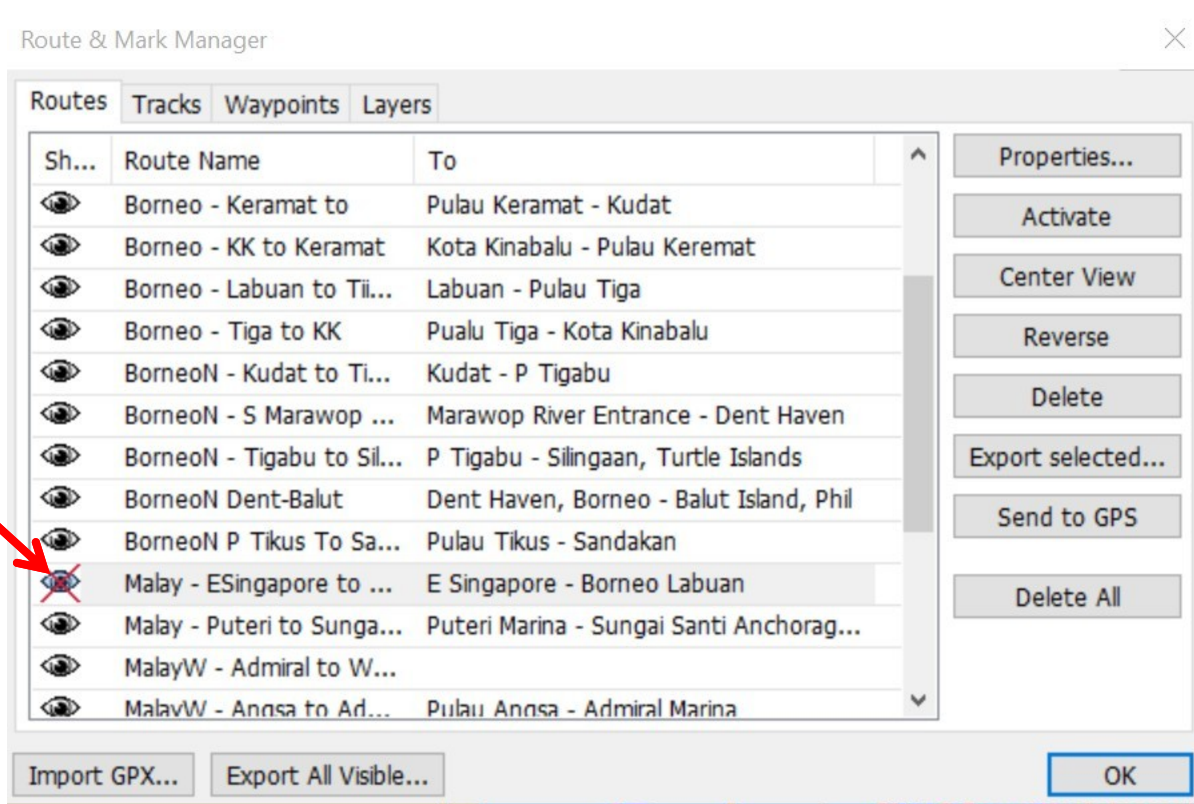
- Export to file
- Import from file

Waypoints can also be exported in groups

At the end of a sailing season, export Routes, Waypoints, Tracks to files

Hiding and Un-Hiding Routes and Tracks

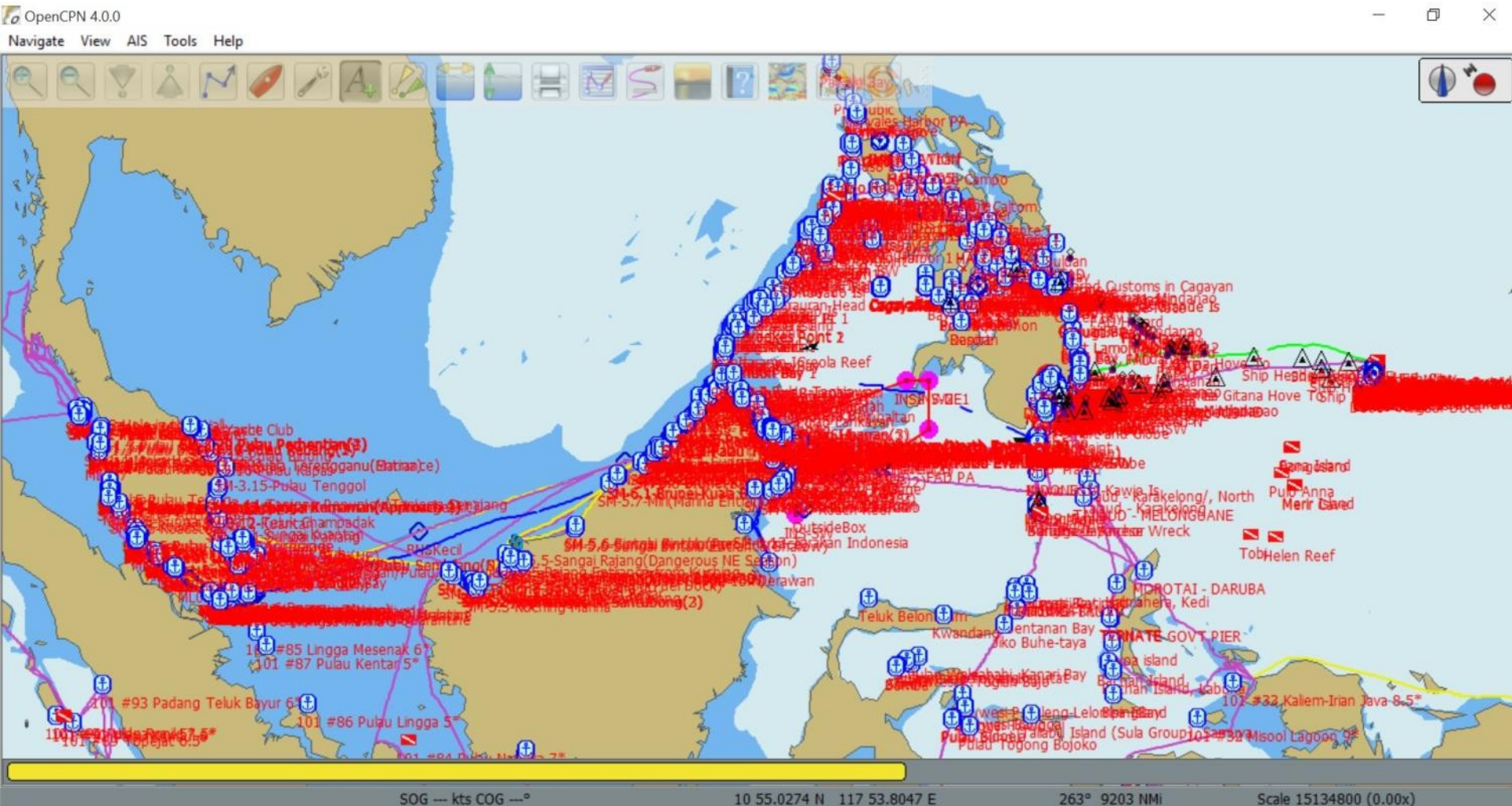
Hidden Route



The Power of Layers

- A collection of waypoints, routes, and/or tracks that can be hidden and un-hidden with one click.
- It is kept separate from your own waypoints, routes, and tracks
- Temporary layer – lets you “import” data that stays only until you restart the program
- Permanent layers – Persist until uninstalled
- On the Layers tab of Route Manager

Why You Need Layers



Lots of Shared Info

The screenshot shows the 'Route & Mark Manager' dialog box with the 'Layers' tab selected. The interface includes a filter input field, a 'Show all layers' checkbox, a table of layers, and several control buttons on the right and bottom.

Filter:

Show all layers

	Layer Name	No. of items	Layer type
<input type="checkbox"/>	PNG Solomons	0	Persistent
<input type="checkbox"/>	Raja Ampat Dinghy	16	Persistent
<input type="checkbox"/>	Red Sea Major Ports	17	Persistent
<input type="checkbox"/>	Red Sea Planning Routes-S...	5	Persistent
<input type="checkbox"/>	Red Sea Routes-Complexit...	0	Persistent
<input type="checkbox"/>	Red Sea Tracks	16	Persistent
<input checked="" type="checkbox"/>	Red Sea Waypoints	287	Persistent
<input checked="" type="checkbox"/>	Red Sea-Bebe-From Thaila...	68	Persistent
<input type="checkbox"/>	Screensaver Track 2017	1468	Persistent
<input type="checkbox"/>	Screensaver Track 2018	898	Persistent
<input type="checkbox"/>	Soggy Paws 2015 Notes a...	20	Persistent

Buttons on the right:
Create Temporary layer
Create Persistent layer
Delete
 Show on chart
 Show WPT names
 List contents

Buttons at the bottom:
Import GPX...
Export All Visible...
OK

Importing Others' GPX Files

- If you just Import
 - Intermingles with your routes/tracks/wpts
 - Difficult to get rid of
 - Eventually impacts performance
- Import as Temporary Layer
 - Lets you temporarily load a GPX file to see what's in it
 - Can delete the layer in the Layers tab (doesn't delete the file) or just close OpenCPN

Importing Others' GPX Files

On OpenCPN open the Route Manager and click on the 'Layers' tab

**Import as
Temporary
or
Permanent
Layer**

Route & Mark Manager

Routes Tracks Marks Layers

Filter

Show all layers

	Layer Name	No. of items	Layer type
<input type="checkbox"/>	PNG Solomons	0	Persistent
<input type="checkbox"/>	Raja Ampat Dinghy	16	Persistent
<input type="checkbox"/>	Red Sea Major Ports	17	Persistent
<input type="checkbox"/>	Red Sea Planning Routes-S...	5	Persistent
<input type="checkbox"/>	Red Sea Routes-Complexit...	0	Persistent
<input type="checkbox"/>	Red Sea Tracks	16	Persistent
<input checked="" type="checkbox"/>	Red Sea Waypoints	287	Persistent
<input checked="" type="checkbox"/>	Red Sea-Bebe-From Thaila...	68	Persistent
<input type="checkbox"/>	Screensaver Track 2017	1468	Persistent
<input type="checkbox"/>	Track 2018	898	Persistent
<input type="checkbox"/>	2015 Notes a...	20	Persistent

Create Temporary layer

Create Persistent layer

Delete

Show on chart

Show WPT names

List contents

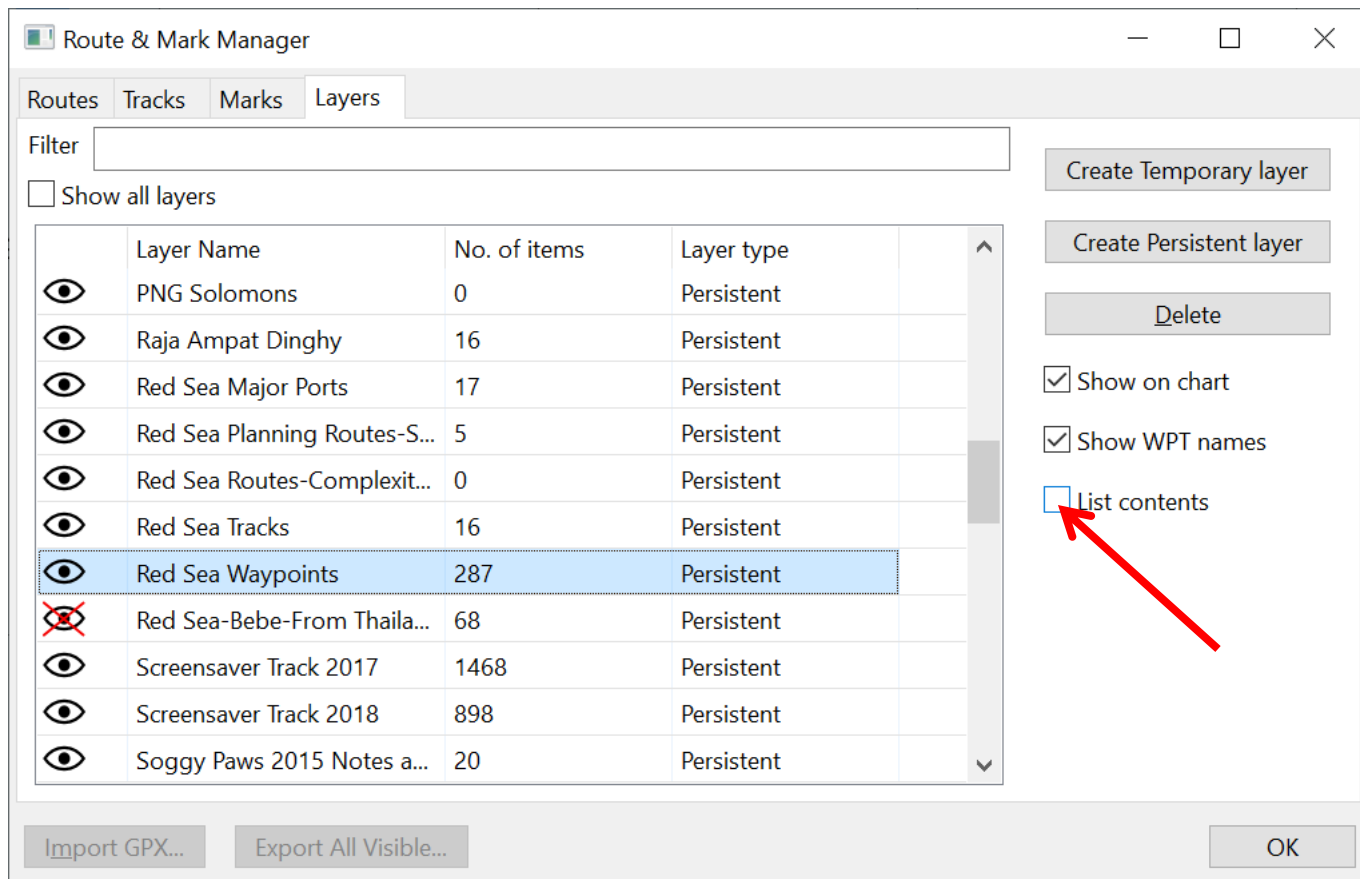
Import GPX...

Export All Visible...

OK 98

Exploring OpenCPN – LAYERS

If “List Contents” is not selected, the individual waypoints, routes, and tracks won’t show in your waypoint list



For the Geeks: What A GPX File Looks Like

```
Sail Malaysia Waypoints.gpx * SciTE
File Edit Search View Tools Options Language Buffers Help
1 Sail Malaysia Waypoints.gpx *
1  <?xml version="1.0"?>
2  - <gpx version="1.1" creator="OpenCPN" xmlns:xsi="http://www.w3.org/2001/XMLSchema
3  - <wpt lat="2.513166667" lon="101.803833333">
4    <time>2013-11-16T08:34:56Z</time>
5    <name>SM-1.11-Palau Burung 2</name>
6    <sym>anchorage</sym>
7    <type>WPT</type>
8  - <extensions>
9    <opencpn:guid>4c1dffff-af83-4f1f-9224-0a5271faffff</opencpn:guid>
10   <opencpn:viz_name>1</opencpn:viz_name>
11  </extensions>
12 </wpt>
13 - <wpt lat="2.542833333" lon="101.785500000">
14   <time>2013-11-16T08:33:40Z</time>
15   <name>SM-1.11-Pulau Burung</name>
16   <sym>anchorage</sym>
17   <type>WPT</type>
18 - <extensions>
19   <opencpn:guid>5efbffff-c757-42e6-a33c-2bd4185d0000</opencpn:guid>
20   <opencpn:viz_name>1</opencpn:viz_name>
21 </extensions>
22 </wpt>
23 - <wpt lat="2.476000000" lon="101.846000000">
24   <time>2013-11-16T08:31:05Z</time>
25   <name>SM-1.12-Port Dickson Admiral Marina</name>
26   <sym>anchorage</sym>
27   <type>WPT</type>
28 - <extensions>
29   <opencpn:guid>71ceffff-787e-4a0d-8b13-d1851b3b0000</opencpn:guid>
30   <opencpn:viz_name>1</opencpn:viz_name>
31 </extensions>
32 </wpt>
```

Structured text (XML)
Can edit with Notepad
I use SciTE
Easy to email (zips well)

Permanent (Persistent) Layers

- Permanent layers, that stay when you restart OpenCPN, are created by importing using the Persistent Layers button.

Advanced Topic: [Organizing your Persistent Layers](#)

Backing Up Your Data

To make a complete backup of all your routes, waypoints, and tracks data,

Copy the entire OpenCPN folder in ProgramData to a backup drive!

(navobj.xml is the OpenCPN database, moving that file to the OpenCPN data folder on a new computer will move all your routes, waypoints, and tracks!)

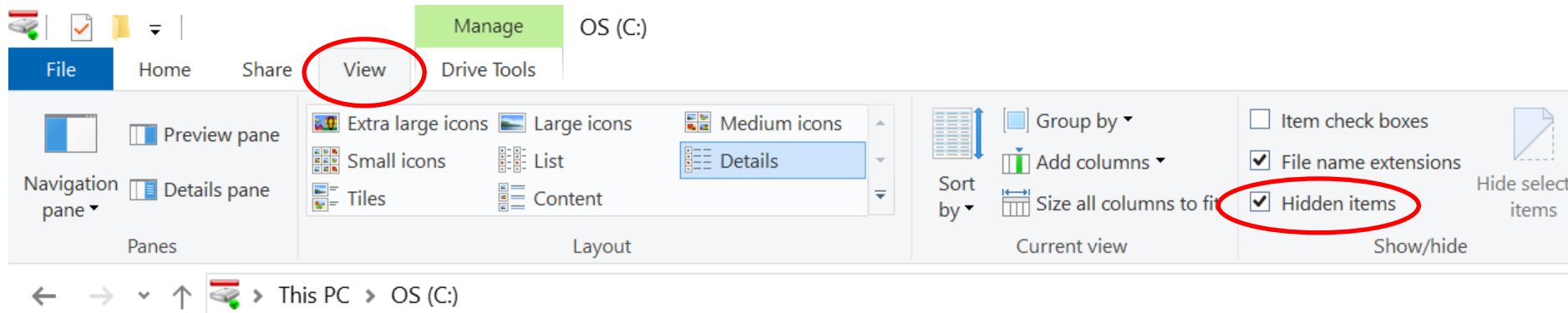
To share ALL your info with someone else, copy navobj.xml somewhere else, and rename it Whatever.gpx

Where to Find Your OpenCPN Data

Windows 7-11, it's in ProgramData

The ProgramData folder is usually hidden—how to unhide?

- On the top bar of any open folder
- On the 'View' tab check the box 'Hidden Items'.
- Only need to do once



C:\ProgramData\opencpn

Adding Functionality with Plugins

- Plugins: Snap-in functionality to extend basic OpenCPN functionality
- Two plugins built-in: Dashboard and Grib
- Others can be downloaded from OpenCPN site

There are about 40 plugins!

Three we'll cover here:



GRIB File – View downloaded GRIB files on chart



Chart Downloader - Download charts from within OpenCPN



Climatology - Planning tool, to help visualize weather patterns. Better data than US Pilot Charts because wx data is updated.

Exploring OpenCPN - Plugins

← → ↻ 🏠 opencpn.org/OpenCPN/info/downloadplugins.html



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[Resources](#)

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[Gallery](#)

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Plugins for OpenCPN

Plugins for OpenCPN 5.6.2 and up

Third party features that expand the functionality of OpenCPN into niche areas.

Use the built in Plugin Manager included with v5.6.2+ to install

AIS/Radar

[↑ AIS Radar View](#)

[↑ Radar PI](#)

[↑ GRadar](#)

[↑ GXRadar](#)

[↑ Navico Radar](#)


[↑ RTL-SDR](#)


Plugins

Options / Plugins

Options ✕

Display Charts Connect Ships User **Plugins**

WMM Enabled 
World Magnetic Model PlugIn for OpenCPN

Dashboard Enabled 
Dashboard PlugIn for OpenCPN

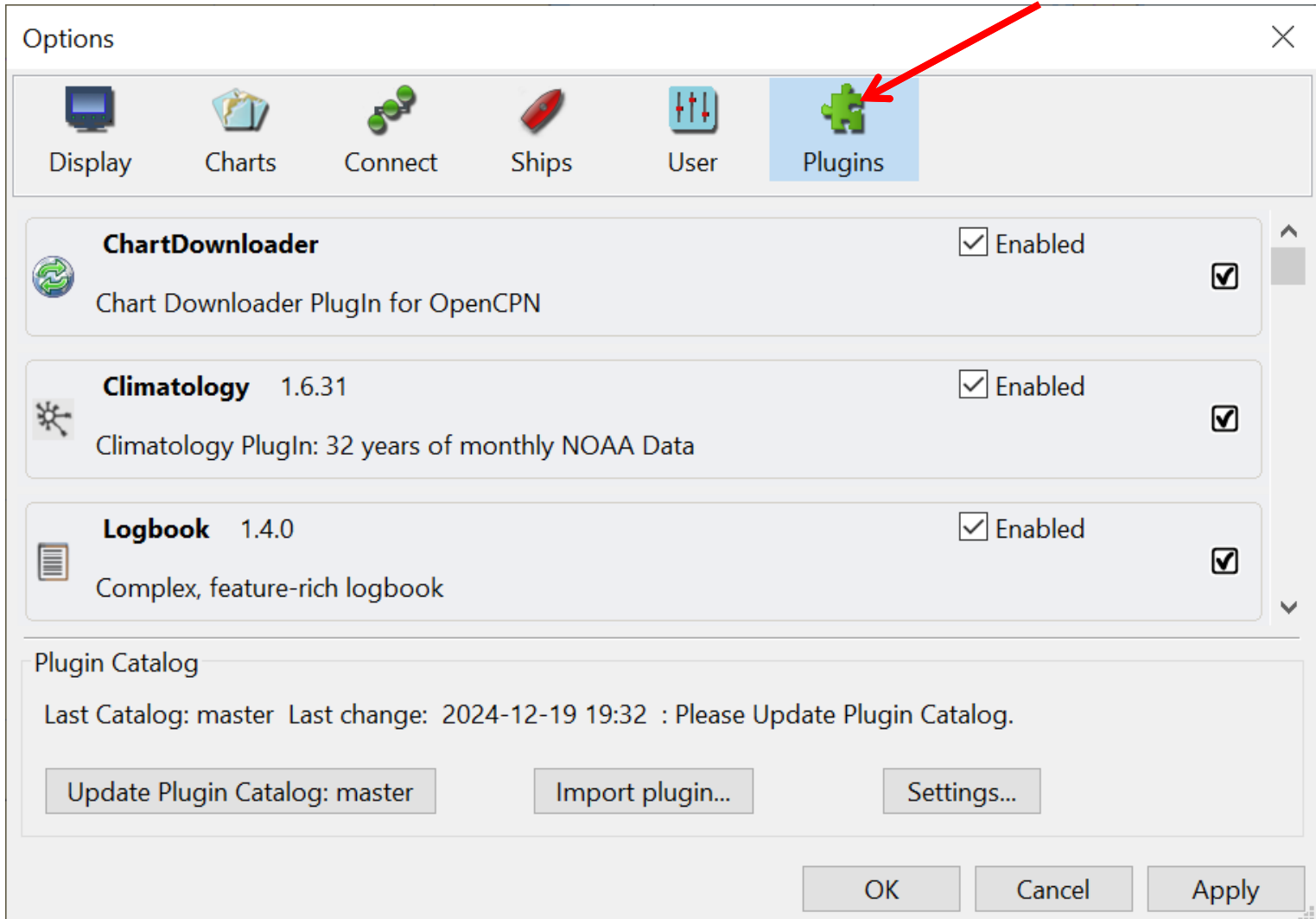
WeatherFax 1.9.56.0 Enabled
Open fax image, decode audio fax, chart overlay

Plugin Catalog
Last Catalog: master Last change: 2023-05-02 14:33 : Please Update Plugin Catalog.

Update Plugin Catalog: master Import plugin... Settings...

1 OK Cancel Apply

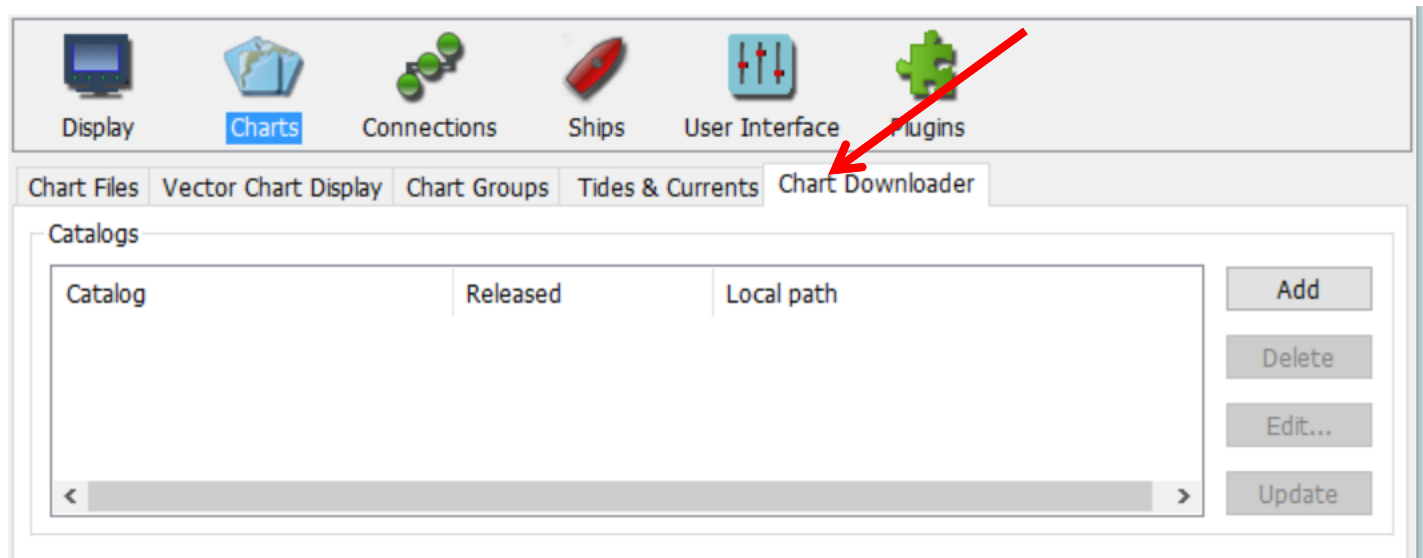
Enable Plugin and Set Preferences



Most Plugins Add a New Icon on the Toolbar

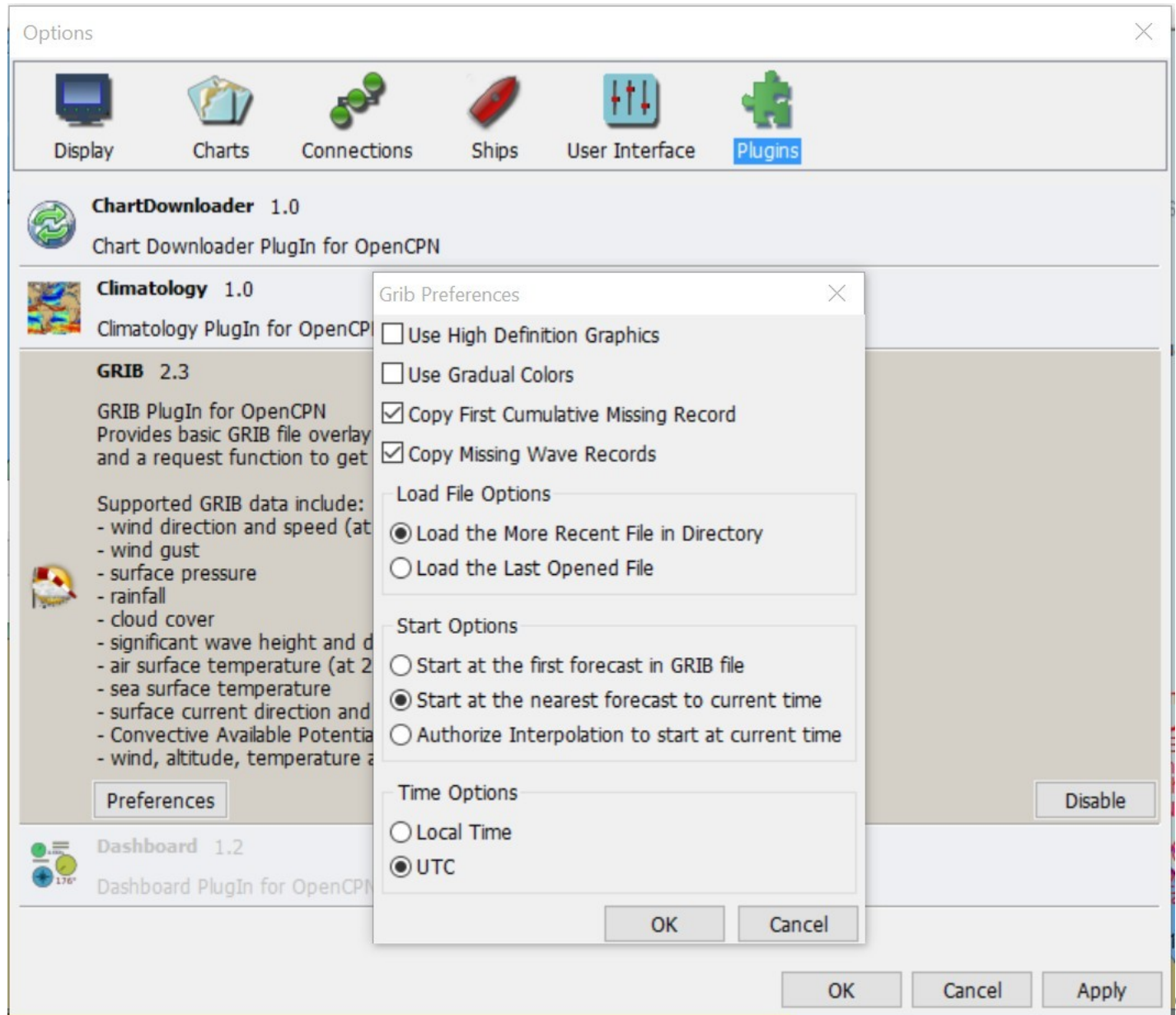
Plug-in Icons

Chart Downloader adds a new tab on the Charts page

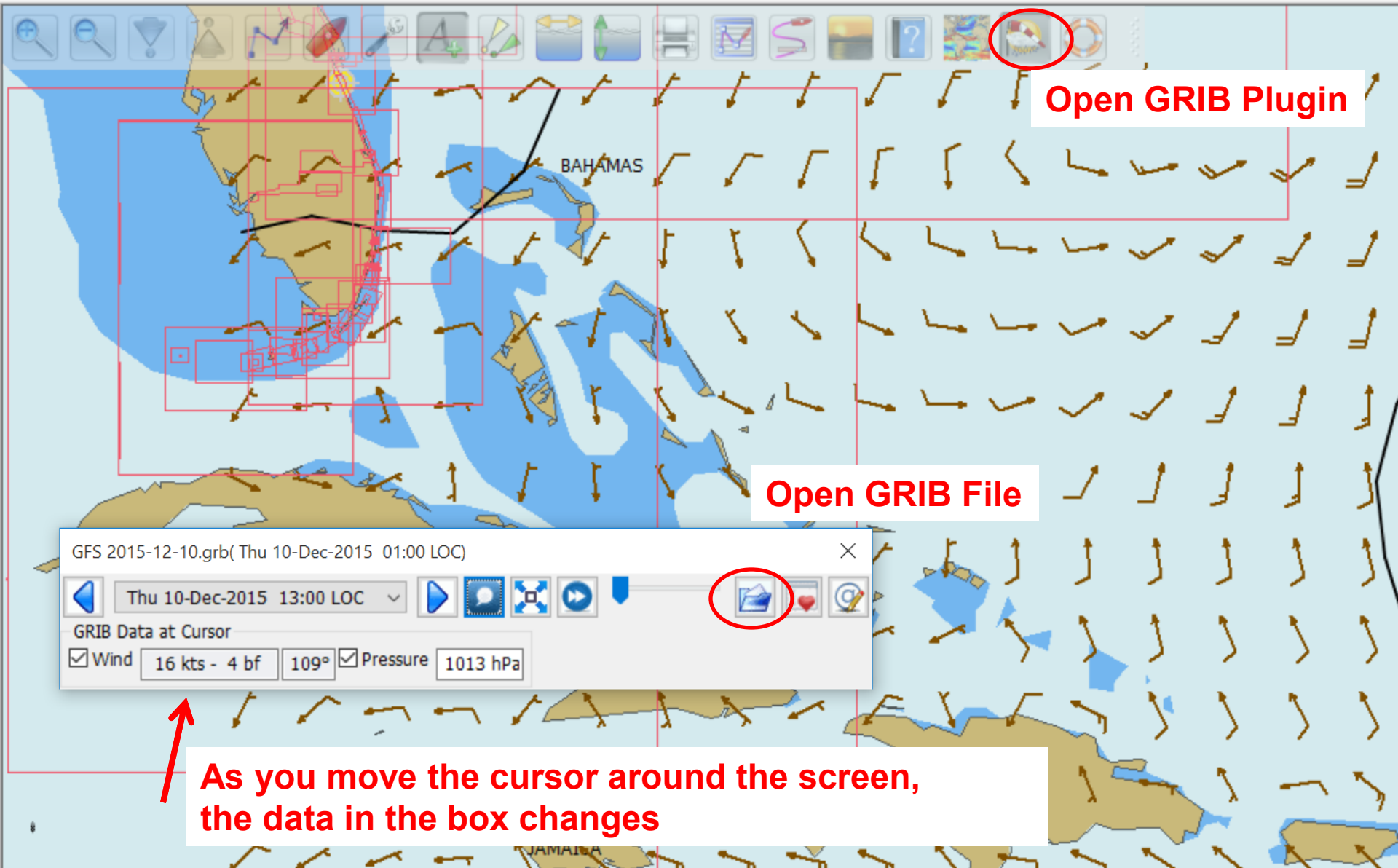


GRIB Plugin

Check
GRIB
Plugin
Preferences



Open GRIB Plugin



Open GRIB Plugin

Open GRIB File

GFS 2015-12-10.grb(Thu 10-Dec-2015 01:00 LOC)

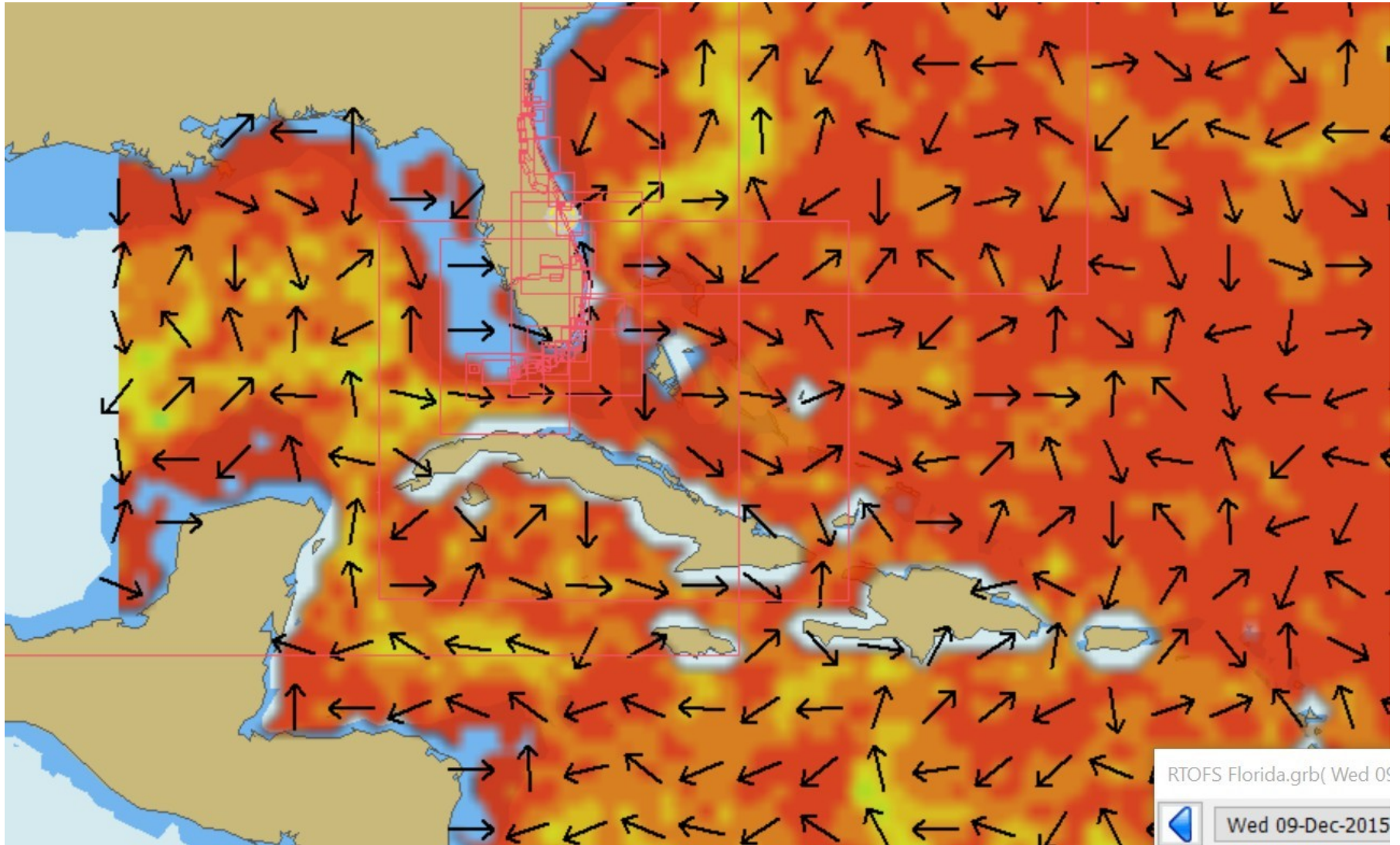
Thu 10-Dec-2015 13:00 LOC

GRIB Data at Cursor

Wind 16 kts - 4 bf 109° Pressure 1013 hPa

As you move the cursor around the screen, the data in the box changes

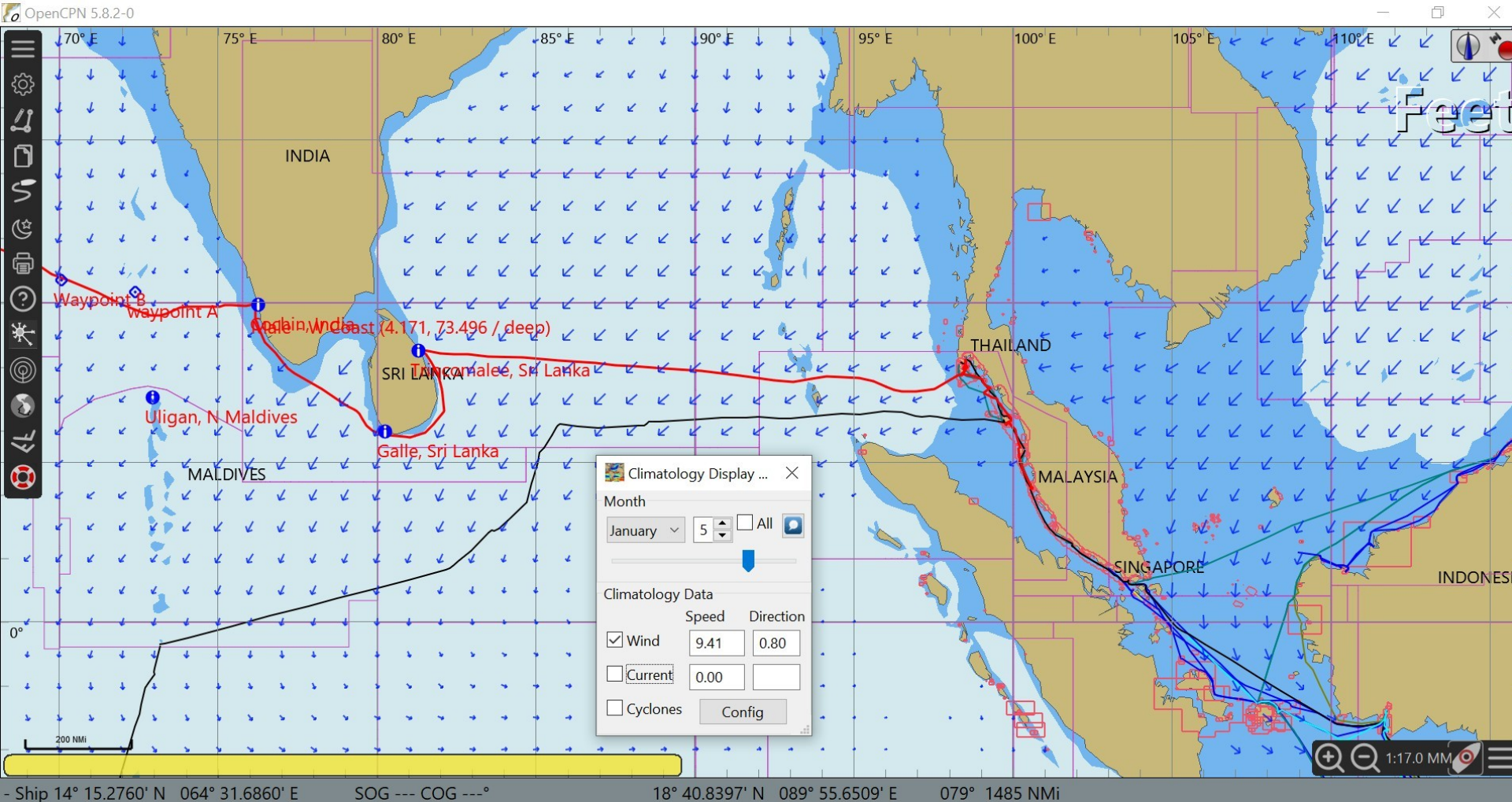
RTOFS (Current) Display



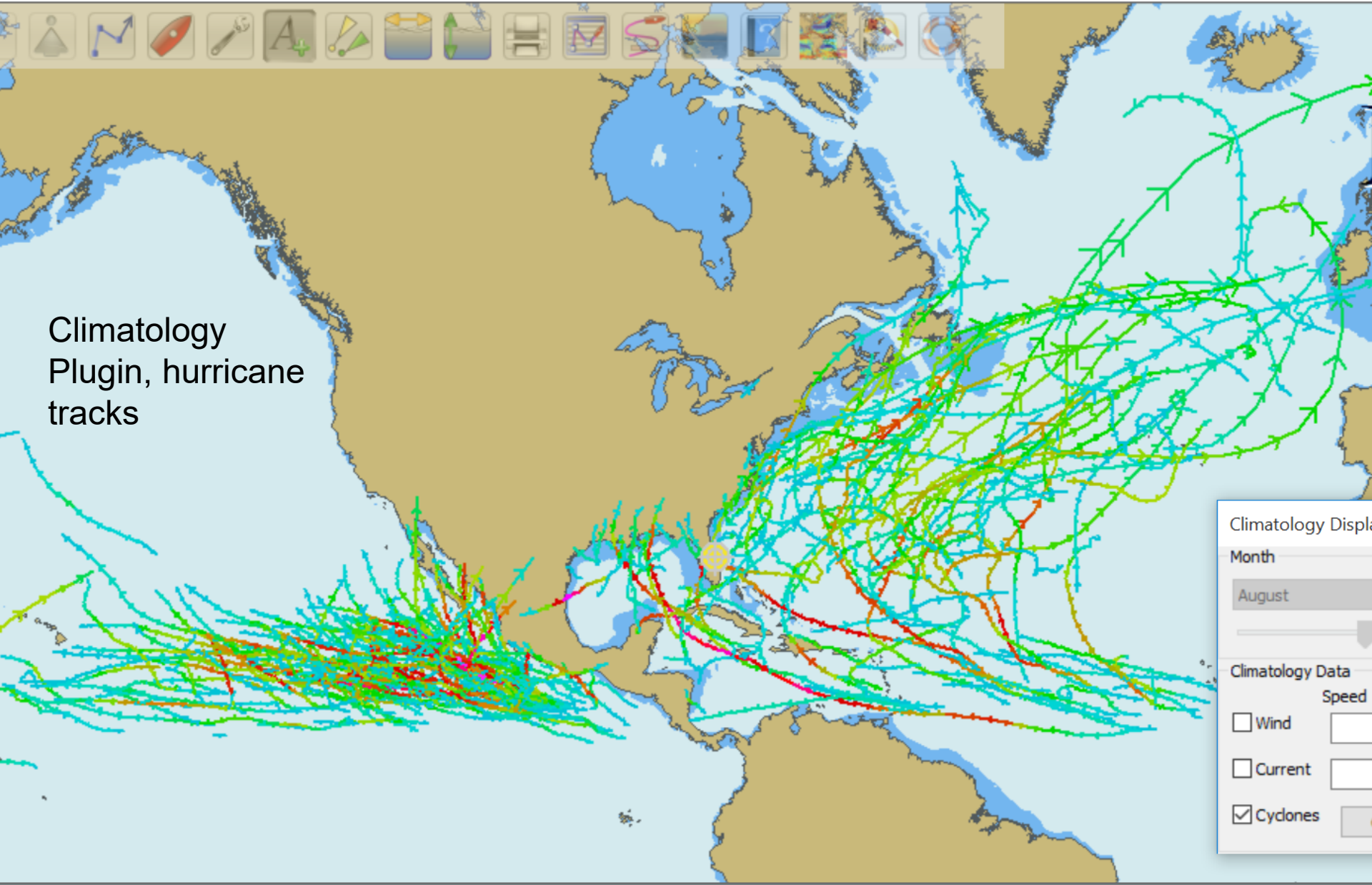
Climatology Plugin

- Pilot charts overlaid on your chart
- Updated with RECENT data
- Wind, currents, and tropical storm tracks
- Traditional wind rose display, or wind barbs

Climatology for January - Wind



Where is a Safe Place to Be In August?



Climatology
Plugin, hurricane
tracks

Climatology Display

Month

August

Climatology Data

Wind

Current

Cyclones

Speed

Climatology Config Screen

Climatology Configuration ✕

Standard Displays Wind Cyclones About

Start Date: 12/ 5/1972 End Date: 12/ 7/2015

Display Spanning: 30 days

Min Windspeed: 35

Max Pressure: 1010

El Nino Period:
 El Nino La Nina
 Neutral N/A

Storm Types:
 Tropical Sub Tropical
 ExtraTropical Remanent

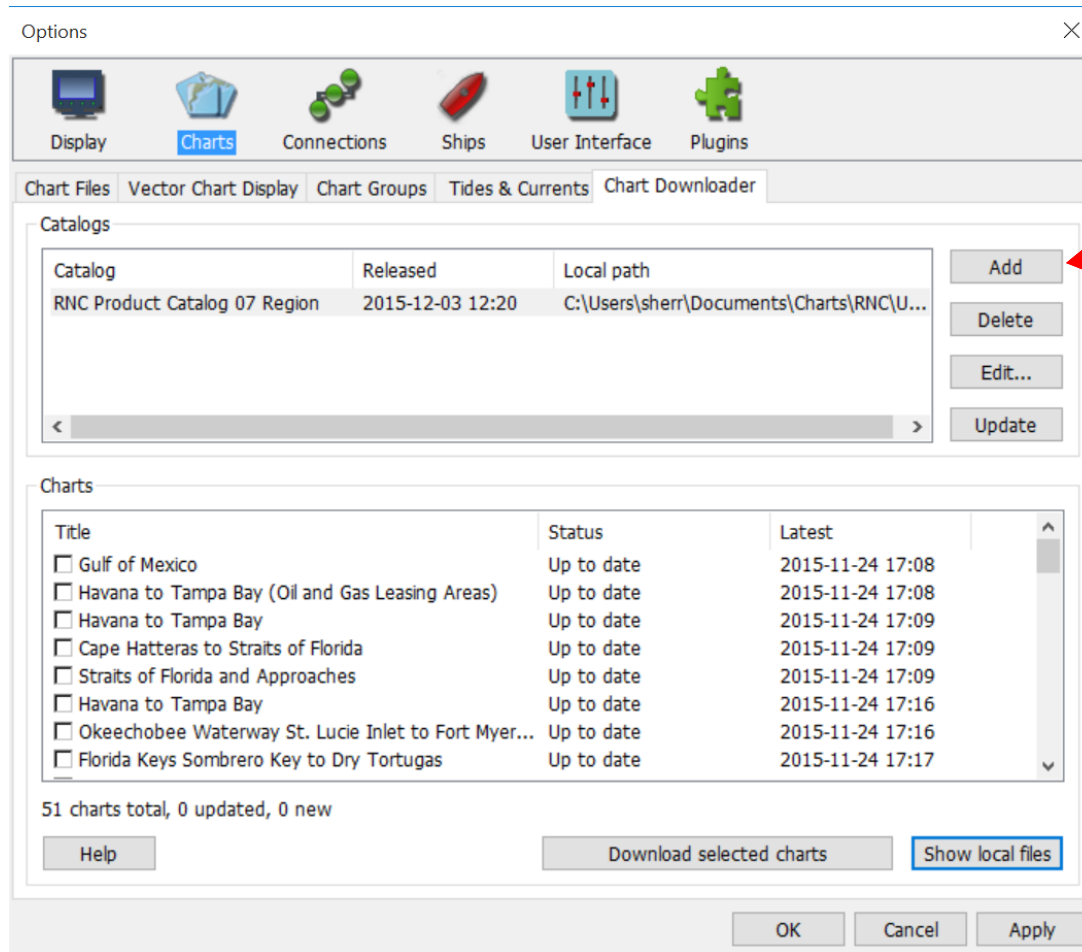
Sustained Wind Key (knots):

20	40	60
80	100	120
140	160	200

Direction arrows are spaced every 6 hours on storm track

About Author Close

Chart Downloader Plugin



To download a new chart area

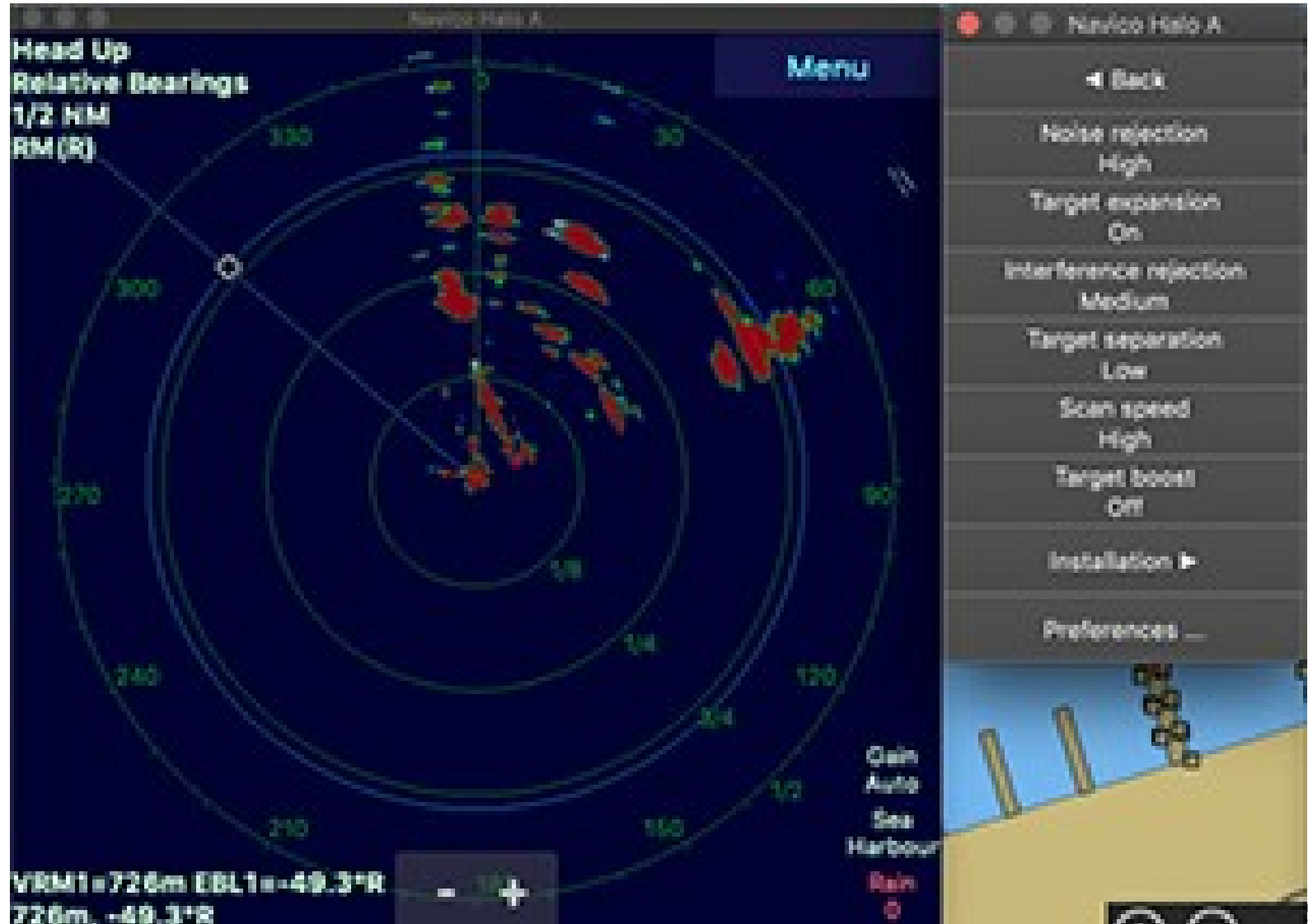
Note on ENC Charts

- After Download completes, must still add charts using the normal Add Chart Folder function
- Charts are fully downloaded to your computer and will stay there, even if you delete them in the Chart Downloader
- You can update them using the Update function on the Chart Downloader
- New green bubble at bottom of chart screen



(I found this a bit quirky)

Radar Overlay Plugin (Modern Digital Radars)



Weather Routing Plugin

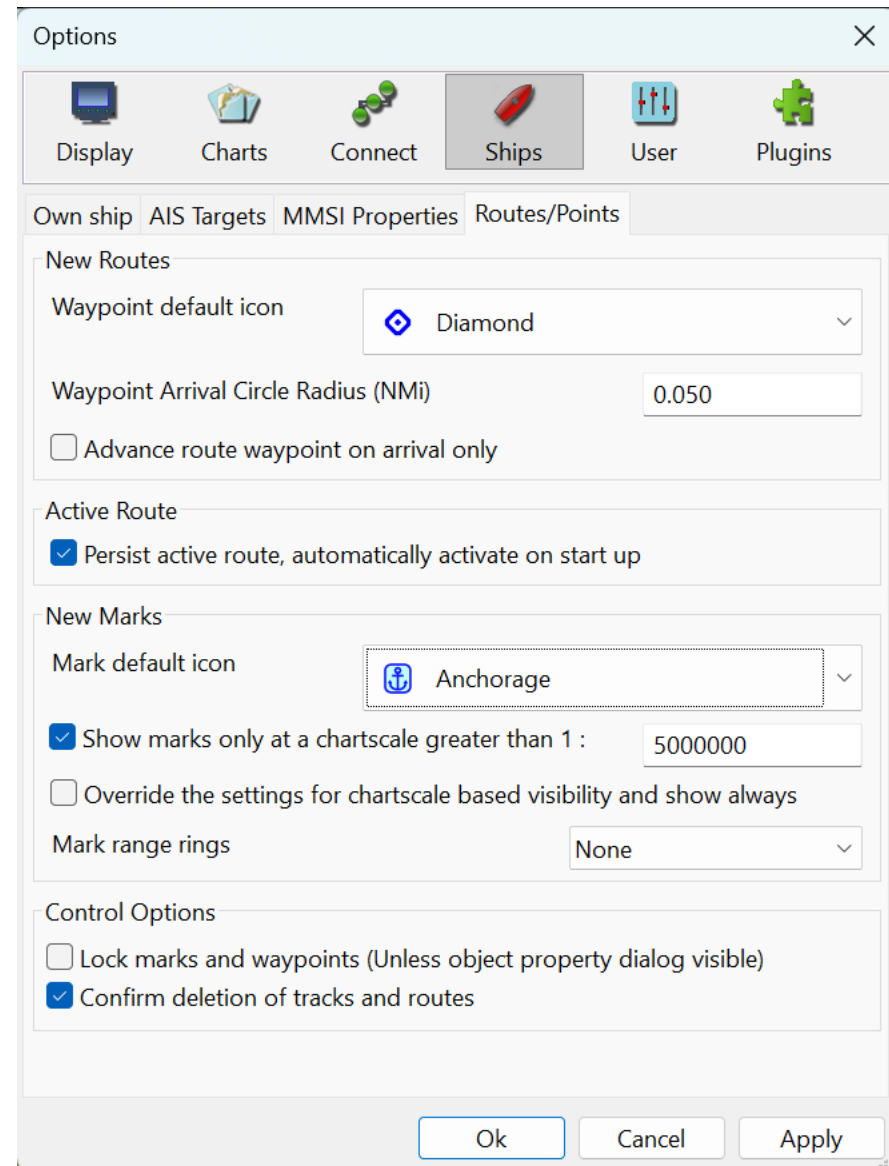
The screenshot displays the Weather Routing Plugin interface, which is used for planning optimized routes based on weather and climate data. The interface is divided into several key sections:

- Map:** A central map showing a route (highlighted in red) across the North Atlantic Ocean, connecting the US East Coast to Europe. The map includes weather data overlays such as wind speed and wave height.
- Wind Rose:** A circular plot in the upper left showing wind direction and frequency, with a red circle indicating a specific wind speed threshold.
- Route Table:** A table listing route segments with columns for Leg, To Point, Distance, Bearing, Latitude, and Longitude. The table contains 24 rows of data.
- Control Panels:**
 - Left Panel:** Contains settings for the weather routing, including a 'Weather Route' button and a 'Route From Track' button.
 - Right Panel:** Features a 'Route Manager' with options to 'Show Track Name', 'Export Selected', and 'Route From Track'.
 - Bottom Right Panel:** A 'Weather Routing Control' panel with various settings like 'Wind', 'Current', 'Pressure', and 'Cyclones', along with 'Start', 'Finish', and 'Map Info' buttons.
- Bottom Panel:** A 'Route Control' panel with buttons for 'Run Route', 'Cancel', and 'OK'.

Use GRIB & Climatology Data and boat polars to plan an optimized route

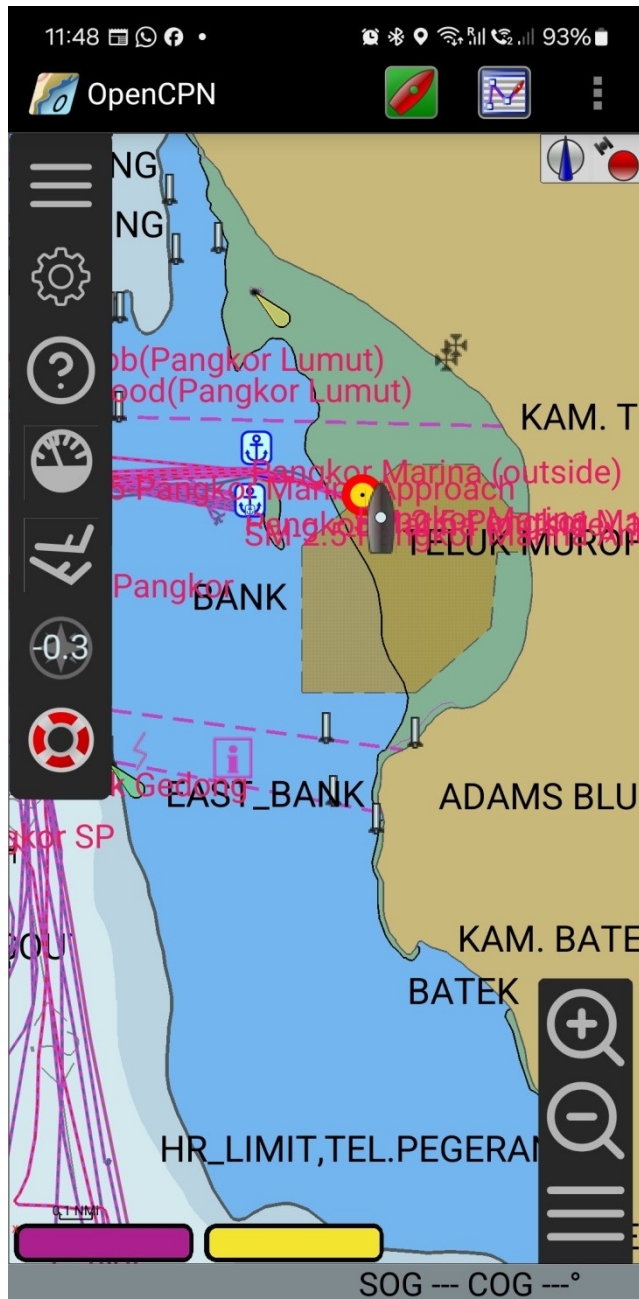
Tweaks to do on a new install

- Add Tides database
(How to, [here](#))
- Marks Text to Red
Options / User / Fonts / Marks
- Default Mark settings
Options / Ships / Routes/Points
- Turn off “Highlight Tracks”
Options / Ships / Own Ship



OpenCPN for Android

- Usually one release behind
- Install \$9.99 version from Google Play
 - this is the supported version & will receive automatic updates
 - There is a free version for Android, but not supported
- Identical in most respects to Windows version, just on a tiny screen
- Chart downloader plugin built-in (but pretty quirky on small phone)
- Some plugins not supported
- Android “sandboxing” has made OpenCPN more difficult



Primary screen in Android

Click and hold to right click

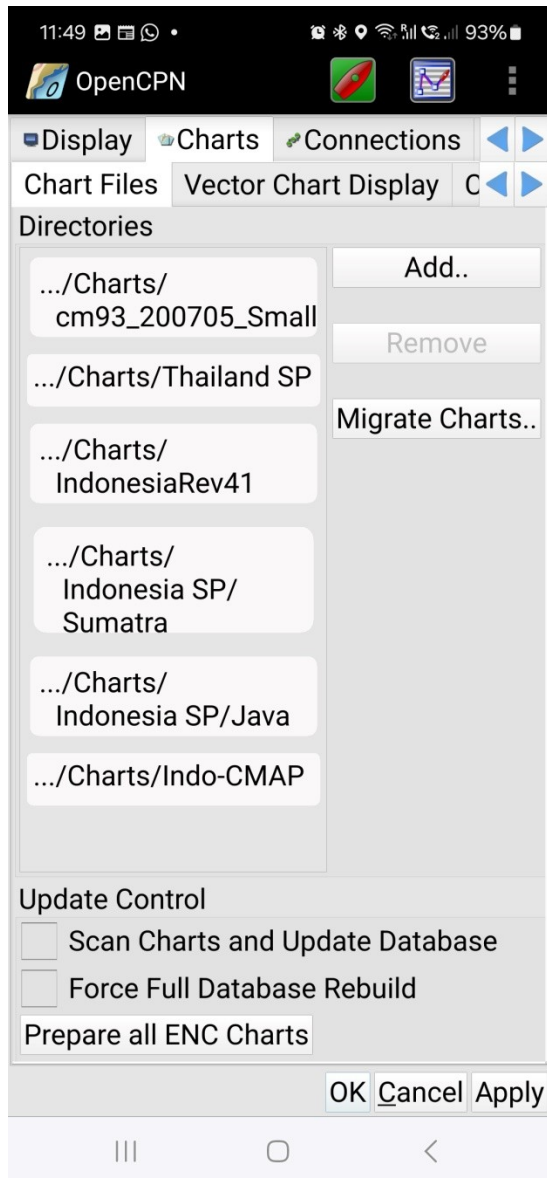
- Pops right-click menu (couldn't get screen shot)
- All the right click functions appropriate to where you are right-clicking

Pinch and un-pinch to zoom in/out

Swipe to move

Click and hold to get toolbar config screen up (add more tb icons)

Options screen in Android



Click on tab to change tabs

← Scroll tabs horizontally

Loading charts & GPX files

- Easiest way is to connect Android to a computer
- Use Charts tab to load charts

Downloading charts

- Use downloader
- Difficult to select chart catalog (+ too small to select, no zoom)
- Scroll bars need to be scrolled on bars, not in window area

Navigation Mode screen in Android



OpenCPN for Android

- Difficult to use fully on a phone (maybe better with stylus)
 - Difficult to move a waypoint
 - Chart Downloader config pop-up too big—unusable
 - No esc button
- Probably much better on a tablet
- Still a little buggy
 - Crashed when I tried to delete a waypoint—wants a quick click not a long click on 'delete'
 - Chart Downloader seemed to hang (bad folder selection)
- Not quite ready for Prime Time, but getting there
- Separate documentation file



The End

<http://svsoggypaws.com>

Questions?

More Info

- Just play with it—but NOT on your Nav computer!
- OpenCPN Website / User Manual
- [Out Chasing Stars YouTube Channel](#)
- [Sabado's \(Holly & Ray\) YouTube Channel](#) (advanced)



A big THANKS to Terry Sargent, who loaned me his original presentation as a starting point. There are a lot of OpenCPN resources on his webpage.

<https://sailingamazinggrace.com/charts/terrys-topics>