International Association of Marine Aids to Navigation and Lighthouse Authorities
Association Internationale de Signalisation Maritime

IWRAP Mk II

Creating a model

Commercial version

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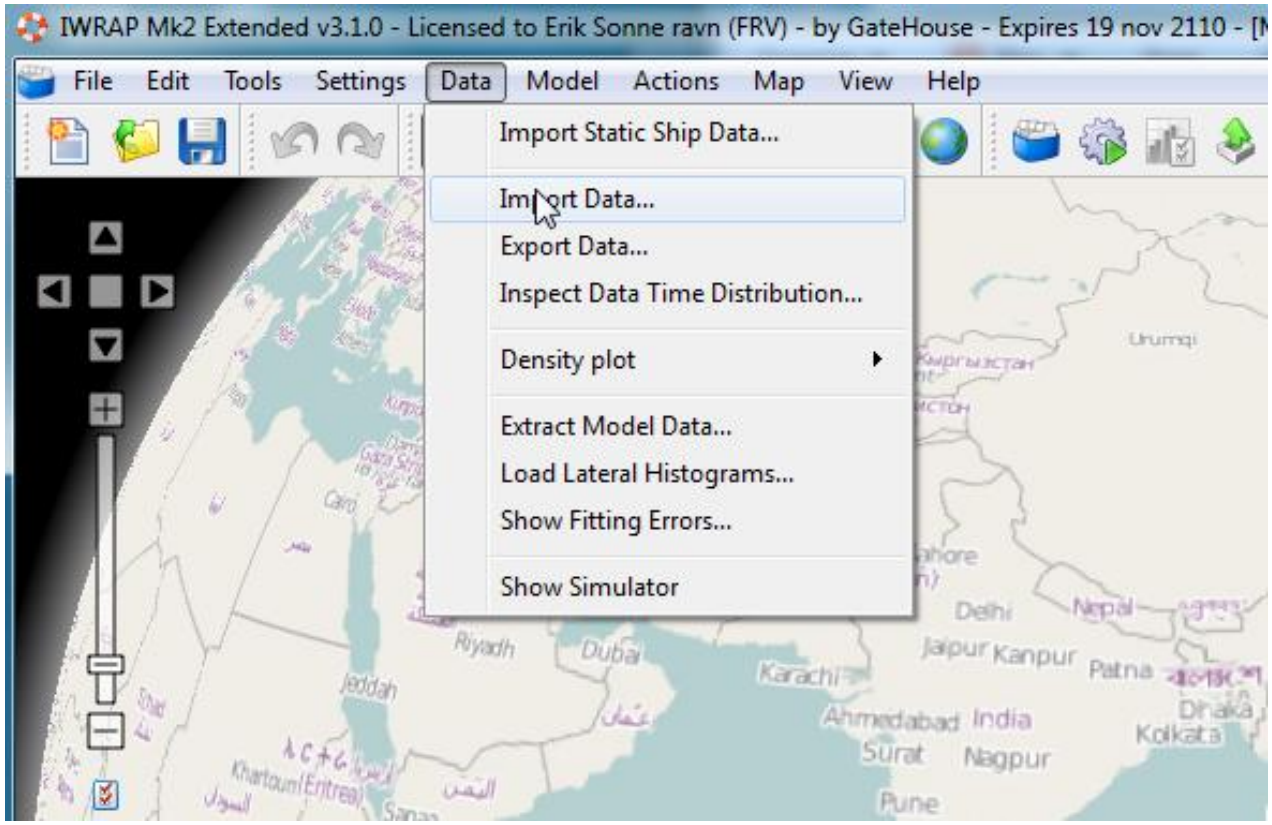
Steps for creating a model

1. Import AIS data in the correct format
2. Create density plot
3. Chart overlay
4. Draw legs
5. Extract model data. Vol., distrbtions. etc.
6. Create depth curves
7. Run model and do what if analysis

1. Import AIS data



AIS data can be imported from several text files

1. Import AIS data

Format examples: (The date format is user defined)

Raw data, NMEA:

```
2008-09-22 22:04:52     AIVDM,1,1,,A,15ASpL02Ch7=puF1bwqLMb5`00S>,0*62
2008-09-22 22:04:52     AIVDM,2,1,0,B,57u2SF02>JLwULHsT00mJp@4qDn3T00000C
!AIVDM,2,2,0,B,00000000000,2*27
2008-09-22 22:04:53     AIVDM,1,1,,B,13:s;d0PB:7?JO@1T0cni5?b06hD,0*17
```

Do not use , to separate date and !AIVDM

Plain text:

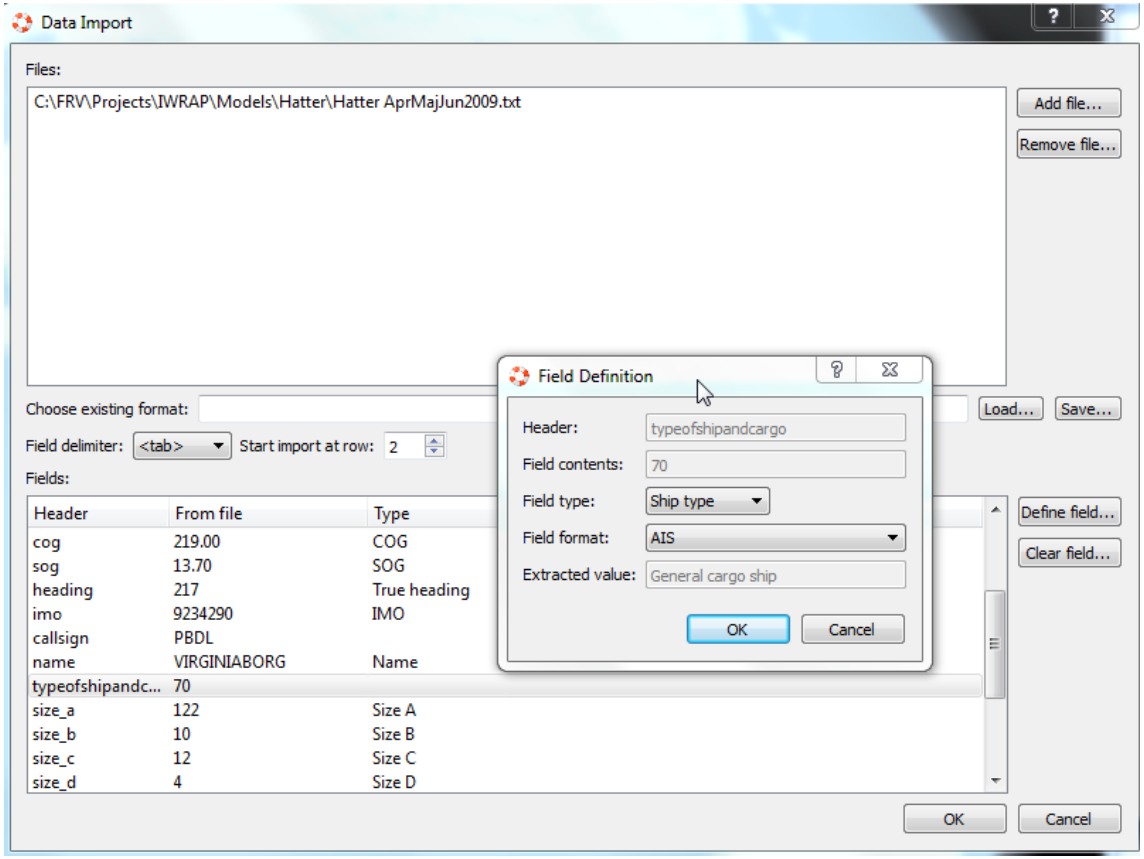
datetime	mmsi	longitude	latitude	navstatus	rateofturn	cog	sog	heading	imo	callsign	name	typeo
01-04-2009 04:35:14	244632000	10.95000000	55.92283333	0	0	219.00	13.70	217	9234290	PBDL	VIRGINIABORG	70
01-04-2009 04:34:05	244632000	10.95483333	55.92616667	0	0	220.00	13.70	217	9234290	PBDL	VIRGINIABORG	70
01-04-2009 04:34:25	244632000	10.95350000	55.92516667	0	0	219.00	13.70	217	9234290	PBDL	VIRGINIABORG	70

A separate table with static data can also be imported (ex. Lloyds data)

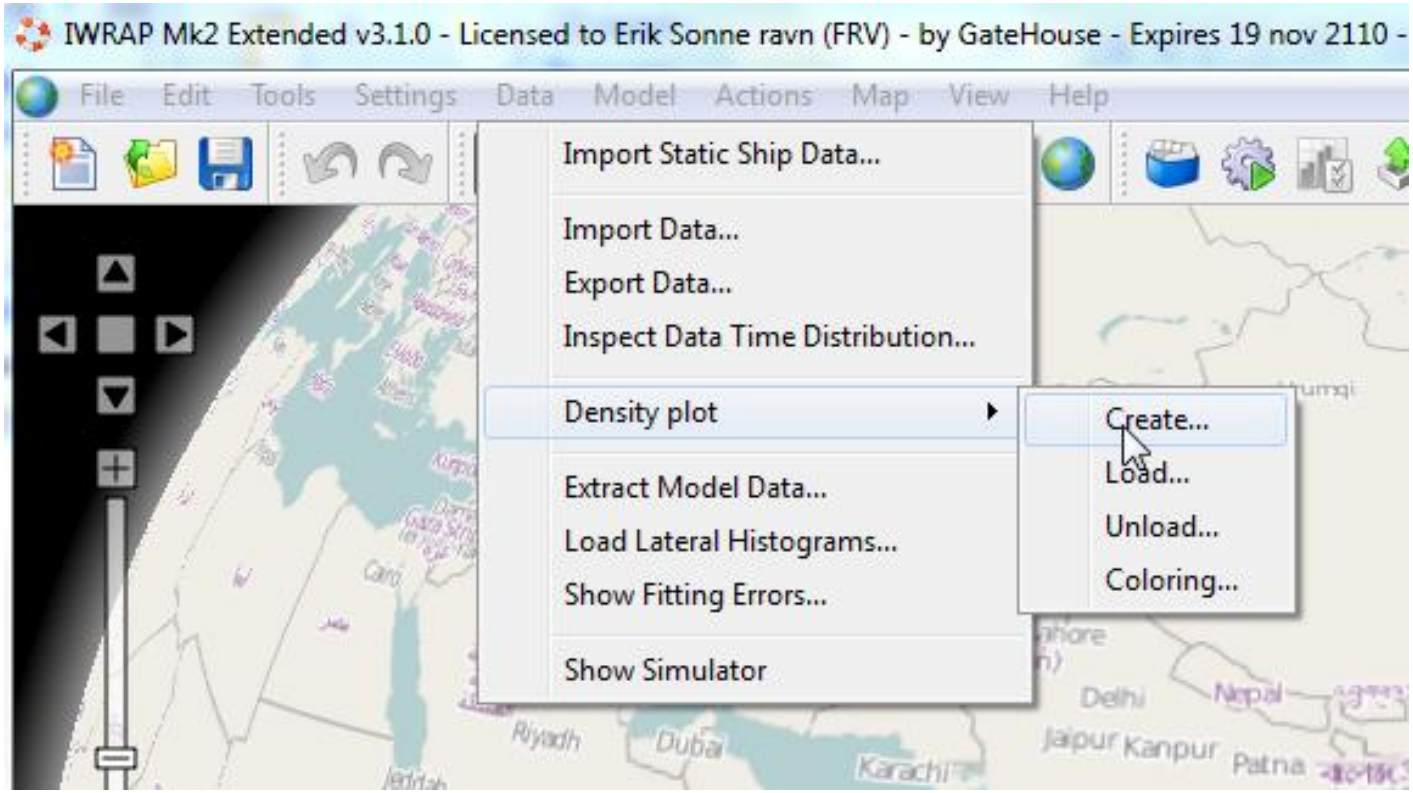
Before the import starts the program asks where the data is to be stored.
This could be in a new folder together with the project file.
YOU HAVE TO CHOOSE THIS AND REMEMBER IT

1. Import AIS data

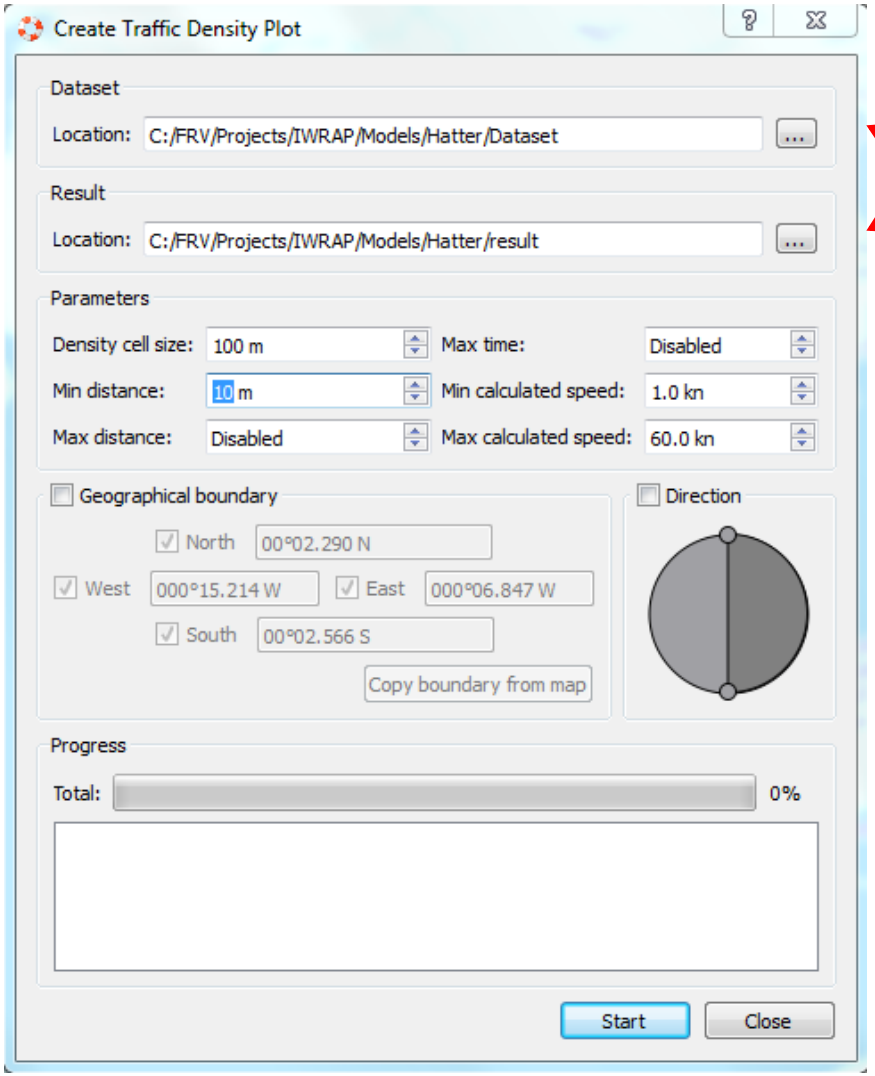
When importing decoded plain text AIS data, the fields (column) are defined manually. The program makes a first guess, but check it!
Ship type = Type of ship and cargo



2. Generate density plot

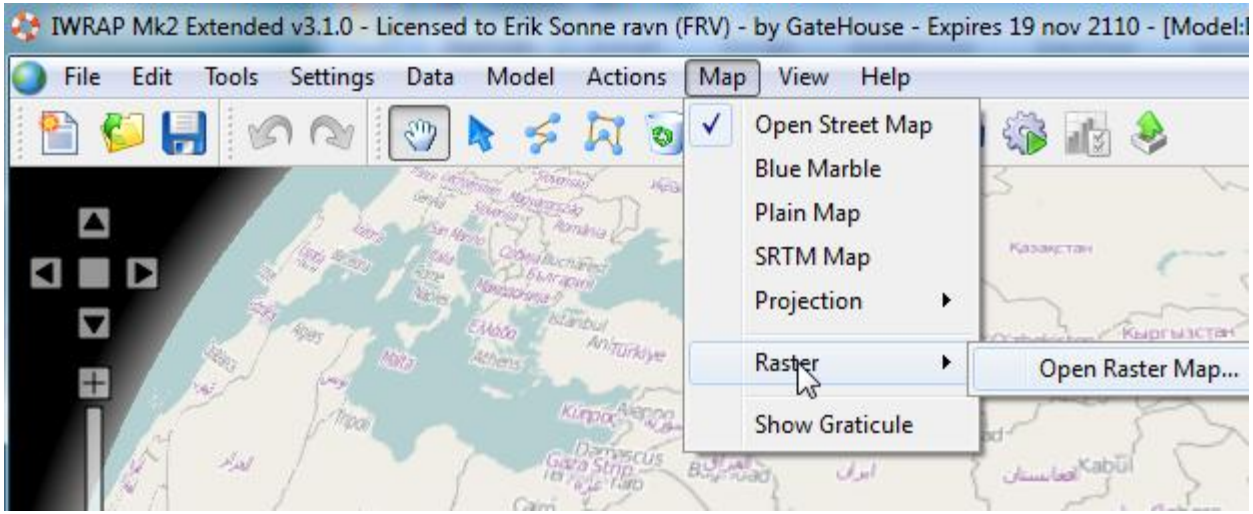


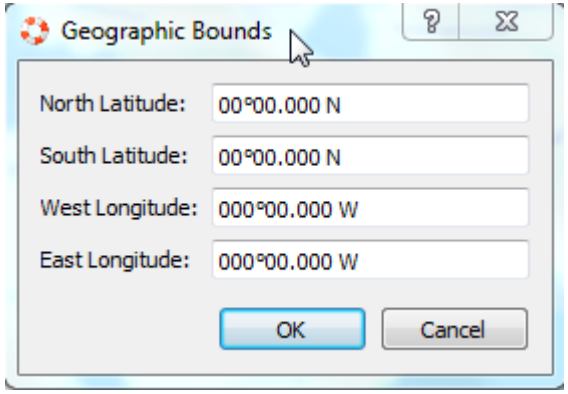
2. Generate density plot

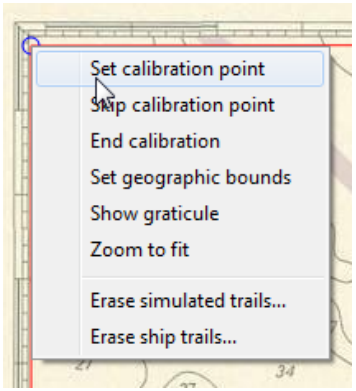


Dicipline here! Or you could end up using the wrong data

3. Overlay of raster charts

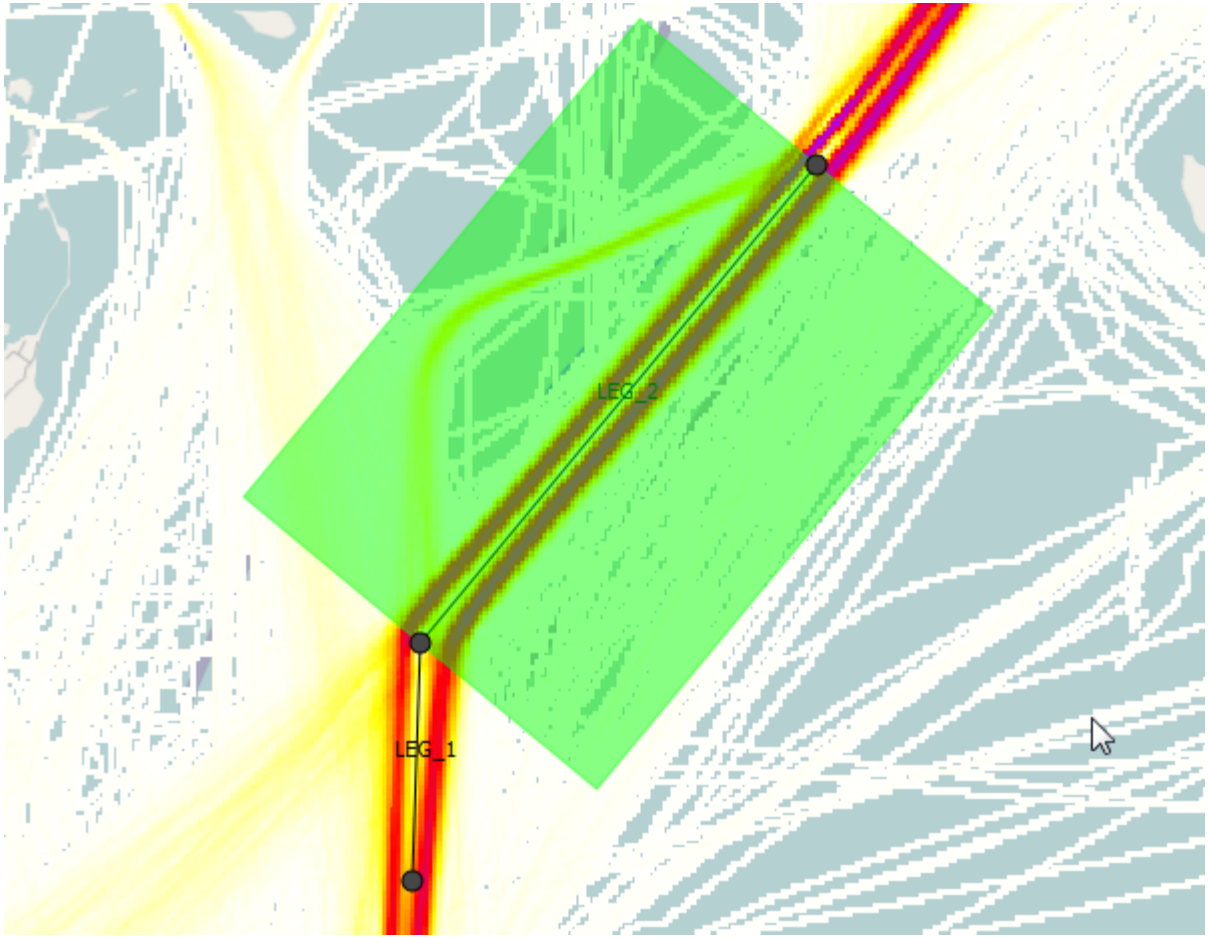






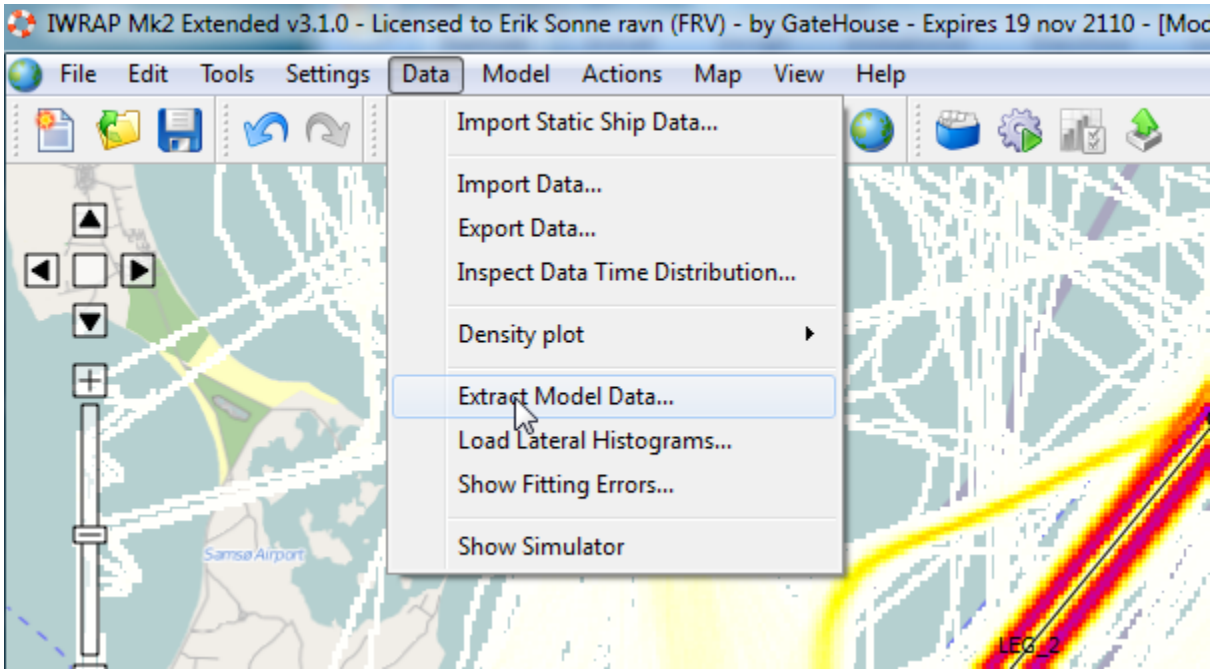
Use right click

4. Create legs



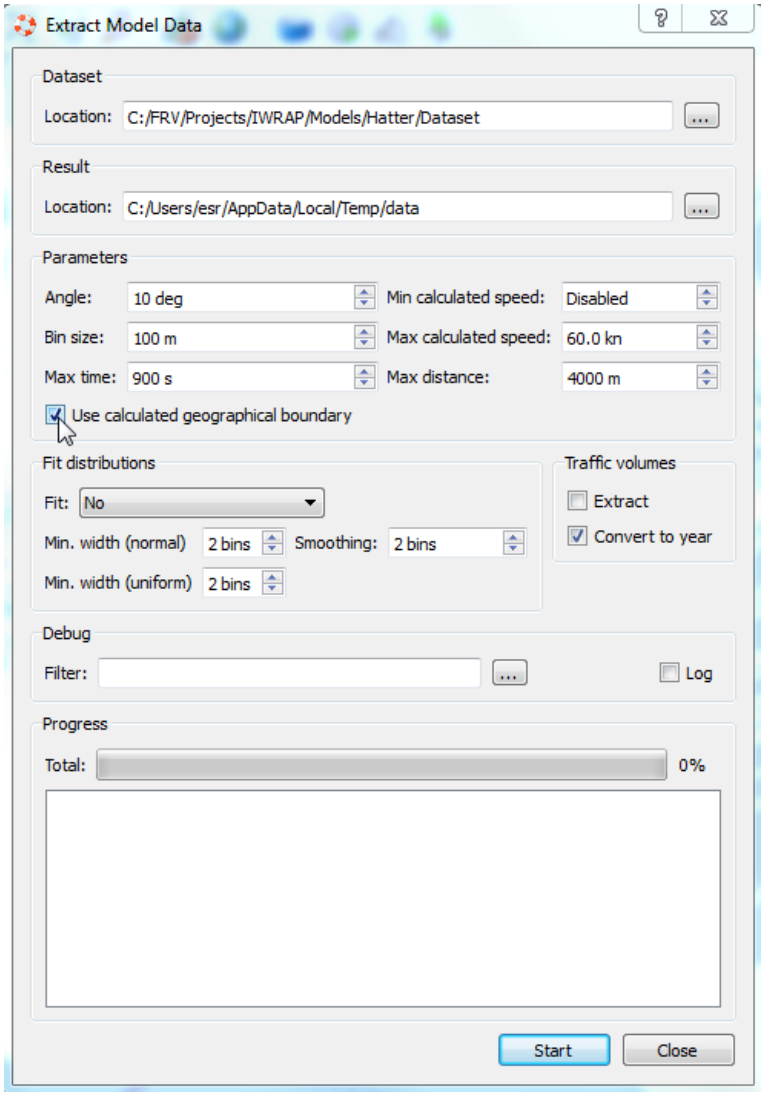
Adjust the width of the legs

5. Extract model data



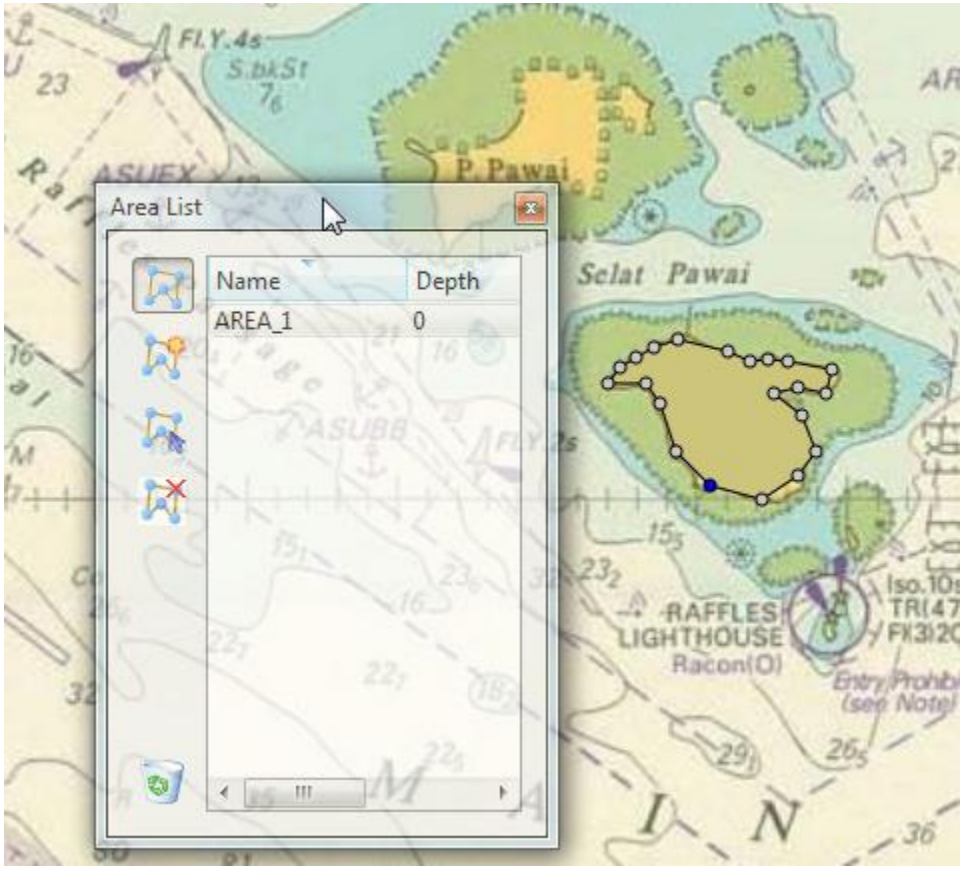
5. Extract model data

Wait with this only the legs have been located

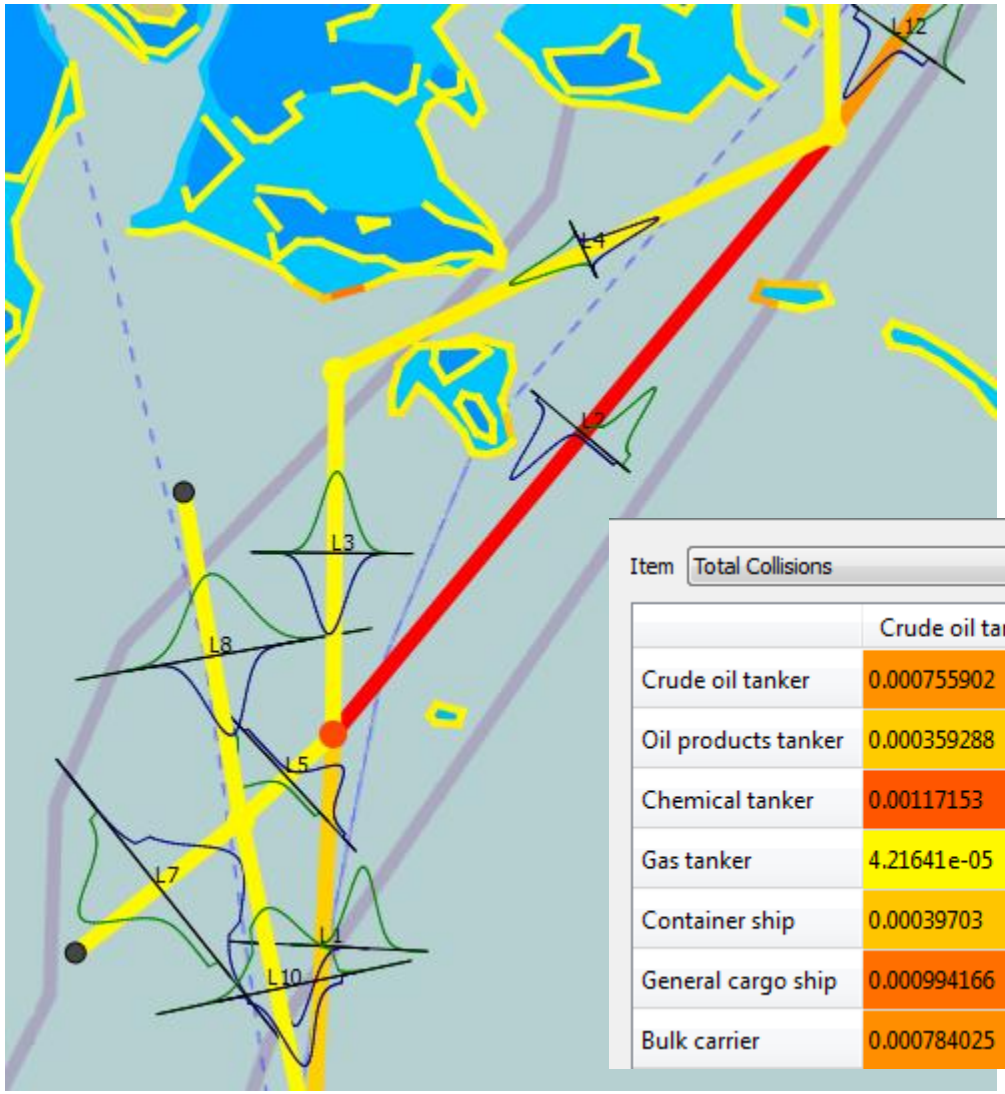


6. Depth curves

Depth curves can be imported or created using the polygon editor



Run model



	Hatter3	Hatter2
Powered Grounding	0.0993255	0.173198
Drifting Grounding	0.136376	0.127013
Total Groundings	0.235701	0.300211
Overtaking	0.0254244	0.0156494
HeadOn	0.00501114	0.00710918
Crossing	0.0046906	0.00384203
Merging	0.00566171	0.00239514
Bend	0.023018	0.0164033
Area	6.25829e-07	3.76635e-07
Total Collisions	0.0638065	0.0453994

Item: Total Collisions — Striking / Struck

	Crude oil tanker	Oil products tanke	Chemical tanker	Gas tanker	Container sh
Crude oil tanker	0.000755902	0.000326592	0.000658663	3.7102e-05	0.000559216
Oil products tanker	0.000359288	0.000166267	0.000453952	2.39363e-05	0.000370792
Chemical tanker	0.00117153	0.000626526	0.00164856	0.000107483	0.00173098
Gas tanker	4.21641e-05	2.35578e-05	7.70011e-05	3.55511e-06	5.70441e-05
Container ship	0.00039703	0.000206595	0.000695889	2.89057e-05	0.000387504
General cargo ship	0.000994166	0.000544339	0.00172212	8.96641e-05	0.00134074
Bulk carrier	0.000784025	0.000415358	0.00112078	6.95708e-05	0.00109947