

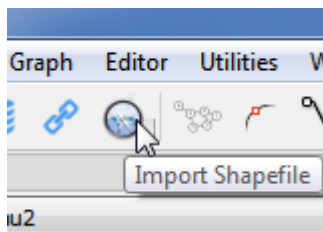
2016, July 1st

## Guideline DISPLACE version 0.8.9

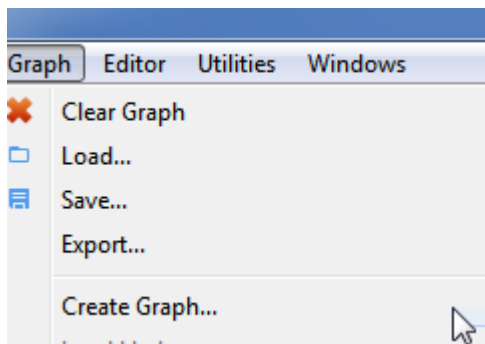
### Listing the raw input data for a simple DISPLACE parameterisation (Francois Bastardie & Federico Fuga)

- Spatial extent (**GRAPH**)

Shape files defining the marine space delineating the DISPLACE graph building e.g.  
handmadeAPolyAroundIoneanSea.shp and co, ne50m4GreeceInversedWithEraser.shp and co,  
greece\_eez.shp and co



Then the graph of nodes is built through the DISPLACE graphical interface under Graph>Create Graph, with settings (for example):



**Create Graph**

Corner 1 Long: 17.000000 Lat: 33.000000  
 Corner 2 Long: 30.000000 Lat: 41.000000

Shape  
☐ Geodesic Hex ☐ Geodesic Quad  
☒ Planar Hex ☐ Planar Quad

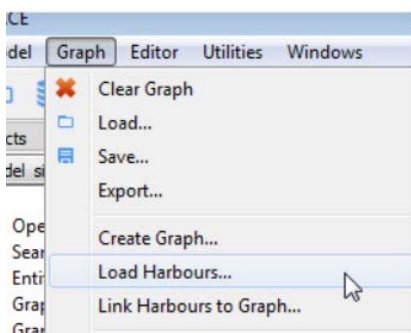
Zones  
☐ Include points outside all shapefiles Step: 2.50 km  
 1st Inclusion Shapefile: Shapefile handmadeAPolyAroundIoneanSea.shp Step: 2.50 km  
 2nd Inclusion Shapefile: Shapefile greece\_eez.shp Step: 70.00 km  
 Exclusion Shapefile: Shapefile ne50m4GreeceInversedWithEraser.shp ☒ Remove edges traversing this shapefile

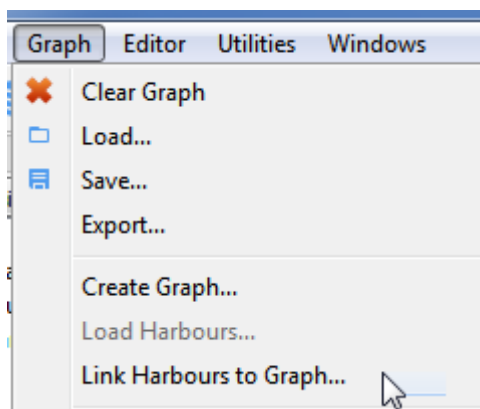
Options  
☒ Leave at least n links to any node 1  
☐ Limit the number of links per node to 8  
☐ Remove edges longer than 80.00 km

Cancel Ok

And a list of all harbours/positions with landings also needed to connect to the graph of nodes:

```
x;y;idx.port
ANCONA;13.499299999999485;43.621600000000434;1
BARI;16.859320728454833;41.135061427521549;2
BARLETTA;16.285200000000223;41.3250000000008763;3
BELLARIA;12.454499999999816;44.160299999999523;4
BISCEGLIE;16.505400000000122;41.247400000000312;5
BRINDISI;17.967699999999233;40.654399999999399;6
CAORLE;12.880199999999634;45.5969000000000488;7
CATTOLICA;12.749599999999232;43.970699999999852;8
CERVIA;12.359099999999716;44.268099999999322;9
CESENATICO;12.402899999999176;44.207200000000753;10
CHIOGGIA;12.298300000000365;45.219399999999951;11
CIVITANOVA MARCHE;13.733700000000718;43.3117000000000194;12
FANO;13.015699999999923;43.853600000000355;13
GIOVINAZZO;16.672500000000625;41.190199999999066;14
GIULIANOVA;13.973900000000897;42.754999999999207;15
GORO;12.294700000000395;44.843300000000497;16
GRADO;13.382400000000464;45.674300000000564;17
ISOLE TREMITI;15.500000000000000;42.116667000000000;18
Izola;13.657499999999516;45.538300000000277;19
Koper;13.729900000000384;45.550199999999734;20
LESINA;15.350000000000000;41.866667000000000;21
LEUCA;18.363400000000183;39.7957000000000608;22
MANFREDONIA;15.914800000000499;41.624999999999972;23
MARANO LAGUNARE;13.169167000000000;45.766388999999997;24
MARTINISCURO;13.010000000000810;43.80740000000056;25
```





- Fisheries data (**FISHERIES**)

A data table with numbers of vessels (OR one line per vessel if truly individual) with specifications (related LOA, kW, Storage capacity in kg, number of employees, name of the activity/metier, fuel consumption ate per hour, geographical range in km) by originating port; informing for several metiers and visited ports is optional. Catch per unit effort by vessel or set of vessels; catch equation parameters for linking catch rate to a metier type and encountered availability (proxy for abundance) is optional ;

For example:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	
1	Region	Harbor	metier	N. of vessels	Crew	mean_LOA_m	mean_GT	mean_kW	hake_kg_h	sole_kg_h	redmullet_kg_h	mantis_kg_h	fishing speed knots	cruise speed knots	fuel cons h	ave storage fish kg	fuel tank liter	tri
41	Puglia	RODI GARGANICO	gillnet	77	133	7.62	1.08	3.24	0	0.74	0.01	0.34	0	18	30	200	400	
42	Puglia	VIESTE	gillnet	15	25	7.07	1.67	16.28	0	0.74	0.01	0.34	0	18	30	200	400	
43	Veneto	BURANO	gillnet	10	16	8.14	1.50	28.31	0	3.05	0.01	1.02	0	18	30	200	400	
44	Veneto	CAORLE	gillnet	35	58	6.78	1.74	23.97	0	3.05	0.01	1.02	0	18	30	200	400	
45	Veneto	CHIOGGIA	gillnet	37	62	7.79	2.49	28.14	0	3.05	0.01	1.02	0	18	30	200	400	
46	Veneto	IESOLO	gillnet	16	26	6.33	1.25	13.17	0	3.05	0.01	1.02	0	18	30	200	400	
47	Veneto	LIGNANO SABBIA D'ORO	gillnet	1	1	4.50	1.00	0.00	0	3.05	0.01	1.02	0	18	30	200	400	
48	Veneto	MARANNO LAGUNARE	gillnet	9	15	7.38	2.00	57.65	0	3.05	0.01	1.02	0	18	30	200	400	

Information on fishing activities (selectivity at size group of gears per species)

1		cm	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2	<i>Solea solea</i>	gillnet	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.04
3		trawl	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.06
4	<i>Mullus barbatus</i>	gillnet	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
5		trawl	0.01	0.02	0.02	0.04	0.06	0.09	0.14	0.21	0.30	0.41	0.53	0.65	0.75	0.84

Information on trip pattern (e.g. daily trips, week-end pause, etc.) to ultimately inform decision trees (optional).

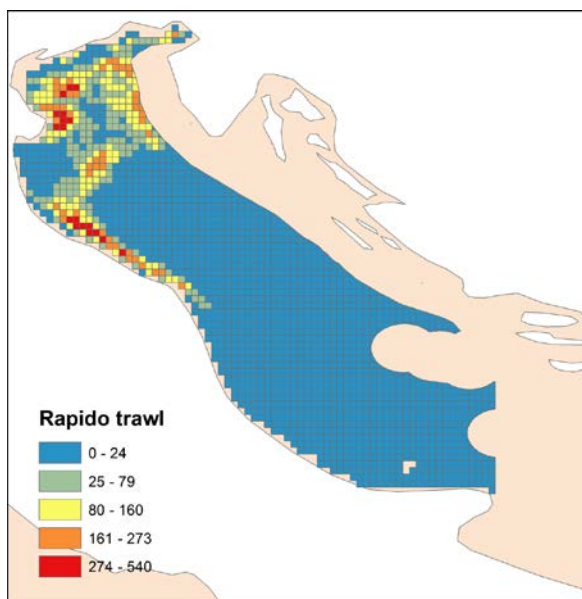
the market prices of target species per commercial category;

1	Species	Harbor	Comm Cat	€ per kg	Size range
2			small	2.81	<9cm
3		Ancona	medium	3.79	9-12cm
4			large	5.44	>12cm
5		Cesenatico	medium	5.98	9-12cm
6			small	2.84	<9cm
7		San Benedetto del Tronto	medium	3.71	9-12cm
8			large	5.75	>12cm
9	<i>Mullus barbatus</i>		small	2.00	<9cm

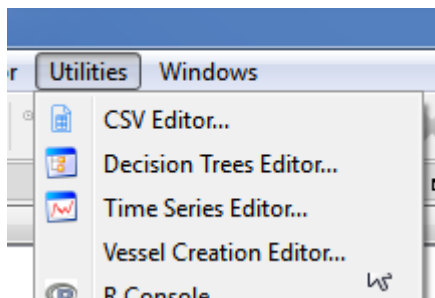
the price of fuel; per vessel size is optional.

A complement on revenue per métier when needed (e.g. if the target species represent 70% of the revenue then the revenue of a given métier arriving at port is raised by  $100/70$ )

Maps (i.e. shapefile with effort per polygon in absolute or relative terms) of the geographic distribution of the fishing effort, per type of fishing activity (e.g. trawlers, netters) is optional:



Then next step is processing these raw data to convert into DISPLACE input files (stored in for \vesselsspe folder). [In the ui: TO BE DONE]



...for now, using R routines instead (not described here).

- Stock based data (**POPULATIONS**)

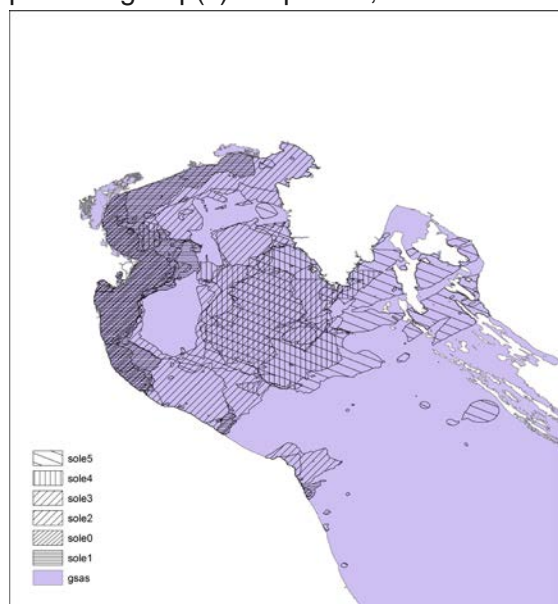
Assessment data (e.g. N-at-age, Linf, K, a, b) of the most recent stock status;

pop.to.ke.index	poj	Linfs	Ks	ds	es	aa	bb	ISOs	a_SSB	b_SSB	r_age	tac_tons	fbar_age	fbar_age_F_target	plan_on_f	plan_on_t	trigger	FMSY	fbar_asse:ssb	asses mls_cat	sz_bin	cr mls_cm		
HKE.GSA1	0	104	0.2	NA	NA	0.0043	3.2	23	1.05E+08	0.00E+00	0	3342	0	4	0.16	10	30	0	0.16	0.89	1314	6	3	20
SOL.GSA1	1	39.6	0.44	NA	NA	0.007	3.0838	25.8	26376000	0.00E+00	0	2048	0	4	0.26	10	30	0	0.26	0.62	3545.85	6	3	20
MUT.GSA1	2	26.86	0.295	NA	NA	0.009	3.076	11.7	7.1E+08	0.00E+00	0	4484	0	3	0.52	10	30	0	0.52	0.94213	2271.6	3	3	11
MTS.GSA1	3	41.53	0.49	NA	NA	0.0133	2.3994	27	8.36E+08	0.00E+00	0	3205	1	3	0.48	10	30	0	0.48	0.629	11536	1	3	1

Species	age							Comments	
	0	1	2	3	4	5	6		7
<i>Merluccius merluccius</i>	269,125,000	40,101,000	3,447,000	511,000	117,000	110,000	0	0	2014 - GSA 17-18 XSA (STECF EWG 15-16)
<i>Solea solea</i>	26 276 400	12 147 200	4 460 600	1 709 940	1 008 730	620 641	184 822	2 274 974	2014 - GSA 17-18 XSA (STECF EWG 15-16)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	
Species	Name	Stock	Year	R	SSB	Landings	F	Fmsy	FFMSY	vb_inf	vb_k	vb_10	vb_sample_size	vb_size_range	vb_units	a	b	l_w_sample_size	l_w_size_range	l_w_units	l_w_method_used	
<i>Merluccius merluccius</i>	Hake	HKE	2014	269125	3285	5344	0.89	0.16	5.5625	42.913	0.366	-1.196	488	6-54.0-6years	cm	0.0088	2.9554	658	10-55	cm	cm/g	Non linear regression

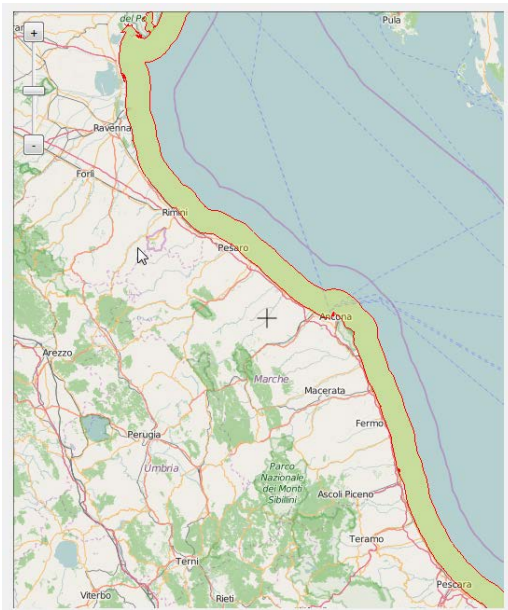
Maps of the geographic distribution of the target species from survey (e.g. BITS, IBTS MEDITS); per size group(s) is optional;



.....Then the next step is processing these raw data to convert into DISPLACE input files (stored in for \popsspe folder) [in the ui: TO BE DONE...for now, using R routines instead (not described here)]

- management data (**MANAGEMENT**)

Various shape files for activity exclusions; exclusion per fishing activity/métier and per quarter is optional.



**Graph Penalties**

Penalty: 0.00

☒ Closed for fishing

Quarters

☒ Quarter1 ☒ Quarter2

☒ Quarter3 ☒ Quarter4

☒ Select Metiers

Metiers

☒ Metier 0 ☐ Metier 1 ☒ Metier 2 ☐ Metier 3 ☐ Metier 4 ☐ Metier 5 ☐ Metier 6 ☐ Metier 7

☐ Metier 8 ☐ Metier 9 ☐ Metier 10 ☐ Metier 11 ☐ Metier 12 ☐ Metier 13 ☐ Metier 14 ☐ Metier 15

☐ Metier 16 ☐ Metier 17 ☐ Metier 18 ☐ Metier 19 ☐ Metier 20 ☐ Metier 21 ☐ Metier 22 ☐ Metier 23

☐ Metier 24 ☐ Metier 25 ☐ Metier 26 ☐ Metier 27 ☐ Metier 28 ☐ Metier 29 ☐ Metier 30 ☐ Metier 31

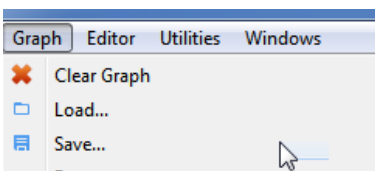
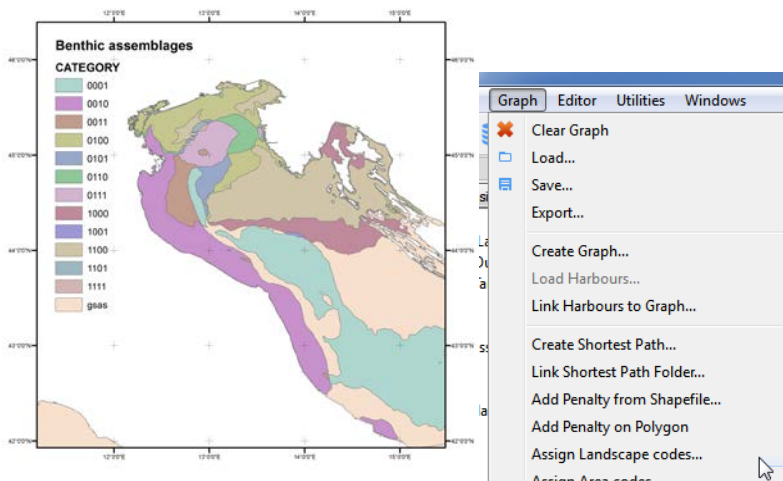
☐ Metier 32 ☐ Metier 33 ☐ Metier 34 ☐ Metier 35 ☐ Metier 36 ☐ Metier 37 ☐ Metier 38 ☐ Metier 39

Shapefiles

☒ Shapefile 6nm\_lagoon.shp

Cancel Ok

- Habitat data (optional) (**HABITATS**)



- Activity from OTHERS data (**OTHERS**)  
data on the landing of species by fishing activity;

year	pop	Italy	Slovenia	Croatia
2014	Hake_medium	1692	1	2348
2014	Sole_medium	1912	0	136
2014	Mullet_medium	2832	3.3	1712
2014	Spottailmantis_medium	3205	0.478	0