## Step-by-step Guideline DISPLACE version 0.8.2 (Windows)

# Setup a new scenario and run a DISPLACE simulation based on a baseline scenario (tested by Jens Floeter & Francois Bastardie)

All folders directly under c:\ without blanks in the names



### Load the baseline graph with the ending 11



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 Coordinates file

 O you want also to load C:/DISPLACE\_input/ graphsspe/coord11.dat as a coordinates file?

 Yes
 Open



then it looks like

next load the shapefile with the Natura2000 closed areas





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The shape file makes the closed areas visible on the GUI but does not affect the simulation itself. To enable that we need to add the penalty from shapefile of closed areas...

the penalty works by artifically increasing the distance between nodes so that nodes in the closed areas are far away (500km)...which means that they are never on the shortest and never steamed through...but this does not apply for fishing..so we need a second step and tick the checkbox closed for fishing

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Closed for fishing			
Shapefile	Shapefile Natura2000_end_2012_rev1_9_15_53_60_water_1.shp		-
Cancel	Ok		

Now we need to re.create the shortes path graph which is used by the vessels to calculate their steaming routes

妏 Pe	nalties applied	×
<b></b>	Graph weights are changed, you recreate the shortest path.	u'll need to
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But before that we need to create a new folder in which the shortest Path will be saved

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baseline graph = 11 so create a graph name for export as child ==> 111

Next file to load is the vessel specific node.dat to create the shortes pathes...it will look at all quarters so doesn't matter which quarter you chose here we take "vesselsspe\_fgrounds\_quarter1.dat" in the vesselspe\_balticonly folder

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Create shortest pat	h files	? ×
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All nodes are relevant		
Relevant nodes path:	C:/DISPLACE_input/vesselsspe_balticonly/vesselsspe_fgrounds_quarter1.dat	
	Cancel Ok	

leave defaults in the following window

妏 Dialog	? ×				
Graph Name 111 Output folder _balticonly_a_graph111 Output options Landscape file    Area codes file Closed polygons					
Output names					
Graph File	graph111.dat				
Coordinates file coord111.dat					
Landscape file with_landscape.dat					
Area codes file raph111_points.dat					
Closed polygon files h111_quarter?.dat					
ОК	Cancel				

Now its calculating the shortest paths between the relevant nodes for the selected vessels

N TO	Please Wait	
		23%
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now we need to attach a baseline scenario file

load the baseline and change for the graph name and change scenario and tick area closure

🍿 Scenario				? ×
Scenario file:	/simulsspe/name.dat			
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Use Chan	ige Port			Browse
Rename			Cancel	Save and Close



) 🕖 🗼 ▼ Computer ▼ Windows7_OS (	C:) ▼ DISPLACE_input ▼ simusspe_balticonly	👻 🖬 simu	usspe_balt
Organisieren 🔻 Neuer Ordner			- ?
📙 data 📃	Name	Änderungsdatum 👻	Тур
<ul> <li>Displace</li> <li>DISPLACE_input</li> <li>benthosspe_balticonly</li> <li>benthosspe_myfish</li> <li>dtrees</li> <li>externalforcing_balticonly</li> <li>externalforcing_myfish</li> <li>fishfarmsspe_balticonly</li> <li>fishfarmsspe_balticonly</li> <li>fishfarmsspe_balticonly</li> <li>harboursspe_myfish</li> <li>metiersspe_balticonly</li> <li>harboursspe_myfish</li> <li>popsspe_balticonly</li> <li>popsspe_balticonly</li> <li>shipsspe_myfish</li> <li>shortPaths_balticonly_a_graph</li> <li>shortPaths_balticonly_a_graph</li> <li>shortPaths_myfish_a_graph!</li> <li>shortPaths_myfish_a_graph!</li> </ul>	<ul> <li>baseline_closed_area_teaching.dat</li> <li>area_closure_NAT2000.dat</li> <li>area_closure_NAT2000_fuelprice_plus20perc</li> <li>area_closure_NAT2000_low_prod.dat</li> <li>area_closure_WMF.dat</li> <li>area_closure_WMF_NAT2000_dat</li> <li>area_closure_WMF_NAT2000_and_SMS.dat</li> <li>area_closure_WMF_NAT2000_low_prod.dat</li> <li>area_closure_WMF_NAT2000_low_prod.dat</li> <li>area_closure_WMF_NAT2000_low_prod.dat</li> <li>area_closure_WMF_NAT2000_low_prod.dat</li> <li>area_closure_WMF_NAT2000_low_prod.dat</li> <li>area_closure_WMF_NAT2000_low_prod_and</li> <li>area_closure_WMF_NAT2000_SMS_single.dat</li> <li>baseline.dat</li> <li>baseline_SMS_single.dat</li> <li>config.dat</li> <li>high_profit_grounds.dat</li> <li>high_profit_grounds_SMS_single.dat</li> <li>low_prod.dat</li> <li>low_prod.dat</li> </ul>	08.03.2016 17:05 23.02.2016 10:16 23.02.2016 10:16	DAT-Datei DAT-Datei DAT-Datei DAT-Datei DAT-Datei DAT-Datei DAT-Datei DAT-Datei DAT-Datei DAT-Datei DAT-Datei DAT-Datei DAT-Datei DAT-Datei DAT-Datei DAT-Datei DAT-Datei DAT-Datei
Dateiname: baseline_closed_a	area_teaching.dat		•
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tick area closure

Ú	Scenario			
S	cenario file:	C:/DISPLACE_input/simusspe_l	balticonly/baseline_closed_area_teaching.da	at
Γ	Dyn Alloc Sce-			
	🗡 baseline		focus_on_high_profit_grounds	TACs
			FMSY	✓ area_closure
	fuelprice_	plus20percent	reduced_speed_10percent	ि जिoser_grounds

make grid resolution to 2,5km must be a COMMA not a decimal point !

and insert a Port 10449 which is in the default harbor for looking for prices if no price is available at the closed harbor

A Port	10449
Grid Resolution	2,50 km

you can check the meaning of the flags in baseline.dat in the simuspe\_balticonly folder

妏 Scenario				? ×
Scenario file:	C:/DISPLACE_input/simussp	e_balticonly/baseline_closed_area_teacl	hing.dat	
Dyn Alloc Sce				
📕 baseline		focus_on_high_profit_ground	ls 🔽 TACs	
		FMSY	area_closure	
fuelprice_p	olus20percent	reduced_speed_10percent	closer_grounds	
closer_port	:	area_closure_fuelprice_plus2	0percent increased_catch_power_5pe	ercent
focus_on_ł	nigh_profit_grounds_area_clo	osure shared_harbour_knowledge	twoFoldTACconstr	
fishing_cre	dits			
Dyn Pop Sce				
🚩 baseline		use_SMS	use_SMS_single	
stop_mig_3	35065			
Bio Sce	1			
Freq do growth	4			•
Freq dispatch	3			<u>•</u>
AGraph	111			÷
N Row Coord	13645			÷
N Row Graph	104640			-
A Port	10449			÷
Grid Resolution	2,50 km			Ē
Options				
	Quotas			
	stocks bei, doing			
Decision Tree	, 			
Use Go F	ishing		Browse	
Use Choo	ose Ground		Browse	
Use Start	t Fishing		Browse	
Use Char	nge Ground		Browse	
Use Stop	Fishing		Browse	
Use Char	nge Port		Browse	
Rename			Cancel Save and Clo	se

Cancel	Save and Close
	/2

## Now load the scenario which you have just created



🍿 Select a scenario file - look at simusspe	e_* di	rectory		×
COC 📙 🕶 Computer 🕶 Windows7_OS (C:) 🕶	DISPL	ACE_input ▼ simusspe_balticonly	✓ ☑ simusspe_balt	P
Organisieren 🔻 Neuer Ordner			-	2
L Config.Msi		Name	Änderungsdatum 👻	Ty_▲
🔥 cygwin		baseline_closed_area_teaching.dat	09.03.2016 10:22	D
) Displace		area_closure_NAT2000.dat	23.02.2016 10:16	Di
L DISPLACE_input		area_closure_NAT2000_fuelprice_plus20perc	23.02.2016 10:16	D
benthosspe_balticonly		area closure NAT2000 low prod.dat	23.02.2016 10:16	D
benthosspe_myfish		area closure WMF.dat	23.02.2016 10:16	D
externalforcing balticonly		area closure WME low prod dat	23.02.2016.10:16	D/
L externalforcing_myfish		area closure WME NAT2000 dat	23 02 2016 10:16	 D/
lishfarmsspe_balticonly		area closure WME NAT2000 and SMS dat	23.02.2016.10:16	D/
L fishfarmsspe_myfish		area_closure_WME_NAT2000_low_prod_dat	23.02.2016 10:16	D,
barboursspe			23.02.2010 10.10	D/
harboursspe_builteonly		area_closure_whit_NAT2000_low_prod_and	23.02.2016 10:16	D/
l metiersspe_balticonly		area_closure_WMF_NAT2000_SMS_single.dat	23.02.2016 10:16	Di
📕 metiersspe_myfish		🦉 baseline.dat	23.02.2016 10:16	Di
bopsspe_balticonly		baseline_SMS_single.dat	23.02.2016 10:16	D/
biperspe_myfish		🮯 config.dat	23.02.2016 10:16	Di
		high_profit_grounds.dat	23.02.2016 10:16	Di
<pre>shiptspe_injhan</pre>		high_profit_grounds_and_SMS.dat	23.02.2016 10:16	Di
l shortPaths_balticonly_a_graph111		high_profit_grounds_SMS_single.dat	23.02.2016 10:16	Di
shortPaths_balticonly_a_graph113		low_prod.dat	23.02.2016 10:16	D/
<pre>shortPaths_myfish_a_graph56</pre>		Iow_prod_and_SMS.dat	23.02.2016 10:16	Di
shortPaths_myfish_a_graph57		Scenario1.dat	23.02.2016 10:16	Di
simusspe_ballconiy		Scenario2 dat	23 02 2016 10.16	D, 💌
timocorios	▼			
Dateiname: baseline	_close	d_area_teaching.dat  ▼ ★.dat		•
			Abbrachan	
			Abbrecher	

Disable the visualization of some layers (GRAPH, Monthly Tariffs) to speed up the computation and see the vessels moving.

💓 DISPLACE
File Model Graph Editor Utilities Window
🛛 🖸 🥃 🥜 😡 🖙 🦿
Model Objects
[0] balticonly baseline_closed_area_teachi
<ul> <li>Layers</li> <li>OpenStreetMap</li> <li>Seamark</li> <li>Entities</li> <li>Graph</li> <li>Graph Edges</li> <li>Shapefile Layers</li> <li>Monthly Output Layers</li> <li>Abundance</li> <li>Biomass</li> <li>Impact</li> <li>Catches Per Pop</li> <li>Benthos Biomass</li> <li>Fishing Effort</li> </ul>
<ul> <li>Monthly Tariffs</li> <li>Tariff all</li> <li>Tariff pop</li> <li>Tariff benthos</li> <li>Nodes</li> </ul>

LINK A DATABASE (needed for replay the simulation...otherwise not needed !)

#### create a DB



妏 Link database			×
	OS (C:) ▼ DISPLACE_outputs ▼ balticonly ▼	- 🔄 balticon	ly dur 왿
Organisieren 🔻 Neuer Ordner			- 0
🍺 Gespeicherte Spiele	▲ Name ▲	Änderungsdatum	Тур
	haseline closed area teaching	09 03 2016 08:43	Dateiordner
	baseline_closed_area_cedening	05.03.2010 00.15	Dateiorarier
RFACHit			
Recent			
SendTo			
🛼 Startmenü			
🐌 Suchvorgänge			
🝌 Vorlagen			
💐 Computer			
😻 Windows7_OS (C:)			
🌲 \$Recycle.Bin			
📕 Benutzer			
📕 Boot			
📙 Config.Msi			
📙 cygwin			
📙 data			
L Displace			
L DISPLACE_input			
L DISPLACE_outputs			
balticonly			
Documents and Settings			
Dateiname: simuspe_bas	eline_closed_area_teaching.db		•
Dateityp: Displace Date	base files (*.db)		<b>_</b>
	· · · · · · · · · · · · · · · · · · ·		
Ordner ausblenden		Speichern Ab	brechen
	L		

Then setup the simulation in the upper right corner of the GUI

Commands
Start
Stop
🔅 Setup

#### 8762 steps in hours = 1 year

#### keep verbosity level = 0 otherwise the application may crash

simu2 defines the random seed

...so if you compare scenarios look at the same number !

🎲 Simulation Setup	? ×
8762 steps	-
	•
Output folder name	
baseline_closed_area_teaching	
simu2	
Simulation Name	
Record Vessels position	
0	<b>A</b>
Verbosity Level	
Shortest paths	
Preexisting paths	
1	<u> </u>
Use static paths	
1	×
Multitheranding	
Multitureading	
Number of threads:	
The suggested number of thread for this processor is 8	
OK Cance	:



then it reads in the input files

Simulator Memory RSS: 298Mb peak 298Mb

and starts running... the steps are counting



and the vessels are moving



# **COMPARE** different scenarios

(You need only the databases for comparison, not the output files)



then you can switch between the scenarios



and compare the maps and summary plots (but note that scales are different and do not start at 0)



baseline scenario revenues

#### Closed area scenario revenues

Figures can also be exported



and numbers behind the figures are in the output files, e.g. popdyn\_F\_simu2.dat

#### \*\*\*\*\*\*

\*\*\*\*\*\*

#### Launch DISPLACE from the command line without the GUI

Create a batch file with the following content (see below) and name the file e.g. launch\_a\_queue\_of\_displace\_simus.bat and place this .bat file in the same folder than the DISPLACE\_input folder. Launch it by double-clicking on it. Output files will be created in C:\DISPLACE\_outputs

REM 8762 tsteps for one year....

REM here for example simu2, simu3, and simu4

REM will be created for the 'balticonly' application and scenario 'baseline'

REM you might also test with verbosity -V 0 to limit the output message in out.txt

for /l %%a in (2,1,4) do (start /d C:\Displace082 displace -f "balticonly" -f2 "baseline" -s "simu%%a" -i 8762 -p 1 -o 1 -e 1 -v 0 --without-gnuplot -V 1 --num\_threads 4 > ..\out.txt

PING 1.1.1.1 -n 1 -w 10000 >NUL)

PAUSE