

Supplementary material

“An assessment of the impact of bottom trawling on the status of the North Sea seafloor: which habitats are most affected by which fisheries?”

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Table SM1. Coefficients of the statistical model of the cumulative biomass ($\ln(B/(1-B))$) as a function of $\ln(\text{longevity})$, subsurface trawling intensity (T, year^{-1}) and habitat variables (%Mud, %Gravel, $\ln(\text{Shear stress})$ (N.m^{-2}) (from Rijnsdorp et al., 2018).

	Estimate	SE	P
Intercept	-5.408	0.291	<0.001
L Ln(longevity)	3.386	0.158	<0.001
T Ln(trawling)	-0.0658	0.0724	ns
M Mud	0.0161	0.0036	<0.001
G Gravel	0.0139	0.0119	ns
S $\ln(\text{shear stress})$	-0.1192	0.1269	ns
T:S $\ln(\text{trawling}):\ln(\text{shear stress})$	-0.1601	0.0501	<0.01
L:G $\ln(\text{longevity}):\text{Gravel}$	-0.0171	0.0060	<0.01

SM2. Metier: dredgers targeting molluscs (scallops, Ensis) (DRB_MOL)

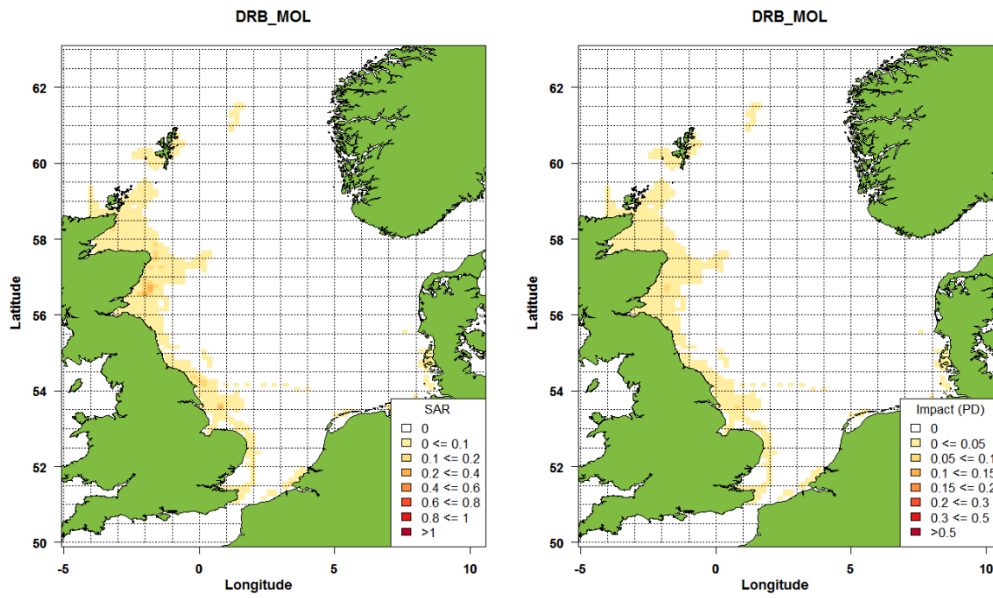


Figure SM2.1. DRB_MOL: left) Map of annual trawling intensity (SAR, year-1); right) PD impact score.

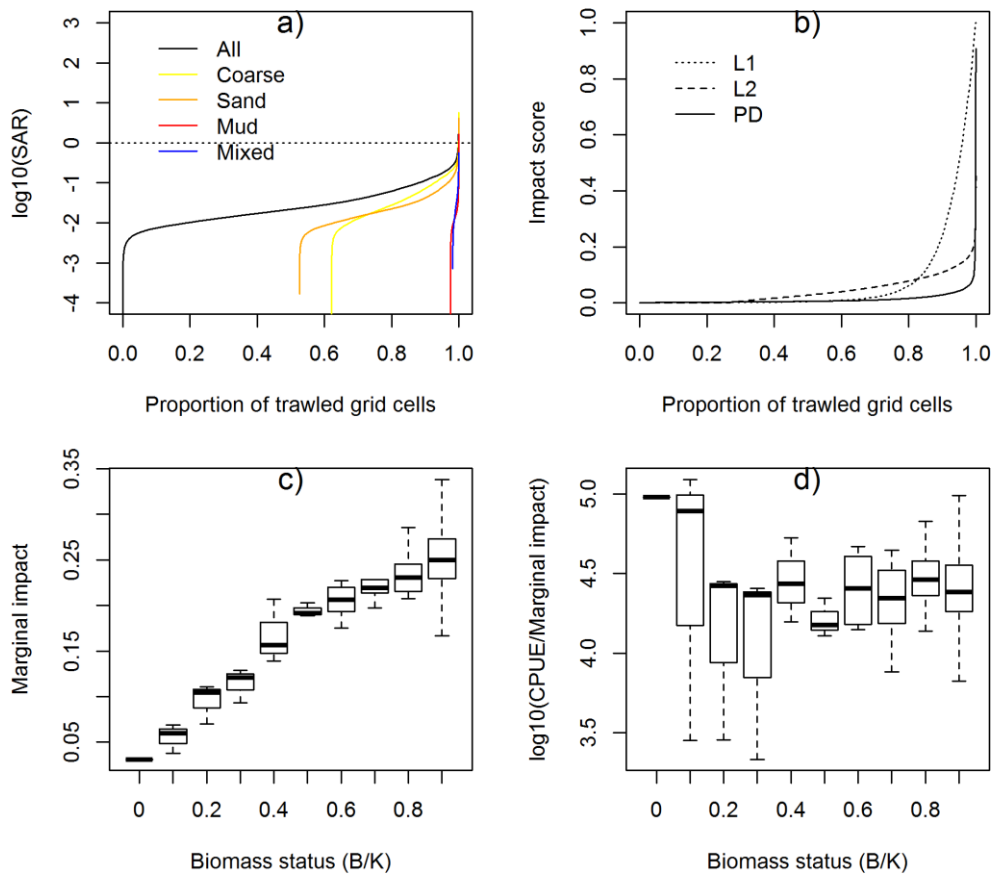


Fig. SM2.2. DRB_MOL: a) Trawling intensity profile; b) impact scores according L1, L2, PD; c) Marginal impact in relation to the relative benthic status (B/K); d) CPUE/marginal impact ratio in relation to the relative benthic status (B/K) estimated with the PD method.

SM3. Metier: otter trawlers targeting crustaceans (nephrops, pandalus)

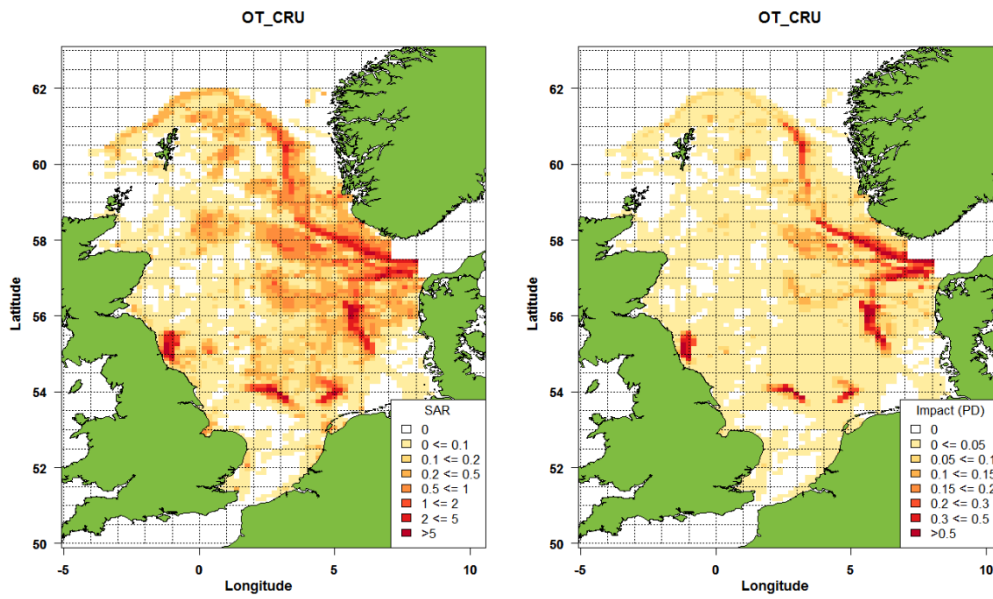


Figure SM3.1. OT_CRU: left) Map of annual trawling intensity (SAR, year-1); right) PD impact score.

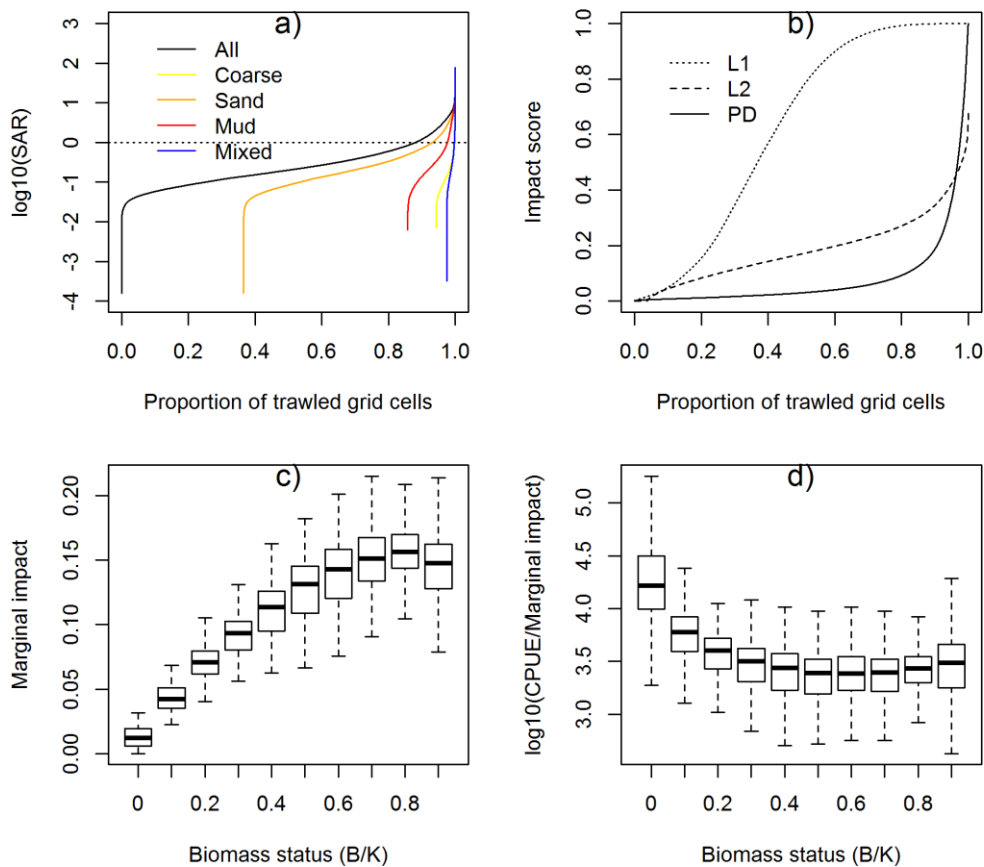


Fig. SM3.2. OT_CRU: a) Trawling intensity profile; b) impact scores according L1, L2, PD; c) Marginal impact in relation to the relative benthic status (B/K); d) CPUE/marginal impact ratio in relation to the relative benthic status (B/K) estimated with the PD method.

SM4. Metier: otter trawl targeting a mix of demersal fish (OT_DMF)

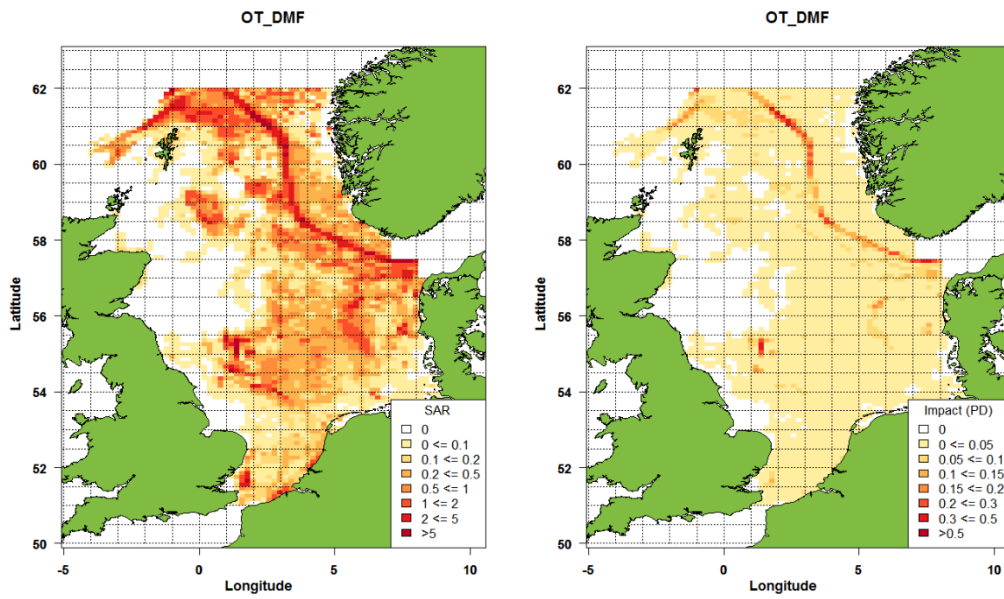


Figure SM4.1 left) Map of annual trawling intensity (SAR, year-1); right) PD impact score.

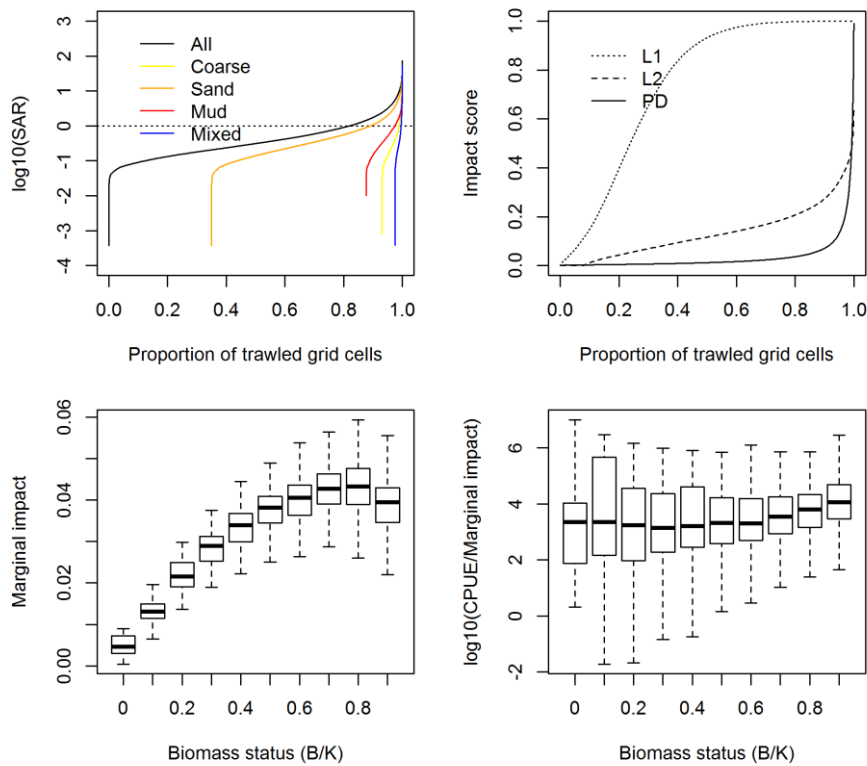


Fig. SM4.2. OT_DMF: a) Trawling intensity profile; b) impact scores according L1, L2, PD; c) Marginal impact in relation to the relative benthic status (B/K); d) CPUE/marginal impact ratio in relation to the relative benthic status (B/K) estimated with the PD method.

SM5. Metier: Otter trawl targeting a mixed fish (OT_MIX_1)

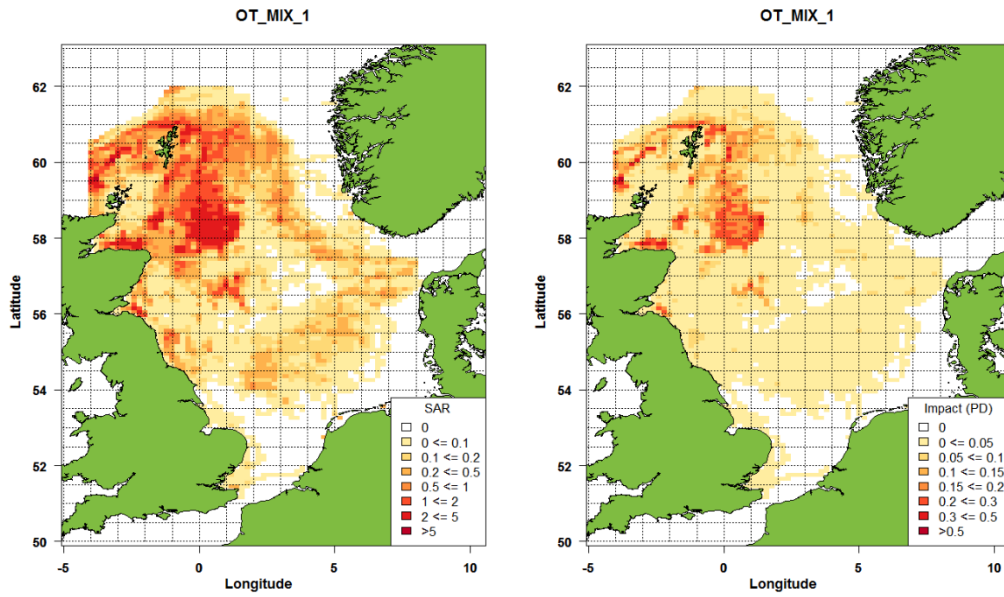


Figure SM5.1. OT_MIX_1: left) Map of annual trawling intensity (SAR, year-1); right) PD impact score.

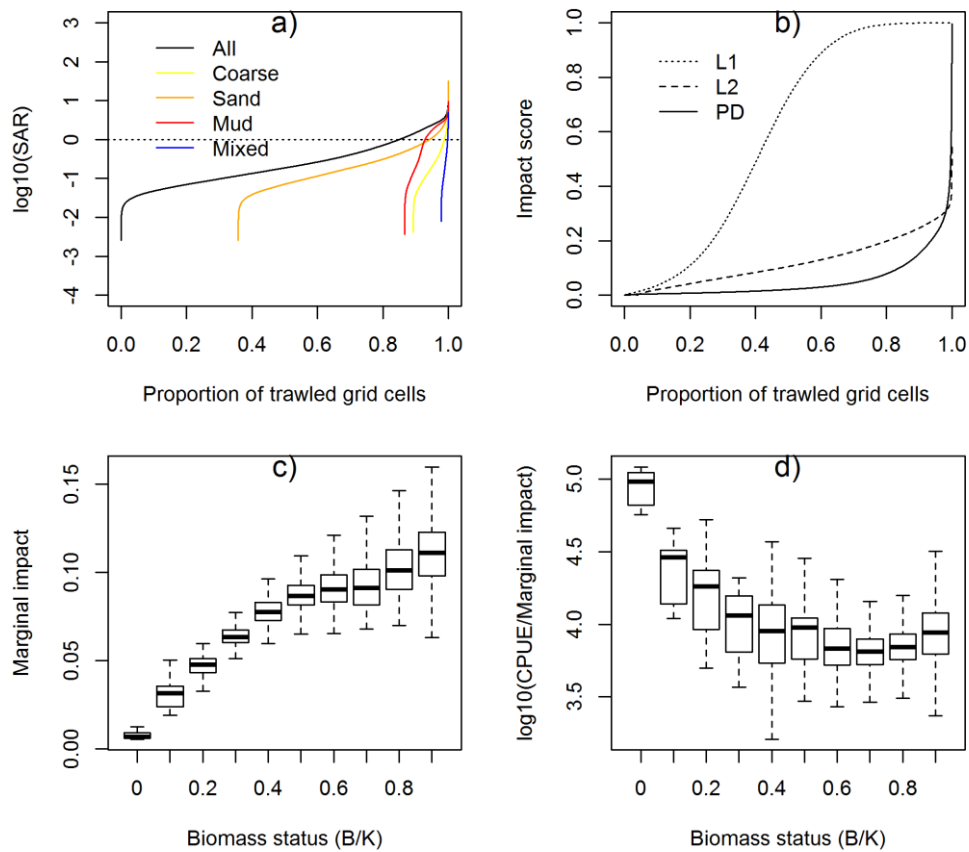


Fig. SM5.2. OT_MIX_1: a) Trawling intensity profile; b) impact scores according L1, L2, PD; c) Marginal impact in relation to the relative benthic status (B/K); d) CPUE/marginal impact ratio in relation to the relative benthic status (B/K) estimated with the PD method.

SM6. Metier: Otter trawl targeting a mix of benthic-pelagic fish (OT_MIX_2)

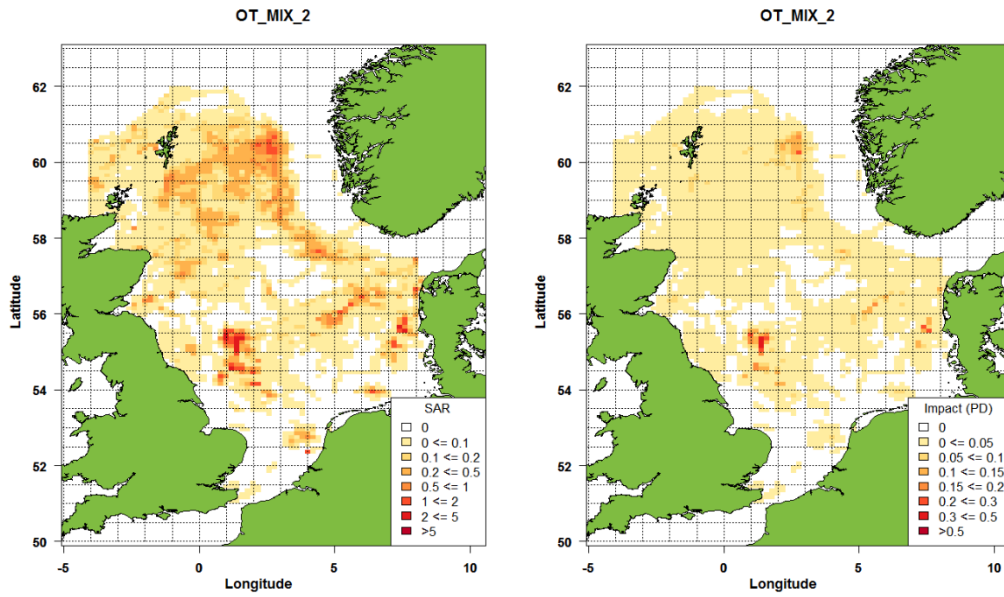


Figure SM6.1 left) Map of annual trawling intensity (SAR, year-1); right) PD impact score.

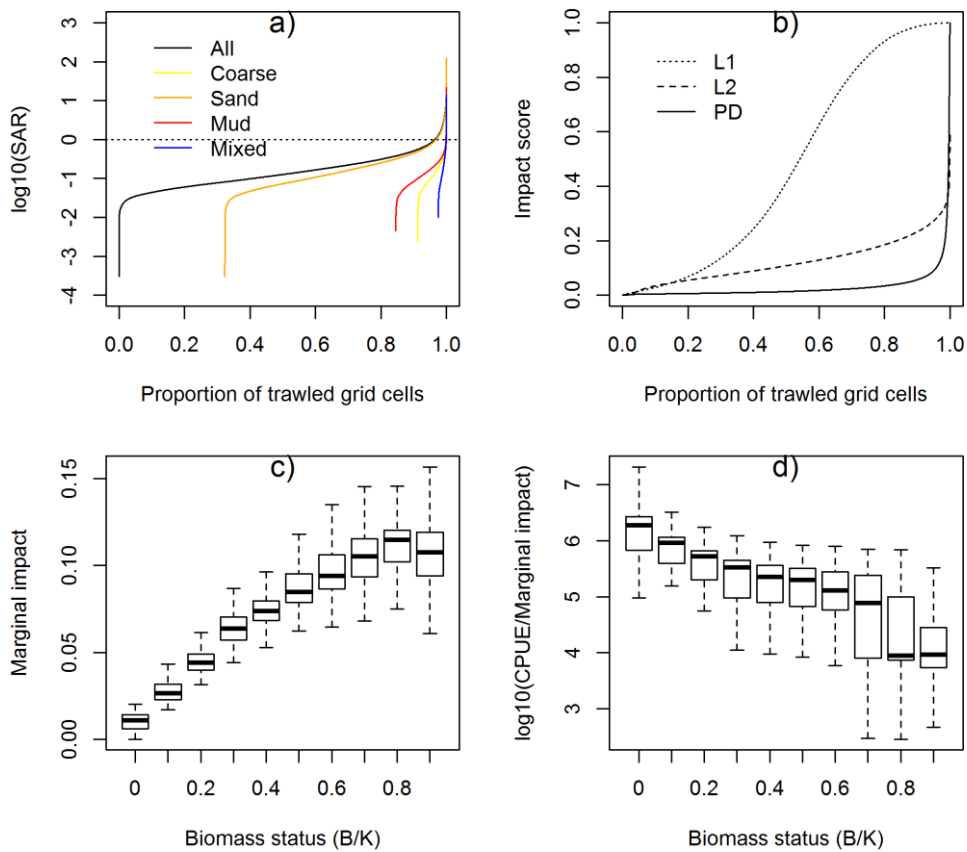


Fig. SM6.2. OT_MIX_2: a) Trawling intensity profile; b) impact scores according L1, L2, PD; c) Marginal impact in relation to the relative benthic status (B/K); d) CPUE/marginal impact ratio in relation to the relative benthic status (B/K) estimated with the PD method.

SM7. Metier: otter trawl targeting industrial fish (sprat, sandeel) (OT_SPF)

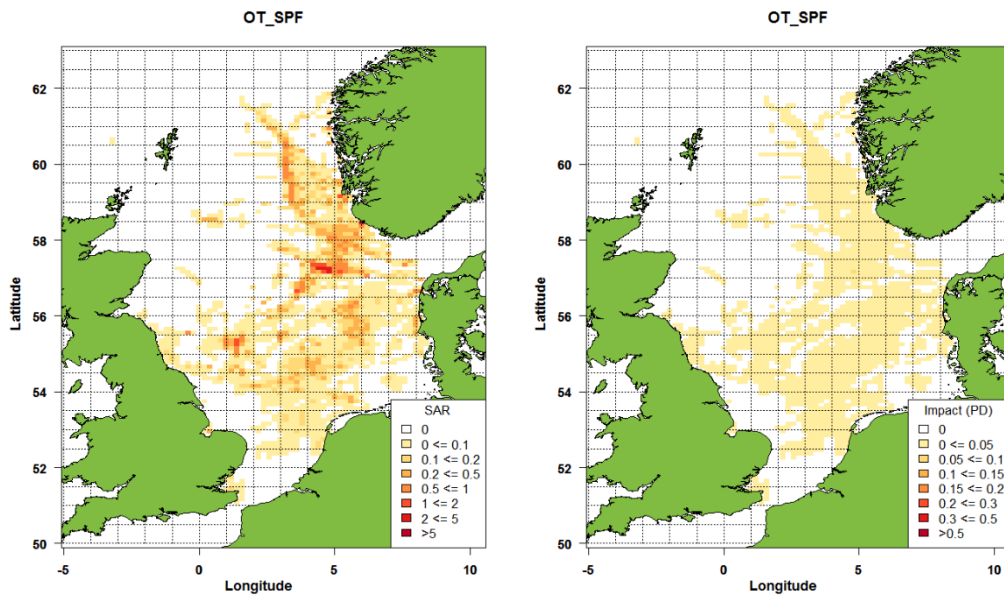


Figure SM7.1 left) Map of annual trawling intensity (SAR, year-1); right) PD impact score.

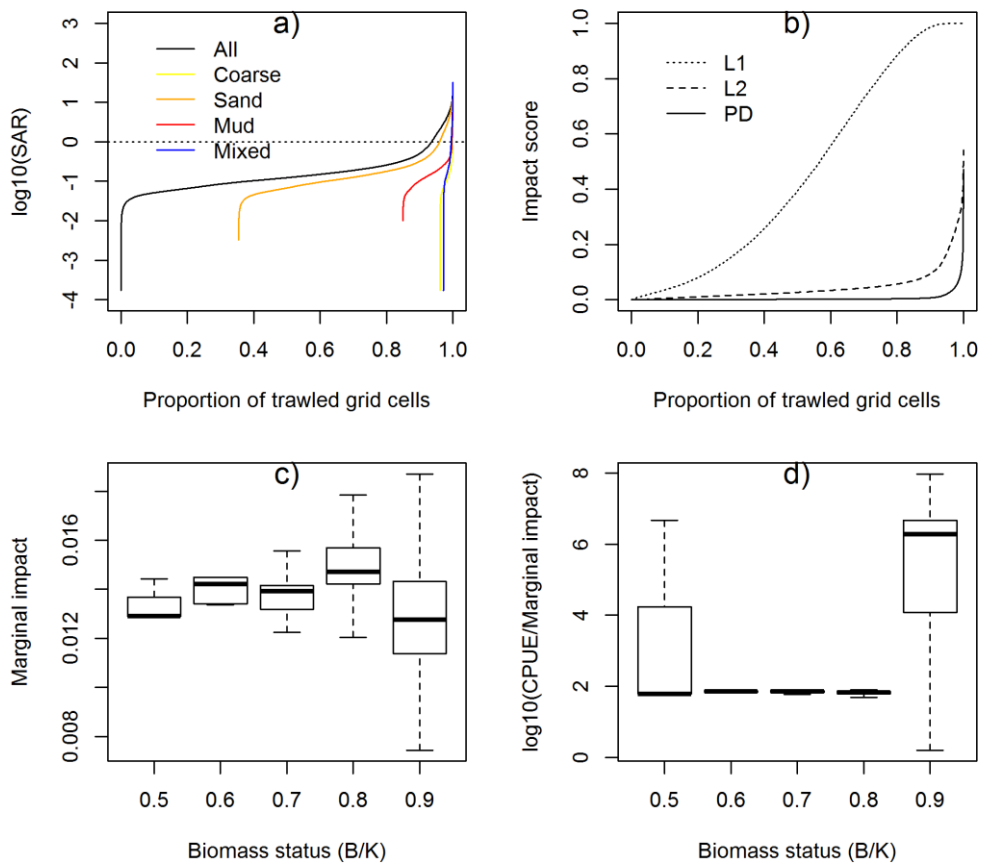


Fig. SM7.2. OT_SPF: a) Trawling intensity profile; b) impact scores according L1, L2, PD; c) Marginal impact in relation to the relative benthic status (B/K); d) CPUE/marginal impact ratio in relation to the relative benthic status (B/K) estimated with the PD method.

SM8. Metier: Danish (anchor) seine (SDN)

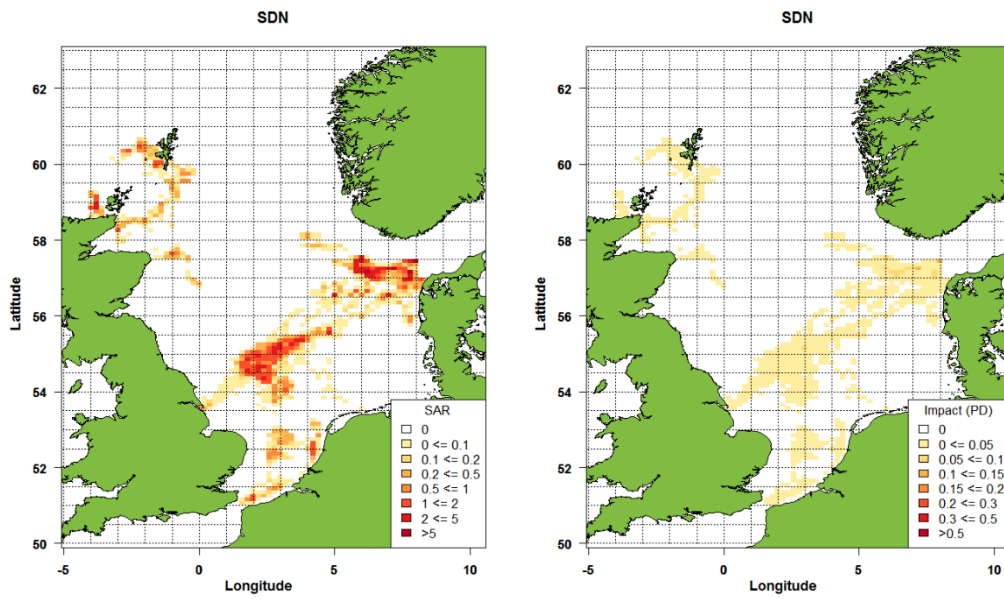


Figure SM8.1 left) Map of annual trawling intensity (SAR, year-1); right) PD impact score.

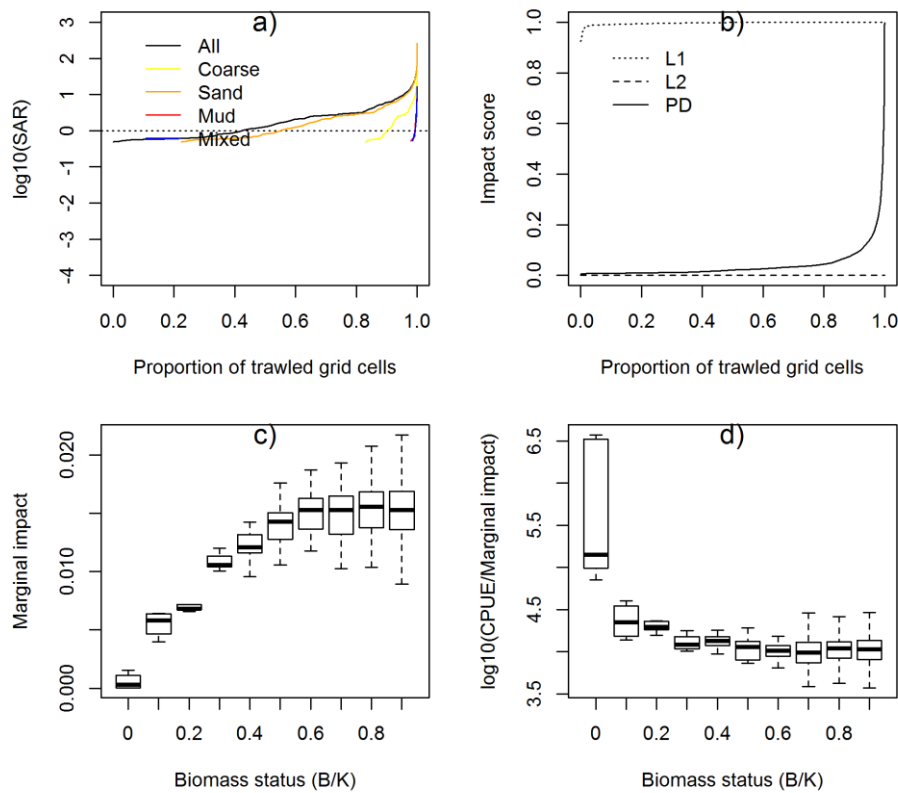


Fig. SM8.2. SDN: a) Trawling intensity profile; b) impact scores according L1, L2, PD; c) Marginal impact in relation to the relative benthic status (B/K); d) CPUE/marginal impact ratio in relation to the relative benthic status (B/K) estimated with the PD method.

SM9. Metier: Flyshoot (Scottish seine) (SCC)

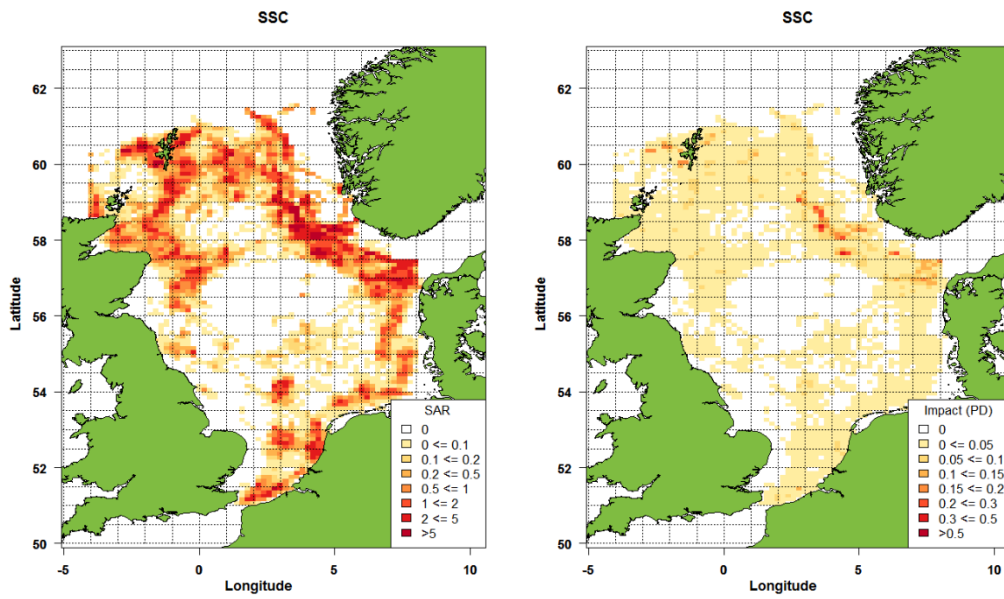


Figure SM9.1. SSC: left) Map of annual trawling intensity (SAR, year-1); right) PD impact score.

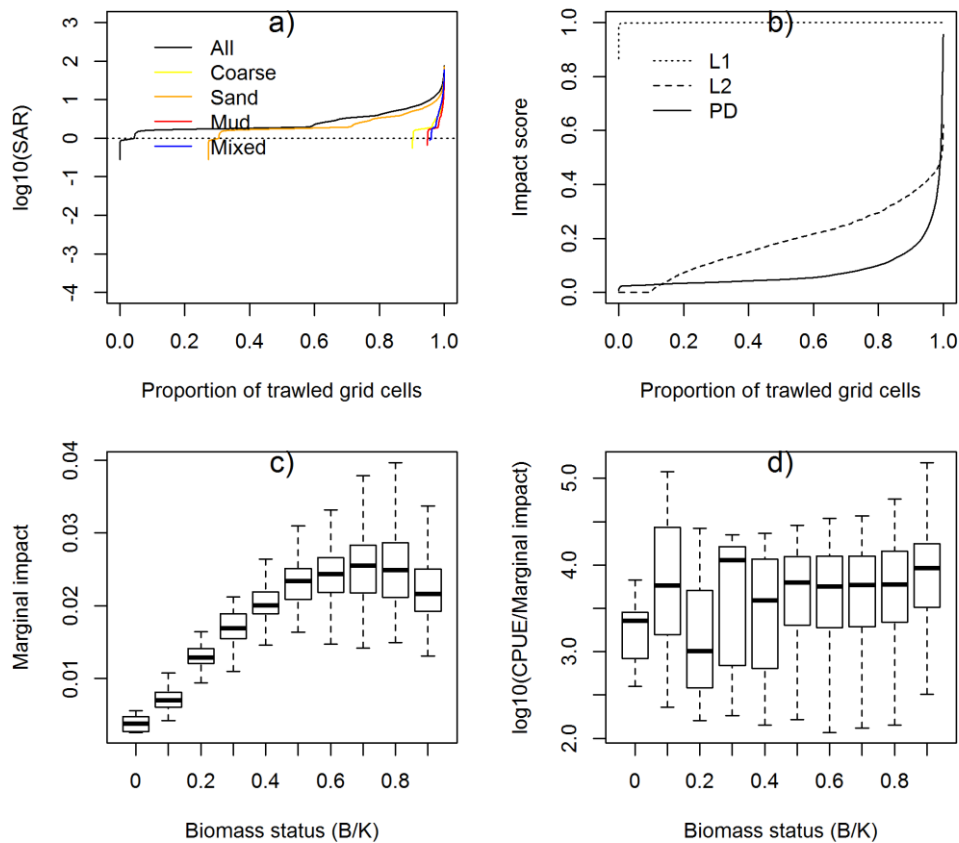


Fig. SM9.2. SSC: a) Trawling intensity profile; b) impact scores according L1, L2, PD; c) Marginal impact in relation to the relative benthic status (B/K); d) CPUE/marginal impact ratio in relation to the relative benthic status (B/K) estimated with the PD method.

SM10. Metier: Beam trawl targeting brown shrimp (TBB_CRU)

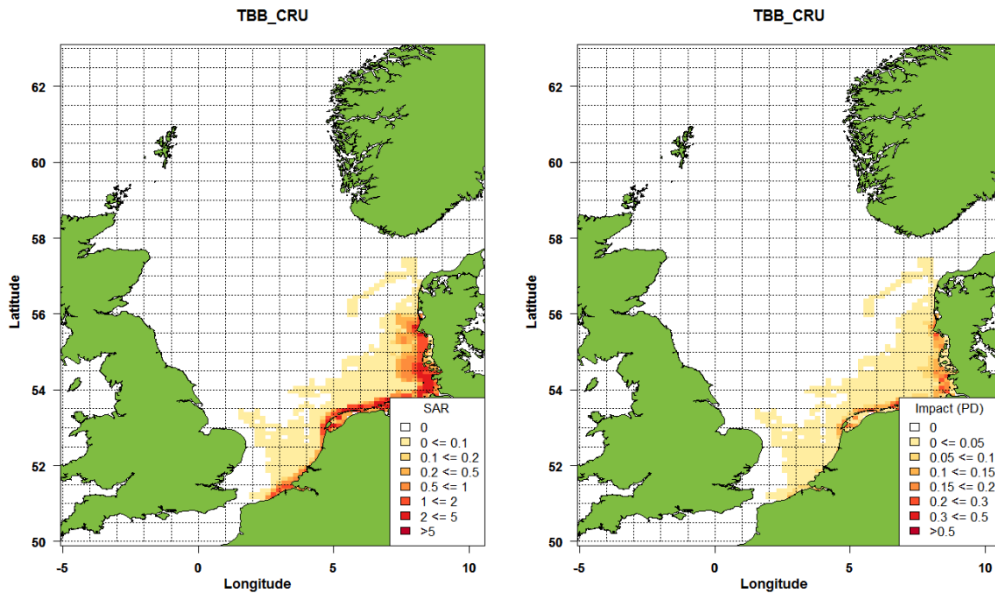


Figure SM10.1 left) Map of annual trawling intensity (SAR, year-1); right) PD impact score.

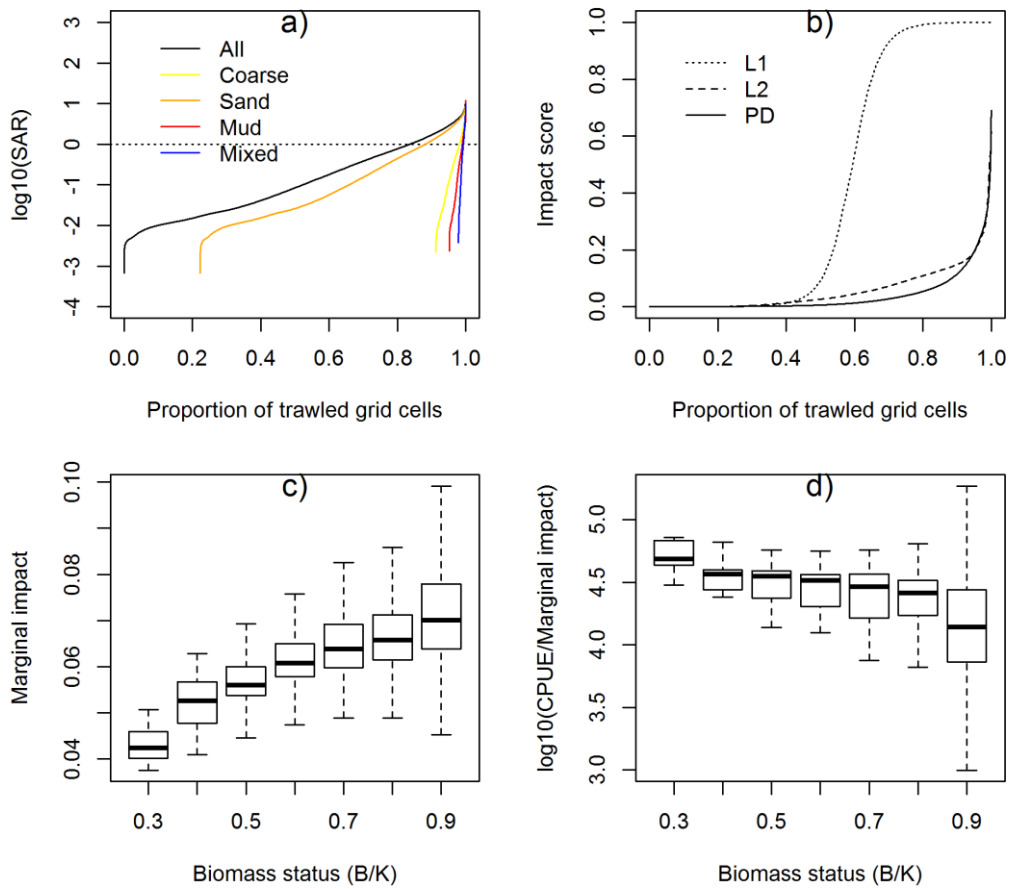


Fig. SM10.2. TBB_CRU: a) Trawling intensity profile; b) impact scores according L1, L2, PD; c) Marginal impact in relation to the relative benthic status (B/K); d) CPUE/marginal impact ratio in relation to the relative benthic status (B/K) estimated with the PD method.

SM11. Metier: beam trawl targeting flatfish (TBB_DMF)

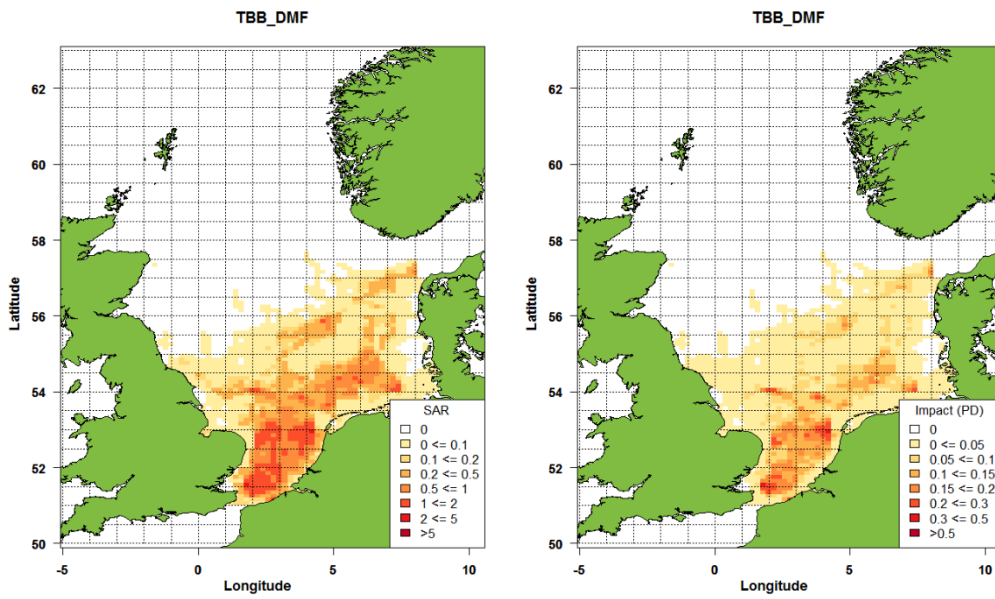


Figure SM11.1 TBB_DMF: left) Map of annual trawling intensity (SAR, year-1); right) PD impact score.

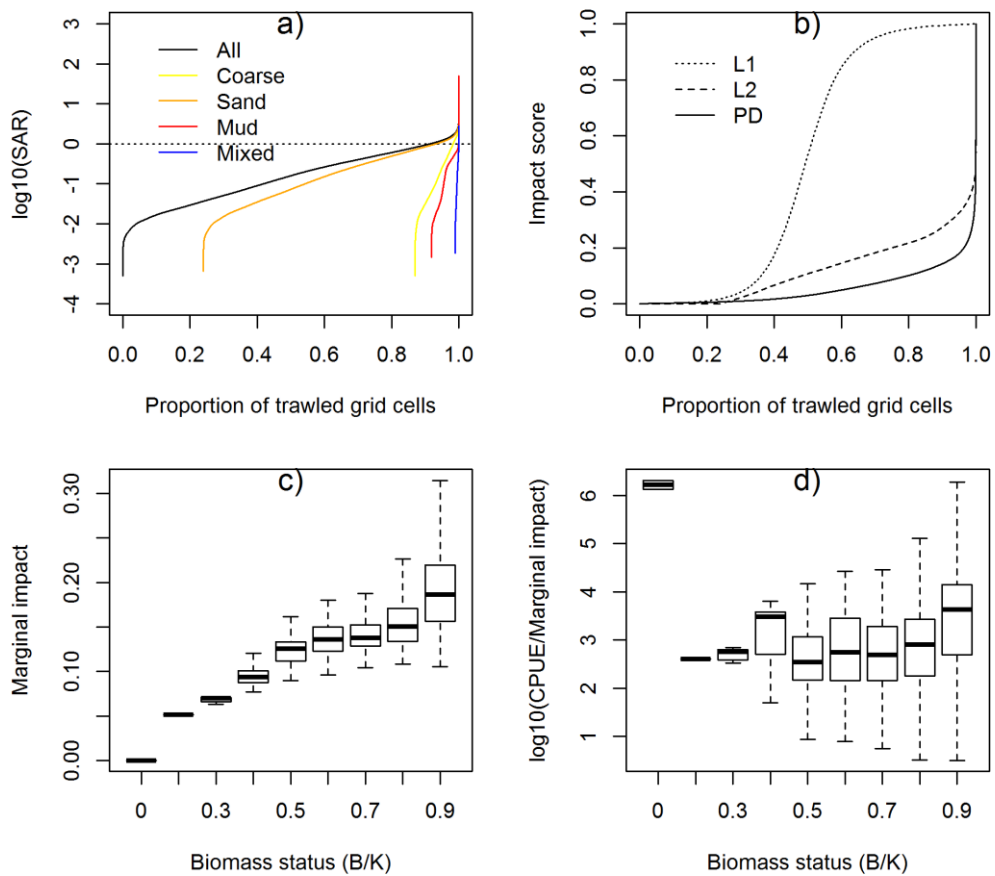


Fig. SM11.2. TBB_DMF: a) Trawling intensity profile; b) impact scores according L1, L2, PD; c) Marginal impact in relation to the relative benthic status (B/K); d) CPUE/marginal impact ratio in relation to the relative benthic status (B/K) estimated with the PD method.