

\*\*\*Mitigating ecosystem impacts of bottom trawl fisheries for North Sea sole *Solea solea* by replacing mechanical with electrical stimulation\*\*\*

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\*\*\*General description data set\*\*\*

The csv data file "SAR\_TBB.csv" contains data on habitat characteristics and fishing effort of the Dutch beam trawl fleet by grid cells of 1 minute longitude \* 1 minute latitude in the North Sea used to study the changes in trawling impact on the benthic ecosystem due to the transition from conventional beam trawling to pulse trawling.

Habitat variables (%sand, %gravel, %mud) were obtained from Wilson et al. (2018). Tidal bed shear stress (N.m<sup>-2</sup>) was obtained from a hydrodynamic model by John Aldridge (CEFAS) as used in by Hiddink et al. (2006) and van Denderen et al. (2015). EUNIS habitat type were assigned based on Davies et al. (2004).

Fishing effort was expressed as the annual swept area ratio (area swept by the gear in km<sup>2</sup> / surface area of the grid cell (km<sup>2</sup>)) by gear for the total Dutch beam trawl fleet (TBB.year), the subset of vessels holding a pulse license and fishing with the conventional beam trawl gear (PLH.T.year) or with the innovative pulse trawl (PLH.P.year).

| Variable     | Description  | Units             |
|--------------|--|-------------------|
| "CELL_LONG"  | Longitude of grid cell   | degree            |
| "CELL_LATI"  | Latitude of grid cell  | degree            |
| "Depth"      | depth  | meter             |
| "Surface"    | surface area   | Km <sup>2</sup>   |
| "EUNIScode"  | habitat code according EUNIS level 3 classification  |                   |
| "Mud"        | %mud content according Wilson et al  | %                 |
| "Sand"       | %sand content according Wilson et al   | %                 |
| "Gravel"     | %gravel content according Wilson et al   | %                 |
| "Stress"     | shear bed stress (N.m <sup>-1</sup> )  | N.m <sup>-2</sup> |
| "TBB.2009"   | swept area ratio of beam trawl vessels in 2009   |                   |
| "PLH.T.2009" | swept area ratio of the subset of pulse license holders fishing with the conventional beam trawl in 2009 |                   |
| "PLH.P.2009" | swept area ratio of the subset of pulse license holders fishing with the pulse trawl in 2009             |                   |
| ....         |  |                   |
| "TBB.2017"   | swept area ratio of beam trawl vessels in 2009   |                   |
| "PLH.T.2017" | swept area ratio of the subset of pulse license holders fishing with the conventional beam trawl in 2017 |                   |
| "PLH.P.2017" | swept area ratio of the subset of pulse license holders fishing with the pulse trawl in 2017             |                   |

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