

Application for Consent to conduct
Marine Scientific Research

Date: Thursday, March07, 2019

1. General Information

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| 1.1 Cruise name and/or number: Dogger Bank long term monitoring cruise no. 26 |
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| 1.2 Sponsoring Institution(s): Senckenberg Research Institute | |
| Name: | Prof. Dr. Angelika Brandt |
| Address: | Senckenberganlage 25, 60325 Frankfurt a.M. |
| Name of Director: | Prof. Dr. Andreas Mulch |

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| 1.3 Scientist in charge of the Project: | |
| Name: | Dr. Moritz Sonnewald |
| Country: | Germany |
| Affiliation: | Senckenberg Research Institute |
| Address: | Senckenberganlage 25 |
| Telephone: | +49 69 75 42 12 54 |
| Fax: | +49 69 74 62 38 |
| Email: | msonnewald@senckenberg.de |
| Website (for CV and photo): | www.senckenberg.de/root/index.php?page_id=18009 |

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| 1.4 Entity(ies)/Participant(s) from coastal State involved in the planning of the project: | |
| Name: | None involved |
| Affiliation: | |
| Address: | |
| Telephone: | |
| Fax: | |
| Email: | |
| Website (for CV and photo): | |

2. Description of Project

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| 2.1 Nature and objectives of the project: |
| <p>This long-term research project at the Dogger Bank now is running since the year 1990 on a yearly basis and the proposed cruise is number 26. Sampling will be done mainly at the UK sector of the Dogger Bank (centre of station grid approximately 95 nautical miles East-North-East off Scarborough) by collecting bottom animals by beam trawl usage and the use of Van-Veen-grab and ring dredge. Collecting of Plancton will occur at selected stations. The environmental variables water temperature, salinity are recorded with a CTD probe for comparative purposes.</p> |

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| 2.2 If designated as part of a larger scale project, then provide the name of the project and the Organisation responsible for coordinating the project: |
| Dogger Bank epifauna long term monitoring programme – Senckenberg Research Institute |

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| 2.3 Relevant previous or future research projects: |
| none |

2.4 Previous publications relating to the project:

Bowler, D. E., Hof, C., Haase, P., Kröncke, I., Schweiger, O., Adrian, R., ... Sonnewald, M., ... Böhning-Gaese, K. (2017). Cross-realm assessment of climate change impacts on species' abundance trends. *Nature Ecology and Evolution*, 1(3), 1–7. <https://doi.org/10.1038/s41559-016-0067>

Mai, A. (2018) Qualitative analysis of epifaunal macrofauna (<1 cm) collected at the Dogger Bank: species occurrences in a changing environment. Bachelor Thesis, Goethe-Universität Frankfurt am Main

Schmidt, A. (2018) Qualitative analysis of decapods from < 1 cm epifaunal macrofauna collected during a long-term monitoring project at the Dogger Bank. Bachelor Thesis, Goethe-Universität Frankfurt am Main

Sonnewald M, Türkay M (2011) The megaepifauna of the Dogger Bank (North Sea): species composition and faunal characteristics 1991–2008. *Helgoland Marine Research* 66(1): 63-75. DOI 10.1007/s10152-011-0247-2

Sonnewald M, Türkay M (2012) Environmental influence on the bottom and near-bottom megafauna communities of the Dogger Bank: a long-term survey. *Helgol Mar Res.* 66: 503-511. doi: 10.1007/s10152-011-0286-8

Sonnewald, M, Türkay M (2012) Abundance analyses of mega-epibenthic species on the Dogger Bank (North Sea): Diurnal rhythms and short-term effects caused by repeated trawling, observed at a permanent station. *J Sea Res* 73: 1-6. DOI: 10.1016/j.seares.2012.05.015

Sonnewald, M, Janssen, R (2012) Recent spreading of *Xandarovula patula* [Mollusca: Gastropoda: Ovulidae] towards the central North Sea suggests a link to rising water temperatures. *Marine Biodiversity Records* 5: e58: 5 pp. DOI 10.1017/S1755267212000358

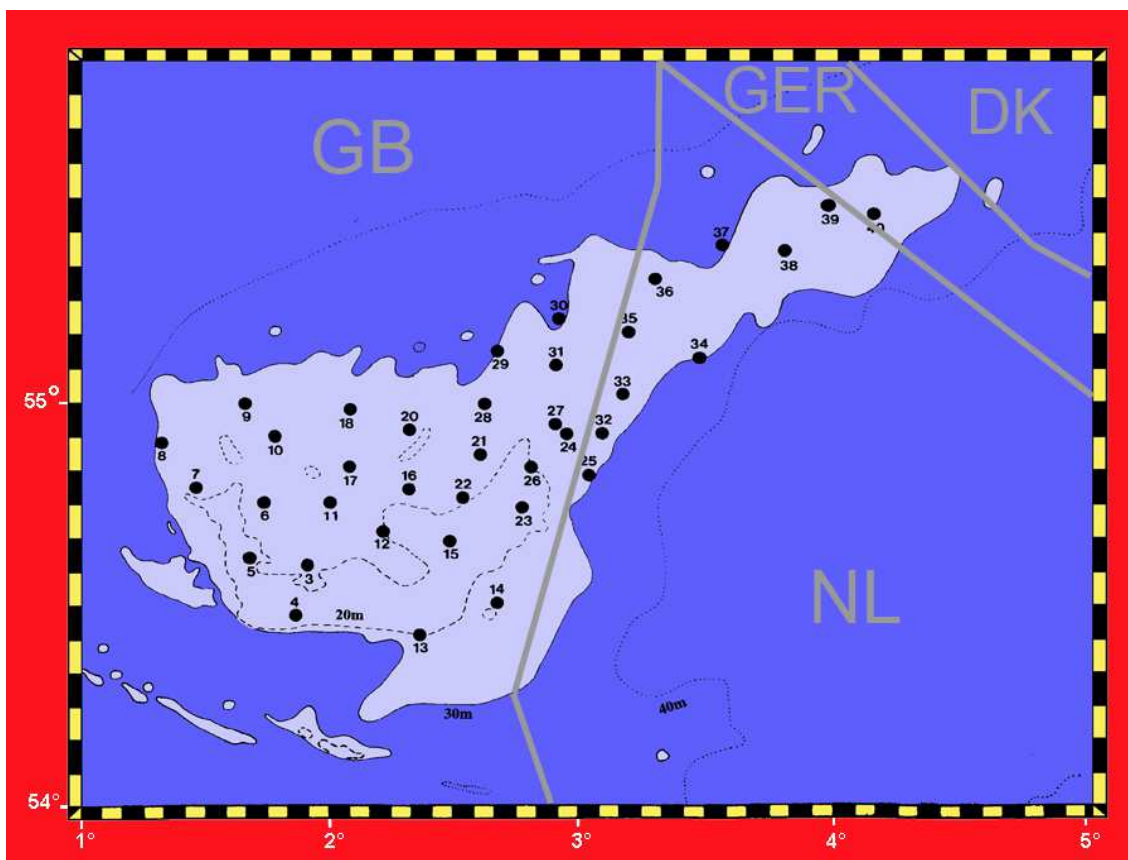
Stribny B, Sonnewald M, Türkay M, Uhl D, Wilmsen M & Wolters S (2012) Die Doggerbank – Gerölle erzählen eine Klimageschichte. *Natur Forschung Museum* 142(1/2):28-35.

3. Geographical Areas

3.1 Indicate geographical areas in which the project is to be conducted (with reference in Latitude and longitude in decimal degrees, including coordinates of cruise/track/way points/sampling stations). Please provide coordinates in a separate excel spreadsheet.

British sector of Dogger Bank. Total cruise area: Rect. 54°10'N 4°25'E 55°35'N 1°10'E

3.2 Attach chart(s) at an appropriate scale (1 page, high-resolution) showing the geographical Areas of the intended work and and, as far as practicable, the location and depth of sampling Stations, the tracks of survey lines, and the locations of installations and equipment.



| Station | Lat [N] | Long [E] | Depth [m] |
|---------|-------------|------------|-----------|
| 01 | 54°32,80'N | 2°20,30' E | 18,7 |
| 02 | 54°34,50' N | 2°10,40'E | 19,2 |
| 03 | 54° 36,3'N | 1° 55,02'E | 21,4 |
| 04 | 54° 28,8'N | 1° 51,72'E | 19,8 |
| 05 | 54° 37,08'N | 1° 40,92'E | 21,6 |
| 06 | 54° 45,48'N | 1° 43,98'E | 24,7 |
| 07 | 54° 47,88'N | 1° 27,18'E | 24,6 |
| 08 | 54° 54'N | 1° 19,02'E | 35,9 |
| 09 | 54° 59,76'N | 1° 39,18'E | 28,1 |
| 10 | 54° 55,26'N | 1° 46,74'E | 21,9 |
| 11 | 54° 45,48'N | 2° 0,42'E | 28,4 |
| 12 | 54° 41,52'N | 2° 12,96'E | 22,2 |
| 13 | 54° 26,04'N | 2° 21,6'E | 18,1 |
| 14 | 54° 30,9'N | 2° 40,56'E | 23,4 |
| 15 | 54° 39,78'N | 2° 29,1'E | 19,4 |
| 16 | 54° 47,46'N | 2° 19,14'E | 21,6 |

| Station | Lat [N] | Long [E] | Depth [m] |
|---------|-------------|------------|-----------|
| 17 | 54° 50,76'N | 2° 5,22'E | 22,5 |
| 18 | 54° 59,4'N | 2° 5,52'E | 27,5 |
| 19 | 55° 3,42'N | 2° 22,2'E | 28,1 |
| 20 | 54° 56,28'N | 2° 19,68'E | 26,3 |
| 21 | 54° 52,38'N | 2° 36,24'E | 23,1 |
| 22 | 54° 46,14'N | 2° 32,52'E | 22,5 |
| 23 | 54° 44,46'N | 2° 46,08'E | 19,7 |
| 24 | 54° 55,62'N | 2° 57'E | 33,8 |
| 26 | 54° 50,7'N | 2° 48,48'E | 24,1 |
| 27 | 54° 57'N | 2° 53,7'E | 24,1 |
| 28 | 55° 0,24'N | 2° 37,68'E | 26,9 |
| 29 | 55° 7,68'N | 2° 40,32'E | 26,3 |
| 30 | 55° 12,54'N | 2° 55,5'E | 28,4 |
| 31 | 55° 5,64'N | 2° 54,42'E | 25,9 |

4. Methods and means to be used

| 4.1 Particulars of vessel: | |
|---|---|
| Name: | F. K. „Senckenberg“ |
| Type/Class: | Research cutter |
| Nationality (Flag State): | German |
| Identification Number (IMO/Lloyds No.): | IMO8137213 |
| Owner: | Senckenberg Community for Nature Research |
| Operator: | same |
| Overall length (meters): | 29,71 m |
| Maximum draught: | 2,74 m |
| Displacement/Gross Tonnage: | 47, 21 t |
| Propulsion: | Diesel |
| Cruising & maximum speed: | 10 kn |
| Call sign: | DDAW |
| INMARSAT number and method and capability of communication (including emergency frequencies): | Satellite phone +88164140458 Mobile phone +497779144 |
| Name of Master: | Andreas Bürger |
| Number of Crew: | 5 |
| Number of Scientists on board: | 4 |

| 4.2 Particulars of Aircraft: | |
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| Name: | |
| Make/Model: | |
| Nationality (flag State): | |
| Website for diagram & Specifications: | |
| Owner: | |
| Operator: | |
| Overall Length (meters): | |
| Propulsion: | |
| Cruising & Maximum speed: | |
| Registration No.: | |
| Call Sign: | |

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| Method and capability of communication (including emergency frequencies): | |
| Name of Pilot: | |
| Number of crew: | |
| Number of scientists on board: | |
| Details of sensor packages: | |
| Other relevant information: | |

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| 4.3 Particulars of Autonomous Underwater Vehicle (AUV): | |
| Name: | |
| Manufacturer and make/model: | |
| Nationality (Flag State): | |
| Website for diagram & Specifications: | |
| Owner: | |
| Operator: | |
| Overall length (meters): | |
| Displacement/Gross tonnage: | |
| Cruising & Maximum speed: | |
| Range/Endurance: | |
| Method and capability of communication (including emergency frequencies): | |
| Details of sensor packages: | |
| Other relevant information: | |

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| 4.4 other craft in the project, including its use: |
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| 4.5 Particulars of methods, full description of scientific instruments to be used (for fishing gear specify type and dimension) and location | | | |
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| Types of samples and Measurements: | Methods to be used: | Instruments to be used: | To be carried out within 12nm (yes or no): |
| Epifauna | Beam trawl sampling, towing distance 1 nm, at 2 kn speed | 2 m beam trawl | No |
| Infauna | Dredging, grabbing on the spot | Ring dredge, VanVeen grab | No |
| Plankton | Plankton sampling, towed for 5 min | Plankton net (Bongo) | No |
| Water temperature & salinity | Probe measurement on spot (~1 minute) | CTD-probe | No |

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| 4.6 Indicate nature and quantity of substances to be released into the marine environment: none |
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| 4.7 Indicate whether drilling will be carried out. If yes, please specify: no |
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| 4.8 Indicate whether explosives will be used. If yes, please specify type and trade name, Chemical content, depth of trade class and stowage, size, depth of detonation, frequency of Detonation, and position in latitude and longitude: none |
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5. Installations and Equipment

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| Details of installations and equipment (including dates of laying, servicing, method and Anticipated timeframe for recover, as far as possible exact locations and depth, and Measurements): |
| none |

6. Dates

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| 6.1 Expected dates of first entry into and final departure from the research area by the research vessel and/or other platforms: |
| Monday, July 29, 2019 to Wednesday, August 07, 2019 |
| 6.2 Indicate if multiple entries are expected: |
| no |

7. Port Calls

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| 7.1 Dates and Names of intended ports of call: |
| No ports of call |

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| 7.2 Any special logistical requirements at ports of call: |
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| 7.3 Name/Address/Telephone of shipping agent (if available): |
| Briese Schifffahrts GmbH & Co. KG Hafenstrasse 12 P.O. Box 1307 26789 Leer Germany Fon: +49 491 925200 Fax: +49 491 9252025 eMail: info@briese.de |

8. Participation of the representative of the coastal State

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| 8.1 Modalities of the participation of the representative of the coastal State in the research Project: |
| No objections, but probably no berths left. Day trips or longer ones in good weather conditions unproblematic, please contact scientist in charge. |

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| 8.2 Proposed dates and ports for embarkation/disembarkation: |
| embarkation Monday, July 29, 2019, disembarkation Wednesday, August 07, 2019, no stopover expected |

9. Access to Data, Samples and Research Results

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| 9.1 Expected dates of submission to coastal State of preliminary report, which should include The expected dates of submission of the data and research results: |
| Six months after finishing the research cruise |

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| 9.2 Anticipated dates of submission to the coastal State of the final report: |
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Eight months after finishing the research cruise

9.3 Proposed means for access by coastal State to data (including format) and samples:

Final results will be published. The samples, if not released to sea again after examination, will be stored in our museal collection at the Senckenberg Research Institute, accessible via <http://sesam.senckenberg.de>

9.4 Proposed means to provide coastal State with assessment of data, samples and Research results:

Publication reprints can be made available. Research visits at Senckenberg in Germany to access the samples are possible.

9.5 Proposed means to provide assistance in assessment or interpretation of data, samples And research results:

Please contact scientist in charge

9.6 Proposed means of making results internationally available:

Publication of results in peer-reviewed, international journals

10. Other permits Submitted

10.1 Indicate other types of coastal state permits anticipated for this research (received or Pending):

none

11. List of Supporting Documentation

11.1 List of attachments, such as additional forms required by the coastal State, etc.:

Coordinates_Dogger_UK.xlsx : Coordinates including depth of stations in UK waters

Signature:



Contact information of the focal point:

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Affiliation: Senckenberg Research Institute

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