# Ocean-based Negative Emission Technologies

OCEAN NETs

| **Deliverable Title** | **D8.1**<br>**Data management plan** |
|---|---|
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**Abstract:** This is the data management plan for the research project OceanNETs. It compiles OceanNETs research data output and describes the data handling during and after the projects duration with the aim to make OceanNETs research data FAIR – sustainably available for the scientific community. This data management plan is a living document; it will be continuously developed in close cooperation with the consortium members throughout the project duration.

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## Document History

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| 26.05.2022 | 2.0 | Modifications:<br>- new document template with new layout and structure<br>- list of abbreviations and tables, chapter 1 and 3 added<br>- table 1: Deliverable: D5.4, 5.5→ column 6 (Final Accessibility), row 24 (modification: "Confidential, only for members of the consortium" to "Open Access after paper publication"<br>- Annex 2 and 3 added | Lisa Paglialonga and Carsten Schirnick/ GEOMAR \| Helmholtz Center for Ocean Research Kiel |

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## List of abbreviations, acronyms and definitions

| | |
|---|---|
| ASCII | American Standard Code for Information Interchange |
| AWI | Alfred-Wegener-Institut |
| ACDD | Attribute Convention for Data Discovery |
| BODC | British Oceanographic Data Center |
| CC BY | Creative Commons Attribution |
| CF | Climate and Forecast |
| DMP | Data management plan |
| DOI | Digital Object Identifier |
| FAIR | Findable, Accessible, Interoperable, Reusable |
| GBIF | Global Biodiversity Information Facility |
| FMI | Finnish Meteorological Institute |
| HWU | Heriot-Watt University |
| IASS | Institute for advanced sustainability studies EV |
| IfW | Institut für Weltwirtschaft |
| ISO | International Organization for Standardization |
| NERC | Natural Environment Research Council |
| NetCDF | Network Common Data Form |
| NETs | Negative emission technologies |
| NORCE | Norce Norwegian Research Centre AS |
| NTNU | Norges Teknisk-Naturvitenskapelige Universitet |
| OPeNDAP | Open-source Project for a Network Data Access Protocol |
| OSIS | Ocean Science Information System |
| PI | Principal Investigator |
| PID | Persistent Identifier |
| UHAM | University of Hamburg |
| UiO | University of Oslo |
| UOXF | University of Oxford |
| WCS | Web Coverage Service |
| WMS | Web Map Service |
| WP | Work Package |

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# 1. Introduction

## 1.1 Context

OceanNETs is a European Union project funded by the Commission's Horizon 2020 program under the topic of Negative emissions and land-use based mitigation assessment (LC-CLA-02-2019), coordinated by GEOMAR | Helmholtz Center for Ocean Research Kiel (GEOMAR), Germany.
OceanNETs responds to the societal need to rapidly provide a scientifically rigorous and comprehensive assessment of negative emission technologies (NETs). The project focuses on analyzing and quantifying the environmental, social, and political feasibility and impacts of ocean-based NETs. OceanNETs will close fundamental knowledge gaps on specific ocean-based NETs and provide more in-depth investigations of NETs that have already been suggested to have a high CDR potential, levels of sustainability, or potential co-benefits. It will identify to what extent, and how, ocean-based NETs can play a role in keeping climate change within the limits set by the Paris Agreement.

## 1.2 Purpose and scope of the deliverable

The basis for OceanNETs data management is the data management plan (DMP), which was published as fulfillment of deliverable 8.1. It compiles OceanNETs expected research data output and describes the data handling during and after the project term with the aim to make OceanNETs research data FAIR – sustainably available for the scientific community – to be compliant with the formal requirements by H2020 FAIR policy and Open Research Data Pilot following the 'gold' standard. The DMP will be continously developed in close cooperation with the consortium members throughout the project term.

# 2. Technical part of the deliverable

## 2.1 Data Summary

OceanNETs uses data compilation and analyses, modelling, laboratory and mesocosm experiments, participatory approaches, and case studies to investigate different emerging ocean-based negative emission technologies (NETs). Within the projects three core themes a variety of data types will be generated in different data formats and accessibility levels (see table 1 for further detail) to achieve the specific objectives of OceanNETs:

- Determine the most effective ocean-based NETs with low environmental and ecological risks (e.g., to biodiversity, ecosystem services) and high co-benefits.
- Identify for different ocean-based NETs the degree of (and factors affecting) social and political acceptance, affordability, and societal impacts and risks (e.g., to food security, human safety).
- Comparatively assess ocean NETs - by combining new multi-disciplinary data, stakeholder knowledge, and case study assessments - and provide this information

to society and policymakers to increase their capacity to enable and design optimal medium-to-long-term sustainable mitigation pathways.

The concept of OceanNETs has been shaped by prior and ongoing NET-relevant activities and OceanNETs will link with these projects and initiatives to join a broader community, extend relevant methodologies, and utilize data that have been, and are being, acquired, examples of relevant projects include the German Priority Program on Climate Engineering (SPP 1689), the GESAMP working group on marine geo-engineering, the UK's Greenhouse Gas Removal Programme, EU projects COMFORT, EuTRACE, and ERA-NET REEF-FUTURES, the CMIP6 Carbon Dioxide Removal Model Intercomparison Project (CDRMIP), the ERC Ocean artUp project, the Norwegian Research Council IMPOSE project, and the Greenhouse Gas Removal Instruments & Policies Project (GRIP). In particular, the data from these projects will provide a knowledge base, upon which OceanNETs can build. For example, modelling output from both COMFORT and CDRMIP will be analyzed within OceanNETs using newly developed social constraints that allows for a more in-depth interpretation of the results.

Within OceanNETs core theme 1 the econcomic (WP1), political and legal (WP2) and social (public acceptance; WP3) constraints and options that determine the feasibility of ocean-based NETs will be identified, analyzed and possibly quantified. Moreover, the implementation on society will be assessed.
**Data will be generated from online surveys, workshop evaluation surveys, expert interviews and dialogue workshops.**

Within OceanNETs core theme 2 the physical, biogeochemical, and environmental constraints will be assessed that partially determine the feasibility of ocean-based NETs (WP 4) with an emphasis on better understanding ocean alkalinization (WP 5). The environmental and ecological impacts of NET deployments will also be assessed.
**Data will be generated from in-situ observations and model simulations (earth system and biogeochemical).**

Within OceanNETs core theme 3 the transdiciplinary research will be facilitated by combining existing stakeholder knowledge (WP7) with the new results, including comprehensive case studies of deployment (WP 6), to fill multi-disciplinary knowledge gaps.
**This new research data and information management is coordinated by a professional data management team (WP 8) and will be synthesized and disseminated to decision makers, policy makers, scientists, NET assessment teams, and the general public (WP 7).**

*Table 1: Deliverables and expected data products, listed by WP, affiliation and data type (*tbd: to be discussed)*

| WP | Affiliation | Data type | Data format | Data volume (estimated expected) | Final Accessibility | Deliverable |
|---|---|---|---|---|---|---|
| WP1 | IfW | Reports + Working paper | pdf | tbd* | Open Access | D1.1, 1.2, 1.5, 1.6 |
| WP1 | IfW | Database + report | tbd | tbd | Open Access | D1.8 |
| WP1 | FMI | Reports | pdf | tbd | Open Access | D1.3, 1.4 |
| WP1 | UiO | Report | pdf | tbd | Open Access | D1.7 |
| WP2 | IASS | Reports | pdf | 20GB | Open Access | D2.1-2.5 |
| WP2 | IASS | Data from expert interviews, surveys and workshops | tbd | tbd | Confidential, only for members of the consortium | D2.1, 2.2 |
| WP2 | IASS | Publication/Policy brief | pdf | 5GB | Open Access | D2.6 |
| WP2 | UHAM | Reports | pdf | tbd | Open Access | D2.7, 2.8 |
| WP3 | IfW | Reports | pdf | tbd | Open Access | D3.1, 3.2, 3.3, 3.5 |
| WP3 | IfW | Data from lab experiments, interviews, surveys and workshops | tbd | tbd | Confidential, only for members of the consortium | |
| WP3 | NORCE | Report | pdf | tbd | Open Access | D3.4, 3.6 |
| WP3 | NORCE | Data from lab experiments, interviews, surveys and workshops | tbd | tbd | Confidential, only for members of the consortium | |
| WP4 | NTNU | Earth system model output + report | NetCDF | 4TB | Open Access | D4.7, 4.8 |
| WP4 | NTNU | Report | pdf | <1GB | Open Access | D4.9 |
| WP4 | GEOMAR | Earth system model output + report | NetCDF | 20TB | Open Access | D4.3 |
| WP4 | GEOMAR | Report | pdf | <1GB | Open Access | D4.1 |
| WP4 | AWI | Report, possibly postprocessed | pdf | <0.1TB | Open Access | D4.4, 4.5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | Earth system model output | | | | |
| WP4 | AWI | Earth system model output | NetCDF | 5TB | Confidential, only for members of the consortium | D4.6 |
| WP4 | FMI | Earth system model output | NetCDF | 9TB | Open Access | D4.5 |
| WP4 | NORCE | Model output | NetCDF | 6TB | Open Access after paper publication | D4.2 |
| WP4 | NORCE | Model output | NetCDF | 12TB | Open Access after paper publication | D4.4, 4.5 |
| WP5 | UHAM | Observational (mineral dissolution kinetics and stability) | ASCII | <10GB | Open Access | D5.1 |
| WP5 | UHAM | Report | pdf | tbd | Open Access | D5.2 |
| WP5 | GEOMAR | Observational (ecological and biogeochemical) | tbd | tbd | Open Access after paper publication | D5.4, 5.5 |
| WP5 | GEOMAR | Model output | NetCDF | tbd | Open Access | D5.8 |
| WP5 | GEOMAR | Reports | pdf | tbd | Open Access | D5.3, 5.6, 5.7, 5.8 |
| WP6 | HWU | Reports | pdf | 3GB | Open Access | D6.2, 6.4, 6.6 |
| WP6 | UOXF | Reports | pdf | tbd | Open Access | D6.1, 6.3, 6.5 |
| WP7 | UOXF | Reports | pdf | tbd | Open Access | D7.1, 7.2, 7.7, 7.8 |
| WP7 | GEOMAR | Reports | pdf | tbd | Open Access | D7.3, 7.4, 7.5, 7.6, 7.9, 7.11, 7.12 |
| WP7 | IfW | Report | pdf | tbd | Open Access | D7.10 |

## 2.2 FAIR data

### 2.2.1 Making data findable, including provisions for metadata

Data that will not contain protected, confidential, secure, or personal data (where human data cannot be sufficiently de-identified) will be published in subject-specific data repositories like PANGAEA (Data Publisher for Earth & Environmental Science) or via https://data.geomar.de where DOIs or globally unique persistent identifier (PID) will be

assigned at the time of publication. Versioning will be applied where new versions of the data will be generated. In data repositories published data will be cross-referenced to the associated paper publication within the journals. For data that contain sensitive information like secure or personal data there will be an explanation of the data protection concern with a description about data sharing and, where applicable, all necessary information required to apply for access to the data and the conditions under which access will be granted.
Further, the deliverables of the project will be discoverable with persistent identifiers via the institutional repository of GEOMAR, OceanRep (http://oceanrep.geomar.de/) and the projects website (https://www.oceannets.eu/). In OceanRep, Digital Object Identifiers (DOIs) will be given to reports and the final indicator dataset. Reports and data will have names including the title, author's name and the publication date. Search keywords will be provided by the authors. The repository offers a versioning system. The metadata system used is Dublin Core and will be harvested by OpenAIRE (Open Access Infrastructure for Research in Europe). OceanRep is linked to GEOMAR's Ocean Science Information System (OSIS) a central information and research data sharing utility for marine research projects at GEOMAR, which will be used in the OceanNETs project. OSIS ensures linkage between authors, their data and publications. It is publicly accessible and can be utilized by all project participants. OSIS allows structured geo-referenced data upload (include versioning options) in the context of the project's field campaigns, experiments or numerical modelling. The metadata (Dublin Core) will be made publicly accessible immediately. The direct publication of the metadata promotes communication with scientist outside the project and institutes without endangering the safety of the scientific data. Contact information for access to large volume data files will be provided. OSIS is embedded into OceanNETs internal website (https://portal.geomar.de/group/oceannets/), where additionally collaboration tools like wiki, blog, and document exchange are used by OceanNETs working groups. These data sharing modalities will achieve a stable research support environment for all project partners.

### 2.2.2 Making data openly accessible

The model output generated in OceanNETs as well as observational data that will not contain protected, confidential, secure, or personal data (where human data cannot be sufficiently de-identified) will be published in subject-specific data repositories like PANGAEA (https://www.pangaea.de). Data from disciplines that do not fit to a specific repository will be made openly accessible via the GEOMAR's website https://data.geomar.de, where data is uniquely identifiable via handle assignment (PID) and will be accessible per download and data-centric services where applicable (e.g. gridded data via OPeNDAP, WMS, WCS). Alternatively, publication via the repository ZENODO (https://zenodo.org/) is possible. All those repositories comply with the FAIR principles.
Original data generated via interviews, workshops and surveys that will contain sensitive information will be not openly accessible (for further details see Annex 1, 2 and 3 in this

DMP: Data management concepts for Task 2.2 and for the tasks of Work Packages 3 and 6). However, the deliverables generated from those studies will be openly accessible as reports. Deliverables, such as reports, will be openly accessible via the institutional repository of GEOMAR, OceanRep (http://oceanrep.geomar.de/) and the projects website (https://www.oceannets.eu/) and cross-referenced to data repositories and the EU portal.

### 2.2.3 Making data interoperable

The PIs are responsible for reformatting data for final publication to internationally accepted open data formats that comply with the interoperability requirements of the FAIR principles, the community conventions and the long-term archive requirements. For general datasets the ASCII file format and for gridded datasets the NetCDF format are preferred.
The metadata standards used within OceanNETs will follow different conventions based upon existent community-specific practices, for example vocabulary conventions like Climate and Forecast (CF) in climate sciences, GBIF for biological data, BODC/NERC standardized vocabularies for oceanographic data. Examples of standardized metadata schemes are ISO 19115, Dublin Core, Attribute Convention for Data Discovery (ACDD) or Darwin Core to allow comparability. If subject-specific standard vocabularies do not exist for some disciplines within OceanNETs, metadata and terms from earlier studies will be adopted and uniformity will be maintained within the project.

### 2.2.4 Increase data re-use (through clarifying licenses)

Open accessible data generated in OceanNETs will be licensed under the Creative Commons Attribution license CC-BY 4.0 where possible to allow reuse of data by citing the reference after publication. As data and reports will be made accessible via world data centers and institutional repositories, the data will remain re-usable beyond the project's duration and existence of the OceanNETs websites. The PIs are responsible to use best practices and protocols of the subject specific community when generating data, including indications on quality control added to the metadata. That will guarantee data reusability after publication.

## 2.3 Allocation of resources

Data management (12 person-months) is allocated to work package 8 and met by the GEOMAR in-house data management team in close cooperation with the OceanNETs coordination team, using the existing data management services and infrastructure (internal and external Website, OSIS, Handle-System, OceanRep etc.) for data exchange, storage and publication as well as for metadata visibility.

## 2.4 Data security

Locally stored data may be at risk for data recovery depending on routines in operation under institutional policies. Partners are expected to adopt a suitable tested backup strategy that allows for full recovery of the data in case of a catastrophic event in which the responsible person or location of the data storage is compromised. The responsibility for data security and long-term storage lies with the institutions. Data that will be made openly accessible in world data centres like PANGAEA will be safely stored and curated with certifications like the CoreTrustSeal certification (https://www.coretrustseal.org).

## 2.5 Ethical aspects

Original data collected via interviews, workshops and surveys, which contain sensitive information like secure or personal data, will be anonymised (survey) or pseudonymised (interviews, workshops) and stored in secured folders of the institutions server for 10 years and will be deleted afterwards. No data will be shared with third parties or published except in the form of anonymised and pseudonymised research data and results. This includes data sharing with other work packages and tasks of the OceanNETs project or with further OceanNETs consortium partners. Detailed ethical considerations can be found in previous ethics deliverables (e.g. D 10.1.) and in the Annex of this DMP.

## 2.6 Other issues

**Data policies relevant for partners**

Alfred-Wegener-Institute research data policy:
https://epic.awi.de/id/eprint/52229/

Australian Code for the Responsible Conduct of Research, 2018 relevant to Commonwealth Scientific and Industrial Research Organisation (CSIRO):
https://www.nhmrc.gov.au/about-us/publications/australian-code-responsible-conduct-research-2018#download

Finnish Meteorological Institute research data policy:
https://en.ilmatieteenlaitos.fi/researchdatapolicy

Helmholtz Open Science policy relevant to GEOMAR:
https://os.helmholtz.de/open-science-in-the-helmholtz-association

Heriot Watt University Research data management policy:
https://www.hw.ac.uk/documents/research-data-management-policy.pdf

Norwegian University of Science and Technology open data policy:
https://innsida.ntnu.no/wiki/-/wiki/English/ntnu+open+data

University of Leipzig open access policy:
https://www.ub.uni-leipzig.de/en/open-science/open-access-policy/

University of Oslo policies and guidelines for research data management:
https://www.uio.no/english/for-employees/support/research/research-data-management/policies-and-guidelines/index.html

University of Oxford Policy on the Management of Data Supporting Research Outputs:
https://researchdata.ox.ac.uk/university-of-oxford-policy-on-the-management-of-data-supporting-research-outputs/

## 3. Conclusion

The Data Management Plan comprises all information on the research data management of OceanNETs and supports the retrieval, accessibility and reuse of research data. It describes the handling of research data from planning, its generation and processing to long-term archiving and publication. To comply with FAIR principles, the DMP includes the following information: how research data will be handled during and after the end of the project, what data will be collected, processed and/or generated, what methodology and standards are used, whether data will be shared/openly accessible; and how the data will be curated and stored (even after the end of the project).

# Annex 1

## Data management concept for Task 2.2

## 1. Information on the management of sensitive data and measures to ensure confidentiality and data privacy under Task 2.2

For Task 2.2 of the OceanNETs project, an online survey and workshop evaluation surveys, expert interviews and dialogue workshops will be conducted as part of the research process. The following sections outline how data containing sensitive personal data will be handled and what measures will be taken to ensure confidentiality and data privacy throughout the research process.

### 1.1 Data access and general data management

All documents and data containing sensitive personal data relating to surveys, expert interviews and dialogue workshops conducted by IASS as part of the research done under ***Task 2.2***

***Regional and global governance for emerging ocean-based NETs*** of the OceanNETs project will be dealt with as follows:

***Digital data*** such as contact details of participants, consent forms, survey data, audio recordings of interviews and the transcripts of these, written workshop documentation or photos taken during workshops will be saved in a project folder on the IASS server (Z:\). This folder can only be accessed by authorized IASS staff. Access to the folder is protected by passwords and only IASS staff with corresponding access rights will be able to read/write data in the folder. The IT support of the IASS is responsible for permitting access rights to the specific folders. The following IASS staff is granted read and write access to this folder (project-related role is provided in brackets):

- Barbara Neumann (project lead)
- N.N. (project research associate)
- Ben Boteler (project advisor)
- Sebastian Unger (project advisor)

For IASS staff that exits the project or terminates collaboration with the project, access rights will be deleted by the IASS' IT support. Affiliation information of staff is managed by the human resources department of IASS and shared with the IT support. For double-checking, retiring employees will inform the IT support about their exit. If IASS colleagues acting as project advisor leave the project, the project lead will inform IASS IT support accordingly. The list with the access rights will be updated on a regular basis.

***Printed documents*** containing sensitive personal data such as consent forms, survey sheets or written documentation of interviews or workshops will be stored in a secured cabinet at the office of the project lead or research associate.

All information collected will be used internally for discussion and analysis in the context of the research conducted within task 2.2 the EU Horizon 2020 OceanNETs project which is led by IASS, and this will be done only in the form of anonymous (survey, see section **Fehler! Verweisquelle konnte nicht gefunden werden.**) or pseudonymised (expert interviews, see section **Fehler! Verweisquelle konnte nicht gefunden werden.**; workshops, see section **Fehler! Verweisquelle konnte nicht gefunden werden.**) data and results. Further, no data will be shared with third parties except in the form of anonymised or pseudonymised research data and results respectively. This includes the sharing of data with other work packages and tasks of the OceanNETs project that are run by other staff at IASS (task 2.1) or by further OceanNETs consortium partners (e.g. tasks 2.3 of WP2 or tasks under WP 3). If data are shared with collaboration partners from the OceanNETs project consortium, the partners will be requested to consent to the IASS data privacy regulations as laid out herein.

## 1.2 Ensuring confidentiality and data privacy in the research process

### 1.2.1 General note on identifying and contacting of participants

Potential participants for surveys, expert interviews and dialogue workshops project will be sampled by employing criterion sampling and snowball sampling which are recognised methods from qualitative research (Palinkas et al. 2015). For this purpose, names and contact details of possible participants will compiled through internet search, reviewing literature and other suitable resources, and from recommendations made by other participants (e.g. during the interviews) or project partners. For each contact collected, information on the data source, date of entry in the database, person entering the data and purpose of the contact will be compiled.

Participants will be approached and invited to participate in the different research elements either personally via email or telephone, or by contacting their hierarchy/organisation via email or telephone and asking for establishing of contacts with an appropriate person from their organisation.

### 1.2.2 Surveys

For Task 2.2, an online survey will be conducted as part of the research process. In addition, surveys to prepare and evaluate dialogue workshops may be conducted as online survey or by handing out printed evaluation sheets during the workshops.

In all surveys, no personal data is collected automatically. All information collected is the responses to the questions provided in the survey. Further, responses will be collected in an anonymised form. Respondents are not required to enter sensitive personal information such as name or age.

All information collected will be used internally for discussion and analysis in the context of the research conducted within task 2.2 of the OceanNETs project, for research conducted in collaboration with other partners of the OceanNETs project consortium within the OceanNETs project, for getting a better sense of the impact of the work and improving e.g. follow-up project surveys. This will be done only in the form of anonymised data and results. No data will be shared with third parties or published except in the form of anonymized research data and results.

For ***online surveys***, participants will be invited via email to participate in the survey. Together with the invitation and a link to an online survey form, participants will receive information on the purpose of the survey, its role within the OceanNETs project and on data privacy as PDF documents. Additionally, a general call to participate in the survey will be published via online resources such as Twitter, IASS news posts etc. Therefore, the same information (purpose of the survey, its role within the OceanNETs project and on data privacy) will be made available to survey participants through appropriate information fields with links to downloadable PDF files on the entry page of the online survey. This includes information that participation is voluntary, that the data will be treated confidentially and that no data will be collected that could identify the respondent or allow that responses could be associated with a respondent. Participants will then be required to actively confirm their consent on the basis of the information shared before

being able to enter the actual survey section. The actual survey section will start on a new page and only be accessible after confirmed consent is granted by the participant and a "continue with survey"-button is clicked by the participant. Responses will be collected anonymously. After the survey is finalized, which will be indicated appropriately and results in responses being sent to the survey holder IASS, a thank-you note will appear on a new page. The thank you note will include a link to the project for interested participants to follow up and an email address to contact for questions or further interest in the project. The online surveys will be conducted through LimeSurvey, an open source survey application.

For ***evaluation surveys in paper format*** conducted in the context of the workshop, the same information will be included in the printed survey sheets. Responses will be collected anonymously and participants will not be requested to enter their name or email address. Here, consent is assumed if participants fill in and hand back a survey form to the project team.

### 1.2.3 Expert interviews

For tasks 2.2, semi-structured interviews will be conducted with key experts from the field. The interviews will take the form of an explorative inquiry and may be followed up with exchanges to clarify findings. The interviews will take approximately 1 hour each and will be held either as in-person meetings or via remote communication channels. Participants will be invited via email to participate in the survey. A participant information sheet and consent form including information on data privacy will be shared with the participants upon inviting, and participants will be requested to provide their informed consent to participate in the interviews before the interview by submitting the signed consent form to the IASS or confirming in written via email that their informed consent.

The interviews will be audio recorded in addition to manual note taking. These audio recordings will be transcribed for further analysis and saved on the IASS server as outlined in section **Fehler! Verweisquelle konnte nicht gefunden werden.**. The transcripts will be pseudonymised, e.g. by assigning a 3-digit-number and categorising institutional affiliation, to facilitate the analysis of the material while ensuring data protection. All documents associated with this interview will be pseudonymised and stored separately from the audio recordings. A key document where personal data and corresponding pseudonyms are assigned will be saved in a separate data folder only accessible to the project staff (see **Fehler! Verweisquelle konnte nicht gefunden werden.**). The final results will be pseudonymised so that responses cannot be traced back to a specific person or institution.

All information provided in the interviews remains property of the respective participant. All participants of the expert interviews have the right to access and view their own information in a timely manner Also, all participants have the right to revoke their

participation and have their responses to the interviews be deleted if they express this within two weeks after the interview was taken.

All information collected will be used internally for discussion and analysis in the context of the research conducted within task 2.2 of the OceanNETs project, for research conducted in collaboration with other partners of the OceanNETs project consortium within the OceanNETs project, for getting a better sense of the impact of the work and improving e.g. follow-up expert interviews. This will be done only in the form of pseudonymised data and results. The detailed answers to the interview will not be transmitted to third parties outside the project. No data will be shared with third parties except in the form of pseudonymized research data and results. For publication purposes, responses and results will appear pseudonymized so that that no conclusions can be drawn with respect to the identity or personal data of interviewees. To the extent that this material is cited in published work, this will be done in a manner that does not identify the source or the institutional affiliations.

### 1.2.4 Dialogue Workshops

For Task 2.2 of the OceanNETs project, dialogue workshops will be conducted as part of the research process. Depending on the circumstances, the workshops will be held either as in-person workshops at the IASS in Potsdam, or as online workshops employing online webinar/conference software such as zoom or GoTo Meeting.

Participants will be invited via email and a participant information sheet including information on data privacy will be shared with the participants with the invitation. Participants will be requested to provide their informed consent on the online registration form by actively clicking a respective field before entering the actual registration page. When registering, participants will be requested to provide consent to being photographed and/or audio/video recorded during the workshops or parts thereof (e.g. in case of an online workshop mode), and provide consent to appear on a list of participants. During the online registration process, a privacy note regarding photography and/or audio recordings and the IASS data privacy policy will be provided as downloadable PDFs from the registration website. By actively clicking on “register” or “sent”, their informed consent is then assumed.

Should a participant deny consent to being photographed, photographs showing the respective participant will be deleted from the IASS server after the workshop in a timely manner. Should a participant not consent to being recorded in the case of an online workshop mode, they will be requested to keep their camera and microphone turned off throughout the workshop. If participants disagree to their name appearing on a list of participants, their name will not be included in the participant list.

Notes taken during the workshops for documentation and analysis purposes will be pseudonymised after the workshops to facilitate the analysis of the material while ensuring data protection. All information collected will be used internally for discussion

and analysis in the context of the research conducted within task 2.2 of the OceanNETs project, for research conducted in collaboration with other partners of the OceanNETs project consortium within the OceanNETs project, for getting a better sense of the impact of the work and improving e.g. follow-up dialogue workshops. This will be done only in the form of pseudonymised data and results. The detailed notes taken during the workshop will not be transmitted to third parties outside the project. No data will be shared with third parties except in the form of pseudonymized research data and results. For publication purposes, results will appear pseudonymized so that that no conclusions can be drawn with respect to the identity or personal data of interviewees. To the extent that this material is cited in published work, this will be done in a manner that does not identify the source or the institutional affiliations.

### 1.3 Data storage and deletion

All digital data collected through the surveys, expert interviews and dialogue workshops, including the documents created for pseudonymisation will be stored on the IASS server for 10 years after publication of the research outputs. The storage of all related documents (including the anonymization data) is necessary for securing important scientific standards, esp. the verifiability of findings in case of critical, external requests. Data collected in analogue paper form will be stored in a secured cupboard for the same time span and purposes.

After this period the data will be deleted by the IT support that is responsible for server maintenance. The project lead will inform the IT support about the necessity of the corresponding folder and document deletion. At the moment the deletion process is not automated but this feature will (probably) be added before the 10 year period has expired. Analogue documents will be shredded using appropriate document shredding services.

### 1.4 Legitimate interests

Why does our interest in accessing personal data outweigh respondents' right to being left alone?

In task 2.2 of the EU H2020 OceanNETs project, we aim to investigate how ocean NETs correspond with ocean governance processes and institutional frameworks and with key principles of ocean governance such as the precautionary approach and ecosystem-based management. We will do this by combining desk-based research, expert elicitation and transdisciplinary dialogues. In particular, the potential impacts, co-benefits or trade-offs with regional or global ocean-related governance processes and objectives will be mapped out.

Engaging with experts from different national, regional, and global governmental and non-governmental organisations will be key to compile relevant information, co-create a deliberative knowledge base on the potential interaction of ocean NETs with other goals and processes of the ocean governance framework, build scenarios on how ocean NETs

could be integrated in ocean governance, and develop recommendations. The research concept therefore encompasses the following methodological approaches: surveys, semi-structured expert interviews, and participatory dialogue workshops.

### 1.5 Contact information on the IASS data protection officer

Name: Ms. Eva Grübel-Hoffmann
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D-01127 Dresden
Phone: +49 351 307 11870
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Web: www.itm-dl.de

## 2. References

Palinkas, L. A., S. M. Horwitz, C. A. Green, J. P. Wisdom, N. Duan & K. Hoagwood (2015) Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research. *Administration and policy in mental health,* 42**,** 533-544.

# Annex 2

## Data management plan for data collected by NORCE as part of Work Package 3

## General data management

All documents and data containing sensitive personal data relating to surveys, interviews and dialogue workshops conducted by NORCE as part of the research done under Work Package 3 of the OceanNETs project will be dealt with as follows:

- Sensitive data is any data that can be linked to persons.
- Before collection of such data, we notify and obtain a permit from NSD – Norwegian centre for Research data. The notification describes in detail how we meet the legal and ethical research guidelines and requirements for data protection in Norway.

- For collecting and storing sensitive data (including consent forms, audio & video recordings) we use a cloud service provided by NORCE that are designed for managing sensitive data.
- Before analysing, sharing or transferring such data to less secure data platforms and software, data is anonymised or pseudonymised so that they no longer can be linked to persons.

## Storing of sensitive data

Sensitive data are saved in a project folder on the NORCE server (P:\). This folder can only be accessed by authorized NORCE staff. The IT support of NORCE is responsible for permitting access rights to the specific folders. The following NORCE staff is currently granted read and write access to this folder (project-related role is provided in brackets):

- Gisle Andersen (project lead)
- Siri Veland (project research associate)
- Mikael Johannesson (project research associate)
- Marthe Bosvik Birkeland (research assistance)

For NORCE staff that exits the project or terminates collaboration with the project, access rights will be deleted by the NORCE' IT support. Affiliation information of staff is managed by the human resources department of NORCE and shared with the IT support. If NORCE colleagues acting as project advisor leave the project, the project lead will inform NORCE IT support accordingly. The list with the access rights will be updated on a regular basis.

No data will be shared with third parties except in the form of anonymised or pseudonymised research data and results respectively. This includes the sharing of data with other work packages and tasks of the OceanNETs project that are run by other staff at NORCE or by further OceanNETs consortium partners.

## Data storage and deletion

All sensitive data collected by NORCE as part of WP 3, including the documents created for pseudonymisation will be stored on the NORCE server during the project period. When the project ends, all sensitive data will be deleted.

**NORCE WP3 data management contact person**
Dr. Gisle Andersen
Phone: +47 56 10 76 01
E-mail: gian@norceresearch.no

## Data management plan for data collected by IfW as part of Work Package 3

The documents and data containing sensitive personal data relating to focus groups conducted by IfW as part of the research done under Work Package 3 of the OceanNETs project are dealt with as follows:

- Sensitive data is any data that can be linked to persons.
- Recruitment of participants for focus groups was subcontracted to external service providers and the compensation was administered by them. This means that staff at IfW did not have access to personal information about participants such as full names, addresses, or bank details at any time. The consent forms are stored by the recruiting agency and will be deleted after 6 years. Until then, anonymized access to the consent forms can be requested.
- The three focus groups were held online and recorded via Zoom on March, 30 and 31, 2021. Before the recording started it was made sure that last names were not visible. Participants were informed about the recording and had the option to opt-out. Once recording started, it was repeated that all participants had just consented to the recording.
- The subcontractor, IPSOS, provided the IfW video and audio recordings and transcripts.

## Storage of sensitive data

- At the IfW, the video and audio files are stored on the internal cloud server (DFN cloud) with password protection and data storage in the EU. Only two members of staff, Christine Merk and Theresa Ohnimus, had access to these files. They signed a declaration that they adhere to the standards for observation and documentation for Market- and Social Research (see attachment). Accordingly, the video recordings were deleted after 3 months. The audio recording will be deleted after 6 years.
- Before analysing, sharing or transferring the transcripts to less secure data platforms and software, the data was anonymised so that they no longer can be linked to persons.

**IfW WP3 data management contact person:**

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E-mail: Christine.Merk@ifw-kiel.de

# Annex 3

## Data management concept for the Tasks of Work Package (WP) 6

### 1. Management of sensitive data and confidential information

It is not expected that sensitive data and/or confidential information will be collected in the activities described in Tasks 6.1 to 6.5. Only for Task 6.3 confidential information might be collected, pertaining to life cycle inventory (LCI) data (often regarded as confidential). However, this is highly unlikely since if the data are deemed confidential by the source that generated them, these are typically concealed through aggregation with other datasets. Regarding the LCI data, Task 6.3 of the OceanNETs project details that existing Life Cycle Assessments (LCAs) will be extended to consider ocean alkalinization by: (i) harmonizing and simplifying existing LCA and technoeconomic assessment data for two case studies that examine realistic deployment scenarios for ocean alkalinization into a common baseline line; (ii) defining the system boundary of these case studies; (iii) constructing process LCIs using existing data and supplemented with data from stakeholders (these will be fed from Task 6.2); (iv) redefining the scope of the LCA to consider ocean alkalinization; (v) modifying the supply chain to include an impact analysis of transportion and distribution of mineral products to the ocean; (vi) defining the impacts associated with ocean alkalinity by integrating with the output of the mesocosm work of WP 5.

Therefore, only step (iii) of the Task 6.3 might involve the collection and handling of sensitive data (e.g., names of stakeholders) and/or confidential information (e.g., reports containing confidential LCI data), which are directly related to Task 6.2. Specifically, the Heriot Watt University (HWU) team will contact stakeholders to seek additional LCI data for the examined case studies. However, this type of data is typically readily available and already published by the stakeholders (if the data are confidential these are typically published as aggregated data) and therefore are not deemed sensitive or confidential (e.g., the European lime association (EuLA) has developed LCI datasets that can be used to

complement and verify the already collected LCI for ocean liming (one of the selected case studies), but these datasets are already included in the European reference Life Cycle Database (ELCD)). In the eventuality that sensitive data or confidential information will be collected, HWU has established procedures for collecting and handling such data. These procedures will be followed in all interactions with stakeholders, policymakers, and other collaborators or third parties, to ensure confidentiality and data privacy throughout OceanNETs project, as is described below.

## 1.1 Data access and general data management

Digital and hardcopy files that contain sensitive data and confidential information relating to Task 6.3 Life Cycle Assessments of the scenarios**,** as well as all other Tasks relating to WP6, will be categorised, based on the level of harm that would result if this information is lost, stolen, or accidently disclosed to others, according to HWU's guidelines on information security, as[1]:

- HIGH, red 'data code',
- MEDIUM, amber 'data code', or
- LOW, green 'data code'

It should be noted that HWU follows the European Union's General Data Protection Regulation (GDPR), UK Data Protection Act 2018, and other relevant legislation protecting privacy rights. Data that can be categorised as medium or low (mainly the latter) are expected to be collected and used for the successful completion of WP6. Below a brief overview of the handling of the physical (hardcopy) and digital data is given. More information on HWU's data handling policies can be found online[2], including policies on:

- Data protection for participants in academic research projects[3]
- Research Engagement[4]
- Information Governance[5]
- Digital Preservation of data[6]

***Digital data:*** This type of data might include contact details, personal communication, consent forms, and confidential LCI data. This data will be available in a project folder that has been created in HWU Dropbox server and is only accessible by authorized HWU staff. Specifically, this folder is password protected and only HWU staff with corresponding access rights has read and/or write access to data files. HWU IT department provides support and is responsible for permitting access rights to the specific folders. The following HWU staff is granted read and write access to the OceanNETs project folder:

- **Phil Renforth**, WP 6 leader

- **Spyros Foteinis**, OceanNETs research associate

HWU has in place different strategies to ensure that personal data and confidential information is secure, and these include[2]:

- Using strong passwords protect electronic documents, i.e., upper- and lower-case letters and numbers and/or symbols are combined.
- Locking computer screens or logging out when leaving the desks.
- Devices that contain personal or confidential data e.g., on smartphones, tablets, laptops, hard / flash drives, and memory cards, do not leave the campus unless they are securely protected e.g., in encrypted format.
- Data are not kept in the computer hard drive, instead they are saved and kept online (in protected drives with restricted access) and are frequently backed up.
- Passwords are confidential and are not shared.

For HWU staff that joins or leaves (end or termination of the contract) the OceanNETs project, access rights will be granted or withdrawn, respectively, by HWU's IT department. Affiliation information of staff that works in OceanNETs is managed by HWU's human resources department, which informs the IT department that provides support for digital services. Procedures are in place within HWU to ensure that access privileges of departing staff for sensitive data and confidential information will be automatically terminated. To ensure that all internal procedures are followed, the WP6 project leader can also inform the IT department about OceanNETs staff departure(s). As a result, digital data access rights for HWU staff that is employed in OceanNETs project are updated on a regular basis.

***Hardcopy data:*** It is not expected that data in physical form (hardcopy), e.g., printed reports that contain contact details, personal communication, consent forms, and/or confidential LCI data, will be collected as part of Task 6.3 or other Tasks described in WP6. However, if such hardcopy data is collected, this will be stored in a secured cabinet or drawer within HWU (keys will be removed and will be kept securely), which will be only accessed by the WP6 leader and/or parties that are affiliated with OceanNETs project and have been granted the relevant access rights. Furthermore, according to HWU policies[2], paper records containing sensitive data and/or confidential information are not kept in plain sight, i.e., where others can see them when they enter the office, while such hardcopy files never leave the campus without prior consent.

In the eventuality that sensitive data and/or confidential information is collected in the context of OceanNETs WP6, this will be only used internally, with the primary aim to verify and/or complement the already collected data (e.g., the LCI data for Task 6.3) and will not be shared with third parties. If sensitive data and/or confidential information are to be shared, this data will be de-identified, i.e., identifying information from data will be removed. If sensitive data and/or confidential information needs to be shared either

internally (with other members of the OceanNETs project that work in other WPs) or externally (third parties or published) explicit consent will be sought before doing so. As such sensitive data will be anonymised before being shared. In cases where sensitive data need to be shared with other OceanNETs partners, consent will be first sought from the stakeholder(s) and then access privileges will granted to the relevant OceanNETs partner(s), following HWU data privacy policies as described herein and are readily available online[2].

## 1.2 Ensuring confidentiality and data privacy in the research process

### 1.2.1 General note on identifying and contacting of stakeholders and policymakers

In the context of WP6, stakeholders (Task 6.1 - 6.5) and policymakers (Task 6.6) will be contacted, typically through direct contact (e.g., phone or e-mail) and/or through invitations to semi-annual deliberative meetings. For this purpose, a spreadsheet containing the names, background (i.e., stakeholder or policymaker), and contact details of possible participants / parties for OceanNETs WP6 actions, will be generated. This spreadsheet will be compiled using information from the research networks of WP6 staff members and collaborators, along with information from participants from other WPs. Also, internet searches, literature reviews, and other suitable resources will be used to complement and enhance the information contained in the spreadsheet. For each contact detail that is collected, information on the data source, date of entry, person entering the data, and background of the contact (i.e., policymakers or stakeholders from the industry, government, civil society, or academia) will be achieved. The identified external participants / parties will be then approached and invited via different contact methods, mainly through personal communication (email or telephone) or by contacting their hierarchy / organisation, via email or telephone, to request the contact details of the appropriate person from their organisation. Also, it is possible when contacting possible participants to also include the invitations to semi-annual deliberative meetings, along with a brief discussion on the topic, the participants of the meeting (the ones that have agreed to share their personal details), and the organisations that they represent (if consent has not been given to reveal this information, organisation will only be classified based on their background, i.e., policymakers or stakeholders from the industry, government, civil society, or academia).

It should be noted that following HWU's established procedures, the aforementioned data, along with all relevant sensitive data and / or confidential information generated in WP6, will only be accessed by members of the OceanNETs project with access privileges given on a strictly "need to see" basis. Finally, as already mentioned above, no information that is not already in the public domain will be published without prior consent.

### 1.2.2 Evaluation, verification, and feedback on the data collected for WP6

For Tasks 6.1 to 6.6, relevant data and insight/feedback will be sought from stakeholders and policymakers. The main goal will be to complement and enhance the data that is required for the successful completion of WP6. The data will be collected through direct contact and / or though semi-annual deliberative meetings. Personal data will not be collected automatically. Sensitive data will be either anonymised or consent will be required from the data source for using their identifying information (name of the participant and / or the name of the organisation). As such, either (i) data containing the full identifying information (name of the participant and name of the organisation); (ii) anonymised data for the participant but identifying information for organisation; (iii) anonymised data for both the participant and the organisation, i.e., only the type of the organisation will be provided, i.e., policymaker or stakeholder from the industry, government, civil society, or academia. Information or data will not be shared with third parties or published, unless they have been de-identified (anonymised) or consent has been given.

Collected (sensitive) data and (confidential) information will mainly be used internally (e.g., for evaluating and verifying literature data from Tasks 6.1 to 6.6 of the OceanNETs project or for discussing them with other partners of the OceanNETs project consortium). If consent has not been granted the sensitive data and confidential information will be first anonymised before being shared with other members of the OceanNETs project or before sharing them with third parties or publishing them.

### 1.2.3 Stakeholder and policymaker interaction

Stakeholders will be engaged across the WPs of OceanNETs project, while for WP6 stakeholders from the industry, government, civil society, and academia along with policymakers will be engaged in order to review and reflect upon the ongoing modelling outputs. The main goal is to take into account their views and concerns and integrate them in the final version of the case studies that will be examined in WP6. As is detailed in the OceanNETs project, stakeholder consultation will adopt and adapt on the principles of Responsible Research and Innovation governing OceanNETs project.

Specifically, stakeholders and policymakers will be first identified, as described above, and then approached (typically by e-mail or phone). The main objectives of OceanNETs project will be communicated in these first interactions, along with the need for their views, concerns, and feedback to improve the project's outputs. Their role and the importance of their participation in the OceanNETs project will also be highlighted. Additional LCI data, which are necessary for the evaluation and verification of the already collected LCI data from the literature will be also sought in this stage. It will be highlighted that participation in the OceanNETs project is on a voluntary basis, while the data and information that they will provide / share will be treated confidentially, i.e., if consent has not been given, the data that could be used to identify the stakeholder /

policymaker or that can allow their identification through their responses will not be shared. No hardcopy data is expected to be collected in this stage, since interaction will mainly be achieved by phone or e-mail.

### 1.2.4 Semi-annual deliberative meetings

After the stakeholders and policymakers have been identified and agreed to participate in the activities pertaining to WP6 of OceanNETs project, semi-annual deliberative meetings will be organised. These will be of great value for the LCA activities, since the interim LCA modelling outputs will be discussed. Depending on the circumstances, deliberative meetings will be held in-person at the HWU in Edinburgh, UK, or, more likely, as online meetings using relevant tools such as zoom or Teams. A combination of in-person with online meeting is also possible, i.e., a "hybrid" meeting were part of the participants will be physically present and part will join the meeting using online tools. The latter is of great importance for participants that prefer to remain anonymous. Participants will be invited via e-mail and consent will be sought before sharing their information (name and company/organisation they represent) with other participants or if they would like to remain anonymous. Also, consent will be sought for recording (audio and / or video) the (online) workshops and for appearing on the list of participants. For online meetings the choice of remaining anonymous will be offered, using existing tools, e.g., in Teams the meeting organiser or presenter can send anonymous attendees a meeting code and also admit anonymous attendees from Team's lobby. Therefore, it is possible to record the meeting without identifying participants that wish to remain anonymous since identifying information will remain hidden. The meeting organiser, which will be a member of the HWU team that is affiliated with the OceanNETs project, will be responsible for ensuring that only authorised attendees have joined the meeting, that the participant(s) that wishes to remain anonymous has(ve) joined as anonymous attendee(s), and for recording the meeting. The meeting organiser will also give notice before starting the recording, so attendees would have the opportunity to leave and anonymously re-join before the recording start. In case of in-person meetings, consent will be also sought for recording the meeting, while if participants prefer not to share their identifying information, they will be given the choice to anonymously attend the meeting through an online tool, using the settings for withholding their identity, as described above. If required, audio and / or video recordings can be transcribed, in order to ensure a high-quality assessment and analysis of the input and feedback that the attendees have provided in those meetings.

If the participant chooses to remain anonymous, then a pseudonym, e.g., a 3-digit-number, will be used. This number will be then ascribed either to the organisation or to the corresponding background, i.e., policymaker or stakeholder (for the latter case will be further categorised as industry, government, civil society, or academia stakeholder). A key document will be then generated that contains the personal data of the pseudonymised participant(s) and will be saved separately from the audio / video recording and the transcribed record to minimise rick in case of breach. All information that is provided by the participants will remain their property. No data will be shared

with third parties or published, except in pseudonymized form or if consent has been granted.

### 1.2.5 Individual interviews

If required, individual interviews will be held to complement the deliberative meetings. Interviews will be help in-person or, more likely, online, using tools such as the ones that will be employed in the online semi-annual deliberative meetings (e.g., Teams). The same consents as in the semi-annual deliberative meetings will be sought regarding personally identifiable information, i.e., if consent has not been given, the data that could be used to identify the name of the participant and / or of the organisation or data that can allow their identification through their responses will not be shared. Participants will be invited via e-mail and the duration of the interview is expected to last between 30 to 60 min. The relevant consent forms for data privacy will be also included in the invitation e-mail. Similarly to the deliberative meetings, the individual interviews will be also recorded (audio and / or video), while the choice for the interviewee to remain anonymous will also be given, using the aforementioned (1.2.4 Semi-annual deliberative meetings) procedure. If required, audio and / or video recordings would be transcribed to ensure a high-quality assessment and analysis of the input and feedback that the interviewee that were provided during the interview.

If the interviewee wishes to remain anonymous, their name will be pseudonymised, e.g., using a 3-digit-number, and affiliated either with the name of the organisation that they represent (if consent has been given) or with their background, i.e., policymaker or stakeholder from the industry, government, civil society, or academia. The audio and / or video recording(s) along with the possible transcribed record(s) will then be assigned to the identifying information of the interviewee or the pseudonymised name in the case that the interviewee wishes to conceal personal information. A key document will be generated that contains the personal data of the pseudonymised interviewee(s) and will be saved separately from the audio / video recording(s) and the possible transcribed record(s). The information that will be provided by the interviewee will remain the property of the interviewee. Access to the audio / video recording(s) and the transcribed record(s) will be given to the corresponding interviewee, so the interviewee could revoke or complement the feedback (typically access will be restricted to a few weeks after the interview).

## 1.3 Data storage and deletion

All digital data and information collected in the context of WP6 of the OceanNETs project will be achieved, securely in HWU servers, for a minimum of five (5) years after the successful completion of the project. After this time, unless otherwise specified in the record's archival strategy, the file(s) will be deleted to ensure compliance with HWU best practices and regulatory requirements. The data will be deleted / erased by HWU's IT department at the end of the five, or longer if required, time span. To this end, WP6 project leader for HWU might inform the IT department, and specifically the department / member that is responsible for the maintenance of the server that the data is achieved about the need to keep the corresponding files for at least five years after the successful completion of the OceanNETs project. If no such extension is given by the

WP6 project leader, at the end of the five-year period the IT department, or the HWU project leader, will deleted the corresponding files. This is also the case for the documents that contain data and / or information in a physical form (hardcopy), which will be stored in a secure cabinet or drawer for the same time span, i.e., five years after the successful completion of the OceanNETs project, and then destroyed using an appropriate means for such purposes (e.g., a paper shredder).

To ensure that a high scientific standard has been kept, both in the project reports and particularly in the published research outputs, the collected data, if possible, will be also included in these outputs. These research outputs will be deposited, immediately upon acceptance, on HWU's repositories, where the research outputs are freely available for download, while H2020's main routes to open access, i.e., green (self-archiving) or gold open access, will be followed, ensuring that the non-sensitive and / or de-identified data that were collected in the context of OceanNETs project will be readily available long after the end of the OceanNETs project. Finally, H2020's vast outreach infrastructure for pulling together and interconnecting the large-scale collections of research outputs across Europe and for reporting and uploading scientific publications, namely OpenAIRE2020 (www.openaire.eu) and Zenodo (www.zenodo.org), might be also used for uploading the collected non-sensitive and / or de-identified data to ensure that the data will remain in the public domain for as long as possible.

### 1.4 Legitimate interests

Personal data can be share with others only when consent has been granted or where one of the following conditions are met[3].

- If the disclosure is required by law
- If it is necessary for a project funder to have access to the data e.g., at the end of a project where the funder is the Data Controller
- If the conditions of funding require us to make research data available to other academic researchers for reuse. In this case we would pseudonymise the data if it is not possible to anonymise it completely
- If it is necessary for a project funder to have access to the data e.g., at the end of a project where the funder is the Data Controller
- If the conditions of funding require us to make research data available to other academic researchers for reuse. In this case we would pseudonymise the data if it is not possible to anonymise it completely

HWU may also appoint people and organisations to work for us and contract with them to act as data processors on our behalf.

HWU follows GDPR, which states that public authorities cannot use legitimate interests as a legal basis for processing personal data in the performance of their "public tasks". In

order to determine a legitimate interest, HWU apply a three-part test known as a Legitimate Interests Assessment (LIA), which was developed by the Information Commissioner's Office (ICO)[7]. The ICO's LIA stipulates that a lawful basis for processing is when:

"processing is necessary for the purposes of the legitimate interests pursued by the controller or by a third party except where such interests are overridden by the interests or fundamental rights and freedoms of the data subject which require protection of personal data, in particular where the data subject is a child."[8]

According to ICO the three-part test comprises:
**Purpose test**: are you pursuing a legitimate interest?
**Necessity test**: is the processing necessary for that purpose?
**Balancing test**: do the individual's interests override the legitimate interest?

### 1.5 Contact information on HWU data protection officer

| | |
|---|---|
| Name: | Data Protection Officer |
| Address: | Heriot-Watt University,<br>Edinburgh EH14 4AS, UK |
| Phone: | + 44 (0)131 451 3218/3219/3274 |
| E-mail: | dataprotection@hw.ac.uk |
| Web: | https://www.hw.ac.uk/uk/about/policies/data-protection.htm |

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3. YOUR PERSONAL DATA: INFORMATION FOR PARTICIPANTS IN ACADEMIC RESEARCH PROJECTS, HWU, available at: https://www.hw.ac.uk/uk/services/docs/information-governance/PrivacyNoticeResearch-V4Finalversion.pdf, last accessed 02/06/2020.
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8. Legitimate interests, ICO, available at: https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/lawful-basis-for-processing/legitimate-interests/#ib2, last accessed 02/06/2020.