Ocean-based Negative Emission Technologies

OCEAN NETs

Deliverable Title	**D8.1** **Data management plan**
Lead	GEOMAR | Helmholtz Center for Ocean Research Kiel
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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 continously developed in close cooperation with the consortium members throughout the project duration.

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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 geoengineering, 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 Earth system model output	pdf	<0.1TB	Open Access	D4.4, 4.5
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	Confidential, only for members of the consortium	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 FAIR data

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 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 in this DMP: Data management concept for Task 2.2). 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.

2.3 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.

2.4 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.

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.

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).

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.

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/

Annex

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 0) or pseudonymised (expert interviews, see section 0; workshops, see section 0) 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 0. 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 0). 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

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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.