



Nutritious, safe and sustainable seafood for consumers of tomorrow

Grant agreement no: 773400

Deliverable D6.1

SEAFOOD^{TOMORROW} Data Management Plan

Due date of deliverable: 31/01/2018

Actual submission date: 30/04/2018

Start date of the project: 01/11/2017

Duration: 42 months

Organisation name of lead contractor: AquaTT

Revision: V4 (M42 update)

Project co-funded by the European Commission within the H2020 Programme	
Dissemination Level	
PU Public	X
PP Restricted to other programme participants (including the Commission Services)	
RE Restricted to a group specified by the consortium (including the Commission Services)	
CO Confidential, only for members of the consortium (including the Commission Services)	

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Acknowledgement

The work described in this report has been funded by the European Commission under the Horizon 2020 Framework Programme.

History of Revisions

Version, Date	Summary of changes made
V1, April 2018 (M6)	<ul style="list-style-type: none"> • First version of DMP developed • Validated and approved by consortium (M6 – April 2018)
V2, April 2019 (M18)	<ul style="list-style-type: none"> • Inclusion of SEAFOOD^{TOMORROW} TQC database (Task 3.3; D3.2) • Clarification on protocols for uploading data to data repositories (also section 4.3 – FAIR data) • Inclusion of link to Zenodo user guide developed by AquaTT • Addition of SEAFOOD^{TOMORROW} Zenodo Community Group • Summary (section 1) added • Inclusion of H2020 dissemination and open access obligations according to SEAFOOD^{TOMORROW} Grant Agreement Article 29 • Updated section 3.6 (ethics and confidentially) in relation to GDPR • Updated Data management policy (section 4.2) • Data summary removed and included under FAIR data (new section 4.3) under table 1 • Additional of OpenAIRE H2020's research monitoring infrastructure (section 4.4) • Data Inventory table updated (Annex 3) • Correction of formatting errors and structure throughout document • Deliverable template updated • Validated and approved by consortium (M18 – April 2019)
V3, October 2020 (M36)	<ul style="list-style-type: none"> • Addition of History of Revisions Table • Addition of procedure to data check to IPC/CC Checklist (p7) • Updated SEAFOOD^{TOMORROW} Data Inventory Table (Annex 2) • Summary of SEAFOOD^{TOMORROW} Data published in Open Access added (Annex 3), validation of OA repository links and addition of links to project website • Revision of data policy and protocols to reflect necessary adjustments outlined above • Correction of formatting errors and structure throughout document • Validated and approved by consortium (M37 – November 2020)
V4, April 2021 (M42)	<ul style="list-style-type: none"> • Reviewed by the consortium (22.4.21); datasets uploaded to TQC database or Open Access repository, as appropriate, by all beneficiaries • Restricted access SEAFOOD^{TOMORROW} data archived in TQC database and data inventory table (Annex 2) removed • Summary of SEAFOOD^{TOMORROW} Open Access data (Annex 3), scientific publications + associated data repository archived on project website • DMP validated and approved by consortium (30.04.21; M42 – April 2021)

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1. Summary

Objective:

The SEAFOOD^{TOMORROW} Data Management Plan (DMP) outlines the EC obligations, guiding principles and procedures for data collection, archiving and management, for the optimisation of access to and re-use of all SEAFOOD^{TOMORROW} data. This document outlines the policies and procedures to be followed by the consortium for managing all SEAFOOD^{TOMORROW} digital research data generated and collected during and after the project.

Rationale:

SEAFOOD^{TOMORROW} is generating and collecting diverse data, including 1) projected economic and environmental feasibility; 2) consumer acceptance; 3) nutritional quality and hazard assessment; 4) validation of innovative tools for the assessment of seafood safety and quality; and 5) benefit-risk assessments.

Building on existing open science resources and H2020 guidelines, the SEAFOOD^{TOMORROW} DMP outlines protocols to manage and maximise access to and re-use of these diverse datasets. Furthermore, all SEAFOOD^{TOMORROW} beneficiaries, as part of H2020's Open Access Research Data Pilot, must comply with open access policies as set out in the Grant Agreement (Article 29.3).

The Data Management Plan has been developed by AquaTT, who are responsible for its coordination under Work package 6. However, all project partners are involved in the management of SEAFOOD^{TOMORROW} data.

Team involved in deliverable writing: AquaTT with input from SEAFOOD^{TOMORROW} WP6, Communication Committee, Intellectual Property Committee and Beneficiaries.

Review Process

The DMP operates as a functional manual and is updated over the course of the project whenever significant changes arise, such as:

- New data
- Changes in consortium policies
- Changes in consortium composition and external factors

The SEAFOOD^{TOMORROW} DMP will also be reviewed, and revised as needed, at 18-month intervals. Each update will be validated by the full consortium. Changes will be recorded in the history of revisions table (above) to support clarity and transparency in the revision process.

Overview of revisions of the DMP:

Version	Date	Comments & recommendations
V1	April 2018	First version (v1) validated by the consortium M6
V2	May 2019	M18 Review and Update by partners. Validated M19 (9.5.19)
V3	October 2020	M36 Review and Update by partners. Validated M37+M38 (7.12.20)
V4	April 2021	M42 update by all partners (30.04.21).

2. Building a Data Management Plan (DMP) in the Context of H2020

2.1 Introduction – Open Innovation in the European Union

The European Union is a research powerhouse, and still the world's leading producer of scientific knowledge, ahead of the United States. However, Europe too rarely succeeds in turning research into innovation, and in getting research results to market. Too often, new technologies that have been developed in Europe are commercialised elsewhere. Europe must get better at making the most of its innovation talent, which is where Open Innovation comes into play ([EC DG for Research and Innovation, Open Innovation, Open Science, Open to the World, 2016](#)).

The basic premise of Open Innovation is to open up the innovation process to all active players so that knowledge can circulate more freely and be transformed into products and services that create new markets, fostering a stronger culture of entrepreneurship. Open Access to research results is an essential part of Open Science, aiming to make science more reliable, efficient and responsive. Open Access is considered a springboard for increased innovation opportunities. Prioritising Open Science does not, however, automatically ensure that research results and scientific knowledge are commercialised or transformed into socio-economic value. In order for this to happen, Open Innovation must help to connect and exploit the results of Open Science and facilitate more rapid translation of discoveries into societal use and economic value ([EC DG for Research and Innovation, Open Innovation, Open Science, Open to the World, 2016](#)).

Open Science permits knowledge to circulate more quickly and be more freely available. Open Science, however, does not mean 'free science'. It is essential to ensure that intellectual property is protected before making knowledge publicly available in order to, subsequently, attract investments that can help translate research results into innovation. If this is taken into account, fuller and wider access to scientific publications and research data can help to accelerate innovation. The potential benefits of opening up research information are clearly recognised in the European Commission's investment plan for Europe where it is stated that in order to '*boost research and innovation, EU competitiveness would benefit from fewer barriers to knowledge transfer, open access to scientific research and greater mobility of researchers*' ([COM\(2014\) 903 final](#)).

2.2 H2020's Open Research Data Pilot

The European Union enables Open Innovation by requiring that projects funded under the European Union Framework Programme for Research and Innovation, Horizon 2020, must ensure open access (free of charge, online access for any user) to all peer-reviewed scientific publications relating to results.

In addition, SEAFOOD^{TOMORROW} is part of the Open Research Data Pilot ([ORDP](#)). The ORDP aims to improve and maximise access to and re-use of research data generated by Horizon 2020 projects and takes into account the need to balance openness and protection of scientific information, commercialisation and Intellectual Property Rights (IPR), privacy concerns, security as well as data management and preservation questions.

SEAFOOD^{TOMORROW} must comply with the legal requirements as outlined in Article 29.3 of the SEAFOOD^{TOMORROW} Grant Agreement: Open access to research data (see below). SEAFOOD^{TOMORROW} beneficiaries are expected to adhere to the conditions laid out under Article 29.3 of the Grant Agreement, as well as to conditions laid out in the



SEAFOOD^{TOMORROW} Data Management Plan below, in which all details related to management of SEAFOOD^{TOMORROW} digital research data are specified.

3. Dissemination of Results, Open Access and Visibility of EU Funding

Grant Agreement Article 29 (Dissemination of Project Results– Open Access – Visibility of EU Funding) describes rules related to dissemination of results, open access to scientific publications and **research data** and information on EU funding. These are outlined below and in detail in the SEAFOOD^{TOMORROW} Dissemination and Exploitation Plan D6.2 – V4 (updated in M36 – October 2020).

Obligation to disseminate:

Each beneficiary must ‘disseminate’ their results as soon as possible by disclosing them to the public. However, no dissemination may take place before a decision is made regarding possible protection. Other participants may object if their legitimate interests in relation to their foreground or background could potentially suffer harm. The beneficiary that intends to disseminate must give the other beneficiaries at least 30 days’ notice (together with sufficient information on the dissemination) for planned publications and 15 days’ notice for submission for poster or oral presentations (GA Article 29.1; SEAFOOD^{TOMORROW} CA Article 8.4).

Open access to scientific publications:

For Horizon 2020, providing open access (free of charge, online access for any user) to publications in funded projects is an obligation for all grants. Each beneficiary must ensure open access (OA) to all peer-reviewed scientific publications relating to its results (GA Article 29.2).

In particular, beneficiaries must:

- a) As soon as possible and at the latest on publication, deposit a machine-readable electronic copy of the published version or final peer-reviewed manuscript accepted for publication in a repository for scientific publications. Moreover, the beneficiary must aim to deposit at the same time the **research data needed to validate the results presented in the deposited scientific publications.**
- b) Ensure open access to the deposited publication — via the repository — at the latest:
 - on publication, if an electronic version is available for free via the publisher, or
 - within six months of publication (twelve months for publications in the social sciences and humanities) in any other case.
- c) Ensure open access — via the repository — to the **bibliographic metadata** that identify the deposited publication within one month after publication

Open access to research data:

Beneficiaries must ensure open access (OA) to all data and metadata, unless doing so would jeopardise the achievement of the project's main objectives, by depositing it in a repository and must provide information about tools and instruments at the disposal of the beneficiaries (GA Article 29.3).

‘Regarding the digital research data generated in the action (‘**data**’), the beneficiaries must:



- a) **deposit in a research data repository** and take measures to make it possible for third parties to access, mine, exploit, reproduce and disseminate — free of charge for any user — the following:
- (i) **the data, including associated metadata, needed to validate the results presented in scientific publications** as soon as possible;
 - (ii) **other data, including associated metadata**, as specified and within the deadlines laid down in the 'data management plan'
- b) **provide information — via the repository — about tools and instruments at the disposal of the beneficiaries** and necessary for validating the results (and — where possible — provide the tools and instruments themselves).

This does not change the obligation to protect results in Article 27, the confidentiality obligations in Article 36, the security obligations in Article 37 or the obligations to protect personal data in Article 39, all of which still apply.

As an exception, the beneficiaries do not have to ensure open access to specific parts of their research data if the achievement of the action's main objective, as described in the project Description of Action, would be jeopardised by making those specific parts of the research data openly accessible. In this case, the data management plan must contain the reasons for not giving access.

Obligation and right to use the EU emblem:

Any dissemination of results **must display the EU emblem and include the following text:**



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 773400 (SEAFOOD^{TOMORROW}). This output reflects only the author's view and the European Union cannot be held responsible for any use that may be made of the information contained therein.

Consequences of non-compliance:

If a beneficiary breaches any of its obligations under Article 29, the grant may be reduced. Please see Article 43 for more information.

For more information on open access, please consult the Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020:

http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-pilot-guide_en.pdf.

4. The SEAFOOD^{TOMORROW} Data Management Plan (DMP)

The SEAFOOD^{TOMORROW} Data Management Plan (DMP) aims to provide a strategy for managing data generated and collected during the project and optimise access to and re-use of research data. The DMP is a ‘living’ document that outlines how the SEAFOOD^{TOMORROW} research data is being handled during and after the project, and so it is reviewed and updated at regular intervals. The DMP is an official project Deliverable (D6.1) which was firstly submitted in Month 6 (April 2018); and updated in M18 (April 2019) and M36 (October 2020 - current version). The final update of the DMP is expected in M42.

The DMP describes the data management life cycle for all digital research datasets to be collected, processed and/ or generated by the SEAFOOD^{TOMORROW} project. It covers:

- Guiding principles around data management following EC H2020 ORDP rules
- How to make SEAFOOD^{TOMORROW} data FAIR, so Findable, Accessible, Interoperable and Re-usable
- Data management cost and allocation of resources
- Data security and ethics, and confidentiality.

Three Annexes are included in the DMP (V3 – October 2020). Annex 1 is a list of Literature and Open-Access Resources relevant to data management in the context of H2020, to support beneficiaries in making their research and data openly accessible. **Annex 2** is the SEAFOOD^{TOMORROW} Data Inventory Table, providing an overview of all project data, to be updated by beneficiaries as part the DMP review process. **Annex 3** (added in during the M36 review) is a summary of Open Access Data underlying peer-reviewed publications, to be updated by beneficiaries as part of the DMP review process.

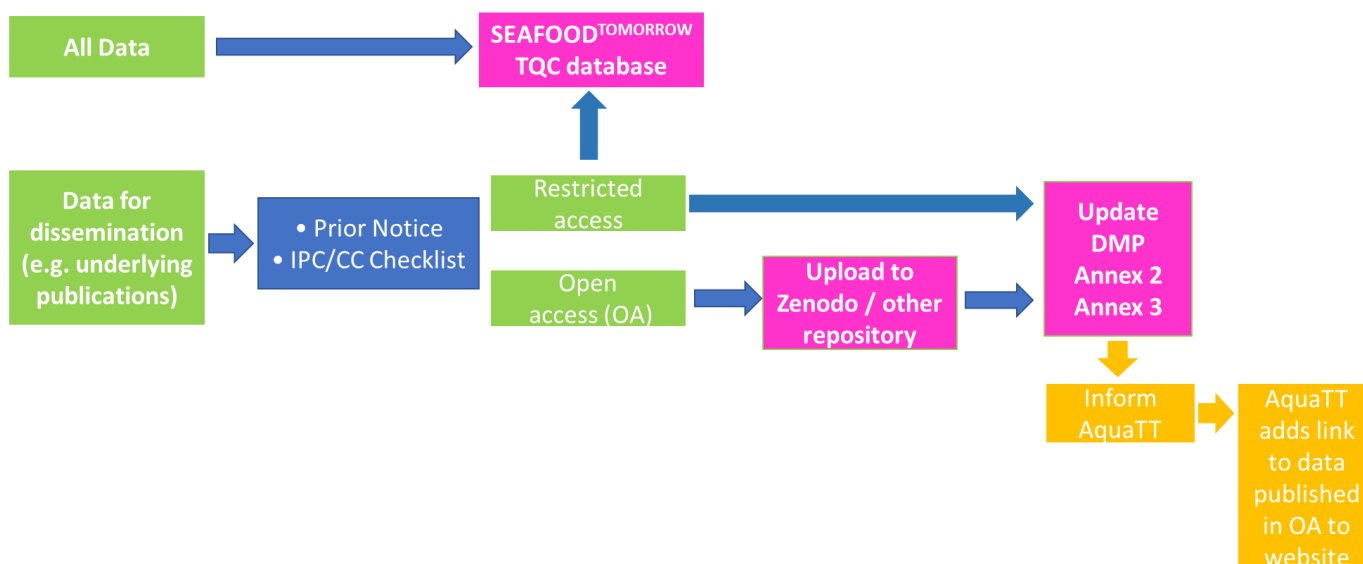


Figure 1. Summary of SEAFOOD^{TOMORROW} Data Management Plan (DMP)

4.1 Data Management Plan (DMP) Guiding Principles

The Data Management Plan of SEAFOOD^{TOMORROW} is coordinated by Work Package 6, with input from all other project WP leaders and is articulated around the following key points:

- I. This Data Management Plan (DMP) has been prepared by taking into account the template of the “Guidelines on Data Management in Horizon 2020” (http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf).
- II. The consortium will comply with the requirements of Regulation (EU) 2016/679 and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation). Guidance on how these regulations interact with open-access data policy can be found here: <https://www.openaire.eu/ordp/>
- III. Procedures surrounding data collection, storage, access, sharing policies, protection, retention and destruction are in line with EU standards as described in the SEAFOOD^{TOMORROW} Grant Agreement and the Consortium Agreement, particularly Articles 18 Keeping Records — Supporting Documentation; Article 23 Management of Intellectual Property; Article 24 Agreement on Background; Article 25 Access Rights to Background; Article 26 Ownership of Results; Article 27 Protection of Results — Visibility of EU funding; Article 30 Transfer and Licensing of Results; Article 31 Access Rights to Results; Article 36 Confidentiality; Article 37 Security-related Obligations; Article 39 Processing of Personal Data; Article 52 Communication between the parties, and “Annex I – Description of Work” of the Grant Agreement.

4.2 Data Management Policy

In line with ORDP requirements, the SEAFOOD^{TOMORROW} Data Management Policy observes FAIR (Findable, Accessible, Interoperable and Reusable) Data Management Protocols (see below). For each data set collected, processed and/or generated in the project, it is recommended that the following elements are documented:

- **Dataset reference, name and version number** – Internal project Identifier for the data set to be produced. This will follow the format: WPNumber_TaskNumber__PartnerName_DataSubset_DatasetName_Version__DateOfStorage, where the project name is SEAFOOD^{TOMORROW}, the Partner Name represents the name of the data custodian (WP Lead/ Task Leader). An example of this naming format would be: WP1_T1.4_AZTI_Subset a_EnzymesForXenobioticsBiosensor_V1_20.06.18
- **Dataset description** – Description of the data that will be generated or collected, including its origin (in cases where data is collected), nature and scale and to whom it could be useful, and whether it underpins a scientific publication. Information on the existence (or not) of similar data and the potential for integration and reuse.



- **Standards and metadata** – Reference to existing suitable standards. If these do not exist, an outline on how and what metadata will be created.
- **Data sharing** – Description of how data will be shared, including access procedures, embargo periods (if any), outlines of technical mechanisms for dissemination and necessary software and other tools for enabling re-use, and definition of whether access will be open or restricted to specific groups. Identification of the repository where data will be stored, if already existing and identified, indicating the type of repository (institutional, standard repository for the discipline, etc.). In cases where the dataset cannot be shared, the reasons for this will be stated (e.g. ethical, rules of personal data, intellectual property, commercial, privacy-related, security-related).
- **Archiving and preservation** (including storage and backup) – Description of the procedures that will be put in place for long-term preservation of the data, including an indication of how long the data should be preserved, the approximate end volume, associated costs, and how these are planned to be covered.

Annex 2: the SEAFOOD^{TOMORROW} Data Inventory Table and Annex 3: Summary of Open Access Data underlying peer-reviewed publications have been developed to document this information, and support 'FAIR' Data Management Protocols, and must be updated by beneficiaries as and when required.

In compliance with the ORD requirements, Grant Agreement Article 29, and following best practices described here, individuals involved in the SEAFOOD^{TOMORROW} research outputs should:

- Register at ORCID: <http://orcid.org> which provides a persistent identity for humans, similar to that created for content-related entities on digital networks by digital object identifiers (DOIs).
- Follow prior notice procedures
- Ensure that EC funding is acknowledged, including the project name and GA number (see p8 (EU emblem)).
- Ensure that peer-reviewed scientific publications based on SEAFOOD^{TOMORROW} results are published in Open Access (Gold or Green).
- Ensure that datasets (with restricted access) are uploaded to the internal database (Annex 2).
- Ensure that the datasets that are underlying peer-reviewed scientific publications, are uploaded to Zenodo or any other (more) relevant open-access repository (Annex 3).

4.3 FAIR data – Making SEAFOOD^{TOMORROW} data Findable, Accessible, Interoperable and Re-usable

SEAFOOD^{TOMORROW} generates and collects diverse data outputs, including data on 1) projected economic and environmental feasibility; 2) consumer acceptance; 3) nutritional quality and hazard assessment; 4) validation of innovative tools for the assessment of seafood safety and quality; and 5) benefit-risk assessments. These data outputs include measurements, observations, validation protocols, survey results, interview recordings and scientific articles relating to the performance of different eco-innovative, sustainable solutions in marine and aquaculture-derived food products and nutrients, and validation of these solutions. In compliance with H2020's Open Research Data Pilot, SEAFOOD^{TOMORROW} digital research data underlying peer-reviewed scientific publications



will be 'FAIR', that is findable, accessible, interoperable and re-usable. All other data will be determined in the Data inventory Table

The **SEAFOOD^{TOMORROW} Data Inventory Table** (see Annex 2) has been developed to capture and document information related to making SEAFOOD^{TOMORROW} data 'FAIR', in compliance with the Data Management Policy. A detailed description of the type and format of data that are generated and collected by the project can be found in this table. Additional datasets may be identified and added to future versions of the table and DMP as necessary.

In addition, it is expected that all project data (also those which have restricted access) are uploaded to the internal SEAFOOD^{TOMORROW} TQC database: <https://www.seafoodtomorrowdata.eu>. When access is not restricted, it is recommended that datasets are also uploaded to the chosen **open-access repository** (i.e. Zenodo or any other (more) relevant open-access repository, see section 4.3.1). Any questions on the TQC database should be addressed to Johan Robbens (johan.robbens@ilvo.vlaanderen.be).

A central database with TQC integrity parameters was created under Task 3.3 and delivered by ILVO (D3.2) in M9 (July 2018). A manual describing how to register and upload data to the database has been developed by ILVO and was distributed (V1.2) to the consortium in M18 (April 2019) and is available from [BaseCamp](#). A video demonstrating how to use the TQC database was developed by ICETA in M34 (August 2020) and can be found on [BaseCamp](#). Once registered, beneficiaries will be assigned a role (read-only or data-manager) and can upload datasets as and when they are ready. The organisation, data collection and most convenient format will be under the responsibility of the relevant WP leader and will be integrated in a database hosted on the project internal server in order to make the data publicly available as soon as possible. Task Leaders are responsible for ensuring collected data sets are organised and presented on the database, but all partners are responsible for having their supporting data ready, send it to task leaders as required and to upload their datasets to the database. Beneficiaries are expected to have their datasets finalised and ready to send on completion of tasks according to the deadlines listed in the DoA.

All data underlying scientific publications must be made openly accessible within and beyond the consortium and uploaded to Zenodo or any other (more) relevant open-access repository as soon as possible (Annex 3). If you wish to restrict access to data that underlies publications, you must provide a 'justifiable' reason for doing so to the IPC as soon as possible (contact: johan.robbens@ilvo.vlaanderen.be), and provide evidence of such reason (e.g. evidence of IP application) within six months. For a list of 'justifiable' reasons under EC rules, please see section 4.3.2 below. The collection and upload of data that are underlying publications, to the chosen open-access repository (Zenodo or other) is the responsibility of authors.

A Summary of Open Access Data underlying peer-reviewed publications (Annex 3) have been developed to further support making SEAFOOD^{TOMORROW} data 'FAIR'. All information related to Open Access data and associated publications and associated data repositories will be made publicly available and added to the SEAFOOD^{TOMORROW} website 'Publications' page: <https://seafoodtomorrow.eu/results/publications/> by AquaTT. Links to data made available by partners on Zenodo or any other (more) relevant open-access repository will be added to the project website by AquaTT within the framework of the project.

Note: Participating in the ORDP does not necessarily mean opening up all your research data. Rather, the ORDP follows the principle “**as open as possible, as closed as necessary**” and focuses on encouraging sound data management as an essential part of research best practice.

Protocol - Restricted Data:

SEAFOOD^{TOMORROW} has put in place a process to ensure that data that cannot be made openly accessible because doing so would jeopardise the project’s objectives, are not made available in open access.

- The IPC/CC checklist contains a question on whether the concerned Dissemination or Communication Activity has underlying datasets.
- If yes, please indicate whether making these data available in Open Access would jeopardise the project’s main objective
 - If the answer is YES, please do not make the data available externally, and provide a justification in the checklist.
 - If the answer is NO, please refer to the project’s DMP (D6.1) for follow-up actions.

4.3.1 Making SEAFOOD^{TOMORROW} Data Findable, including provisions for metadata

SEAFOOD^{TOMORROW}, as part of the ORD Pilot, is expected to deposit generated and collect its data underlying peer-reviewed scientific publications in an open online research data repository. SEAFOOD^{TOMORROW} has selected the Zenodo repository as its data archive of choice, based on compliance of the repository structure, and facilities and management FAIR data principles.

SEAFOOD^{TOMORROW} has established its own Zenodo Community (<https://zenodo.org/communities/seafoodtomorrow/?page=1&size=20>), where all SEAFOOD^{TOMORROW} research outputs can be found. A user guide for uploading datasets to Zenodo has been developed by AquaTT (June 2018) and can be found [here](#).

Zenodo is an OpenAIRE and CERN collaboration that allows researchers to deposit both publications and data and providing tools to linking them to these through persistent identifiers and data citations. The Zenodo repository is set up to facilitate the finding, accessing, re-using and interoperating of data sets (as well as publications), which are the basic principles that ORDP projects must comply with.

Other online open-access repositories may be more relevant depending on the data type and format and should be considered e.g. Genbank (T5.3), PANGAEA, ENA. Beneficiaries are encouraged to consider the Registry of Research Data Repositories (<http://re3data.org>) and Databib (<http://databib.org/>) and Directory of Open Access Repositories (OpenDOAR; <https://v2.sherpa.ac.uk/opensoar/>) for useful listings of repositories that might be suitable for SEAFOOD^{TOMORROW} outputs. Please include the names of other relevant repositories in the Data Inventory Table (Annex 2).

The guidelines provided by the Zenodo repository (<https://zenodo.org/record/802100#.Xcq0UtX7Spp>) are used by SEAFOOD^{TOMORROW} to ensure the right format of data is uploaded to comply with FAIR principles. Data-owners are responsible for including ‘Key words’ in the ‘Description of dataset’, when uploading datasets to the Zenodo

repository or any other (more) relevant open-access repository. Metadata vocabularies that have been identified to-date for SEAFOOD^{TOMORROW} datasets are documented in the SEAFOOD^{TOMORROW} Data Inventory Table (Annex 2).

As the project progresses and data is identified and collected, further information on making data findable will be outlined in subsequent versions of the DMP where possible. Information on naming conventions used, approach towards search keywords, approach for clear versioning, and specification of standards for metadata creation (if any) will also be provided.

The protocol below outlines the management principles behind storing and making findable data collected through the SEAFOOD^{TOMORROW}.

PROTOCOL – Storing SEAFOOD^{TOMORROW} data and making it 'Findable'

For each dataset collected or generated through the SEAFOOD^{TOMORROW} project, beneficiaries must:

- Store and make findable any SEAFOOD^{TOMORROW} data that can be made openly accessible (see next section), either in the Zenodo or in another online data repository suitable for the type and format of data generated or collected.
- Any chosen online repository needs to facilitate identification of data and refer to standard identification mechanisms (ideally persistent and unique identifiers such as Digital Object Identifiers).
- Ensure that research outputs and datasets are cross-referencing each other (e.g. scientific publications and the data behind them)
- Outline the discoverability of the data (give metadata provision)
- The organisation, formatting of data and depositing of data is the responsibility of the relevant task leader/ data owner/ author.
- Data will be made accessible within one month of publishing the data in peer-reviewed scientific articles or similar, unless beneficiaries have outlined justifiable reasons for maintaining data confidentiality (see section 4.3.2 for further details).
- Each beneficiary is responsible for their records and documentation in relation to data generated, which must be in line with the accepted standards in the respective field, overseen by Task leaders.
- To avoid losses, beneficiaries must take measures to ensure that data is backedup using reliable methods.

4.3.2 Data Sharing: Making SEAFOOD^{TOMORROW} Data Openly Accessible

Within SEAFOOD^{TOMORROW}, the data from experimental and demonstration activities will be used to validate the performance of optimised eco-innovative seafood solutions and inform their further improvement. The data from focus group studies and consumer surveys will guide marketing of these products. Further experimental data will be used to assess the environmental sustainability, energy, water expenditure and waste production of solutions. Data collected on market opportunities and economic feasibility will be used to guide the route to market.

In order to maximise the impact of SEAFOOD^{TOMORROW} data, the project will facilitate sharing of results and deliverables within and beyond the consortium. Selected data and results will be shared with the scientific community and other stakeholders through publications in scientific journals and presentations at conferences, as well as through open-access data repositories.



All data will be made available for verification and re-use, unless the task leader / author can justify why data cannot be made openly accessible. **The IPC will assess such justifications and make the final recommendation, based on examination of the following elements regarding confidentiality of datasets:**

- (i) Commercial sensitivity of datasets
- (ii) Data confidentiality for security reasons
- (iii) Conflicts between open-access rules and national and European legislation (e.g. data protection regulations).
- (iv) Sharing data would jeopardise the aims of the project
- (v) Sharing data would jeopardise data owners' commercial interests
- (vi) Sharing data would break trust with project stakeholders, jeopardising current and future cooperation
- (vii) Other legitimate reasons, to be validated by the IPC

Where it is determined that a database should be kept confidential, as providing open access would jeopardise the achievement of the project's main objectives, the IPC will keep record and the SEAFOOD^{TOMORROW} Data Inventory Table will be updated accordingly. The expected levels of accessibility for each dataset is outlined in the SEAFOOD^{TOMORROW} Data Inventory Table (see [Annex 2](#)).

Additionally, the public data will be included in the European Commission Funded Research (OpenAIRE) SEAFOOD^{TOMORROW} Zenodo Community (<https://zenodo.org/communities/seafodtomorrow/?page=1&size=20>).

The deposited data is accessible under two types of access rights:

- Open Access
- Embargoed Access

The data which is owned by the Consortium will be deposited as soon as possible, in the repository with open access rights. In case there is any embargo period on the deposited data, the access to the data will be granted after the embargo period, and at the latest six months after publication. In the case of author-accepted manuscripts with an embargo period longer than six months, the Gold Open Access route will be followed.

As the project progresses and data is identified and collected, further information on making data openly accessible will be outlined in subsequent versions of the DMP. In specific, information on methods or software tools needed to access the data, information on where data and associated metadata, documentation and code are deposited and how access will be provided in case there are restrictions.

Protocol: Making SEAFOOD^{TOMORROW} Data Openly Accessible

- To encourage re-use and further application of project results, all SEAFOOD^{TOMORROW} data that underlies scientific publications will be made available via open-access online platforms (i.e. Zenodo or other repositories), unless subject to protection, OR if release of all or part of the data to open-access platforms would jeopardise the action's main objective.
- Data that result from SEAFOOD^{TOMORROW} activities that underly scientific publications, must be uploaded within one month of publication (unless the data is deemed as 'restricted'). Data-owners are responsible for uploading their datasets.
- Partners who intend to protect their data should notify all consortium beneficiaries, the project coordinator, and the IPC, as soon as possible to ensure that the optimum level of confidentiality is upheld from an early stage. Evidence of applications for protection, and/ or associated legal processes, should be sent to the IPC within six months of such notifications. If no evidence of protection is provided, the IPC may request that such data be made accessible.
- Innovative testing procedures and/ or validation methods that have been developed within SEAFOOD^{TOMORROW} must be reported under the 'Innovation' section in the EU Participant Portal.
- When considering the potential to make data open access, beneficiaries are requested to review the project Consortium Agreement which follows the standard rules as outlined in the DESCA model (<http://www.desca-2020.eu/>) for Horizon 2020. This defines the main approach regarding the ownership, protection and access to key knowledge like IPR and data. This approach will allow the SEAFOOD^{TOMORROW} partners, collectively and individually, to pursue market opportunities arising from the project's results. Some of the major aspects covered are briefly indicated below:
 - **Confidentiality:** Each partner will treat information from other partners as confidential unless otherwise stated and not disclose it to third parties unless the information is publicly available. Data-owners will notify the partnership of their planned intent to upload datasets to open-access repositories following the same prior notice procedure as is set up for dissemination of results.
 - **Pre-existing know how:** Each partner is and remains the sole owner of its IPR over its pre-existing know-how. The partners will identify and list in the Consortium Agreement the Pre-Existing Know-How over which they may grant access rights for the project. The partners agree that the Access Rights to the Pre-existing Know-How needed for carrying out their own work under the project shall be granted on a royalty-free basis.
 - **Ownership and protection of Results:** The ownership of results will belong to the partner/s generating it. Protection will be done appropriately. When the result is the result of a work carried out by two or more beneficiaries and their respective share of the work cannot be ascertained, joint ownership will be agreed between the partners as it is established in the Consortium Agreement (Article 8.1). If a beneficiary wishes to assign any knowledge to a third party he should do so, while observing the conditions set out in Articles 26 and 30 of the

SEAFOOD^{TOMORROW} Grant Agreement and should inform the other partners and request their consent, which should not unreasonably be withheld.

- **Access Rights:** Beneficiaries grant to each other royalty-free access right to knowledge generated in the project and to the background knowledge they bring to the project to the extent needed to successfully perform the project tasks allocated to them.
- **Patents:** Under Article 27.1 of the Grant Agreement, partners who own knowledge suitable for patent are obliged to make applications for patents or similar form of protection and shall supply details of such application to the other partners. Information relating to patents that have been registered must be submitted under the 'IPR' section of the EU Participant Portal.
- **Use and dissemination:** If dissemination of knowledge does not adversely affect its protection or use and subject to legitimate interests, the partners shall ensure further dissemination of their own knowledge as provided under the Grant Agreement (see Article 29) and the Consortium Agreement (see Section 8.4) which has been signed by all partners.

4.3.3 Making SEAFOOD^{TOMORROW} Data Interoperable

Partners observe OpenAIRE guidelines for online interoperability, including OpenAIRE Guidelines for Literature Repositories, OpenAIRE Guidelines for Data Archives, OpenAIRE Guidelines for CRIS Managers based on CERIF-XML. These guidelines can be found at: <https://guidelines.openaire.eu/en/latest/>. Partners also ensure that SEAFOOD^{TOMORROW} data observes FAIR data principles under H2020 open-access policy: http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf

Information relating to the interoperability of SEAFOOD^{TOMORROW} datasets has been collated in the SEAFOOD^{TOMORROW} Data Inventory Table (Annex 2).

Protocol: Making SEAFOOD^{TOMORROW} Data Interoperable

- To support data exchange and re-use between researchers, institutions, organisations and countries, SEAFOOD^{TOMORROW} data (and metadata) adhere to standard formats and, as much as possible, are compliant with available (open) software applications.
- Building on existing open science resources that are interoperable and trusted, SEAFOOD^{TOMORROW} data, unless subject to protection, are made publicly available through the SEAFOOD^{TOMORROW} Zenodo Community.
- Data sets are archived and preserved, using a reference and name (i.e. authors, year, title, DOI or accession number), a **description** (i.e. targeted use, geolocation, methods, link to related articles), and **community standards and metadata** (i.e. parameters semantic, formats, units, and use of ontologies and registries).

4.3.4 Ensuring SEAFOOD^{TOMORROW} Data Re-Use (through clarifying licences)

SEAFOOD^{TOMORROW} is expected to produce a substantial volume of novel data and knowledge through experimental approaches that will be presented to the scientific community, industry, policy makers and society at large through a carefully designed portfolio of dissemination actions.

Datasets uploaded to Zenodo or any other (more) relevant open-access repository will be freely accessible after an embargo period determined per dataset if required.

Information relating to the re-use of SEAFOOD^{TOMORROW} datasets has been collated in the SEAFOOD^{TOMORROW} Data Inventory Table ([Annex 2](#)).

4.5 Allocation of resources

Costs related to open-access to research data in Horizon 2020 are eligible for reimbursement under the conditions defined in the H2020 Grant Agreement, in particular Article 6 and Article 6.2 D.3 Costs of other goods and services, but also other articles relevant for the cost category chosen. Costs cannot be claimed retrospectively. Project beneficiaries will be responsible for applying for reimbursement for costs related to making data accessible to others beyond the consortium.

4.6 Data security

All research data underpinning publications will be made available for verification and re-use unless there are justified reasons for keeping specific datasets confidential. The main elements when considering confidentiality of datasets are:

- Protection of intellectual property regarding new processes, products and technologies where the data could be used to derive sensitive information that would impact the competitive advantage of the consortium or its members
- Commercial agreements as part of the procurements of components or materials that might foresee the confidentiality of data
- Personal data that might have been collected in the project where sharing them is not allowed by the national and European legislation.

4.7 Ethics and Confidentiality

SEAFOOD^{TOMORROW} has a dedicated work package (WP8 – Ethics requirements) to ensure that ethical requirements are met for all research undertaken in the project, including data management aspects, in compliance with H2020 ethical standards. This project does not include any of the sensitive ethical issues detailed in the Research Ethical issues defined by the European Commission. All partners will assure that the EU standards regarding ethics and data management are fulfilled. SEAFOOD^{TOMORROW} partners must comply with the ethical principles (see Article 34) and confidentiality (see Article 36 as set out in the Grant Agreement).



All participants involved in SEAFOOD^{TOMORROW} are committed to operate under the highest standards in terms of ethics and scientific integrity. Naturally, they will fully comply with the principles reflected in the Charter of Fundamental Rights of the European Union.

In addition, the project will comply with Protection of Personal Data (POPD) Requirement No. 2, meaning:

1. Opinion or confirmation by the competent Institutional Data Protection Officer and/or authorization or notification by the National Data Protection Authority must be obtained (which ever applies according to the Data Protection Directive (EC Directive 95/46, currently under revision, and the national law).
2. If the position of a Data Protection Officer is established, their opinion/confirmation that all data collection and processing will be carried according to EU and national legislation, should be obtained.
3. Templates for informed consent forms and information sheet must be kept on file and submitted upon request to the REA.

Furthermore, following General Data Protection Regulation (EU 2016/679) (“GDPR”), the SEAFOOD^{TOMORROW} website has been updated to include a Privacy Statement and cookies bar, informing website visitors about what the project does with their personal data.

Similarly, SEAFOOD^{TOMORROW} stakeholders are required to give consent to the storage of their details. Stakeholder information is stored on a secure database and used for purposes of the SEAFOOD^{TOMORROW} project only.

More details in relation to Ethics (and Security) in relation to Data Management can be found in Section 5 of the Grant Agreement.

5. ANNEX 1 – Literature Resources & Open-Access Resources

Advice on commercialisation of research data: <https://eudat.eu/data-access-and-re-use>

Communication ‘An Investment Plan for Europe’ COM(2014)903 final, p.16.
<http://ec.europa.eu/transparency/regdoc/rep/1/2014/EN/1-2014-903-EN-F1-1.Pdf>

Creative Commons licensing and H2020: <https://creativecommons.org/licenses/>

Data Management in the context of Horizon 2020: http://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/open-access-data-management/data-management_en.htm

DESCA model for Horizon 2020: <http://www.desca-2020.eu/>

Directory of Open-Access Repositories: <http://www.openoar.org/>

Ethics self-assessment under Horizon 2020:
http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/ethics/h2020_hi_ethics-self-assess_en.pdf

Explanations of Scientific Metadata: <http://www.dcc.ac.uk/resources/curation-reference-manual/chapters-production/scientific-metadata>

Factsheet: Open Access in H2020:
https://ec.europa.eu/programmes/horizon2020/sites/horizon2020/files/FactSheet_Open_Access.pdf

FAQ: Open Access to Data in Horizon 2020:
https://www.iprhelphdesk.eu/sites/default/files/newsdocuments/Open_Access_in_H2020.pdf

FOSTER- the ORD Pilot- What’s Required (Presentation):
<https://www.fosteropenscience.eu/sites/default/files/pdf/2289.pdf>

Guidelines on Data Management & FAIR data principles under H2020 open-access policy:
http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf

IPR Helpdesk Advice on seeking IP Professionals:
<https://www.iprhelphdesk.eu/sites/default/files/documents/Guide-IP-professionals.pdf>

IPR Helpdesk Factsheet on IPR Valuation: <https://www.iprhelphdesk.eu/sites/default/files/newsdocuments/Fact-Sheet-IP-Valuation.pdf>

Licensing Wizard for H2020: <https://b2share.eudat.eu/>

Making Data ‘Findable’ using Persistent Identifiers:
<file:///C:/Users/emer/Downloads/IdentifiersforauthorsandresearchmaterialstoenableOpenAccessandOpenData.pdf>

Making Data ‘Findable’ using Persistent Identifiers:
<file:///C:/Users/emer/Downloads/IdentifiersforauthorsandresearchmaterialstoenableOpenAccessandOpenData.pdf>

Metadata Standards Directory Working Group: <http://rd-alliance.github.io/metadata-directory/>



Open Data and Metadata Standards: https://joinup.ec.europa.eu/sites/default/files/document/2015-05/d2.1.2_training_module_2.2_open_data_quality_v1.00_en.pdf

OpenAIRE Guidelines for Literature Repositories, Data Archives, and CRIS Managers based on CERIF-XML: <https://guidelines.openaire.eu/en/latest/>

OpenAIRE Guidelines for Literature Repositories, Data Archives, and CRIS Managers based on CERIF-XML: <https://guidelines.openaire.eu/en/latest/>

Registry of Research Data Repositories: <https://www.re3data.org/>

The Open Research Data (ORD) Pilot in H2020: <https://www.openaire.eu/what-is-the-open-research-data-pilot>

The ORD Pilot and Personal Data: <https://www.openaire.eu/ordp/>

Use of DataCite for metadata provisions under Horizon 2020: https://guidelines.openaire.eu/en/latest/data/use_of_datacite.html

Using Identifiers for Open Access- for Authors and Research Materials: http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?action=display&doc_id=4607

ZENODO Open-Access Data Repository: <https://zenodo.org/>



6. ANNEX 2 – Restricted Access Data (Status: April 2021)

Restricted access data generated by the SEAFOOD^{TOMORROW} project is stored in the TQC database:
<https://www.seafoodtomorrowdata.eu>.

Latest update: updated by the consortium as part of the DMP M42 update (April 2021).



7. ANNEX 3 – Open Access Data (Status: April 2021)

SEAFOOD^{TOMORROW} data that can be made available in Open Access can be found on **Zenodo** (or another more relevant open-access repository). The **SEAFOOD^{TOMORROW} Zenodo Community Group** is available at: <https://zenodo.org/communities/seafoodtomorrow/?page=1&size=20>.

Links to data published in Open Access repositories (Zenodo or other) and associated publications are also available from the **SEAFOOD^{TOMORROW} website** under the 'Publications' page: <https://seafoodtomorrow.eu/results/publications/>.

Latest update: updated by the consortium as part of the DMP M42 update (April 2021).

