Nutritious, safe and sustainable seafood for consumers of tomorrow

Grant agreement no: 773400

Data Management Plan

Deliverable 6.1 Report

Due date of deliverable: 31/01/2018

Actual submission date: 30/04/2018

Start date of the project: 01/11/2017 **Duration: 36 months**

Organisation name of lead contractor: AquaTT

Revision: (indicate version)

(Select with an "X" que correct option:)

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)	

Acknowledgement

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

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

1.1 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*' (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). (EC DG for Research and Innovation, Open Innovation, open science, open to the world, 2016)

1.2 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, all Horizon 2020-funded projects that are funded by the 2017 Work Programme, including **SEAFOOD^{TOMORROW}**, are by default part of the Open Research Data Pilot (ORD pilot). The ORD pilot 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.

Participants in the Open Research Data Pilot must comply with the legal requirements as outlined in Article 29.3 of the Grant Agreement: Open access to research data.

*'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'.

***Note that the ORD pilot applies primarily to the data needed to validate the results presented in scientific publications. Partners are encouraged to provide open-access to other data on a voluntary basis if it is not sensitive or subject to protection, but this is not a requirement under the ORD Pilot.**

SEAFOOD[TOMORROW] participants 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]** research data are specified.

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

Grant Agreement Article 29 (Dissemination of project results, open access and 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 will also be included in the **SEAFOOD[TOMORROW]** Dissemination and Exploitation Plan (D6.2) and beneficiaries should refer to these documents for details.

3. 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 intended to be a 'living' document that will outline how the **SEAFOOD[TOMORROW]** research data will be handled during and after the project, and so it will be reviewed and updated at regular intervals.

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

- Data handling during and after the project
- What types and formats of data will be generated/collected?
- What methodologies and standards will be applied?
- Whether the data be shared or made open-access, and how?
- How data will be curated and preserved

The DMP will be updated as the project evolves to verify the applicability of the DMP to the generated data. **SEAFOOD TOMORROW** will generate diverse outputs, including measurements data, 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. This diversity requires a Data Management Plan, building on existing open science resources that are interoperable and trusted.

Three Annexes are included in the DMP. Annex 1 consists of a Glossary of useful resources that are relevant to data management in the context of H2020. Annex 2 includes a list of open-access resources to support beneficiaries in making their research and data openly accessible. Annex 3 includes a comprehensive description of SEAFOOD TOMORROW datasets. Like the DMP, these Annexes will evolve and grow over the course of the project.

3.1 Data Management Plan (DMP) Guiding Principles

The Data Management Plan of **SEAFOOD TOMORROW** is coordinated by Work Package 6, 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). The elaboration of the DMP will allow **SEAFOOD TOMORROW** partners to address all issues related with IP protection and data. The DMP is an official project Deliverable (D6.1) due in Month 6 (April 2018), but it will be a live document throughout the project. This initial version will evolve depending on significant changes arising and periodic reviews at reporting stages of the project.

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. Type of data, storage, confidentiality, ownership, management of intellectual property and access: Procedures that will be implemented for data collection, storage, access, sharing policies, protection, retention and

destruction will be in line with EU standards as described in the 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.

3.2 The SEAFOOD[TOMORROW] Data Management Policy

The DMP's Data Management Policy will address the points below and will detail the current status of reflection within the consortium regarding the data that is being produced (source: European Commission DGRI. 2016. Guidelines on Data Management in Horizon 2020). According to ORD requirements, the **SEAFOOD[TOMORROW]** DMP observes FAIR (Findable, Accessible, Interoperable and Reusable) Data Management Protocols. This document addresses for each data set collected, processed and/or generated in the project the following elements:

- **Dataset reference and name** – 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 PartnerName 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.

3.3 Data Summary

SEAFOOD[TOMORROW] will generate and collect 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. The organization

of data collection and most convenient format will be the responsibility of the relevant task leader and will be integrated in a database hosted on the project internal database (T3.3). When uploading data to the database, a protocol for unique and persistent identifiers, such as DOI will be established (OpenAIRE+ and ZENODO e-infrastructures).

A detailed description of the type and format of **SEAFOOD TOMORROW** data that will be generated and collected can be found in Annex III (Data Inventory Table- Annex III). Below is a short summary of the 21 datasets that have been identified for SEAFOOD TOMORROW (listed by Dataset number and Task number) (April 2018):

1. **Dataset 1; T1.1:** '**Utilization of novel sustainable feed materials in aquafeeds towards the fortification of farmed fish'**, which will contain data relating to analytical characterisation of target nutrients in fish feeds and seaweed, and analytical characterisation of fish fillets for specific nutrient contents.

2. **Dataset 2; T1.2:** '**Integrated Multi-Trophic Aquaculture (IMTA) for sustainable integrated co-production of fish and macroalgae**', and will include seaweed growth data, hydrographic and water quality data, growth parameters for salmon, nutrient contents of fish feeds, historical data relating to fish farming sites, and environmental data.

3. **Dataset 3; T1.3:** '**Sustainable management of shellfish production areas (SPAs) through delineation of buffer zones'** which will contain data relating to the management of harmful microbiological and algal risks in seafood, including microbiological data for risk species such as E.coli, Norovirus, and male-specific RNA bacteriohpages in shellfish, as well as epidemiological data relating to norovirus outbreaks. It will additionally include physical parameters such as water temperature, level, velocity and salinity, fluorescence, and solar radiation, wind speed, and air temperature, meteorological data relating to rainfall and river flows, and chemical data for specific substances, such as Rhodamine WT dye. Finally, this dataset will include biological data relating to concentrations of potentially harmful algae such as Pseudo-nitzschia, Okadaic acid, dinophysistoxins, and potentially other species.

4. **Dataset 4; T1.4: 'Integration of fast screening methods in the management of seafood production systems'** which will contain data relating to the integration of rapid screening methods in the management of seafood production systems, including protocols and analytical results from the analysis of samples. The dataset will include analytical results relating to concentrations of contaminants in different seafood products. It will also include a list of enzymes and data relating to their activity in the presence of target chemical contaminants; a list of antibodies and protein conjugates and their sensitivities to regulated marine toxins; a list of validation protocols and data relating to the performance of each sensor developed, including selectivity, sensitivity, linear range from calibration curve, recovery, and repeatability of validation methods.

5. **Dataset 5: T 2.1 Sodium reduction in seafood products** which will contain Experimental data from sensory and microbiological analyses.

6. **Dataset 6; T2.2 Digestible, attractive, functional, sustainable and nutritionally adapted food to specific populations,** which will contain nutrient data relating to innovative seafood solutions that have been adapted for specific populations. Nutrients analysed will include water, ash, protein, fat, carbohydrates, dietary fibre, total energy, fatty acid content, cholesterol, amino acids, vitamins, minerals, and salt. The dataset will also include data relating to regulated environmental contaminants, histamine and biogenic amines, TVB-N and

TMA, pH stability, and microbial contamination, and descriptive data around texture, smell, taste, colour, and consumer acceptance.

7. **Dataset 7; T2.3 Strategies to reduce contaminants from seafood products**, which will contain data relating to seafood contaminants, including microbiological data, genome sequences of pathogens, PSP toxin concentrations, partial results in the form of posters, scientific reports and articles, and legislative proposals.

8. **Dataset 8; T2.4: Reduction of energy and water in seafood processing,** which will contain numerical water and energy consumption data for production, pasteurization and sterilization of fish soup that will help to reducewater and energy use in seafood production and processing methods. Data will include process temperature data, flow rate data, and RF processing conditions. This dataset will also include analytical data from the soup and its components, including lipid oxidation data, pH, nutrient concentrations, instrumental texture, sensorial analysis data to detect pathogens, and microbiological analysis data.

9. **Dataset 9; T3.1:** Analytical protocol set-up, including analytical data relating to nutrient composition of samples, environmental and contaminant data, sensorial attributes, and other data relating to processes and protocols for producing SEAFOOD[TOMORROW] solutions.

10. **Dataset 10; T3.2: Nutritional benefits and safety,** which will contain data relating to laboratory assays for validation of the intended claims for SEAFOOD[TOMORROW] innovative solutions, including analytical results generated from samples in WP1 and WP2, quantitative data related to target nutrients and contaminants, and quantitative data relating to genetic variables.

11. **Dataset 11; T3.3: Database with the outcomes of safety, nutritional claims, sustainability, market, traceability and certification**, which will consist of a database for information about different parameters around traceability, quality and certification, including data originating from other tasks within SEAFOOD[TOMORROW]. These will include seafood integrity parameters, market acceptance, and threshold levels for the optimised traceability and quality benchmark quality label, as well as variables relating to sustainability assessment such as energy consumption, water use, economic feasibility and consumer perception.

12. **Dataset 12; T 3.4: Benefit-to-risk assessment, exposure assessment and predictive modelling',** which will contain data relating to the benefits and risks of SEAFOOD[TOMORROW] solutions, including data relating to shelf life, with predictive modelling data of the growth of pathogenic microorganisms. It will also contain data for intake and exposure scenarios for different target user groups, concentrations of beneficial and harmful ingredients relative to target user demographics and calculated combined health impacts.

13. **Dataset 13; T4.1: Consumers' acceptance, sensory perception and preferences of solutions,** which will contain qualitative exploratory data relating to focus group studies, representing consumer views, expectations and preconceptions relating to SEAFOOD[TOMORROW] solutions. It will also include quantitative data (consumer survey and experimental auctions with sensory consumer tasting) gathered from online and offline questionnaires. The consumer survey assesses consumer attitudes that will be analysed using standard statistical software packages, and an experimental auction to assess willingness to pay and sensory consumer tasting.

14. **Dataset 14; T4.2 Economic feasibility and valuation of eco-innovative solutions',** which will contain data relating to consumer acceptance of SEAFOOD[TOMORROW] solutions, including market data, and investment analysis data.

15. **Dataset 15; T4.3: Environmental sustainability, energy and water expenditure and waste production of solutions,** which will contain Life Cycle Assessment (LCA) primary data, life cycle inventory data, and life cycle environmental profile data that will facilitate the identification of hotspots in the life cycle of SEAFOOD[TOMORROW] solutions. LCA primary data will include data on raw materials used, products, wastes, direct emissions, energy consumption, transport and infrastructure. Life cycle inventory data will detail environmental loads, elementary exchanges (emissions, natural resource depletion) that result from the production of SEAFOOD[TOMORROW] innovative solutions. Life cycle environmental profile data will include environmental impact indicators, such as ReCiPe methodology indicators, WaterFootprint indicators and Cumulative Energy Demand indicators.

16. **Dataset 16; T4.4: Market opportunities and industrial demonstration,** which will contain data relating to the requirements of end-users of SEAFOOD[TOMORROW] solutions, including outputs from questionnaires and qualitative data from interviews.

17. **Dataset 17: Task 5.1 Seafood authentication**, which will contain a which will contain data relating to reference DNA sequences of different seafood species, including DNA- in Fasta format- for three marker genes; *coil* a mitochondrial marker, *cytB*, a mitochondrial marker, and *rhodopsin*, a nuclear marker. This data will be collected using the Sanger DNA sequencing method.

18. **Dataset 18; T5.2: Digital traceability system,** which will contain data relating to the development of an optimised seafood traceability tool, and include characteristics of the traceability system, including software utilities, automatic data capture systems, and transmission systems between agents. It will also include data that will be used for a traceability database and web page to support the tool.

19. **Dataset 19; T5.3: Benchmark for quality certification schemes and labelling',** which will contain data relating to benchmarking of parameters of value to consumers, e.g. nutritional value, integrity, and contaminants. Specifically, data will include quantitative data relating to the levels of the following elements in seafood products: sodium, Norovirus, omega-3, Vitamin B12, Vitamin D, Se, I, and fibre.

20. **Dataset 20; T6.4: Stakeholder Engagement,** which will contain personal data relating to stakeholders who might benefit from SEAFOOD[TOMORROW] solutions.

21. **Dataset 21; T6.5: Consumer benefit-risk communication tool,** which will contain data relating to the development of a risk-benefit communication tool to support consumer decision-making, to include numerical data, environmental impact indicator data, nutrient data, and chemical concentrations in seafood and other products.

As the project progresses and data is identified and collected, further information on the specific datasets will be outlined in subsequent versions of the DMP. Additional datasets may be identified and added to future versions of the DMP as necessary.

3.4 FAIR data – Making SEAFOOD[TOMORROW] data Findable, Accessible, Interoperable and Re-usable

SEAFOOD[TOMORROW] will work to ensure that its data will be 'FAIR', that is findable, accessible, interoperable and re-usable, according to the points below.

3.4.1 Making SEAFOOD[TOMORROW] Data Findable, including provisions for metadata

SEAFOOD[TOMORROW], as part of the ORD Pilot, is expected to deposit generated and collected data 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. ZENODO is an OpenAIRE and CERN collaboration that allows researchers to deposit both publications and data, providing tools to linking them to these through persistent identifiers and data citations. ZENODO is set up to facilitate the finding, accessing, re-using and interoperating of data sets, which are the basic principles that ORD projects must comply with. The guidelines provided by ZENODO will be used by **SEAFOOD[TOMORROW]** to ensure the right format of data is uploaded to comply with FAIR principles.

Other online research data repositories will be considered depending on data types and formats generated and collected data, e.g. Genebank (T5.3). Beneficiaries will be encouraged to consider the Registry of Research Data Repositories and Databib and Directory of Open Access Repositories (OpenDOAR) for useful listings of repositories that might be suitable for **SEAFOOD[TOMORROW]** outputs.

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'

Beneficiaries will follow these processes for each dataset collected or generated through the **SEAFOOD[TOMORROW]** project:

- Store and make findable any **SEAFOOD[TOMORROW]** data that can be made openly accessible (see next section), either in the ZENODO repository 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), which should be outlined.
- Ensure that research outputs and data-sets 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, data collection and most convenient format will be under the responsibility of the relevant task leader.
- Each task leader will be responsible for depositing relevant data in Zenodo or another appropriate open-access online repository. 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 3.3 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 leads. To avoid losses, beneficiaries must take measures to ensure that data is backed-up using reliable methods.

Metadata vocabularies that have been identified to-date for SEAFOOD[TOMORROW] datasets are listed in Annex 3: Data Inventory Table. As the project progresses and data is identified and collected, further information on metadata and making data findable will be outlined in subsequent versions of the DMP. 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. A template will be created and provided to partners requesting specific information and metadata parameters that will support FAIR data management.

3.4.2 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. There will be an open access policy applied to these following the rules outlined in the Grant and Consortium Agreements.

Task leaders will collect data from each task and the IPR Committee will review and approve all data that is identified as appropriate for open access. This process will be carried out on an ongoing basis to facilitate the publication of appropriate data as soon as possible. The IPR Committee is responsible for the IPR issues within SEAFOOD[TOMORROW] and their approval will avoid any possible conflicts between open access and IPR issues.

All data will be made available for verification and re-use, unless the task leader can justify why data cannot be made openly accessible. The IPR Committee will assess such justifications and make the final decision, 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) Other legitimate reasons, to be validated by the IPR Committee

Where it is determined that a database should be kept confidential, the reasons for doing so will be included in an updated version of the DMP. Table 1 illustrates the expected levels of accessibility of SEAFOOD[TOMORROW] data.

Table 1: Expected levels of accessibility of SEAFOOD TOMORROW data

Dataset number	Task Number	Dataset Name	Open/ Restricted	Reason for restriction
1	1.1	Utilization of novel sustainable feed materials in aquafeeds towards the fortification of farmed fish	Restricted & Open	Patent application
2	1.2	Integrated Multi-Trophic Aquaculture (IMTA) for sustainable integrated co-production of fish and macroalgae	Restricted	Confidentiality agreements
Dataset number	**Task Number**	**Dataset Name**	**Open/ Restricted**	**Reason for restriction**
3	1.3	Sustainable management of shellfish production areas (SPAs) through delineation of buffer zones	Open	N/A
4	1.4	Integration of fast screening methods in the management of seafood production systems	Restricted	Patent application
5	2.1	Sodium reduction in seafood	Open	N/A
6	2.2	Digestible, attractive, functional, sustainable and nutritionally adapted food to specific populations	Restricted	Patent application
7	2.3	Strategies to reduce contaminants from seafood products	Restricted & Open	Patent application
8	2.4	Reduction of energy and water in seafood processing	Open	N/A
9	3.1	Analytical protocol set-up	Open	N/A
10	3.2	Nutritional benefits and safety	Open	N/A
11	3.3	Database with the outcomes of safety, nutritional claims, sustainability, market, traceability and certification	Restricted	IPR Sensitivities across datasets
12	3.4	Benefit-to-risk assessment, exposure assessment and predictive modelling	Open	Open
13	4.1	Consumers' acceptance, sensory perception and preferences of solutions	Restricted	GDPR
14	4.2	Economic feasibility and valuation of eco-innovative solutions	Restricted	GDPR
15	4.3	Environmental sustainability, energy and water expenditure and waste production of solutions	Restricted & Open	GDPR

16	4.4	Market opportunities and industrial demonstration	Restricted	GDPR
17	5.1	Seafood authentication	Open & Restricted	Patent application
18	5.2	Digital traceability system	Restricted	Patent application
19	5.3	Benchmark for quality certification schemes and labelling	Open	N/A
20	6.4	Stakeholder Engagement	Restricted	GDPR
21	6.5	Consumer benefit-risk communication tool	Restricted?	GDPR

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, 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. Examples of approved open-access platforms are listed in Annex II.
- Data that results from SEAFOOD[TOMORROW] activities that underlies scientific publications must be submitted to the relevant SEAFOOD[TOMORROW] Task Leader and the IPC not more than 10 days following any related publication in scientific journals (unless data is subject to protection or embargo periods). An information template will be circulated to all beneficiaries upon publication of the DMP outlining the descriptive information required by the IPC to evaluate and approve datasets for upload to open-access repositories. Upon receipt of data, the IPC will evaluate each dataset and request additions or modifications in a timely manner, to facilitate upload of the dataset by task leaders no more than 30 days after the original date of publication. It is the responsibility of project partners to prepare the template for submission in a timely manner to facilitate this process.
- All SEAFOOD[TOMORROW] data collection should be completed prior to the official deadline as outlined for each task at the end of the Grant Agreement. Partners are expected to observe such deadlines and have all data in a suitable format ready for sharing openly according to these deadlines unless the publications have not yet been accepted.
- 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, Partners 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.
- **Open access to publications:** Any proposed publication or communication by one of the parties is required to be submitted to other beneficiaries for their consent, according to CA Article 8.4.2.1. All publications will be either gold or green open access in accordance with the H2020 requirements.
- **Open access to Data:** Task leaders will notify the partnership of their planned intent to upload datasets to open-access repositories following approval of data for such purpose by the IPC.
- **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 and DMP 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 Foreground:** The ownership of foreground will belong to the partner/s generating it. Protection will be done appropriately. When the Foreground is the result of a work carried out by two or more partners 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. If a partner 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:** Partners 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.

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.

3.4.3 Making SEAFOOD[TOMORROW] Data Interoperable

Partners will 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 will 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 Annex 3: Data Inventory Table. As the project progresses and data is identified and collected, further information on making data interoperable will be outlined in subsequent versions of the DMP. In specific, information on data and metadata vocabularies, standards or methodology to follow to facilitate interoperability and whether the project uses standard vocabulary for all data types present to allow interdisciplinary interoperability.

3.4.4 EnsuringSEAFOOD[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 in the ZENODO repository will be freely accessible after an embargo period determined per dataset if required. Potential users are expected to adhere with the ZENODO Terms of Use and will be subject to scrutiny by the ZENODO team.

As the project progresses and data is identified and collected, further information on increasing data re-use will be outlined in subsequent versions of the DMP. In specific, information on how data will be licenced to permit the widest reuse possible, when the data will be made available for re-use, whether the data produced and/or used in the project is useable by third parties, a description of data quality assurance processes and specifications of length of time for which the data will remain re-usable will be provided.

3.4 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, 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.

3.5 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.

3.6 Ethics and Confidentiality

SEAFOOD[TOMORROW] has a dedicated work package (WP8) to ensure that ethical requirements are met for all research undertaken in the project, including data management aspects, in compliance with H2020 ethical standards. 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).

In addition, the project will comply with 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.

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

4. SEAFOOD[TOMORROW'S] DMP Review Process & Timetable

The first version of the SEAFOOD[TOMORROW] DMP will be validated by the consortium and will function as the operational manual until a next update has been validated. The DMP will be 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, by the full consortium

Feedback will be recorded in Table 2 (below) to support clarity and transparency in the revision process.

Table 2: Overview of revisions of the DMP

Version	Date	Comments & recommendations
V1	April 2018	First version
V2		Expected M18: Review and Update by partners
V3		Expected M36: Review and Update by partners

5. ANNEX 1 – Literature Resources & Useful Links

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

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

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

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

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

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

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

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

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

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

Making Data 'Findable' using Persistent Identifiers:
file:///C:/Users/emer/Downloads/IdentifiersforauthorsandresearchmaterialstoenableOpenAccessandOpenData.pdf

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

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

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

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

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

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

6. ANNEX 2 – Online Open-Access Resources

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

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

Directory of Open-Access Repositories: http://www.opendoar.org/

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

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

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

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

Making Data 'Findable' using Persistent Identifiers:
file:///C:/Users/emer/Downloads/IdentifiersforauthorsandresearchmaterialstoenableOpenAccessandOpenData.pdf

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

7. ANNEX 3 – Data Inventory Table – Version 1 (April 2018)

Data Inventory Table

V1- April 2018

Data Summary

Dataset no.	Task No.	Dataset Name	Data subset	Type of data	New/ Existing data	Method of Data capture	Format of data capture	Expected size	Quality control procedures	Data Utility- who outside of the project consortium might use the data?	Ethical issues? Y/N	Type of access (open/ restricted)
1	1.1	Utilization of novel sustainable feed materials in aquafeeds towards the fortification of farmed fish	Nutrient content of feed materials	Dry matter, ash, protein, fat, Se, I, relevant contaminants	new data	Experimental measurements	Excel format	< 2 MB	Certified analytical methods	Fish feed industrials Fish farmers	No	Restricted
			Nutrient content of fish feed	Dry matter, ash, protein, fat, Se, I, fatty acids, relevant contaminants	new data	Experimental measurements	Excel format	< 2 MB	Certified analytical methods	Fish feed industrials Fish farmers	No	Restricted
			Zootechnical performance data - Trout	Mortality, growth rate, feed conversion, nutrient digestibility	new data	Experimental measurements	Excel format	< 2 MB	None	Fish feed industrials Fish farmers	Yes	Restricted
			Zootechnical performance data - Carp	Mortality, growth rate, feed conversion	new data	Experimental measurements	Excel format	< 2 MB	None	Fish feed industrials Fish farmers	Yes	Restricted
			Zootechnical performance data - Seabream	Mortality, growth rate, feed conversion	new data	Experimental measurements	Excel format	< 2 MB	None	Fish feed industrials Fish farmers	Yes	Restricted
			Zootechnical performance data - Salmon	Mortality, growth rate, feed conversion	new data	Experimental measurements	Excel format	< 2 MB	None	Fish feed industrials Fish farmers	Yes	Restricted
			Nutritional composition - Trout	Dry matter, ash, protein, fat, Se, I, fatty acids, relevant contaminants	new data	Experimental measurements	Excel format	< 2 MB	None	Fish feed industrials Fish farmers Seafood retailers	No	Restricted
			Nutritional composition - Carp	Dry matter, ash, protein, fat, Se, I, fatty acids, relevant contaminants	new data	Experimental measurements	Excel format	< 2 MB	None	Fish feed industrials Fish farmers Seafood retailers	No	Restricted
			Nutritional composition - Seabream	Dry matter, ash, protein, fat, Se, I, fatty acids, relevant contaminants	new data	Experimental measurements	Excel format	< 2 MB	None	Fish feed industrials Fish farmers Seafood retailers	No	Restricted
			Nutritional composition - Salmon	Dry matter, ash, protein, fat, Se, I, fatty acids, relevant contaminants	new data	Experimental measurements	Excel format	< 2 MB	None	Fish feed industrials Fish farmers Seafood retailers	No	Restricted
			Fortification efficacy - Trout	% DRI for Se, I and n-3 PUFAs	new data	Experimental measurements	Excel format	< 2 MB	None	Fish feed industrials Fish farmers Seafood retailers	No	Open
			Fortification efficacy - Carp	% DRI for Se, I and n-3 PUFAs	new data	Experimental measurements	Excel format	< 2 MB	None	Fish feed industrials Fish farmers Seafood retailers	No	Open
			Fortification efficacy - Seabass	% DRI for Se, I and n-3 PUFAs	new data	Experimental measurements	Excel format	< 2 MB	None	Fish feed industrials Fish farmers Seafood retailers	No	Open
			Fortification efficacy - Salmon	% DRI for Se, I and n-3 PUFAs	new data	Experimental measurements	Excel format	< 2 MB	None	Fish feed industrials Fish farmers Seafood retailers	No	Open
2	1.2	Integrated Multi-Trophic Aquaculture (IMTA) for sustainable integrated co-production of fish and macroalgae	Estimation of the seaweed growth during the production period	Length of the thallus (cm) FS weight (kg) per linear meter produced	New data	Experimental measurements	TBD	TBD	TBD	TBD	No	Restricted
			Water quality	Water current (direction (degrees) and speed (cm/s)) Temperature (°C), Salinity (psu), ODO (% and mg/l), Turbidity (NTU), Chlor a (µg/l and RFU), BGA-PE (µg/l and RFU), Conductivity (ms/cm)	New data	Experimental measurements	TBD	TBD	TBD	TBD	No	Restricted
			Production of salmon	Growth parameters: Size/age, Feed composition, Feed amount used on the farm, FCR, Health/treatments	New data	Experimental measurements	TBD	TBD	TBD	TBD	No	Restricted
			Historical data on related to farming site and monoculture production of salmon	Growth, Environmental data from reports on MOM B and C as well as the various reports delivered when installation of the farm	New data	Experimental measurements	TBD	TBD	TBD	TBD	No	Restricted
			Analysis data; Benefit to Risk assessment of solutions for task 1.2	Proximate composition: Fatty acids, Vitamins, Minerals, Environment/processing contaminants, Sensorial attributes, (All as described/specified under task 3.1)	New data	Experimental measurements	TBD	TBD	TBD	TBD	No	Restricted
			Concentrations of Rhodamine WT dye in seawater reported as parts per billion	Chemical	New data	Experimental measurements	Excel	4MB			No	Open
			Water temperature reported as °C	Physical	New data	Experimental measurements	Excel	1MB			No	Open
			Air temperature reported as °C	Physical	New data	Experimental measurements	Excel	500KB			No	Open
			Salinity reported as ppt	Physical	New data	Experimental measurements	Excel	1MB			No	Open
			Shellfish heart rate reported as beats/min	Biological	New data	Experimental measurements	Excel	3MB			No	Open
			Water velocity reported as cm/s	Physical	New data	Experimental measurements	Excel	2MB			No	Open

Dataset no.	Task No.	Dataset Name	Data subset	Type of data	New/ Existing data	Method of Data capture	Format of data capture	Expected size	Quality control procedures	Data Utility- who outside of the project consortium might use the data?	Ethical issues? Y/N	Type of access (open/ restricted)
3	1.3	**Sustainable management of shellfish production areas through the delineation of buffer zones**	Concentrations of Tryptophan-like fluorescence and CDOM reported as QSU	Physical	New data	Experimental measurements	Excel	2MB	Data published in peer reviewed journals are subject to approvals process. Cefas lead author creates record on MDR and saves record until it is ready to be sent for approval by the relevant Science Lead. When the manuscript has been completed, the lead Cefas author updates the relevant entry and sends for approval by the Science Development panel. Once the Science Development panel approves the publication entry on the Publications Database, the manuscript can be sent to the publisher. Appearance of the holding from the tree view once approved	Members of the shellfish industry, scientific community, regulators, water companies	No	Open
			Concentrations of *Pseudo-nitzschia* spp. reported as cells/litre	Biological	External source (FSA data)	External source (FSA data)	Excel	TBD			No	Open
			Concentrations of Okadaic acid/dinophysistoxins/pectenotoxins (OA/DTX/PTX) reported as µ/kg	Biological	External source (FSA data)	External source (FSA data)	Excel	TBD			No	Open
			Total daily rainfall reported as mm	Meteorological	External source (Met Office)	External source (Met Office)	Excel	TBD			No	Open
			Average daily river flows reported as m^3/s	Meteorological	External sources (CEH National River Flow Archive) (1 MB)	External sources (CEH National River Flow Archive) (1 MB)	Excel	TBD			No	Open
			Number of laboratory reports of norovirus outbreaks in hospitals	Epidemiological	External source (Public Health England)	External source (Public Health England)	Excel	TBD			No	Open
			Water levels reported as metres	Physical	External source	External source	Excel	TBD			No	Open
			Solar radiation reported as W/m^2	Meteorological	External source (relevant weather station)	External source (relevant weather station)	Excel	TBD			No	Open
			Wind speed reported as knots and direction	Meteorological	External source (relevant weather station)	External source (relevant weather station)	Excel	TBD			No	Open
4	1.4	**Integration of fast screening methods in the management of seafood production systems**	Enzymes for the biosensor for xenobiotics	List of enzymes (from the CYP family and others involved in the metabolisation of xenobiotics in living organisms) and their activity in presence of target chemical contaminants: PAHs, BFRs and PFCs.	New data	Experimental measurements	Units: % inhibition Excel format	TBD	None	Scientific community Companies working on the development of fast-screening methods	No	Restricted
			Antibodies and conjugates for the immunoassay for TTX and the optical biochip for regulated marine toxins	List of antibodies and protein conjugates and their sensitivity	New data	Experimental measurements	Units: ng/mL Excel format	TBD	None		No	Restricted
			Protocols	Methodologies	New data	Experimental measurements	Word files	TBD	None		No	Restricted
			Validation of sensors	Data on the performance of each sensor to be developed. The main characteristics to be assessed are: Selectivity (% cross reactivity), Sensitivity (LOD and LOQ in mg/kg or µg/kg), Linear range (in mg/kg or µg/kg, from the calibration curve), Recovery (%), Repeatibility and reproducibility (% RSD)	New data	Experimental measurements	Excel format	TBD	None		No	Restricted
			Analytical results	Concentration of contaminants (xenobiotics and marine toxins) in different seafood products	New data	Experimental measurements	Units: mg/kg (xenobiotics) and µg/kg (marine toxins) Excel & Word files	TBD	None		No	Restricted
5	2.1	**Sodium reduction in seafood**	Sensory quality and microbiological status of the food products	Experimental data from sensory and microbiological analyses	New data	Experimental measurements	The data will be in the form of tables and figures (word and excel format) describing the findings.	A few MB	All information will be thoroughly reviewed before publication	Seafood industry , trade organisations, research community	No	Open
			Production protocol of the 6 winning products	Recipes, process yield, cost price (€/kg), processing time, complexity to prepare		Experimental measurements	TBD	TBD	TBD	TBD	No	Restricted
			Nutrient content	Quantitative- measurement of variable per 100g of: Water, ash, protein, fat, carbohydrates, dietary fibres, total energy, Fatty acids (SAT, MUFA, PUFA, n-3DHA, EPA, alpha-linolenic acid, n-6, vitamins (B1, B6, B9, B12, D, E), minerals (Mg, Mn, Fe, I, Ca, Cu, Zn, Se, Na, K, P), NaCl	New	Experimental measurements	TBD	TBD	TBD	TBD	No	Restricted
			Regulated environmental contaminants	Quantitative- measurement in ug/kg or ng/kg of MeHg, Total Hg, Cd, Pb, As, PCB, dioxins, BaP, Histamine and biogenic amines for species of concern	New	Experimental measurements	TBD	TBD	TBD	TBD	No	Restricted
			TVB-N and TMA for species of concern- evolution during storage	Mg N/ 100g	New	Experimental measurements	TBD	TBD	TBD	TBD	No	Restricted
			pH stability during storage (canned food)	pH	New	Experimental measurements	TBD	TBD	TBD	TBD	No	Restricted

Dataset no.	Task No.	Dataset Name	Data subset	Type of data	New/ Existing data	Method of Data capture	Format of data capture	Expected size	Quality control procedures	Data Utility- who outside of the project consortium might use the data?	Ethical issues? Y/N	Type of access (open/ restricted)
6	2.2	**Digestible, attractive, functional, sustainable and nutritionally adapted food to specific populations**	Microbial contamination & evolution during storage (total bacterial count, listeria, Salmonella, E.coli, Coagulase positive Staphylococci, B. cereus & lactic acid bacteria	CFU/ g	New	Experimental measurements	TBD	TBD	TBD	TBD	No	Restricted
			Product colour	Colorimeter measurement- L* a*b*	New	Experimental measurements	TBD	TBD	TBD	TBD	No	Restricted
			Product texture	Texturometer measurements	New	Experimental measurements	TBD	TBD	TBD	TBD	No	Restricted
			Product smell	Descriptive	New	Experimental measurements	TBD	TBD	TBD	TBD	No	Restricted
			Product taste	Descriptive	New	Experimental measurements	TBD	TBD	TBD	TBD	No	Restricted
			Consumer acceptance of taste	Score	New	Experimental measurements	TBD	TBD	TBD	TBD	No	Restricted
			Consumer acceptance of texture	Score	New	Experimental measurements	TBD	TBD	TBD	TBD	No	Restricted
7	T2.3	**Strategies to remove contaminants from seafood products**	Concentrations of *Escherichia coli* reported as most probable number/100g of shellfish flesh	Microbiological	New data	Experimental measurements	TBD	500KB	TBD	TBD	No	Restricted
			Concentrations of Norovirus (genogroups I and II) reported as genome copies/g of shellfish flesh	Microbiological	New data	Experimental measurements	TBD	500KB	TBD	TBD	No	Restricted
			Concentrations of male-specific RNA bacteriophage reported as plaque forming units/100g of shellfish flesh	Microbiological	New data	Experimental measurements	TBD	500KB	TBD	TBD	No	Restricted
			Listeria monocytogenes load in different seafood products before/after treatment	Microbiological data for target seafood contaminants	New Data	Experimental measurements	Reported as colony forming units per gram (cfu/g).	500KB	TBD	TBD	No	Restricted
			Genome sequences of listeriaphages	Microbiological, Biological, chemical and epidemiological data for target seafood contaminants	New Data	Experimental measurements	Various	500KB			No	Restricted
			PSP toxins concentration	Microbiological, Biological, chemical and epidemiological data for target seafood contaminants	New Data	Experimental measurements	Numbers (3-figures), several sets, expressing concentration values, for evaluation of the processess assayed with different bivalve molluscs	500KB			No	Open
			Legislative proposal to harvest and detoxify PSP contaminated molluscs	Microbiological, Biological, chemical and epidemiological data for target seafood contaminants	New Data	Experimental measurements	Technical Report, several pages, targeted to Public Administrations	500KB			No	Open
			Water and energy consumption data for diferent processing technologies	For several technologies energy consumption (kWh/kg of soup) for pasteurization/sterilzation of soup and water consumption (m3/kg) of produced soup for facility cleaning. Others: Process temperatures (ºC) and flow rate (m3/h). RF processing conditions (V)	New	Experimental measurements	TBD	TBD	TBD		No	Open

Dataset no.	Task No.	Dataset Name	Data subset	Type of data	New/ Existing data	Method of Data capture	Format of data capture	Expected size	Quality control procedures	Data Utility- who outside of the project consortium might use the data?	Ethical issues? Y/N	Type of access (open/ restricted)
8	2.4	Reduction of energy and water in seafood processing	Analytical data from the soup and components	Lipid oxidation (millimoles of active oxygen per kilogram lipids), pH (no units), protein concentration (%), carbohydrates (%), total fat (%), moisture (g water/g dry matter), ash (%), fiber (%),pH, instrumental colour (Cielab), instrumental texture (i.e maximum strength), rheology (centipoise), sensorial analysis(acceptable/non acceptable), microbiology analysis (acceptable/non acceptable).	New	Experimental measurements	TBD	TBD	TBD	Companies evaluating different technologies in thermal seafood processing	No	Open
			Organic loads in effluents	pH, CBO mg/L), CQO (mg/L),	New	Experimental measurements	TBD	TBD	TBD		No	Open
9	3.1	Analytical protocol set-up	Type of Sample	TBD	Existing data	TBD	TBD	TBD	TBD	TBD	No	Open
			Preparation of Sample	TBD	Existing data	TBD	TBD	TBD	TBD	TBD	No	Open
			Sample quantity	TBD	Existing data	TBD	TBD	TBD	TBD	TBD	No	Open
			Labelling of sample	TBD	Existing data	TBD	TBD	TBD	TBD	TBD	No	Open
			Storage of sample	TBD	Existing data	TBD	TBD	TBD	TBD	TBD	No	Open
			Transport of sample	TBD	Existing data	TBD	TBD	TBD	TBD	TBD	No	Open
			Analysis of sample	TBD	Existing data	TBD	TBD	TBD	TBD	TBD	No	Open
			Sample reports	TBD	Existing data	TBD	TBD	TBD	TBD	TBD	No	Open
			Data archiving protocols	TBD	Existing data	TBD	TBD	TBD	TBD	TBD	No	Open
10	3.2	Nutritional benefits and safety	Nutrional analysis (Protein, carbohydrates, total fat, moisture, ash, fiber	Quantitative data Expressed in mg/kg or %	New	Experimental measurements	Excel format	10GB	None	Seafood industry , trade organisations, research community	No	Open
			Analysis of Vitamins (E, D)	Quantitative data expressed in mg/kg	New	Experimental measurements	Excel format	10GB	None	Seafood industry , trade organisations, research community	No	Open
			PBDEs (including PBDE congeners 28, 47, 99, 100, 153, 154, 183 and 209)	Quantitative data expressed in ng/ kg	New	Experimental measurements	Excel format	10GB	None	Seafood industry , trade organisations, research community	No	Open
			biogenic amines	Quantitative data expressed in mg/ kg	New	Experimental measurements	Excel format	10GB	None	Seafood industry , trade organisations, research community	No	Open
			Qualitive analysis of DNA	Qualitative	New- within the project and collection in GenBank	Experimental measurements	Excel format	10GB	None	Seafood industry , trade organisations, research community	No	Open
11	3.3	Database with the outcomes of safety, nutritional claims, sustainability, market, traceability and certification	Database with information about different parameters consernign Traceabilty, Quality and certification	TQC Information	Data from other tasks	From other tasks	Database	TBD	TBD	TBD	No	Restricted
12	3.4	Benefit-to-risk assessment, exposure assessment and predictive modelling'		Assessment report	open acces and from other tasks	TBD	reports, text word or pdf	TBD	TBD	TBD	No	open

Dataset no.	Task No.	Dataset Name	Data subset	Type of data	New/ Existing data	Method of Data capture	Format of data capture	Expected size	Quality control procedures	Data Utility- who outside of the project consortium might use the data?	Ethical issues? Y/N	Type of access (open/ restricted)
13	4.1	Consumers' acceptance, sensory perception and preferences of solutions	Qualitative exploratory data collection - focus groups: Data collection will take place through two focus group discussions in each region involving 6-8 participants per discussion group. These discussions allow collecting a diversity of reactions, opinions, beliefs and expectations from a select group of consumers in relation to the eco-innovative solutions.	Qualitative	New	Data collection will take place through two focus group discussions in each region involving 6-8 participants per discussion group. These discussions allow collecting a diversity of reactions, opinions, beliefs and expectations from a select group of consumers in relation to the eco-innovative solutions.	- transcripts and analysis through NVIVO software	TBD	Format: data collection and analysis using NVIVO software	Targeted use: as input for the consumer survey and experimental auctions	Ethical requirement D8.1 : H - Requirement No. 1. Ethical requirement D8.2 : POPD - Requirement No. 2	Restricted GDPR
			Quantitative conclusive data collection- experimental auction: an experimental auction will be performed to collect data on consumers' willingness-to-pay (WTP) in the three regions (Belgium, Hungary and Italy). Sensory consumer tasting will be integrated in the experimental auction, allowing accounting for the impact of taste preference. The experimental auctions will be performed among 300 adults (18-65 years), with a specific focus on gender and specific segments of the population for T2.2 products.	Quantitative	New	Experimental measurement with 300 consumers in total over the three regions (Belgium, Hungary, Italy)	offline data collection and statistical software analysis (SPSS)	TBD	TBD	TBD		Restricted GDPR
			Quantitative conclusive data collection - consumer survey: data collection will be performed with 400 participants in each region (Belgium, Hungary, Italy). The consumer survey will assess consumer attitudes (e.g. benefit and risk perceptions), expectations (e.g. in relation to information), and intentions towards eco-innovative solutions that are relevant for consumers. Associations between participants' background information and their reactions towards solutions will be analysed.	Quantitative	New	Consumer surveys: online survey with 400 participants in each region (Belgium, Hungary, Italy)	Data format: online and offline questionnaires for data collection, statistical software analysis (e.g. SPSS, LISREL, STATA), and reporting (word document)	TBD	TBD	TBD		Restricted GDPR
14	4.2	Economic feasibility and valuation of eco-innovative solutions'	Market share of different types of seafood products (%) Willingness to pay from consumers (euros) Price setting of different Types of seafood processing (euro's) Cost for production of new seafood products & techniques	Existing data (publicly available data; data available via Market Reports (access after paying), data resulting form other tasks and WPs of the SEAFOODTOMORROW project, data received from the Industrial Advisory Board of the SEAFOODTOMORROW project	Market repots from e.g. Markets and Markets, Eurostat ProdCom database, FAO website, Input from members or industrial advisory board + publicaly available annual reports of companies, data resulting from task 4.1 (consumer survey) and 4.4 (stakeholder survey) and WP1 and 2 (costs to produce new products)	Existing reports & publicly available data	N/A	TBD	TBD	This will be very limited as the data will be very time-dependent (market shares an prices can change year after year)	No	Restricted GDPR
			Data resulting from the investment analyse (based on calculations with data mentioned above)	Excel file with results of investment analysis	New & existing	TBD	Excel format	TBD	TBD	This will be very limited as the data will be very time-dependent (market shares an prices can change year after year)	No	Restricted GDPR
15	4.3	Environmental sustainability, energy and water expenditure and waste production of solutions,		Life cycle information and primary data of the processes	New and secondary	Interviews, questionnaires	TBD	TBD	Those specified by the LCA methodological framework, following the ISO 14040 series, particularly concerning completeness, sensitivity and uncertainty check.	TBD	No	
			Life cycle of the products and processes	Flow diagrams, pdf, description of the systems under study, establishing boundaries and unit processes	New and secondary	Created and managed by URV and RIVM, captured in a data register in spreadsheet format: Task 4.3 Data Register Spreadsheet	TBD	TBD	Those specified by the LCA methodological framework, following the ISO 14040 series, particularly concerning completeness, sensitivity and uncertainty check.	TBD	No	Restricted
			Life cycle assessment primary data	Numerical, spreadsheet, material and energy input/output of the system used for LCA calculations	New and secondary	Created and managed by URV and RIVM, captured in a data register in spreadsheet format: Task 4.3 Data Register Spreadsheet	TBD	TBD		TBD	No	Restricted
			Life cycle inventory	Numerical, spreadsheet, environmental loads, elementary exchanges (emissions, natural resources depletion) with the environment used for LCA calculations	New and secondary	Created and managed by URV and RIVM, captured in a data register in spreadsheet format: Task 4.3 Data Register Spreadsheet	TBD	TBD		TBD	No	Open
			Life cycle environmental profile	Numerical, spreadsheet, environmental impact indicators as LCA results	New and secondary	Created and managed by URV and RIVM, captured in a data register in spreadsheet format: Task 4.3 Data Register Spreadsheet	TBD	TBD		TBD	No	Open
16	4.4	Market opportunities and industrial demonstration	Information on the requirements of end-users	Information on requirements of end-users	New data	Questionnaires	Questionnaires, word files		Internal review	TBD	No	Restricted (GDPR)
			Market assessment	Surveys	New data	Questionnaires	Questionnaires, word files		Internal review	TBD	No	Restricted (GDPR)
17	5.1	Seafood authentication	Mitochondrial DNA markers for seafood species (CytB, Coi, rhodopsin)	TBD	New	TBD	TBD	TBD	TBD	TBD	No	Restricted
			DNA sequences of marker genes for seafood species	TBD	TBD	TBD	TBD	TBD	TBD	TBD	No	Restricted
			List of algorithms to identify species based on mitochondrial DNA markers	List of algorithms (code)	New	TBD	TBD	TBD	TBD	TBD	No	Restricted
			Data relating to discriminatory power of each gene	TBD	New	TBD	TBD	TBD	TBD	TBD	No	Restricted
			List of potential alert species	TBD	New	TBD	TBD	TBD	TBD	TBD	No	Restricted
			Validation data for rapid species identification sensor	TBD	New	TBD	TBD	TBD	TBD	TBD	No	Restricted

Dataset no.	Task No.	Dataset Name	Data subset	Type of data	New/ Existing data	Method of Data capture	Format of data capture	Expected size	Quality control procedures	Data Utility- who outside of the project consortium might use the data?	Ethical issues? Y/N	Type of access (open/ restricted)
			Validation data for tool to assess final % fish content in seafood products (fraud identification tool)	Quantitative	New	TBD	TBD	TBD	TBD	TBD	No	Restricted
18	5.2	Digital traceability system	Surveys and interviews with the agents involved, during the design stage of the traceability system.	TBD	New data	- Surveys and interviews with the agents involved, during the design stage of the traceability system.	TBD- dependent on architecture of new system	TBD	The validation of the information collected in the traceability system will be carried out by procedures external to the traceability system, such as genetic analysis, toxicology, etc.	Agents of the supply chain, authorities and consumers.	Initially not, but it will depend on the information to be traced and that will be decided by the agents of the supply chain.	Restricted
						- Manual or automatic data loading (RFID, QR, bar code, etc), during the proof of concept.		TBD				Restricted
19	5.3	Benchmark for quality certification schemes and labelling	Reference DNA sequences of different seafoodspecies.	Reference DNA sequences of different seafoodspecies.	TBD	TBD	Database & Genebank	TBD	TBD	TBD	No	Open
20	6.4	Stakeholder Engagement	Contact details for stakeholders Results of surveys	Forename, Family name, organisation, email address, postal address, telephone number, mobile number, expertise	Some data from EC Safe Seafood	Pre-existing & new data	Name (first and family name), Organisation (Name, postal address), email address, telephone number	1GB	N/A	Beneficiaries who are seeking to share or obtain information with/ from stakeholders	No	Restricted (GDPR) Open (surveys)
21	6.5	Consumer benefit-risk communication tool	Pre-existing nutrients database from FoodEXplorer and Nutraqua databases.	Numerical data. Tables in spreadsheet format (.csv)	Data already exist in EuroFIR, Aquimer, Task 4.3, and current version of FishChoice. New data will be taken from literature review.	Nutrients database are already available in FoodEXplorer and Nutraqua databases. That pre-existing data is available in the current version of FishChoice.	Excel spreadsheet		Quality assurance processes were applied when nutrients database were developed. Regarding environmental data, those specified in task 4.3.	TBD	No	GDPR & Confidentiality Agreements

Data Inventory Table
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Making Data Findable, including provisions for Metadata

Dataset no.	Task Number	Dataset Name	Data format	Metadata standard	What type of metadata will be associated with it?	Metadata vocabularies	How will data be findable (which open-access repositories are best suited to your data?)	Is a unique identifier used?	Is any specialist software required to read / use the data?
1	1.1	**Utilisation of novel sustainable feed materials in aquafeeds towards the fortification of farmed fish**	Word and Excel files	TBD	Analytics, fish zootechnical performance criteria, statistical analysis	Project name, Task, fish species name, target nutrient analysis	Link to raw data will be provided with deliverable doc	to be evaluated	Word/ Excel
2	1.2	**Integrated Multi-Trophic Aquaculture (IMTA) for sustainable integrated co-production of fish and macroalgae**	TBD	TBD	TBD	TBD	TBD	TBD	TBD
3	1.3	**Sustainable management of shellfish production areas (SPAs) through delineation of buffer zones**	Excel. Metadata will be created manually	TBD	Data owner, description of the data, time periods of the datasets, keywords, format of the data, responsible parties, any access constraints	TBD	The data will be available through Cefas MDR. It is not known at this stage if the repository allows easy/intuitive viewing. This will be evaluated during the life cycle of the project. IRTA data through the basecamp (project intranet) and e-mail. A technical report describing the results of field and desk studies and a protocol for management of microbiological and marine toxin risks in shellfish production areas will be delivered in month 24. A link providing access to the raw data will be included in the report. Alternatively, raw data will be tabulated and listed as appendix in the report. Data will eventually accessible on an international repository upon completion of the project Data will be shared with project partners through Basecamp. On completion of the task, project partners will identify the documents and information that will be shared publicly. Sensitive information about levels of contaminants in shellfish production areas as well as IPR rules and sensitive information subject to protection that might affect the exploitation of the buffer zone strategies will be considered before sharing the data publicly. Data outputs and maps will also be shared in peer reviewed papers in scientific journals, at project meetings and relevant conferences, and other dissemination initiatives such as project website and newsletters	DOIs will be created for final report and supplementary information. https://www.cefas.co.uk/cefas-data-hub/dois/	Minitab and R software for statistical analyses; MapInfo for GIS mapping display. RStudioeditor and RSNNS package.
4	1.4	**Integration of fast screening methods in the management of seafood production systems**	Excel data imported from other software	None	Project name, Task, No. Samples analysed & target contaminant	TBD	Internal code & internal repositories	No	Excel GenS™; AZTI- Thermo Scientific SkanIt® Software for Varioskan® Flash versión 2.4.3; QUB: to be determined
5	2.1	**Sodium reduction in seafood**	TBD	TBD	Sensory attributes, microbiological counts.	TBD	TBD	TBD	TBD
6	2.2	**Digestible, attractive, functional, sustainable and nutritionally adapted food to specific populations**				TBD	Publications will be stored in the publication database DIVA, which is a repository where they can be found.	URN is used in DIVA	Excel
7	2.3	**Strategies to reduce contaminants from seafood products**	TBD	TBD	General project information, WP and task, decontamination strategy, target contaminant, type/origin of seafood product, samples codes, time of sampling and analysis and contaminant content in seafood.	TBD	Link to raw data will be provided with deliverable doc	TBD	No
8	2.4	**Reduction of energy and water in seafood processing**					Basecamp, email	No	Excel
9	3.1	**Analytical protocol set-up**	TBD	TBD	TBD	TBD	TBD	TBD	TBD
10	3.2	**Nutritional benefits and safety**	Word, Excel, text, image files	TBD	**Image file:** large, colour depth, resolution, date of creation, author Text file: date of creation, summary Web pages: meta tags, description, key words	**Image file:** large, colour depth, resolution, date of creation, author Text file: date of creation, summary Web pages: meta tags, description, key words	Basecamp, website, Internal Database tool in DotNetNuke CMS		Word/ Excel
11	3.3	**Database with the outcomes of safety, nutritional claims, sustainability, market, traceability and certification**	TBD	TBD	TBD	TBD	TBD	TBD	TBD
12	3.4	**Benefit-to-risk assessment, exposure assessment and predictive modelling'**	Word, CSV	text in report and MCRA metadata	databases used		Basecamp,project website	report nr.	Word, Excel, MCRA
13	4.1	**Consumers' acceptance, sensory perception and preferences of solutions**	Excel	DDI or DataCite	Information on the project No. of answers to questionnaires Date of information collectionShort summary of data.	Metadata associated with the repository (DOI, title, authors, description, version, language, keywords). An additional XML file will be added in the repository.	Data will be stored in repository Zenodo. A digital object identifier (DOI) will be provided during the data upload process in Zenodo. A DOI allows others to easily and unambiguously cite the upload. Additionally, metadata, search keywords and grant number will be	Yes, DOI	Focus Groups: NVivO Consumer surveys: SPSS Experimental auctions: SPSS
14	4.2	**Economic feasibility and valuation of eco-innovative solutions'**	Excel	Metadata will be created by Zenodo, DOI will be made available, grant number will be linked to the dataset, keywords will be used	Extra xml-file will be added to the database in Zenodo– standard will be used	Project name, grant number, keywords	Using metadata created by Zenodo as well as DOI	DOI will indeed be used	No
15	4.3	**Environmental sustainability, energy and water expenditure and waste production of solutions,**	Mainly flow diagrams and process diagram flows, text description. Primary data: tables in spreadsheet format	No specific standard, created and managed by URV and RIVM, captured in a data register in spreadsheet format: Task 4.3 Data Register Spreadsheet	Metadata will specify: Target solution: (task number and developer partner), Reference or novelty, Source (partner, literature, databases), Origin (received form source or created/modified by URV/RIVM), Type (questionnaire, process diagram, unit process information, tables, text), Content description, Publication media (if any), Folder pathway and name of the file, Date of last modification, Version	Inventory data will basically follow nomenclature followed for environmental exchanges in Ecoinvent Database Environmental profile will include indicator with nomenclature according to Life Cycle Impact Assessment Methodologies selected (e.g. ReCiPe, IPCC, WSI, CML…)	Shared internally via onedrive or dropbox Scientific publications	No	TBD
16	4.4	**Market opportunities and industrial demonstration**	Excel spreadsheet	TBD	TBD. Will vary depending on the technologies/products/solutions	TBD	Data will be published in Deliverable doc	Yes, according to the selected standard.	No- standard web browser
17	5.1	**Seafood authentication**	TBD	TBD	TBD	TBD	Data will be made available on DotNetNuke	TBD	TBD
18	5.2	**Digital traceability system**	TBD	TBD	Will be created manually	TBD	During software development a link to database and traceability software will be available on basecamp. During proof of concept, consumers and agents of the supply chain will have access to the traceability platform via a QR code fixed to the product or via the website with a username and password	All the traceability information must be linked to the product by means of codes such as QR, bar codes or batch number.	No- standard web browser
19	5.3	**Benchmark for quality certification schemes and labelling**	TBD	None	Metadata will be associated with the information that each agent must record, software utilities, automatic data capture systems, transmission systems between agents, etc.	TBD	Access to the data will be done through the user interfaces and forms generated by the traceability software.	Data will be linked to the product by means of codes such as QR, bar codes or batch number.	TBD
20	6.4	**Stakeholder Engagement**	Excel	TBD		N/A	TBD	TBD	TBD
21	6.5	**Consumer benefit-risk communication tool**	Spreadsheets (.cvs, .xls)	TBD	Target solution (Task number & owner/developer), reference, source (partner, literature, database), Type (Table), content description, Publication media, folder pathway and name of the file. Date of last modification & version	TBD	www.fishchoice.eu	No	Standard MS office & internet browser

Data Inventory Table
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Making Data Findable, including provisions for Metadata

Dataset no.	Task Number	Dataset Name	Data format	Metadata standard	What type of metadata will be associated with it?	Metadata vocabularies	How will data be findable (which open-access repositories are best suited to your data?)	Is a unique identifier used?	Is any specialist software required to read / use the data?
1	1.1	**Utilisation of novel sustainable feed materials in aquafeeds towards the fortification of farmed fish**	Word and Excel files	TBD	Analytics, fish zootechnical performance criteria, statistical analysis	Project name, Task, fish species name, target nutrient analysis	Link to raw data will be provided with deliverable doc	to be evaluated	Word/ Excel
2	1.2	**Integrated Multi-Trophic Aquaculture (IMTA) for sustainable integrated co-production of fish and macroalgae**	TBD	TBD	TBD	TBD	TBD	TBD	TBD
3	1.3	**Sustainable management of shellfish production areas (SPAs) through delineation of buffer zones**	Excel. Metadata will be created manually	TBD	Data owner, description of the data, time periods of the datasets, keywords, format of the data, responsible parties, any access constraints	TBD	The data will be available through Cefas MDR. It is not known at this stage if the repository allows easy/intuitive viewing. This will be evaluated during the life cycle of the project. IRTA data through the basecamp (project intranet) and e-mail. A technical report describing the results of field and desk studies and a protocol for management of microbiological and marine toxin risks in shellfish production areas will be delivered in month 24. A link providing access to the raw data will be included in the report. Alternatively, raw data will be tabulated and listed as appendix in the report. Data will eventually accessible on an international repository upon completion of the project Data will be shared with project partners through Basecamp. On completion of the task, project partners will identify the documents and information that will be shared publicly. Sensitive information about levels of contaminants in shellfish production areas as well as IPR rules and sensitive information subject to protection that might affect the exploitation of the buffer zone strategies will be considered before sharing the data publicly. Data outputs and maps will also be shared in peer reviewed papers in scientific journals, at project meetings and relevant conferences, and other dissemination initiatives such as project website and newsletters	DOIs will be created for final report and supplementary information - https://www.cefas.co.uk/cefas-data-hub/dois/	Minitab and R software for statistical analyses; MapInfo for GIS mapping display. RStudioeditor and RSNNS package.
4	1.4	**Integration of fast screening methods in the management of seafood production systems**	Excel data imported from other software	None	Project name, Task, No. Samples analysed & target contaminant	TBD	Internal code & internal repositories	No	Excel Gen5™; AZTI: Thermo Scientific Skanit® Software for Varioskan® Flash versión 2.4.3; QUB: to be determined
5	2.1	**Sodium reduction in seafood**	TBD	TBD	Sensory attributes, microbiological counts.	TBD	TBD	TBD	TBD
6	2.2	**Digestible, attractive, functional, sustainable and nutritionally adapted food to specific populations**				TBD	Publications will be stored in the publication database DiVA, which is a repository where they can be found.	URN is used in DiVA	Excel
7	2.3	**Strategies to reduce contaminants from seafood products**	TBD	TBD	General project information, WP and task, decontamination strategy, target contaminant, type/origin of seafood product, samples codes, time of sampling and analysis and contaminant content in seafood.	TBD	Link to raw data will be provided with deliverable doc	TBD	No
8	2.4	**Reduction of energy and water in seafood processing**					Basecamp, email	No	Excel
9	3.1	**Analytical protocol set-up**	TBD	TBD	TBD	TBD	TBD	TBD	TBD
10	3.2	**Nutritional benefits and safety**	Word, Excel, text, image files	TBD	**Image file:** large, colour depth, resolution, date of creation, author Text file: date of creation, summary Web pages: meta tags, description, key words	**Image file:** large, colour depth, resolution, date of creation, author Text file: date of creation, summary Web pages: meta tags, description, key words	Basecamp, website, Internal Database tool in DotNetNuke CMS		Word/ Excel
11	3.3	**Database with the outcomes of safety, nutritional claims, sustainability, market, traceability and certification**	TBD	TBD	TBD	TBD	TBD	TBD	TBD
12	3.4	**Benefit-to-risk assessment, exposure assessment and predictive modelling'**	Word, CSV	text in report and MCRA metadata	databases used		Basecamp,project website	report nr.	Word, Excel, MCRA
13	4.1	**Consumers' acceptance, sensory perception and preferences of solutions**	Excel	DOI or DataCite	Information on the project No. of answers to questionnaires Date of information collectionShort summary of data.	Metadata associated with the repository (DOI, title, authors, description, version, language, keywords). An additional XML file will be added in the repository.	Data will be stored in repository Zenodo. A digital object identifier (DOI) will be provided during the data upload process in Zenodo. A DOI allows others to easily and unambiguously cite the upload. Additionally, metadata, search keywords and grant number will be	Yes, DOI	Focus Groups: NVIVO Consumer surveys: SPSS Experimental auctions: SPSS
14	4.2	**Economic feasibility and valuation of eco-innovative solutions'**	Excel	Metadata will be created by Zenodo, DOI will be made available, grant number will be linked to the dataset, keywords will be used	Extra xml-file will be added to the database in Zenodo– standard will be used	Project name, grant number, keywords	Using metadata created by Zenodo as well as DOI	DOI will indeed be used	No
15	4.3	**Environmental sustainability, energy and water expenditure and waste production of solutions,**	Mainly flow diagrams and process diagram flows, text description. Primary data: tables in spreadsheet format	No specific standard, created and managed by URV and RIVM, captured in a data register in spreadsheet format: Task 4.3 Data Register Spreadsheet	Metadata will specify: Target solution: (task number and developer partner), Reference or novelty, Source (partner, literature, databases), Origin (received form source or created/modified by URV/RIVM), Type (questionnaire, process diagram, unit process information, tables, text), Content description, Publication media (if any), Folder pathway and name of the file, Date of last modification, Version	Inventory data will basically follow nomenclature followed for environmental exchanges in Ecoinvent Database Environmental profile will include indicator with nomenclature according to Life Cycle Impact Assessment Methodologies selected (e.g. ReCiPe, IPCC, WSI, CML…)	Shared internally via onedrive or dropbox Scientific publications	No	TBD
16	4.4	**Market opportunities and industrial demonstration**	Excel spreadsheet	TBD	TBD. Will vary depending on the technologies/products/solutions	TBD	Data will be published in Deliverable doc	Yes, according to the selected standard.	No- standard web browser
17	5.1	**Seafood authentication**	TBD	TBD	TBD	TBD	Data will be made available on DotNetNuke	TBD	TBD
18	5.2	**Digital traceability system**	TBD	TBD	Will be created manually	TBD	During software development a link to database and traceability software will be available on basecamp. During proof of concept, consumers and agents of the supply chain will have access to the traceability platform via a QR code fixed to the product or via the website with a username and password	All the traceability information must be linked to the product by means of codes such as QR, bar codes or batch number.	No- standard web browser
19	5.3	**Benchmark for quality certification schemes and labelling**	TBD	None	Metadata will be associated with the information that each agent must record, software utilities, automatic data capture systems, transmission systems between agents, etc.	TBD	Access to the data will be done through the user interfaces and forms generated by the traceability software.	Data will be linked to the product by means of codes such as QR, bar codes or batch number.	TBD
20	6.4	**Stakeholder Engagement**	Excel	TBD		N/A	TBD	TBD	TBD
21	6.5	**Consumer benefit-risk communication tool**	Spreadsheets (.cvs, .xls)	TBD	Target solution (Task number & owner/developer), reference, source (partner, literature, database), Type (Table), content description, Publication media, folder pathway and name of the file. Date of last modification & version	TBD	www.fishchoice.eu	No	Standard MS office & internet browser

Data Inventory Table
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Storage of Data

Dataset number	Task Number	Dataset Name	Data storage location (short-term)	Storage media	Data security provisions	Expected size of dataset	Length of time data will be stored	Location where data will be stored (long-term)	Person responsible	Cost
1	1.1	**Utilization of novel sustainable feed materials in aquafeeds towards the fortification of farmed fish**	Partners institutional servers with backup and shared Dropbox	Partners institutional servers with backup	Acess resticted to project partners. Automated periodic backup	<40 MB	5 years following termination of the project	Partners institutional servers with backup	Intsitutional owner of data	tbd
2	1.2	**Integrated Multi-Trophic Aquaculture (IMTA) for sustainable integrated co-production of fish and macroalgae**	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
3	1.3	**Sustainable management of shellfish production areas (SPAs) through delineation of buffer zones**	Data will be stored in Cefas servers and basecamp and potentially Cefas MDR IRTA the institution owner of the data	TBD	Access to MDR containers and metadata holdings is set using the same Active-Directory (AD) groups used to control access to CDPs and Function Areas. All MDR permissions fields are linked to AD groups, allowing you to type in the contract code/name of function area and select the required group from the drop-down list. Permissions are set at the Container level. On creation/edit of the container the AD group for the field are set. Multiple groups/users can be set for each field if required to create additional text boxes. By default, the 'View Group' will be set to 'Public' (meaning all Cefas staff can view the metadata) and the Publish Group will be 'MDRDataHubApproval' (meaning that MDR administrators will be able to approve a record for publication. The 'Edit Group' controls which staff will be able to edit the Metadata subsequently generated within the Container IRTA Institutional internal repositories only accessible to institutional personnel working in the project	TBD	Permanently	All data will be kept in MDR after project completion	TBD	TBD
4	1.4	**Integration of fast screening methods in the management of seafood production systems**	Basecamp. Intitutional repositories	TBD	Institutional internal repositories only accessible to institutional personnel working in the project	TBD	Permanently	Institutional internal repositories	The institution owner of the data	Institutional internal repositories
5	2.1	**Sodium reduction in seafood**	In word and excel files in RISE's network	TBD	You need a password to have access to RISE's networks	A few MBs	Permanently	In the long term: DIVA.	TBD	N/A
6	2.2	**Digestible, attractive, functional, sustainable and nutritionally adapted food to specific populations**	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
7	2.3	**Strategies to reduce contaminants from seafood products**	Institutional servers, basecamp Pending IPR decisions	Institutional servers, basecamp or TQC Database Pending IPR decisions	CEFAS: https://www.cefas.co.uk/media/52910/data-management.pdf AZTI is certified under the ISO/IEC 27001:2013 ANFACO: Generated data will be kept in a local server with restricted access allocated in ANFACO facilities	TBD	Permanently	TBD	TBD	A repository to be selected. CEFAS according to internal protocols
8	2.4	**Reduction of energy and water in seafood processing**	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
9	3.1	**Analytical protocol set-up**	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
10	3.2	**Nutritional benefits and safety**	ICETA base	Website	User passwords	10 GB	According to GA	According to GA	Dr. Sara Cunha	None
11	3.3	**Database with the outcomes of safety, nutritional claims, sustainability, market, traceability and certification**	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
12	3.4	**Benefit-to-risk assessment, exposure assessment and predictive modelling**	RIVM computers	hard disk in RIVM cloud	standard RIVM security	1G	10 years according to RIVM protocol		Jeljer Hoekstra	none
13	4.1	**Consumers' acceptance, sensory perception and preferences of solutions**	Basecamp.		Data will be stored and processed on the sites or drives that do not contain identifying information. All data will be coded, (if the identifying data are not deleted for study purposes, these data cannot be traced back to individuals without a non-public key (access is restricted to authorized persons only, so that the privacy of your respondents is always protected). Primary data can only be accessed by the researchers involved in the SEAFOODTOMORROW consortium, after the requests to the executing researchers and will be password protected. Access will only be granted if the requesting partner needs that access in order to carry out the project.	Max. 50GB per dataset	Data will be kept min. 10 years. Identifying data and personal data will be removed. The data collected will be de-identified directly after collection by removing names, addresses, telephone numbers, and IP addresses from e.g. datasets, transcripts and field notes. Data processing will only be done on coded data which will be stored and processed on the sites or drives that do not content identifying data.	Zenodo	TBD	TBD
14	4.2	**Economic feasibility and valuation of eco-innovative solutions**	Ugent servers + Basecamp platform	server Ugent	standard Ugent security	100MB	10 years at least	ZENODO	Ugent - task leader	None
15	4.3	**Environmental sustainability, energy and water expenditure and waste production of solutions**	Onedrive or Dropbox, and backups with Cobian Backup	Internal shared folders and onedrive, dropbox, or cobian backup	Shared folder through personal identification account access and password Cobian Backup through password	100-200 MB	10-20 years	URV AGA group server	URV AGA group	None
16	4.4	**Market opportunities and industrial demonstration**	AZTI servers & repository when identified	AZTI server/ basecamp/ repository	AZTI is certified under the ISO/IEC 27001:2013, a standard for an information security management system. This system applies to any acquired, stored or processed data by any system of information at AZTI. In the organisation there is a person responsible for the development and maintenance of the information security system that will guarantee that the information is protected against non-authorised access or use. In the case of longer term storage, the repository will be selected considering security aspects too.	Several MB	Suitable repository	TBD	TBD	5 years after end of project
17	5.1	**Seafood authentication**	TBD	TBD	TBD	ILVO database	TBD	ILVO +international open access database (Genebank)	Johan Robbens	None
18	5.2	**Digital traceability system**	Cloud platform TBD	TBD	TBD	TBD	According to Regulation 178/2002	TBD	During the project will be PREDELL, the software developer. After the project, may be PREDELL or a	TBD
19	5.3	**Benchmark for quality certification schemes and labelling**	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
20	6.4	**Stakeholder Engagement**	TBD	Personal computer only.	Password-protected file	TBD	Excel file will be retained for 3 years after cessation of EU-funding. It will be donated to the coordinator of any subsequent relevant EU-funded seafood project, in the event the coordinator of the new project is a beneficiary of SEAFOOD[TOMORROW], as the ECSafeSeafood file was passed to SEAFOOD[TOMORROW] or destroyed after 36 months, whichever occurs first.	TBD	Siân Astley. In the event, Siân Astley leaves EuroFIR AISBL before 2023, access will be devolved to the responsible person at that time.	Ca. 4 K EUR (8 person days to validate [2018], ca. 0.5 s per month [re-validation, amendments, additions] for three years [2018-2020])
21	6.5	**Consumer benefit-risk communication tool**	Onedrive or Dropbox, with periodic backups (Cobian Backup)	Onedrive or Dropbox	Personal ID/ passwords to shared folders and backup files.	500MB	5-10 years	TBD	TBD	Long-term – cobian backup on URV AGA groups server

Data Inventory Table

V1- April 2018

Increasing re-use of SEAFOOD^{TOMORROW} Data through Clarifying Licenses

Dataset number	Task Number	Dataset Name	How will data be re-used?	Open/ Restricted	Type of IP/ protection sought	Type of licensing agreement to be implemented
1	1.1	**Utilization of novel sustainable feed materials in aquafeeds towards the fortification of farmed fish**	Re-use of data may be subjected to IP rights outside the project consortium partners	Restricted	Patent (tbd at a later stage)	tbd
2	1.2	**Integrated Multi-Trophic Aquaculture (IMTA) for sustainable integrated co-production of fish and macroalgae**	TBD	Restricted	TBD	TBD
3	1.3	**Sustainable management of shellfish production areas (SPAs) through delineation of buffer zones**	The team will ensure that the predictive models and mapping outputs are useable by third parties (members of the shellfish industry, scientists, regulators, water companies). Only levels of contaminants in commercial shellfish production areas will be subject to restricted access. All other environmental data will be publicly accessible	Open	Embargo periods may apply to allow sufficient time to publish data. Data will be made available for re-use at the time of publication in peer-reviewed journals or within two years after the end of the project. IRTA when published in an open access system the embargo periods will be defined by the repository used.	Standard terms and conditions for using existing data from third parties. Example: http://eidc.ceh.ac.uk/administration-folder/tools/ceh-standard-licence-texts/NRFA-Data-Terms-and-Conditions
4	1.4	**Integration of fast screening methods in the management of seafood production systems**	Timeline , cost, ownership and embargo periods will depend on the open access system that will be used and the different products to be developed within the task. Global protection will be sought	Restricted	Global protection	TBD
5	2.1	**Sodium reduction in seafood**	Project partners are encouraged to reuse the data.	Open	N/A	N/A
6	2.2	**Digestible, attractive, functional, sustainable and nutritionally adapted food to specific populations**	TBD	Open	TBD	TBD
7	2.3	**Strategies to reduce contaminants from seafood products**	TBD	Restricted	TBD in year 2	TBD in year 2
8	2.4	**Reduction of energy and water in seafood processing**	TBD	Open	TBD	TBD
9	3.1	**Analytical protocol set-up**	TBD	ISS	TBD	
10	3.2	**Nutritional benefits and safety**	Project partners are encouraged to reuse the data.	Open	None	License owned by project consortium TBD
11	3.3	**Database with the outcomes of safety, nutritional claims, sustainability, market, traceability and certification**	TBD	Restricted	TBD	TBD
12	3.4	**Benefit-to-risk assessment, exposure assessment and predictive modelling**	TBD	Open	TBD	TBD
13	4.1	**Consumers' acceptance, sensory perception and preferences of solutions**	Data generated in this task is time-dependent as it contains consumer perception and opinions which are related to that moment in time and will be only relevant within the first years. Potential re-users will be target through peer reviewed publications, which will note the DOI and all data of the project will be linked in Zenodo.	Open	None	An embargo period via Zenodo will be applied. License: creative commons attibution Share-Alike 4.0
14	4.2	**Economic feasibility and valuation of eco-innovative solutions**	As the data are quite time-dependent (market shares and prices change rapidly-, re-use will be limited	Restricted	None	According to selected repositories
15	4.3	**Environmental sustainability, energy and water expenditure and waste production of solutions**	TBD	Restricted	Not foreseen	According to selected repositories
16	4.4	**Market opportunities and industrial demonstration**	TBD	Open	None	No Licensing expected
17	5.1	**Seafood authentication**	TBD	Database ILVO/Patent rapid method	patent	
18	5.2	**Digital traceability system**	TBD	Open*	No IP sought	License owned by project consortium TBD
19	5.3	**Benchmark for quality certification schemes and labelling**	TBD	Open	TBD	TBD
20	6.4	**Stakeholder Engagement**	Data re-use will only occur in the event there is a clearly relevant subsequent EU-funded project, the coordinator of which is a beneficiary of SEAFOODTOMORROW Any future recipient will be reminded that they must contact the individuals after validation to obtain permission to hold their contact details	Restricted**	TBD	TBD
21	6.5	**Consumer benefit-risk communication tool**		Restricted: Confidentiality agreements	TBD	According to existing arrangements for FishChoice and partner databases