



# AQUARIUS Dataflow Dashboard – Phase 1

MARIS

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## About this document

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## Acronyms and abbreviations

ADD	AQUARIUS Dataflow Dashboard
CSR	Cruise Summary Report
EDMO	European Directory of Marine Organisations
NODC	National Oceanographic Data Centre
TA	Transnational Access

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# 1. Introduction

As a result of the funded TA projects in AQUARIUS, many new data sets in a large variety of data types will be collected by the TA scientific teams, making use and combining multiple and different observation installations as provided. There will be a strong effort in AQUARIUS to get the maximum return of investment from the TA activities towards serving the EU Mission and Partnership targets and associated initiatives and projects with the generation of new data, data products, and scientific knowledge. Therefore, AQUARIUS has adopted an **open data policy**, which will be implemented with a **dedicated Data Management approach**, to ensure that all gathered and generated metadata and data will be managed in line with the FAIR principles (Findable, Accessible, Interoperable, Reusable). The metadata and data should become part of the archives managed and operated by leading European data management infrastructures, such as SeaDataNet<sup>1</sup> (physics, bathymetry, chemistry, biology, geology), EurOBIS<sup>2</sup> (biodiversity), ELIXIR-ENA<sup>3</sup> (biogenomics), ICOS-Ocean<sup>4</sup> (carbon), and Copernicus INSTAC<sup>5</sup> (Near- Real-Time data), for quality assurance, long term stewardship, and wide access and use. These infrastructures in turn are feeding into EMODnet, Copernicus Marine, Blue-Cloud (EOSC), Digital Twin of the Ocean (EDITO) developments, and globally to e.g. GEOSS, and the digital ocean ecosystem that is being developed in the framework of the UN-IOC Ocean Decade programme.

The **Deliverable D6.2** documents the **AQUARIUS Data Management Plan (DMP)**<sup>6</sup> and describes the AQUARIUS Data Management approach as planned. The approach covers multiple steps in the deployment of TA events, going from planning to reporting a summary of observations to gathering and standardising all collected data sets in a FAIR way in the European leading data management infrastructures. This way, over time all information, metadata and data sets from the TA events will be published as open data and made widely accessible. This will be achieved by a close cooperation between the TA scientific teams and the expert data centres that are active in WP6 for supporting data management and in WP5 for giving training about data management and prevailing European standards.

The results of the data management flow steps will be published on the **AQUARIUS Dataflow Dashboard (ADD)** which will be a section on the AQUARIUS website. For several steps publishing will be done by listing the dedicated links to European services which are adopted for populating and publishing the AQUARIUS TA events and their output.

In addition, TA teams will have to maintain a summary of the observations that they collect on a daily basis. This will give a **TA Summary Log** which will be published after the TA events at the ADD. It will provide the AQUARIUS Data Management experts with a metadata overview of all data sets and samples that have been collected during each TA events. The TA Summary Log will have to be completed by each TA Team using a dedicated application (APP).

This **Deliverable D6.3** documents the sitemap and planned development of the **AQUARIUS Dataflow Dashboard (ADD)**. It also documents the metadata model and the development of the **TA Summary Log APP**, which already has made great

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<sup>1</sup> <https://www.seadatanet.org>

<sup>2</sup> <https://www.eurobis.org>

<sup>3</sup> <https://www.ebi.ac.uk/ena/>

<sup>4</sup> <https://www.icos-cp.eu/observations/ocean/otc>

<sup>5</sup> <https://marine.copernicus.eu/about/producers/insitu-tac>

<sup>6</sup> <https://zenodo.org/records/13642869>

progress. The APP and the ADD with initial components should be ready, well tested and operational before M19, when the expected TA events will be deployed as a follow-up of the 1st Call.

## 2. AQUARIUS Data Management approach

In order to ensure quality assurance, long-term stewardship and wide access and use of the data collected in the AQUARIUS TA projects, it is envisaged that the data and metadata, and possible resulting data products, become part of the repositories managed and operated by the leading European data management infrastructures, namely SeaDataNet<sup>7</sup> (physics, bathymetry, chemistry, biology, geology), EurOBIS<sup>8</sup> (biodiversity), ELIXIR-ENA<sup>9</sup> (biogenomics), ICOS-Ocean<sup>10</sup> (carbon), and Copernicus INSTAC<sup>11</sup> (Near- Real-Time data). Achieving this, will also ensure that the AQUARIUS data and data products will become available for EMODnet, Copernicus Marine, Blue-Cloud (EOSC), Digital Twin of the Ocean (DTO) developments, and globally to e.g. GEOSS, and the digital ocean ecosystem that is being developed in the framework of the UN-IOC Ocean Decade programme.

The AQUARIUS Data Management approach is described in detail in Deliverable D6.2 – AQUARIUS Data Management Plan<sup>12</sup>. The following table is extracted from D6.2 and gives the AQUARIUS data management flow scheme, which includes a number of steps from planning to training to deployment to publishing, and a number of instruments, which should be applied in those steps.

Steps	Activities	Support
Step 1a – pre-planning	<ul style="list-style-type: none"> <li>• <b>AQUARIUS Data Management Plan D6.2</b> included in guidelines for TA proposers</li> </ul>	Expert data centres can provide advice upon request
Step 1b – pre-planning	<ul style="list-style-type: none"> <li>• TA project proposers complete initial Data Management Plan for their project, following <b>AQUARIUS DMP template phase 1</b>, and include this in their TA project proposal</li> </ul>	Expert data centres review DMP phase 1 in support of Call evaluation process
Step 2a – planning	<ul style="list-style-type: none"> <li>• After awarding of TA project, TA proposers are asked to refine their initial Data Management Plan for their project, following <b>AQUARIUS DMP template phase 2</b></li> <li>• <b>Validated TA DMP phase 2</b> will be published on <b>AQUARIUS Dataflow Dashboard (ADD)</b></li> </ul>	Expert data centres give support and advice to TA project scientific team  MARIS
Step 2b – planning	<ul style="list-style-type: none"> <li>• Preparation of <b>promotional factsheet of the TA project</b> and publishing on AQUARIUS website</li> </ul>	WP7 team together with TA project scientific team

<sup>7</sup><https://www.seadatanet.org>

<sup>8</sup><https://www.eurobis.org>

<sup>9</sup><https://www.ebi.ac.uk/ena/>

<sup>10</sup><https://www.icos-cp.eu/observations/ocean/otc>

<sup>11</sup><https://marine.copernicus.eu/about/producers/insitu-tac>

<sup>12</sup><https://zenodo.org/records/13642869>

Steps	Activities	Support
	<ul style="list-style-type: none"> <li>• <b>Link to promotional factsheet</b> of TA project included in AQUARIUS Dataflow Dashboard (ADD)</li> </ul>	MARIS
Step 3 – training in data management	<ul style="list-style-type: none"> <li>• <b>Training in data management</b> organised by webinars for TA project scientific teams</li> <li>• Recorded webinars and presentations made available on AQUARIUS website</li> </ul>	Expert data centres, led by HCMR  WP7 team
Step 4 - deployment	<ul style="list-style-type: none"> <li>• <b>Data gathering and processing</b> undertaken by TA project scientific teams, supported by providers of AQUARIUS research infrastructure services</li> <li>• During TA activities, PI of TA project scientific team is requested to maintain an <b>AQUARIUS TA Data Summary Log</b> with an index of data gathering activities</li> <li>• In case the TA project will involve scientific cruises with Research Vessels, then also a <b>Cruise Summary Report (CSR)</b><sup>13</sup> should be completed by the TA project PI within a month after the cruise.</li> <li>• <b>Completed TA Data Summary Log</b> for selected TA project will be published on AQUARIUS Dataflow Dashboard (ADD)</li> <li>• If applicable, a <b>link to the Cruise Summary Report</b> on the SeaDataNet portal will be published on the AQUARIUS Dataflow Dashboard (ADD)</li> </ul>	Expert data centres are available for advice and support for data management issues  MARIS provides a Tablet with App for maintaining TA Data Summary Log  TA project scientific team (PI)  MARIS  MARIS
Step 5 – data processing and transfer	<ul style="list-style-type: none"> <li>• TA project scientific teams undertake efforts for <b>transforming metadata and data to standard formats</b> as valid for applicable European data management infrastructure(s)</li> <li>• Transfer of <b>elaborated metadata and data as packages</b>, sorted for data types / disciplines, through the <b>Data Submission service of EMODnet</b></li> </ul>	Coaching and support by expert data centres  Reception of data and metadata packages and assignment to selected expert data centres

<sup>13</sup><https://www.seadatanet.org/Metadata/CSR-Cruises>



Steps	Activities	Support
	<p><b>Ingestion<sup>14</sup> or SeaDataNet SeaNoe service<sup>15</sup></b>, to expert data centres</p> <ul style="list-style-type: none"> <li>• <b>Links to submissions in EMODnet Ingestion and SeaNoe</b> will be published on AQUARIUS Dataflow Dashboard (ADD)</li> </ul>	MARIS
Step 6 – publishing of data and metadata in FAIR way	<ul style="list-style-type: none"> <li>• <b>Received data and metadata</b> will be reviewed by assigned expert data centres with feedback to TA project scientific teams.</li> <li>• <b>Validated data and metadata</b> will be included in local data centres and populated into the applicable <b>European data management infrastructure(s)</b></li> <li>• <b>Links to inclusions in European data management infrastructure(s)</b> will be published on AQUARIUS Dataflow Dashboard (ADD)</li> </ul>	Expert data centres in contact with TA PIs  Expert data centres  MARIS
Step 7 – training in open science practices	<ul style="list-style-type: none"> <li>• <b>Training in open science</b> and use of the Blue-Cloud VRE and its applications, organised by webinars for TA project scientific teams</li> <li>• Recorded webinars and presentations made available at AQUARIUS website</li> </ul>	Blue-Cloud VRE experts, led by CNR  WP7 team
Step 8 – practising open science	<ul style="list-style-type: none"> <li>• TA researchers encouraged to register in Blue-Cloud VRE</li> <li>• TA researchers <b>performing analytics</b> on their newly acquired data sets, possibly in combination with data from established data repositories, using Blue-Cloud applications</li> </ul>	CNR  Coaching and support by Blue-Cloud VRE experts
Step 9a – publishing of data products	<ul style="list-style-type: none"> <li>• TA researchers documenting <b>open science data products</b> with metadata in the Blue-Cloud VRE data products catalogue which are shared with EOSC and Zenodo</li> <li>• <b>Links to published data products</b> will be published on AQUARIUS Dataflow Dashboard (ADD)</li> </ul>	Coaching and support by Blue-Cloud VRE experts  MARIS
Step 9b – publishing of scientific	<ul style="list-style-type: none"> <li>• TA researchers preparing potential <b>scientific publications (papers)</b></li> </ul>	TA researchers

<sup>14</sup><https://www.emodnet-ingestion.eu>

<sup>15</sup><https://www.seadatanet.org/Software/SEANOE>

Steps	Activities	Support
publications (papers)	about their TA projects which could be published with DOIs in Zenodo <ul style="list-style-type: none"> <li>• <b>Links to scientific publications</b> will be published on AQUARIUS Dataflow Dashboard (ADD)</li> </ul>	MARIS
Step 10 – FAIR indicators	<ul style="list-style-type: none"> <li>• Expert data centres maintaining and publishing <b>best practices and FAIRness indicators</b> for the AQUARIUS data flow and its achievements; inclusion by VRE experts about uptake and results of open science practices</li> </ul>	Expert data centres and VRE experts

*Table 2.1: Overview of the AQUARIUS Data Management Flow scheme*

Note: the TA projects might deal with different types of data that could require splitting of packages over multiple expert data centres. In addition, some data types will be available directly during the TA activities (Real time mode), while others are samples that need to be processed in laboratories and/or with dedicated software, which will take extra time and could also imply waiting times (Delayed mode). Therefore, the expert data centres together will use the AQUARIUS TA Data Summary Log as a 'shopping list' to know what data is coming, who to contact, and how to divide over expert data centres. They will also maintain a follow-up scheme so that there is a clear overview of assignments, data flow status, and achieved throughput.

### 3. AQUARIUS TA Summary Log APP

The **AQUARIUS TA Data Summary Log** should be maintained by the PI of the TA project scientific team to keep an overview and index of the data collection events. It should be shared after the TA event with the AQUARIUS expert data centres as it will provide an index to the collected/generated data and relevant documentation, such as who, when, where, how, etc. It will serve for them as a list to know what data to expect from where and who and as a checklist for the following steps in the data management workflow. The **AQUARIUS TA Data Summary Log** will contain only metadata and no data.

#### 3.1. Metadata Model

Together with the WP6 team of data management experts a metadata model has been formulated for the AQUARIUS TA Summary Log. It is largely based upon the long experience with the Cruise Summary Report<sup>16</sup> (CSR) which is used for reporting on observations and samples collected during cruises with research vessels. However, a new format is required because the TA projects might combine multiple TA installations and platforms, possibly operated and provided by multiple research infrastructure. These are not only research vessels, but also other types of platforms such as fixed sites, drones, laboratories, etc., which are part of the AQUARIUS RI offer. The metadata model is designed with the idea that with the TA Summary Log it should be feasible to maintain and complete the summary during the TA data acquisition activities while the summary should also give sufficient information for the expert data centres to get good insights in the acquired data sets and to keep track of their processing flow from as collected to fully validated, elaborated and published. In the metadata model also use is made, where possible, of controlled vocabularies, derived from SeaDataNet. These vocabularies are well maintained, widely in use, and available as user interfaces and machine (web) services. Moreover, for some fields free text entries are possible, in case the vocabularies are not yet covering new entries. Then these free entries later on can lead to new vocabulary terms.

The next pages provide the metadata model that was formulated. For controlled vocabularies<sup>17</sup> use is made of:

- EDMO<sup>18</sup> (organisations)
- C19 (SeaVoX salt and fresh water body gazetteer)
- C77 (SeaDataNet Cruise Summary Report data categories)
- L05 (SeaDataNet device categories)
- L06 (SeaVoX Platform Categories)
- L22 (SeaVoX Device Catalogue)
- P08 (SeaDataNet Parameter Disciplines)
- AQUARIUS Research Infrastructures<sup>19</sup>
- Lighthouse regions

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<sup>16</sup><https://www.seadatanet.org/Metadata/CSR-Cruises>

<sup>17</sup><https://www.seadatanet.org/Standards/Common-Vocabularies>

<sup>18</sup><https://www.seadatanet.org/Metadata/EDMO-Organisations>

<sup>19</sup><https://aquarius-ri.eu/research-infrastructures-catalogue/>

PROJECT GENERAL DETAILS										
Project ID (automatic)	Project short name	Project full name	Disciplines (P08)	Summary incl objectives	Lighthouse Region of interest (controlled list)	Date start (YYYYMMDD)	Date end (YYYYMMDD)	Keywords		to be completed before start
	single; mandatory	single; mandatory	multiple; mandatory	single; mandatory	multiple; mandatory	single; mandatory	single; mandatory	multiple; mandatory; free text		single entry line

PROJECT SCIENTIFIC TEAM										
Researcher ID (automatic)	First Name	Surname	Country	Email	ORCID	Organisation (EDMO)	Organisation Other	Discipline (P08)	Role	to be completed before start
	single; mandatory	single; mandatory	single; mandatory	single; mandatory	single; optional, but recommended	multiple; mandatory	free text	multiple; mandatory	multiple; mandatory; free text; suggestions: principal investigator; data manager; team member; ...	

AQUARIUS INFRASTRUCTURES					
RI ID (automatic)	Research Infrastructure (controlled list)	Type (controlled list)	Lighthouse Region of interest (controlled list)	AQUARIUS Catalogue URL	following AQUARIUS Catalogue; to be completed before start
	single; mandatory	single; mandatory	multiple; mandatory	single; mandatory; will be provided	

EQUIPMENT POOL PER AQUARIUS RESEARCH INFRASTRUCTURE					
Equipment ID (automatic)	Platform Category (L06)	Device Type (L05)	Instrument (L22)	Instrument Other	to be completed before start
	single; mandatory	single; mandatory	single; mandatory	free text	multiple entry lines

OBSERVATION EVENTS																			
Event ID	Researcher ID	RI ID	Equipment ID	Discipline (P08)	BOUNDING BOX														
					Data Categories (C7)	Data Categories (C7)	Date start (YYYYMMDD)	Date end (YYYYMMDD)	Sampling (Y/N)	Observation number/Volumes (Y/N)	Quantity/Number of samples (list) (C19)	Post-processing requirements (C19)	Sea area	WEST	EAST	SOUTH	NORTH	Remarks	
	single; mandatory	single; mandatory	single; mandatory	multiple; mandatory	multiple; mandatory	free text	single; mandatory	single; mandatory	single; mandatory	single; mandatory	multiple; free text	multiple; mandatory	multiple; mandatory	single; mandatory	single; mandatory	single; mandatory	single; mandatory	single; mandatory	free text; multiple entry lines

Figure 3.1: TA Summary Log metadata model components

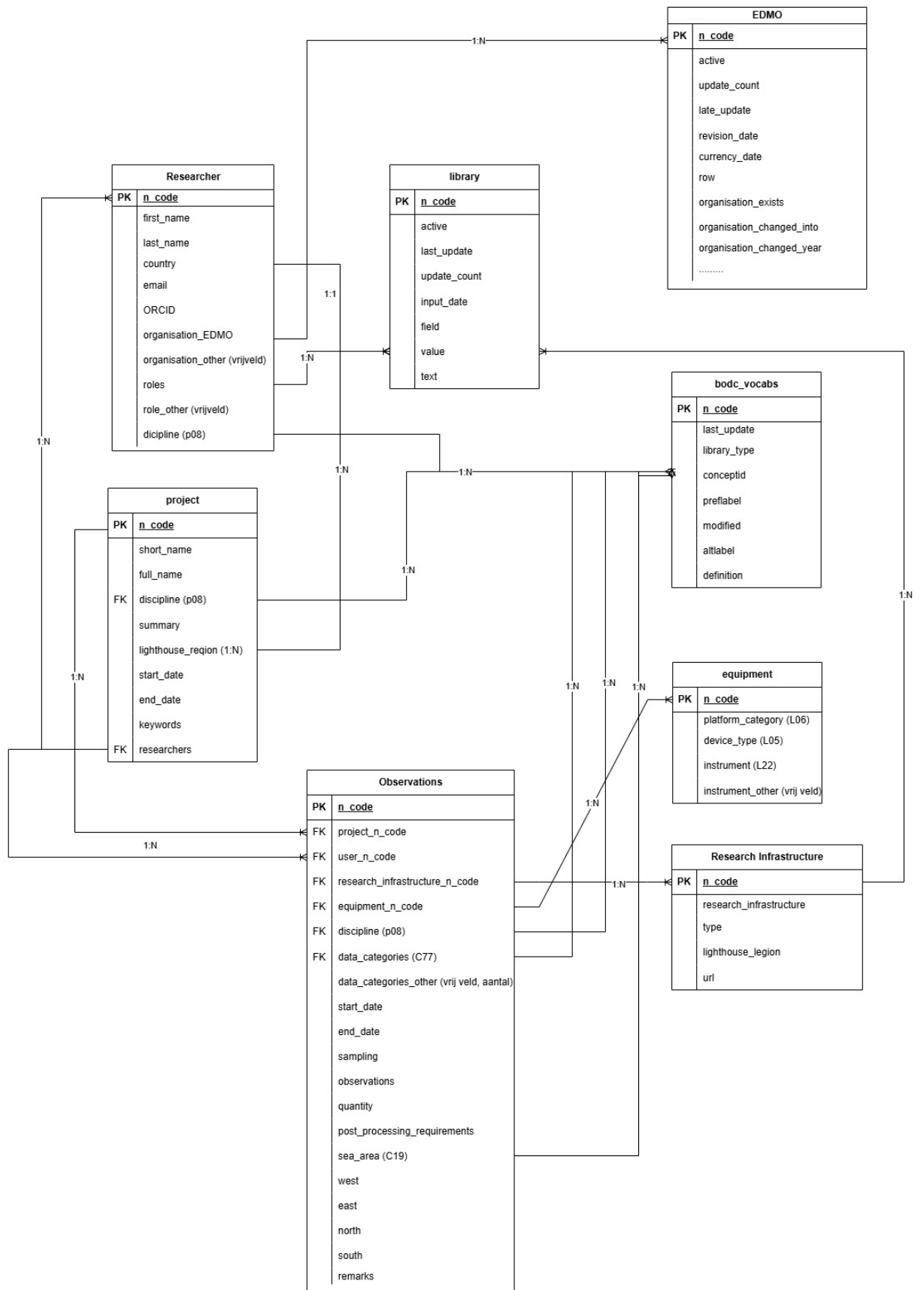


Figure 3.2: TA Summary Log metadata model

Remark: In case the TA project will involve scientific cruises with Research Vessels, then also a **Cruise Summary Report (CSR)** should be completed by the TA project PI within a month after the cruise. Traditionally, it is the Chief Scientist's obligation to submit a CSR not later than two weeks after the cruise. This provides a first level inventory of measurements and samples collected at sea. Currently, the Cruise Summary Reports directory, maintained by SeaDataNet together with its members, covers cruises from 1873 till today from more than 1,500 research vessels: a total of nearly 65,000 cruises, in all European waters and global oceans. This also includes historic CSRs from European countries that have been loaded from the ICES database from 1960 onwards.

### 3.2. APP development

To provide an easy way and ensure coherency for completing the TA Summary Log on a daily basis, the TA teams will be provided with a Tablet and a pre-installed APP. In practice of a TA event, it will be the responsibility of the Principal Investigator (PI) or Chief Investigator (CI) to gather the required information from the team members and to populate the APP. In the preparatory phase before the TA event deployment, some training will be given by the assigned expert data centres.

The APP is being developed by MARIS using the IONIC open-source framework. To prevent any issues with deployment, MARIS will provide each TA team with an ANDROID tablet with the pre-deployed APP. The first step, when using the APP is that the TA teams filter the controlled vocabularies to keep smaller lists which are relevant for their TA event. For instance, the L22 vocabulary counts 2000+ instruments, while can be trimmed to the range to be used in the TA event. Another comparable functionality is that the TA teams in the preparatory phase can enter the names, affiliations (EDMO) and ORCID's (if available) of the researchers in the TA event. Also, they can filter the AQUARIUS Research Infrastructures involved and the relevant Lighthouse Regions. This way, the TA event can be configured beforehand as a project with a number of researchers, instruments, platforms, etc and some general items such as project name, project acronym, and objectives.

The 'trimming' of the vocabulary lists will make it easier to compose and enter the metadata of the observations every day. An observation is a combination of several attributes, which should be selected from the trimmed lists, and some free texts, and geographical location (LAT-LON boxes). Of course, it is always possible to enlarge the trimmed lists during the TA event, where required. Also, free text alternatives can be entered for a few metadata fields, if the vocabularies are not sufficient.

The development of the APP has made great progress and it is expected that a fully working Beta version can be shared with the WP6 team for testing before end March 2025.

One of the activities is adopting a nice AQUARIUS styling. For this it has been agreed that SSBE as WP7 leader will design stylesheets for the APP. SSBE already has received some screengrabs from the current APP to elaborate.

The following page will give some screengrabs to give an impression of the APP and its workings.

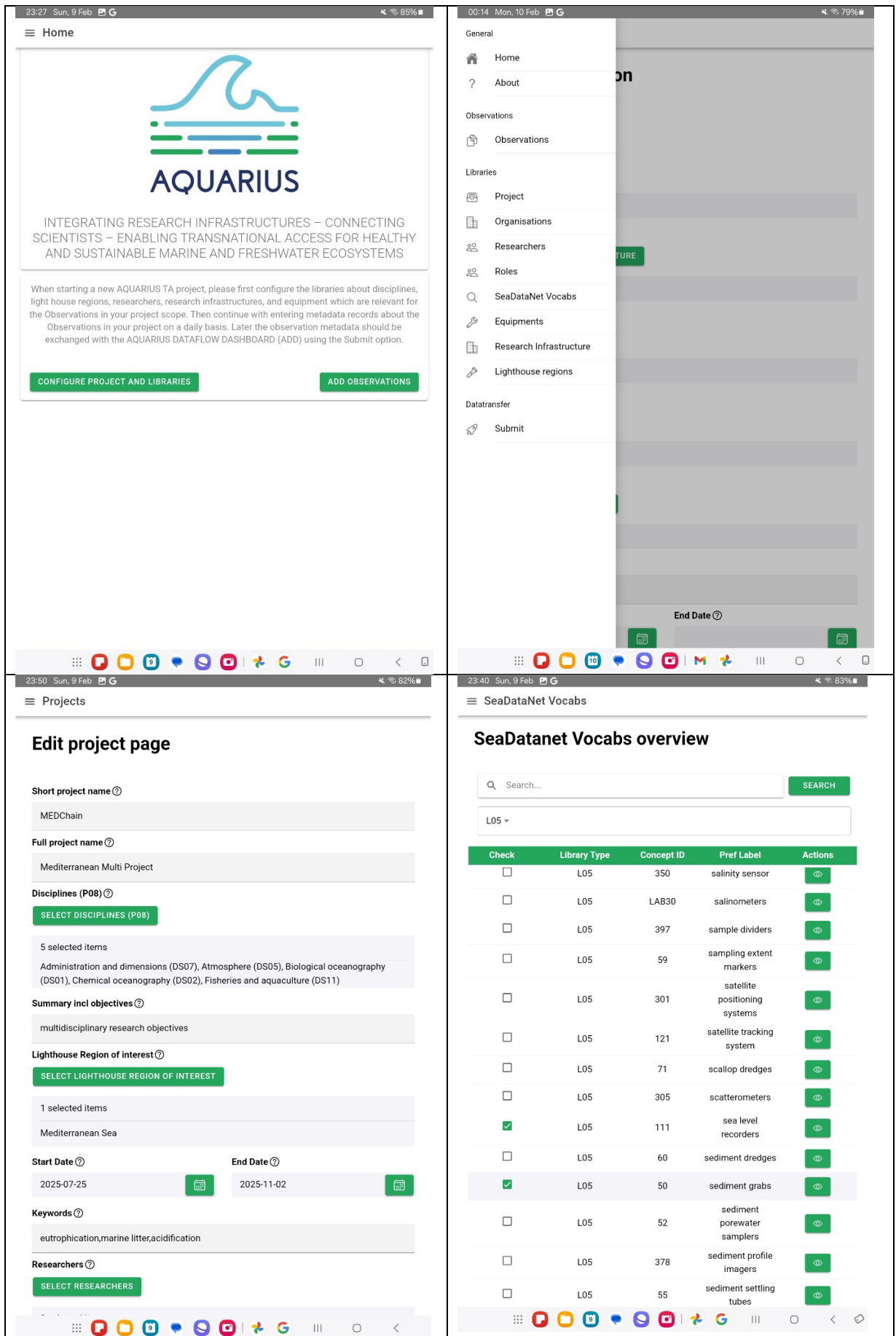


Figure 3.3: Screenshots from the APP under development

### 3.3. Exchange from APP to ADD

Another aspect is that the APP can work stand-alone and also without internet connection. However, the internet should be used for updating (refreshing) the controlled vocabularies once in a while, and for submitting the TA Summary Log from the APP to the AQUARIUS Dataflow Dashboard (ADD). This should at least be done within 2 weeks after the TA event, but can also be done underway as each time the previous TA Log will be overwritten with the latest after successful import. The ADD will feature a datahub API to be able to receive the APP JSON metadata files and to import these into the TA Summary Log database. Each TA event will have its own UUID by which the submissions from the different TA events can be separated. Development of a user interface is planned on top of the TA Summary Log database for users of the ADD.

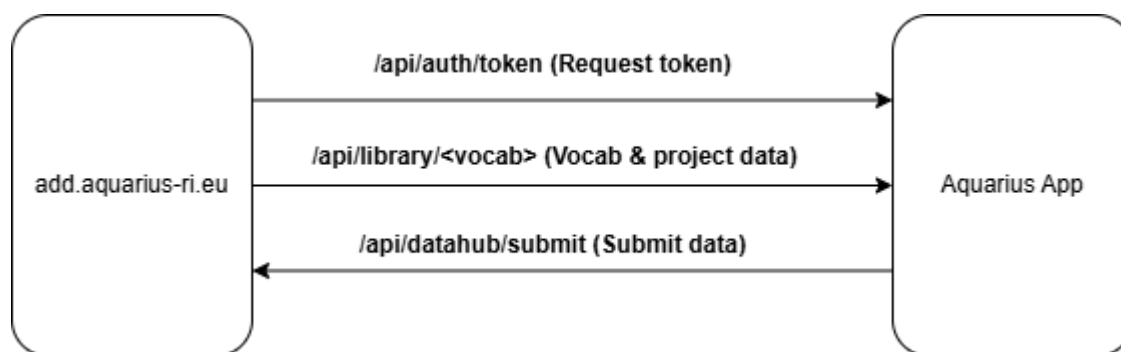


Figure 3.4: Exchange between APP and ADD API *pi* Screenshots from the APP under development

#### **Authentication:**

##### **POST /api/auth/token**

The APP submits its hardware ID and shared secret to the authentication endpoint. The backend verifies these credentials and returns a JSON Web Token (JWT), which can be used for authentication at other endpoints.

#### **Updating the vocabularies:**

##### **GET /api/library/<vocab>**

This endpoint allows the APP to fetch different libraries. The available vocabularies are:

- EDMO Organisations
  - <https://add.aquarius-ri.eu/api/library/edmo>
- BODC Vocabularies (L05, L06, L22, C77, P08, C19)
  - <https://add.aquarius-ri.eu/api/library/bodc-vocabs>
- BODC Vocabulary Relations
  - <https://add.aquarius-ri.eu/api/library/bodc-related>
- Aquarius Research Infrastructures
  - <https://add.aquarius-ri.eu/api/library/research-infrastructure>
- Miscellaneous Definitions
  - <https://add.aquarius-ri.eu/api/library/library>
- Aquarius Projects
  - <https://add.aquarius-ri.eu/api/library/projects>
- Aquarius Researchers
  - <https://add.aquarius-ri.eu/api/library/researchers>
- Aquarius Equipment
  - <https://add.aquarius-ri.eu/api/library/equipment>



Currently, this endpoint is open, but it will be secured using the authentication token in production.

### **Submission of the TA Summary Logs:**

#### **POST /api/datahub/submit**

This endpoint allows the app to submit project data. It is secured using the authentication token. The app submits:

- Project information
- Relations to observations, selections, and configurations

All data is sent as a JSON object, following the Aquarius data model. Example request:

```
{
  "project_uuid": "XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX",
  "data": {
    <Aquarius project data>
  }
}
```

## 4. AQUARIUS Dataflow Dashboard (ADD)

The AQUARIUS Dataflow Dashboard (ADD) will be developed by MARIS as a dedicated platform, integrated in the AQUARIUS website, to follow progress of the data management flow scheme from planning stage through to publishing of results for each awarded TA project.

For this purpose, the following sub-domain has been registered and activated from a MARIS server: <https://add.aquarius-ri.eu>

The ADD platform will be embedded in the AQUARIUS website and navigation, so that users will benefit from a seamless experience. For the styling, SSBE as WP7 leader, has agreed to make some design and stylesheets, for the main structure of the ADD platform. Also, SSBE will work on some artwork for the ADD homepage.

The ADD itself will contain up-to-date and public information about TA projects and their progress. The ultimate goal is to give discovery and public access to research data sets as collected and processed and data products as generated by the TA research teams as part of the AQUARIUS TA projects. The following table gives a draft overview of the planned information attributes for the ADD.

See also D6.2 (<https://zenodo.org/records/13642869>)

Attribute	Links	Remarks
AQUARIUS TA Project ID	Unique ID per AQUARIUS TA project	Contract ID
TA Project Information	Dedicated link to retrieve a narrative about the scheduled TA project. The narrative should include at least the TA project objectives, who are involved, which lighthouse regions, which scientific disciplines, and which RI facilities are going to be used.	Factsheets to be made by SSBE in dialogue with the TA teams after contract signature. Could be hosted in AQUARIUS Website. The ADD will include links.
Date start	Start date of the TA data acquisition activities	From TA events planning (can be adjusted in time for logistics)
Date end	End date of the TA data acquisition activities	From TA events planning (can be adjusted in time for logistics)
DMP phase 2	Completed Data Management Plan Phase for the scheduled TA project	Initial DMP will be refined in cooperation between TA teams and Assigned Data Centres to completed DMP. MARIS will publish the DMPs.

Attribute	Links	Remarks
TA Data Summary Log	Summary index to the collected/generated data and relevant documentation, such as who, when, where, how, etc. from the TA data acquisition activities	Metadata will be collected by TA teams using the AQUARIUS APP and provided TABLET. This will be preceded by an introduction and short training to TA teams. After completion or underway TA teams can submit an export to the API hosted by MARIS with Viewing Service that will be linked to the ADD
Cruise Summary Report	Dedicated link to retrieve details from SeaDataNet Cruise Summary Reports database, in case of TA cruise with research vessel	Speaks for itself; within 30 days after finishing cruise
Research data package published in EMODnet Ingestion	Dedicated link(s) to retrieve details from metadata and data sets as submitted by TA Teams and published in the EMODnet Ingestion service	Speaks for itself; progressing results of TA teams working with Assigned Data Centres to make available and generate FAIR data for publishing under CC-BY-4.0. Also, relation with Training WP
Research data package in SeaDataNet SEANOE	Dedicated link(s) to retrieve details from metadata and data sets as submitted by TA Teams in the SeaDataNet SEANOE Data Publishing service	Speaks for itself; progressing results of TA teams working with Assigned Data Centres to make available and generate FAIR data for publishing under CC-BY-4.0. Also, relation with Training WP
Elaborated research data as published in European data management infrastructures	Dedicated link(s) to retrieve standardised metadata and data from TA projects in SeaDataNet, EuroBIS, ELIXIR-ENA, ICOS-Marine, Copernicus INSTAC services for data discovery and access	Speaks for itself; progressing results of TA teams working with Assigned Data Centres to make available and generate FAIR data for publishing under CC-BY-4.0. Also, relation with Training WP
Elaborated open science data products as published in Zenodo	Dedicated link(s) to retrieve standardised metadata and open science data products as generated through Blue-Cloud from TA projects in Zenodo for discovery and access	Later in the project, TA teams will be invited for joining the Blue-Cloud VRE for open science with their data in combination with other public data resources. Also, relation with Training WP

Table 4.1: Overview of the draft contents for the AQUARIUS Data Flow Dashboard

Note: Compared to D6.2. an extra column has been added to this table, namely, remarks, indicating what, who, and when.

The ADD would comprise three navigation pages as sketched below:

## AQUARIUS Dataflow Dashboard (ADD)



Artist impression with lots of images from Research Infrastructures, Equipment, and Data

Sharing information and resulting metadata and data on planned, current and completed AQUARIUS TA events.

Figure 4.1: Homepage of the AQUARIUS Dataflow Dashboard (ADD)



## AQUARIUS Dataflow Dashboard

TA event	Research Infrastructure	Start date	End date	Details
iMAR	<a href="#">Pelagia</a>	2021-05-18	2021-06-02	✓
Benchmark	<a href="#">G.O. Sars</a>	2021-08-01	2021-08-10	✓
FOCUS-AUV	<a href="#">Tangaroa</a>	2020-09-30	2020-10-28	✓
GRASSMAP	<a href="#">SOCIB</a>	2021-09-14	2021-09-20	✓
GSHARK	<a href="#">Dana</a>	2021-07-21	2021-08-12	✓
MYRTOON	<a href="#">Aegaeo</a>	2021-09-30	2021-10-09	✓
PHYCOB	<a href="#">TUBITAK Marmara</a>	2021-09-11	2021-09-17	✓
PORO-CLIM	<a href="#">Celtic Explorer</a>	2021-05-05	2021-05-30	✓
CALYPSO	<a href="#">Pelagia</a>	2022-02-20	2022-03-12	✓
CABLE-DOMUSE	<a href="#">Aranda</a>	2022-04-04	2022-04-09	✓
SEAQUAKE-GRACE	<a href="#">Belgica</a>	2022-04-28	2022-05-11	✓
SENERGY	<a href="#">Arni Fridriksson</a>	2022-06-18	2022-06-25	✓

Figure 4.2: ADD mock-up overview of TA events and access to details



## AQUARIUS Dataflow Dashboard

Record No.	x
TA Event ID	<a href="#">TA event name LINK</a>
TA Event Information	<a href="#">Event factsheet LINK</a>
Date start	YYYY_MM_DD
Date end	YYYY_MM_DD
Data Management Plan	<a href="#">DMP-V2 LINK</a>
Summary Data Log	<a href="#">Log View LINK</a>
Cruise Summary Report (RVs)	<a href="#">SeaDataNet CSR LINK</a>
Original Research Data in EMODnet Ingestion	<a href="#">EMODnet Ingestion View LINKs</a>
Original Research Data in SeaDataNet SEANOE	<a href="#">SeaDataNet SEANOE LINKs</a>
Elaborated Research Data in European repositories	<a href="#">SeaDataNet/EurOBIS/... LINKs</a>
Elaborated Open Science Data Products	<a href="#">Zenodo LINKs</a>

Figure 4.3: Dataflow results detailed per TA Event with multiple links to existing discovery, access and viewing services

Remarks: the given web pages are conceptual. SSBE as WP7 leader will contribute to attractive and functional design of the pages.

The AQUARIUS Dataflow Dashboard (ADD) development will be developed in steps, anticipating the progress with the data management activities for the TA events. The initial version must be ready and operational by M16 when the first TA events might be deployed. This will be achieved as it is pretty straight forward.

## 5. Conclusions

This **Deliverable D6.3** documents the sitemap and planned development of the **AQUARIUS Dataflow Dashboard (ADD)**. It also documents the metadata model and the development of the **TA Summary Log APP**, which already has made great progress. The APP and the ADD with initial components should be ready, well tested and operational before M16, when the expected TA events will be deployed as a follow-up of the 1st Call. This will be achieved as the developments are well underway and it is clear what is expected.