EMODnet - Ingestion and safe-keeping of marine data

CINEA/EMFAF/2021/3.4.10/02/SI2.868290

Start date of the project: 30/03/2022 (24 months)

Centralisation Phase

Quarterly Progress Report (5)

Reporting Period: 01/04/2023 – 30/06/2023

The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) 2021/1139 of the European Parliament and of the Council of 7 July 2021 establishing the European Maritime, Fisheries and Aquaculture Fund and its predecessor, Regulation (EU) No. 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund.

Contents

1. Highlights in this quarter

*[**List the quarterly progress for each of the tasks specified in Section 1.4.1 of the Tender Specifications**; provide an explanation for any tasks in which progress has not been noted. Provide in the table a list of **all** Milestones and Deliverables as from the technical workplan in numerical order, the date due, status and date delivered. Max 2 pages]*

Task 1: Maintain, further develop and migrate a web-portal

During the reporting period the EMODnet Ingestion portal and its services were maintained and care was taken to ensure that all services continued to operate as required. Maintenance involves: content updates; adding new data centres contacts; manual work on submitted metadata mapping and missing values, automatic updating of Submission service vocabularies on a regular basis; exchange (JSON) of Submission service with Summary service; users support; and technical upgrades and improvements.

Early January 2023, the Central Portal has been launched, whereby all thematic portals have been de-activated and migrated to the Central Portal. Starting early April 2023, a number of meetings took place between EMODnet Ingestion, the Central Portal team and the EU to discuss a feasible migration for EMODnet Ingestion.

So far, the following approach has been drafted, which is being explored further for its feasibility and pros and cons:

- The static content of the EMODnet Ingestion website will move to a dedicated section of the Central Portal, comparable to the dedicated sections for each of the Thematic Lots. An action is formulated to draft a narrative, compiling all static contents of the Ingestion website;
- The plan is to integrate the contents of the Submission Viewing service into the Central Portal Products Catalogue. An action was formulated and followed up by HCMR to make a mapping analysis between the metadata formats of the Viewing service and the Products Catalogue to explore how the published submission records might fit. The mapping analysis indicates that the Viewing service features multiple metadata fields which are not (yet) supported by the Products Catalogue. Also, the Submission service makes use of several controlled vocabularies and directories (such as EDMO, CSR, EDMERP). A follow up action is formulated to discuss how the fit might be made as both catalogues are based on versions of the ISO 19115 model;
- For the Submission service there are two alternatives, namely continue with the current hosting of the service at HCMR and make the integration by means of a landing page, or alternatively, migrate the hosting of the Submission service to the Europa domain and servers. To get better mutual technical insights and discuss pros and cons, a first technical meeting was held between Ingestion and EU. A second meeting is to be planned for further discussion;
- The realtime viewer service, as developed and managed by EMODnet Physics together with EMODnet Ingestion, will continue to be hosted by ETT, but on the short to medium term will be integrated into the Central Portal Map Viewer by setting up an OGC WMS – WFS exchange. However, this integration will require some customization at the CP Map Viewer in order to support the required functionality;
- For internal communication, the Ingestion consortium uses an extranet. This will be continued as before and separately from the Central Portal.

The development of the M-to-M exchange with the Marine Data Exchange (MDE) from Crown Estate (UK) was brought a major step further. Following the earlier mapping analysis between MEDIN – MDE and the Submission service by BODC and HCMR a draft JSON export file was produced by MARIS, that was then reviewed by HCMR. Trying out the JSON file for import into the Submission service some issues had arisen (such as multiple data access URLs, keywords categories, licenses). These issues were discussed at a meeting between MARIS, BODC and HCMR (May 2023) and have resulted in an updated mapping and a new JSON export. The new JSON will be tested again for import into the Submission service. Once this is settled, then the focus will be put towards the management functions for the MDE-MEDIN => INGESTION exchange process.

Task 2: Implement pathways for delivering data to final repositories

The total number of received submissions increased from 1419 to 1466, while the number of processed and published data submissions increased from 1262 to 1334, and of which, the number of fully elaborated data submissions went from 564 to 606 data. This is illustrated in the following image while the separate statistics (attached) will provide more insight in the division over EMODnet themes and external data providers.

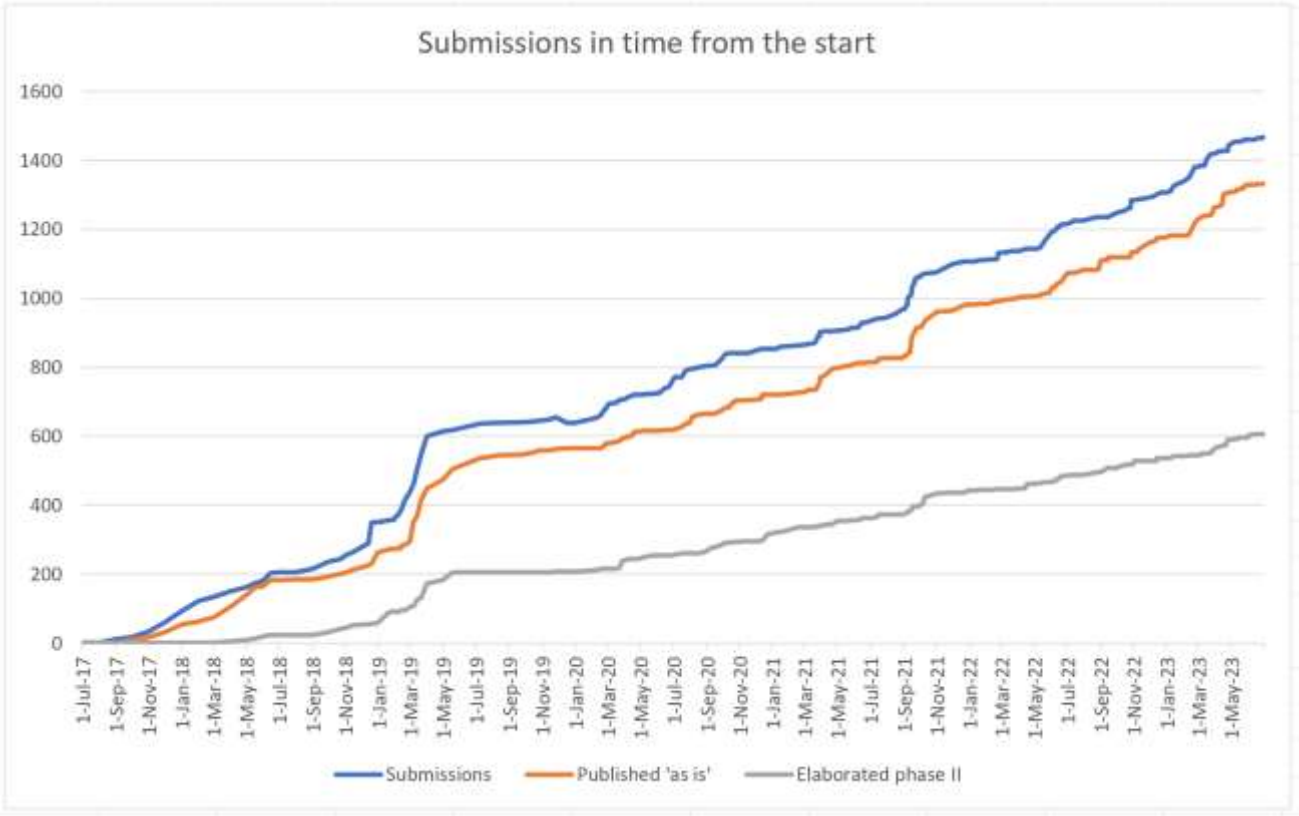

Image: number of submissions and phase 1 and phase 2 publications over the 3 contracts

Again, a major contribution came from the exchange with the SeaDataNet SEANOE data citing service (https://www.seadatanet.org/Software/SEANOE), which contributed another 15 published submissions. Also, the H2020 Eurofleets+ project contributed multiple new data submissions as follow-up from its transnational access activities, arranging scientific cruises with Eropean research vessels. Moreover, again several marine litter submissions were published, which are the result of the cooperation of EMODnet Chemistry with the MSFD TG-ML and which encourages Member States to make use of EMODnet Ingestion for providing Marine Litter data sets.

Task 3: Facilitate machine-to-machine transfers

The goal of the task is to continue facilitating faster availability of data by establishing direct connections between monitoring stations and repositories and towards EMODnet by machine-to-machine transfers and expand and upgrade the Sensor Web Enablement (SWE) demonstrator.

During the reporting period EMODnet Ingestion the realtime demonstrator (realtime.emodnet-physics.eu) was further updated. Notably the number of Tide Gauges has increased largely: the JRC has included new sensors and thanks to the M2M connection these were immediately available on the Realtime page. In addition, the following collections were released/updated:

Institute	Nature	Country	Type of data
Gulf of Maine Lobster Foundation	public	United State of America	Deep water Temperature logger
Ifado MiniBoats	public	Portugal	Mini AWS collecting currents, SST and some meteorological parameters

The team proactively participated to a series of events and workshops (e.g. EuroGOOS Tide Gauge Task Team, TG NOISE, EuroGOOS DATAMEQ, Copernicus Marine Service INSTAC Stakeholders meeting, SOOS DMSC, etc.) on common standards and open-data. In Cape Town there was a very important event on low-cost technology and data flows: for these emerging tools and platforms EMODnet Ingestion represents a key stakeholder as well as a given infrastructure to facilitate data flow towards marine data integrators.

As anticipated, from 26 June to 30 June 2023, the “Ocean Data Week – The Ocean Race Grand Finale” took place in Genova - Italy. The workshop included talks, pitches, round tables on ocean data collection, processing etc. The ocean data value chain was largely discussed by different ocean data stakeholders including research institutes, policy makers, NGOs (from outdoor centers to The Ocean Race scientific program team), and private industries (from shipping companies to ICT companies). The event included more than 110 speakers, more than 25 hours of live streaming, more than 300 attenders in presence and more than 700 web views (the recordings are available on the web – ettsolutions.com/oceanrace)

Figure 1. screenshot from the workshop presentations

Figures: the events flyers

Task 4: Operate a help-service for users to provide their data in the most appropriate format

The portal has a service-desk, which is operated on working days. Users can either email their questions or ask for a call back. Emails are sent to a generic service desk mailbox. All queries are saved and tracked in the Open-source Ticket Request System (OTRS), allowing providing statistics on the questions received. Recorded queries are analysed in order to elaborate a Frequently Asked Questions (FAQ) page at the portal. In the reporting period no questions were received and answered. As part of the migration, also use is made of the Central Portal Help Desk which runs through JIRA. This way, one question was received this quarter, which has been dealt with.

Task 5: Allow providers of data to track the progress of their data from submission through to their storage in a repository

Data providers can follow the processing of their data submissions in the Submission Service, which is done in several steps each indicated by a status field. Data providers are contacted by assigned data centres, in case there are additional questions about the ingested data sets.

Task 6: Participate in discussions with EMODnet partners in order to improve the efficiency of the whole collection, assembly and dissemination process

All coordinators of EMODnet Thematic projects are partners in EMODnet Ingestion which guarantees a mutual tuning with EMODnet Ingestion. Moreover, EMODnet Ingestion coordinators are involved in the communication of the EMODnet Steering Committee and Technical Working Group.

Task 7: Maintain a summary record of data delivered

This function is offered by the View Submissions service. Each completed submission is migrated to that service for publishing as part of a discovery and access service. Distinction is made in phase I and II which is one of the search facets. Editing activities take place aimed at replacing so-called orphan data for organisations from free text into controlled EDMO terms, orphan data for projects into controlled EDMERP terms, and orphan terms for Cruises into controlled Cruise Summary Reports (CSR) terms in order to improve the integrity and richness of the metadata.

Task 8: Engage in outreach activities towards significant holders of marine data whose data are not yet available.

During this period RBINS continued promoting the project on social media and during events, where also the flyer and the leaflet were distributed, and the project poster presented.

A short promotion video is under preparation with the Belgian success story, which will be distributed on social media and used as an example to partners for other potential promotion videos on success stories.

A new poster will be prepared on the success stories of EMODnet DIP 3 for the open EMODnet Jamboree conference, planned 29-30 November 2023 in Brussels - Belgium.

Partners are encouraged to keep searching for new potential datasets, for which the inventory is shared and kept up-to-date. At the same time, all outreach activities and events where partners participated to promote the project are being compiled. Reminders will be sent for both updating the inventory of datasets as the overview of activities for the final report.

Task 9: Improve and document the availability of data provided for coastal and offshore licensing.

The overall objective of this task is to engage with public authorities in Member States who receive data from licensing procedures for coastal or offshore activities, with particular emphasis on aquaculture and offshore energy.

The tender requirements mention that work shall include:

- Promoting common reporting standards that facilitate data ingestion;
- Documenting in a searchable database the parameters, specifications and accessibility of the data from each country;
- Organising a workshop on license data to start the road towards a more harmonised approach.

The activity is led by Deltares, with all partners contributing concerning their national situation. Identifying the different stakeholders was the first step of this task and was reported in D4.4 in M6. During an initial assessment, 81 stakeholders were identified. After a second round, a total of 128 stakeholders were identified.

The second step dealt with establishing a baseline Assessment or Inventory of Data Collection and Licensing Processes in each country (M7 – M12), documented in D4.5. This activity was led by Deltares and involved further surveys and contacts with identified stakeholders, assisted by EMODnet Ingestion partners, to make available relevant documentation and information. The objective of this task was twofold:

- Identify practices on data collection and licensing processes;
- Examine relevant previous EU-funded projects to identify common methodologies, roadmaps and synergies which would support the proposed approach of this project.

A comprehensive methodology and approach were followed to achieve these objectives. A template was developed consisting of specific inquiries on licensing procedures for each country. Partners completed the template, gathering information from their respective countries. Gaps in the acquired information were identified and complemented through desk studies of government policies and relevant documentation. The collected information underwent collaborative analysis with consortium partners to provide an extensive overview of licensing methods and procedures in each country.

In the offshore renewable energy sector, it was found that the development and implementation of licensing procedures vary among countries. Out of the 27 countries analysed, 17 have established licensing procedures, while ten do not. These differences can be attributed to policy priorities, geographical conditions, and area suitability. Regional and sea basin disparities exist, with countries like Denmark, Germany, and the Netherlands being more advanced due to their experience in offshore wind projects.

Regarding offshore aquaculture, practices also differ among countries. Among the 27 countries analysed, 23 have established procedures for offshore aquaculture licensing, while four do not. Economic favorability and environmental conditions play a role in these differences. Countries like Norway, Iceland, Greece, Spain, France, and Italy have more developed aquaculture sectors.

This deliverable D4.5 and its findings will serve as crucial inputs for subsequent deliverables that will be developed throughout the project. These include the establishment of a Database (scheduled for M12-M18) and the initiation of the development of a Roadmap aimed at achieving a more harmonised approach (scheduled for M12-M22). The structure of the database is currently being set up, and additional input may be requested from all partners. As part of the roadmap formulation, a workshop will be organised, and preparations for this event are already underway, with the workshop anticipated to take place in January 2024.

The Deliverable D4.5 is added to this Quarterly report as Annex 1.

Task 10: Service continuity during operation and for transition

Coordination of the consortium is undertaken by MARIS and HCMR to ensure the continuity of the EMODnet Ingestion portal and its array of services. A plenary EMODnet Ingestion project meeting took place 12-13 April 2023 in Larnaca – Cyprus, organized with the local Cyprus parrtner, ORION. Most members of the consortium participated on-site, while the others joint remotely. At the meeting, the progress of all activities was discussed, with each country providing a national presentation. This provided the input for the EMODnet Ingestion Interim Report which was submitted to the EU at 26 April 2023. A few weeks later, a number of questions were received from the EU, resulting in the submission of an amended report on 29 June 2023. Recently, the EU has indicated that the Interim Progress Report has been accepted.

Status of the Milestones and Deliverables listed in the workplan					
Milestone/Deliverable in numerical order	WP	Date due	Status (To do/ Delivered/ Delayed)	Date delivered	If Delayed: reason for delay and expected delivery date
D0.1: Quarterly concise progress reports	0.1	M4, M7, M10, M13, M16, M19, M22, M24	D0.1-a,b,c,d,e delivered; others to do	M4, M7, M10, M13, M16	
D0.2: Interim report	0.1	M12	Delivered and accepted	27 April 2023; amended 29 June 2023	
D0.3: Final report	0.1	M24	To do		
D0.4: Transition and hand over protocol	0.1	M24	To do		
D0.5i: Agreement and subcontracts	0.1	M1	All done		

D0.6i: Short minutes - action lists of internal coordination meetings	0.1	Regularly	Ongoing		
D1.1: Web portal operational, incl extranet	1.1	M1 – M24	Delivered	Operational since M0	
D1.2: Guidelines, manuals, handbooks on portal	1.1	M1 – M24	Delivered	Operational since M0	
D1.3: User Management service operational (Marine-ID /EU Login)	1.2	M1 – M24	Delivered	Operational since M0	
D1.4: Data Submission Service operational	1.3	M1 – M24	Delivered	Operational since M0	
D1.5: Data Submission Service upgraded	1.3	M1 – M8	Delivered	Operational since M6	
D1.6: Data tracking service operational	1.4	M1 – M24	Delivered	Operational since M0	
D1.7: View Submissions service operational	1.5	M1 – M24	Delivered	Operational since M0	
D1.7: Portal and services moved to Central Portal	1.1 – 1.5	M1 – M12[1]	Underway		
D2.1: Pathways operational	2.1	M1 – M24	Delivered	Operational since M0	
D2.2: Many submissions processed and published 'as is' (phase 1) and at EMODnet thematic services (phase 2)	2.1	M12, M24	Underway		
D2.3: Help service operational	2.2	M1 – M24	Delivered	Operational since M0	
D3.1: Updated documentation,	3.1	M12, M24	Delivered; integrated as		

[1] Migration process has started in M15 in agreement with Contracting Authority, so should be arranged before M24

standards and procedure for NRT and RT data published			Annex in Interim Report		
D3.2: Connections with new NRT and RT monitoring stations operational	3.1	M12, M24	Delivered; integrated as Annex in Interim Report		
D3.3: ERDDAP installation package	3.1	M12	Delivered.	M6	See Interim Report
D3.4: DAB installation package	3.1	M12	Under testing (see WHOS activity)		
D3.5: SWE to ERDDAP software module	3.2	M22	Underway		
D3.6: Upgraded Viewing service for NRT and RT stations	3.2	M12	Delivered		See Interim Report
D4.1: Inventory updated of potential data sources and providers in European countries and priorities	4.1	M8	Delivered	M8	
D4.2: Updated promotion material	4.4	M12, M24	Regularly		
D4.3: Results of marketing and outreach activities	4.2	M12, M20	M12 integrated in Interim Report; M20 to be integrated in Final Reprt		
D4.4: Inventory of identified stakeholders for licensing data	4.3	M6	2nd and largely improved version Delivered	M6, M8	
D4.5: Inventory of current license data practices	4.3	M14	Delivered	M15	See Annex 1

D4.6: Database about availability of license data per country	4.3	M18	To do		
D4.7: Reporting on license data Workshop	4.3	M22	To do		

2. Identified issues: status and actions taken

*[Provide an **overview of issues** identified by CINEA/ DG MARE/ Secretariat (Table A) in the past quarter - new as well as pending ones, the status of those issues, and actions taken to address them and/or roadmap with remaining actions planned to resolve the issues. In Table B, provide information about any issues and challenges identified by yourself.]*

A. Priority issue(s) identified and communicated by CINEA/ DG MARE/ SECRETARIAT				
Priority issue	Status (Pending/ Resolved)	Action(s) taken/ remaining actions planned	Date due	Date resolved

B. Issues / challenges identified by the thematic assembly group itself				
Priority issue / challenge	Status (Pending/ Resolved)	Action(s) taken / remaining actions planned	Date due	Date resolved

3. Communication assets

[In Table A, list peer reviewed publications directly (co-)authored by consortium and project partners in the reporting period. In Table B, list all non-peer reviewed publications (co-)authored. In all cases, indicate the type of publication, provide the full reference incl. title, volume and issue etc., and whether the publication is open or closed access.]

A. (Co-)Authored peer-reviewed publications in the quarter					
Date of publication	Type of publication	Full reference	ISBN	DOI	Is it open access? Yes/No

B. Other/non-peer reviewed types of publications (co-)authored in the quarter					
Date of publication	Type of publication	Full reference	ISBN	DOI	Is it open access? Yes/No

For a compressive overview of publications referring to/making use of EMODnet data and/or data products, please consult Google Scholar.

4. Monitoring indicators

[Refer to the standardised monitoring tool, i.e. Europa Analytics, to complete the indicators excel template, and provide a short explanation in the table below on the numbers and trends for each indicator when possible/applicable. Indicate clearly if monitoring was carried out using tools other than Europa Analytics.]

Comments on the progress indicators in the indicators spreadsheet		
Progress indicator	Means of collecting figures	Comment
1. Current status and coverage of total available thematic data A) Volume and coverage of available data	Submission Viewing service	The total number of new phase 1 + phase 2 submissions in the current quarter is 72 and of this 42 were elaborated to phase 2. The overall number of published submissions went from 1262 to 1334.
What is your opinion on the data coverage within EMODnet for your thematic?	Submission Viewing service	The submissions are well divided over the EMODnet thematics. They follow more or less the division of ocean observation activities for different data types.
B) Usage of data in this quarter	Cloud storage of Submission Viewing service	The total number of download transactions and volume decreased with ca 28% compared to the previous quarter, but is still considerable.
3. Internal and external organisations supplying/approached to supply data and data products within this quarter	Submission Viewing service	There is a good mix in organisation types and countries. The total number of data providers has increased with 9 in the last quarter to 205.
9) Visibility & analytics for web pages	Grafana	The visits to the Homepage, Submission service and Viewing service are quite stable in time.
10) Visibility & analytics for web sections	Grafana	The Viewing Service which publishes the completed submissions generates most traffic and this is quite stable over time. Overall, there is no high traffic on the site, but is also not to be expected considering the function of EMODnet Ingestion in the EMODnet framework.

11) Average visit duration for web pages	Grafana	The average daily visit duration for the Viewing service section went somewhat up to 50 seconds, while this is around 30 seconds for the Homepage. The total visit duration for all services went down more than 60% over the quarter.

The monitoring numbers reported as part of the progress monitoring of EMODnet performance are collected through Europa Analytics, unless reported otherwise.

5. Annex 1: Deliverable D5.5

EMODnet Ingestion and Safe-Keeping of Marine Data - Phase III

D4.5 Inventory of current license data practices

Technical Report

June 2023

The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) 2021/1139 of the European Parliament and of the Council of 7 July 2021 establishing the European Maritime, Fisheries and Aquaculture Fund and its predecessor, Regulation (EU) No. 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund.

EMODnet Ingestion III Project Information	
Project full title	EMODnet Ingestion and Safe-Keeping of Marine Data - Phase III
Grant agreement number	CINEA/EMFAF/2021/3.4.10/02/SI2.868290
Project coordinator	Dick Schaap (MARIS)
Project start date and duration	01-04-2022 (24 months)
Project website	https://www.emodnet-ingestion.eu/

Deliverable Information	
Work package number	4
Work package title	Marketing and Outreach
Deliverable number	4.5
Deliverable title	Inventory of current license data practices
Description	The objective of Deliverable 4.5 was twofold: to identify practices on data collection and licensing processes, and to examine relevant previous EU-funded projects for supporting the proposed approach of the project. To achieve these objectives, a comprehensive methodology and approach were followed. A template was developed, consisting of specific inquiries on licensing procedures for each country. Partners completed the template, gathering information from their respective countries. Gaps in the acquired information were identified and complemented through desk studies of government policies and relevant documentation. The collected information underwent collaborative analysis with consortium partners to provide an extensive overview of licensing methods and procedures in each country. In the offshore renewable energy sector, it was found that the development and implementation of licensing procedures vary among countries. Out of the 27 countries analyzed, 17 have established licensing procedures, while 10 do not. These differences can be attributed to policy priorities, geographical conditions, and area suitability. Regional and sea basin disparities exist, with countries like Denmark, Germany, and the Netherlands being more advanced due to their experience in offshore wind projects. Regarding offshore aquaculture, practices also differ among countries. Among the 27 countries analyzed, 23 have established procedures for offshore aquaculture licensing, while 4 do not. Economic favorability and environmental conditions play a role in these differences. Countries like Norway, Iceland, Greece, Spain, France, and Italy have more developed aquaculture sectors.
Lead beneficiary	Deltares

Lead Author(s)	David Geurts, Sonja Wanke
Contributor(s)	EMODnet Ingestion consortium members
Revision number	0.1
Revision Date	13 June 2023
Status	Final
Dissemination level	Public

Disclaimer

Table of Contents

1 Introduction

A partnership of over a hundred and twenty European organisations work together under EMODnet in seven thematic groups to assemble marine data from diverse sources and resources in order to make them more accessible and more interoperable. Part of their work involves building gateways to national, regional or thematic repositories and creating products based on marine and maritime data held by public bodies, research organisations, industry, and civil society.

However, many data collected by public authorities, researchers and private operators of coastal and/or offshore facilities still do not arrive to these national or regional repositories and are thus unavailable to potential users. This creates additional costs for those working on marine issues who will have the choice of accepting lower confidence in their analysis than would otherwise be the case or being compelled to needlessly repeat observations. There is therefore the need to streamline the data ingestion process so that data holders from public and private sectors can easily release their data for safekeeping and subsequent distribution through EMODnet or other means.

The general objective of EMODnet Ingestion III is to facilitate and streamline the process whereby marine data from whatever source (including national monitoring programmes, research projects, licensing data and private companies) be delivered voluntarily for safekeeping to data repositories from where it can be freely disseminated.

Task 9, a part of Work Package 4 (WP4) - Marketing and Outreach Activities, is dedicated to improving and documenting the availability of data for coastal and offshore licensing procedures. This task aims to address the challenges associated with licensing processes for coastal and offshore activities, ensuring that relevant and comprehensive data is accessible to support informed decision-making.

A first subtask concerned **identifying stakeholders that give out licences/permits for coastal and offshore activities, do monitoring or collect data,** which has been reported in Deliverable D4.4.

As next subtask, identified stakeholders were contacted in order to gather information about the licensing procedures, in particular to get more insights in related monitoring data management. Also previous EU-projects were examined. The results of these activities are reported in the underlying Deliverable D4.5. This deliverable provides an overview of the baseline assessment conducted to understand the data collection and licensing processes in the offshore aquaculture and offshore energy sectors. As such this report sets the foundation for the next planned subtasks which aim at initiating a database to document the availability of license data per country, and starting a path towards a more harmonised approach, including adoption of use of common standards for data management.

2 Approach and Methodology

This report is structured based on the two objectives for this task: i) Identify practices on data collection and licensing processes (Chapter 3), ii) Examine relevant previous EU-funded projects to identify common methodologies, roadmaps and synergies which would support the proposed approach of this project (Chapter 4).

Analysis of licensing procedures and data collection practices

As part of Deliverable 4.4 (Inventory of identified stakeholders for licensing data), a comprehensive stakeholder mapping process was implemented to ensure effective engagement and collaboration. The main objective was to identify relevant stakeholders, understand their interests, delineate their roles and mandates, and ascertain their desired involvement throughout various project phases. The results of Deliverable 4.4 have been the starting point for the methodology of Deliverable 4.5 which consisted of several steps.

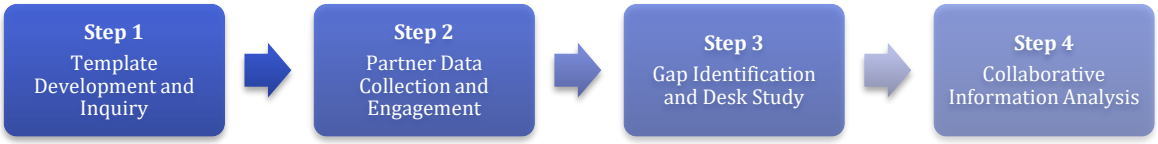

Figure 1: Step by step analysis approach for licensing procedures and data collection

Step 1: **Template Development and Inquiry**

During this step, a comprehensive template was developed, comprising specific inquiries regarding licensing procedures for each member state. Key questions included identifying the responsible institution or organization for issuing offshore energy/aquaculture licenses, the eligibility criteria for applicants, the permit acquisition procedure, required information, and estimated timeframes.

Step 2: Partner Data Collection and Engagement

Consortium partners were tasked with completing the template for their respective countries in this phase. Partners possessing the requested information provided it directly, while others engaged with stakeholders (as identified in Deliverable 4.4) to obtain the relevant data.

Step 3: **Gap Identification and Desk Study**

The focus of this step was to identify any gaps in the acquired country information. If feasible, these gaps were complemented by conducting a desk study of government policies and other relevant documentation to ensure comprehensive coverage.

Step 4: **Collaborative Information Analysis**

In collaboration with consortium partners, the collected information underwent a thorough analysis. The primary objectives were to provide an extensive overview of licensing methods and procedures in each country and to conduct comparative assessments across countries and basins. This analysis aimed to facilitate a comprehensive understanding of the licensing landscape and identify potential similarities, differences, and best practices.

To provide clarity and ensure a focused scope, this report specifically addresses the offshore aquaculture and offshore renewable energy sectors. To avoid any ambiguity, the following definitions are used throughout this report:

- Offshore aquaculture: refers to the breeding, rearing, and harvesting of fish, shellfish, algae, and other organisms in offshore environments.
- Offshore renewable energy: refers to the generation of electricity from ocean-based resources. These include wind turbines, solar panels, and tidal and wave installations located offshore.

- Offshore: refers to the territorial waters and exclusive economic zone (maximum of 200 nautical miles).

In this context, it is important to note that offshore renewable energy is a broad concept, in which there is consideration of offshore wind turbines, floating solar panels, tidal and wave installations. During the execution of this task and data gathering it has been found that the emphasis and focus of stakeholders and policies in the context of offshore renewable energy is mainly on offshore wind energy, meaning that it was difficult to get information for the other options of renewable energy generation.

To report the results clearly, it is decided to use a categorization of the different phases that can be distinguished in offshore developments, such as aquaculture and renewable energy. In this regard, the following five phases for offshore activities and developments are generally included:

Site selection: This phase involves conducting preliminary studies and assessments to identify suitable offshore sites for the activities. A location is often chosen based on various indicators like financial feasibility and environmental feasibility.

Licensing and Planning: In this phase, developers complete plans and engineering designs for offshore development. In addition, the necessary permits and licenses are obtained from regulatory authorities.

Construction and Installation: Once the necessary permits are obtained, the construction and installation phase begins. This phase involves the actual construction of the infrastructure and implementation of the activity.

Operation and Maintenance: This phase focuses on the regular operation, monitoring, and maintenance of the installed infrastructure.

Decommissioning: Eventually, offshore activities reach the decommissioning and site restoration phase. When projects reach the end of their operational life or are no longer viable, decommissioning activities take place to remove or dismantle the infrastructure.

These five phases provide a general framework for offshore activities in Europe, encompassing the entire lifecycle from exploration to decommissioning. It is important to note that procedures differ from country to country within Europe and that each country has its own specific regulatory policies. Therefore, while the general phases remain consistent, the specific procedures may vary depending on the country in which the offshore activities are taking place. The final phase of decommissioning is not included in the analysis of data gathering procedures, as this falls outside of the scope of this report and it is expected that data gathering does not take place in this process.

Overview of relevant EU-funded projects to identify common methodologies

Relevant EU-funded projects were identified by making use of a desk study and the expertise of the members of the consortium. For this section, a separate search was conducted for both the offshore aquaculture and offshore energy sector. Ultimately, this resulted in two specific overviews of relevant projects. If possible, relevant information on the projects is included, such as consortium lead, duration and geographical focus. It is expected that these projects can offer relevant methodologies, roadmaps, or synergies for the licensing practices for offshore aquaculture and energy generation.

3 Data Collection and Licensing Processes

This chapter provides an overview of the results from the analysis of practices on data collection and licensing processes. The results are presented separately for each country. In the last section of this chapter, a comparison is made between all of the individual country results.

3.1 National Data Collection and Licensing Procedures

Data collection and licensing procedures play a crucial role in the offshore aquaculture and renewable energy sectors. Firstly, data collection is vital for informed decision-making and effective resource management. It allows stakeholders to assess the environmental, social, and economic implications of offshore activities, enabling sustainable and responsible development. Accurate and comprehensive data on water quality, biodiversity, and ecosystem health helps ensure that offshore operations minimize their environmental impact and protect sensitive habitats. Additionally, data on market trends, consumer preferences, and technological advancements in the renewable energy sector allows for strategic planning and investment decisions.

Secondly, licensing procedures provide a regulatory framework for offshore aquaculture and renewable energy projects. They establish the legal requirements and conditions that operators must adhere to, ensuring compliance with environmental standards, safety measures, and operational guidelines. Licensing procedures promote transparency, accountability, and the protection of public interests. They provide a mechanism for assessing project feasibility, evaluating potential risks, and mitigating negative impacts. By establishing clear licensing procedures, governments can foster a conducive environment for investment, innovation, and sustainable growth in these sectors.

Furthermore, data collection and licensing procedures facilitate effective monitoring and enforcement. Regular data collection and reporting enable ongoing assessment of project performance, ensuring compliance with license conditions and regulatory requirements. It allows for the identification of potential issues, early detection of environmental or operational risks, and prompt corrective actions. Licensing procedures also establish mechanisms for public participation and stakeholder engagement, promoting transparency and accountability throughout the project lifecycle.

3.1.1 Belgium

Offshore Renewable Energy

The licensing procedure for offshore wind projects in Belgium involves several key steps and important organizations. First, interested developers submit applications to the Belgian federal government's Ministry of Energy. These applications undergo an evaluation process, which includes technical, environmental, and socio-economic assessments. The most critical organizations involved in this procedure are the Belgian Federal Public Service for Energy, which oversees the entire licensing process, and the Belgian Offshore Platform, which serves as a collaboration platform for key stakeholders. Additionally, the Belgian Federal Maritime and Hydrographic Agency plays a crucial role in ensuring compliance with maritime regulations and safety standards. Once a project is approved, the developer enters into a concession agreement with the Belgian government, outlining the rights and obligations of both parties. Throughout the licensing procedure, close collaboration between the government, developers, environmental agencies, and local communities is essential to ensure sustainable and responsible offshore wind development[1].

[1] www.belgianoffshoreplatform.be

Table 3-1: Data collection for offshore renewable energy in Belgium

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Feasibility study, marine biodiversity, seabed conditions, bird migration
Licensing and Planning	Yes	Environmental impact assessment
Construction and Installation	Yes	Geophysical data
Operation and Maintenance	Yes	Depending on the environmental permit, the focus is on environmental impact monitoring

Offshore Aquaculture

The licensing procedure for offshore aquaculture in Belgium follows a regulated and comprehensive approach to ensure the sustainable development of the industry. In Belgium, aquaculture activities fall under the authority of the Federal Agency for the Safety of the Food Chain (FASFC) and the competent regional authorities, such as the Flemish Agency for Maritime and Coastal Services and the Walloon Region's Directorate-General for Agriculture, Natural Resources, and Environment. Prospective operators must submit a detailed application to the respective competent authority, which includes information on the proposed aquaculture activities, environmental impact assessments, and compliance with regulatory requirements. The applications undergo an evaluation process, taking into account factors such as water quality, fish health, and waste management. Public consultation and stakeholder engagement are important components of the process. Once a license is granted, operators must comply with strict regulations and reporting obligations to maintain compliance, overseen by the respective regional authorities and the FASFC.

Table 3-2: Data collection for aquaculture in Belgium

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Water quality, ecological data
Licensing and Planning	Yes	Environmental impact assessment
Construction and Installation	Yes	Geophysical and geotechnical survey
Operation and Maintenance	Yes	Depending on the monitoring program

3.1.2 Bulgaria

Offshore Renewable Energy

Bulgaria has been exploring the potential for offshore wind energy, and the licensing procedure is currently being developed. The Ministry of Energy plays a central role in formulating this.

Table 3-3: Data collection for offshore renewable energy in Bulgaria

Phases	Data Collection	Explanation/Remarks
Site Selection	n/a	
Licensing and Planning	n/a	
Construction and Installation	n/a	
Operation and Maintenance	n/a	

Offshore Aquaculture

In Bulgaria, the licensing procedure for offshore aquaculture is regulated by the Ministry of Agriculture, Food, and Forestry. Interested parties must submit applications for aquaculture licenses, providing details on the proposed site, species to be cultivated, and operational plans. The application undergoes an evaluation process that includes assessments of environmental impact, technical feasibility, and compliance with relevant regulations. Upon approval, the license is granted, allowing the development and operation of offshore aquaculture facilities, subject to ongoing monitoring and compliance with regulatory requirements[2] (Food and Agriculture Organization, 2022).

Table 3-4: Data collection for aquaculture in Bulgaria

Phases	**Data Collection**	**Explanation/Remarks**
Site Selection	Yes	Water quality
Licensing and Planning	Yes	Environmental impact assessment
Construction and Installation	No	
Operation and Maintenance	Yes	Environmental monitoring

3.1.3 Croatia

Offshore Renewable Energy

Croatia has been exploring the potential for offshore wind energy, and the licensing procedure is currently being developed.

Table 3-5: Data collection for offshore renewable energy in Croatia

Phases	**Data Collection**	**Explanation/Remarks**
Site Selection	n/a	
Licensing and Planning	n/a	
Construction and Installation	n/a	
Operation and Maintenance	n/a	

Offshore Aquaculture

The licensing procedure for offshore aquaculture in Croatia follows a regulated and comprehensive approach to ensure the sustainable development of the industry. In Croatia, aquaculture activities are regulated by the Ministry of Agriculture, and the licensing process is overseen by the Croatian Agency for Agriculture and Food (HAPIH). Prospective operators must submit a detailed application to HAPIH, which includes information on the proposed aquaculture activities, environmental impact assessments, and compliance with regulatory requirements. The application undergoes a thorough evaluation process, considering factors such as water quality, site suitability, and adherence to zoning plans. The State Institute of Nature Protection and the Croatian Institute for Fisheries and Aquaculture provide scientific expertise in assessing the environmental aspects of the application. Public consultation and stakeholder engagement are integral parts of the process to ensure transparency and address concerns. Once a license is granted, operators must comply with regulations and reporting obligations to maintain compliance, overseen by HAPIH[3].

[2] Ministry of Energy of Bulgaria: www.mi.government.bg

[3] Croatian Ministry of Environment and Energy: www.mzoip.hr

Table 3-6: Data collection for aquaculture in Croatia

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Water quality parameters, seabed data
Licensing and Planning	Yes	Environmental impact assessment
Construction and Installation	Yes	Environmental monitoring
Operation and Maintenance	Yes	Environmental monitoring, production

3.1.4 Cyprus

Offshore Renewable Energy

Cyprus has been exploring the potential for offshore wind energy, and the licensing procedure is currently being developed.

Table 3-7: Data collection for offshore renewable energy in Cyprus

Phases	Data Collection	Explanation/Remarks
Site Selection	n/a	
Licensing and Planning	n/a	
Construction and Installation	n/a	
Operation and Maintenance	n/a	

Offshore Aquaculture

The Department of Fisheries and Marine Research, along with the Shipping Deputy Ministry, collaborate based on the National Marine Spatial Plan of Cyprus. This plan sets the boundaries and guidelines for various activities in the marine environment, including aquaculture. The regulations and provisions of the Aquaculture Laws, as well as their subsequent amendments, serve as the foundation for defining the rights and responsibilities of the involved parties[4].

Table 3-8: Data collection for aquaculture in Cyprus

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Biotic and abiotic environmental parameters
Licensing and Planning	Yes	Environmental studies and reports for the site
Construction and Installation	Yes	Environmental biotic and abiotic parameters
Operation and Maintenance	Yes	Two environmental studies per year

3.1.5 Denmark

Offshore Renewable Energy

The licensing procedure for offshore wind projects in Denmark follows a well-established framework and involves several important organizations. The process begins with an open tender, where interested developers submit applications to the Danish Energy Agency (DEA)[5]. The DEA conducts an

[4] Cyprus Energy Regulatory Authority: www.cera.org.cy

[5] Danish Energy Agency: www.ens.dk

evaluation, considering factors such as technical feasibility, environmental impact, and economic viability. The DEA oversees the entire licensing process, including the preparation of tender documents, evaluation of applications, and awarding of licenses. The Danish Nature Agency plays a significant role in assessing the environmental impact and ensuring compliance with nature conservation regulations. The Danish Maritime Authority focuses on safety aspects and ensures adherence to maritime regulations. Additionally, the Danish Energy Regulatory Authority is responsible for setting tariffs and ensuring a fair market for the produced energy. Through this collaborative approach, Denmark has been able to streamline the licensing procedure, promoting sustainable offshore wind development in the country.

Table 3-9: Data collection for offshore renewable energy in Denmark

Phases	**Data Collection**	**Explanation/Remarks**
Site Selection	Yes	Geophysical and geotechnical studies
Licensing and Planning	Yes	Collection of MetOcean data, bird surveys, strategic environmental assessment
Construction and Installation	Yes	Environmental assessment
Operation and Maintenance	Yes	Underwater noise

Offshore Aquaculture

The licensing procedure for offshore aquaculture in Denmark follows a regulated and comprehensive approach to ensure the sustainable development of the industry. In Denmark, aquaculture activities are regulated by the Danish Ministry of Environment and Food, and the licensing process is overseen by the Danish AgriFish Agency (DAFA). Prospective operators must submit a detailed application to DAFA, which includes information on the proposed aquaculture activities, environmental impact assessments, and compliance with regulatory requirements. The application undergoes a thorough evaluation process, considering factors such as water quality, site suitability, and potential environmental impacts. The Danish Veterinary and Food Administration plays a significant role in assessing compliance with food safety regulations. The Danish Nature Agency is involved in evaluating the potential impacts on the marine environment and biodiversity. Public consultation and stakeholder engagement are integral parts of the process to ensure transparency and address concerns. Once a license is granted, operators must comply with strict regulations and reporting obligations to maintain compliance, overseen by DAFA and other relevant authorities.

Table 3-10: Data collection for aquaculture in Denmark

Phases	**Data Collection**	**Explanation/Remarks**
Site Selection	Yes	Screening rapport
Licensing and Planning	Yes	Emissions of nitrogen, phosphorus and organic matter, seabed conditions
Construction and Installation	Yes	Sediment concentration of nitrogen, phosphorus, seabed conditions
Operation and Maintenance	Yes	Temperature, oxygen, salinity

3.1.6 Estonia

Offshore Renewable Energy

The licensing procedure for offshore wind projects in Estonia involves a comprehensive process overseen by several key organizations. The initial step includes a call for tenders issued by the Estonian Ministry of Economic Affairs and Communications. Interested developers submit their applications,

which are then evaluated by the Estonian Technical Regulatory Authority (ETRA) and the Environmental Board. The ETRA assesses technical and safety aspects of the projects, ensuring compliance with relevant regulations and standards. The Environmental Board focuses on environmental impact assessments, evaluating the potential effects of offshore wind farms on marine ecosystems, biodiversity, and protected areas. Additionally, the Estonian Maritime Administration plays a crucial role in evaluating maritime safety aspects and ensuring adherence to navigational regulations[6].

Table 3-11: Data collection for offshore renewable energy in Estonia

Phases	**Data Collection**	**Explanation/Remarks**
Site Selection	Yes	Meteorological data, environmental data, geophysical data
Licensing and Planning	Yes	Environmental impact assessment, socio-economic impact
Construction and Installation	Yes	Hydrography data, geological data
Operation and Maintenance	Yes	Monitoring data

Offshore Aquaculture

In Estonia, the licensing and regulation of aquaculture activities, including offshore aquaculture, are overseen by the Estonian Veterinary and Food Board under the Ministry of Rural Affairs. While Estonia has primarily focused on coastal and inland aquaculture, specific licensing procedures for offshore aquaculture may vary. Interested parties should consult the Estonian Veterinary and Food Board or the relevant Estonian authorities for the most accurate and up-to-date information on the licensing procedure for offshore aquaculture in Estonia.

Table 3-12: Data collection for aquaculture in Estonia

Phases	**Data Collection**	**Explanation/Remarks**
Site Selection	Yes	Environmental impact assessment
Licensing and Planning	Yes	Environmental impact assessment, socio-economic impact
Construction and Installation	Yes	Monitoring data
Operation and Maintenance	Yes	Monitoring data

3.1.7 Finland

Offshore Renewable Energy

The licensing procedure for offshore wind projects in Finland involves a well-defined process and the participation of several important organizations. The process begins with developers submitting applications to the Finnish Energy Authority (FEA)[7]. The FEA oversees the entire licensing procedure, evaluating applications based on technical feasibility, environmental impact, and economic viability. The Finnish Environment Institute plays a crucial role in conducting environmental impact assessments, ensuring compliance with nature conservation regulations, and assessing the potential impact on marine ecosystems. The Finnish Transport and Communications Agency (Traficom) focuses on maritime safety aspects, including navigational regulations and coordination with other maritime

[6] Estonian Ministry of Economic Affairs and Communications: www.mkm.ee

[7] Finnish Energy Authority: www.energia.fi

activities. Additionally, the Ministry of Economic Affairs and Employment provides policy guidance and ensures alignment with national energy goals..

Table 3-13: Data collection for offshore renewable energy in Finland

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Meteorological data, environmental data
Licensing and Planning	Yes	Environmental impact assessment, noise data
Construction and Installation	Yes	Bathymetry, construction data
Operation and Maintenance	Yes	Energy production data

Offshore Aquaculture

The licensing procedure for offshore aquaculture in Finland involves a comprehensive process governed by several important organizations. Prospective operators must submit a detailed application to the competent regulatory authority, typically the Finnish Food Authority, which evaluates the application based on environmental sustainability, spatial planning, and compatibility with existing marine activities. The Finnish Environment Institute plays a significant role in assessing the environmental impact and providing expertise on marine ecosystems. The Centres for Economic Development, Transport and the Environment are responsible for evaluating the overall feasibility and compliance of the proposed projects. Additionally, the Regional Councils and local municipalities are consulted to ensure coordination and compatibility with regional development plans. Public participation and stakeholder engagement are integral components of the process, with the opportunity for public comments and opinions. Once a license is granted, operators are subject to regular monitoring and reporting, overseen by the Finnish Food Authority and other relevant authorities.

Table 3-14: Data collection for aquaculture in Finland

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Temperature, salinity, oxygen levels, ecological data
Licensing and Planning	Yes	Environmental impact assessment
Construction and Installation	No	
Operation and Maintenance	Yes	Environmental monitoring, nutrient levels, oxygen levels

3.1.8 France

Offshore Renewable Energy

In France, the licensing of offshore wind projects is carried out through a systematic procedure that includes the collaboration of various significant organizations. The process begins with the French government launching a call for tenders, managed by the Ministry of the Ecological Transition and the Ministry of the Economy[8]. Interested developers submit applications, which undergo rigorous evaluation by the Energy Regulation Commission (CRE). The CRE assesses the technical and financial aspects of the projects and ensures compliance with regulations and energy goals. The French Agency for Biodiversity plays a crucial role in evaluating the environmental impact of offshore wind farms and

[8] French Ministry for the Ecological Transition: www.ecologie.gouv.fr

ensuring adherence to nature conservation regulations. The French Maritime Affairs Directorate oversees maritime safety and navigational aspects.

Table 3-15: Data collection for offshore renewable energy in France

Phases	Data Collection	Explanation/Remarks
Site Selection	No	
Licensing and Planning	Yes	Hydrology, bathymetry, sedimentology, anthropic elements, swell, currents and tide
Construction and Installation	Yes	Underwater noise, seabed, turbidity
Operation and Maintenance	Yes	Marine megafauna, ichthyofauna, benthos, water and sediment quality.

Offshore Aquaculture

The licensing procedure for offshore aquaculture in France involves a comprehensive and regulated process overseen by several important organizations. Prospective operators are required to submit a detailed application to the competent regulatory authority, which is primarily the Directorate of Maritime Affairs. The applications are evaluated based on various criteria, including environmental impact assessments, spatial planning considerations, and compatibility with existing marine activities. The French Agency for Biodiversity plays a crucial role in assessing the potential environmental impacts of proposed aquaculture projects. Additionally, the Regional Fisheries Committees and local authorities are consulted to ensure coordination and compatibility with regional development plans. Public consultation and stakeholder engagement are vital components of the process to promote transparency and address any concerns. Once a license is granted, operators must comply with stringent regulations pertaining to water quality, fish health, and waste management. Regular monitoring and reporting are required to maintain compliance, overseen by the Directorate of Maritime Affairs and other relevant authorities.

Table 3-16: Data collection for aquaculture in France

Phases	Data Collection	Explanation/Remarks
Site Selection	No	
Licensing and Planning	Yes	Environmental impact assessment, water quality
Construction and Installation	Yes	Underwater noise, seabed, turbidity
Operation and Maintenance	Yes	water and sediment quality.

3.1.9 Georgia

Offshore Renewable Energy

Georgia has been exploring the potential for offshore wind energy, and the licensing procedure is currently being developed.

Table 3-17: Data collection for offshore renewable energy in Georgia

Phases	Data Collection	Explanation/Remarks
Site Selection	n/a	
Licensing and Planning	n/a	
Construction and Installation	n/a	
Operation and Maintenance	n/a	

Offshore Aquaculture

The Law of Georgia on Aquaculture outlines the procedures and requirements for obtaining aquaculture permits in the country. Interested individuals can submit written applications to the Department of Aquaculture of the National Environmental Agency, requesting the use of water facilities for aquaculture activities. Aquaculture permits are issued for up to 20 years and enable holders to carry out specific aquaculture activities in designated areas. The issuance of permits follows a general procedure, involving the examination of applications, consultations with interested parties, and the fulfilment of conditions. The Aquaculture Interagency Council reviews applications related to marine waters. The overall period for issuing or rejecting permits should not exceed six months. Additionally, the law addresses the allocation of zones for mariculture, the approval of a management plan for these zones, and the establishment of an Environmental Monitoring Programme to protect the marine ecosystem and ensure the sustainability of aquaculture activities[9] (Food and Agriculture Organization, 2022).

Table 3-18: Data collection for aquaculture in Georgia

Phases	Data Collection	Explanation/Remarks
Site Selection	No	
Licensing and Planning	Yes	Economic data, environmental impact
Construction and Installation	No	
Operation and Maintenance	Yes	Environmental monitoring

3.1.10 Germany

Offshore Renewable Energy

In Germany, offshore wind projects undergo a structured licensing process that relies on the collaboration of various essential organizations. The process begins with a competitive tendering system overseen by the Federal Network Agency (Bundesnetzagentur). The Bundesnetzagentur manages the entire licensing procedure, including the issuance of permits and conducting auctions for project rights. The Federal Maritime and Hydrographic Agency (BSH) plays a crucial role in assessing environmental impacts and ensuring compliance with maritime regulations[10]. The BSH conducts thorough environmental impact assessments, taking into account factors such as marine ecosystems, protected areas, and bird migration patterns. Additionally, the Transmission System Operator ensures grid connectivity and integration of the offshore wind farms into the national electricity grid. Through the collaboration of these organizations, Germany ensures a transparent and efficient licensing procedure that promotes the sustainable and responsible development of offshore wind projects in its waters.

Table 3-19: Data collection for offshore renewable energy in Germany

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Meteorological data, environmental data, geotechnical data
Licensing and Planning	Yes	Environmental impact assessment, socio-economic data
Construction and Installation	No	

[9] Ministry of Economy and Sustainable Development of Georgia: www.economy.ge

[10] Federal Maritime and Hydrographic Agency: www.bsh.de

Operation and Maintenance	Yes	Environmental monitoring

Offshore Aquaculture

The licensing procedure for offshore aquaculture in Germany follows a structured and regulated approach to ensure the sustainable and responsible development of the industry. Prospective operators must submit an application to the competent regulatory authority, which is typically the Federal Maritime and Hydrographic Agency (BSH). The application includes project plans, environmental impact assessments, and financial viability assessments. The BSH evaluates the applications based on various criteria, including environmental sustainability, spatial planning, and compatibility with existing marine activities. The Federal Agency for Nature Conservation is involved in assessing the potential impacts on marine ecosystems and biodiversity. Public participation and stakeholder engagement are essential aspects of the process to ensure transparency and address concerns. Once a license is granted, operators must comply with strict regulations concerning water quality, fish health, and waste management. Regular monitoring and reporting are mandatory to maintain compliance, overseen by the BSH and other relevant authorities. The licensing procedure in Germany aims to balance the growth of offshore aquaculture with environmental protection, taking into account the interests of all stakeholders involved.

Table 3-20: Data collection for aquaculture in Georgia

Phases	**Data Collection**	**Explanation/Remarks**
Site Selection	Yes	Temperature, salinity, dissolved oxygen, currents, nutrient levels, and water column profiles
Licensing and Planning	Yes	Environmental impact assessment
Construction and Installation	Yes	Noise and vibration
Operation and Maintenance	Yes	Environmental monitoring

3.1.11 Greece

Offshore Renewable Energy

The licensing procedure for offshore wind projects in Greece involves a structured process overseen by several important organizations. The Hellenic Ministry of Environment and Energy is responsible for the overall coordination and regulation of the licensing procedure. The Regulatory Authority for Energy plays a crucial role in evaluating applications, conducting auctions, and issuing licenses[11]. The Hellenic Port Authority is involved in assessing maritime safety aspects and ensuring compliance with navigational regulations. The Hellenic Ministry of Culture and Sports collaborates in evaluating potential impacts on cultural heritage sites. Environmental impact assessments are conducted by specialized consulting firms in collaboration with the Ministry of Environment and Energy and other relevant authorities.

Table 3-21: Data collection for offshore renewable energy in Greece

Phases	**Data Collection**	**Explanation/Remarks**
Site Selection	Yes	Seabed conditions, marine biodiversity, geotechnical data
Licensing and Planning	Yes	Environmental impact assessment, socio-economic data

[11] Regulatory Authority for Energy of Greece: www.rae.gr

Construction and Installation	Yes	Geophysical data
Operation and Maintenance	Yes	Energy generation

Offshore Aquaculture

The licensing procedure for offshore aquaculture in Greece involves a comprehensive and regulated process overseen by several important organizations. Prospective operators must submit a detailed application to the competent regulatory authority, which is typically the Ministry of Rural Development and Food. The applications undergo a thorough evaluation process, considering factors such as environmental sustainability, spatial planning, and compatibility with existing marine activities. The Hellenic Center for Marine Research plays a crucial role in providing scientific expertise and conducting environmental impact assessments. The Regional Fisheries Directorates and local authorities are also involved in evaluating the proposed projects. Once a license is granted, operators must comply with strict regulations regarding water quality, fish health, and waste management. Regular monitoring and reporting are required to ensure compliance, overseen by the Ministry of Rural Development and Food and other relevant authorities (DACIAT, n.d.).

Table 3-22: Data collection for aquaculture in Greece

Phases	**Data Collection**	**Explanation/Remarks**
Site Selection	Yes	Environmental data, seabed
Licensing and Planning	Yes	Environmental impact assessment
Construction and Installation	No	
Operation and Maintenance	Yes	Water quality monitoring

3.1.12 Iceland

Offshore Renewable Energy

Iceland has started exploring the potential for offshore wind energy, and the licensing procedure is currently under development. The Ministry of Industries and Innovation is responsible for formulating these policies.

Table 3-23: Data collection for offshore renewable energy in Iceland

Phases	**Data Collection**	**Explanation/Remarks**
Site Selection	n/a	
Licensing and Planning	n/a	
Construction and Installation	n/a	
Operation and Maintenance	n/a	

Offshore Aquaculture

Iceland has a well-defined process for licensing offshore wind projects, which requires the participation of multiple key organizations. Prospective operators are required to submit a comprehensive application to the competent regulatory authority, which is primarily the Icelandic Food and Veterinary Authority (MAST). The applications are evaluated based on various criteria, including environmental impact assessments, spatial planning considerations, and compatibility with existing marine activities. The Marine Research Institute plays a significant role in providing scientific expertise and assessing the potential environmental impacts of proposed aquaculture projects. The Environment Agency of Iceland is involved in the evaluation process, particularly in terms of environmental sustainability and nature conservation. Public participation and stakeholder engagement are important components of

the process, allowing for transparency and addressing concerns. Once a license is granted, operators must comply with strict regulations regarding water quality, fish health, and waste management. Regular monitoring and reporting are required to maintain compliance, overseen by MAST and other relevant authorities[12].

Table 3-24: Data collection for aquaculture in Iceland

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Carrying capacity
Licensing and Planning	Yes	Hydrography and currents, baseline data on benthos
Construction and Installation	No	
Operation and Maintenance	Yes	Environmental monitoring

3.1.13 Ireland

Offshore Renewable Energy

The licensing procedure for offshore wind projects in Ireland follows a structured process and involves several important organizations. The process is overseen by the Department of Communications, Climate Action and Environment (DCCAE) and the Sustainable Energy Authority of Ireland (SEAI). The DCCAE is responsible for policy and regulatory oversight, while the SEAI provides technical and market support. The Irish Marine Planning and Development Management Office plays a crucial role in the licensing and planning process, conducting environmental assessments and coordinating with various stakeholders. The Irish Coast Guard and the Maritime Safety Directorate ensure compliance with maritime safety standards. Additionally, the Commission for Regulation of Utilities oversees the electricity market and the grid connection process. Through collaboration among these organizations, Ireland ensures a transparent and comprehensive licensing procedure that promotes sustainable offshore wind development in its waters.

Table 3-25: Data collection for offshore renewable energy in Ireland

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Environmental data
Licensing and Planning	Yes	Environmental impact assessment, socio-economic data
Construction and Installation	Yes	Geophysical data
Operation and Maintenance	Yes	Environmental monitoring, energy production

Offshore Aquaculture

The licensing procedure for offshore aquaculture in Ireland follows a regulated and comprehensive approach to ensure sustainable and responsible development of the industry. Prospective operators must submit a detailed application to the competent regulatory authority, which is typically the Department of Agriculture, Food, and the Marine (DAFM). The applications undergo a rigorous evaluation process, considering factors such as environmental impact assessments, spatial planning, and compatibility with existing marine activities. The Marine Institute plays a crucial role in providing scientific expertise and assessing the potential environmental impacts of proposed aquaculture projects. Public participation and stakeholder engagement are important aspects, ensuring

[12] Icelandic Ministry of Industries and Innovation: www.mirra.is

transparency and addressing concerns. Once a license is granted, operators must comply with strict regulations regarding water quality, fish health, and waste management. Regular monitoring and reporting are required to ensure compliance, overseen by DAFM and other relevant authorities.

Table 3-26: Data collection for aquaculture in Ireland

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Bathymetry, ecological and biodiversity data, water quality
Licensing and Planning	Yes	Environmental impact assessment
Construction and Installation	Yes	Noise, environmental monitoring
Operation and Maintenance	Yes	Production, feed utilization, water quality, environmental monitoring

3.1.14 Israel

Offshore Renewable Energy

Israel has been exploring the potential for offshore wind energy, and the licensing procedure is currently being developed. The Ministry of Energy[13] plays a central role in formulating this.

Table 3-27: Data collection for offshore renewable energy in Israel

Phases	Data Collection	Explanation/Remarks
Site Selection	n/a	
Licensing and Planning	n/a	
Construction and Installation	n/a	
Operation and Maintenance	n/a	

Offshore Aquaculture

Israel currently does not have any specific regulations or licensing procedures for offshore aquaculture.

Table 3-28: Data collection for aquaculture in Israel

Phases	Data Collection	Explanation/Remarks
Site Selection	n/a	
Licensing and Planning	n/a	
Construction and Installation	n/a	
Operation and Maintenance	n/a	

3.1.15 Italy

Offshore Renewable Energy

The licensing procedure for offshore wind projects in Italy follows a structured process overseen by several important organizations. The Ministry of Economic Development[14] and the Ministry of Environment and Protection of Land and Sea play key roles in formulating policies, regulations, and guidelines for offshore wind development. The Energy Services Operator is responsible for managing

[13] Israel Ministry of Energy: www.energy.gov.il

[14] Ministry of Economic Development of Italy: www.sviluppoeconomico.gov.it

the auction processes and granting authorizations for renewable energy projects, including offshore wind. The Environmental Ministry, through the Environmental Impact Assessment, assesses the potential impacts on the marine environment, biodiversity, and protected areas. The Port Authorities and Maritime Authorities ensure compliance with safety regulations and navigational aspects.

Table 3-29: Data collection for offshore renewable energy in Italy

Phases	**Data Collection**	**Explanation/Remarks**
Site Selection	Yes	Meteorological data, geotechnical data
Licensing and Planning	Yes	Environmental impact assessment
Construction and Installation	Yes	Geophysical data
Operation and Maintenance	Yes	Environmental monitoring, energy production data

Offshore Aquaculture

The licensing procedure for offshore aquaculture in Italy follows a structured and regulated approach to ensure the sustainable development of the industry. Prospective operators must submit an application to the competent regulatory authority, which is typically the Ministry of Agricultural, Food, and Forestry Policies. The applications undergo a thorough evaluation process, considering factors such as environmental impact assessments, spatial planning, and compatibility with existing marine activities. The Italian Institute for Environmental Protection and Research plays a significant role in assessing the potential environmental impacts of proposed aquaculture projects. The National Research Council also provides scientific expertise in the evaluation process. Public consultation and stakeholder engagement are important components of the process, allowing for transparency and addressing concerns. Once a license is granted, operators must comply with strict regulations regarding water quality, fish health, and waste management. Regular monitoring and reporting are required to maintain compliance, overseen by the Ministry of Agricultural, Food, and Forestry Policies and other relevant authorities.

Table 3-30: Data collection for aquaculture in Italy

Phases	**Data Collection**	**Explanation/Remarks**
Site Selection	Yes	Bathymetry, ecological, oceanographic data
Licensing and Planning	Yes	Environmental impact assessment, socio-economic data
Construction and Installation	Yes	Geotechnical data
Operation and Maintenance	Yes	Water quality, production, environmental monitoring

3.1.16 Latvia

Offshore Renewable Energy

Latvia has been exploring the potential for offshore wind energy, and the licensing procedure is currently being developed. The Ministry of Environmental Protection and Regional Development, Ministry of Climate and Energy, and Ministry of Economics are responsible for formulating the licensing procedure.

Table 3-31: Data collection for offshore renewable energy in Latvia

Phases	Data Collection	Explanation/Remarks
Site Selection	n/a	
Licensing and Planning	n/a	
Construction and Installation	n/a	
Operation and Maintenance	n/a	

Offshore Aquaculture

The process of obtaining a license for the use of an area in the sea involves several steps and organizations. The applicant submits an application and information to the Ministry of Agriculture, specifically the National Board of Fisheries, which evaluates the application. The Ministry prepares a draft order and tender announcement, subject to examination and approval by the Cabinet. A tender is announced for the right to use the designated area, followed by an evaluation of applications and the announcement of the winner. The winner submits an application to the State Environmental Service for assessing environmental impact. The Ministry of Agriculture prepares a draft order on activity acceptance and area allocation, approved by the Cabinet. Upon a decision to grant the license, the Ministry of Agriculture informs the winner, who pays the state fee. The Ministry of Economics[15] then issues the license.

Table 3-32: Data collection for aquaculture in Latvia

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Hydrological, hydrochemical and hydrobiological data, geomorphology
Licensing and Planning	Yes	Depends on the type of license
Construction and Installation	Yes	Depends on the type of license
Operation and Maintenance	Yes	Depends on the type of license

3.1.17 Malta

Offshore Renewable Energy

Malta currently does not have any offshore wind farms, due to the deep bathymetry around the islands. The country is in the early stages of exploring floating offshore wind energy, and the licensing procedure is currently under development[16].

Table 3-33: Data collection for offshore renewable energy in Malta

Phases	Data Collection	Explanation/Remarks
Site Selection	n/a	
Licensing and Planning	n/a	
Construction and Installation	n/a	
Operation and Maintenance	n/a	

[15] Ministry of Economics of Latvia: www.em.gov.lv

[16] Malta Resources Authority: www.mra.org.mt

Offshore Aquaculture

The Lands Authority plays a crucial role as the overseer of public property, overseeing licenses and concessions related to land and water use for aquaculture activities. Meanwhile, the Department of Fisheries and Aquaculture (DFA) is responsible for granting licenses specifically for offshore aquaculture endeavors. On the other hand, the Environment & Resources Authority (ERA) takes charge of issuing the Environmental Permit. This permit necessitates operators to establish an Environmental Monitoring Programme (EMP) conducted twice a year, during both the Low-season and Peak-season, by an approved independent party chosen by ERA and DFA. The operators are required to submit reports based on the EMP findings to ERA and DFA. Apart from monitoring, the Environmental Permit encompasses additional obligations to safeguard the environment, such as proper feeding mechanisms and waste management procedures. To continue operations, the permit must be renewed annually, with compliance checks conducted regularly throughout the operational season.

It should be noted that the Department of Fisheries and Aquaculture is currently in the process of updating their licensing procedure, meaning that changes are expected in this process in the near future.

Table 3-34: Data collection for aquaculture in Malta

Phases	**Data Collection**	**Explanation/Remarks**
Site Selection	Unknown	
Licensing and Planning	Yes	Seabed physical, biological attributes
Construction and Installation	No	
Operation and Maintenance	Yes	Chlorophyll a, Dissolved Oxygen, Total Nitrogen, Total Phosphorous, Total Organic Carbon, Total Suspended Solids, Level of uneaten feed accumulating on the seabed, Species diversity and abundance of megafauna, Marine litter, Salinity, temperature, turbidity, sea current speed and direction

3.1.18 Netherlands

Offshore Renewable Energy

The licensing procedure for offshore energy projects in the Netherlands involves several key steps. Initially, developers interested in offshore projects need to identify suitable sites and conduct feasibility studies to assess technical and economic viability. Following this, they must engage in pre-application consultations with relevant authorities, such as the Netherlands Enterprise Agency[17] and the Ministry of Economic Affairs and Climate Policy, to discuss project details, regulatory requirements, and potential environmental impacts. Subsequently, developers submit a comprehensive license application that includes environmental impact assessments, technical specifications, grid connection plans, and financial details. The application undergoes a thorough review process, including public consultations and assessments by various regulatory bodies, to ensure compliance with environmental

[17] Netherlands Enterprise Agency: www.rvo.nl

and safety regulations. Upon successful evaluation, the license is granted, allowing the developer to proceed with the offshore energy project.

Table 3-35: Data collection for offshore renewable energy in the Netherlands

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Wind resources, seabed composition, ecological survey, socio-economic data
Licensing and Planning	Yes	Environmental impact assessment, geospatial data
Construction and Installation	Yes	Geophysical data
Operation and Maintenance	Yes	Environmental monitoring, energy production

Offshore Aquaculture

The licensing procedure for offshore aquaculture in the Netherlands follows a regulated and comprehensive approach to ensure the sustainable development of the industry. Prospective operators must submit a detailed application to the competent regulatory authority, which is typically the Netherlands Enterprise Agency (RVO). The applications undergo a thorough evaluation process, considering factors such as environmental impact assessments, spatial planning, and compatibility with existing marine activities. The Netherlands Food and Consumer Product Safety Authority plays a significant role in assessing compliance with food safety and animal health regulations. The Ministry of Agriculture, Nature and Food Quality is also involved in the licensing procedure, overseeing policy and regulatory aspects. Public participation and stakeholder engagement are important aspects of the process, ensuring transparency and addressing concerns. Once a license is granted, operators must comply with strict regulations regarding water quality, fish health, and waste management. Regular monitoring and reporting are required to maintain compliance, overseen by the RVO and other relevant authorities.

Table 3-36: Data collection for aquaculture in the Netherlands

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Water quality, bathymetry, ecological data
Licensing and Planning	Yes	Socio-economic data, environmental impact assessment
Construction and Installation	Yes	Geophysical data
Operation and Maintenance	Yes	Environmental monitoring, production data, water quality

3.1.19 Norway

Offshore Renewable Energy

In Norway, the licensing of offshore wind projects is carried out through a systematic procedure that includes the collaboration of various significant organizations. The Norwegian Ministry of Petroleum and Energy plays a key role in formulating policies and regulations for renewable energy, including offshore wind. The Norwegian Water Resources and Energy Directorate[18] is responsible for granting licenses and overseeing the development of offshore wind projects. The Norwegian Coastal Administration plays a crucial role in assessing maritime safety aspects and ensuring compliance with

[18] Norwegian Water Resources and Energy Directorate: www.nve.no

navigational regulations. The Norwegian Environment Agency evaluates potential environmental impacts and advises on mitigation measures. Additionally, the Norwegian Mapping Authority provides geospatial data and expertise for site selection and planning. Through the collaboration of these organizations, Norway ensures a transparent and comprehensive licensing procedure that supports the responsible development of offshore wind projects in its waters.

Table 3-37: Data collection for offshore renewable energy in Norway

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Seabed conditions, environmental data, geotechnical data
Licensing and Planning	Yes	Environmental impact assessment
Construction and Installation	Yes	Geophysical data, construction data
Operation and Maintenance	Yes	Performance data, environmental monitoring

Offshore Aquaculture

The licensing procedure for offshore aquaculture in Norway follows a well-established and regulated approach to ensure the sustainable development of the industry. Prospective operators must submit a comprehensive application to the competent regulatory authority, which is typically the Norwegian Directorate of Fisheries. The applications undergo a rigorous evaluation process, considering factors such as environmental impact assessments, fish health, and welfare considerations, as well as adherence to zoning and planning regulations. The Norwegian Food Safety Authority plays a crucial role in assessing compliance with food safety and quality standards. The Norwegian Institute of Marine Research provides scientific expertise in evaluating the potential environmental impacts of proposed aquaculture projects. Once a license is granted, operators must comply with strict regulations regarding water quality, fish health, and waste management. Regular monitoring and reporting are required to maintain compliance, overseen by the Norwegian Directorate of Fisheries and other relevant authorities.

Table 3-38: Data collection for aquaculture in Norway

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Ecological data, bathymetry, water quality
Licensing and Planning	Yes	Environmental impact assessment, socio-economic data
Construction and Installation	Yes	Seabed conditions, soil composition
Operation and Maintenance	Yes	Water quality, environmental monitoring

3.1.20 Poland

Offshore Renewable Energy

The licensing procedure for offshore wind projects in Poland follows a structured process and involves several important organizations. The key organization responsible for offshore wind development in Poland is the Ministry of Climate and Environment. They formulate policies, regulations, and guidelines for renewable energy, including offshore wind. The Polish Energy Regulatory Office plays a crucial role in granting licenses and overseeing the development of offshore wind projects. The Maritime Office ensures compliance with safety regulations and navigational aspects. The General Directorate for Environmental Protection evaluates potential environmental impacts and advises on mitigation

measures. Additionally, the National Maritime Security System and the Polish Wind Energy Association contribute to the development and coordination of offshore wind projects in Poland[19].

Table 3-39: Data collection for offshore renewable energy in Poland

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Meteorological data
Licensing and Planning	Yes	Environmental impact assessment
Construction and Installation	Yes	Geophysical data
Operation and Maintenance	Yes	Energy generation

Offshore Aquaculture

Poland currently does not have any specific regulations or licensing procedures for offshore aquaculture.

Table 3-40: Data collection for aquaculture in Poland

Phases	Data Collection	Explanation/Remarks
Site Selection	n/a	
Licensing and Planning	n/a	
Construction and Installation	n/a	
Operation and Maintenance	n/a	

3.1.21 Portugal

Offshore Renewable Energy

The licensing procedure for offshore wind projects in Portugal follows a structured process and involves several important organizations. The Directorate-General for Energy and Geology[20] is responsible for overseeing the development and granting licenses for renewable energy projects, including offshore wind. The Portuguese Environment Agency plays a crucial role in conducting environmental impact assessments and ensuring compliance with environmental regulations. The Maritime Authority evaluates the safety aspects and navigational considerations of offshore wind projects. The Transmission System Operator is involved in assessing grid integration and connection feasibility. Additionally, the Portuguese Wind Energy Association and other industry associations contribute to the development and coordination of offshore wind projects in Portugal.

Table 3-41: Data collection for offshore renewable energy in Portugal

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Meteorological data, geotechnical data, environmental data
Licensing and Planning	Yes	Environmental impact assessment
Construction and Installation	Yes	Geophysical data
Operation and Maintenance	Yes	Energy production data

[19] Polish Offshore Wind Energy Society: www.psse.pl

[20] Portuguese Directorate-General for Energy and Geology: www.dgeg.gov.pt

Offshore Aquaculture

The licensing procedure for offshore aquaculture in Portugal follows a regulated and comprehensive approach to ensure the sustainable development of the industry. Prospective operators must submit a detailed application to the competent regulatory authority, which is typically the Directorate-General for Maritime Policy (DGPM) or the Directorate-General for Agriculture and Rural Development (DGADR). The applications undergo a thorough evaluation process, considering factors such as environmental impact assessments, spatial planning, and compatibility with existing marine activities. The National Institute for Agricultural and Veterinary Research plays a significant role in providing scientific expertise and assessing the feasibility and potential impacts of proposed aquaculture projects. The Portuguese Environment Agency is also involved in evaluating the environmental aspects of the application. Public consultation and stakeholder engagement are important aspects of the process to ensure transparency and address concerns. Once a license is granted, operators must comply with strict regulations regarding water quality, fish health, and waste management. Regular monitoring and reporting are required to ensure compliance, overseen by the DGPM, DGADR, and other relevant authorities.

Table 3-42: Data collection for aquaculture in Portugal

Phases	**Data Collection**	**Explanation/Remarks**
Site Selection	Yes	Ecological data, bathymetry
Licensing and Planning	Yes	Environmental impact assessment, socio-economic data
Construction and Installation	Yes	Seabed
Operation and Maintenance	Yes	Environmental monitoring, water quality

3.1.22 Romania

Offshore Renewable Energy

Romania currently does not have any specific licensing procedure for offshore energy[21].

Table 3-43: Data collection for offshore renewable energy in Romania

Phases	**Data Collection**	**Explanation/Remarks**
Site Selection	n/a	
Licensing and Planning	n/a	
Construction and Installation	n/a	
Operation and Maintenance	n/a	

Offshore Aquaculture

Romania currently does not have any specific regulations or licensing procedures for offshore aquaculture.

Table 3-44: Data collection for aquaculture in Romania

Phases	**Data Collection**	**Explanation/Remarks**
Site Selection	n/a	
Licensing and Planning	n/a	
Construction and Installation	n/a	

[21] Romanian Energy Regulatory Authority: www.anre.ro

Operation and Maintenance	n/a	

3.1.23 Slovenia

Offshore Renewable Energy

Slovenia is in the early stages of exploring offshore wind energy, and the licensing procedure is currently being developed. The Ministry of Infrastructure[22] is responsible for formulating this policy.

Table 3-45: Data collection for offshore renewable energy in Slovenia

Phases	Data Collection	Explanation/Remarks
Site Selection	n/a	
Licensing and Planning	n/a	
Construction and Installation	n/a	
Operation and Maintenance	n/a	

Offshore Aquaculture

The process of obtaining a license to farm fish for restocking in Slovenia is overseen by the Ministry of Agriculture, Forestry, and Food, as well as the Administration of the Republic of Slovenia for Food Safety, Veterinary, and Plant Protection. These entities hold the responsibility of ensuring that the application process is carried out effectively. The Ministry of Agriculture, Forestry, and Food, in coordination with the competent authority, examines the application for completeness and compliance with the required administrative and content criteria. Once approved, the license to farm fish for restocking is issued to the applicant, allowing them to engage in fish farming activities for restocking purposes[23].

Table 3-46: Data collection for aquaculture in Slovenia

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Bathymetry, water quality
Licensing and Planning	Yes	Economic and social data, environmental impact assessment
Construction and Installation	No	
Operation and Maintenance	Yes	Water quality, environmental monitoring

Source: (Ministry of Agriculture Forestry and Food of the Republic of Slovenia & Fisheries Research Institute of Slovenia, 2021)

3.1.24 Spain

Offshore Renewable Energy

The licensing procedure for offshore wind projects in Spain involves a comprehensive process overseen by several important organizations. The Ministry for the Ecological Transition and the Demographic Challenge (MITECO) is the primary authority responsible for offshore wind development in Spain. They set policies, regulations, and guidelines for renewable energy projects. The General Directorate for Energy Policy and Mines within MITECO handles the granting of licenses and permits for offshore wind projects. The Spanish Maritime Authority ensures compliance with safety regulations and navigational aspects. The Environmental Ministry evaluates environmental impacts and conducts environmental

[22] Slovenian Ministry of Infrastructure: www.mzi.gov.si

[23] Slovenian Business Point: https://spot.gov.si/en/activities-and-professions/permits-and-declarations/licence-to-farm-fish-for-restocking/

impact assessments. Additionally, Red Eléctrica de España, the transmission system operator, plays a crucial role in assessing grid integration and connection feasibility.

Table 3-47: Data collection for offshore renewable energy in Spain

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Meteorological data
Licensing and Planning	Yes	Environmental impact assessment, socio-economic impact assessment, archaeological data
Construction and Installation	Yes	Seabed conditions and sediment
Operation and Maintenance	Yes	Energy production data

Offshore Aquaculture

The licensing procedure for offshore aquaculture in Spain follows a regulated and comprehensive approach to ensure the sustainable development of the industry. Prospective operators must submit a detailed application to the competent regulatory authority, which can vary depending on the specific region in Spain. In some cases, the regional governments are responsible for issuing licenses, while in others, it may be the General Secretariat of Fisheries of the Ministry of Agriculture, Fisheries, and Food. The applications undergo a thorough evaluation process, considering factors such as environmental impact assessments, spatial planning, and compatibility with existing marine activities. The Spanish Institute of Oceanography plays a significant role in providing scientific expertise and assessing the potential environmental impacts of proposed aquaculture projects. The Spanish Agency for Food Safety and Nutrition is also involved in evaluating compliance with food safety regulations. Once a license is granted, operators must comply with strict regulations regarding water quality, fish health, and waste management. Regular monitoring and reporting are required to maintain compliance, overseen by the relevant regional government or ministry and other relevant authorities.

Table 3-48: Data collection for aquaculture in Spain

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Bathymetry, water quality, oceanographic conditions, technical parameters
Licensing and Planning	Yes	Hydrodynamic data, environmental impact assessment, socioeconomic data
Construction and Installation	No	
Operation and Maintenance	Yes	Environmental impact reports

3.1.25 Sweden

Offshore Renewable Energy

Several important organizations play a role in the licensing procedure for offshore wind projects in Sweden. The Swedish Energy Agency plays a key role in the licensing procedure, evaluating and granting permits for offshore wind projects. The Swedish Environmental Protection Agency is responsible for conducting environmental assessments and ensuring compliance with environmental regulations. The Swedish Maritime Administration assesses navigational safety aspects and provides guidance on maritime spatial planning. The County Administrative Boards collaborate with local authorities and stakeholders to assess the project's impact on land and water use. Additionally, the Swedish Transport Administration evaluates the projects' potential impact on transportation infrastructure. Through the collaboration of these organizations, Sweden ensures a comprehensive

and transparent licensing procedure that promotes the responsible development of offshore wind projects in its waters.

Table 3-49: Data collection for offshore renewable energy in Sweden

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Geological data, sediment type data, chemical conditions, flora and fauna, wrecks, ammunition, sand/gravel resources, environmental impact statement
Licensing and Planning	Yes	Bottom mapping, seabirds, species, fish
Construction and Installation	Yes	Exact studies of the location, Surveillance fauna types, Ship traffic data, weather conditions
Operation and Maintenance	Yes	Depends on the type of license

Offshore Aquaculture

The licensing procedure for offshore aquaculture in Sweden follows a well-regulated and comprehensive approach to ensure the sustainable development of the industry. Prospective operators must submit a detailed application to the competent regulatory authority, which is typically the Swedish Board of Agriculture or the County Administrative Board depending on the specific region. The applications undergo a thorough evaluation process, considering factors such as environmental impact assessments, spatial planning, and compatibility with existing marine activities. The Swedish University of Agricultural Sciences and the Swedish Agency for Marine and Water Management provide scientific expertise in evaluating the potential environmental impacts of proposed aquaculture projects. Once a license is granted, operators must comply with strict regulations regarding water quality, fish health, and waste management. Regular monitoring and reporting are required to maintain compliance, overseen by the Swedish Board of Agriculture, County Administrative Board, and other relevant authorities.

Table 3-50: Data collection for aquaculture in Sweden

Phases	Data Collection	Explanation/Remarks
Site Selection	Unknown	
Licensing and Planning	Yes	Environmental Impact Assessment
Construction and Installation	Unknown	
Operation and Maintenance	Yes	Water quality, fish health, feed usage

3.1.26 Turkey

Offshore Renewable Energy

Turkey has implemented a licensing procedure for offshore wind energy, regulated by the Energy Market Regulatory Authority (EPDK) and overseen by the Ministry of Energy and Natural Resources. Interested parties must undergo a rigorous licensing process that involves submitting applications to the EPDK for evaluation of technical, environmental, and economic aspects of the proposed offshore wind projects. The evaluation considers factors such as wind resource assessment, grid connection feasibility, environmental impact assessment, and compliance with regulations. The licensing procedure includes various stages, including pre-license applications, feasibility studies, and environmental impact assessments. Successful applicants are granted licenses to develop and operate offshore wind farms in designated areas.

Table 3-51: Data collection for offshore renewable energy in Turkey

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Wind speed and direction, seabed conditions
Licensing and Planning	Yes	Environmental impact assessment
Construction and Installation	Yes	Seabed conditions
Operation and Maintenance	Yes	Environmental monitoring, energy production

Offshore Aquaculture

Turkey has a rich history in aquaculture, with the Ministry of Agriculture and Forestry serving as the designated authority for the sector. The main responsible unit within the ministry is the Directorate of Aquaculture. Supporting units include the Directorate of Resource Management and Fisheries Infrastructures, the Directorate of Statistics and Information Systems, and the Directorate of Administrative Affairs and Coordination. The Aquaculture Regulation provides comprehensive guidelines for a wide range of aquaculture investments, including those in seas, inland waters, and adjacent localities. It covers various aspects such as site selection, implementation methods and evaluation processes (DACIAT, n.d.).

Table 3-52: Data collection for aquaculture in Turkey

Phases	Data Collection	Explanation/Remarks
Site Selection	Yes	Ecological data, seabed
Licensing and Planning	Yes	Environmental impact assessment, socio-economic data
Construction and Installation	No	
Operation and Maintenance	Yes	Environmental monitoring, production data

3.1.27 United Kingdom

Offshore Renewable Energy

In Wales, the licensing procedure for offshore wind energy falls under the jurisdiction of the Crown Estate, which manages the seabed and grants leases for offshore wind projects. Interested parties must participate in competitive lease rounds and submit detailed project proposals, including information on site selection, technical feasibility, environmental impact assessment, and stakeholder engagement. Successful bidders are granted leases and proceed to the development and construction phase, adhering to regulatory requirements and obtaining necessary permits and consents from relevant authorities.

In England, the licensing procedure for offshore wind energy is managed by the Crown Estate. Interested developers must participate in lease rounds and submit project proposals that encompass site selection, technical feasibility, environmental impact assessment, and stakeholder engagement. Successful bidders are granted leases and proceed to the development and construction phase, following regulatory requirements and obtaining necessary permits and consents from relevant authorities.

In Scotland, the licensing procedure for offshore wind energy is overseen by Marine Scotland, a government directorate. Interested developers must participate in competitive lease rounds and submit comprehensive project proposals that address site selection, technical feasibility,

environmental impact assessment, and community engagement. Successful bidders are granted leases from The Crown Estate and proceed to develop and operate offshore wind farms, adhering to regulatory requirements, obtaining necessary permits and consents, and collaborating with stakeholders to ensure sustainable development and local benefits.

In Northern Ireland, the licensing procedure for offshore wind energy is overseen by the Department for the Economy. Interested developers must participate in competitive auction rounds to secure licenses for offshore wind projects. The procedure involves submitting detailed project proposals, conducting environmental impact assessments, and demonstrating technical and financial capabilities. Successful bidders are awarded licenses and proceed to develop and operate offshore wind farms, ensuring compliance with regulatory requirements and obtaining relevant permits and consents.

Table 3-53: Data collection for offshore renewable energy in the United Kingdom

Phases	**Data Collection**	**Explanation/Remarks**
Site Selection	No	Until now site selection has relied on pre-existing data and no data was gathered for this specific purpose.
Licensing and Planning	Yes	Environmental impact assessment
Construction and Installation	Yes	Archaeology, benthic ecology, birds, coastal processes, epifauna and fish, geophysical, geotechnical, intertidal ecology, marine mammals, metocean, noise, onshore, sedimentology, shipping and navigation
Operation and Maintenance	Yes	Archaeology, benthic ecology, birds, coastal processes, epifauna and fish, geophysical, geotechnical, intertidal ecology, marine mammals, metocean, noise, onshore, sedimentology, shipping and navigation

Offshore Aquaculture

In Wales, the licensing procedure for offshore aquaculture is overseen by Natural Resources Wales (NRW), the main regulatory body responsible for environmental management and sustainable development. Prospective operators must submit an application to NRW, which includes detailed information on the proposed aquaculture activities. The applications are assessed based on environmental impact assessments, spatial planning, and adherence to regulatory requirements. Once a license is granted, operators must comply with strict regulations, including monitoring and reporting obligations, to ensure environmental sustainability.

In England, the licensing procedure for offshore aquaculture is managed by the Marine Management Organisation (MMO), the agency responsible for sustainable marine management. Prospective operators are required to apply the MMO, which undergoes a thorough evaluation process. The MMO considers various factors such as environmental impact assessments, spatial planning, and compatibility with existing marine activities. Compliance with regulations related to water quality, fish health, and waste management is also essential. The MMO plays a significant role in overseeing the monitoring and enforcement of aquaculture operations to ensure environmental protection and sustainability.

In Scotland, the licensing procedure for offshore aquaculture is administered by Marine Scotland, a directorate of the Scottish Government. Prospective operators must submit an application to Marine Scotland, which undergoes rigorous evaluation, including environmental impact assessments and

compliance with regulations. Important considerations include compatibility with existing marine activities, spatial planning, and consultation with stakeholders. Marine Scotland's aquaculture team assesses the applications and monitors the operations to ensure compliance with environmental standards and sustainable practices.

In Northern Ireland, the licensing procedure for offshore aquaculture is managed by the Department of Agriculture, Environment and Rural Affairs (DAERA). Prospective operators must submit an application to DAERA, which undergoes an evaluation process, including environmental impact assessments and adherence to regulatory requirements. DAERA considers various factors such as water quality, fish health, and waste management in the assessment. Once a license is granted, operators must comply with the conditions and reporting obligations to ensure sustainable and responsible aquaculture practices.

Table 3-54: Data collection for aquaculture in the United Kingdom

Phases	**Data Collection**	**Explanation/Remarks**
Site Selection	Yes	Water quality, seabed, ecological data
Licensing and Planning	Yes	Environmental impact assessment, socio-economic data
Construction and Installation	Yes	Geotechnical data
Operation and Maintenance	Yes	Environmental monitoring, production data

Source: (United Kingdom Data Coordination Group, 2022)

3.2 Key Findings

3.2.1 Offshore Renewable Energy

Across countries, the licensing procedures for offshore wind energy show both similarities and differences. In many countries, the process involves key organizations (e.g. ministries) that are responsible for granting licenses, formulating policies, and ensuring compliance with regulations. These organizations often collaborate with environmental agencies to assess the potential environmental impact of offshore wind projects. Some common organizations found in multiple countries include ministries for energy, regulatory authorities, and environmental protection agencies.

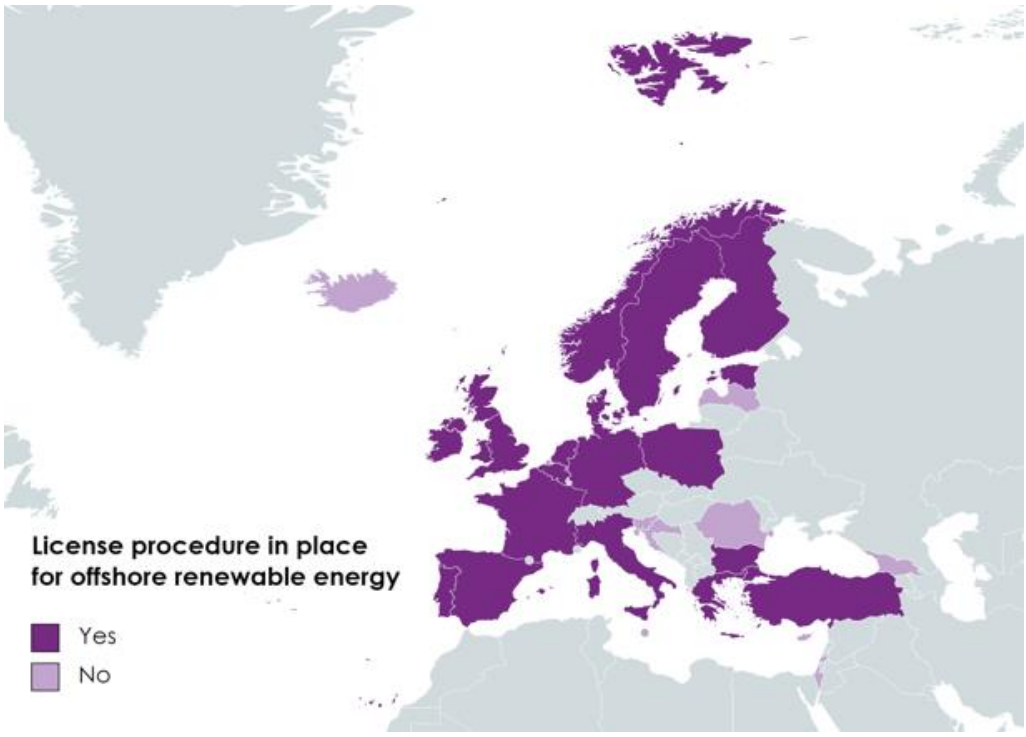

Figure 1: Overview of status of licensing procedures by country for offshore renewable energy

Figure 1 shows in which countries a licensing procedure is present and in which countries it does not yet exist. Out of the 27 countries that were included in the analysis, a total of 17 countries have a procedure in place and 10 countries do not (or are still developing one). When we compare the results we see that there are mainly differences between northern and, southern and eastern Europe. Countries like Denmark, Germany, and the Netherlands have well-established procedures and extensive experience with implementing offshore wind.

When we zoom out from the national level to a regional level, the level of sea basins, the following trends emerge:

- **Baltic Sea:** Countries like Estonia, Finland, Latvia, and Sweden, situated in the Baltic Sea basin, have varying levels of development in offshore wind energy. While some countries are in the early stages of developing their licensing procedures, others, like Sweden, have already made considerable progress in offshore wind projects.
- **Mediterranean Sea:** Countries such as Cyprus, Greece, Italy, Malta, Portugal, and Spain, located in the Mediterranean Sea basin, have shown increasing interest in offshore wind energy. While some countries have implemented licensing procedures and have started their first projects, others are in the early process of formulating policies and developing their regulatory frameworks.
- **Black Sea:** Countries like Bulgaria, Georgia, Romania, and Turkey, situated around the Black Sea basin, are at various stages of exploring offshore wind energy. While some countries are in the early stages and have yet to establish formal licensing procedures, others, like Romania and Turkey, have made progress in developing their offshore wind sectors and have implemented licensing procedures.
- **Atlantic Ocean:** Countries such as France, Iceland, Ireland, and Portugal, located along the Atlantic Ocean, have shown significant interest in offshore wind energy. These countries have implemented licensing procedures and are developing offshore wind projects to tap into the renewable energy potential of the Atlantic basin.

- **North Sea:** Countries such as Belgium, Denmark, Germany, the Netherlands, and the United Kingdom, located in the North Sea basin, have made significant progress in offshore wind energy. These countries have extensive offshore wind farms in place and well-established licensing procedures.

Based on this overview we can conclude that there are disparities between the regions and sea basins. It should be noted that the main aim of this analysis was to provide an overview of the licensing procedures for every country, however, some possible causes can be briefly pointed out for the differences between the regions.

First of all, some maritime areas and regions are considered to be less favourable for offshore wind development. In this regard, water depth, wind patterns or seabed conditions might be less favourable.

Secondly, some countries possess enough alternative renewable energy sources and do not have the need or urgency to move offshore. A good example of this is Iceland.

Thirdly, some countries have limited amounts of maritime space, making it harder to combine offshore wind with other already existing offshore sectors, like for instance fisheries and shipping.

Lastly, it is a choice of the government to make the move to offshore wind and foster this sector. It may be the case that in some countries there are different policy preferences and therefore priority is not given to developing offshore wind.

Data plays a crucial role in every stage of offshore renewable energy projects. In general, there is a clear similarity in the type of data collected in each country at the different stages. During site selection, meteorological data like wind speed and direction are gathered. Licensing and planning involve environmental and socio-economic impact assessments. In the construction and installation phases, geophysical data is gathered for the infrastructure design. This is sometimes accompanied by noise monitoring. In the operation and maintenance phase, environmental monitoring has a permanent role and data is shared on energy production.

3.2.2 Offshore Aquaculture

Across countries, the licensing procedures for offshore aquaculture show both similarities and differences. Commonly, governmental bodies, such as fisheries or aquaculture departments, environmental agencies, and maritime authorities, are involved in evaluating and granting licenses.

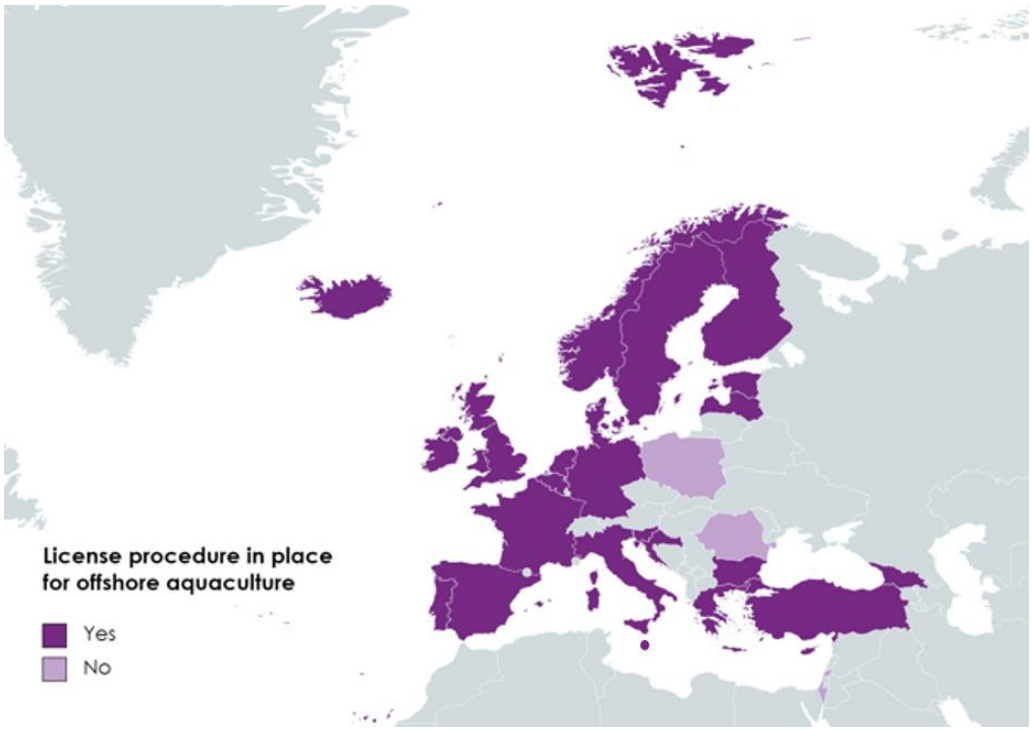

Figure 2: Overview of status of licensing procedures by country for offshore aquaculture

Figure 2 shows in which countries a licensing procedure is present for offshore aquaculture and in which countries it does not yet exist. Out of the 27 countries that were included in the analysis, a total of 24 countries have a procedure in place and 3 countries do not (or are still developing one). When we compare the results we see that some countries have a particularly advanced aquaculture sector, like Norway, Iceland, Greece, Spain, France and Italy. In many other countries, the sector is still in an early phase and emerging.

If one changes the perspective from the national level to a regional scale, specifically in relation to sea basins, the following trends become apparent:

- **Baltic Sea:** Countries in the Baltic Sea basin, including Estonia, Finland, Latvia, Lithuania, and Sweden, have varying levels of development in offshore aquaculture. Sweden has made significant progress and has well-established licensing procedures for offshore aquaculture. Other countries in the Baltic Sea region are exploring the potential of offshore aquaculture and are in the process of developing their licensing procedures.
- **Mediterranean Sea:** Countries in the Mediterranean Sea basin, such as Greece, Italy, Spain, and Malta, have a long history of aquaculture. Each country has its own regulations and licensing frameworks.
- **Black Sea:** Countries bordering the Black Sea, including Bulgaria, Georgia, Romania, and Turkey, have different levels of development in offshore aquaculture. While some countries are still in the early stages and are developing their licensing procedures, others have made progress.
- **Atlantic Ocean:** Countries along the Atlantic Ocean, such as Ireland, Portugal, and Spain, have well-established offshore aquaculture sectors. As a result, licensing procedures are in place for the offshore aquaculture sector.
- **North Sea:** Countries in the North Sea basin, such as Belgium, Denmark, Germany, the Netherlands, and the United Kingdom, have well-developed offshore aquaculture sectors and established licensing procedures.

Based on this overview we can conclude that there are disparities between the regions and sea basins. It should be noted that the main aim of this analysis was to provide an overview of the licensing procedures for every country, however, some possible causes can be briefly pointed out for the differences between the regions.

First of all, some maritime areas and regions might not have beneficial environmental factors for aquaculture. Specifically, this relates to conditions, such as water temperature, salinity, currents, and nutrient availability.

Secondly, some countries or regions might not have a favourable economic climate for establishing the aquaculture sector. It might be that market demand is low or there is only a limited number of investment opportunities.

Data plays a crucial role in every stage of offshore aqucaculture projects. Typically, there is a notable similarity in the types of data collected at various stages across the analysed countries. During site selection, mainly data on ecology, bathymetry and water quality are gathered. Licensing and planning involve environmental and socio-economic impact assessments. In the construction and installation phases, geophysical data is gathered for the infrastructure design. In the operation and maintenance phase, the focus is often on continuous environmental monitoring and data gathering with regard to the production of a site.

4 Overview of Relevant EU Projects

The EU recognizes the importance of sustainable aquaculture and renewable energy in its efforts to promote a greener and more sustainable future. Both sectors play crucial roles in meeting global demands while minimizing environmental impacts. The EU has implemented comprehensive measures and funding programs to support the development of these sectors and address licensing procedures.

Aquaculture and renewable energy sectors share common challenges such as site selection, environmental impact assessments, and stakeholder engagement, which require effective licensing procedures for their sustainable development.

The EU has established dedicated funding programs to support the growth and sustainability of both sectors. Funding opportunities for aquaculture projects are available through programs like the European Maritime and Fisheries Fund (EMFF) and the Horizon Europe research and innovation program. Similarly, renewable energy projects benefit from specific funding programs such as the Connecting Europe Facility (CEF) Energy program and the Horizon Europe program.

These funding programs reflect the EU's commitment to supporting the sustainable growth of aquaculture and renewable energy sectors through comprehensive approaches that encompass research, innovation, and responsible practices. By addressing licensing procedures, environmental considerations, and stakeholder engagement, the EU aims to ensure the harmonious development of both sectors while preserving the environment.

Furthermore, knowledge exchange and collaboration between the aquaculture and renewable energy sectors can yield synergistic benefits. For instance, offshore aquaculture operations can potentially coexist with renewable energy installations, benefiting from the infrastructure and ecosystem services provided by renewable energy projects. This integrated approach can contribute to sustainable spatial planning, optimize resource use, and foster economic and environmental synergies between the sectors.

4.1 Offshore Renewable Energy

The EU has supported several projects related to licensing for offshore renewable energy in recent years. Some of these projects include:

Table 4-1: Selection of EU-funded projects addressing offshore renewable energy licensing procedures

OCEANERA-NET COFUND	
Coordinator: Scottish Enterprise *Duration:* 2017-2022 https://cordis.europa.eu/project/id/731200	This project aims to support the development of offshore renewable energy technologies by providing funding and support to SMEs in the sector. It includes a focus on improving licensing and permitting procedures to facilitate the deployment of innovative technologies.
MARIBE	
Coordinator: University College Cork - National University Of Ireland *Duration:* 2015-2016 https://cordis.europa.eu/project/id/652629	This project focuses on developing new approaches for the sustainable development of the marine bioeconomy, including offshore renewable energy. It includes a focus on improving licensing procedures and promoting stakeholder engagement to ensure the social acceptance of offshore energy projects.
FORESEA	

Coordinator: European Marine Energy Centre (EMEC) *Duration:* 2016-2020 http://www.foreseaproject.eu/	This project aims to accelerate the deployment of offshore renewable energy technologies by providing access to testing infrastructures and support services. It includes a focus on improving licensing procedures and reducing regulatory barriers to the deployment of offshore energy projects.
DTOceanPlus	
Coordinator: Tecnalia *Duration:* 2018-2021 https://www.dtoceanplus.eu/	DTOceanPlus, building on the FP7 DTOcean project, aimed to accelerate the commercialisation of ocean energy technologies, despite the challenges of performance, reliability, survivability, and cost. The project developed an open-source suite of design tools to facilitate technology concept selection, development, and deployment. By reducing technical and financial risks and enhancing reliability, performance, and survivability, DTOceanPlus contributed to lowering the Levelised Cost of Energy, making the sector more appealing for private investment. Real projects were used to demonstrate tools, and the consortium included key stakeholders and developers in the ocean energy sector.
MaRINET 2	
Coordinator: University College Cork - National University Of Ireland *Duration:* 2017-2021 *https://cordis.europa.eu/project/id/731084*	Building on the success of MaRINET FP7, MaRINET 2 integrated and enhanced Europe's leading research infrastructures specializing in offshore renewable energy systems testing. This project fostered consistent innovation in device and component development while identifying areas for further enhancement. With an expanded consortium, it introduced a strategic e-infrastructure program, catering to user data management needs. Recognizing offshore renewable energy's importance, MaRINET 2 accelerated the development, deployment, and grid integration of these technologies, playing a crucial role in advancing the next generation of offshore renewable energy devices.

4.2 Offshore Aquaculture

The EU has supported several projects related to licensing for offshore aquaculture in recent years. Some of these projects include:

Table 4-2: Selection of EU-funded projects addressing offshore renewable energy licensing procedures

AQUA-LIT	
Coordinator: Geonardo Environmental Technologies Ltd. *Duration:* 2018-2021 https://aqua-lit.eu/	This project aimed to address the issue of marine litter in the aquaculture industry and develop solutions to prevent litter from entering the marine environment. It focuses on promoting sustainable and responsible aquaculture practices and improving the licensing procedures for the aquaculture industry.
BlueBRIDGE	
Coordinator: CNR *Duration:* 2015-2018	This project focused on developing data-driven solutions for the aquaculture industry, including improving the licensing and permitting procedures for aquaculture activities. It aims to promote the

https://www.bluebridge-vres.eu/	sustainable development of the aquaculture industry in the EU and improve the competitiveness of European aquaculture businesses.
SeaConomy	
Coordinator: *Duration: 2019-2023*	SeaConomy aims to improve the performance and sustainability of aquaculture operations by developing innovative IMTA practices. IMTA involves the cultivation of multiple species, combining primary (e.g., finfish) with secondary (e.g., shellfish or seaweed) species, to optimize resource use, reduce environmental impacts, and enhance ecosystem services. The project focuses on Atlantic marine resources and aims to promote economically viable and ecologically sound aquaculture practices.
PerformFISH	
Coordinator: Panepistimio Thessalias (University of Thessaly - UTH) *Duration:* 2016-2021 http://performfish.eu/	PerformFISH aimed to improve the performance, environmental sustainability, and economic viability of Mediterranean aquaculture through innovative approaches. The project focuses on the production of high-value seafood while ensuring the social acceptance and environmental sustainability of aquaculture practices.
CERES	
Coordinator: University of Hamburg *Duration:* 2016-2020 https://ceresproject.eu/	The CERES project focused on developing sustainable and resilient aquaculture practices in the face of climate change. While the project does not solely center on licensing procedures, it addresses various regulatory aspects, including licensing, in the context of promoting sustainable aquaculture, including offshore systems. The primary objective of the CERES project was to assess and mitigate the impacts of climate change on European aquatic resources and aquaculture operations. It aimed to develop adaptive strategies, management approaches, and tools that can enhance the resilience and sustainability of the aquaculture sector.

5 Conclusion and Next Steps

The objective of this Deliverable was twofold: i) Identify practices on data collection and licensing processes, ii) Examine relevant previous EU-funded projects to identify common methodologies, roadmaps and synergies which would support the proposed approach of this project.

In the case of the offshore renewable energy sector, it is apparent that development varies among countries. Out of the 27 countries analyzed, 17 have established licensing procedures, while 10 do not. Regional and sea basin differences might be explained by policy priorities, geographical conditions, and area suitability.

With regard to offshore aquaculture, it is shown that practices vary among countries. Among the 27 countries analyzed, 24 have established procedures for offshore aquaculture licensing, while 3 do not. Regional and sea basin differences might be caused by economic favorability and environmental conditions.

The analysis also reveals that there are relatively more countries with licensing procedures for aquaculture than offshore renewable energy. One possible reason for this may be that aquaculture has a longer history and offshore renewable energy such as wind is a sector which has emerged more recently.

If we look at data gathering we see that all countries with a licensing procedure for a particular activity also collect data as part of this. There are clear similarities in the type of data collected by the different countries.

In reflecting on the validity of the results presented in this report, it is essential to consider certain limitations that might affect the completeness of the findings. First, the project team was dependent on consortium partners and local stakeholders to acquire the information. It has proven to be difficult in some cases to get in touch with the local stakeholders and collect all of the required information. Secondly, for some countries procedures and policies are still being developed or currently being adjusted and updated. This means that it was more complicated to get the relevant information. Lastly and as already indicated in the methodology, the project team has primarily focused on offshore wind energy when discussing the offshore renewable energy sector.

Next steps and activities

This Deliverable was part of Task 9 which focuses on improving and documenting the availability of data provided for coastal and offshore licensing and falls under the scope of WP4 – Marketing and outreach activities will tackle the challenge of licensing procedures for coastal and offshore activities. The next steps in this regard will be conducted in Deliverable 4.6: Database about availability of license data per country and in Deliverable 4.7: Workshop: Reporting on license data.

Deliverable 4.6 entails the creation of a simple database that will document the availability of license data per country. The focus will be on parameters relevant to coastal or offshore activities, with a particular emphasis on aquaculture and offshore energy. The database will provide specifications and accessibility details of the data from each country.

Deliverable 4.7 involves organizing a workshop to report on license data. The main objective is to incentivize countries to adopt a more harmonized approach to license data, both between and within Member States. This workshop will facilitate the development of a roadmap for a more unified approach. Although the workshop is scheduled for a later stage, efforts are already underway to collect contact information from stakeholders who may be interested in participating. The results from Deliverables 4.4 and 4.5 will be instrumental in identifying potential workshop participants.

The specific objectives and content of the workshop will be developed in collaboration with the consortium partners in the near term.

6 References

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