SEA Wave: Strategic Environmental Assessment of Wave energy technologies

Deliverable Report D1.1

Quality Plan for Project Management

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Revision

Revision	Date	Description	Originated by	Reviewed by	Approved by
0.1	04/01/19	Originate	EMEC (CL)	Partners	
0.2	28/01/2019	Alter as per partner comments	EMEC (CL)		EMEC (CL)

Project Information

Project title	Strategic Environmental Assessment of Wave energy technologies
Project acronym	SEA Wave
Grant agreement number	EASME/EMFF/2017/1.2.1.1/01/SI2.787660
Project start date	01/11/2018
Project duration	36 months
Project lead	The European Marine Energy Centre (EMEC) Ltd
Project website	www.seawave-emff.eu

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1 Introduction

This document is intended to provide overall guidelines to SEA Wave project partners in relation to project governance and administration. It draws on the project's legally binding documents[1] setting out procedures to be implemented to ensure effective coordination of project activities.

This document should be used as a reference document for project partners. The document will remain a live document for the period of the project, to ensure it reflects current practices and partners' needs. The most recent version of the document will be available on Project SharePoint Site.

SEA Wave project partners will utilise best practise project management measures. Project management practices that comply with the requirements set out in BS EN ISO 9001 sections 8.1-8.3, 8.5 as well as following guidance in BS ISO 21500 will be utilised throughout the project.

This document outlines the various tools and metrics that will be used to deliver the SEA Wave project to scope, time and budget. Implementing such tools will:

- Facilitate timely decision making;
- Deliver value to the project funder;
- Provide direction and leadership to project partners;
- Exercise control and monitoring to ensure project stability;
- Utilise resources appropriately;
- Ensure consistency and quality in deliverables; and,
- Identify risks and manage risks transparently.

1.1 Project Description

1.1.1 Project Scope

The project scope as outlined in the Grant Agreement is as follows:

Environmental impacts of ocean energy projects are inherently site-specific making it difficult to draw generic conclusions. To address this problem, it is proposed initially to undertake a gap analysis of both the industry's and academia's understanding of potential environmental impacts (WP2). Outputs from these reviews will then inform an evaluation of potential impact pathways, applying an ecosystem approach rather than focussing on single receptors, to quantify the entire impact mechanism and build confidence in SEA Waves transferability between development sites and ecosystems across Europe.

Although the sampling strategies employed by SEA Wave will be informed by the gap analysis, it is envisaged that methodologies will include underwater high-definition camera surveys (static and towed), hydrophone surveys as well as device-mounted equipment. These techniques were identified through the H2020 CEFOW project and other monitoring programmes conducted by project partners. During the data campaigns (delivered in WP3), a review of environmental monitoring equipment used for data surveys will assess their effectiveness, with variations in the equipment for different WECs to allow further

[1] These are the Grant Agreement and Consortium Agreement, which are available from the Project SharePoint.

optimisation. For each relevant impact pathway, the multitude of data collection streams will be combined to model, temporally and spatially, the extent of ecosystem changes (WP4).

The receptors assessed in the models will include seabed fauna, birds, fish and marine mammals. To ensure the robustness of models, reference sites will also be surveyed to allow consideration of natural variation and wider anthropogenic pressure.

As part of the modelling work package, model validation is included to assess whether the collected data has the statistical power to reveal statistically significant positive or negative trends given a range of statistical power and detection scenarios. This is termed 'Power Analysis' and quantifies the degree of statistical confidence that can be inferred for detecting the impact of devices. This work package (WP4) will also inform future array projects of the data granularity appropriate for site characterisation, Environmental Impact Assessment and post-deployment monitoring required to appropriately assess and detect potential effects. This will reduce the potential for unnecessary and/or inappropriate data collection that may occur during the site development phase of a project.

The project data and outputs will be captured in existing databases, with the data manager, HIDROMOD, responsible for data quality, compatibility and transferability with EU-supported data platforms such as EMODnet and SeaDataNet. For such platforms, storage, cataloguing and user interfaces are already developed and existing standards will facilitate the retrieval of data through automated processes. Use of EMODNet, in line with the EU's Integrated Maritime Policy, provides gateways to data archives managed by Member States and international organisations, allowing public or private users of marine data to access the standardised observations directly. The Copernicus Marine Service will also be used as a source of data that complements data from SEA Wave, ensuring service providers can further develop and allow access for public and private users.

To ensure data dissemination is maximised a dedicated SEA Wave Data Platform will be composed of: a single Web access point to relevant data (internal and through the platforms listed above); request system to access data via command lines; dedicated cloud server to store frequently used data or data that may not fit in existing portals; synchronised biological data and environmental parameters in order to feed models automatically. The design of the SEA Wave Data Platform will also enable the generation of "secondary data" derived from measurements, serving the needs of the specific end-users without needing sophisticated skills to access and interpret.

1.1.2 Project Objectives

- Deliver a comprehensive environmental impact data review
- Impact model framework developed and validated
- Data dissemination derived through EU and international portals
- Transnational regulatory engagement and integration
- Environmental engineering design improvements
- Cutting edge data analytics implemented
- Strategic research carried out by the academic partners
- Streamlined planning and consenting procedures

1.1.3 Deliverables

A list of all project deliverables is provided in Appendix A.

1.1.4 Project Outputs

The following table provides an overview of the expected project outputs and associated impact.

No.	Objective	Output/Impact
1	Comprehensive review and gap analysis of all existing data to develop targeted collection campaigns with distinct research questions	• Consensus on key environmental issues used to prioritise R&D, support site selection and technology development • 10,000 hrs of evidence on positive & negative effects
2	Robust statistical modelling framework incorporating a range of technology types and scales	• Populated models with data gathered over 20,000 hrs of device operation • Models comprise single device and array impacts on a range of receptors • Reduced uncertainty for future deployments and reduced risk during planning
3	Dedicated data dissemination strategy to ensure environmental evidence base collated in the project is disseminated directly to stakeholders and EU data platforms	• Independently peer-reviewed scientific publications distributed widely • Stakeholder engagement events • Data integrated with EU Data Sharing Platforms to ensure international dissemination
4	Engagement with EU regulatory platforms and national initiatives	• Transnational consistency in approach to environmental monitoring • Comprehensive dataset on environmental interactions from wave energy disseminated internationally
5	Prototype a systematic environmental monitoring process transferring learning from previous deployments to emerging technologies through a Critical Analysis Report	• Environmental Engineering design package to ensure positive environmental design attributes are incorporated in future technologies • Communication forum for sharing lessons learnt • Case studies on monitoring equipment effectiveness
6	Employ multiple monitoring methodologies to seek insight into: Fish Aggregation Device, artificial reef effects, fisheries displacement, disturbance due to physical presence	• Deploy environmental monitoring equipment on four wave energy devices • Monitor multiple device types over multiple years
7	Implementation of innovative research programme including the use of emerging sensors and new modelling techniques	• Overcome key research challenges and gaps identified • Lessons learnt regarding the effectiveness of mitigation, monitoring

		and management plans fed back into research programme • Best practice guidance on effective environmental monitoring and mitigation methodologies
8	Project outcomes fed into streamlined, risk-based planning and consenting procedures	• Exposure of project outcomes through consenting procedures used by regulators across Europe • Production of guidance on the recommended techniques for impact assessment • Translating good practice into policy workshop

Table 1: SEA Wave outputs

2 Project Execution

2.1 Project Organisation

The diagram below provides an overview of the organisational structure of the SEA Wave project.

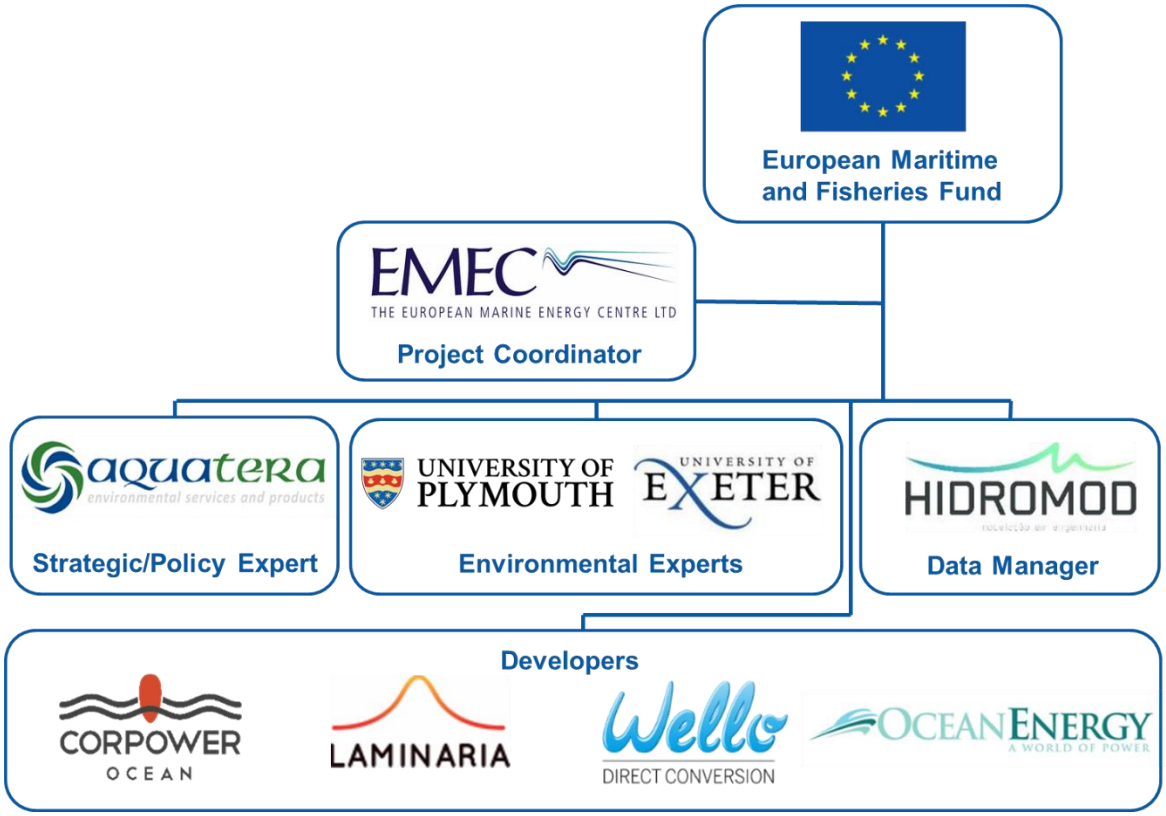

Figure 1: SEA Wave organisational structure

2.1.1 Project Coordinator

As Project Coordinator, EMEC will be responsible for the execution of the project in compliance with the Grant Agreement. This will involve overall supervision, regular follow up of progress across all work packages and point of contact with EASME EMFF Project Advisor.

2.1.2 Work Package Leader

Work package leaders are responsible for managing all activities within their work package and ensuring effective cooperation between project partners involved in the work package. They will be responsible for monitoring progress of tasks and deliverables within their respective work package. Work package leaders will supervise the activities within their work package and report progress to the Project Coordinator.

2.1.3 Project Team

Although employed by separate organisations, all project staff will work as a virtual team to the successful delivery of the SEA Wave project. The Project Coordinator is responsible for ensuring compliance with the Grant Agreement and for communication with the EASME EMFF Project Advisor. The Consortium Agreement sets out the obligations of the partners with respect to communication and cooperation.

2.2 Project Management Structure

SEA Wave project activities are distributed into six work packages (WPs), each one with a defined scope and objectives. The following diagram shows the overall project management structure for the project and denotes the partner responsible for leading each work package.

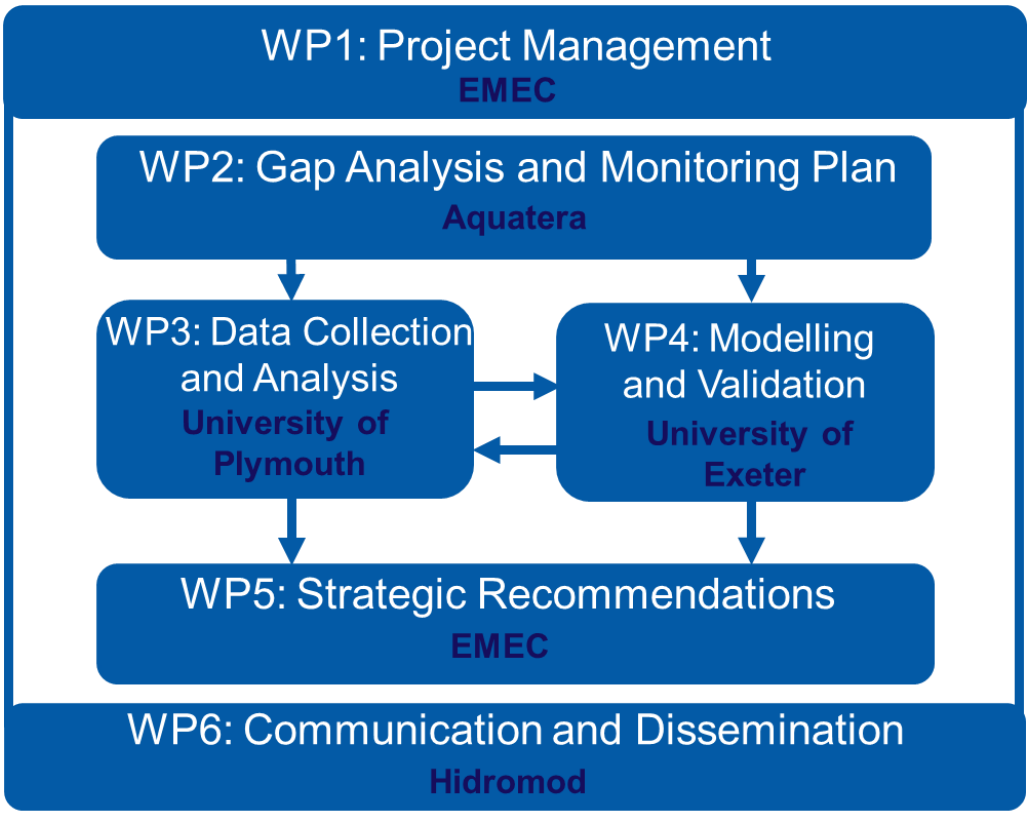

Figure 2: Work package structure including work package leaders

2.2.1 Project Plan

The Project Plan provides a central overview of the project work packages, tasks and deliverables. This will be made available to all project partners via the Project SharePoint and maintained by the Project Coordinator, EMEC. The Project Plan is based on the sign Grant Agreement. The Plan will be updated if any changes are made to the project, following the process set out in the Grant Agreement, Consortium Agreement and as advised by the Project Advisor.

2.2.2 Budget

The Grant Agreement sets out the financial provisions of the project. Each party receives funding relating to its share of the project via the Project Coordinator in accordance with the conditions set out in the Grant Agreement and Consortium Agreement.

Each partner is solely responsible for managing and justifying its costs with respect to the project in accordance with the Grant Agreement and Consortium Agreement.

Should any issues arise they should be communicated to the Project Coordinator as early as possible in order that they be resolved. Should this result in a requirement to change the budget, this will be done in conjunction with all partners and formal project change request submitted to the EASME EMFF Project Advisor by the Project Coordinator.

Each company within the project consortium should follow their own procurement policy if they have one in place otherwise follow their national procurement policy.

2.2.3 Deliverables and Quality Assurance

Deliverable will be coordinated by the respective work package leader and circulated to the Project Team for review prior to the deadline. Unless otherwise agreed, the Project Team will then have two weeks to comment before the document is finalised and submitted to the Project Coordinator. The lead author of each deliverable is responsible for proof-reading and technical review of reports.

The final version of all deliverables should be submitted in word and pdf format (where applicable) 48 hours prior to the deadline, taking account of weekends. The Project Coordinator is responsible for submitting the deliverable to EASME EMFF via the Project Advisor.

A list of deliverables is included in Appendix A and further details can be found in the Grant Agreement.

2.3 Risk Management

Risk management is an integral element of all activities within the SEA Wave project. Risks will be recorded in a project risk register. Guidance regarding the use of the project risk register and risk management policy utilised by the SEA Wave project is provided on the first sheet of the risk register.

SEA Wave project partners require to understand the implementation risks they face from the outset of the project. Risks at the implementation stage can include: potential modifications to project plan, partners dropping out, delays in delivery due to external factors influencing the project's implementation or difficulties with decision making.

A risk register has been developed for the project, which indicates, for each risk, when the risk is most likely to occur, the likelihood it will occur, the potential impact it could have on delivery, as well as the mitigation measures that are envisaged. To ensure that the project risk register remains valid and useful, the register focuses on the core of the project and only the most critical risks to the project or those most pertinent to project partners have been identified.

To be able to mitigate any potential risks to successful delivery, the project should carry out risk assessment and management throughout its lifetime. During the project partner meetings, the risk register will set as standing agenda item to be reviewed with the aim of identifying any new risks, assessing present risks, reviewing mitigation, management and monitoring measures and closing any redundant risks. Risks can be identified and added to the risk register at any stage during the project. The Project Coordinator should be notified of any risks added to the register, to ensure that a transparent assessment of the risk has been completed.

The risk register is a live document made available to all project partners via the Project SharePoint. The risk register is maintained by the Project Coordinator.

2.4 Performance Monitoring

Each project partner is responsible for monitoring their own expenditure against work progress and achievements. Work package leaders should monitor achievement of targets and deliverables within their respective project. The Project Coordinator is responsible for monitoring the overall project expenditure, achievement of targets/outputs and completion of deliverable to ensure delivery of the project to time, quality and budget.

3 Reporting

Reporting to EASME EMFF must be completed by SEA Wave project partners using the provided reporting forms. The Project Coordinator will ensure that all project partners have access to the reporting templates and provide support as necessary.

Reporting is required on a 6-monthly basis, in addition to an interim report due in Month 18 and final report due in Month 36. Further detail regarding each of the reports is provided below:

- Progress report (D1.4) – every 6 months –
    - Progress of work plan in the covered period
        - General progress
        - Progress against initial general and specific objectives
        - Identified deviations, problems and corrective actions
    - Work plan for the next period
        - Planned activities in the next reporting period
    - Other issues
- Interim report (D1.5) – Month 18 –

- Project objectives for period
- Work progress and achievements during the period
  - Highlight significant results/outputs
  - Explain deviations
- Deliverables and dissemination activities
  - Description of deliverables produced
  - Dissemination activities executed (proof may be required)
- Project Management
  - Tools, performance indicators
  - Problems experienced
  - Changes to legal status
- Subcontracting
- Forecast for next reporting period
  - Outlook on planned activities
  - Potential deviations
- Budget
  - Budget implementation assessment
  - Concerns – eligible coasts, distribution of budgets, etc
- Additional information

- Final report (D1.6) – Month 36 –
  - Same content as Interim Report
  - Final Publishable Summary Report – discussing results, conclusions and impacts

Expenditure reports, using the provided financial templates, should be submitted at Month 18 and Month 36.

3.1 Timeline

In order to ensure claims are processed efficiently, all partners are responsible for meeting the agreed deadlines. The Project Coordinator should be informed of any potential delays in order that these can be managed with minimal impact to other partners and the Project Advisor notified. Please note, the Project Coordinator combines all partner claims and submits to Project Advisor as one claim. Delays submitting the relevant evidence and claims in the correct format will potentially result in delays to all project partners.

4 Communication

4.1 Internal communication

Communication with the Project Team is essential to successful delivery of the project and all partners should ensure participation in discussions relating to project activities.

4.1.1 Email and telephone

Given that the Project Team is relatively small, communication channels will be kept simple. Emails, phone and skype calls may be used, including relevant team members as deemed necessary for the task. The outcome of these exchanges should be reported to the Project Coordinator / Project Team as required to keep the team appropriately up to date with progress and or changes to planned activities.

4.1.2 Progress Meetings

Unless otherwise agreed, the Project Coordinator will arrange progress meetings with work package leaders on a monthly basis to discuss key project activities. Every second month, all project partners will be invited to report on key project activities and developer testing schedules. In general, this meeting will be held using Skype for Business, though where it corresponds with project activities, the opportunity may be taken to hold it in person.

Whilst every effort will be made to ensure attendance by all partners (every second month), where this is not possible, absent partners will be given the opportunity to contribute to the discussion and challenge decisions made via email.

The chair (typically the Project Coordinator) will circulate an agenda in advance of the meeting, including details of any decision points to be made. All partners will have the opportunity to add to the agenda by sending an email to the chair, or through agreement at the beginning of the meeting.

The chair will ensure that a note of the meeting is produced and circulate to the Project Team. Agreed actions will be added to the project action tracker.

4.1.3 Consortium Meetings

SEA Wave project partners will meet in person at least once every 9 months. This meeting will be chaired by the Project Coordinator. The chair will circulate the draft agenda two weeks prior to the meeting. All partners will be given the opportunity to add to the agenda before the final document is issued one week before the meeting. Items may be added at the beginning of the meeting following agreement from all present.

The chair will ensure that minutes are produced and circulated to the partners for review via the Project SharePoint within two weeks of the meeting. These will be finalised two weeks thereafter including updates or amendments received from partners.

The following table provides indicative timing for Consortium Meetings.

Consortium Meeting	Period
Kick-off Meeting	November 2018
Consortium Meeting	July 2019
Interim Meeting	April 2020
Consortium Meeting	January 2021
Close-out Meeting	October 2021

Table 2: Consortium meeting timetable

4.1.4 File Repository

To facilitate the sharing of documents between project partners, a Microsoft SharePoint site has been set up: https://365emec.sharepoint.com/sites/SEAWave. The team site will act as a secure file repository and will only be accessible to members of the Project Team. All project partners can access the site to download and upload documents. It will also be used for document review, using either the edit online or edit in word function. This will allow amendments and comments to made on the same document simultaneously.

4.1.5 File naming conventions

To ensure document control, each document shall be uniquely identifiable together with its version using the following file naming convention:

[Date of creation YYYYMMDD]_[Short name]_[Partner Ref]_[Version No.]

Document names should be inserted into document footers. Where necessary, document should clearly be marked as 'DRAFT' by inserting a watermark in the document, and the word 'DRAFT' into the document title (for example 20181101_DRAFT Project Handbook_EMEC_0.1). Any feedback or alteration should be made directly on the document on the team site, using tracked changes and comments.

4.1.6 Document Review

Documents should be reviewed using Project SharePoint using either the edit online or edit in word functions. This synchronises automatically to the document on the SharePoint site and allows all partners to work from the same version. Should this not be possible due to software or connectivity, it is possible to work offline.

4.1.7 Draft document version number

The first draft of a document will be version 0.1. Subsequent drafts will have an increase of '0.1' in the version number, e.g. 0.2, 0.3, 0.4.

The version number should be managed by the document author, who will change a 1st draft to a 2nd draft when incorporating feedback and circulating for further comment.

4.1.8 Final document version number and date

The author will deem a document final after all reviewers have provided final comments and comments have been addressed appropriately. The final version of a document will be

Version 1.0. The date should be updated to date of finalisation. Subsequent versions of the final document with have an increase of '1.0' in the version number (e.g. 1.0, 2.0, 3.0, etc). If the document is under review, subsequent draft version will increase by '0.1', e.g. 1.1, 1.2, 1.3, etc. When the revised document is deemed final, the version will increase by '1.0' over the version being revised, e.g. the draft 1.3 will become a final 2.0.

Changes from the previous draft or final documents will be kept automatically on the Project SharePoint.

4.1.9 List of contacts

An overview of contact details for all project partners within the SEA Wave project will be maintained by the Project Coordinator and stored on the Project SharePoint site for use by all the project partners, as agreed at the project kick-off meeting.

4.2 External communication

4.2.1 EMFF Requirements

Acknowledgement of the EU funding is an obligation within all material disseminated (e.g. conferences, seminars, brochures, leaflets, posters, presentations) and must indicated that action has received funding from the Union and display the European Union emblem.

Any communication or publication that relates to the project must indicate:

- that it reflects only the author's view; and,
- that EASME is not responsible for any use that may be made of the information it contains.

There is a Communication Toolkit available online to support communication activities, please see here: https://ec.europa.eu/easme/en/communication-toolkit

4.2.2 Communication and Dissemination Plan

As part of work package 6, a Communication and Dissemination Plan will be developed and reviewed at regular intervals. The plan, in conjunction with the Communication and Dissemination action planner, will identify public relations and marketing opportunities, ideas for press releases to promote the project, its progress and its partner's inputs with recognition to the funders. The plan will also identify and coordinate activities in order to achieve the dissemination targets of the project.

All partners should identify opportunities for promoting the project and partners should be conscious to take photos and video throughout the course of the work packages to record evidence and imagery of the project successes and milestones.

4.2.3 Logo and branding

A new logo has been developed for the project and should be used on all project specific publications. The logo is available for download in different shapes and formats from the Project SharePoint site. To maintain consistency in branding, the logo should not be stretched, cropped, or altered in shape or colour.

Partner logos may also be used on project reporting templates and are available on the SharePoint site.

4.2.4 Web and social media

There will be a dedicated website page for the SEA Wave project hosted on the EMEC website. This page will contain high-level information about the project and documents relating to SEA Wave.

Any suggestions for updating the webpages should be sent to the Marketing and Communications Officer for the SEA Wave project at EMEC.

Further to the project webpage, information about the project and its developments will also be disseminate via the partner's websites.

The project will not have its own social media accounts, but the Communications Plan will include actions for dissemination across social media channels, and project partners are encouraged to share social media posts on their own channels to support dissemination.

4.2.5 Press releases

Press releases will be coordinated by EMEC to ensure consistency in messaging. Project partners should inform EMEC and other partners of any PR opportunities that may arise during the course of the project. Press releases will be circulated in draft version prior to publication to allow for feedback during a timeframe set out by the Marketing and Communications Officer. If no partner feedback is received within the stated timeframe, the press release will be published.

Once a press release has been issued by EMEC, project partners should share as appropriate via their own channels. Where relevant, partners may consider translating press releases in order to disseminate effectively to a wider audience.

4.2.6 Presentations

Any partners who are presenting on the SEA Wave project, should use the SEA Wave presentation template which will be made available on the Project SharePoint to ensure brand consistency.

4.2.7 Publications

All reports and publications produced as part of the SEA Wave project should be presented using the SEA Wave report template, where possible, which will be made available for download from the Project SharePoint website.

4.3 Templates

The following document templates will be developed and uploaded to the Project SharePoint site.

- PowerPoint presentation template – PowerPoint with preformatted slides to be used for presentations at conferences to ensure brand consistency.
- Report template – Word document with pre-set headings, formatting and project branding, to be used for project reports and any other formal deliverables.

Appendix A: Deliverables

Work Package	Del. Ref.	Deliverable	Lead	Month Due	Due Date
WP 1 – Project Management	D.1.1	Quality Plan for Project Management	EMEC	M3	31/01/2019
	D.1.2	Full Risk Register	EMEC	M3	31/01/2019
	D.1.3	Data Management Plan	HID	M6	30/04/2019
	D.1.4	Progress Reports	EMEC	M6, M12, M18, M24, M30	30/04/2019, 31/10/2019, 30/04/2020, 30/10/2020, 30/04/2021
	D.1.5	Interim Report	EMEC	M18	30/04/2020
	D.1.6	Final Report	EMEC	M36	29/10/2021
WP 2 – Gap Analysis and Monitoring Plan	D.2.1	Knowledge Gaps and Consenting Risks for Wave Energy	AQT	M6	30/04/2019
	D.2.2	Critical Analysis Report	AQT	M6	30/04/2019
	D.2.3	Environmental Demonstration Strategies	AQT	M12	31/10/2019
WP 3 – Data Collection and Analysis	D.3.1	Data portal updated with towed camera data	PLY	M16, M30	28/02/2020, 30/04/2021
	D.3.2	Data portal updated with video camera data	PLY	M16, M30	28/02/2020, 30/04/2021
	D.3.3	Data portal updated with processed fisheries acoustic survey data	EXE	M16, M30	28/02/2020, 30/04/2021
	D.3.4	Data portal updated with acoustic data	EXE	M16, M30	28/02/2020, 30/04/2021
	D.3.5	Guidelines on data collection, structuring and metadata	HID	M6	30/04/2019
WP 4 – Modelling and Validation	D.4.1	Report on the functional response of sessile and sedentary organisms to ocean energy technology	PLY	M33	30/07/2021
	D.4.2	Report on the functional response of mobile demersal and pelagic fauna to ocean energy technology	PLY	M33	30/07/2021
	D.4.3	Report on fisheries biomass response to ocean energy technology	EXE	M33	30/07/2021
	D.4.4	Report on quantifying ambient soundscapes at ocean energy technology developments	EXE	M33	30/07/2021
WP 5 – Strategic Recommendations	D.5.1	Best Practice Guidance on Effective Environmental Monitoring and Mitigation Methodologies	AQT	M27	29/01/2021
	D.5.2	Recommended Techniques for Impact Assessment	EMEC	M24	30/10/2020

	D.5.3	Guidance on Site Selection, Cumulative Impact Assessment and Co-Locating Sectors	AQT	M29	31/03/2021
	D.5.4	Recommendations for Ecosystem Enhancement Engineering	OEI	M35	30/09/2021
	D.5.5	Risk-Based Consenting Case Studies	AQT	M32	30/06/2021
	D.5.6	Array Feasibility Assessments	EMEC	M36	29/10/2021
WP 6 – Communication and Dissemination	D.6.1	Communication and Dissemination Plan	EMEC	M3	31/01/2019
	D.6.2	Project Website	EMEC	M4	28/02/2019
	D.6.3	Minutes from the Steering Group	AQT	M6, M12, M18, M24, M30	30/04/2019, 31/10/2019, 30/04/2020, 30/10/2020, 30/04/2021
	D.6.4	End of Project Workshop	AQT	M36	29/10/2021
	D.6.5	Data Platform	HID	M12, M24, M30	31/10/2019, 30/10/2020, 30/04/2021

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